SP Energy Networks
Transmission Owner Reinforcement Instruction (TORI)
Quarterly Update Report
Dec 16 to Mar 17

SPT-RI-001(a)	Beauly Denny 400kV Reinforcement
OVERVIEW OF WORKS Construction of a 400,000 volt double circuit overhead transmission line from Denny North to the SP Transmission/SHE Transmission boundary, forming part of a Supergrid connection from Denny North substation in the SP Transmission area to Beauly substation in the SHE Transmission area (via Braco, Errochty, Fort Augustus and Fasnakyle). One circuit on the new overhead line will operate at 400,000 volts, while the other will operate at 275,000 volts. This connection will replace that part of the existing Bonnybridge to Braco 132kV double circuit overhead line within the SP Transmission area Construction of Denny North 400,000/ 275,000/ 132,000 volt substation.	
Programme	Completion:- July 2016 DENN-BONN 132kV infeed Beauly to Denny 275kV/400kV circuit energised Nov 2015 Visual mitigation and 132kV wirescape rationalisation works completion planned for completion March 2019
Progress	Design & Consenting Complete Detailed Engineering Complete Tendering Complete Construction SGT3 circuit energised August 2016. 1st phase of visual mitigation concluded. 2nd Phase in tender. Removal of 132kV existing overhead line to commence - programme under review due to potential access restrictions to highway by Stirling Council Contracts awarded for 132kV cable works in July 2016 – now has to be retendered due to commercial issue with contractor. Pending award process subject to clarification on access to roads around Stirling. New 275kV circuit energised 9th November 2015 New 400kV circuit energised 19th November 2015 Link to related info http://www.spenergynetworks.co.uk/pages/beauly_denny_overhead_line_upgrade.asp

SPT-RI-003	Denny-Strathaven 400kV Reinforcement ENSG Central Scheme

OVERVIEW OF WORKS

Construct a new 400,000 Volt double circuit overhead line from Bonnybridge to Newarthill and reconfigure associated sites to establish a fourth north to south double circuit Supergrid route through the Scottish central belt.
One side of the new overhead line will operate at 400,000 Volts, the other at 275,000 Volts. This reinforcement will establish Denny-Bonnybridge, Bonnybridge-Wishaw, Wishaw-Strathaven No.2 and Wishaw-Torness 400,000 Volt circuits, and a Denny-Newarthill-Easterhouse 275,000 Volt circuit.

Programme	Completion:- October 2027 (Earliest In Service Date)
Progress	Design Ongoing subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Consenting Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Detailed Engineering Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Tendering Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Construction Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Commissioning/Close Out Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Link to related info http://www.spenergynetworks.co.uk/pages/east_coast_400kv_reinforcement_project.asp

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.

Programme	Completion:- October 2022 (Earliest In Service Date)
Progress	Design Early Engineering Design complete, detailed design ongoing Consenting Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Detailed Engineering Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Tendering Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Construction Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Commissioning/Close Out Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Link to related info http://www.spenergynetworks.co.uk/pages/east_coast_400kv_reinforcement_project.asp

SPT-RI-022	Black Hill 132 kV Substation- Glenglass 132kV Substation OHL and Glenglass 132kV S/S

OVERVIEW OF WORKS

Construction of a new 132kV double circuit between Blackhill and Glenglass substations. At Blackhill substation two new 132kV bays will be established, the bays will connect to the terminal tower via a cable section approximately 300m in length, cable sealing end compounds will be established at the tower base. A new L7 132kV overhead line approximately 13km in length to Glenglass substation will be established. Glenglass substation will incorporate two 132/33kV 90MVA transformers and 33kV switchboard (single busbar) with a bus-section. These works will be required in response to new generation connections in the vicinity of Glenglass Substation.

Programme	Completion:- Sept 2017
Progress Link to related info http://www.spenergynetworks.co.uk/pages/south_west_scotland_connections_project.asp	Design Complete. Consenting: Complete. Access road upgrade to Glenglass substation complete. All OHL Land agreements secured Quarry planning consent conditions discharged. Detailed Engineering SI's and tower micro-siting works complete. Tendering OHL / tree cutting / platform / transformer / switchgear / substation civil / electrical contracts placed. Construction Site tree cutting activities continue by SP contractor / 80m OHL route corridor now cleared. Electrical installation works at Glenglass in progress / civil and building work continue / transformers delivered to site.. OHL Access construction continues . OHL Foundations works continue Quarry operations continue at Wellhill Quarry / Gallowrig Quarry mobilisation continues. Commissioning/Close Out Sept 2017 planned energisation date.

SPT-RI-028	**North Argyll Reinforcement: Dalmally Windyhill 275kV Reconfiguration**

OVERVIEW OF WORKS

As part of its non-load related asset modernisation programme, SPT will replace and reconfigure Dalmally 275kV substation to a double busbar arrangement (Scope 1).

As part of its non-load related asset modernisation programme, SPT will uprate the overhead line conductor between Dalmally and Windyhill (Scope 2).

As part of a joint SPT/ SHE Transmission project to reinforce the transmission network in north Argyll and accommodate proposed renewable generation schemes, SPT will extend Dalmally 275kV Substation and install two new double busbar bays to provide SHE Transmission with two 275kV points of connection at Dalmally 275kV Substation (Scope 3).

Programme	Completion:- Scope 1 April 2017 Scope 2 November 2018 Scope 3 October 2021
Progress	Design Scope 1: Complete Scope 2: Complete Scope 3: In progress Consenting Scope 1: Not required Scope 2: Complete Scope 3: Not commenced Detailed Engineering Scope 1: Complete Scope 2: Complete Scope 3: Not commenced Tendering Scope 1: Complete Scope 2: Complete Scope 3: Not commenced Construction Scope 1: No. 2 Side complete. No.1 side commenced March 2016

	Scope 2: In progress, approx. 85% complete Scope 3: Not commenced Commissioning/Close Out Scope 1: No.2 side commissioned. No 1 side scheduled for April '17 Scope 2: Scheduled for Oct '18. Scope 3: Not commenced

SPT-RI-034	Margree 132_33kV Collector Substation

OVERVIEW OF WORKS

A 132/33kV substation will be established, adjacent to Margree wind farm, near St Johns Town of Dalry, in Dumfries and Galloway. The substation will be connected to a new 132kV circuit from New Cumnock 275/132kV substation (SPT-RI-111). It will provide a local 33kV point of connection for renewable generation in the area.

Programme	Completion:- On Hold (under review / pending Mod App for Margree W/F)
Progress	Design - Complete. Consenting: Complete Notice issued to Energy Consents Unit and Local Authority confirming intention to construct OHL through Margree pending Confirmation of connection date for Margree, Margree substation lease concluded. Access road widening Margree substation negotiations concluded to secure rights to widen access road. Legal agreements progressing to be completed with 1 remaining landowner. Detailed Engineering Complete Tendering On hold Construction Under review Commissioning/Close Out Under review Link to related info http://www.spenergynetworks.co.uk/pages/blackcraig_and_margree_132kv_grid_connection.asp

SPT-RI-111	New Cumnock – South West 132kV Reinforcements

OVERVIEW OF WORKS

The Kendoon to Maybole T 132kV single circuit will be mostly decommissioned and a new high capacity 132kV double circuit will be established out of New Cumnock substation. The new double circuit will run from New Cumnock to a point approximately 3km north of Kendoon substation where the two circuits will run separately from this point. One circuit will connect to the existing line to Kendoon whilst the second will continue to Margree substation. At New Cumnock substation a new single busbar 132kV board will be established (Board B) to connect two new 275/132kV 240MVA auto transformers to the 275kV system.

Programme	Completion:- Aug 2017
Progress	Design Complete. Consenting: complete OHL Land agreements to secure from 1 x remaining landowner, terms agreed progressing through legal process targeting March conclusion. Planning permission secured for quarries. Detailed Engineering Final SI's and tower micro-siting continue following tree clearing works (90% route complete / balance pending agreement with 1 x remaining landowner). Tendering OHL / tree cutting / platform / transformer / civil and switchgear / electrical work contracts placed. Tendering in progress for Dalshangan cable works. Construction Site tree cutting activities continue by SP contractor / 80m OHL route corridor now cleared (excluding section where land agreement still to be secured.. Access works commenced 59% of total complete. Foundation works commenced 30% of total foundations complete

	Commissioning/Close Out Sep 2017 planned energisation date. Link to related info http://www.spenergynetworks.co.uk/pages/south_west_scotland_connections_project.asp

SPT-RI-114	New Cumnock 132kV Substation to Dun Hill 132/33kV Substation
OVERVIEW OF WORKS Construction of a double circuit 132kV steel tower line (approx. 15km) from 132kV New Cumnock Collector Substation, heading east, to 132kV Dun Hill Substation tee off. These works will be required in response to new generation connections in the vicinity of Dun Hill Substation.	
Programme	Completion:- April 2017
Progress	Design – Complete Consenting - Complete Detailed Engineering SI's and tower micro-siting complete. Tendering OHL / tree cutting / transformer / switchgear / civil / cable / electrical works contracts placed. Construction Site tree cutting activities continue by SP contractor / 80m OHL route corridor now cleared. Access works commenced 80% complete. Foundation works commenced 51% foundations complete Commissioning/Close Out Targeting recover of programme currently anticipating May l 2017 energisation date. Link to related info http://www.spenergynetworks.co.uk/pages/south_west_scotland_connections_project.asp

SPT-RI-115	Dun Hill 132kV substation to Black Hill 132/33kV Substation

OVERVIEW OF WORKS

Construction of a double circuit 132kV steel tower line (approx. 1.5km) from 132kV Dun Hill Substation, heading east, to 132kV Black Hill Substation. Black Hill Substation will include three new 132kV circuit breakers (double busbar). These works will be required in response to new generation connections in the vicinity of Black Hill Substation.

Programme	Completion:- August 2017
Progress	Design – Complete Consenting - Complete Detailed Engineering SI's and tower micro-siting complete. Tendering OHL / tree cutting / transformer / switchgear / civil / cable and electrical installation contracts placed. Construction Site tree cutting activities continue by SP contractor / 80m OHL route corridor now cleared. Access works commenced 80% complete. Foundation works commenced 51% foundations complete Commissioning/Close Out Platform works complete at Blackhill GIS building complete and GIS installation in progress. 4 x 132/33kV transformers pre-commissioning in progress. Link to related info http://www.spenergynetworks.co.uk/pages/south_west_scotland_connections_project.asp

SPT-RI-116A	Black Hill 132_33kV Collector Substation 33Kv

OVERVIEW OF WORKS

Construction of Black Hill 132/33kV Substation including two 132kV circuit breaker bays (double busbar), two 132/33kV 90MVA transformers and 33kV double busbar switchboard (Board A). These works will be required in response to new generation connections in the vicinity of Black Hill Substation.

Programme	Completion:- August 2017
Progress	Design Complete. Consenting- complete Tendering Platform / transformer /switchgear / GIS building / civil and electrical contracts placed. Construction GIS building complete and GIS installation in progress. 2 x 132/33kV transformers pre-commissioning in progress. Commissioning/Close Out Aug 2017 planned energisation date. Link to related info http://www.spenergynetworks.co.uk/pages/south_west_scotland_connections_project.asp

SPT-RI-116B	Black Hill 132_33kV Collector Substation 33kV B Board
OVERVIEW OF WORKS Construction of Black Hill 132/33kV Substation including two 132kV circuit breaker bays (double busbar), two 132/33kV 90MVA transformers and 33kV double busbar switchboard (Board B). These works will be required in response to new generation connections in the vicinity of Black Hill Substation.	
Programme	Completion:- August 2017
Progress	Design Complete. Consenting- complete Tendering Platform / transformer /switchgear / GIS building / civil and electrical contracts placed. Construction GIS building complete and GIS installation in progress. 2 x 132/33kV transformers pre-commissioning in progress. Commissioning/Close Out Aug 2017 planned energisation date. Link to related info http://www.spenergynetworks.co.uk/pages/south_west_scotland_connections_project.asp

SPT-RI-120	Scotland-England Interconnection – Series Compensation (Eccles/Moffat/Gretna)

OVERVIEW OF WORKS

The insertion of series capacitors into existing 400kV transmission circuits to reduce overall circuit reactance and consequently improve transient stability performance and steady state voltage performance.

Power system analysis confirms that reducing the reactance of the circuits on the following overhead line routes, by approximately 35%, is sufficient to raise the transient stability limit on the Scotland-England interconnection towards the 4400MW thermal capability:

- Strathaven-Harker 400kV double circuit;
- Eccles-Stella West 400kV double circuit; and
- Harker-Hutton 400kV double circuit (NGET).

This assumes the Strathaven-Wishaw-Kaimes-Smeaton 275kV circuits are uprated to 400kV operation as described in SPT-RI-121.

Programme	Completion:-Series Compensation Equipment August 2016 Associated Protection Works Completion September 2017
Progress	Design Complete Consenting Complete Detailed Engineering Complete Tendering Complete Construction All Series Compensation Platforms now complete. Moffat and Gretna units are in service. Associated Protection Works Completion in progress. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-121	Strathaven-Torness East/West 400kV upgrade
OVERVIEW OF WORKS The existing Strathaven-Wishaw, Wishaw-Kaimes and Kaimes-Smeaton 275kV circuits will be reconfigured and uprated to 400kV operation. A second cable per phase will be installed on the Torness-Eccles 400kV circuits.	
Programme	Completion:- August 2017
Progress	Design Complete Consenting Consents complete Detailed Engineering Complete Tendering Complete Construction The 400kV cable works for the Torness – Eccles circuits have commenced and will be commissioned in August 2017 to align with Torness reactor outage window. Commissioning/Close Out In progress Link to related info http://www.spenergynetworks.co.uk/pages/east_west_400kv_reinforcement_project.asp

SPT-RI-123	**West Coast HVDC Link**
OVERVIEW OF WORKS Installation of a 2.25GW predominantly submarine HVDC link (the Western HVDC Link) from a new 400kV substation in the Hunterston area in Scotland to Deeside 400kV substation in England. A new 400kV GIS substation, known as Hunterston East 400kV Substation, will terminate the northern end of the Western HVDC Link.	
Programme	Completion:- Summer 2017
Progress	Design & Consenting Complete Detailed Engineering Complete Tendering Complete Construction At Converter Station Civil Ground works – Complete Buildings – 90% Complete Manufacturing –Complete GIS Switchgear Installation – Complete Converter Transformers Installation - Complete Scotland Cables Onshore Cables - 80% Complete Marine Cables (Scotland) – Commence Winter 2016 (due to re-scheduling the order of campaigns) Commissioning/Close Out Stage 1 Commissioning Commenced Completion Summer 2017 Link to related info http://www.spenergynetworks.co.uk/pages/western_hvdc_link.asp

SPT-RI-124	400kV GIS substation in Torness Area

OVERVIEW OF WORKS

A new 400kV double busbar substation, utilising Gas Insulated Switchgear (GIS), will be established in the vicinity of Torness. This new substation, known for the purposes of this TO Reinforcement Instruction as 'Branxton 400kV Substation', and associated plant and apparatus, will provide four Transmission Interface Points to which the Firth of Forth offshore transmission system assets will connect.

Programme	Completion:- April 2023 (On Hold)
Progress	Design Early design phase currently on hold Consenting Initial site selection works completed and to be reviewed on recommencement of the project Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-125	Thornton Bridge Torness Cables
OVERVIEW OF WORKS Following an outage of the Smeaton / Fallago 400kV circuit or the Smeaton SGT2 transformer, the existing 400kV cable between Torness / Crystal Rig may become overloaded. To prevent an overload on the Torness / Crystal Rig 400kV cable circuit, it is proposed that this Thornton Bridge / Torness 400kV cable will be uprated.	
Programme	Completion:- June 2019 (under review)
Progress	Design Early engineering design phase in progress Consenting Identifying affected landowners and enabling initial discussions Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-130	**Strathaven – Smeaton**

OVERVIEW OF WORKS

The overhead line conductor system on the existing 11.6km 400,000 Volt double circuit route from Strathaven to Wishaw (XH route) will be replaced with a conductor system of increased thermal rating.

The overhead line conductor system on the existing 61.8km 400,000 Volt double circuit route from Wishaw to Smeaton (XJ route) will be replaced with a conductor system of increased thermal rating.

The existing XH and XJ overhead line routes are equipped with twin 400mm^2 ACSR (Zebra) conductor operating at 50^{o}C. The replacement conductor system is subject to ongoing consideration.

These works will not modify the prevailing circuit configuration.

Programme	Completion:- On Hold
Progress	Design Due to changes in contracted background, design review is required. Project on hold until review complete. Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/east_west_400kv_reinforcement_project.asp

SPT-RI-131	Branxton – Eccles

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 700mm^2 AAAC (Araucaria) conductor operating at 75°C. The maximum operating temperature of the conductor system will be increased from 75°C to 90°C.

These works will not modify the prevailing circuit configuration.

Programme	Completion:- On Hold
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/east_west_400kv_reinforcement_project.asp

SPT-RI-132	**Strathaven – Harker**

OVERVIEW OF WORKS

The overhead line conductor system on the existing 115.6km 400,000 Volt double circuit route from Strathaven to the SP Transmission / National Grid border, via Coalburn, Elvanfoot and Moffat (ZV route), will be replaced with a conductor system of increased thermal rating.

The existing ZV overhead line route is equipped with twin 500mm^2 AAAC (Rubus) conductor operating at 75^{o}C. While the replacement conductor system is subject to ongoing consideration, it is assumed at this time to be twin 2x620mm^2 Matthew GZTACSR.

These works will not modify the prevailing circuit configuration.

Programme	Completion:- On Hold
Progress	Design Due to changes in contracted background, design review is required. Project on hold until review complete. Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/east_west_400kv_reinforcement_project.asp

SPT-RI-137	Torness/Innerwick/Dunbar 132kV Reinforcement

OVERVIEW OF WORKS

It is proposed to reinforce the Torness/Innerwick/Dunbar No.1 and No.2 132kV circuits, consisting of tower lines and underground cables, to provide a minimum pre-fault summer rating of 165MVA per circuit. For the overhead line section, it is anticipated that reconductoring to achieve the proposed rating will be carried out.

It is also proposed to reinforce the existing 132kV busbars/isolators at Innerwick 132kV substation to accommodate the minimum rating of 165MVA of the reinforced circuits.

Programme	Completion:- October 2021
Progress	Design Early engineering design Consenting Early consenting phase Detailed Engineering Still to be commenced Tendering Still to be commenced, Construction Still to be commenced, anticipated start date Q2 2020 Commissioning/Close Out Still to be commenced, completion date October 2021 Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-143	Kilmarnock South Substation 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:- November 2019
Progress	Design Complete Consenting Complete Detailed Engineering Progressing following completion of the initial engineering design phase. Tendering GIS building contract awarded. Balance of plant and cabling contracts going through final tendering process prior to award. Construction Main civil enabling works nearing completion – slightly delayed due to ground conditions. 275kV GIS building works has commenced Commissioning/Close Out Still to be commenced, completion date November 2019. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-144	**Coalburn SGT3**

OVERVIEW OF WORKS

At Coalburn 400/132kV substation a 360MVA 400/132kV transformer (SGT3) will be installed. In addition, a bus section/coupler circuit breaker arrangement will be installed on the Coalburn 400kV Main busbar, and Coalburn 132kV Reserve busbar, in order to provide three separate 400kV and 132kV busbar sections to which the supergrid transformers may connect.

Installation of SGT3 will increase the firm transformer capacity between the Coalburn 400kV and 132kV busbars to 480MVA, to provide additional thermal capacity for renewable generation contracted to connect to the Coalburn 132kV network, and also facilitate the extension of the substation if a fourth supergrid transformer (SGT4) is required to provide additional thermal capacity.

Programme	Completion:- October 2019
Progress	Design Initial engineering design phase complete and now progressing through the detailed engineering phase. Consenting - No consents required Detailed Engineering Progressing following completion of initial engineering design Tendering Tender in progress for 360MVA 400/132kV transformer contract award due June 2017 – on track Civil Contract Award February 2018 Protection and Control and Main Plant Contract Award due April 2018. Construction Still to be commenced, anticipated start date Q2 2018 Commissioning/Close Out Still to be commenced. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-145	Dun Hill 132/33kV Collector Substation 33kV
OVERVIEW OF WORKS Construction of Dun Hill 132/33kV Substation including three 33kV circuit breakers, two 132/33kV 90MVA transformers and 33kV switchboard (double busbar). These works will be required in response to new generation connections in the vicinity of Dun Hill Substation.	
Programme	Completion:- May 2017
Progress	Design Complete Consenting Complete Detailed Engineering Complete Tendering Main contracts placed. Construction Targeting to be ready for energisation at the end of April – subject to TORI 114 completion. Commissioning/Close Out Planned Energisation of 1st Grid Transformer is April 2017 Link to related info http://www.spenergynetworks.co.uk/pages/south_west_scotland_connections_project.asp

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 wood pole overhead lines and also 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.

Programme	Completion:- August 2022
Progress	Design Early engineering design phase Consenting Route option studies now complete, public consultation expected Q3 2016. Detailed Engineering Still to be commenced Tendering Environmental consultancy contract awarded Construction Still to be commenced, anticipated start date Q2 2020 Commissioning/Close Out Still to be commenced, completion date August 2022 Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-151	Galashiels to Eccles 132kV Overhead Line Rebuilding

OVERVIEW OF WORKS

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

In order to provide GBSQSS compliant connections for additional generation requiring to export from 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 will provide the following minimum circuit ratings:

	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

Programme	Completion:- July 2023
Progress	Design Early engineering design phase. Consenting Early environmental works progressing Detailed Engineering - Still to be commenced Tendering - Environmental consultancy tender in progress Construction - Still to be commenced, anticipated start date Q2 2021 Commissioning/Close Out - Still to be commenced, completion date July 2023 Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-154	Glenluce to Newton Stewart 132kV Overhead Line Reconductoring

OVERVIEW OF WORKS

The amount of generation has reached a level where the thermal rating of the 132kV double circuit between Glenluce and Newton Stewart is exceeded (currently 86MVA, summer) and these circuits are therefore required to be uprated and to ensure compliance with the NETS SQSS.

The existing two 132kV circuits between Glenluce and Newton Stewart are on double circuit tower lines and 132kV underground cable sections (for the overhead line termination at Newton Stewart end). The entire circuit route consists of BT Route (22km), towards Newton Stewart. These overhead line circuits are single 175mm^2 ACSR with a pre-fault summer rating of 86MVA. The total length of the entire circuit is ~22km.

It is proposed to reconductor the 132kV circuits with 200mm^2 Poplar AAAC conductor on the existing double circuit tower lines between Glenluce and Newton Stewart. The new circuit will provide the following circuit ratings:

	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

Programme	Completion:- October 2023
Progress	Design - Early engineering design phase 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, completion date October 2023 Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-155	Coalburn –Linnmill No.1 132kV Underground Cable Reinforcement

OVERVIEW OF WORKS

There are two 132kV circuits from Coalburn 132kV substation which supply Linnmill 132/33kV Grid Supply Point (GSP). From Coalburn. Each Linnmill 132kV circuit has an initial 3.2km 300mm Cu underground cable section (rated at 123MVA summer continuous and 141MVA cyclic). These connect to a 132kV tower line with each circuit having a 302MVA summer pre- fault continuous rating (ex 275kV circuit).

Contracted renewable generation at Linnmill GSP has reached a level where the thermal uprating of the 132kV underground cable section, on the Coalburn to Linnmill GSP No.1 132kV circuit, is required to ensure compliance with the NETS SQSS. (Blacklaw Extension wind farm (69MW) is contracted to connect to the Coalburn to Linnmill No.1 circuit, resulting in this circuit's thermal limit being reached before the No.2 circuit).

It is proposed to replace the 3.2km 132kV underground cable section, on the Coalburn to Linnmill No.1 132kV circuit, with a 2000mm Cu XLPE cable having a continuous summer rating of 1285A (293MVA).

Programme	Completion:- October 2017 *
Progress	Design Initial engineering design phase complete, now progressing through detailed engineering. Consenting Detailed discussions with landowners still progressing however voluntary consents now looking unlikely commencement of the statutory process to begin Q2 2017. * Requirement for Statutory process would delay completion date to October 2019 Detailed Engineering Progressing detailed engineering following completion of the initial engineering design phase. Tendering Engineering design and project management contract awarded. Tendering for main plant and cable works now delayed due to consenting issues. Construction Still to be commenced, anticipated start date Q2 2017 now being reviewed based on consenting issues. Commissioning/Close Out

	Still to be commenced, completion date October 2017 now being reviewed based on consenting issues. Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-156	Galashiels T1 & T2 132/33kV Transformer Reinforcement

OVERVIEW OF WORKS

At Galashiels GSP the existing GRID T1 and GRID T2 transformers are 45MVA 132/33kV units which have both been identified as being due for replacement during the RIIO-T1 period.

It is proposed to replace the two existing 45MVA 132/33kV grid transformers with two 90MVA grid transformers, and to replace all associated equipment (e.g. Neutral earthing resistors, Auxiliary/Earthing transformers). In addition, the GRID 1 and 2 33kV circuit breakers will be replaced.

N.B. It is proposed to locate the new T1 & T2 grid transformers in the areas vacated by the existing T1 & T2 grid transformers. This will result in an online build approach for the replacement of both grid transformers.

Programme	Completion:- September 2018
Progress	Design Complete Consenting N/A Detailed Engineering Complete Tendering Civils contracted placed Q1 2016. Construction Construction will commence April 2017 Commissioning/Close Out GT2 – Q3 2017 GT1 – Q3 2018 Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-158	New Cumnock 275kV Transformers Uprating

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. In order to mitigate these issues, it is proposed to separate Board A into Boards A and C whereas Board B remains. Cabling and transformers connections for Boards A and B will also be reconfigured as follows:

Board A: 3 × 275/132kV SGT1A, SGT2A and SGT3A 240MVA auto wind transformers, providing a total firm capacity of 720MVA

Board B: 3 × 275/132kV SGT1B, SGT2B and SGT3B 240MVA auto wind transformers, providing a total firm capacity of 720MVA

Board C: 2 × 275/132kV SGT1C and SGT2C 240MVA auto wind transformers, providing a total firm capacity of 480MVA

This will mitigate the fault level issue and provide sufficient transformers capacity for the current overall contracted generation into New Cumnock (the contracted generation position in South West Scotland as indicated in March 2014).

These works will follow completion of the SPT-RI-134 'Kendoon North 132kV collector substation and New Cumnock 275/132kV Transformer'. It is anticipated that the works will be completed in Q4 2020.

Programme	Completion:- October 2020 (programme under review)
Progress	Design Early engineering design phase in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Engineering and project management contract awarded Construction Still to be completed, anticipated start date May 2019 based on

	the revised contracted position allowing for a delay to these works and a reduction in the spend profile. Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-161	Chapelcross 132kV Overload Protection Scheme

OVERVIEW OF WORKS

Installation of an Energy Management (Overload Protection) Scheme at Chapelcross 132kV substation. The scheme will issue a signal to SP Distribution and /or SP Transmission to disconnect the appropriate generators if the pre-fault continuous rating of any of the following circuits is exceeded:

1) Chapelcross to Harker 132kV circuit
2) Chapelcross to Gretna No.1 132kV circuit
3) Chapelcross to Gretna No.2 132kV circuit

Programme	Completion:- Complete
Progress	Design Initial engineering design complete Consenting No consents required Detailed Engineering Detailed engineering complete Tendering Cabinet tender complete E&C contract tender awarded Q1 2016. Construction Site works commenced August 2016 Commissioning/Close Out Still to be commenced, completion date 7th November 2016 Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-162	Coylton 275kV Infrequent Infeed Loss Risk Protection Scheme
OVERVIEW OF WORKS A protection scheme will be installed at Coylton 275kV substation, on the Ayr/Kilmarnock South No.1 and No.2 275kV circuits (XY Route), such that if a level of power flow from Coylton to Kilmarnock South is detected which may result in the Infrequent Infeed Loss Risk (as defined in the NETS Security and Quality of Supply Standard) being exceeded, a trip signal will be provided to SP Transmission and/or SP Distribution to disconnect generation as required such that the Infrequent Infeed Loss Risk is not exceeded.	
Programme	Completion:- March 2018
Progress	Design Initial engineering design complete Consenting No consents required Detailed Engineering Detailed engineering complete Tendering Cabinet tender complete E&C contract placed Q1 2016. Construction Still to be commenced. Commissioning/Close Out Still to be commenced. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-168	Gretna SGT1 (2) Protection Scheme
OVERVIEW OF WORKS Installation of a protection scheme at Gretna 400/132kV substation. The scheme will issue a signal to SPD and /or SPT to disconnect the appropriate generators if either SGt1 or SGT2 is overloaded or if both transformers are out of service (following planned or unplanned outages).	
Programme	Completion:- May 2018
Progress	Design Initial engineering design complete Consenting No consents required Detailed Engineering Detailed engineering complete Tendering Cabinet tender complete E&C contract placed Q1 2016. Construction Still to be commenced. Commissioning/Close Out Still to be commenced. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-170	Tongland 132-33kV GSP Reinforcement

OVERVIEW OF WORKS

At present, Tongland Grid Supply Point is supplied by two 132/11kV grid transformers which feed two 11kV boards, Tongland Hydro generation, Tongland 11kV Distribution and two outgoing feeders. Each of the two outgoing feeders is connected to two step-up 11/33kV 10MVA transformers, with 40MVA capacity in total supplying the 33/11kV primary substations (Castle Douglas, Dalbeatie and Gatehouse). The 30MVA 132/11kV transformers have reached the thermal capacity limit and the GSP is required to be reinforced.

It is proposed to commission a new 33kV GSP at Tongland substation to provide a system that is consistent with standard design and provides sufficient capacity and flexibility for the future.

Programme	Completion:- October 2017
Progress	Design In Progress Consenting Planning consent approved. SEPA CAR license applied for Detailed Engineering In Progress Tendering Civil contract awarded Q1 2016 Construction Commenced date March 2016 Commissioning/Close Out Phased commissioning between Q3 2016 and Q3 2017 Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-173	Glenglass 132kV Double Busbar Substation

OVERVIEW OF WORKS

At the proposed Glenglass 132kV Substation, the current design is a single busbar on the No.1 and No.2 Glenglass 132/33kV transformers with a bus section.

There is currently 246MW (259MVA, including 132kV and 33kV connections) contracted at the proposed Glenglass 132kV Substation. In order to facilitate the currently contracted 132kV generation connections at Glenglass 132kV Substation, it is proposed to install a new 132kV eight bays, GIS double busbar at Glenglass. The new eight bay double busbar substation will provide two 132/33kV transformers, two 132kV incomers, one 132kV bus coupler and three 132kV circuit breakers for the contracted wind farms.

Programme	Completion:- October 2020
Progress	Design Early Engineering design phase progressing Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced, anticipated start date Q4 2018 however current review off the contracted position may allow for a delay to these works to reduce the spend profile. Commissioning/Close Out Still to be commenced, completion date October 2020 however current review off the contracted position may allow for a delay to these works to reduce the spend profile. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

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 North substations to trigger tripping signals to generators connected at these substations.	
Programme	Completion:- October 2020
Progress	Design Early engineering design phase. Consenting No consents required Detailed Engineering Still to be commenced Tendering Still to be commenced. Construction Still to be commenced. Commissioning/Close Out Still to be commenced. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-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.

Programme	Completion:- October 2020
Progress	Design Early engineering design phase Consenting No consents required Detailed Engineering Still to be commenced Tendering Still to be commenced, anticipated Q2 2019 for Cabinet contract Construction Still to be commenced, anticipated October 2020 Commissioning/Close Out Still to be commenced, anticipated October 2020 Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-179	Coalburn –Linnmill No.1 132kV Underground Cable Overload Protection

OVERVIEW OF WORKS

There are two 132kV circuits from Coalburn 132kV substation which supply Linnmill 132/33kV Grid Supply Point (GSP). From Coalburn. Each Linnmill 132kV circuit has an initial 3.2km 300mm Cu underground cable section (rated at 123MVA summer continuous and 141MVA cyclic). These connect to a 132kV tower line with each circuit having a 302MVA summer pre- fault continuous rating (ex 275kV circuit).

Contracted renewable generation at Linnmill GSP has reached a level where the thermal rating of the 132kV underground cable section, on the Coalburn to Linnmill GSP No.1 132kV circuit, may be exceeded.

At Coalburn 132kV substation, it is proposed to install overload protection on the Linnmill No.1 132kV circuit such that, if an overload is detected, a trip signal will be sent to Linnmill GSP for SP Distribution to disconnect the appropriate generation to remove the overload.

Programme	Completion:- Complete
Progress	Design Initial engineering design complete Consenting No consents required Detailed Engineering Detailed engineering complete Tendering Complete Construction Complete Commissioning/Close Out Complete Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-181	**Coalburn – Kype Muir 132kV Circuit**
OVERVIEW OF WORKS A 132kV switchbay will be installed at Coalburn substation. From this a 132kV circuit, consisting of 17km underground cable, and associated fibre optic cable, will be installed to the Kype Muir Collector Substation where a 132kV switchbay will be installed to terminate the circuit. This will facilitate the connection of generation around the Kype Muir Wind Collector Substation area.	
Programme	Completion:- September 2018
Progress	Design Initial engineering phase complete Consenting Progressing discussions with landowners – consents in place. Detailed Engineering Progressing through detailed engineering phase following completion of the initial engineering phase Tendering Cable and Substation contracts due to be placed Q2 2017 – on programme(tenders issued for cable civil/supply) Construction Still to be commenced, anticipated start Q2 2017 – on programme Commissioning/Close Out Still to be commenced, completion date September 2018 Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-185	Galashiels 132kV/Dunlaw Extension 132kV Overload Protection Scheme

OVERVIEW OF WORKS

Installation of an Energy Management (Overload Protection) Scheme at Galashiels 132kV substation and Dunlaw Extension substation to monitor the following circuits:

1) Galashiels to Eccles No.1 132kV Circuit
2) Galashiels to Eccles No.2 132kV Circuit
3) Dunlaw Extension to Smeaton 132kV Circuit

If the seasonal post-fault rating of these circuits is exceeded a trip signal will be issued to SPT at Dunlaw Extension 33kV substation to disconnect the appropriate generation to remove the overload.

Programme	Completion:- June 2020
Progress	Design Initial engineering 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, completion date June 2020 Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-188	Galawhistle Wind Farm Collector Substation T2
OVERVIEW OF WORKS At the Galawhistle Wind Farm substation, a 132/33kV 120MVA transformer (T2) and associated disconnector will be installed to provide connection for renewable generation in the area.	
Programme	Completion: - October 2019 – On hold.
Progress	Design Initial engineering design phase progressing Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced, anticipated Q2 2018 Commissioning/Close Out Still to be commenced, completion October 2019 Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

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 utilising "Lark" High Temperature Low Sag (HTLS) conductor (~16km), and installing an additional 800mm2 Al XLPE 132kV underground cable in parallel with the existing cable (~0.3km), to give a minimum summer continuous rating of 224MVA. This is to accommodate additional generation connecting at the Ewe Hill Wind Farm 132kV Collector Substation.

Programme	Completion:- October 2021
Progress	Design Early design in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-196	SPT-RI-196 Clyde South 33kV Works and Overload Protection Scheme
OVERVIEW OF WORKS At Clyde South substation, the following will be installed: A containerised substation Transformer 33kV incomer circuit breaker (to form a part of a 3 panel board with a 33kV feeder circuit breaker for Whitelaw Brae 'A' Wind Farm and a 33kV feeder circuit breaker for Crookedstane Wind Farm, both of which will be contained within the relevant wind farm TOCOs) 0.05km 2x500mm2 Cu XPLE cable from the LV side of SGT1A to the new incomer circuit breaker At Clyde South 275/33kV substation, an overload protection scheme will be installed on the Clyde SGT1A and SGT1B transformers.	
Programme	Completion:- April 2019
Progress	Design Early design in progress Consenting No consenting required Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-198	Newton Stewart 132kV Substation Works
OVERVIEW OF WORKS At Newton Stewart 132/33kV substation, it is proposed to install a second 132/33kV transformer in order to accommodate contracted generation on a firm basis. In doing so, further substation works involving 132kV switchbay and line isolators are required to connect the second grid transformer onto the existing T2 33kV circuit breaker.	
Programme	Completion:- October 2023
Progress	Design Early design in progress Consenting No consenting required Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-200	East Coast Phase 2 Reinforcement

OVERVIEW OF WORKS

SP Transmission works associated with SHE Transmission East Coast Phase 2 400kV Reinforcement (reference SHET-RI-093), comprising:

- Uprating of the existing Kincardine-Tealing/ Kintore (XL)[1] overhead line route from 275kV 50°C operation to 400kV 65°C operation between Kincardine and the SP Transmission/ SHE Transmission border; and

- Installation of 2 x 400/275kV 1100MVA auto-transformers at Kincardine.

[1] 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:- October 2027 (On HOLD) (Earliest In Service Date)
Progress	Design Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Need Case submission in 2016 Consenting Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Need Case submission in 2016 Detailed Engineering Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Need Case submission in 2016 Tendering Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Need Case submission in 2016 Construction Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Need Case

	submission in 2016 Commissioning/Close Out Subject to Network Options Assessment (NOA) Process and potential Ofgem Strategic Wider Work (SWW) Need Case submission in 2016 Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-204	Wishaw-Smeaton-Torness-Eccles Overload Protection Scheme
OVERVIEW OF WORKS An overload protection scheme is proposed to be installed within the Wishaw – Smeaton – Torness – Eccles 400kV network in order to protect the system as part of a Category 2 Intertripping Scheme as defined by the Grid Code.	
Programme	Completion:- July 2019
Progress	Design Early 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 Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-205	Mark Hill to Chirmorie/Stranoch Wind Farm 132kV Circuit

OVERVIEW OF WORKS

At Mark Hill 132kV substation a 132kV switch bay will be installed. From this a 132kV circuit, consisting of 0.5 km of underground cable and 13.5km of 132kV overhead line (300mm UPAS conductor), will be installed to the overhead line tee point connecting the circuits to Chirmorie and Stranoch wind farms. The 300mm UPAS conductor has the following 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

The underground cable will be sized to match the ratings of the overhead line.

Programme	Completion:- September 2022
Progress	Design Early design in progress Consenting Consenting works progressing through route option stage. Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-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:- September 2022
Progress	Design Early design in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-208	Chapelcross Grid T1(2) Overload Protection Scheme
OVERVIEW OF WORKS An overload protection scheme will be installed at Chapelcross 132/33kV substation. The scheme will issue a trip signal to SPD to disconnect the appropriate generators if Grid T1 or Grid T2 is overloaded.	
Programme	Completion:- May 2018
Progress	Design Early 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 Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-211	Longburn to Kendoon North 132kV Circuit
OVERVIEW OF WORKS Construction of a new 132kV circuit between Kendoon North 132kV substation and the junction between Lorg Wind Farm and Longburn Wind Farm Collector Substation. From the junction of the circuits from Lorg Wind Farm and Longburn Wind Farm Collector Substation, install ~10km of 132kV overhead line (UPAS 300mm2) to Kendoon North 132kV substation. At Kendoon North substation, install one double busbar 132kV bay.	
Programme	Completion:- September 2022
Progress	Design Early design in progress Consenting Consenting works progressing through route option stage. Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-213	**New Cumnock 275/132kV Transformer SGT2B**
OVERVIEW OF WORKS At New Cumnock substation a third 275/132 240MVA transformer will be installed to increase the capacity of the 132kV Board B.	
Programme	Completion:-September 2022
Progress	Design Early design in progress Consenting Not Applicable Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

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

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

SPT-RI-216	**Dunbar 132kV Line Isolators**
OVERVIEW OF WORKS Establishment and installation of two 132kV line isolators at Dunbar GSP. All associated civil, miscellaneous and minor works.	
Programme	Completion:- October 2021
Progress	Design Early design in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-217	**Coalburn – Dalquhandy Collector Substation 132kV Circuit**
OVERVIEW OF WORKS A 132kV switchbay will be installed at Coalburn substation. From this a 132kV circuit, consisting of 1.3km of 800mm Al XPLE underground cable, and 4.1km of 200mm poplar wood pole overhead line, will be installed to the Dalquhandy Collector substation. This will facilitate the connection of generation at the Dalquhandy Collector Substation.	
Programme	Completion:- September 2021
Progress	Design Early design in progress Consenting Route option environmental work progressing. Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-218	Coalburn 132kV Bus Coupler Auto-Close Scheme Cumnock 275/132kV Transformer SGT2B
OVERVIEW OF WORKS An auto-close scheme will be installed, at Coalburn 132kV substation, on the 132kV bus-coupler Circuit Breaker (CB) which couples the Main 1 and Reserve 132kV busbars (CB 1030). Following installation of the auto-close scheme, the bus coupler CB 1030 will be normally open to split the 132kV busbars into two discrete sections (Main 1 and Main2/Reserve), supplied by different supergrid transformers. This will maintain the 132kV fault level within design limits on each section of 132kV busbar, and allow additional generation to connect.	
Programme	Completion:- October 2019
Progress	Design Early design in progress Consenting Not Applicable Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-220	**CM Route Uprating**
OVERVIEW OF WORKS New generation at SHETL's Dunoon 132kV substation necessitates an uprating of the 132kV shared circuit between Dunoon and the tee into the Sloy-Windyhill circuit. SPT's portion of the circuit runs between tower CM01 and mid span between CM13/14. The circuit presently uses 125mm2 ACSR Tiger conductor. It is proposed that SPT uprate the double circuit to Poplar 200mm2 conductor from CM1 to CM12. It is assumed SHETL will uprate over the boundary span between CM14 and CM13, terminating at tower CM12.	
Programme	Completion:- October 2021
Progress	Design Consenting Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-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:- 31st October 2023
Progress	Design Early design in progress Consenting Section 37 application anticipated in 2018 Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-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:- October 2023
Progress	Design Early design in progress Consenting Section 37 application anticipated in 2018 Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-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 175mm^2 ACSR with a pre-fault summer rating of 89MVA. To facilitate increasing levels of generation at Glenluce and Newton Stewart GSP, it is proposed to reconductor BG route with High Temperature Low Sag conductor (HTLS) to provide a minimum summer pre-fault continuous rating of 250MVA.	
Programme	Completion:- October 2023
Progress	Design Early design in progress Consenting Not Applicable Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-224	**Coylton SGT1(2) Reinforcement**
OVERVIEW OF WORKS At Coylton substation, the existing SGT1 and SGT2 275/132kV 120MVA transformers will be replaced (on line) with 240MVA units.	
Programme	Completion:- August 2022
Progress	Design Early design in progress Consenting Not Applicable Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp