

## **Grid Code Review Panel** **Management of System Connections**

### **Executive Summary**

There is no formal process to recognise the time and date when subsequent changes to a Site Responsibility Schedule become effective between all parties.

At the point two systems are defined as being able to be connected together (readily connectable) there is a requirement within the Electricity at Work Regulations 1989 (Guidance notes) for them to be classified as one system.

However, there is no formal process for defining exactly when a planned Site Responsibility Schedule becomes effective.

It is proposed to amend the Grid Code Connection conditions and the Site Responsibility Schedule proforma ([appendix 2](#)).

These changes will reflect the:

- Planned date for the Site Responsibility Schedule becoming effective
- An effective date that the Control Person from all parties will sign, which will declare from which time and date the Site Responsibility Schedule is in force.

### **Recommendation**

Grid Code Review Panel members are invited to consider the proposed changes to Grid Code Connection Conditions at the GCRP meeting on 24<sup>th</sup> November 2005. Having taken account of any comments received at the meeting National Grid then intends to carry out a short industry consultation on the proposed changes.

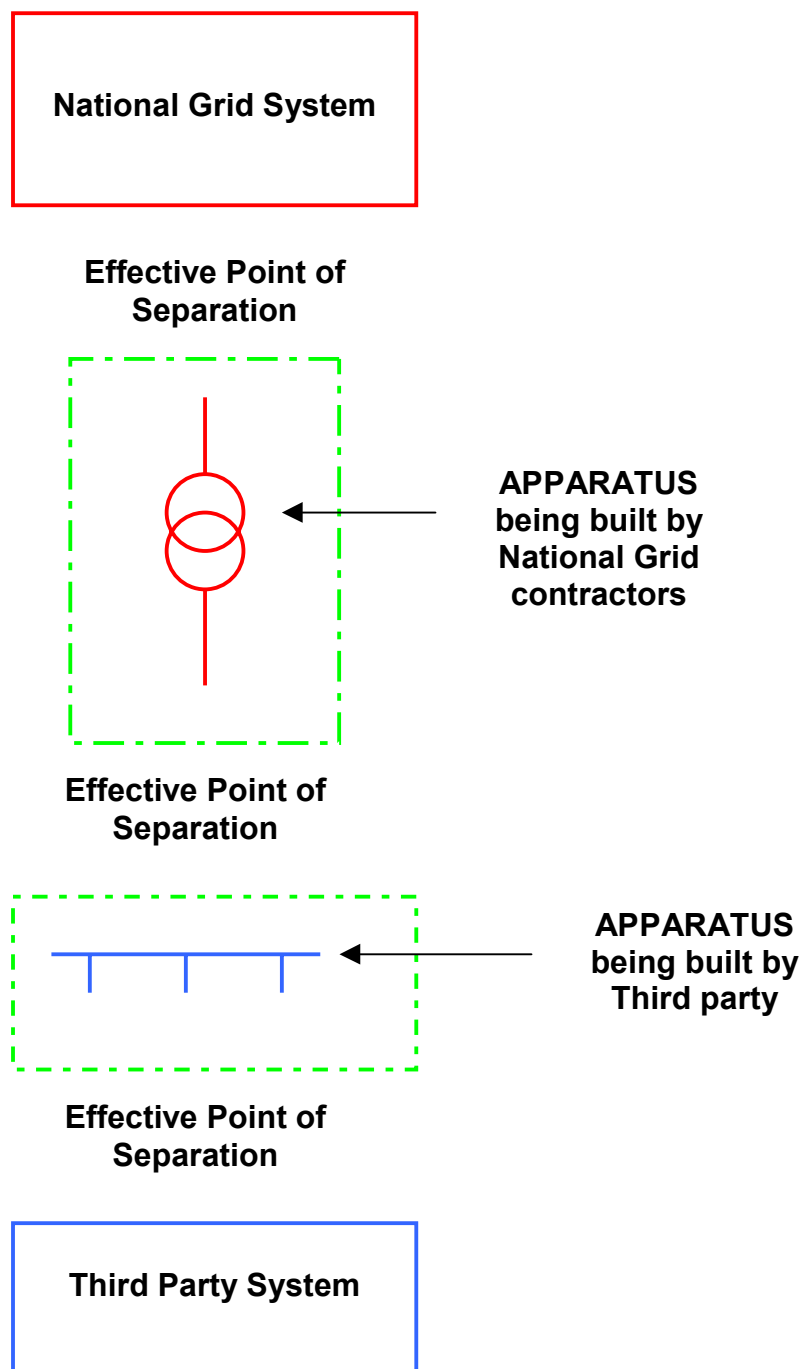
## Grid Code Management of System Connections

### Introduction

1. This paper has been prepared to discuss the issues involved when establishing new HV connections or carrying out amendments to the transmission system involving third parties. The paper will outline the problems with the present situation and offer suggested solutions.

### Problem overview

2. The example below shows the addition of a new Transformer between National Grid and a third party.



- 3 At the point two systems are defined as being able to be connected together (readily connectable) there is a requirement within the Electricity at Work Regulations 1989 (Guidance notes) for them to be classified as one system. At this point the requirements of Grid Code OC8 Safety Co-ordination would therefore become effective.
4. Prior to equipment being defined as being able to be connected together there is currently no process to formally recognise the two systems subject to different safety rules as one.
5. When adding or amending the H.V. system at a boundary with a third party the only control measure in place is that the site responsibility schedule comes into force. Grid Code Connection condition CC.A 1.1.9 stipulates that the Site Responsibility Schedule should be signed by all parties to confirm accuracy, this signing process can take place many weeks prior to the proposed change. This process does not clearly define the time and date when the two systems will be classified as one system. (Electricity at Work Regulations: see Regulation 2)

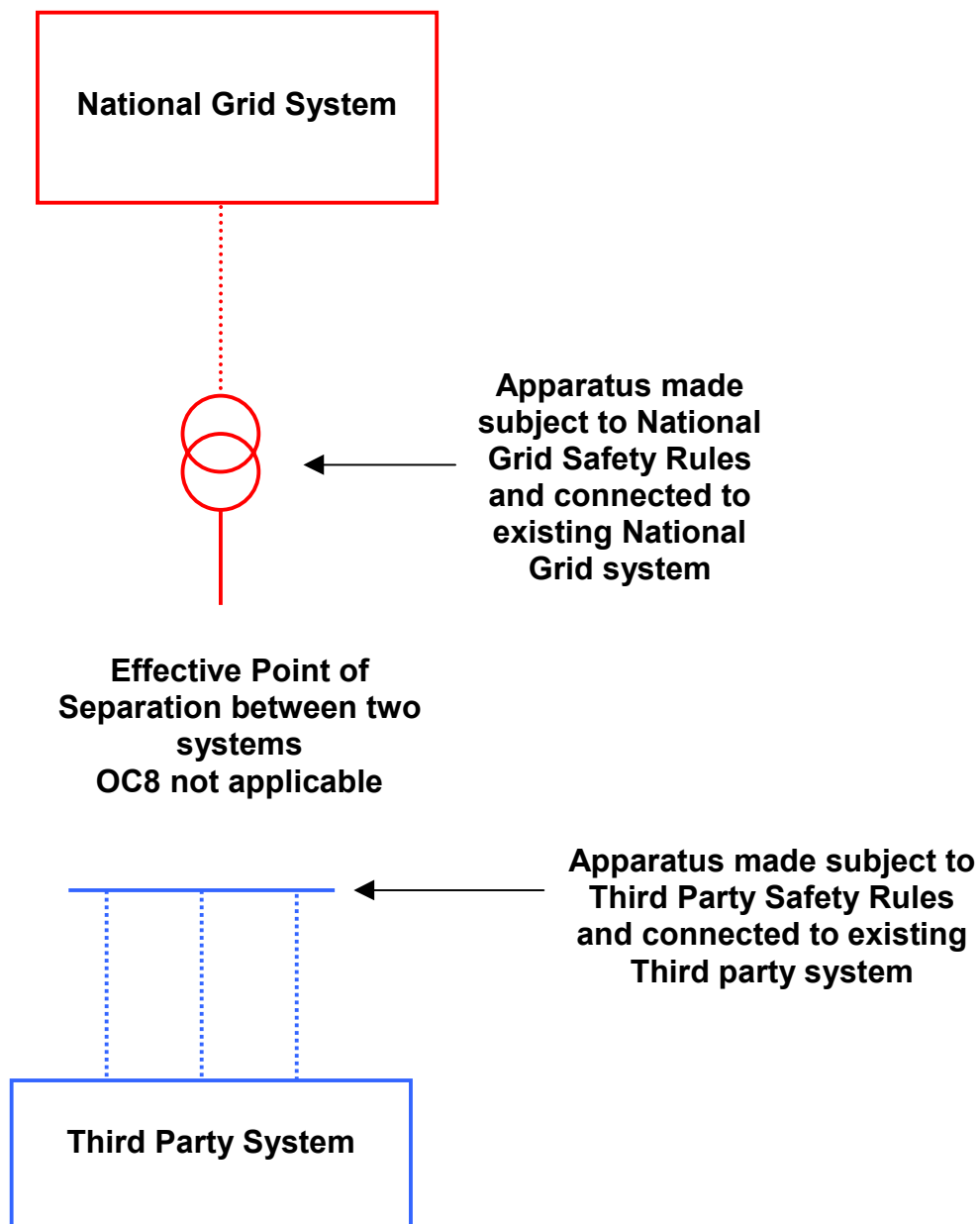
### Potential solutions

6. It is proposed that prior to the HV equipment being classified as one system formal authorisation should be sought from all relevant parties to endorse and agree to the connection being made readily connectable from a defined time and date.
7. This formal process will have the benefit of clearly defining when the requirements of OC8 would become applicable. It will also avoid the potential for safety to be compromised at the control boundary by the different working practices adopted by various companies (see [appendix 1](#) for details).
8. To facilitate this process it is proposed that the Grid Code connection conditions Appendix 1 be amended to incorporate a section detailing the requirements (see [appendix 3](#) for details) and an amendment to the Site Responsibility Schedule Proforma. It will not be necessary to retrospectively change the existing Site Responsibility Schedules only when an amendment to the schedule is required.
9. This amendment would be an enhancement to the existing signature section:
  - Modification History (summarising the changes made and issue number)
  - Acknowledgement (agreeing to the accuracy of the changes for the planned date)
  - Effective (when the changes are actually effective and the requirements of OC8 are applicable)(See [appendix 2](#) for an example)
10. The process will be in two stages:
  - (a) Amendments would be made to the Site Responsibility Schedule details, Modification History and planned date. All parties would acknowledge the accuracy of these new changes for the proposed planned date by signing and dating.

- (b) On the day of the change taking effect, the relevant Control Person of each party would agree the changes, sign and date their copy of the Site Responsibility Schedule. Each Control Person will then communicate this information internally to their respective companies using their own internal procedures. The requirements of OC8 would then become applicable.

### Scenario 1: Discrete HV project involving two parties

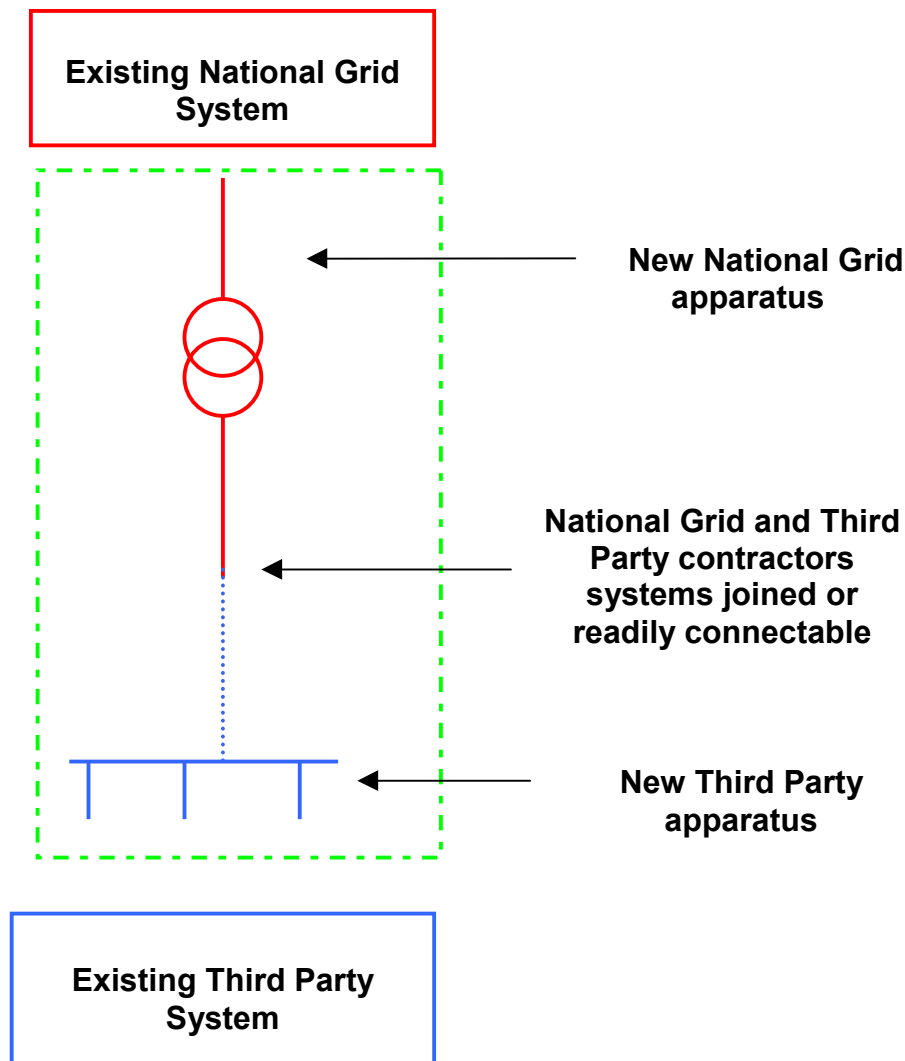
11. Prior to the two systems being able to be connected together (readily connectable) the existing Site Responsibility Schedule would be modified and the Modification history section completed. All parties would acknowledge these changes for the proposed date by signing the 'acknowledgement' section.
12. On the day of the change taking effect, the relevant Control Person of each party would agree the changes and sign and date the 'effective' section of their copy of the Site Responsibility Schedule. This would identify the new equipment to be added to the system, thus allowing the two systems to be connected together. The completion of the 'effective' section will dictate when the full requirements of OC8 will be applicable. The requirements of the Grid Code Connection Conditions with respect to changes to Operation Diagrams will also apply.



13. Effective Point of separation maintained between National Grid and Third party contractors apparatus

## Scenario 2: Systems joined prior to enactment of Safety Rules

14. In this scenario neither party could make their apparatus subject to Safety Rules without the agreement of both National Grid and the Third party. The Site Responsibility Schedule would be modified and the Modification history section completed. All parties would acknowledge these changes for the proposed date by signing the 'acknowledgement' section.
15. On the day of the change taking effect, the relevant Control Person of each party would agree the changes and sign and date the 'effective' section of their copy of the Site Responsibility Schedule. This would identify the new equipment to be added to the system, thus allowing the two systems to be connected together. The completion of the 'effective' section will dictate when the full requirements of OC8 will be applicable. The requirements of the Grid Code Connection Conditions with respect to changes to Operation Diagrams will also apply.



16. National Grid and Third party contractors apparatus to be joined or defined as readily connectable prior to being made subject to Safety Rules.

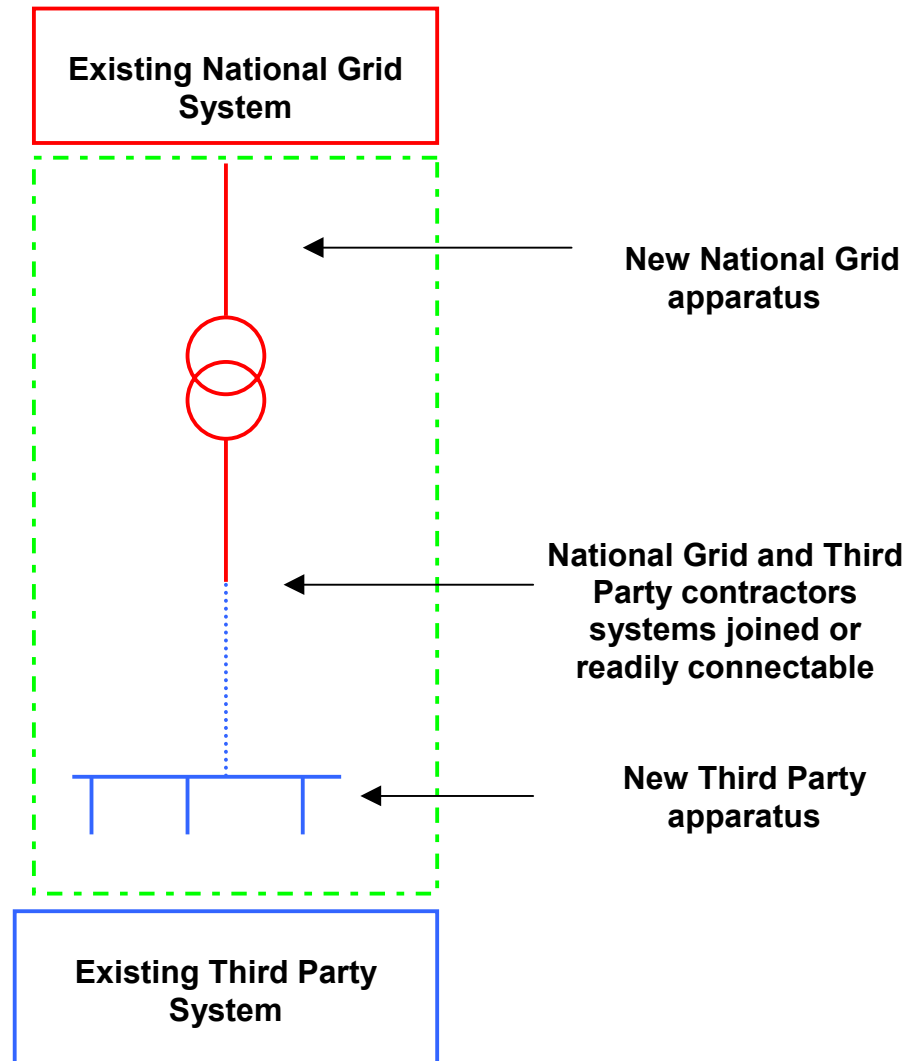
## Appendix 1

### Different Working Practices

- A1. National Grid's safety rules and internal procedures cover the requirements for the addition and removal of equipment to the National Grid system. The philosophy being that all plant is declared as HV equipment before a connection is made to the HV system.
- A2. This is contrary to the process by which some third parties operate where by additions and alterations to the system are carried out prior to being declared as part of their system. The management of the connection between two systems needs careful consideration particularly in light of the different working practices at control boundaries.
- A3. The HV System Change Certificate (HVSCC) included in National Grid's National Safety Instruction 33 defines the time and date when plant is to be declared as part of the National Grid system and ensures all National Grid controlled documentation is updated prior to the connection.
- A4. The third party control person has responsibility for co-ordinating changes and alterations to his system under his own safety rules and procedures. There is no requirement within the Grid Code, for third parties controlling equipment under their own safety rules and procedures, to follow National Grid's internal procedures or vice versa.



Example



- A5. In this example National Grid would make their new apparatus part of the system prior to the connection being made to National Grid's existing system.
- A6. Some third parties connect their new apparatus to their existing system before they recognise the apparatus as part of their system.
- A7. When these two different processes are used within each respective company's system safety is never compromised. Where there is a connection between companies, as in the above example, safety can be compromised as there would be apparatus connected together where some of the apparatus is classified as part of the system and some is not.
- A8. For the connection to be made between the Transformer and National Grid's existing system a RISSP would be required by NGET from the Third Party. At this stage the Third party would not be able to agree to a RISSP as they do not recognise their new apparatus as part of their system.



Site Responsibility Schedule  
for England and Wales

**SITE RESPONSIBILITY SCHEDULE**

**Appendix 2**

\_\_\_\_\_ AREA

Complex: \_\_\_\_\_

Schedules: \_\_\_\_\_

Page Number \_\_\_\_\_

Issue Number \_\_\_\_\_

- 1. HV Equipment
- 2. NOTES

**Modification History:**

No.	Details	Date
1		

I acknowledge on behalf of the Responsible Manager (Grid Code CC.A.1.1.17) that the changes identified in the Modification History No.\_\_\_\_are accurate and are planned for \_\_\_\_\_ and will take effect on the date set out below when signed by the control persons

Signed:	Name:	Company:	Date:
Signed:	Name:	Company:	Date:
Signed:	Name:	Company:	Date:
Signed:	Name:	Company:	Date:

Effective as of \_\_\_\_\_(date) \_\_\_\_\_ (time)

Control Person Name:	Company:
Control Person Name:	Company:
Control Person Name:	Company:

Site Responsibility Schedule for SP Transmission Ltd

Paper GCRP 05/29  
24 November 2005

**SP TRANSMISSION Ltd**  
**SITE RESPONSIBILITY SCHEDULE**  
**OWNERSHIP, MAINTENANCE AND OPERATIONS OF EQUIPMENT**  
**IN JOINT USER SITUATIONS**

Network Area: \_\_\_\_\_

Sheet No. \_\_\_\_\_

Revision: \_\_\_\_\_

Date: \_\_\_\_\_

**SECTION 'A' BUILDING AND SITE**

OWNER	
LESSEE	
MAINTENANCE	
SAFETY	
SECURITY	

ACCESS REQUIRED - \_\_\_\_\_  
SPECIAL CONDITIONS - \_\_\_\_\_  
LOCATION OF SUPPLY TERMINALS - \_\_\_\_\_

**SECTION 'B' CUSTOMER OR OTHER PARTY**

NAME -				
ADDRESS -				
TEL NO -				
SUB STATION -				
LOCATION -				

**SECTION 'C' PLANT**

ITEM Nos	EQUIPMENT	IDENTIFICATION	OWNER	SAFETY RULES APPLICABLE	OPERATION				MAINTENANCE		FAULT INVESTIGATION			TESTING		RELAY SETTINGS	REMARKS
					Tripping	Closing	Isolating	Earthing	Primary Equip	Protection Equip	Primary Equip	Protection Equip	Reclosure	Trip and Alarm	Primary Equip		

**SECTION 'D' CONFIGURATION AND CONTROL**

ITEM Nos	CONFIGURATION RESPONSIBILITY	TELEPHONE NUMBER	REMARKS

ITEM Nos	CONTROL RESPONSIBILITY	TELEPHONE NUMBER	REMARKS

**ABBREVIATIONS:-**

- D - SP AUTHORISED PERSON - DISTRIBUTION SYSTEM
- NDC - NATIONAL GRID COMPANY
- SPD - SP DISTRIBUTION LTD
- SPPS - POWERSYSTEMS
- SPT - SP TRANSMISSION LTD
- ST - SCOTTISH POWER TELECOMMUNICATIONS
- T - SP AUTHORISED PERSON - TRANSMISSION SYSTEM
- U - USER

**SECTION 'E' ADDITIONAL INFORMATION**

SIGNED \_\_\_\_\_ FOR SP Transmission DATE \_\_\_\_\_

SIGNED \_\_\_\_\_ FOR SP Distribution DATE \_\_\_\_\_

SIGNED \_\_\_\_\_ FOR PowerSystems/User DATE \_\_\_\_\_

Effective as of \_\_\_\_\_ (date) \_\_\_\_\_ (time)

Control Person Name:

Company

Control Person Name:

Company



## Appendix 3

### EXTRACT FROM THE CONNECTION CONDITIONS

#### APPENDIX 1

#### FORMAT, PRINCIPLES AND BASIC PROCEDURE TO BE USED IN THE PREPARATION OF **SITE RESPONSIBILITY SCHEDULES**

##### CC.A.1.1 PRINCIPLES

###### Types of Schedules

CC.A.1.1.1 At all **Complexes** the following **Site Responsibility Schedules** shall be drawn up using the relevant proforma attached or with such variations as may be agreed between **NGET** and **Users**, but in the absence of agreement the relevant proforma attached will be used:

- (a) Schedule of **HV Apparatus**
- (b) Schedule of **Plant, LV/MV Apparatus**, services and supplies;
- (c) Schedule of telecommunications and measurements **Apparatus**.

Other than at **Generating Unit, DC Converter, Power Park Module** and **Power Station** locations, the schedules referred to in (b) and (c) may be combined.

###### New Connection Sites

CC.A.1.1.2 In the case of a new **Connection Site** each **Site Responsibility Schedule** for a **Connection Site** shall be prepared by **NGET** in consultation with relevant **Users** at least 2 weeks prior to the **Completion Date** under the **Bilateral Agreement** and/or **Construction Agreement** for that **Connection Site** (which may form part of a **Complex**). Each **User** shall, in accordance with the timing requirements of the **Bilateral Agreement** and/or **Construction Agreement**, provide information to **NGET** to enable it to prepare the **Site Responsibility Schedule**.

###### Sub-division

CC.A.1.1.3 Each **Site Responsibility Schedule** will be subdivided to take account of any separate **Connection Sites** on that **Complex**.

###### Scope

CC.A.1.1.4 Each **Site Responsibility Schedule** shall detail for each item of **Plant** and **Apparatus**:-

- (a) **Plant/Apparatus** ownership;
- (b) Site Manager (Controller) (except in the case of **Plant/Apparatus** located in **SPT's Transmission Area**);

- (c) Safety issues comprising applicable **Safety Rules** and **Control Person** or other responsible person (**Safety Co-ordinator**), or such other person who is responsible for safety;
- (d) Operations issues comprising applicable **Operational Procedures** and control engineer;
- (e) Responsibility to undertake statutory inspections, fault investigation and maintenance.

Each **Connection Point** shall be precisely shown.

#### Detail

- CC.A.1.1.5 (a) In the case of **Site Responsibility Schedules** referred to in CC.A.1.1.1(b) and (c), with the exception of **Protection Apparatus** and **Intertrip Apparatus** operation, it will be sufficient to indicate the responsible **User** or **Transmission Licensee**, as the case may be.
- (b) In the case of the **Site Responsibility Schedule** referred to in CC.A.1.1.1(a) and for **Protection Apparatus** and **Intertrip Apparatus**, the responsible management unit must be shown in addition to the **User** or **Transmission Licensee**, as the case may be.
- CC.A.1.1.6 The **HV Apparatus Site Responsibility Schedule** for each **Connection Site** must include lines and cables emanating from or traversing<sup>1</sup> the **Connection Site**.

#### Issue Details

- CC.A.1.1.7 Every page of each **Site Responsibility Schedule** shall bear the date of issue and the issue number.

#### Accuracy Confirmation

- CC.A.1.1.8 When a **Site Responsibility Schedule** is prepared it shall be sent by **NGET** to the **Users** involved for confirmation of its accuracy.
- CC.A.1.1.9 The **Site Responsibility Schedule** shall then be signed on behalf of **NGET** by its **Responsible Manager** (see CC.A.1.1.4617) and on behalf of each **User** involved by its **Responsible Manager** (see CC.A.1.1.4617), by way of written confirmation of its accuracy. For **Connection Sites** in Scotland, the **Site Responsibility Schedule** will also be signed on behalf of the **Relevant Transmission Licensee** by its **Responsible Manager**.

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<sup>1</sup> Details of circuits traversing the **Connection Site** are only needed from the date which is the earlier of the date when the **Site Responsibility Schedule** is first updated and 15<sup>th</sup> October 2004. In Scotland, from a date to be agreed between **NGET** and the **Relevant Transmission Licensee**.

### Distribution and Availability

- CC.A.1.1.10 Once signed, two copies will be distributed by **NGET**, not less than two weeks prior to its implementation date, to each **User** which is a party on the **Site Responsibility Schedule**, accompanied by a note indicating the issue number and the date of implementation.
- CC.A.1.1.11 **NGET** and **Users** must make the **Site Responsibility Schedules** readily available to operational staff at the **Complex** and at the other relevant control points.

### CC.A.1.1.12 Effective Date

The Effective Date is the date on which the relevant **Control Person** confirms to the other parties the implementation of or changes to the **Site Responsibility Schedule** and signs and dates their copy of the **Site Responsibility Schedule**. Each **Safety Co-ordinator** will then communicate and distribute this information to their respective organisations using their own internal procedures.

### Alterations to Existing **Site Responsibility Schedules**

- CC.A 1.1.1~~32~~ Without prejudice to the provisions of CC.A.1.1.~~45-16~~ which deals with urgent changes, when a **User** identified on a **Site Responsibility Schedule** becomes aware that an alteration is necessary, it must inform **NGET** immediately and in any event 8 weeks prior to any change taking effect (or as soon as possible after becoming aware of it, if less than 8 weeks remain when the **User** becomes aware of the change). This will cover the commissioning of new **Plant** and/or Apparatus at the **Connection Site**, whether requiring a revised **Bilateral Agreement** or not, de-commissioning of **Plant** and/or **Apparatus**, and other changes which affect the accuracy of the **Site Responsibility Schedule**.
- CC.A 1.1.1~~43~~ Where **NGET** has been informed of a change by a **User**, or itself proposes a change, it will prepare a revised **Site Responsibility Schedule** by not less than six weeks prior to the change taking effect (subject to it having been informed or knowing of the change eight weeks prior to that time) and the procedure set out in CC.A.1.1.8 shall be followed with regard to the revised **Site Responsibility Schedule**.
- CC.A 1.1.1~~54~~ The revised **Site Responsibility Schedule** shall then be signed in accordance with the procedure set out in CC.A.1.1.9 and distributed in accordance with the procedure set out in CC.A.1.1.10, accompanied by a note indicating where the alteration(s) has/have been made, the new issue number and the date of implementation.

### Urgent Changes

- CC.A.1.1.1~~65~~ When a **User** identified on a **Site Responsibility Schedule**, or **NGET**, as the case may be, becomes aware that an alteration to the **Site Responsibility Schedule** is necessary urgently to reflect, for example, an emergency situation which has arisen outside its



control, the **User** shall notify **NGET**, or **NGET** shall notify the **User**, as the case may be, immediately and will discuss:

- (a) what change is necessary to the **Site Responsibility Schedule**;
- (b) whether the **Site Responsibility Schedule** is to be modified temporarily or permanently;
- (c) the distribution of the revised **Site Responsibility Schedule**.

**NGET** will prepare a revised **Site Responsibility Schedule** as soon as possible, and in any event within seven days of it being informed of or knowing the necessary alteration. The **Site Responsibility Schedule** will be confirmed by **Users** and signed on behalf of **NGET** and **Users** (by the persons referred to in CC.A.1.1.9) as soon as possible after it has been prepared and sent to **Users** for confirmation.

#### **Responsible Managers**

CC.A.1.1.1~~76~~ Each **User** shall, prior to the **Completion Date** under each **Bilateral Agreement** and/or **Construction Agreement**, supply to **NGET** a list of Managers who have been duly authorised to sign **Site Responsibility Schedules** on behalf of the **User** and **NGET** shall, prior to the **Completion Date** under each **Bilateral Agreement** and/or **Construction Agreement**, supply to that **User** the name of its **Responsible Manager** and for **Connection Sites** in Scotland, the name of the **Relevant Transmission Licensee's Responsible Manager** and each shall supply to the other any changes to such list six weeks before the change takes effect where the change is anticipated, and as soon as possible after the change, where the change was not anticipated.

#### **De-commissioning of Connection Sites**

CC.A.1.1.1~~87~~ Where a **Connection Site** is to be de-commissioned, whichever of **NGET** or the **User** who is initiating the de-commissioning must contact the other to arrange for the **Site Responsibility Schedule** to be amended at the relevant time