

DATA REGISTRATION CODE

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(This contents page does not form part of the Grid Code)

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DATA REGISTRATION CODE

DRC.1 INTRODUCTION

DRC.1.1 The **Data Registration Code ("DRC")** presents a unified listing of all data required by **NGET** from **Users** and by **Users** from **NGET**, from time to time under the **Grid Code**. The data which is specified in each section of the **Grid Code** is collated here in the **DRC**. Where there is any inconsistency in the data requirements under any particular section of the **Grid Code** and the **Data Registration Code** the provisions of the particular section of the **Grid Code** shall prevail.

DRC.1.2 The **DRC** identifies the section of the **Grid Code** under which each item of data is required.

DRC.1.3 The Code under which any item of data is required specifies procedures and timings for the supply of that data, for routine updating and for recording temporary or permanent changes to that data. All timetables for the provision of data are repeated in the **DRC**.

DRC.1.4 Various sections of the **Grid Code** also specify information which the **Users** will receive from **NGET**. This information is summarised in a single schedule in the **DRC** (Schedule 9).

DRC.2 OBJECTIVE

The objective of the **DRC** is to:

DRC.2.1 List and collate all the data to be provided by each category of **User** to **NGET** under the **Grid Code**.

DRC.2.2 List all the data to be provided by **NGET** to each category of **User** under the **Grid Code**.

DRC.3 SCOPE

DRC.3.1 The **DRC** applies to **NGET** and to **Users**, which in this **DRC** means:-

- (a) **Generators;**
- (b) **Network Operators;**
- (c) **DC Converter Station** owners
- (d) **Suppliers;**
- (e) **Non-Embedded Customers** (including, for the avoidance of doubt, a **Pumped Storage Generator** in that capacity);
- (f) **Externally Interconnected System Operators;**
- (g) **Interconnector Users; and**

(h) **BM Participants.**

DRC.4 **DATA CATEGORIES AND STAGES IN REGISTRATION**

DRC.4.1.1 Within the **DRC** each data item is allocated to one of the following three categories:

(a) **Standard Planning Data (SPD)**

(b) **Detailed Planning Data (DPD)**

(c) **Operational Data**

DRC.4.2 **Standard Planning Data (SPD)**

DRC.4.2.1 The **Standard Planning Data** listed and collated in this **DRC** is that data listed in Part 1 of the Appendix to the **PC**.

DRC.4.2.2 **Standard Planning Data** will be provided to **NGET** in accordance with PC.4.4 and PC.A.1.2.

DRC.4.3 **Detailed Planning Data (DPD)**

DRC.4.3.1 The **Detailed Planning Data** listed and collated in this **DRC** is that data listed in Part 2 of the Appendix to the **PC**.

DRC.4.3.2 **Detailed Planning Data** will be provided to **NGET** in accordance with PC.4.4, PC.4.5 and PC.A.1.2.

DRC.4.4 **Operational Data**

DRC.4.4.1 **Operational Data** is data which is required by the **Operating Codes** and the **Balancing Codes**. Within the **DRC**, **Operational Data** is sub-categorised according to the **Code** under which it is required, namely **OC1**, **OC2**, **BC1** or **BC2**.

DRC.4.4.2 **Operational Data** is to be supplied in accordance with timetables set down in the relevant **Operating Codes** and **Balancing Codes** and repeated in tabular form in the schedules to the **DRC**.

DRC.5 **PROCEDURES AND RESPONSIBILITIES**

DRC.5.1 **Responsibility for Submission and Updating of Data**

In accordance with the provisions of the various sections of the **Grid Code**, each **User** must submit data as summarised in DRC.6 and listed and collated in the attached schedules.

DRC.5.2 Methods of Submitting Data

DRC.5.2.1 Wherever possible the data schedules to the **DRC** are structured to serve as standard formats for data submission and such format must be used for the written submission of data to **NGET**.

DRC.5.2.2 Data must be submitted to the **Transmission Control Centre** notified by **NGET** or to such other department or address as **NGET** may from time to time advise. The name of the person at the **User** who is submitting each schedule of data must be included.

DRC.5.2.3 Where a computer data link exists between a **User** and **NGET**, data may be submitted via this link. **NGET** will, in this situation, provide computer files for completion by the **User** containing all the data in the corresponding **DRC** schedule.

Data submitted can be in an electronic format using a proforma to be supplied by **NGET** or other format to be agreed annually in advance with **NGET**. In all cases the data must be complete and relate to, and relate only to, what is required by the relevant section of the **Grid Code**.

DRC.5.2.4 Other modes of data transfer, such as magnetic tape, may be utilised if **NGET** gives its prior written consent.

DRC.5.3 Changes to Users' Data

DRC.5.3.1 Whenever a **User** becomes aware of a change to an item of data which is registered with **NGET** the **User** must notify **NGET** in accordance with each section of the **Grid Code**. The method and timing of the notification to **NGET** is set out in each section of the **Grid Code**.

DRC.5.4 Data not Supplied

DRC.5.4.1 **Users** and **NGET** are obliged to supply data as set out in the individual sections of the **Grid Code** and repeated in the **DRC**. If a **User** fails to supply data when required by any section of the **Grid Code**, **NGET** will estimate such data if and when, in the **NGET's** view, it is necessary to do so. If **NGET** fails to supply data when required by any section of the **Grid Code**, the **User** to whom that data ought to have been supplied, will estimate such data if and when, in that **User's** view, it is necessary to do so. Such estimates will, in each case, be based upon data supplied previously for the same **Plant** or **Apparatus** or upon corresponding data for similar **Plant** or **Apparatus** or upon such other information as **NGET** or that **User**, as the case may be, deems appropriate.

DRC.5.4.2 **NGET** will advise a **User** in writing of any estimated data it intends to use pursuant to DRC.5.4.1 relating directly to that **User's Plant** or **Apparatus** in the event of data not being supplied.

DRC.5.4.3 A **User** will advise **NGET** in writing of any estimated data it intends to use pursuant to DRC.5.4.1 in the event of data not being supplied.

- DRC.5.5 Substituted Data
- DRC.5.5.1 In the case of PC.A.4 only, if the data supplied by a **User** does not in **NGET's** reasonable opinion reflect the equivalent data recorded by **NGET**, **NGET** may estimate such data if and when, in the view of **NGET**, it is necessary to do so. Such estimates will, in each case, be based upon data supplied previously for the same **Plant** or **Apparatus** or upon corresponding data for similar **Plant** or **Apparatus** or upon such other information as **NGET** deems appropriate.
- DRC.5.5.2 **NGET** will advise a **User** in writing of any estimated data it intends to use pursuant to DRC.5.5.1 relating directly to that **User's Plant** or **Apparatus** where it does not in **NGET's** reasonable opinion reflect the equivalent data recorded by **NGET**. Such estimated data will be used by **NGET** in place of the appropriate data submitted by the **User** pursuant to PC.A.4 and as such shall be deemed to accurately represent the **User's** submission until such time as the **User** provides data to **NGET's** reasonable satisfaction.
- DRC.6 **DATA TO BE REGISTERED**
- DRC.6.1 Schedules 1 to 15 attached cover the following data areas.
- DRC.6.1.1 **SCHEDULE 1 - GENERATING UNIT (OR CCGT Module), POWER PARK MODULE and DC CONVERTER TECHNICAL DATA.**
- Comprising **Generating Unit** (and **CCGT Module**), **Power Park Module** and **DC Converter** fixed electrical parameters.
- DRC.6.1.2 **SCHEDULE 2 - GENERATION PLANNING PARAMETERS**
- Comprising the **Genset** parameters required for **Operational Planning** studies.
- DRC.6.1.3 **SCHEDULE 3 - LARGE POWER STATION OUTAGE PROGRAMMES, OUTPUT USABLE AND INFLEXIBILITY INFORMATION.**
- Comprising generation outage planning, **Output Usable** and inflexibility information at timescales down to the daily **BM Unit Data** submission.
- DRC.6.1.4 **SCHEDULE 4 - LARGE POWER STATION DROOP AND RESPONSE DATA.**
- Comprising data on governor **Droop** settings and **Primary, Secondary** and **High Frequency Response** data for **Large Power Stations**.
- DRC.6.1.5 **SCHEDULE 5 - USER'S SYSTEM DATA.**
- Comprising electrical parameters relating to **Plant** and **Apparatus** connected to the **National Electricity Transmission System**.
- DRC.6.1.6 **SCHEDULE 6 - USERS OUTAGE INFORMATION.**
- Comprising the information required by **NGET** for outages on the **Users System**, including outages at **Power Stations** other than outages of **Gensets**
- DRC.6.1.7 **SCHEDULE 7 - LOAD CHARACTERISTICS.**
- Comprising the estimated parameters of load groups in respect of, for example, harmonic content and response to frequency.

- DRC.6.1.8 SCHEDULE 8 - **BM UNIT DATA**.
- DRC.6.1.9 SCHEDULE 9 - DATA SUPPLIED BY **NGET TO USERS**.
- DRC.6.1.10 SCHEDULE 10 - **DEMAND PROFILES AND ACTIVE ENERGY DATA**
 Comprising information relating to the **Network Operators' and Non-Embedded Customers' total Demand and Active Energy** taken from the **National Electricity Transmission System**
- DRC.6.1.11 SCHEDULE 11 - **CONNECTION POINT DATA**
 Comprising information relating to **Demand**, demand transfer capability and a summary of the **Small Power Station, Medium Power Station and Customer** generation connected to the **Connection Point**
- DRC.6.1.12 SCHEDULE 12 - **DEMAND CONTROL DATA**
 Comprising information related to **Demand Control**
- DRC.6.1.13 SCHEDULE 13 - **FAULT INFEED DATA**
 Comprising information relating to the Short Circuit contribution to the **National Electricity Transmission System** from **Users** other than **Generators** and **DC Converter Station** owners.
- DRC.6.1.14 SCHEDULE 14 - **FAULT INFEED DATA**
 Comprising information relating to the Short Circuit contribution to the **National Electricity Transmission System** from **Generators** and **DC Converter Station** owners.
- DRC.6.1.15 SCHEDULE 15 – **MOTHBALLED GENERATING UNIT, MOTHBALLED POWER PARK MODULE, MOTHBALLED DC CONVERTERS AT A DC CONVERTER STATION AND ALTERNATIVE FUEL DATA**
 Comprising information relating to estimated return to service times for **Mothballed Generating Units, Mothballed Power Park Modules and Mothballed DC Converters at a DC Converter Station** and the capability of gas-fired **Generating Units** to operate using alternative fuels.
- DRC.6.1.16 SCHEDULE 16 – **BLACK START INFORMATION**
 Comprising information relating to **Black Start**.
- DRC.6.1.17 SCHEDULE 17 – **ACCESS PERIOD SCHEDULE**
 Comprising **Access Period** information for **Transmission Interface Circuits** within an **Access Group**.
- DRC.6.2 The **Schedules** applicable to each class of **User** are as follows:
- | | |
|--|---------------------------------|
| Generators with Large Power Stations | Sched 1, 2, 3, 4, 9, 14, 15, 16 |
| Generators with Medium Power Stations (See notes 2, 3, 4) | Sched 1, 2 (part), 9, 14, 15 |

Generators with Small Power Stations directly connected to the National Electricity Transmission System	Sched 1, 6, 14, 15
All Users connected directly to the National Electricity Transmission System	Sched 5, 6, 9
All Users connected directly to the National Electricity Transmission System other than Generators	Sched 10,11,13,17
All Users connected directly to the National Electricity Transmission System with Demand	Sched 7, 9
A Pumped Storage Generator, Externally Interconnected System Operator and Interconnector Users	Sched12 (as marked)
All Suppliers	Sched 12
All Network Operators	Sched 12
All BM Participants	Sched 8
All DC Converter Station owners	Sched 1, 4, 9, 14, 15

Notes:

1. **Network Operators** must provide data relating to **Small Power Stations** and/or **Customer Generating Plant Embedded** in their **Systems** when such data is requested by **NGET** pursuant to PC.A.3.1.4 or PC.A.5.1.4.
2. The data in schedules 1, 14 and 15 need not be supplied in relation to **Medium Power Stations** connected at a voltage level below the voltage level of the **Subtransmission System** except in connection with a **CUSC Contract** or unless specifically requested by **NGET**.
3. Each **Network Operator** within whose **System** an **Embedded Medium Power Station** not subject to a **Bilateral Agreement** or **Embedded DC Converter Station** not subject to a **Bilateral Agreement** is situated shall provide the data to **NGET** in respect of each such **Embedded Medium Power Station** or **Embedded DC Converter Station**.
4. In the case of Schedule 2, **Generators, DC Converter Station** owners or **Network Operators** in the case of **Embedded Medium Power Stations** not subject to a **Bilateral Agreement** or **Embedded DC Converter Stations** not subject to a **Bilateral Agreement**, would only be expected to submit data in relation to **Standard Planning Data** as required by the **Planning Code**.

ABBREVIATIONS:

SPD = Standard Planning Data

% on MVA = % on Rated MVA

% on 100 = % on 100 MVA

DPD = Detailed Planning Data

RC = Registered Capacity

OC1, BC1, etc = Grid Code for which data is required

CUSC Contract = **User** data which may be submitted to the **Relevant Transmission Licensees** by **NGET**, following the acceptance by a **User** of a **CUSC Contract**.

CUSC App. Form = **User** data which may be submitted to the **Relevant Transmission Licensees** by **NGET**, following an application by a **User** for a **CUSC Contract**.

Note:

All parameters, where applicable, are to be measured at nominal **System Frequency**

+ - these **SPD** items should only be given in the data supplied with the application for a **CUSC Contract**.

* - Asterisk items are not required for **Small Power Stations** and **Medium Power Stations**

Information is to be given on a **Unit** basis, unless otherwise stated. Where references to **CCGT Modules** are made, the columns "G1" etc should be amended to read "M1" etc, as appropriate

□ - These data items may be submitted to the **Relevant Transmission Licensees** from **NGET** in respect of the **National Electricity Transmission System**.

The data may be submitted to the **Relevant Transmission Licensees** in a summarised form e.g. network model; the data transferred will have been originally derived from data submitted by **Users** to **NGET**.

■ - these data items may be submitted to the **Relevant Transmission Licensee** from **NGET** in respect to **Relevant Units** only.

The data may be submitted to the **Relevant Transmission Licensee** in a summarised form e.g. network model; the data transferred will have been originally derived from data submitted by **Users** to **NGET**.

GENERATING UNIT (OR CCGT MODULE) TECHNICAL DATA

POWER STATION NAME: _____

DATE: _____

DATA DESCRIPTION	UNITS	DATA to		DATA CAT.	GENERATING UNIT OR STATION DATA							
		RTL			FYr 0	FYr 1	FYr 2	FYr 3	FYr 4	FYr 5	FYr 6	
		CUSC Cont ract	CUSC App. Form									
GENERATING STATION DEMANDS:												
<p>Demand associated with the Power Station supplied through the National Electricity Transmission System or the Generator's User System (<i>PC.A.5.2</i>)</p> <ul style="list-style-type: none"> - The maximum Demand that could occur. 												
	MW Mvar	<input type="checkbox"/>		DPD								
	MW Mvar	<input type="checkbox"/>		DPD								
	MW Mvar	<input type="checkbox"/>		DPD								
	MW Mvar	<input type="checkbox"/>		DPD								
<p>Demand at specified time of annual peak half hour of National Electricity Transmission Demand at Annual ACS Conditions.</p>												
	MW Mvar	<input type="checkbox"/>		DPD								
	MW Mvar	<input type="checkbox"/>		DPD								
<p>Demand at specified time of annual minimum half-hour of National Electricity Transmission System Demand.</p>												
(Additional Demand supplied through the unit transformers to be provided below)												
<u>INDIVIDUAL GENERATING UNIT (OR AS THE CASE MAY BE, CCGT MODULE) DATA</u>					G1	G2	G3	G4	G5	G6	STN	
<p>Point of connection to the National Electricity Transmission System (or the Total System if embedded) of the Generating Unit (other than a CCGT Unit) or the CCGT Module, as the case may be in terms of geographical and electrical location and system voltage (<i>PC.A.3.4.1</i>)</p>												
	Text	<input type="checkbox"/>	■	SPD								
<p>If the busbars at the Connection Point are normally run in separate sections identify the section to which the Generating Unit (other than a CCGT Unit) or CCGT Module, as the case may be is connected (<i>PC.A.3.1.5</i>)</p>												
	Section Number	<input type="checkbox"/>	■	SPD								
<p>Type of Unit (steam, Gas Turbine Combined Cycle Gas Turbine Unit, tidal, wind, etc.) (<i>PC.A.3.2.2 (h)</i>)</p>												
		<input type="checkbox"/>										
<p>A list of the CCGT Units within a CCGT Module, identifying each CCGT Unit, and the CCGT Module of which it forms part, unambiguously. In the case of a Range CCGT Module, details of the possible configurations should also be submitted. (<i>PC.A.3.2.2 (g)</i>)</p>												
		<input type="checkbox"/>	■	SPD								

DATA DESCRIPTION	UNITS	DATA to RTL		DATA CAT.	GENERATING UNIT (OR CCGT MODULE, AS THE CASE MAY BE)							
		CUSC Cont ract	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN	
Rated MVA (PC.A.3.3.1)	MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Rated MW (PC.A.3.3.1)	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Rated terminal voltage (PC.A.5.3.2.(a) & PC.A.5.4.2 (b))	kV	<input type="checkbox"/>		DPD								
*Performance Chart at Onshore Synchronous Generating Unit stator terminals (PC.A.3.2.2(f)(i))				SPD	(see OC2 for specification)							
* Performance Chart of the Offshore Synchronous Generating Unit at the Offshore Grid Entry Point (PC.A.3.2.2(f)(ii))												
* Output Usable (on a monthly basis) (PC.A.3.2.2(b))	MW			SPD	(except in relation to CCGT Modules when required on a unit basis under the Grid Code , this data item may be supplied under Schedule 3)							
Turbo-Generator inertia constant (for synchronous machines) (PC.A.5.3.2(a))	MW secs /MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Short circuit ratio (synchronous machines) (PC.A.5.3.2(a))		<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Normal auxiliary load supplied by the Generating Unit at rated MW output (PC.A.5.2.1)	MW	<input type="checkbox"/>		DPD								
	Mvar	<input type="checkbox"/>		DPD								
Rated field current at rated MW and Mvar output and at rated terminal voltage (PC.A.5.3.2 (a))	A	<input type="checkbox"/>		DPD								
Field current open circuit saturation curve (as derived from appropriate manufacturers' test certificates): (PC.A.5.3.2 (a))												
120% rated terminal volts	A	<input type="checkbox"/>		DPD								
110% rated terminal volts	A	<input type="checkbox"/>		DPD								
100% rated terminal volts	A	<input type="checkbox"/>		DPD								
90% rated terminal volts	A	<input type="checkbox"/>		DPD								
80% rated terminal volts	A	<input type="checkbox"/>		DPD								
70% rated terminal volts	A	<input type="checkbox"/>		DPD								
60% rated terminal volts	A	<input type="checkbox"/>		DPD								
50% rated terminal volts	A	<input type="checkbox"/>		DPD								
IMPEDANCES:												
(Unsatrated)												
Direct axis synchronous reactance (PC.A.5.3.2(a))	% on MVA	<input type="checkbox"/>		DPD								
Direct axis transient reactance (PC.A.3.3.1(a)& PC.A.5.3.2(a))	% on MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Direct axis sub-transient reactance (PC.A.5.3.2(a))	% on MVA	<input type="checkbox"/>		DPD								
Quad axis synch reactance (PC.A.5.3.2(a))	% on MVA	<input type="checkbox"/>		DPD								
Quad axis sub-transient reactance (PC.A.5.3.2(a))	% on MVA	<input type="checkbox"/>		DPD								
Stator leakage reactance (PC.A.5.3.2(a))	% on MVA	<input type="checkbox"/>		DPD								
Armature winding direct current resistance. (PC.A.5.3.2(a))	% on MVA	<input type="checkbox"/>		DPD								
In Scotland, negative sequence resistance (PC.A.2.5.6 (a) (iv))	% on MVA	<input type="checkbox"/>		DPD								
Note:-												
the above data item relating to armature winding direct-current resistance need only be provided by Generators in relation to Generating Units commissioned after 1st March 1996 and in cases where, for whatever reason, the Generator is aware of the value of the data item.												

DATA DESCRIPTION	UNITS	DATA to RTL		DAT A CAT.	GENERATING UNIT OR STATION DATA						
		CUSC Contr act	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
TIME CONSTANTS (Short-circuit and Unsaturated)											
Direct axis transient time constant (PC.A.5.3.2(a))	S	<input type="checkbox"/>		DPD							
Direct axis sub-transient time constant (PC.A.5.3.2(a))	S	<input type="checkbox"/>		DPD							
Quadrature axis sub-transient time constant (PC.A.5.3.2(a))	S	<input type="checkbox"/>		DPD							
Stator time constant (PC.A.5.3.2(a))	S	<input type="checkbox"/>		DPD							
GENERATING UNIT STEP-UP TRANSFORMER											
Rated MVA (PC.A.3.3.1 & PC.A.5.3.2)	MVA	<input type="checkbox"/>	■	SPD+							
Voltage Ratio (PC.A.5.3.2)	-	<input type="checkbox"/>		DPD							
Positive sequence reactance: (PC.A.5.3.2)											
Max tap	% on MVA	<input type="checkbox"/>	■	SPD+							
Min tap	% on MVA	<input type="checkbox"/>	■	SPD+							
Nominal tap	% on MVA	<input type="checkbox"/>	■	SPD+							
Positive sequence resistance: (PC.A.5.3.2)											
Max tap	% on MVA	<input type="checkbox"/>		DPD							
Min tap	% on MVA	<input type="checkbox"/>		DPD							
Nominal tap	% on MVA	<input type="checkbox"/>		DPD							
Zero phase sequence reactance (PC.A.5.3.2)	% on MVA	<input type="checkbox"/>		DPD							
Tap change range (PC.A.5.3.2)	+% / -%	<input type="checkbox"/>		DPD							
Tap change step size (PC.A.5.3.2)	%	<input type="checkbox"/>		DPD							
Tap changer type: on-load or off-circuit (PC.A.5.3.2)	On/Off	<input type="checkbox"/>		DPD							
EXCITATION:											
Note:	The data items requested under Option 1 below may continue to be provided by Generators in relation to Generating Units on the System at 9 January 1995 (in this paragraph, the "relevant date") or they may provide the new data items set out under Option 2. Generators must supply the data as set out under Option 2 (and not those under Option 1) for Generating Unit excitation control systems commissioned after the relevant date, those Generating Unit excitation control systems recommissioned for any reason such as refurbishment after the relevant date and Generating Unit excitation control systems where, as a result of testing or other process, the Generator is aware of the data items listed under Option 2 in relation to that Generating Unit .										
Option 1											
DC gain of Excitation Loop (PC.A.5.3.2(c))		<input type="checkbox"/>		DPD							
Max field voltage (PC.A.5.3.2(c))	V	<input type="checkbox"/>		DPD							
Min field voltage (PC.A.5.3.2(c))	V	<input type="checkbox"/>		DPD							
Rated field voltage (PC.A.5.3.2(c))	V	<input type="checkbox"/>		DPD							
Max rate of change of field volts: (PC.A.5.3.2(c))											
Rising	V/Sec	<input type="checkbox"/>		DPD							
Falling	V/Sec	<input type="checkbox"/>		DPD							
Details of Excitation Loop (PC.A.5.3.2(c)) Described in block diagram form showing transfer functions of individual elements	Diagram	<input type="checkbox"/>		DPD	(please attach)						
Dynamic characteristics of over- excitation limiter (PC.A.5.3.2(c))		<input type="checkbox"/>		DPD							
Dynamic characteristics of under-excitation limiter (PC.A.5.3.2(c))		<input type="checkbox"/>		DPD							

DATA DESCRIPTION	UNITS	DATA to RTL		DATA CAT.	GENERATING UNIT OR STATION DATA						
		CUSC Contr act	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
Option 2											
Exciter category, e.g. Rotating Exciter, or Static Exciter etc (PC.A.5.3.2(c))	Text	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD							
Excitation System Nominal Response (PC.A.5.3.2(c)) V_E	Sec ⁻¹	<input type="checkbox"/>		DPD							
Rated Field Voltage (PC.A.5.3.2(c)) U_{fN}	V	<input type="checkbox"/>		DPD							
No-load Field Voltage (PC.A.5.3.2(c)) U_{f0}	V	<input type="checkbox"/>		DPD							
Excitation System On-Load (PC.A.5.3.2(c))		<input type="checkbox"/>									
Positive Ceiling Voltage U_{pL+}	V	<input type="checkbox"/>		DPD							
Excitation System No-Load (PC.A.5.3.2(c))		<input type="checkbox"/>									
Positive Ceiling Voltage U_{pO+}	V	<input type="checkbox"/>		DPD							
Excitation System No-Load (PC.A.5.3.2(c))		<input type="checkbox"/>									
Negative Ceiling Voltage U_{pO-}	V	<input type="checkbox"/>		DPD							
Power System Stabiliser (PSS) (PC.A.3.4.2 fitted)	Yes/No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD							
Details of Excitation System (PC.A.5.3.2(c)) (including PSS if fitted) described in block diagram form showing transfer functions of individual elements.	Diagram	<input type="checkbox"/>		DPD							
Details of Over-excitation Limiter (PC.A.5.3.2(c)) described in block diagram form showing transfer functions of individual elements.	Diagram	<input type="checkbox"/>		DPD							
Details of Under-excitation Limiter (PC.A.5.3.2(c)) described in block diagram form showing transfer functions of individual elements.	Diagram	<input type="checkbox"/>		DPD							

DATA DESCRIPTION	UNITS	DATA to		DATA CAT.	GENERATING UNIT OR STATION DATA								
		RTL			G1	G2	G3	G4	G5	G6	STN		
		CUSC Contr act	CUSC App. Form										
<u>GOVERNOR AND ASSOCIATED PRIME MOVER PARAMETERS</u>													
<p>Note: The data items requested under Option 1 below may continue to be provided by Generators in relation to Generating Units on the System at 9 January 1995 (in this paragraph, the "relevant date") or they may provide the new data items set out under Option 2. Generators must supply the data as set out under Option 2 (and not those under Option 1) for Generating Unit governor control systems commissioned after the relevant date, those Generating Unit governor control systems recommissioned for any reason such as refurbishment after the relevant date and Generating Unit governor control systems where, as a result of testing or other process, the Generator is aware of the data items listed under Option 2 in relation to that Generating Unit.</p>													
Option 1													
<u>GOVERNOR PARAMETERS (REHEAT UNITS) (PC.A.5.3.2(d) – Option 1(i))</u>													
HP Governor average gain	MW/Hz	<input type="checkbox"/>		DPD									
Speeder motor setting range	Hz	<input type="checkbox"/>		DPD									
HP governor valve time constant	S	<input type="checkbox"/>		DPD									
HP governor valve opening limits		<input type="checkbox"/>		DPD									
HP governor valve rate limits		<input type="checkbox"/>		DPD									
Re-heat time constant (stored Active Energy in reheater)	S	<input type="checkbox"/>		DPD									
IP governor average gain	MW/Hz	<input type="checkbox"/>		DPD									
IP governor setting range	Hz	<input type="checkbox"/>		DPD									
IP governor time constant	S	<input type="checkbox"/>		DPD									
IP governor valve opening limits		<input type="checkbox"/>		DPD									
IP governor valve rate limits		<input type="checkbox"/>		DPD									
Details of acceleration sensitive elements HP & IP in governor loop		<input type="checkbox"/>		DPD	(please attach)								
Governor block diagram showing transfer functions of individual elements		<input type="checkbox"/>		DPD	(please attach)								
<u>GOVERNOR (Non-reheat steam and Gas Turbines) (PC.A.5.3.2(d) – Option 1(ii))</u>													
Governor average gain	MW/Hz	<input type="checkbox"/>		DPD									
Speeder motor setting range		<input type="checkbox"/>		DPD									
Time constant of steam or fuel governor valve	S	<input type="checkbox"/>		DPD									
Governor valve opening limits		<input type="checkbox"/>		DPD									
Governor valve rate limits		<input type="checkbox"/>		DPD									
Time constant of turbine	S	<input type="checkbox"/>		DPD									
Governor block diagram		<input type="checkbox"/>		DPD	(please attach)								

DATA DESCRIPTION	UNITS	DATA to		DATA CAT.	GENERATING UNIT OR STATION DATA						
		CUSC Contr act	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
<i>(PC.A.5.3.2(d) – Option 1(iii))</i>											
BOILER & STEAM TURBINE DATA*											
Boiler time constant (Stored Active Energy)	S			DPD							
HP turbine response ratio: (Proportion of Primary Response arising from HP turbine)	%			DPD							
HP turbine response ratio: (Proportion of High Frequency Response arising from HP turbine)	%			DPD							
End of Option 1											
Option 2											
All Generating Units											
Governor Block Diagram showing transfer function of individual elements including acceleration sensitive elements			<input type="checkbox"/>	DPD							
Governor Time Constant <i>(PC.A.5.3.2(d) – Option 2(i))</i>	Sec		<input type="checkbox"/>	DPD							
#Governor Deadband <i>(PC.A.5.3.2(d) – Option 2(i))</i>											
- Maximum Setting	±Hz			DPD							
- Normal Setting	±Hz			DPD							
- Minimum Setting	±Hz			DPD							
Speeder Motor Setting Range <i>(PC.A.5.3.2(d) – Option 2(i))</i>	%		<input type="checkbox"/>	DPD							
Average Gain <i>(PC.A.5.3.2(d) – Option 2(i))</i>	MW/Hz		<input type="checkbox"/>	DPD							
Steam Units											
<i>(PC.A.5.3.2(d) – Option 2(ii))</i>											
HP Valve Time Constant	sec		<input type="checkbox"/>	DPD							
HP Valve Opening Limits	%		<input type="checkbox"/>	DPD							
HP Valve Opening Rate Limits	%/sec		<input type="checkbox"/>	DPD							
HP Valve Closing Rate Limits	%/sec		<input type="checkbox"/>	DPD							
HP Turbine Time Constant <i>(PC.A.5.3.2(d) – Option 2(ii))</i>	sec		<input type="checkbox"/>	DPD							
IP Valve Time Constant	sec		<input type="checkbox"/>	DPD							
IP Valve Opening Limits	%		<input type="checkbox"/>	DPD							
IP Valve Opening Rate Limits	%/sec		<input type="checkbox"/>	DPD							
IP Valve Closing Rate Limits	%/sec		<input type="checkbox"/>	DPD							
IP Turbine Time Constant <i>(PC.A.5.3.2(d) – Option 2(ii))</i>	sec		<input type="checkbox"/>	DPD							
LP Valve Time Constant	sec		<input type="checkbox"/>	DPD							
LP Valve Opening Limits	%		<input type="checkbox"/>	DPD							
LP Valve Opening Rate Limits	%/sec		<input type="checkbox"/>	DPD							
LP Valve Closing Rate Limits	%/sec		<input type="checkbox"/>	DPD							
LP Turbine Time Constant <i>(PC.A.5.3.2(d) – Option 2(ii))</i>	sec		<input type="checkbox"/>	DPD							
Reheater Time Constant	sec			DPD							
Boiler Time Constant	sec			DPD							
HP Power Fraction	%			DPD							
IP Power Fraction	%			DPD							

Where the generating unit governor does not have a selectable deadband facility, then the actual value of the deadband need only be provided.

DATA DESCRIPTION	UNITS	DATA to RTL		DATA CAT.	GENERATING UNIT OR STATION DATA						
		CUSC Contract	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
Gas Turbine Units											
<i>(PC.A.5.3.2(d) – Option 2(iii))</i>											
Inlet Guide Vane Time Constant	sec		<input type="checkbox"/>	DPD							
Inlet Guide Vane Opening Limits	%		<input type="checkbox"/>	DPD							
Inlet Guide Vane Opening Rate Limits	%/sec		<input type="checkbox"/>	DPD							
Inlet Guide Vane Closing Rate Limits	%/sec		<input type="checkbox"/>	DPD							
<i>(PC.A.5.3.2(d) – Option 2(iii))</i>											
Fuel Valve Time Constant	sec		<input type="checkbox"/>	DPD							
Fuel Valve Opening Limits	%		<input type="checkbox"/>	DPD							
Fuel Valve Opening Rate Limits	%/sec		<input type="checkbox"/>	DPD							
Fuel Valve Closing Rate Limits	%/sec		<input type="checkbox"/>	DPD							
<i>(PC.A.5.3.2(d) – Option 2(iii))</i>											
Waste Heat Recovery Boiler Time Constant											
Hydro Generating Units											
<i>(PC.A.5.3.2(d) – Option 2(iv))</i>											
Guide Vane Actuator Time Constant	sec		<input type="checkbox"/>	DPD							
Guide Vane Opening Limits	%		<input type="checkbox"/>	DPD							
Guide Vane Opening Rate Limits	%/sec		<input type="checkbox"/>	DPD							
Guide Vane Closing Rate Limits	%/sec		<input type="checkbox"/>	DPD							
Water Time Constant	sec		<input type="checkbox"/>	DPD							
End of Option 2											
UNIT CONTROL OPTIONS*											
<i>(PC.A.5.3.2(e))</i>											
Maximum droop	%			DPD							
Normal droop	%		<input type="checkbox"/>	DPD							
Minimum droop	%			DPD							
Maximum frequency deadband	±Hz			DPD							
Normal frequency deadband	±Hz			DPD							
Minimum frequency deadband	±Hz			DPD							
Maximum Output deadband	±MW			DPD							
Normal Output deadband	±MW			DPD							
Minimum Output deadband	±MW			DPD							
Frequency settings between which Unit Load Controller droop applies:											
Maximum	Hz			DPD							
Normal	Hz			DPD							
Minimum	Hz			DPD							
Sustained response normally selected	Yes/No			DPD							

DATA DESCRIPTION	UNITS	DATA to RTL		DATA CAT.	POWER PARK UNIT (OR POWER PARK MODULE, AS THE CASE MAY BE)							
		CUSC Contr act	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN	
Power Park Module Rated MVA <i>(PC.A.3.3.1(a))</i>	MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Power Park Module Rated MW <i>(PC.A.3.3.1(a))</i>	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
*Performance Chart of a Power Park Module at the connection point <i>(PC.A.3.2.2(f)(ii))</i>				SPD	(see OC2 for specification)							
* Output Usable (on a monthly basis) <i>(PC.A.3.2.2(b))</i>	MW			SPD	(except in relation to CCGT Modules when required on a unit basis under the Grid Code , this data item may be supplied under Schedule 3)							
Number & Type of Power Park Units within each Power Park Module <i>(PC.A.3.2.2(k))</i>		<input type="checkbox"/>		SPD								
Number & Type of Offshore Power Park Units within each Offshore Power Park String and the number of Offshore Power Park Strings and connection point within each Offshore Power Park Module <i>(PC.A.3.2.2(k))</i>				SPD								
Power Park Unit Model - A validated mathematical model in accordance with PC.5.4.2 (a)	Transfer function block diagram and algebraic equations, simulation and measured test results	<input type="checkbox"/>		DPD								
Power Park Unit Data (where applicable)												
Rated MVA <i>(PC.A.3.3.1(e))</i>	MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Rated MW <i>(PC.A.3.3.1(e))</i>	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Rated terminal voltage <i>(PC.A.3.3.1(e))</i>	V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Site minimum air density <i>(PC.A.5.4.2(b))</i>	kg/m ³	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Site maximum air density	kg/m ³	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Site average air density	kg/m ³	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Year for which air density data is submitted		<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Number of pole pairs		<input type="checkbox"/>		DPD								
Blade swept area	m ²	<input type="checkbox"/>		DPD								
Gear Box Ratio		<input type="checkbox"/>		DPD								
Stator Resistance <i>(PC.A.5.4.2(b))</i>	% on MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Stator Reactance <i>(PC.A.3.3.1(e))</i>	% on MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Magnetising Reactance <i>(PC.A.3.3.1(e))</i>	% on MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Rotor Resistance (at starting). <i>(PC.A.5.4.2(b))</i>	% on MVA	<input type="checkbox"/>		DPD								
Rotor Resistance (at rated running) <i>(PC.A.3.3.1(e))</i>	% on MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Rotor Reactance (at starting). <i>(PC.A.5.4.2(b))</i>	% on MVA	<input type="checkbox"/>		DPD								
Rotor Reactance (at rated running) <i>(PC.A.3.3.1(e))</i>	% on MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD								
Equivalent inertia constant of the first mass (e.g. wind turbine rotor and blades) at minimum speed <i>(PC.A.5.4.2(b))</i>	MW secs /MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Equivalent inertia constant of the first mass (e.g. wind turbine rotor and blades) at synchronous speed <i>(PC.A.5.4.2(b))</i>	MW secs /MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Equivalent inertia constant of the first mass (e.g. wind turbine rotor and blades) at rated speed <i>(PC.A.5.4.2(b))</i>	MW secs /MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Equivalent inertia constant of the second mass (e.g. generator rotor) at minimum speed <i>(PC.A.5.4.2(b))</i>	MW secs /MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Equivalent inertia constant of the second mass (e.g. generator rotor) at synchronous speed <i>(PC.A.5.4.2(b))</i>	MW secs /MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Equivalent inertia constant of the second mass (e.g. generator rotor) at rated speed <i>(PC.A.5.4.2(b))</i>	MW secs /MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Equivalent shaft stiffness between the two masses <i>(PC.A.5.4.2(b))</i>	Nm / electrical radian	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								

DATA DESCRIPTION	UNITS	DATA to RTL		DATA CAT.	POWER PARK UNIT (OR POWER PARK MODULE, AS THE CASE MAY BE)							
		CUSC Contr act	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN	
Minimum generator rotor speed (Doubly Fed Induction Generators) (PC.A.3.3.1(e))	RPM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
Maximum generator rotor speed (Doubly Fed Induction Generators) (PC.A.3.3.1(e))	RPM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+								
The optimum generator rotor speed versus wind speed (PC.A.5.4.2(b))	tabular format	<input type="checkbox"/>		DPD								
Power Converter Rating (Doubly Fed Induction Generators) (PC.A.5.4.2(b))	MVA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DPD+								
The rotor power coefficient (C_p) versus tip speed ratio (λ) curves for a range of blade angles (where applicable) (PC.A.5.4.2(b))	Diagram + tabular format	<input type="checkbox"/>		DPD								
The electrical power output versus generator rotor speed for a range of wind speeds over the entire operating range of the Power Park Unit . (PC.A.5.4.2(b))	Diagram + tabular format	<input type="checkbox"/>		DPD								
The blade angle versus wind speed curve (PC.A.5.4.2(b))	Diagram + tabular format	<input type="checkbox"/>		DPD								
The electrical power output versus wind speed over the entire operating range of the Power Park Unit . (PC.A.5.4.2(b))	Diagram + tabular format	<input type="checkbox"/>		DPD								
Transfer function block diagram, parameters and description of the operation of the power electronic converter including fault ride through capability (where applicable). (PC.A.5.4.2(b))	Diagram	<input type="checkbox"/>		DPD								
For a Power Park Unit consisting of a synchronous machine in combination with a back to back DC Converter , or for a Power Park Unit not driven by a wind turbine, the data to be supplied shall be agreed with NGET in accordance with PC.A.7. (PC.A.5.4.2(b))		<input type="checkbox"/>										

DATA DESCRIPTION	UNITS	DATA to RTL		DATA CAT.	POWER PARK UNIT (OR POWER PARK MODULE, AS THE CASE MAY BE)							
		CUSC Contract	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN	
<p>Torque / Speed and blade angle control systems and parameters (PC.A.5.4.2(c))</p> <p>For the Power Park Unit, details of the torque / speed controller and blade angle controller in the case of a wind turbine and power limitation functions (where applicable) described in block diagram form showing transfer functions and parameters of individual elements</p>	Diagram	<input type="checkbox"/>		DPD								
<p>Voltage/Reactive Power/Power Factor control system parameters (PC.A.5.4.2(d))</p> <p>For the Power Park Unit and Power Park Module details of Voltage/Reactive Power/Power Factor controller (and PSS if fitted) described in block diagram form including parameters showing transfer functions of individual elements.</p>	Diagram	<input type="checkbox"/>		DPD								
<p>Frequency control system parameters (PC.A.5.4.2(e))</p> <p>For the Power Park Unit and Power Park Module details of the Frequency controller described in block diagram form showing transfer functions and parameters of individual elements.</p>	Diagram	<input type="checkbox"/>		DPD								
<p>As an alternative to PC.A.5.4.2 (a), (b), (c), (d), (e) and (f), is the submission of a single complete model that consists of the full information required under PC.A.5.4.2 (a), (b), (c), (d) (e) and (f) provided that all the information required under PC.A.5.4.2 (a), (b), (c), (d), (e) and (f) individually is clearly identifiable. (PC.A.5.4.2(g))</p>	Diagram	<input type="checkbox"/>		DPD								
<p>Harmonic Assessment Information (PC.A.5.4.2(h)) (as defined in IEC 61400-21 (2001)) for each Power Park Unit:-</p>												
Flicker coefficient for continuous operation		<input type="checkbox"/>		DPD								
Flicker step factor		<input type="checkbox"/>		DPD								
Number of switching operations in a 10 minute window		<input type="checkbox"/>		DPD								
Number of switching operations in a 2 hour window		<input type="checkbox"/>		DPD								
Voltage change factor		<input type="checkbox"/>		DPD								
Current Injection at each harmonic for each Power Park Unit and for each Power Park Module	Tabular format	<input type="checkbox"/>		DPD								

DC CONVERTER STATION TECHNICAL DATA

DC CONVERTER STATION NAME _____

DATE: _____

Data Description	Units	DATA to		Data Category	DC Converter Station Data
		RTL			
(PC.A.4)		CUSC Contract	CUSC App. Form		
DC CONVERTER STATION DEMANDS:					
Demand supplied through Station Transformers associated with the DC Converter Station [PC.A.4.1]					
- Demand with all DC Converters operating at Rated MW import.	MW Mvar	<input type="checkbox"/>		DPD DPD	
- Demand with all DC Converters operating at Rated MW export.	MW Mvar	<input type="checkbox"/>		DPD DPD	
Additional Demand associated with the DC Converter Station supplied through the National Electricity Transmission System . [PC.A.4.1]					
- The maximum Demand that could occur.	MW Mvar	<input type="checkbox"/>		DPD DPD	
- Demand at specified time of annual peak half hour of NGET Demand at Annual ACS Conditions .	MW Mvar	<input type="checkbox"/>		DPD DPD	
- Demand at specified time of annual minimum half-hour of NGET Demand .	MW Mvar	<input type="checkbox"/>		DPD DPD	
DC CONVERTER STATION DATA					
Number of poles, i.e. number of DC Converters	Text	<input type="checkbox"/>	■	SPD+	
Pole arrangement (e.g. monopole or bipole)	Text	<input type="checkbox"/>	■	SPD+	
Details of each viable operating configuration					
Configuration 1	Diagram	<input type="checkbox"/>	■	SPD+	
Configuration 2	Diagram	<input type="checkbox"/>	■		
Configuration 3	Diagram	<input type="checkbox"/>	■		
Configuration 4	Diagram	<input type="checkbox"/>	■		
Configuration 5	Diagram	<input type="checkbox"/>	■		
Configuration 6	Diagram	<input type="checkbox"/>	■		
Remote ac connection arrangement	Diagram	<input type="checkbox"/>	■	SPD	

Data Description	Units	DATA to RTL		Data Category	Operating Configuration					
		CUSC Contract	CUSC App. Form		1	2	3	4	5	6
DC CONVERTER STATION DATA (PC.A.3.3.1d)										
DC Converter Type (e.g. current or Voltage source)	Text	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD						
Point of connection to the NGET Transmission System (or the Total System if embedded) of the DC Converter Station configuration in terms of geographical and electrical location and system voltage	Text	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD						
If the busbars at the Connection Point are normally run in separate sections identify the section to which the DC Converter Station configuration is connected	Section Number	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD						
Rated MW import per pole [PC.A.3.3.1]	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+						
Rated MW export per pole [PC.A.3.3.1]	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD+						
ACTIVE POWER TRANSFER CAPABILITY (PC.A.3.2.2)										
Registered Capacity	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD						
Registered Import Capacity	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD						
Minimum Generation	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD						
Minimum Import Capacity	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD						
Import MW available in excess of Registered Import Capacity .	MW			SPD						
Time duration for which MW in excess of Registered Import Capacity is available	Min			SPD						
Export MW available in excess of Registered Capacity .	MW			SPD						
Time duration for which MW in excess of Registered Capacity is available	Min			SPD						
DC CONVERTER TRANSFORMER [PC.A.5.4.3.1]										
Rated MVA	MVA	<input type="checkbox"/>		DPD						
Winding arrangement				DPD						
Nominal primary voltage	KV	<input type="checkbox"/>		DPD						
Nominal secondary (converter-side) voltage(s)	KV	<input type="checkbox"/>		DPD						
Positive sequence reactance		<input type="checkbox"/>		DPD						
Maximum tap	% on MVA	<input type="checkbox"/>		DPD						
Nominal tap	% on MVA	<input type="checkbox"/>		DPD						
Minimum tap	% on MVA	<input type="checkbox"/>		DPD						
Positive sequence resistance		<input type="checkbox"/>		DPD						
Maximum tap	% on MVA	<input type="checkbox"/>		DPD						
Nominal tap	% on MVA	<input type="checkbox"/>		DPD						
Minimum tap	% on MVA	<input type="checkbox"/>		DPD						
Zero phase sequence reactance	% on MVA	<input type="checkbox"/>		DPD						
Tap change range	+% / -%	<input type="checkbox"/>		DPD						
Number of steps		<input type="checkbox"/>		DPD						

Data Description	Units	DATA to RTL		Data Category	Operating configuration					
		CUSC Contract	CUSC App. Form		1	2	3	4	5	6
<p>DC NETWORK [PC.A.5.4.3.1 (c)]</p> <p>Rated DC voltage per pole Rated DC current per pole</p> <p>Details of the DC Network described in diagram form including resistance, inductance and capacitance of all DC cables and/or DC lines. Details of any line reactors (including line reactor resistance), line capacitors, DC filters, earthing electrodes and other conductors that form part of the DC Network should be shown.</p>	<p>KV A</p> <p>Diagram</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>		<p>DPD DPD</p> <p>DPD</p>						
<p>DC CONVERTER STATION AC HARMONIC FILTER AND REACTIVE COMPENSATION EQUIPMENT [PC.A.5.4.3.1 (d)]</p> <p>For all switched reactive compensation equipment</p> <p>Total number of AC filter banks Diagram of filter connections Type of equipment (e.g. fixed or variable) Capacitive rating; or Inductive rating; or Operating range</p> <p>Reactive Power capability as a function of various MW transfer levels</p>	<p>Diagram</p> <p>Text</p> <p>Diagram</p> <p>Text</p> <p>Mvar</p> <p>Mvar</p> <p>Mvar</p> <p>Table</p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>	<p>■</p> <p>■</p> <p>■</p> <p>■</p>	<p>SPD</p> <p>SPD</p> <p>SPD</p> <p>SPD</p> <p>DPD</p> <p>DPD</p> <p>DPD</p> <p>DPD</p>						

Data Description	Units	DATA to RTL		Data Category	Operating configuration					
		CUSC Contract	CUSC App. Form		1	2	3	4	5	6
CONTROL SYSTEMS [PC.A.5.4.3.2]										
Static $V_{DC} - P_{DC}$ (DC voltage – DC power) or Static $V_{DC} - I_{DC}$ (DC voltage – DC current) characteristic (as appropriate) when operating as –Rectifier –Inverter	Diagram Diagram	<input type="checkbox"/> <input type="checkbox"/>		DPD DPD						
Details of rectifier mode control system, in block diagram form together with parameters showing transfer functions of individual elements.	Diagram	<input type="checkbox"/>		DPD						
Details of inverter mode control system, in block diagram form showing transfer functions of individual elements including parameters.	Diagram	<input type="checkbox"/>		DPD						
Details of converter transformer tap changer control system in block diagram form showing transfer functions of individual elements including parameters. (Only required for DC converters connected to the National Electricity Transmission System .)	Diagram	<input type="checkbox"/>		DPD						
Details of AC filter and reactive compensation equipment control systems in block diagram form showing transfer functions of individual elements including parameters. (Only required for DC converters connected to the National Electricity Transmission System .)	Diagram	<input type="checkbox"/>		DPD						
Details of any frequency and/or load control systems in block diagram form showing transfer functions of individual elements including parameters.	Diagram	<input type="checkbox"/>		DPD						
Details of any large or small signal modulating controls, such as power oscillation damping controls or sub-synchronous oscillation damping controls, that have not been submitted as part of the above control system data.	Diagram	<input type="checkbox"/>		DPD						
Transfer block diagram representation of the reactive power control at converter ends for a voltage source converter.		<input type="checkbox"/>		DPD						
LOADING PARAMETERS [PC.A.5.4.3.3]										
MW Export Nominal loading rate Maximum (emergency) loading rate	MW/s MW/s			DPD DPD						
MW Import Nominal loading rate Maximum (emergency) loading rate	MW/s MW/s			DPD DPD						
Maximum recovery time, to 90% of pre-fault loading, following an AC system fault or severe voltage depression.	s	<input type="checkbox"/>		DPD						
Maximum recovery time, to 90% of pre-fault loading, following a transient DC Network fault.	s	<input type="checkbox"/>		DPD						

NOTE:

Users are referred to Schedules 5 & 14 which set down data required for all **Users** directly connected to the **National Electricity Transmission System**, including **Power Stations**.

GENERATION PLANNING PARAMETERS

This schedule contains the **Genset Generation Planning Parameters** required by **NGET** to facilitate studies in **Operational Planning** timescales.

For a **Generating Unit** (other than a **Power Park Unit**) at a **Large Power Station** the information is to be submitted on a unit basis and for a **CCGT Module** or **Power Park Module** at a **Large Power Station** the information is to be submitted on a module basis, unless otherwise stated.

Where references to **CCGT Modules** or **Power Park Modules** at a **Large Power Station** are made, the columns "G1" etc should be amended to read "M1" etc, as appropriate.

Power Station: _____

Generation Planning Parameters

DATA DESCRIPTION	UNITS	DATA to		DATA CAT.	GENSET OR STATION DATA								
		CUSC Contract	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN		
<u>OUTPUT CAPABILITY</u> (PC.A.3.2.2)													
Registered Capacity on a station and unit basis (on a station and module basis in the case of a CCGT Module or Power Park Module at a Large Power Station)	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD									
Minimum Generation (on a module basis in the case of a CCGT Module or Power Park Module at a Large Power Station)	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD									
MW available from Generating Units or Power Park Modules in excess of Registered Capacity	MW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD									
<u>REGIME UNAVAILABILITY</u>													
These data blocks are provided to allow fixed periods of unavailability to be registered.													
<u>Expected Running Regime.</u> Is Power Station normally available for full output 24 hours per day, 7 days per week? If No please provide details of unavailability below. (PC.A.3.2.2.)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	SPD									
Earliest Synchronising time: OC2.4.2.1(a)													
Monday	hr/min	<input checked="" type="checkbox"/>		OC2									-
Tuesday – Friday	hr/min	<input checked="" type="checkbox"/>		OC2									-
Saturday – Sunday	hr/min	<input checked="" type="checkbox"/>		OC2									-
Latest De-Synchronising time: OC2.4.2.1(a)													
Monday – Thursday	hr/min	<input checked="" type="checkbox"/>		OC2									-
Friday	hr/min	<input checked="" type="checkbox"/>		OC2									-
Saturday – Sunday	hr/min	<input checked="" type="checkbox"/>		OC2									-
<u>SYNCHRONISING PARAMETERS</u>													
OC2.4.2.1(a)													
Notice to Deviate from Zero (NDZ) after 48 hour Shutdown	Mins	<input checked="" type="checkbox"/>		OC2									
Station Synchronising Intervals (SI) after 48 hour Shutdown	Mins	<input checked="" type="checkbox"/>			-	-	-	-	-	-	-	-	-
Synchronising Group (if applicable)	1 to 4	<input checked="" type="checkbox"/>		OC2									-

DATA DESCRIPTION	UNITS	DATA to RTL		DATA CAT.	GENSET OR STATION DATA								
		CUSC Contra ct	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN		
Synchronising Generation (SYG) after 48 hour Shutdown <i>PC.A.5.3.2(f) & OC2.4.2.1(a)</i>	MW	■		DPD & OC2									-
De-Synchronising Intervals (Single value) <i>OC2.4.2.1(a)</i>	Mins	■		OC2	-	-	-	-	-	-	-	-	-
<u>RUNNING AND SHUTDOWN PERIOD LIMITATIONS:</u>													
Minimum Non Zero time (MNZT) after 48 hour Shutdown <i>OC2.4.2.1(a)</i>	Mins	■		OC2									
Minimum Zero time (MZT) <i>OC2.4.2.1(a)</i>	Mins			OC2									
Two Shifting Limit (max. per day) <i>OC2.4.2.1(a)</i>	No.	■		OC2									
Existing AGR Plant Flexibility Limit (Existing AGR Plant only)Nu	No.			OC2									
80% Reactor Thermal Power (expressed as Gross-Net MW) (Existing AGR Plant only)	MW			OC2									
Frequency Sensitive AGR Unit Limit (Frequency Sensitive AGR Units only)	No.			OC2									
<u>RUN-UP PARAMETERS</u> <i>PC.A.5.3.2(f) & OC2.4.2.1(a)</i>													
Run-up rates (RUR) after 48 hour Shutdown:	(Note that for DPD only a single value of run-up rate from Synch Gen to Registered Capacity is required)												
(See note 2 page 3)													
MW Level 1 (MWL1)	MW	■		OC2									-
MW Level 2 (MWL2)	MW	■		OC2									-
RUR from Synch. Gen to MWL1	MW/Mins	■		DPD & OC2									
RUR from MWL1 to MWL2	MW/Mins	■		OC2									
RUR from MWL2 to RC	MW/Mins	■		OC2									
<u>Run-Down Rates (RDR):</u>													
(Note that for DPD only a single value of run-down rate from Registered Capacity to de-synch is required)													
MWL2	MW	■		OC2									
RDR from RC to MWL2	MW/Min	■		DPD & OC2									
MWL1	MW	■		OC2									
RDR from MWL2 to MWL1	MW/Min	■		OC2									
RDR from MWL1 to de-synch	MW/Min	■		OC2									

DATA DESCRIPTION	UNITS	DATA to		DATA CAT.	GENSET OR STATION DATA							
		RTL CUSC Contra ct	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN	
<u>REGULATION PARAMETERS</u> OC2.4.2.1(a) Regulating Range Load rejection capability while still Synchronised and able to supply Load.	MW MW	■ ■		DPD DPD								
<u>GAS TURBINE LOADING PARAMETERS:</u> OC2.4.2.1(a) Fast loading Slow loading	MW/Min MW/Min	■ ■		OC2 OC2								
<u>CCGT MODULE PLANNING MATRIX</u>				OC2	(please attach)							
<u>POWER PARK MODULE PLANNING MATRIX</u>				OC2	(please attach)							
<u>Power Park Module Active Power Output/ Intermittent Power Source Curve (eg MW output / Wind speed)</u>				OC2	(please attach)							

NOTES:

1. To allow for different groups of **Gensets** within a **Power Station** (eg. **Gensets** with the same operator) each **Genset** may be allocated to one of up to four **Synchronising Groups**. Within each such **Synchronising Group** the single synchronising interval will apply but between **Synchronising Groups** a zero synchronising interval will be assumed.
2. The run-up of a **Genset** from synchronising block load to **Registered Capacity** is represented as a three stage characteristic in which the run-up rate changes at two intermediate loads, MWL1 and MWL2. The values MWL1 & MWL2 can be different for each **Genset**.

LARGE POWER STATION OUTAGE PROGRAMMES, OUTPUT USABLE AND INFLEXIBILITY INFORMATION

(Also outline information on contracts involving **External Interconnections**)

For a **Generating Unit at a Large Power Station** the information is to be submitted on a unit basis and for a **CCGT Module** or **Power Park Module** at a **Large Power Station** the information is to be submitted on a module basis, unless otherwise stated

DATA DESCRIPTION	UNITS	TIME COVERED	UPDATE TIME	DATA CAT.	DATA to RTL
Power Station name:..... Generating Unit (or CCGT Module or Power Park Module at a Large Power Station) number:.... Registered Capacity :..... Large Power Station OUTAGE PROGRAMME Large Power Station OUTPUT USABLE					
PLANNING FOR YEARS 3 - 7 AHEAD (OC2.4.1.2.1(a)(i), (e) & (j))					
Monthly average OU	MW	F. yrs 5 - 7	Week 24	SPD	CUSC Contra ct CUSC App. Form
Provisional outage programme comprising:		C. yrs 3 - 5	Week 2	OC2	
duration	weeks	"	"	"	■
preferred start	date	"	"	"	■
earliest start	date	"	"	"	■
latest finish	date	"	"	"	■
Weekly OU	MW	"	"	"	■
(NGET response as detailed in OC2		C. yrs 3 - 5	Week12)		■
(Users' response to NGET suggested changes or potential outages)		C. yrs 3 - 5	Week14)		■
Updated provisional outage programme comprising:		C. yrs 3 - 5	Week 25	OC2	
duration	weeks	"	"	"	■
preferred start	date	"	"	"	■
earliest start	date	"	"	"	■
latest finish	date	"	"	"	■
Updated weekly OU	MW	"	"	"	■
(NGET response as detailed in OC2 for		C. yrs 3 - 5	Week28)		
(Users' response to NGET suggested changes or update of		C. yrs 3 - 5	Week31)		■
potential outages)					
(NGET further suggested revisions etc. (as detailed in)		■
OC2 for		C. yrs 3 - 5	Week42)		
Agreement of final		C. yrs 3 - 5	Week 45	OC2	■
Generation Outage Programme					
PLANNING FOR YEARS 1 - 2 AHEAD (OC2.4.1.2.2(a) & OC2.4.1.2.2(i))					
Update of previously agreed Final		C. yrs 1 - 2	Week 10	OC2	
Generation Outage Programme					
Weekly OU	MW	"	"		■

DATA DESCRIPTION	UNITS	TIME COVERED	UPDATE TIME	DATA CAT	DATA to RTL
(NGET response as detailed in OC2 for (Users' response to NGET suggested changes or update of potential outages)		C. yrs 1 – 2 C. yrs 1 – 2	Week 12) Week 14)		■ ■
Revised weekly OU		C. yrs 1 – 2	Week 34	OC2	■
(NGET response as detailed in OC2 for (Users' response to NGET suggested changes or update of potential outages)		C. yrs 1 – 2 C. yrs 1 – 2	Week 39) Week 46)		■ ■
Agreement of final Generation Outage Programme		C. yrs 1 – 2	Week 48	OC2	■
PLANNING FOR YEAR 0					
Updated Final Generation Outage Programme			C. yr 0 Week 2 ahead to year end	1600 Weds.	OC2
OU at weekly peak	MW	"	"	"	
(NGET response as detailed in OC2 for (		C. yrs 0	Weeks 2 to 52 ahead	1600) Friday)	
(		Weeks 2 - 7 ahead		1600) Thurs)	
Forecast return to services (Planned Outage or breakdown)	date	days 2 to 14 ahead		0900 daily	OC2
OU (all hours)	MW	"	"	"	OC2
(NGET response as detailed in OC2 for (		days 2 to 14 ahead		1600) daily)	
INFLEXIBILITY					
Genset inflexibility	Min MW (Weekly)	Weeks 2 - 8 ahead		1600 Tues	OC2
(NGET response on Negative Reserve Active (Power Margin		"		1200) Friday)	
Genset inflexibility	Min MW (daily)	days 2 -14 ahead		0900 daily	OC2
(NGET response on Negative Reserve Active (Power Margin		"		1600) daily)	

DATA DESCRIPTION	UNITS	TIME COVERED	UPDATE TIME	DATA CAT	DATA to RTL	
OUTPUT PROFILES						
					CUSC Contract	CUSC App. Form
In the case of Large Power Stations whose output may be expected to vary in a random manner (eg. wind power) or to some other pattern (eg. Tidal) sufficient information is required to enable an understanding of the possible profile	MW	F. yrs 1 - 7	Week 24	SPD		

Notes: 1. The week numbers quoted in the Update Time column refer to standard weeks in the current year.

GOVERNOR DROOP AND RESPONSE (PC.A.5.5 ■ CUSC Contract)

The Data in this Schedule 4 is to be supplied by **Generators** with respect to all **Large Power Stations** and by **DC Converter Station** owners (where agreed), whether directly connected or **Embedded**

DATA DESCRIPTION	NORMAL VALUE	MW	DATA CAT	DROOP%			RESPONSE CAPABILITY		
				Unit 1	Unit 2	Unit 3	Primary	Secondary	High Frequency
MLP1	Designed Minimum Operating Level (for a CCGT Module or Power Park Module , on a modular basis assuming all units are Synchronised)								
MLP2	Minimum Generation (for a CCGT Module or Power Park Module , on a modular basis assuming all units are								
MLP3	70% of Registered Capacity								
MLP4	80% of Registered Capacity								
MLP5	95% of Registered Capacity								
MLP6	Registered Capacity								

Notes:

- The data provided in this Schedule 4 is not intended to constrain any **Ancillary Services Agreement**.
- Registered Capacity** should be identical to that provided in Schedule 2.
- The Governor Droop should be provided for each **Generating Unit**(excluding **Power Park Units**), **Power Park Module** or **DC Converter**. The Response Capability should be provided for each **Genset** or **DC Converter**.
- Primary**, **Secondary** and **High Frequency Response** are defined in CC.A.3.2 and are based on a frequency ramp of 0.5Hz over 10 seconds. **Primary Response** is the minimum value of response between 10s and 30s after the frequency ramp starts, **Secondary Response** between 30s and 30 minutes, and **High Frequency Response** is the minimum value after 10s on an indefinite basis.
- For plants which have not yet **Synchronised**, the data values of MLP1 to MLP6 should be as described above. For plants which have already **Synchronised**, the values of MLP1 to MLP6 can take any value between **Designed Operating Minimum Level** and **Registered Capacity**. If MLP1 is not provided at the **Designed Minimum Operating Level**, the value of the **Designed Minimum Operating Level** should be separately stated.

USERS SYSTEM DATA

The data in this Schedule 5 is required from **Users** who are connected to the **National Electricity Transmission System** via a **Connection Point** (or who are seeking such a connection)

DATA DESCRIPTION	UNITS	DATA to RTL		DATA CATEGORY
<p>USERS SYSTEM LAYOUT (PC.A.2.2)</p> <p>A Single Line Diagram showing all or part of the User's System is required. This diagram shall include:-</p> <p>(a) all parts of the User's System, whether existing or proposed, operating at Supergrid Voltage, and in Scotland and Offshore, also all parts of the User System operating at 132kV,</p> <p>(b) all parts of the User's System operating at a voltage of 50kV, and in Scotland and Offshore greater than 30kV, or higher which can interconnect Connection Points, or split bus-bars at a single Connection Point,</p> <p>(c) all parts of the User's System between Embedded Medium Power Stations or Large Power Stations or Offshore Transmission Systems connected to the User's Subtransmission System and the relevant Connection Point or Interface Point,</p> <p>(d) all parts of the User's System at a Transmission Site.</p> <p>The Single Line Diagram may also include additional details of the User's Subtransmission System, and the transformers connecting the User's Subtransmission System to a lower voltage. With NGET's agreement, it may also include details of the User's System at a voltage below the voltage of the Subtransmission System.</p> <p>This Single Line Diagram shall depict the arrangement(s) of all of the existing and proposed load current carrying Apparatus relating to both existing and proposed Connection Points, showing electrical circuitry (ie. overhead lines, underground cables, power transformers and similar equipment), operating voltages. In addition, for equipment operating at a Supergrid Voltage, and in Scotland and Offshore also at 132kV, circuit breakers and phasing arrangements shall be shown.</p>		CUSC Contract	CUSC App. Form	SPD

USERS SYSTEM DATA

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CATEGORY
<p><u>REACTIVE COMPENSATION (PC.A.2.4)</u></p> <p>For independently switched reactive compensation equipment not owned by a Transmission Licensee connected to the User's System at 132kV and above, and also in Scotland and Offshore, connected at 33kV and above, other than power factor correction equipment associated with a customers Plant or Apparatus:</p> <p>Type of equipment (eg. fixed or variable) Capacitive rating; or Inductive rating; or Operating range</p> <p>Details of automatic control logic to enable operating characteristics to be determined</p> <p>Point of connection to User's System (electrical location and system voltage)</p>	<p>Text</p> <p>Mvar</p> <p>Mvar</p> <p>Mvar</p> <p>text and/or diagrams</p> <p>Text</p>	<p>CUSC Contract</p> <p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p>	<p>CUSC App. Form</p> <p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p>	<p>SPD</p> <p>SPD</p> <p>SPD</p> <p>SPD</p> <p>SPD</p> <p>SPD</p>
<p><u>SUBSTATION INFRASTRUCTURE (PC.A.2.2.6(b))</u></p> <p>For the infrastructure associated with any User's equipment at a Substation owned by a Transmission Licensee or operated or managed by NGET:-</p> <p>Rated 3-phase rms short-circuit withstand current Rated 1-phase rms short-circuit withstand current Rated Duration of short-circuit withstand Rated rms continuous current</p>	<p>kA</p> <p>kA</p> <p>s</p> <p>A</p>	<p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p>	<p>▪</p> <p>▪</p> <p>▪</p> <p>▪</p>	<p>SPD</p> <p>SPD</p> <p>SPD</p> <p>SPD</p>
<p><u>LUMPED SUSCEPTANCES (PC.A.2.3)</u></p>				
<p>Equivalent Lumped Susceptance required for all parts of the User's Subtransmission System which are not included in the Single Line Diagram.</p>		▪	▪	
<p>This should not include:</p>		▪	▪	
<p>(a) independently switched reactive compensation equipment identified above.</p>		▪	▪	
<p>(b) any susceptance of the User's System inherent in the Demand (Reactive Power) data provided in Schedule 1 (Generator Data) or Schedule 11 (Connection Point data).</p>		▪	▪	
<p>Equivalent lumped shunt susceptance at nominal Frequency.</p>	<p>% on 100 MVA</p>	▪	▪	<p>SPD</p>

USER'S SYSTEM DATA
Switchgear Data (PC.A.2.2.6(a)) (■ CUSC Contract & CUSC Application Form ■)

The data below is all **Standard Planning Data**, and should be provided for all switchgear (ie. circuit breakers, load disconnectors and disconnectors) operating at a **Supergrid Voltage**, and also in Scotland and **Offshore**, operating at 132kV. In addition, data should be provided for all circuit breakers irrespective of voltage located at a **Connection Site** which is owned by a **Transmission Licensee** or operated or managed by **NGET**.

Years Valid	Connect-ion Point	Switch No.	Rated Voltage kV rms	Operating Voltage kV rms	Rated short-circuit breaking current		Rated short-circuit peak making current		Rated rms continuous current (A)	DC time constant at testing of asymmetrical breaking ability(s)
					3 Phase kA rms	1 Phase kA rms	3 Phase kA peak	1 Phase kA peak		

Notes

1. Rated Voltage should be as defined by IEC 694.
2. Data should be supplied for the current, and each of the seven succeeding Financial Years. This should be done by showing for which years the data is valid in the first column of the Table

USER'S SYSTEM DATA**Information for Transient Overvoltage Assessment (DPD) (PC.A.6.2 ■ CUSC Contract)**

The information listed below may be requested by **NGET** from each **User** with respect to any **Connection Site** between that **User** and the **National Electricity Transmission System**. The impact of any third party **Embedded** within the **Users System** should be reflected.

- (a) Busbar layout plan(s), including dimensions and geometry showing positioning of any current and voltage transformers, through bushings, support insulators, disconnectors, circuit breakers, surge arresters, etc. Electrical parameters of any associated current and voltage transformers, stray capacitances of wall bushings and support insulators, and grading capacitances of circuit breakers;
- (b) Electrical parameters and physical construction details of lines and cables connected at that busbar. Electrical parameters of all plant e.g., transformers (including neutral earthing impedance or zig-zag transformers if any), series reactors and shunt compensation equipment connected at that busbar (or to the tertiary of a transformer) or by lines or cables to that busbar;
- (c) Basic insulation levels (BIL) of all **Apparatus** connected directly, by lines or by cables to the busbar;
- (d) Characteristics of overvoltage **Protection** devices at the busbar and at the termination points of all lines, and all cables connected to the busbar;
- (e) Fault levels at the lower voltage terminals of each transformer connected directly or indirectly to the **National Electricity Transmission System** without intermediate transformation;
- (f) The following data is required on all transformers operating at **Supergrid Voltage** and also in Scotland and **Offshore**, operating at 132kV: three or five limb cores or single phase units to be specified, and operating peak flux density at nominal voltage.
- (g) An indication of which items of equipment may be out of service simultaneously during **Planned Outage** conditions.

Harmonic Studies (DPD) (PC.A.6.4 ■ CUSC Contract)

The information given below, both current and forecast, where not already supplied in this Schedule 5 may be requested by **NGET** from each **User** if it is necessary for **NGET** to evaluate the production/magnification of harmonic distortion on **National Electricity Transmission System** and **User's** systems. The impact of any third party **Embedded** within the **User's System** should be reflected:-

- (a) Overhead lines and underground cable circuits of the **User's Subtransmission System** must be differentiated and the following data provided separately for each type:-
 - Positive phase sequence resistance
 - Positive phase sequence reactance
 - Positive phase sequence susceptance
- (b) for all transformers connecting the **User's Subtransmission System** to a lower voltage:-
 - Rated MVA
 - Voltage Ratio
 - Positive phase sequence resistance
 - Positive phase sequence reactance
- (c) at the lower voltage points of those connecting transformers:-
 - Equivalent positive phase sequence susceptance
 - Connection voltage and Mvar rating of any capacitor bank and component design parameters if configured as a filter

Equivalent positive phase sequence interconnection impedance with other lower voltage points
 The Minimum and maximum **Demand** (both MW and Mvar) that could occur
 Harmonic current injection sources in Amps at the Connection voltage points
 Details of traction loads, eg connection phase pairs, continuous variation with time, etc.

- (d) an indication of which items of equipment may be out of service simultaneously during **Planned Outage** conditions

Voltage Assessment Studies (DPD) (PC.A.6.5 ■ CUSC Contract)

The information listed below, where not already supplied in this Schedule 5, may be requested by **NGET** from each **User** with respect to any **Connection Site** if it is necessary for **NGET** to undertake detailed voltage assessment studies (eg to examine potential voltage instability, voltage control co-ordination or to calculate voltage step changes). The impact of any third party **Embedded** within the **Users System** should be reflected:-

- (a) For all circuits of the **User's Subtransmission System**:-

Positive Phase Sequence Reactance
 Positive Phase Sequence Resistance
 Positive Phase Sequence Susceptance
 Mvar rating of any reactive compensation equipment

- (b) for all transformers connecting the **User's Subtransmission System** to a lower voltage:-

Rated MVA
 Voltage Ratio
 Positive phase sequence resistance
 Positive Phase sequence reactance
 Tap-changer range
 Number of tap steps
 Tap-changer type: on-load or off-circuit
 AVC/tap-changer time delay to first tap movement
 AVC/tap-changer inter-tap time delay

- (c) at the lower voltage points of those connecting transformers:-

Equivalent positive phase sequence susceptance
 Mvar rating of any reactive compensation equipment
 Equivalent positive phase sequence interconnection impedance with other lower voltage points
 The maximum **Demand** (both MW and Mvar) that could occur
 Estimate of voltage insensitive (constant power) load content in % of total load at both winter peak and 75% off-peak load conditions

Short Circuit Analyses:(DPD) (PC.A.6.6 ■ CUSC Contract)

The information listed below, both current and forecast, and where not already supplied under this Schedule 5, may be requested by **NGET** from each **User** with respect to any **Connection Site** where prospective short-circuit currents on equipment owned by a **Transmission Licensee** or operated or managed by **NGET** are close to the equipment rating. The impact of any third party **Embedded** within the **User's System** should be reflected:-

- (a) For all circuits of the **User's Subtransmission System**:-

Positive phase sequence resistance
 Positive phase sequence reactance
 Positive phase sequence susceptance
 Zero phase sequence resistance (both self and mutuals)
 Zero phase sequence reactance (both self and mutuals)
 Zero phase sequence susceptance (both self and mutuals)

- (b) for all transformers connecting the **User's Subtransmission System** to a lower voltage:-

Rated MVA
Voltage Ratio
Positive phase sequence resistance (at max, min and nominal tap)
Positive Phase sequence reactance (at max, min and nominal tap)
Zero phase sequence reactance (at nominal tap)
Tap changer range
Earthing method: direct, resistance or reactance
Impedance if not directly earthed

- (c) at the lower voltage points of those connecting transformers:-

The maximum **Demand** (in MW and Mvar) that could occur
Short-circuit infeed data in accordance with PC.A.2.5.6(a) unless the **User's** lower voltage network runs in parallel with the **Subtransmission System**, when to prevent double counting in each node infeed data, a π equivalent comprising the data items of PC.A.2.5.6(a) for each node together with the positive phase sequence interconnection impedance between the nodes shall be submitted.

DATA DESCRIPTION	UNITS	DATA to RTL	TIMESCALE COVERED Within Yr 0	UPDATE TIME As occurring	DATA CAT. OC2
Details of:- Maximum Import Capacity for each Interface Point Maximum Export Capacity for each Interface Point Changes to previously declared values of the Interface Point Target Voltage/Power Factor	MVA / MW MVA / MW V (unless power factor control				

Note: **Users** should refer to **OC2** for full details of the procedure summarised above and for the information which **NGET** will provide on the **Programming Phase**.

LOAD CHARACTERISTICS AT GRID SUPPLY POINTS

All data in this schedule 7 is categorised as **Standard Planning Data (SPD)** and is required for existing and agreed future connections. This data is only required to be updated when requested by **NGET**.

DATA DESCRIPTION	UNITS	DATA to		DATA FOR FUTURE YEARS						
		RTL	RTL	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<p>FOR ALL TYPES OF DEMAND FOR EACH GRID SUPPLY POINT</p> <p>The following information is required infrequently and should only be supplied, wherever possible, when requested by NGET (PC.A.4.7)</p> <p>Details of individual loads which have Characteristics significantly different from the typical range of domestic or commercial and industrial load supplied: (PC.A.4.7(a))</p> <p>Sensitivity of demand to fluctuations in voltage And frequency on National Electricity Transmission System at time of peak Connection Point Demand (Active Power) (PC.A.4.7(b))</p> <p>Voltage Sensitivity (PC.A.4.7(b))</p> <p>Frequency Sensitivity (PC.A.4.7(b))</p> <p>Reactive Power sensitivity should relate to the Power Factor information given in Schedule 11 (or for Generators, Schedule 1) and note 6 on Schedule 11 relating to Reactive Power therefore applies: (PC.A.4.7(b))</p> <p>Phase unbalance imposed on the National Electricity Transmission System (PC.A.4.7(d))</p> <p>- maximum - average</p> <p>Maximum Harmonic Content imposed on National Electricity Transmission System (PC.A.4.7(e))</p> <p>Details of any loads which may cause Demand Fluctuations greater than those permitted under Engineering Recommendation P28, Stage 1 at the Point of Common Coupling including Flicker Severity (Short Term) and Flicker Severity (Long Term) (PC.A.4.7(f))</p>		<p>CUSC Contract</p> <p>CUSC App. Form</p>								
		<input type="checkbox"/>								
		<input type="checkbox"/>		(Please Attach)						
		<input type="checkbox"/>								
	MW/kV Mvar/kV	<input type="checkbox"/>								
	MW/Hz Mvar/Hz	<input type="checkbox"/>								
		<input type="checkbox"/>								
	%	<input type="checkbox"/>								
	%	<input type="checkbox"/>								
	%	<input type="checkbox"/>								
		<input type="checkbox"/>								

DATA SUPPLIED BY **BM PARTICIPANTS**

CODE	DESCRIPTION
BC1	Physical Notifications
BC1	Quiescent Physical Notifications
BC1 & BC2	Export and Import Limits
BC1	Bid-Offer Data
BC1	Dynamic Parameters (Day Ahead)
BC2	Dynamic Parameters (For use in Balancing Mechanism)
BC1 & BC2	Other Relevant Data
BC1	Joint BM Unit Data

- No information collated under this Schedule will be transferred to the **Relevant Transmission Licensees**

DATA SUPPLIED BY NGET TO USERS

(Example of data to be supplied)

CODE	DESCRIPTION
CC	Operation Diagram
CC	Site Responsibility Schedules
PC	Day of the peak National Electricity Transmission System Demand Day of the minimum National Electricity Transmission System Demand
OC2	Surpluses and OU requirements for each Generator over varying timescales Equivalent networks to Users for Outage Planning Negative Reserve Active Power Margins (when necessary) Operating Reserve information
BC1	Demand Estimates, Indicated Margin and Indicated Imbalance , indicative Synchronising and Desynchronising times of Embedded Power Stations to Network Operators , special actions.
BC2	Bid-Offer Acceptances, Ancillary Services instructions to relevant Users , Emergency Instructions
BC3	Location, amount, and Low Frequency Relay settings of any Low Frequency Relay initiated Demand reduction for Demand which is Embedded .

- No information collated under this Schedule will be transferred to the **Relevant Transmission Licensees**

DATA TO BE SUPPLIED BY NGET TO USERS

PURSUANT TO THE TRANSMISSION LICENCE

1. The **Transmission Licence** requires **NGET** to publish annually the **Seven Year Statement** which is designed to provide **Users** and potential Users with information to enable them to identify opportunities for continued and further use of the **National Electricity Transmission System**.

When a **User** is considering a development at a specific site, certain additional information may be required in relation to that site which is of such a level of detail that it is inappropriate to include it in the **Seven Year Statement**. In these circumstances the **User** may contact **NGET** who will be pleased to arrange a discussion and the provision of such additional information relevant to the site under consideration as the **User** may reasonably require.

2. The **Transmission Licence** also requires **NGET** to offer terms for an agreement for connection to and use of the **National Electricity Transmission System** and further information will be given by **NGET** to the potential **User** in the course of the discussions of the terms of such an agreement.

DEMAND PROFILES AND ACTIVE ENERGY DATA

The following information is required from each **Network Operator** and from each **Non-Embedded Customer**. The data should be provided in calendar week 24 each year (although **Network Operators** may delay the submission until calendar week 28).

DATA DESCRIPTION	F. Yr. 0	F. Yr. 1	F. Yr. 2	F. Yr. 3	F. Yr. 4	F. Yr. 5	F. Yr. 6	F. Yr. 7	UPDATE TIME	DATA CAT
<u>Demand Profiles</u>	<i>(P.C.A.4.2) (■ – CUSC Contract & ■ CUSC Application Form)</i>									
Total User's system profile (please delete as applicable)	Day of User's annual Maximum demand at Annual ACS Conditions (MW)									
	Day of annual peak of National Electricity Transmission System Demand at Annual ACS Conditions (MW)									
	Day of annual minimum National Electricity Transmission System Demand at average conditions (MW)									
0000 : 0030									Wk.24	SPD
0030 : 0100									:	:
0100 : 0130									:	:
0130 : 0200									:	:
0200 : 0230									:	:
0230 : 0300									:	:
0300 : 0330									:	:
0330 : 0400									:	:
0400 : 0430									:	:
0430 : 0500									:	:
0500 : 0530									:	:
0530 : 0600									:	:
0600 : 0630									:	:
0630 : 0700									:	:
0700 : 0730									:	:
0730 : 0800									:	:
0800 : 0830									:	:
0830 : 0900									:	:
0900 : 0930									:	:
0930 : 1000									:	:
1000 : 1030									:	:
1030 : 1100									:	:
1100 : 1130									:	:
1130 : 1200									:	:
1200 : 1230									:	:
1230 : 1300									:	:
1300 : 1330									:	:
1330 : 1400									:	:
1400 : 1430									:	:
1430 : 1500									:	:
1500 : 1530									:	:
1530 : 1600									:	:
1600 : 1630									:	:
1630 : 1700									:	:
1700 : 1730									:	:
1730 : 1800									:	:
1800 : 1830									:	:
1830 : 1900									:	:
1900 : 1930									:	:
1930 : 2000									:	:
2000 : 2030									:	:
2030 : 2100									:	:
2100 : 2130									:	:
2130 : 2200									:	:
2200 : 2230									:	:
2230 : 2300									:	:
2300 : 2330									:	:
2330 : 0000									:	:

The following information is required from each **Network Operator** and from each **Non-Embedded Customer**. The data should be provided in calendar week 24 each year (although **Network Operators** may delay the submission until calendar week 28).

Connection Point:

Connection Point Demand at the time of - (select each one in turn) (Provide data for each Access Period associated with the Connection Point)	a) maximum Demand b) peak National Electricity Transmission System Demand (specified by NGET) c) minimum National Electricity Transmission System Demand (specified by NGET) d) maximum Demand during Access Period e) specified by either NGET or a User
Name of Transmission Interface Circuit out of service during Access Period (if reqd).	PC.A.4.1.4.2

DATA DESCRIPTION (CUSC Contract □ & CUSC Application Form ■)	Outturn	Outturn Weather Corrected	F.Yr 1	F.Yr 2	F.Yr 3	F.Yr 4	F.Yr 5	F.Yr 6	F.Yr 7	F.Yr 8	DATA CAT
Date of a), b), c), d) or e) as denoted above.											PC.A.4.3.3
Time of a), b), c), d) or e) as denoted above.											PC.A.4.3.3
Connection Point Demand (MW)											PC.A.4.3.1
Connection Point Demand (MVA _r)											PC.A.4.3.1
Deduction made at Connection Point for Small Power Stations, Medium Power Stations and Customer Generating Plant (MW)											PC.A.4.3.2(a)
Reference to valid Single Line Diagram											PC.A.4.3.5
Reference to node and branch data.											PC.A.2.2

Note: The following data block can be repeated for each post fault network revision that may impact on the Transmission System.

Reference to post-fault revision of Single Line Diagram											PC.A.4.5
Reference to post-fault revision of the node and branch data associated with the Single Line Diagram											PC.A.4.5
Reference to the description of the actions and timescales involved in effecting the post-fault actions (e.g. auto-switching, manual, teleswitching, overload protection operation etc)											PC.A.4.5

Access Group:	
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Note: The following data block to be repeated for each **Connection Point** with the **Access Group**.

Name of associated Connection Point within the same Access Group:											PC.A.4.3.1
Demand at associated Connection Point (MW)											PC.A.4.3.1
Demand at associated Connection Point (MVA _r)											PC.A.4.3.1
Deduction made at associated Connection Point for Small Power Stations, Medium Power Stations and Customer Generating Plant (MW)											PC.A.4.3.2(a)

Embedded Generation Data											
Connection Point:											
DATA DESCRIPTION	Outturn	Outturn Weather Corrected	F.Yr 1	F.Yr 2	F.Yr. 3	F.Yr. 4	F.Yr. 5	F.Yr 6	F.Yr 7	F.Yr 8	DATA CAT
Small Power Station, Medium Power Station and Customer Generation Summary	For each Connection Point where there are Embedded Small Power Stations, Medium Power Stations or Customer Generating Stations the following information is required:										
No. of Small Power Stations, Medium Power Stations or Customer Power Stations											PC.A.3.1.4(a)
Number of Generating Units within these stations											PC.A.3.1.4(a)
Summated Capacity of all these Generating Units											PC.A.3.1.4(a)
Where the Network Operator's System places a constraint on the capacity of an Embedded Large Power Station											
Station Name											PC.A.3.2.2(c)
Generating Unit											PC.A.3.2.2(c)
System Constrained Capacity											PC.A.3.2.2(c)

Where the Network Operator's System places a constraint on the capacity of an Offshore Transmission System at an Interface Point											
Offshore Transmission System Name											PC.A.3.2.2(c)
Interface Point Name											PC.A.3.2.2(c)
Maximum Export Capacity											PC.A.3.2.2(c)
Maximum Import Capacity											PC.A.3.2.2(c)

NOTES:

- 'F.Yr.' means '**Financial Year**'. F.Yr. 1 refers to the current financial year.
- All **Demand** data should be net of the output (as reasonably considered appropriate by the **User**) of all **Embedded Small Power Stations, Medium Power Stations** and **Customer Generating Plant**. Generation and / or Auxiliary demand of **Embedded Large Power Stations** should not be included in the demand data submitted by the **User**. **Users** should refer to the **PC** for a full definition of the **Demand** to be included.
- Peak **Demand** should relate to each **Connection Point** individually and should give the maximum demand that in the **User's** opinion could reasonably be imposed on the **National Electricity Transmission System**. **Users** may submit the **Demand** data at each node on the **Single Line Diagram** instead of at a **Connection Point** as long the user reasonably believe such data relates to the peak (or minimum) at the **Connection Point**.

In deriving **Demand** any deduction made by the **User** (as detailed in note 2 above) to allow for **Embedded Small Power Stations, Medium Power Stations** and **Customer Generating Plant** is to be specifically stated as indicated on the Schedule.
- NGET** may at its discretion require details of any **Embedded Small Power Stations** or **Embedded Medium Power Stations** whose output can be expected to vary in a random manner (eg. wind power) or according to some other pattern (eg. tidal power)

5. Where more than 95% of the total **Demand** at a **Connection Point** is taken by synchronous motors, values of the **Power Factor** at maximum and minimum continuous excitation may be given instead. **Power Factor** data should allow for series reactive losses on the **User's System** but exclude reactive compensation network susceptance specified separately in Schedule 5.

DEMAND CONTROL

The following information is required from each **Network Operator** and where indicated with an asterisk from **Externally Interconnected System Operators** and/or **Interconnector Users** and a **Pumped Storage Generator**. Where indicated with a double asterisk, the information is only required from **Suppliers**.

DATA DESCRIPTION	UNITS		UPDATE TIME	
<u>Demand Control</u>				
Demand met or to be relieved by Demand Control (averaging at the Demand Control Notification Level or more over a half hour) at each Connection Point .				
Demand Control at time of National Electricity Transmission System weekly peak demand				
Amount Duration	MW Min	)F.yrs 0 to 5)	Week 24	OC1
For each half hour	MW	Wks 2-8 ahead	1000 Mon	OC1
For each half hour	MW	Days 2-12 ahead	1200 Wed	OC1
For each half hour	MW	Previous calendar day	0600 daily	OC1
**Customer Demand Management (at the Customer Demand Management Notification Level or more at the Connection Point)				
For each half hour	MW	Any time in Control Phase		OC1
For each half hour	MW	Remainder of period	When changes occur to previous plan	OC1
For each half hour	MW	Previous calendar day	0600 daily	OC1
**In Scotland, Load Management Blocks				
For each block of 5MW or more, for each half hour	MW	For the next day	11:00	OC1

DATA DESCRIPTION	UNITS	TIME COVERED	UPDATE TIME	DATA CAT.
*Demand Control or Pump Tripping Offered as Reserve				
Magnitude of Demand or pumping load which is tripped	MW	Year ahead from week 24	Week 24	DPD
System Frequency at which tripping is initiated	Hz	"	"	"
Time duration of System Frequency below trip setting for tripping to be initiated	S	"	"	"
Time delay from trip initiation to Tripping	S	"	"	"
<u>Emergency Manual Load Disconnection</u>				
Method of achieving load disconnection	Text	Year ahead from week 24	Annual in week 24	OC6
Annual ACS Peak Demand (Active Power) at Connection Point (requested under Schedule 11 - repeated here for reference)	MW	"	"	"
Cumulative percentage of Connection Point Demand (Active Power) which can be disconnected by the following times from an instruction from NGET				
5 mins	%	"	"	"
10 mins	%	"	"	"
15 mins	%	"	"	"
20 mins	%	"	"	"
25 mins	%	"	"	"
30 mins	%	"	"	"
<u>Automatic Low Frequency Disconnection</u>				
Magnitude of Demand disconnected, and frequency at which Disconnection is initiated, for each frequency setting for each Grid Supply Point	MW Hz	Year ahead from week 24	Annual in week 24	OC6

Notes

- Network Operators** may delay the submission until calendar week 28.

- No information collated under this Schedule will be transferred to the **Relevant Transmission Licensees**

FAULT INFEED DATA

The data in this Schedule 13 is all **Standard Planning Data**, and is required from all **Users** other than **Generators** who are connected to the **National Electricity Transmission System** via a **Connection Point** (or who are seeking such a connection). A data submission is to be made each year in Week 24 (although **Network Operators** may delay the submission until Week 28). A separate submission is required for each node included in the **Single Line Diagram** provided in Schedule 5.

DATA DESCRIPTION	UNITS	F.Y r 0	F.Yr. 1	F.Yr. 2	F.Yr. 3	F.Yr. 4	F.Yr. 5	F.Yr. 6	F.Yr. 7	DATA to RTL	
SHORT CIRCUIT INFEED TO THE NATIONAL ELECTRICITY TRANSMISSION SYSTEM FROM USERS SYSTEM AT A CONNECTION POINT											
<i>(PC.A.2.5)</i>											
Name of node or Connection Point										<input type="checkbox"/>	<input checked="" type="checkbox"/>
Symmetrical three phase short-circuit current infeed											
- at instant of fault	kA									<input type="checkbox"/>	<input checked="" type="checkbox"/>
- after subtransient fault current contribution has substantially decayed	Ka									<input type="checkbox"/>	<input checked="" type="checkbox"/>
Zero sequence source impedances as seen from the Point of Connection or node on the Single Line Diagram (as appropriate) consistent with the maximum infeed above:											
- Resistance	% on 100									<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Reactance	% on 100									<input type="checkbox"/>	<input checked="" type="checkbox"/>
Positive sequence X/R ratio at instance of fault										<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pre-Fault voltage magnitude at which the maximum fault currents were calculated	p.u.									<input type="checkbox"/>	<input checked="" type="checkbox"/>
Negative sequence impedances of User's System as seen from the Point of Connection or node on the Single Line Diagram (as appropriate). If no data is given, it will be assumed that they are equal to the positive sequence values.											
- Resistance	% on 100									<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Reactance	% on 100									<input type="checkbox"/>	<input checked="" type="checkbox"/>

FAULT INFEED DATA

The data in this Schedule 14 is all **Standard Planning Data**, and is to be provided by **Generators**, with respect to all directly connected **Power Stations**, all **Embedded Large Power Stations** and all **Embedded Medium Power Stations** connected to the **Subtransmission System**. A data submission is to be made each year in Week 24.

Fault infeeds via Unit Transformers

A submission should be made for each **Generating Unit** with an associated **Unit Transformer**. Where there is more than one **Unit Transformer** associated with a **Generating Unit**, a value for the total infeed through all **Unit Transformers** should be provided. The infeed through the **Unit Transformer(s)** should include contributions from all motors normally connected to the **Unit Board**, together with any generation (eg **Auxiliary Gas Turbines**) which would normally be connected to the **Unit Board**, and should be expressed as a fault current at the **Generating Unit** terminals for a fault at that location.

DATA DESCRIPTION	UNITS	F.Yr. 0	F.Yr. 1	F.Yr. 2	F.Yr. 3	F.Yr. 4	F.Yr. 5	F.Yr. 6	F.Yr.7	DATA to RTL		
										CUSC Contra ct	CUSC App. Form	
<i>(PC.A.2.5)</i>										<input type="checkbox"/>	<input type="checkbox"/>	
Name of Power Station											<input type="checkbox"/>	<input type="checkbox"/>
Number of Unit Transformer											<input type="checkbox"/>	<input type="checkbox"/>
Symmetrical three phase short-circuit current infeed through the Unit Transformers(s) for a fault at the Generating Unit terminals											<input type="checkbox"/>	<input type="checkbox"/>
- at instant of fault	kA										<input type="checkbox"/>	<input type="checkbox"/>
- after subtransient fault current contribution has substantially decayed	kA										<input type="checkbox"/>	<input type="checkbox"/>
Positive sequence X/R ratio at instance of fault											<input type="checkbox"/>	<input type="checkbox"/>
Subtransient time constant (if significantly different from 40ms)	ms										<input type="checkbox"/>	<input type="checkbox"/>
Pre-fault voltage at fault point (if different from 1.0 p.u.)											<input type="checkbox"/>	<input type="checkbox"/>
The following data items need only be supplied if the Generating Unit Step-up Transformer can supply zero sequence current from the Generating Unit side to the National Electricity Transmission System											<input type="checkbox"/>	<input type="checkbox"/>
Zero sequence source impedances as seen from the Generating Unit terminals consistent with the maximum infeed above:											<input type="checkbox"/>	<input type="checkbox"/>
- Resistance	% on 100										<input type="checkbox"/>	<input type="checkbox"/>
- Reactance	% on 100										<input type="checkbox"/>	<input type="checkbox"/>

Fault infeeds via Station Transformers

A submission is required for each **Station Transformer** directly connected to the **National Electricity Transmission System**. The submission should represent normal operating conditions when the maximum number of **Gensets** are **Synchronised** to the **System**, and should include the fault current from all motors normally connected to the **Station Board**, together with any Generation (eg **Auxiliary Gas Turbines**) which would normally be connected to the **Station Board**. The fault infeed should be expressed as a fault current at the hv terminals of the **Station Transformer** for a fault at that location.

If the submission for normal operating conditions does not represent the worst case, then a separate submission representing the maximum fault infeed that could occur in practice should be made.

DATA DESCRIPTION	UNITS	F.Yr. 0	F.Yr. 1	F.Yr. 2	F.Yr. 3	F.Yr. 4	F.Yr. 5	F.Yr. 6	F.Yr. 7	DATA to RTL	CUSC Contra ct	CUSC App. Form
<i>(PC.A.2.5)</i>												
Name of Power Station											<input type="checkbox"/>	<input checked="" type="checkbox"/>
Number of Station Transformer											<input type="checkbox"/>	<input checked="" type="checkbox"/>
Symmetrical three phase short-circuit current infeed for a fault at the Connection Point												
- at instant of fault	kA										<input type="checkbox"/>	<input checked="" type="checkbox"/>
- after subtransient fault current contribution has substantially decayed	kA										<input type="checkbox"/>	<input checked="" type="checkbox"/>
Positive sequence X/R ratio At instance of fault											<input type="checkbox"/>	<input checked="" type="checkbox"/>
Subtransient time constant (if significantly different from 40ms)	mS										<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pre-fault voltage (if different from 1.0 p.u.) at fault point (See note 1)											<input type="checkbox"/>	<input checked="" type="checkbox"/>
Zero sequence source Impedances as seen from the Point of Connection Consistent with the maximum Infeed above:												
- Resistance	% on 100										<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Reactance	% on 100										<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note 1. The pre-fault voltage provided above should represent the voltage within the range 0.95 to 1.05 that gives the highest fault current

Note 2. % on 100 is an abbreviation for % on 100 MVA

Fault infeeds from Power Park Modules

A submission is required for the whole **Power Park Module** and for each **Power Park Unit** type or equivalent. The submission shall represent operating conditions that result in the maximum fault infeed. The fault current from all motors normally connected to the **Power Park Unit's electrical system** shall be included. The fault infeed shall be expressed as a fault current at the terminals of the **Power Park Unit**, or the **Common Collection Busbar** if an equivalent **Single Line Diagram** and associated data as described in PC.A.2.2.2 is provided, and the **Grid Entry Point**, or **User System Entry Point** if **Embedded**, for a fault at the **Grid Entry Point**, or **User System Entry Point** if **Embedded**.

Should actual data in respect of fault infeeds be unavailable at the time of the application for a **CUSC Contract** or **Embedded Development Agreement**, a limited subset of the data, representing the maximum fault infeed that may result from all of the plant types being considered, shall be submitted. This data will, as a minimum, represent the root mean square of the positive, negative and zero sequence components of the fault current for both single phase and three phase solid faults at the **Grid Entry Point** (or **User System Entry Point** if **Embedded**) at the time of fault application and 50ms following fault application. Actual data in respect of fault infeeds shall be submitted to **NGET** as soon as it is available, in line with PC.A.1.2

DATA DESCRIPTION	UNITS	F.Yr.	F.Yr.	F.Yr.	F.Yr.	F.Yr.	F.Yr.	F.Yr.	F.Yr.	DATA to RTL	
		0	1	2	3	4	5	6	7		
(PC.A.2.5)										CUSC Contract	CUSC App. Form
Name of Power Station										<input type="checkbox"/>	<input checked="" type="checkbox"/>
Name of Power Park Module										<input type="checkbox"/>	<input checked="" type="checkbox"/>
Power Park Unit type										<input type="checkbox"/>	<input checked="" type="checkbox"/>
A submission shall be provided for the contribution of the entire Power Park Module and each type of Power Park Unit or equivalent to the positive, negative and zero sequence components of the short circuit current at the Power Park Unit terminals, or Common Collection Busbar , and Grid Entry Point or User System Entry Point if Embedded for (i) a solid symmetrical three phase short circuit (ii) a solid single phase to earth short circuit (iii) a solid phase to phase short circuit (iv) a solid two phase to earth short circuit at the Grid Entry Point or User System Entry Point if Embedded . If protective controls are used and active for the above conditions, a submission shall be provided in the limiting case where the protective control is not active. This case may require application of a non-solid fault, resulting in a retained voltage at the fault point.									<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- A continuous time trace and table showing the root mean square of the positive, negative and zero sequence components of the fault current from the time of fault inception to 140ms	Graphical and tabular kA									<input type="checkbox"/>	<input checked="" type="checkbox"/>

after fault inception at 10ms intervals	versus s										
- A continuous time trace and table showing the positive, negative and zero sequence components of retained voltage at the terminals or Common Collection Busbar , if appropriate	p.u. versus s									□	■
- A continuous time trace and table showing the root mean square of the positive, negative and zero sequence components of retained voltage at the fault point, if appropriate	p.u. versus s									□	■
For Power Park Units that utilise a protective control, such as a crowbar circuit,											
- additional rotor resistance applied to the Power Park Unit under a fault situation	% on MVA									□	■
- additional rotor reactance applied to the Power Park Unit under a fault situation.	% on MVA									□	■
Positive sequence X/R ratio of the equivalent at time of fault at the Common Collection Busbar										□	■
Minimum zero sequence impedance of the equivalent at Common Collection Busbar										□	■
Active Power generated pre-fault	MW									□	■
Number of Power Park Units in equivalent generator										□	■
Power Factor (lead or lag)										□	■
Pre-fault voltage (if different from 1.0 p.u.) at fault point (See note 1)	p.u.									□	■
Items of reactive compensation switched in pre-fault										□	■

Note 1. The pre-fault voltage provided above should represent the voltage within the range 0.95 to 1.05 that gives the highest fault current

MOTHBALLED GENERATING UNIT MOTHBALLED POWER PARK MODULE OR MOTHBALLED DC CONVERTER AT A DC CONVERTER STATION INFORMATION

The following data items must be supplied with respect to each **Mothballed Generating Unit**, **Mothballed Power Park Module** or **Mothballed DC Converter** at a **DC Converter station**

Power Station _____ **Generating Unit, Power Park Module or DC Converter Name** (e.g. Unit 1)

DATA DESCRIPTION	UNITS	DATA CAT	GENERATING UNIT DATA					Total MW being returned
			<1 month	1-2 months	2-3 months	3-6 months	6-12 months	
MW output that can be returned to service	MW	DPD						

Notes

1. The time periods identified in the above table represent the estimated time it would take to return the **Mothballed Generating Unit, Mothballed Power Park Module or Mothballed DC Converter** at a **DC Converter Station** to service once a decision to return has been made.
2. Where a **Mothballed Generating Unit, Mothballed Power Park Module or Mothballed DC Converter** at a **DC Converter Station** can be physically returned in stages covering more than one of the time periods identified in the above table then information should be provided for each applicable time period.
3. The estimated return MW output to service should be determined in accordance with **Good Industry Practice** assuming normal working arrangements and normal plant procurement lead times.
4. The MW output values in each time period should be incremental MW values, e.g. if 150MW could be returned in 2 – 3 months and an additional 50MW in 3 – 6 months then the values in the columns should be Nil, Nil, 150, 50, Nil, Nil, 200 respectively.
5. Significant factors which may prevent the **Mothballed Generating Unit, Mothballed Power Park Module or Mothballed DC Converter** at a **DC Converter Station** achieving the estimated values provided in this table, excluding factors relating to **Transmission Entry Capacity**, should be appended separately.

ALTERNATIVE FUEL INFORMATION

The following data items for alternative fuels need only be supplied with respect to each **Generating Unit** whose primary fuel is gas.

Power Station _____ **Generating Unit Name (e.g. Unit 1)** _____

DATA DESCRIPTION	UNITS	DATA CAT	GENERATING UNIT DATA			
			1	2	3	4
Alternative Fuel Type (* please specify)	Text	DPD	Oil distillate	Other gas*	Other*	Other*
CHANGEOVER TO ALTERNATIVE FUEL						
For off-line changeover:						
Time to carry out off-line fuel changeover	Minutes	DPD				
Maximum output following off-line changeover	MW	DPD				
For on-line changeover:						
Time to carry out on-line fuel changeover	Minutes	DPD				
Maximum output during on-line fuel changeover	MW	DPD				
Maximum output following on-line changeover	MW	DPD				
Maximum operating time at full load assuming:						
Typical stock levels	Hours	DPD				
Maximum possible stock levels	Hours	DPD				
Maximum rate of replacement of depleted stocks of alternative fuels on the basis of Good Industry Practice	MWh(electrical) /day	DPD				
Is changeover to alternative fuel used in normal operating arrangements?	Text	DPD				
Number of successful changeovers carried out in the last NGET Financial Year (** delete as appropriate)	Text	DPD	0 / 1-5 / 6-10 / 11-20 / >20 **	0 / 1-5 / 6-10 / 11-20 / >20 **	0 / 1-5 / 6-10 / 11-20 / >20 **	0 / 1-5 / 6-10 / 11-20 / >20 **

DATA DESCRIPTION	UNITS	DATA CAT	GENERATING UNIT DATA			
			1	2	3	4
CHANGEOVER BACK TO MAIN FUEL For off-line changeover: Time to carry out off-line fuel changeover For on-line changeover: Time to carry out on-line fuel changeover Maximum output during on-line fuel changeover	Minutes Minutes MW					

Notes

1. Where a **Generating Unit** has the facilities installed to generate using more than one alternative fuel type details of each alternative fuel should be given.
2. Significant factors and their effects which may prevent the use of alternative fuels achieving the estimated values provided in this table (e.g. emissions limits, distilled water stocks etc.) should be appended separately.

- No information collated under this Schedule will be transferred to the **Relevant Transmission Licensees**

DATA REGISTRATION CODE**BLACK START INFORMATION**

The following data/text items are required from each **Generator** for each **BM Unit** at a **Large Power Station** as detailed in PC.A.5.7. Data is not required for **Generating Units** that are contracted to provide **Black Start Capability**, **Power Park Modules** or **Generating Units** that have an **Intermittent Power Source**. The data should be provided in accordance with PC.A.1.2 and also, where possible, upon request from **NGET** during a **Black Start**.

Data Description (PC.A.5.7) (■ CUSC Contract)	Units	Data Category
Assuming all BM Units were running immediately prior to the Total Shutdown or Partial Shutdown and in the event of loss of all external power supplies, provide the following information:		
a) Expected time for the first and subsequent BM Units to be Synchronised , from the restoration of external power supplies, assuming external power supplies are not available for up to 24hrs	Tabular or Graphical	DPD
b) Describe any likely issues that would have a significant impact on a BM Unit's time to be Synchronised arising as a direct consequence of the inherent design or operational practice of the Power Station and/or BM Unit , e.g. limited barring facilities, time from a Total Shutdown or Partial Shutdown at which batteries would be discharged.	Text	DPD
Block Loading Capability:		
c) Provide estimated Block Loading Capability from 0MW to Registered Capacity of each BM Unit based on the unit being 'hot' (run prior to shutdown) and also 'cold' (not run for 48hrs or more prior to the shutdown). The Block Loading Capability should be valid for a frequency deviation of 49.5Hz – 50.5Hz. The data should identify any required 'hold' points.	Tabular or Graphical	DPD

