



1 SCOPE

This document details the control boundaries and the procedures to be adopted for achieving **Safety from the System** and the issue of **Safety Documents** and **Keys** when working on or testing **Plant** and **HV Apparatus** at the control boundaries.

Plant and **Apparatus** ownership is detailed in the Site Responsibility Schedules.

This document should be read in conjunction with:

PSSI 17 – “Work On or Testing of Customers’ Installations and the Control of Safety from the System at ScottishPower/Customer Boundaries”, and

PSMSP 5.2 - “Responsibilities of Control Persons and Authorised Persons who act as Control Persons”.


2 ISSUE RECORD

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5 DEFINITIONS

Terms printed in bold type are as defined in the ScottishPower Safety Rules (Electrical and Mechanical) 4th Edition.

Terms printed in italics are defined in the Definitions section of these Procedures.

6 CONTROL BOUNDARIES – GENERAL

6.1 Each item of **Plant** and **HV Apparatus**, which forms part of **the Company's Generation and Power Systems System**, is the responsibility of one nominated Control Centre. There shall be no joint responsibility for the control of the operation of **Plant** and **HV Apparatus**.

A diagram of typical System Control Boundaries in Scotland is shown in Appendix 9.

6.2 Notification of the intention to carry out work or testing on **Plant** or **HV Apparatus** forming part of one **System** which may affect an adjacent **System** shall be carried out in accordance with existing planned outage procedures.

6.3 Before issuing **HV Switching** instructions the **Control Person** shall consult with the **Control Person(s)** of any adjacent **System(s)**, which may be affected by the proposed **Switching**.

6.4 When work or testing is to be carried out on **HV Apparatus**, and safety precautions are required on more than one **System**, the **Control Person** responsible for the **HV Apparatus** on which the work or testing is to be carried out shall agree the safety precautions required and ensure that they are established and maintained on the other **System(s)** involved by implementing the appropriate cross-boundary procedure.

6.5 Where the other **System** has a recognized **Control Person** operating a centrally coordinated safety system, then either:

- (i) the Record of Inter-System Safety precautions (RISSP) procedure detailed in the GB Grid Code OC8 and the Northern Ireland Interconnector Operating Code 1 shall be implemented. The RISSP procedure is detailed in Appendix 10, or
- (ii) an Apparatus Status Certificate shall be issued.

6.6 Where the other **System** does not have a recognized **Control Person** operating a centrally co-ordinated safety system, then either:

- (i) at interfaces with Network Rail, a Circuit State Certificate shall be issued, or
- (ii) at other interfaces, an Apparatus Status Certificate shall be issued.

6.7 The issue of a **Safety Document** for which one or more safety precautions are under the control of the *NMC Control Person* and not the subject of an Apparatus Status Certificate shall be recorded:



- (i) by the *NMC Control Person*, Hamilton on ICOND, or
 - (ii) by the *NMC Control Person*, Manweb on NMS or ICOND
- 6.8 Manweb working at the interface with NGC is covered in the 132 kV Safety Co-ordinating Centre Manual and the GB Grid Code, see also 14.1 of this Procedure.
- 6.9 The Control Authority for **Plant** and **Apparatus** may be transferred between Control Centers, if:
- (i) both **Control Persons** agree and a Transfer of Control Authority document is completed. There shall be no **Safety Documents** in force when the transfer of control takes place. A copy of the 'Transfer of Control Document' is contained in Appendix 16, or,
 - (ii) both **Control Persons** agree and the transfer process is described elsewhere in this procedure, e.g. The Grid System / British Energy Generation Limited Control Boundaries, Section 13.9.



7 GRID SYSTEM / DISTRIBUTION SYSTEM CONTROL BOUNDARIES (SCOTLAND)

7.1 The *Grid Control Person* shall be responsible for the issue of instructions and the control of the operation of that portion of the power **System** called the **Grid System**.

The **Grid System** (400/275 and 132 kV Control Group) shall include the following **Apparatus** and related **Plant**:

- (i) from the point of in-feed at the control boundary between the Power Station(s) and any other interconnected **HV System** and
- (ii) down to and including the Grid Transformer lower voltage circuit breaker and including the point of supply at the boundary between **The Company** and its **HV** customers supplied from the **Grid System** and
- (iii) where installed, the associated busbar isolator(s), reactors, voltage and auxiliary transformers with their associated **LV** connections and isolating switches, links or fuses at substations normally controlled from the Grid Control Centre, Kirkintilloch.
- (iv) at the Galloway Hydros (Carsfad, Earlstoun, Glenlee, Kendoon and Tongland), the 11kV main busbar, and where installed the 11kV auxiliary busbars, reactors and associated circuit breakers. See appendix 8 for more details.

7.2 Company sites with non-standard connections and control boundaries are listed in Appendix 8.

7.3 The *NMC Control Person* shall be responsible for the issue of instructions and the control of the operation of that portion of the power system called the **Distribution System**. The **Distribution System** (33 and 11 kV Control Group) shall include the following **Apparatus** and related **Plant**, except where it is specifically included under 7.2:

- (i) At Grid Supply Points – the lower voltage busbars, which can be either supplied from the Grid transformer lower voltage circuit breaker or where installed, the associated busbar isolators.
- (ii) At Power Station(s) – the **HV** circuit breakers at the interface between the Power Station(s) and the **HV System** normally controlled from the NMC.
- (iii) At secondary substations and pole mounted transformers – the **LV** switchgear, fusegear or links controlling the output of the transformer.
- (iv) At **HV** Supplies to Customers – The **HV** switch(es) to which is connected the point of supply.



- (v) In any of the above cases when auxiliary and/or voltage transformers are connected to the Distribution **HV System** – the isolating **LV** switch, links or fuses.

Note 1: These limits may vary slightly depending on the specific Site Responsibility Schedule.

Note 2: Removal or replacement of **LV** fuses or links for work or operations on the **LV** network need not be reported to the *NMC Control Person* but reported to the TroubleCall Incident Dispatchers.

7.4 For work on or testing of Grid **System Apparatus** where isolation is required on the Distribution **System**, the *Grid Control Person* shall obtain confirmation of the **Switching** and request a RISSP from the *NMC Control Person*. The points of isolation and earthing confirmed on the RISSP may be established at voltages outwith the authorisation categories held by the **Control Person** requesting the RISSP. Any isolation or earthing recorded on a RISSP can be quoted by a **Senior Authorised Person**, and accepted by a recipient, on a **Safety Document** even if they are established at voltages outwith their authorisation categories. However any work or testing quoted on the **Safety Document** must be at voltages within the authorisations categories of the **Senior Authorised Person** and the recipient.

7.5 For work on or testing of Distribution **System Apparatus** where isolation is required on the Grid **System**, the *NMC Control Person* shall obtain confirmation of the **Switching** and request a RISSP from the *Grid Control Person*. The points of isolation and earthing quoted on the RISSP may be established at voltages outwith the authorisation categories held by the **Control Person** requesting the RISSP. Any isolation or earthing recorded on a RISSP can be quoted by a **Senior Authorised Person**, and accepted by a recipient, on a **Safety Document** even if they are established at voltages outwith their authorisation categories. However any work or testing quoted on the **Safety Document** must be at voltages within the authorisations categories of the **Senior Authorised Person** and the recipient.

7.6 When work or testing is to be carried out on **LV Apparatus** or **Plant** associated with **HV Apparatus**, and this may place restrictions on the **HV System**, the *Substation Control Person* shall consult with the **Control Person** responsible for that **HV System**.

7.7 Appendix 11 details how these principles are implemented at Grid System / Distribution System, Control Boundaries for work.



8 POWERSYSTEMS (SCOTLAND) / SP GENERATION CONTROL BOUNDARIES

- 8.1 The boundaries of responsibility between the *Grid Control Person* and the **Control Person** (Interconnected **System**) in each Power Station are detailed in Appendix 1.

A PowerSystems / SP Generator Safety Isolation Procedure has been agreed for Longannet, Cockenzie and Cruachan and shall be adhered to at all times. These Procedures detail how the principles set out in this document shall be implemented in relation to **HV Apparatus** at **System** Control boundaries.

- 8.2 SP Generation operates a centrally controlled safety system with a recognised **Control Person**. At the control interface:

The RISSP procedure shall be used between Grid Control and SP Generation,

and

The RISSP procedure shall be used between NMC Control and SP Generation.

- 8.3 In general, the approach adopted at Grid **System** /SP Generation control boundaries is as stated in Section 6. Exceptions to this approach are listed below:

- (i) In the Galloway Hydro Scheme the local **Switching** of Grid **System** circuit breakers is carried out by both SP Generation and PowerSystems staff. The preparation, issue and cancellation of **Safety Documents** for work on Grid circuit breakers are by both SP Generation and PowerSystems staff. Appendix 12 gives full details.
- (ii) SP Generation personnel, who are required to carry out local **Switching**, prepare, issue and cancel **Safety Documents** and work on PowerSystems **HV Apparatus** at Power Systems / SP Generation control boundaries shall be an **Authorised Person** or **Senior Authorised Person** to carry out this function by PowerSystems.

- 8.4 The boundaries of responsibility between the *NMC Control Person* and the **Control Person** (Interconnected **Systems**) in each Power Station are detailed in Appendix 2.



9 POWERSYSTEMS (SCOTLAND) / HV CUSTOMER CONTROL BOUNDARIES

- 9.1 The boundaries of responsibility between the *Grid Control Person* and the person(s) nominated by customers to control their **Apparatus** are detailed in Appendix 3.
- 9.2 The boundaries of responsibility between the *NMC Control Person* and the persons nominated by customers to control their **Apparatus** are detailed in the Site Responsibility Schedules.
- 9.3 If work or testing is to be carried out on **HV Apparatus** where there is an interface between ScottishPower and a Customer, then, before any **Safety Documents** are issued, a declaration of safety precautions shall have been completed by the appropriate party using one of the following procedures:
- (i) Customer who operates a centrally co-ordinated safety system with a recognised **Control Person** shall use either the RISSP procedure or an Apparatus Status Certificate.
 - (ii) Customer who does not operate a centrally co-ordinated safety system with a recognised **Control Person** shall use either an Apparatus Status Certificate or a Circuit State Certificate.

9.3.1 Apparatus Status Certificate - Work on or Testing of ScottishPower HV Apparatus

Where work on, or testing of ScottishPower **HV Apparatus** is to be carried out and safety precautions have to be taken by a Customer, the *Customers Authorised Person* shall complete and sign an Apparatus Status Certificate before a **Safety Document** is issued for the work or testing. The Apparatus Status Certificate shall detail the **Location** and purpose of the work or testing and the isolation and/or earthing carried out by the *Customers Authorised Person*. Part 1A of the Apparatus Status Certificate shall be completed before a **Permit for Work** is issued; Part 1B of the Apparatus Status Certificate shall be completed before a **Sanction for Test** is issued. The Customers **Control Person** will normally provide the number for the Apparatus Status Certificate. When it is required to change from a **Permit for Work** to a **Sanction for Test** or vice versa the Apparatus Status Certificate shall be cancelled and a new one issued.

Note: This procedure shall also apply when work or testing is to be carried out between a transformer **LV** cable box and a point of **LV** isolation, which is controlled by a Customer.



9.3.2 Apparatus Status Certificate - Work on or Testing of Customers HV Apparatus

Where work on, or testing of Customer's **HV Apparatus** is to be carried out by the Customer's staff and safety precautions have to be taken by ScottishPower staff, a **Senior Authorised Person**, with the **Consent** of the ScottishPower **Control Person**, shall complete and sign an Apparatus Status Certificate. The Apparatus Status Certificate shall detail the **Location** and purpose of the work or testing and the isolation and/or earthing carried out by the ScottishPower **Senior Authorised Person**. Part 1A of the Apparatus Status Certificate shall be completed before a **Permit for Work** is issued; Part 1B of the Apparatus Status Certificate shall be completed before a **Sanction for Test** is issued. The **Control Person** shall provide the number for the Apparatus Status Certificate. When it is required to change from a **Permit for Work** to a **Sanction for Test** or vice versa the Apparatus Status Certificate shall be cancelled and a new one issued.

Note: This procedure shall also apply where work or testing is to be carried out on a Customer's **LV** Installation and to achieve safety, isolation and/or earthing can only be carried out on the ScottishPower **HV System**.

9.3.3 Circuit State Certificate

The Circuit State Certificate is a form of declaration detailing the safety precautions carried out on **HV Apparatus** where there is a PowerSystems /Network Rail Control interface.

The document is issued and cancelled by a PowerSystems **Senior Authorised Person** or a Network Rail Nominated Person as appropriate.

When work and/or testing has to be carried out on **HV Apparatus** for which there is a ScottishPower /Network Rail control interface a Circuit State Certificate shall be used to declare the safety precautions.

For complete instruction on the use of the Circuit State Certificate see Engineering Recommendation G38.



10 GRID SYSTEM / NGC CONTROL BOUNDARIES

The boundaries of responsibility between the *Grid Control Person* and the *NGC Control Person* are defined in Appendix 4.

The RISSP procedure shall be used between the *Grid Control Person* and *NGC Control Person*, as per the GB Grid Code OC8.

Manweb working at the interface with NGC is covered in GB Grid Code OC8, see also Section 14.1 of this Procedure.

11 POWERSYSTEMS / SCOTTISH & SOUTHERN ELECTRIC CONTROL BOUNDARIES

The boundaries of responsibility between both the **Grid System** and the **Distribution System** and the **Scottish & Southern Electric System** are defined in Appendix 5 and 15 respectively of this Procedure.

The RISSP procedure shall be used between the *Grid Control Person* and **Scottish & Southern Electric Control Person**, as per the GB Grid Code OC8.

The RISSP procedure shall be used between the *NMC Control Person* and **Scottish & Southern Electric Control Person**.

12 GRID SYSTEM / NIE (MOYLE INTERCONNECTOR) CONTROL BOUNDARIES

The boundaries of responsibility between the *Grid Control Person* and the **NIE Control Person** are defined in Appendix 6.

The RISSP procedure shall be used between the *Grid Control Person* and the **NIE Control Person**, as per the Interconnector Operating Code.

13 GRID SYSTEM / BRITISH ENERGY GENERATION LIMITED CONTROL BOUNDARIES

13.1 British Energy Generation Limited (BEGL) own Torness and Hunterston 400 kV and 132 kV substation buildings and own **Apparatus** in each of them. They have, therefore, right of access to each building.

13.2 The boundaries of responsibility between the *Grid Control Person* and the **BEGL Control Person** in each Power Station are defined in Appendix 7.

A PowerSystems / British Energy Generation Ltd Safety Isolation Procedure has been agreed for each **Location** and shall be adhered to at all times. These Procedures show



how the principles detailed in this document shall be implemented in relation to **HV Apparatus** at **System Control** boundaries.

- 13.3 All remote **Switching** on BEGL circuits in Torness and Hunterston 400 kV and Torness 132 kV substations shall be carried out with the agreement of the *Grid Control Person* by the Power Station **Control Person**. Remote **Switching** on BEGL circuits in Hunterston 132 kV substation will be carried out by the *Grid Control Person* to the instructions of the **BEGL Control Person**.
- 13.4 The BEGL Power Station **Control Person** and the ScottishPower **Control Person** shall consult and agree switching and the safety precautions required to achieve **Safety** from the **System**.
- 13.5 The *Grid Control Person* shall be responsible for the issue of **Switching** instructions and the control of the operation of **HV Apparatus** associated with the **Grid System**.
- 13.6 The *NMC Control Person* shall be responsible for the issue of **Switching** instructions and the control of the operation of **HV Apparatus** associated with the **Distribution System**.
- 13.7 The BEGL **Control Person** at each BEGL Power Station shall be responsible for the issue of **Switching** instructions and the **Control** of the operation of **HV Apparatus**, which is part of the BEGL Power Stations **System**.
- 13.8 The RISSP procedure shall be used between the *Grid Control Person* and BEGL **Control Person**, as appropriate.
- 13.9 Under reactor outage conditions control of plant may be transferred between Control Persons if both Control Persons agree and a physical disconnection has been applied.
- The transfer of control shall be logged on the RISSP document.
- 13.10 BEGL may carry out **switching** operations on the switchgear that they own, PowerSystems staff will normally carry out local switching on BEGL circuits and are **Authorised** to carry out this **Switching** for BEGL.
- 13.11 Nominated BEGL staff shall be **Authorised** by PowerSystems to carry out remote **Switching** operations on PowerSystems **Apparatus**.
- 13.12 BEGL shall provide PowerSystems with copies of any relevant support documents necessary to implement this Procedure.
- 13.13 Before any work takes place on the Substation Emulsifier System, consultation shall take place between the *Grid Control Person* and the **BEGL Control Person**.



14 POWERSYSTEMS (MANWEB) CONTROL BOUNDARIES

14.1 132 kV Control Group

The boundary with the NGC Transmission **System** shall be as specified in the Site Ownership and Responsibility Schedules. This will normally be at the first bolted connection, on the 132 kV busbar side of the Supergrid Transformer 132 kV busbar isolator.

The boundary with Customers or Generators connected to the 132 kV **System** shall be as specified on the Site Ownership and Responsibility Schedules which forms part of their Connection Agreement.

The boundary with other third parties shall be as described in agreed Site Ownership and Responsibility Schedules.

The boundary at the 33 kV **System** interface shall be as specified on the NMS Control Transfer Card (CTC).

This boundary shall not extend into the 33 kV **System** beyond the following limits:

- (i) For outdoor 33 kV substations the boundary shall not extend beyond the 132/33 kV transformers 33 kV busbar isolator.
- (ii) For indoor 33 kV substations the boundary shall be at the 33 kV busbar shutters on the 132/33 kV transformer circuit.

14.2 33 kV Control Group

The boundary at the 132 kV **System** interface shall be as specified on the CTC, described in the Manweb 33 kV Control Group Transfer procedure (72/1630/05).

This boundary shall not extend into the 132 kV **System** beyond the following limits:

- (i) For outdoor 33 kV substations the boundary shall not extend beyond the 132/33 kV transformer 33 kV isolator.
- (ii) For indoor 33 kV substations the boundary shall be at the feeder shutters on the 132/33 kV transformer circuit.

The boundary with Customers or Generators connected to the 33 kV **System** shall be as specified on the Site Ownership and Responsibility Schedules which forms part of their Connection Agreement.

The boundary with the Manweb 11 kV **System** shall be on the 33 kV busbar side of the 33/11 kV transformer circuit breaker, switch or isolator, where one exists, as follows:



- (i) For outdoor 33 kV substations of the two-switch type, the boundary shall be the first bolted connection on the 33 kV busbar side of the 33 kV transformer isolator.
- (ii) For outdoor 33 kV substations equipped with a 33 kV transformer circuit breaker, the boundary shall be the first bolted connection on the 33 kV busbar side of the 33/11 kV transformer circuit. This applies to local transformers and transformer feeders.
- (iii) For a substation equipped with 33 kV indoor switchgear, the boundary shall be the 33 kV busbar shutters on the 33/11 kV transformer circuit. This applies to local transformers and transformer feeders.
- (iv) For RMU equipped substations, the boundary shall be the 33 kV busbar side of the 33/11 kV transformer oil switch.
- (v) For compact Primary Substations, the boundary shall be the first bolted connection on the 33 kV busbar side of the 33 kV disconnectable flexible links on the 33/11 kV transformer circuit.
- (vi) For transformers teed directly onto a 33 kV interconnector, the boundary shall be at the 33 kV bushing connections on the 33/11 kV transformer.

14.3 **11 kV Control Group**

The boundary with the 33 kV **System** shall be as in 14.2 above.

The boundary with Customers or Generators connected to the 11 kV **System** shall be as specified on the Site Ownership and Responsibility Schedules which forms part of their Connection Agreement.

The boundary with the **LV System** shall be at the bolted connection to the transformer **LV** isolator links, or **LV** ACB, **HV/LV** transformer side. Where no isolation links exist, the boundary shall be at the **LV** fuse connection, **HV/LV** transformer side.

14.4 **LV Control Group**

The boundary with the 11 kV **System** shall be as in 14.3 above.

14.5 **Transfer of Plant between Control Groups**

It may be desirable to apply say the 132 kV Central Control of Safety working methods to plant normally held in the 33 kV Control group, alternatively it may be desirable to work on 132 kV plant within the 33 kV *Field Control* procedures. It shall, therefore, be acceptable to transfer plant between Control Groups with written permission from the Control Restoration & Repair Manager or his nominee. This will enable the advantages of a particular Control Group method of work to be applied to plant, regardless of the actual voltage level.



14.6 Working at Control Boundaries

At Control Boundaries between Manweb and Third Parties one of the following documents shall be used as agreed with the Third Party.

- | | | |
|-------|------------------------------|--|
| (i) | RISSP Document | e.g. NGC, DNOs and Customers within the 132 kV Control Group |
| (ii) | Circuit State Certificate | e.g. Network Rail |
| (iii) | Apparatus Status Certificate | e.g. General Third Parties and Customers |



APPENDIX 1

GRID SYSTEM /SP GENERATION CONTROL BOUNDARIES

- | | | |
|----|-------------|--|
| 1 | Carsfad - | Busbar shutters of Generator 1 & 2 CBs at power station.
Busbar shutters of Station Transformer 1 11kV CB at power station |
| 2 | Cockenzie - | Busbar (Generation) side terminals of OCB's Supergrid 1 SwA and Supergrid 2 SwA.

The top of the insulator on the 275 kV sealing end in the Generator Transformer house. |
| 3 | Cruachan - | Bottom end of the underslung 275 kV cable sealing ends at the Generator Transformers. |
| 4 | Earlstoun - | Busbar shutters of Generator 1 & 2 CBs at power station.
Busbar shutters of Station Transformer 1 11kV CB at power station. |
| 5 | Glenlee - | Busbar shutters of Generator 1 & 2 CBs at power station.
Busbar shutters of Station Transformer 1 & 2 11kV CBs at power station. |
| 6 | Inverkip - | Point of connection midway between the 400 kV cable-sealing ends and respective earth switches located in the generator transformer compound. |
| 7 | Kendoon - | Busbar shutters of Generator 1 & 2 CBs at power station.
Busbar shutters of Station Transformer 1 11kV CB at power station. |
| 8 | Longannet- | Top of Station and Generator Transformer 275 kV bushing connectors. |
| 9 | Tongland - | Busbar shutters of Generator 1, 2 and 3 CBs at Tongland Power Station.
Reactor breaker cable end box terminations for Station Transformers 1 & 2. |
| 10 | Blacklaw - | Busbar connections of Grid 1A and Grid 1B. |



APPENDIX 2

**DISTRIBUTION SYSTEM (SCOTLAND) /SP GENERATION
CONTROL BOUNDARIES**

	LOCATION	CIRCUIT	BOUNDARY
Lanark Hydros			
1	Stonebyres Power Station	Generator 1 Generator 2	B/B Shutters at CB B/B Shutters at CB
2	Bonnington	Generator 1 Generator 2	B/B Shutters at CB B/B Shutters at CB



**GRID SYSTEM /HV CUSTOMER
CONTROL BOUNDARIES**

CUSTOMER SITES	BOUNDARY
1 Magnox Chapelcross	11 kV cable end terminals at Grid Switch end of cables from Generator Transformers 1, 2, 3, 4, 5, 6, 7 and 8.
2 BP Oil Grangemouth	Busbar Side Terminals of GCB's SG1 and SG2 in BP 33 kV Substation, Grangemouth.
3 Network Rail Dalreoch	Mid point of 25 kV busbar between 1L3 and DAS1/1 and between 2L3 and DAS2/1 at the Dalreoch 25 kV Feeder Station
4 Network Rail Ecclefechan	No 1 Circuit – Mid point of busbar between 1T3 and ECS1/1A No 2 Circuit – Top of cable sealing ends at ECS2/1A.
5 Network Rail Eglington Street	25 kV Busbar Side Terminals of OCB's EGS1 and EGS2 Busbar Disconnecter (Integral) at Eglington Street 25 kV Feeder Station.
6 Network Rail Elvanfoot	25 kV Busbar Side Terminals of VCB's ELS1 and ELS2 in Elvanfoot 25 kV Feeder Station.
7 Network Rail Port Glasgow	Mid point of 25 kV busbar between 1L3 and PGF1/1 and between 2L3 and PGF2/1 at the Port Glasgow 25 kV Feeder Station.
8 Network Rail Parkhead	Mid point of 25 kV busbar between 1L3 and PAS1/1 and between 2L3 and PAS2/1 at the Parkhead 25 kV Feeder Station
9 Network Rail South Beach	Mid point of 25 kV Busbars between 1L3 and SBS1/1F and between 2L3 and SBS2/1F at South Beach 25 kV Saltcoats Feeder Station.



APPENDIX 3

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CUSTOMER SITES	BOUNDARY
10 Network Rail Innerwick	Mid point of 25 kV Busbars between 1L3 and IKS1/1 and between 2L3 and IKS2/1 at Innerwick 25 kV Feeder Station.
11 Network Rail Marshall Meadows	Mid point of 25 kV Busbars between 1L3 and MMS1/1 and between 2L3 and MMS2/1 at Marshall Meadows 25 kV Feeder Station.
12 Network Rail Portobello	Mid point of 25 kV Busbars between 1L3 and PTS1/1 and between 2L3 and PTS2/1 at Portobello 25 kV Feeder Station.
13 Network Rail Gowkthrapple	Mid point of 25kV Busbar between 4L3 and GT/F4/1 and between 5L3 and GT/F5/1
14 British Steel Corporation Ravenscraig	33 kV Busbar Terminals associated with Supergrid 1 SwA and Supergrid 2 SwA circuit breakers at British Steel Corporation (Ravenscraig) Main 33 kV Substation.
15 Exxon Olefins	Top of 33 kV cable sealing ends near Disconnectors 1T4 and 2T4 in Mossmorran 275/132/33 kV Substation.
16 Shell U.K. Expro	Busbar Side Terminals of Grid Incoming OCB's on 11 kV Busbars in Shell Expro Substation at Mossmorran.
17 Caledonian Paper PLC, Irvine	Top of 132 kV cable sealing ends in Meadowhead 132 kV Substation.
18 Fife Power	Top of 132 kV cable sealing ends of generator transformers1 and 2 cables in disconnector compound.



APPENDIX 4

**GRID SYSTEM /NGC
CONTROL BOUNDARIES**

CIRCUIT	ROUTE	BOUNDARY BETWEEN TOWERS
Strathaven/Harker Gretna/Harker	ZV	369/370
Gretna/Galashiels tee Harker	AL	56/57
Galashiels/Gretna tee Harker	V	74/75
Chapelcross/Harker	T	137A/138
Eccles/Stella West No.1 Eccles/Stella West No.2	ZA	211/212



APPENDIX 5

**GRID SYSTEM /SCOTTISH & SOUTHERN ELECTRIC
CONTROL BOUNDARIES**

CIRCUIT	HE ROUTE	SP ROUTE	BOUNDARY BETWEEN TOWERS
Kincardine-Kintore	XZ1	XL	33/34
Kincardine-Tealing	TZ2	XL	33/34
Westfield-Tealing	TW1	YS	65/66
Glenrothes-Tealing	TW2	YS	65/66
Bonnybridge-Braco East	BRE	CN	37/36
Bonnybridge-Braco West	BRW	CN	37/36
Helensburgh-Sloy	SHE2	CK	53/52
Windyhill-Whistlefield - Dunoon-Sloy West 2	SWW2 GL2	CL CM	52/51 13/14
Windyhill-Whistlefield- Dunoon-Sloy East 1	SWE1 GL1	CK CM	53/52 13/14
Strathleven-Sloy	SWW1	CL	52/51



APPENDIX 6

**GRID SYSTEM /NIE (MOYLE INTERCONNECTOR)
CONTROL BOUNDARIES**

The Control Boundary between the ScottishPower Grid System and the Northern Ireland Grid System is at the mid point of the connecting busbar between earth switch L141B (on the Coynton circuit) and the Auchencrosh Converter Station 275kV busbar.



APPENDIX 7

**GRID SYSTEM /BRITISH ENERGY GENERATION LIMITED
CONTROL BOUNDARIES**

POWER STATIONS	BOUNDARY
1 Hunterston 400	Generator Transformers 7 and 8 at the teed busbar connection to their associated 400 kV circuit Disconnector in the 400 kV substation.
2 Hunterston 132	All Generator Transformer and Station Transformer circuits at the teed busbar connection at the junction of their selector Disconnectors and respective circuits.
3 Torness 400	Generator Transformers 1 and 2 at the busbar connection at X893 and at X493 in the 400 kV substation.
4 Torness 132	Station transformers 1 and 2 at teed busbar connection at the junction of their selector Disconnectors and respective circuits.
5 Torness LV System	The control boundary between the Power Station System and the Substation LV System shall be at the outgoing terminals of the 415V switch fuses on the 3.3 kV/415V auxiliary transformers adjacent to the substation buildings and at the terminals on the incoming cables from the Power Station on the changeover contactors in the 400 kV Transmission Substation.



GRID SYSTEM /DISTRIBUTION SYSTEM SITES, WITH NON STANDARD CONTROL BOUNDARIES.

LOCATION	BOUNDARY
1 Dunfermline.	<p>B/B shutters of Grid1 SWA, Grid1 SWB, Grid 2 SWA, Grid 2 SWB and the Townhill feeder side of 1C3 and 2C3.</p> <p>GCC responsibility - 1C3 and 2C3 NMC responsibility - 1C1 and 2C1</p>
2 Easterhouse.	<p>33kV busbar side of 2T4 and 3T4. The Control boundary for the Bartiebeath feeders is the feeder side of 15T4 and 16T4.</p> <p>GCC responsibility - 15T4 and 16T4 NMC responsibility - Earth switches 15L1 and 16L1</p>
3 Glenlee Power Station	<p>B/B Shutters of Glenlochar RT27 (65521) CB B/B Shutters of Dalry RT 28 (65511) CB B/B Shutters of Clatteringshaws RT 29 (65522) CB. Incoming cable end box terminations on Earlston Rt 30 (65612)</p> <p>GCC responsibility – Grid 1, Main Busbar (656), Aux Busbar (655), Reactor 1, Reactor 2 and circuit breakers 656/11, 656/12, 655/13, 655/01 and 655/23. NMC responsibility - circuit breakers 655/11, 655/21 and 655/22</p>
4 Earlstoun Power Station	<p>B/B Shutters of Carsfad RT31 (65411) CB B/B Shutters of Glenlee RT30 (65415) CB</p> <p>GCC responsibility – Grid 2, Main Busbar (654). NMC responsibility - circuit breakers 654/11 and 654/15</p>
5 Carsfad Power Station	<p>B/B Shutters of Earlston RT31 (65015) CB B/B Shutters of Kendoon RT32 (65015) CB</p> <p>GCC responsibility – Grid 1, Main Busbar (650). NMC responsibility - circuit breakers 650/11 and 650/15</p>
6 Kendoon Power Station	<p>B/B Shutters of Carsfad RT32 (65914) CB B/B Shutters of Carsphairn RT33 (65913) CB B/B Shutters of Drumjohn RT50 (65915) CB</p>



GCC responsibility – Grid 2, Main Busbar (659), Aux Busbar (658), Reactor 1, and circuit breakers 659/13 and 658/11.

NMC responsibility - circuit breakers 659/14, 659/15 and 658/13

7 Tongland Power Station

B/B Shutters of Dalbeattie North RT53A (66123) CB

B/B Shutters of Dalbeattie South RT54A (66113) CB

B/B Shutters of Glenlochar RT2 (69011) CB.

B/B Shutters of Gatehouse RT3 (69013) CB

B/B Shutters of Burnside RT4 (69012) CB

B/B Shutters of Mersehouse RT5 (69022) CB.

B/B Shutters of Dundrennan RT49 (69024) CB.

B/B Shutters of Pate Factory (69021) CB.

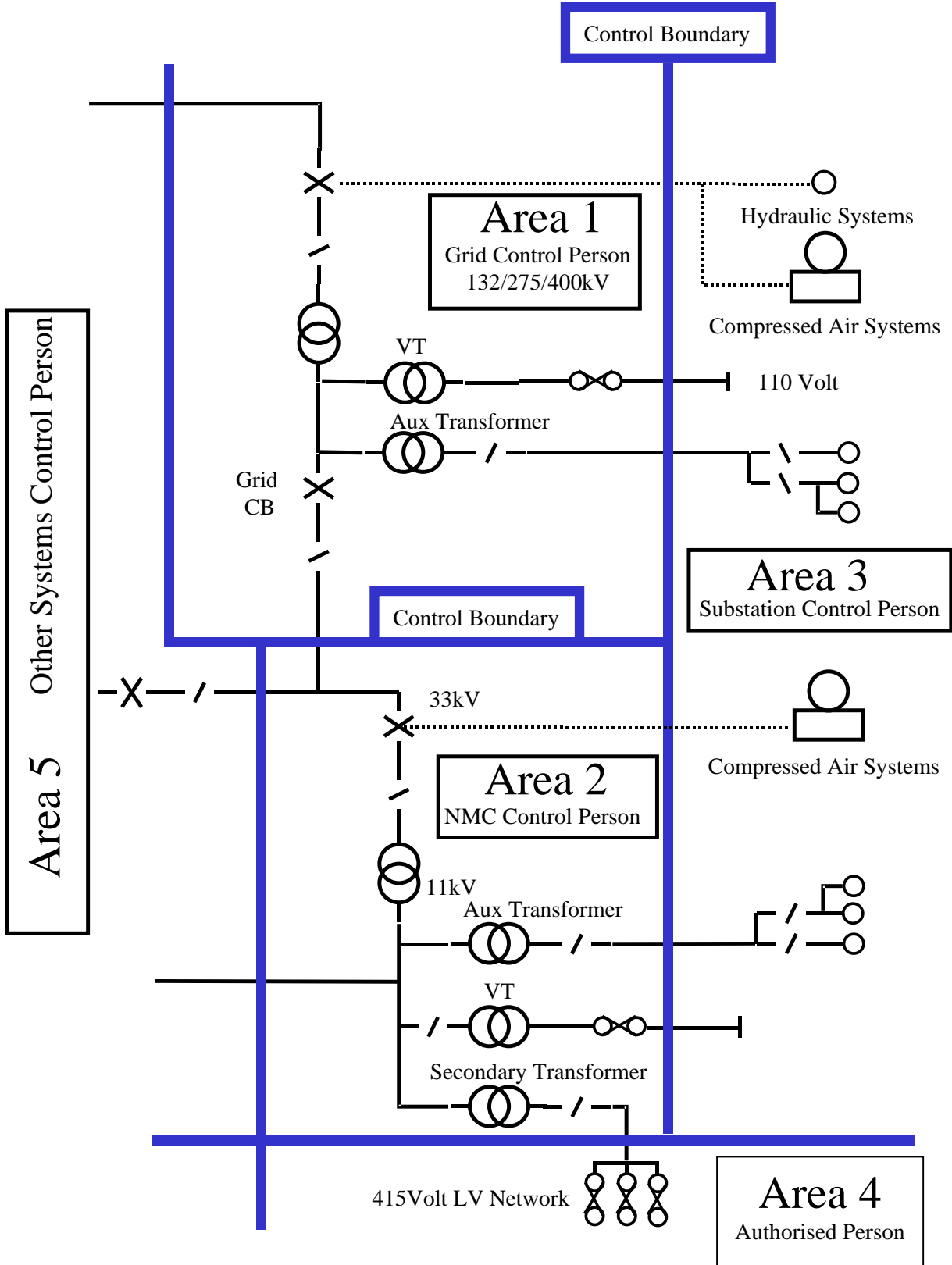
GCC responsibility – Grid 1, Grid 2, Main Busbar (661 Red Bars), Main Busbar (661 Blue Bars), Aux Busbar (690 Yellow Bars), Reactor 1, Reactor 2 and circuit breakers 661/01, 661/34, 661/45, 690/01, 690/14 and 690/23.

NMC responsibility - circuit breakers 661/13, 661/23, 690/11, 690/12, 690/13, 690/21, 690/22 and 690/24



APPENDIX 9

TYPICAL SCHEMATIC DIAGRAM OF POWERSYSTEMS BOUNDARIES (SCOTLAND)



**APPENDIX 10
Page 1**

RECORD of INTER SYSTEM SAFETY PRECAUTIONS (RISSP) PROCEDURE

The Record of Inter System Safety precautions (RISSP) system shall be used for the co-ordination, establishment and maintenance of necessary safety precautions when work and/or testing is to be carried out on **Plant** and/or **Apparatus** where the safety precautions are required on more than one **System**. The **Control Person** responsible for the **HV Apparatus** on which the work or testing is to be carried out shall ensure that safety precautions are established and maintained on the other **System(s)** involved by implementing the RISSP procedure.

The RISSP procedure is set out in detail in the GB Grid Code OC8 and is summarised as follows: -

- 1.1 The **Control Person** requesting safety precautions is referred to as the "Requesting Safety Co-ordinator" and the **Control Person** being requested and implementing the safety precautions is referred to as the "Implementing Safety Co-ordinator".
- 1.2 When a Party wishes to carry out work and/or testing on **Plant** and/or **Apparatus** on an Interconnected circuit and safety precautions are required on another **System**, the Requesting Safety Co-ordinator will contact the Implementing Safety Co-ordinator for the **System** on which the safety precautions are required, in order to agree the **Location** at which the Safety precautions will be implemented or applied.
- 1.3 The Implementing Safety Co-ordinator shall then inform the Requesting Safety Co-ordinator the details of the isolation to be provided and the means of providing it e.g. by a locked open isolator.
- 1.4 If the requesting Safety Co-ordinator requires earthing to take place then he shall inform the Implementing Safety Co-ordinator and they shall agree the **Location(s)** at which earthing is to be established.
- 1.5 The Implementing Safety Co-ordinator shall then inform the Requesting Safety Co-ordinator the details of earthing to be carried out and means of providing it.
- 1.6 Following the agreement of the points of isolation and earthing as above, the Implementing Safety Co-ordinator will arrange for the isolation(s) to take place and confirm the completion.



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1.7 On confirmation of isolation on each **System** the Requesting and Implementing Safety Co-ordinators shall agree, where applicable, for the earthing to be established on each **System**.

1.8 Each Safety Co-ordinator will confirm the earthing established on his **System**.

The circuit on which the RISSP is to be issued is now isolated and earthed at both ends and the issuing of the RISSP can now take place as follows:

1.9 The Implementing Safety Co-ordinator will record the safety precautions in accordance with OPSAF-11-031 (Guidance on Completion of Safety Documents) carried out on parts 1.1 and 1.2 of his RISSP-I I. If earthing was not requested, part 1.2 (b) of the RISSP-I will be completed as 'N/A'.

1.10 The Implementing Safety Co-ordinator will then contact the Requesting Safety Co-ordinator and read out the details entered on his RISSP-I. The Requesting Safety Co-ordinator will complete parts 1.1 and 1.2 of his RISSP-R with the precise details received from the Implementing Safety Co-ordinator and confirm. The Requesting Safety Co-ordinator will then issue the RISSP identifying number to the implementing Safety Co-ordinator who shall ensure that the number is correctly entered on the RISSP-I.

1.11 Each Safety Co-ordinator will then sign part 1.3 of their respective RISSPs and enter the date and time. No further alterations are then permitted without cancelling the RISSP.

1.12 The Requesting Safety Co-ordinator is then free to consent to the issue of any number of **Permits for Work** under this RISSP.

1.13 Where the Requesting Safety Co-ordinator wishes to authorise the carrying out of a test he may not do so and the test will not take place unless the following procedure is followed:

(i) Confirmation must be obtained from the Implementing Safety Co-ordinator that no **Person** is already working on, or testing, or has been authorised to work on, or test, any **Plant** and/or **Apparatus** within the points of isolation agreed for the proposed test and will not be so authorised until the proposed test has been completed or cancelled and the Requesting Safety Co-ordinator has notified the Implementing Safety Co-ordinator of its completion and thereby the cancellation of the requirements.

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Page 3**

- (ii) All current RISSPs except for the RISSP relating to the proposed test must be cancelled.
 - (iii) The Implementing Safety Co-ordinator agrees to transfer control of that part of the **System** between the points of isolation specified in the RISSP which he controls to the relevant party's responsible engineer/operator carrying out the test. Any transfer of control shall be recorded in the Safety Log.
 - (iv) **Sanction for Test** is issued under the RISSP.
 - (v) The Requesting Safety Co-Ordinator will return control to the Implementing Safety Co-Ordinator as soon as the test has been completed. If prior to testing the removal of earthing is necessary and this earthing is not subsequently reapplied, the original RISSP must be cancelled immediately on completion of the test. Any removal or re-application of earthing must be recorded in the Safety Log.
- 1.14 When all work or testing under the RISSP is completed the following procedure will be followed to cancel the RISSP.
- 1.15 The Requesting Safety Co-ordinator will contact the Implementing Safety Co-ordinator and confirm that the safety precautions associated with a particular RISSP identification number are no longer required. They shall agree that the details entered on parts 1.1 and 1.2 are identical and then each shall sign part 2 of their respective RISSPs and enter the time and date.
- 1.16 The Implementing Safety Co-ordinator is then free to remove the safety precautions except that each must confirm to the other that all earths are removed before any instructions are made regarding the removal of isolation.

NOTES:

- (i) Each **Control Person** can act as both Requesting and Implementing Safety Co-ordinator where 'bi-directional' RISSPs are being issued, i.e. isolations are being provided by each party for use by the other.
- (ii) Should any precaution become ineffective for whatever reason, the Implementing Safety Co-ordinator shall inform the Requesting Safety Co-ordinator without delay giving the reason why if requested.



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(iii) Each Safety Co-ordinator shall maintain a Log, which shall be a chronological record of all messages relating to safety co-ordination, which are issued and received by the Safety Co-ordinator(s). This Log will be retained for at least two years.

(iv) The numbering of the RISSP consists of prefix letters followed by a serial number. The prefix represents the Requesting Safety Co-ordinator's location. The following prefixes will be used: -

SP	ScottishPower Grid Control Centre
NMC	ScottishPower Network Management Centre
B	NGC Safety Management Control Centre
HE	Scottish & Southern Control Centre
NIE	Northern Ireland Control Centre
COCK	Cockenzie Power Station
CRUA	Cruachan Power Station
FIFE	Fife Power
LOAN	Longannet Power Station
HUER	Hunterston Power Station
TORN	Torness Power Station
BLKL	Blacklaw Windfarm



**GRID SYSTEM / DISTRIBUTION SYSTEM
CONTROL BOUNDARY PROCEDURES FOR WORK**

**1 MAINTENANCE OF GRID TRANSFORMER LOWER VOLTAGE OUTDOOR
CIRCUIT BREAKERS**

- 1.1 Prior to the issue of **HV Switching** instructions, the *Grid Control Person* shall consult with the *NMC Control Person*. The **Switching** to achieve **Safety from the System** shall be carried out by an **Authorised Person** on instructions from the *Grid Control Person*
- 1.2 A **Senior Authorised Person** shall delineate the safe working area.
- 1.3 A **Senior Authorised Person** shall, at the location, complete Sections 1 and 2 of the **Permit for Work** and, with the **Consent** of the *Grid Control Person* issue the **Permit for Work** to an **Authorised Person** and notify the *Grid Control Person* of the issue and the recipient of the **Permit for Work**.
- 1.4 On completion of the work the **Authorised Person** in receipt of the **Permit for Work** shall clear the **Permit for Work** and return it to a **Senior Authorised Person**.
- 1.5 A **Senior Authorised Person** shall cancel the **Permit for Work** and notify the *Grid Control Person* of the clearance and cancellation.
- 1.6 Prior to the issue of **HV Switching** instructions the *Grid Control Person* shall consult with the *NMC Control Person*. The **Apparatus** may then be returned to service by an **Authorised Person** acting on instructions from the *Grid Control Person*.

**2 MAINTENANCE OF THE WITHDRAWABLE PORTION OF GRID
TRANSFORMER LOWER VOLTAGE CIRCUIT BREAKER IN INDOOR
SUBSTATIONS**

- 2.1 Prior to the issue of **HV Switching** instructions the *Grid Control Person* shall consult with the *NMC Control Person*. An **Authorised Person** shall rack-out, withdraw or remove from the service position the Grid Transformer lower voltage circuit breaker to the instruction of the *Grid Control Person* and lock off the busbar and circuit shutters.
- 2.2 A **Senior Authorised Person** shall, at the **Location**, complete Sections 1, 2 and 3 of a **Limited Work Certificate** and with the agreement of the *Grid Control Person*, issue the **Limited Work Certificate** to an **Authorised Person**.



- 2.3 On completion of the work the **Authorised Person** shall clear the **Limited Work Certificate** and return it to a **Senior Authorised Person**.
- 2.4 A **Senior Authorised Person** shall cancel the **Limited Work Certificate** and notify the *Grid Control Person* of the clearance and cancellation.
- 2.5 Prior to the issue of **HV Switching** instructions the *Grid Control Person* shall consult with the *NMC Control Person*. The *Grid Control Person* shall instruct an **Authorised Person** to restore the circuit breaker to the normal service position.

3 WORK ON GRID TRANSFORMERS

Grid transformers shall be **Isolated** and **Safety from the System** achieved by an **Authorised Person** operating to instructions from the *Grid Control Person*. The *Grid Control Person* shall consult with the *NMC Control Person* before issuing **Switching** instructions to isolate a Grid Transformer.

4 MAINTENANCE OF GRID TRANSFORMER LOWER VOLTAGE OUTDOOR CIRCUIT BREAKER BUSBAR DISCONNECTOR

Isolation to achieve **Safety from the System** shall be the responsibility of the *Grid Control Person* who shall also **Consent** to the issue of the **Permit for Work**.

- 4.1 The *Grid Control Person* shall consult with the *NMC Control Person* and they shall agree on the **Switching** necessary to achieve **Safety from the System**. The points of isolation shall, where reasonably practicable, be at the **Location** where the work is to be carried out.
- 4.2 The *NMC Control Person* shall instruct an **Authorised Person** to isolate the busbar from all connections with the **Distribution System**.
- 4.3 The *NMC Control Person* shall confirm with the *Grid Control Person* all points of isolation from the **Distribution System** when completed.
- 4.4 The *Grid Control Person* shall open the Grid Transformer lower voltage circuit breaker and then instruct an **Authorised Person** to open the Grid Transformer lower voltage circuit breaker busbar disconnector and take the necessary actions to complete the isolation from the **Grid System**.



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- 4.5 After confirmation of the actions to isolate the Grid Transformer lower voltage circuit breaker busbar disconnecter from the Grid and Distribution **Systems**, the *Grid Control Person* and *NMC Control Person* shall consult, confirm isolation and agree earthing. The *Grid Control Person* shall instruct an **Authorised Person** to apply **Primary Earths** between the point of work and all points of isolation from the Grid **System**. The *NMC Control Person* shall instruct an **Authorised Person** to apply **Primary Earths** between the point of work and all points of isolation from the Distribution **System**.
- 4.6 A **Senior Authorised Person** shall delineate the safe working area and secure the **Safety Keys** for the isolation from the Grid and Distribution **Systems** in a **Key Safe**.
- 4.7 After confirmation of the earthing on the Grid Transformer lower voltage circuit breaker busbar disconnecter on the Grid and Distribution **Systems** the *Grid Control Person* shall request a RISSP from the *NMC Control Person* detailing the isolation and earthing applied to the Distribution **System**. The *NMC Control Person* shall record details of the RISSP on ICOND. The **Authorised Person** responsible for the isolation and earthing on the Distribution **System** shall secure the **Safety Keys** in a **Key Safe** and give a **Key Safe Key** to the **Senior Authorised Person** who will prepare the **Permit for Work**.
- 4.8 A **Senior Authorised Person** shall then complete Section 1 and 2 of the **Permit for Work** detailing all the **Switching** necessary to achieve **Safety from**, the Grid and Distribution, **Systems**, and with the **Consent** of the *Grid Control Person* sign Section 2 of the **Permit For Work**.
- 4.9 A **Senior Authorised Person** shall at the **Location** issue the **Permit for Work** to an **Authorised Person**.
- 4.10 On completion of the work, the **Authorised Person** in receipt of the **Permit for Work** shall sign the **Permit for Work** and return it to a **Senior Authorised Person**.
- 4.11 A **Senior Authorised Person** shall cancel the **Permit for Work** and notify the *Grid Control Person* of the clearance and cancellation
- 4.12 The *Grid Control Person* shall cancel the RISSP in consultation with the *NMC Control Person* and agree the removal of **Primary Earths** on the Grid and Distribution **Systems**. The *Grid Control Person* shall instruct the removal of **Primary Earths** from the Grid **System** and the *NMC Control Person* shall instruct the removal of **Primary Earths** from the Distribution **System**. On confirmation of the



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removal of **Primary Earths** from both systems the *Grid Control Person* and the *NMC Control Person* shall consult and agree that the **Apparatus** may then be returned to service by a suitably **Authorised Person(s)** acting on instructions from the *Grid Control Person* and *NMC Control Person*.

5 WORK ON POWERSYSTEMS (DISTRIBUTION) BUSBARS AT A GRID SUPPLY POINT

The necessary **Switching** to achieve **Safety from the System** and the issue of **Safety Documents** shall be carried out by PowerSystems staff as follows:

- 5.1 Prior to the issue of instructions the *NMC Control Person* shall consult with the *Grid Control Person*.
- 5.2 The *NMC Control Person* shall instruct an **Authorised Person** to isolate the busbar from the **Distribution System**.
- 5.3 On receipt of confirmation of the isolation the *NMC Control Person* shall consult with the *Grid Control Person* and they shall agree on the **Switching** to achieve **Safety from the Grid System**.
- 5.4 The *Grid Control Person* shall open the Grid lower voltage circuit breaker and then instruct an **Authorised Person** to open and *Safety Padlock* the associated busbar disconnector. The *NMC Control Person* shall request a RISSP from the *Grid Control Person* detailing the isolation on the **Grid System**. The *Grid Control Person* shall record the RISSP on the **System** diagram. An **Authorised Person** responsible for the isolation on the **Grid System** shall secure the **Safety Keys** in a **Key Safe** and give a **Key Safe Key** to the **Senior Authorised Person** who will prepare the **Permit for Work**.
- 5.5 On receipt of confirmation of the isolation of the busbars the *NMC Control Person* shall instruct an **Authorised Person** to apply the necessary **Primary Earths**.
- 5.6 A **Senior Authorised Person** shall secure the **Grid System Key Safe Key** and the **Safety Keys** from the **Distribution System** isolation and earthing in a **Key Safe**.
- 5.7 A **Senior Authorised Person** shall then complete Sections 1 and 2 of the **Permit for Work** and with the **Consent** of the *NMC Control Person* shall issue the **Permit for Work** to an **Authorised Person**.

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- 5.8 The *NMC Control Person* shall instruct removal of the **Primary Earths**. On confirmation of the removal of **Primary Earths** the *NMC Control Person* shall request *the Grid Control Person* to instruct the closing of the Grid lower voltage circuit breaker busbar disconnector and the circuit breaker.
- 5.9 After cancellation of the **Permit for Work** the *NMC Control Person* shall cancel the RISSP in consultation with the *Grid Control Person*
- 5.10 On confirmation of the closure of the busbar disconnector and Grid lower voltage circuit breaker, the *NMC Control Person* shall instruct an **Authorised Person(s)** to restore the Distribution **System** to its normal operating mode.

6 WORK ON TRANSMISSION CROSSINGS OVER DISTRIBUTION HV CIRCUITS

- 6.1 When transmission conductors or scaffold bridge cradles requires to be erected or dismantled over Distribution **HV** circuits the requirements of PSSI 4, Section 7 shall be implemented. The Distribution circuit will be Isolated, the line earthed and a **Permit for Work** issued.
- 6.2 The Transmission **Senior Authorised Person** in charge of the work shall issue to the authorised **Person** a **Permit for Work**, prepared by the Distribution **Senior Authorised Person** who isolated and earthed the Distribution circuit with the consent of the *NMC Control Person*.
- The Distribution **Senior Authorised Person** shall complete Parts 1 & 2 of the **Permit for Work**
 - The Transmission **Senior Authorised Person** shall complete Part 3 (Issue) and Part 6 (Cancellation).
- 6.3 The Transmission **Senior Authorised Person** shall deal directly with the *NMC Control Person*
- 6.4 The recipient of the **Permit for Work** shall complete Part 4 (Receipt) and Part 5 (Clearance).
- 6.5 The **Persons** issuing and receiving the **Safety Document** require to be authorised at the voltage levels of the Transmission and Distribution circuits in order to enact the above procedure.



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Page 6

- 6.6 If the **Persons** do not hold the appropriate voltage level authorisations, then the Distribution **Senior Authorised Person** will issue a **Permit for Work** to a Distribution authorised **Person** who will standby the Transmission work being undertaken.



**GRID SYSTEM /GALLOWAY HYDRO
CONTROL BOUNDARY PROCEDURES FOR WORK**

**1. MAINTENANCE OF THE GRID SYSTEM BREAKERS AND THE 11kV
BUSBARS AND FAULT LIMITING REACTORS WHERE FITTED.**

- 1.1 Maintenance of the above equipment is the responsibility of PowerSystems but may be carried out by SP Generation staff. Generation **Senior Authorised Persons** and the Generation Nominated **Competent Persons** may be specifically authorised by PowerSystems Management for these duties.
- 1.2 Prior to the issue of **HV Switching** instructions, the *Grid Control Person* shall consult with the NMC and the Generation **Control Person**. The **switching** to achieve **Safety from the System** shall be carried out by an **Authorised Person** acting on the instructions from the *Grid Control Person*.
- 1.3 Where isolation and/or earthing is required on another **System** the RISSP procedure shall be used as described in Appendix 10.

2. WORK ON GRID TRANSFORMERS IN THE GALLOWAY HYDROS

- 2.1 Maintenance of Grid Transformers is the responsibility of Power Systems staff.
- 2.2 Grid Transformers shall be **Isolated** and all **Safety from the System** achieved by a PowerSystems **Authorised Person** operating to instructions from the *Grid Control Person*.
- 2.3 There is no involvement of Generation staff other than the requirement of the *Grid Control Person* to consult with the Generation **Control Person** before issuing **Switching** instructions to isolate a Grid Transformer.



APPENDIX 13

GRID SYSTEM / CALEDONIAN PAPER (MEADOWHEAD) CONTROL BOUNDARY PROCEDURES FOR WORK

1. WORK ON THE 132 kV CABLES IN MEADOWHEAD 132 kV SUBSTATION

- 1.1 The control boundary between ScottishPower and Caledonian Paper PLC is the top of the 132 kV sealing ends in Meadowhead 132 kV substation.
- 1.2 The 132 kV busbars and associated disconnectors and earth switches at the ScottishPower end of these feeders are owned by Power Systems.
- 1.3 The 132 kV cables, including the sections, which run within the ScottishPower substation, are owned and maintained by Caledonian Paper PLC.
- 1.4 All maintenance, **Switching**, preparation and issue of **Safety Documents** for work on the 132 kV busbars, circuit breakers, disconnectors and earth switches is carried out by ScottishPower Power Systems.
- 1.5 In the case of work on the 132 kV feeder disconnectors and associated busbars, an Apparatus Status Certificate is required, stating the safety precautions, which have been carried out by Caledonian Paper plc. This requirement applies to any other work between the feeder disconnectors and 132 kV cable-sealing ends if isolation at the Caledonian Paper plc end of the feeders is required.
- 1.6 When work is to be carried out on the 132 kV feeder cables an Apparatus Status Certificate stating the safety precautions which have been carried out by Power Systems shall be issued to Caledonian Paper plc, who shall then be responsible for preparing and issuing their **Safety Document**.
- 1.7 In the case of work on the 132 kV cables within the ScottishPower Substation compound, the issue of the relevant **Safety Document** by Power Systems is required to provide safety from the Power Systems **System**. This requirement is additional to the Caledonian Paper plc **Safety Document** for work on the 132 kV cables.



APPENDIX 14

**GRID SYSTEM / FIFE POWER
CONTROL BOUNDARY PROCEDURE FOR WORK**

1. WORK ON THE 132KV CABLES TO FIFE POWER

- 1.1 The control boundary between ScottishPower and Fife Power is in the disconnector compound at the top of the 132 kV cable-sealing ends of the cables to Fife Power.
- 1.2 Within the disconnector compound the cables to Westfield 132 kV substation, the disconnectors (193 & 293) and the earth switches (191S, 191G, 291S & 291G) are owned and maintained by ScottishPower.
- 1.3 The 132 kV cables from the disconnector compound to Fife Power, including the section which runs within the disconnector compound is owned and maintained by Fife Power.
- 1.4 All maintenance, **Switching**, preparation and issue of **Safety Documents** for work on the cable between Westfield 132 kV substation and the disconnector compound is carried out by ScottishPower.
- 1.5 Due to the close proximity of all apparatus within the disconnector compound, isolation shall be carried out at the remote ends when work is taking place within the compound
- 1.6 For work on the 132 kV disconnector (193 & 293) and earth switches (191G, 191S, 291G & 291S) a RISSP shall be issued to ScottishPower stating the safety precautions that have been carried out by Fife Power. This requirement applies to any other work between the Fife Power disconnector and the 132 kV cable-sealing ends of the Fife Power cable.
- 1.7 For work on the 132 kV cables between the disconnector compound and Fife Power a RISSP shall be issued to Fife Power stating the safety precautions, which have been carried out by ScottishPower. Fife Power shall then be responsible for preparing and issuing their **Safety Document**
- 1.8 For work on the 132 kV cables between the disconnector compound and Fife Power within the Disconnector Compound, a **Safety Document** shall be issued by ScottishPower Power Systems to confirm the precautions necessary to provide safety from the Grid **System**. This requirement is in addition to the Fife Power Safety Document for work on the 132 kV cables.



APPENDIX 15

**DISTRIBUTION SYSTEM /SCOTTISH & SOUTHERN ELECTRIC
CONTROL BOUNDARIES**

SUBSTATION	CIRCUIT - BOUNDARY
1. Strathleven GSP	Circuit 48414 Killearn – 33kV interface
2. Strathleven GSP	Circuit 48424 Drymen – 33kV interface
3. Dumfin Secondary	Circuit 43613 – 11kV interface, fed from Woodend Primary Substation, which is supplied from Helensburgh GSP.
4. Abernethy SSE	33kV interface from Abernethy to ScottishPower Newburgh Primary Substation.
5. Abernethy SSE	33kV interface from Abernethy to ScottishPower Auchtermuchty Primary Substation.

It should be noted that the boundaries of responsibility between the Distribution **System** and the Scottish & Southern Electric **System** are defined in the Site Responsibility Schedules.



PowerSystems

**SYSTEM CONTROL BOUNDARIES &
CONTROL BOUNDARY PROCEDURES**

**OPSAF-11-030
Issue No. 4**

APPENDIX 16

SCOTTISH POWER Plc

POWER SYSTEMS DIVISION

TRANSFER OF CONTROL AUTHORITY

Certificate No:.....

(To be completed prior to transfer of Control Authority of **HV Apparatus** in the ScottishPower System)

DECLARATION:

1. **PLANT / APPARATUS TO BE TRANSFERRED:**

.....
.....
.....

2. **LIMITS OF CONTROL TRANSFER:**

SUBSTATION	CIRCUIT	ITEM
.....
.....
.....
.....

The above plant is numbered in accordance with GSN Drawing Nos.

3. The status of the **HV Apparatus** is as follows:

.....
.....
.....



4. The following **Primary Earths** are transferred with the **Apparatus**

.....
.....
.....

All **Safety Documents** relating to the **Apparatus** have been cancelled.

Other Remarks:

.....

I have informed

.....
(Substation **Control Person**) of the transfer of Control of the above **Apparatus**.

Signed: Time: Date:

(**Control Person** at Control Centre / Power Station)

5. **TRANSFER OF CONTROL**

Control of the above-mentioned **HV Apparatus** is hereby transferred:

From Control Centre / Power Station

To..... Control Centre / Power Station

Signed: Time: Date:

(**Control Person** atControl Centre/Power Station)

6. **RECEIPT OF CONTROL**

The **HV Apparatus** detailed above is now under the Control of:

..... Control Centre / Power Station

Signed: Time: Date:

(**Control Person** at..... Control Centre/Power Station)