WORKING GROUP REPORT

Data Exchange Working Group

Prepared by the Data Exchange Working Group for submission to the Grid Code Review Panel

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1.0 SUMMARY AND RECOMMENDATIONS

1.1 Schedule 3 (Information and Data Exchange Specification) of the System Operator – Transmission Owner Code (STC) specifies the User data that is permitted to be exchanged between National Grid (as GB System Operator) and Scottish Power Transmission (SPT) and Scottish Hydro Electric Transmission (SHETL) as the Transmission Owners (TOs). At the time of BETTA Go-Live a specific reference to this version of the STC (and associated Schedule 3 provisions) was placed in the Grid Code[1]. As such any amendments proposed to Schedule 3 of the STC, with respect to the exchange of User data, would require a consequential amendment to the Grid Code.

1.2 It has been accepted by the Grid Code Review Panel (GCRP) that the current provisions do not provide the most effective and efficient solution in terms of alleviating User concerns regarding the exchange of their data and making the best use of the code governance frameworks.

1.3 The Working Group discussed the merits of a number of potential solutions which were categorised into two groups: code governance processes and formal code changes. Each potential solution was discussed by the Working Group in turn, the debate focusing on the pros and cons of each solution. The preferred solution was the development and inclusion of new provisions within the Grid Code which would specify the User data being passed to the Transmission Owners (TOs).

1.4 By having the data items highlighted in the Grid Code, it would be transparent to the industry which User data items are being transferred to the TOs. Any subsequent changes to the User data being transferred would necessitate a formal change to the Grid Code with Users having an opportunity to debate fully and to inform the debate of the proposed changes in accordance with existing Grid Code governance.

1.5 The Data Exchange Working Group recommends a number of Grid Code changes which may be summarised as follows:

i. Existing provisions regarding data exchange should be replaced by specifying and listing, in the appropriate sections of the Grid Code, the relevant data items being transferred;

ii. Relevant DRC Schedules to illustrate what data items are being transferred to TOs and will specify whether the data is exchanged on a GB Transmission System or Relevant Unit basis;

iii. The TOs' remit in the Grid Code is modified such that it is reflective of the data exchange provisions specified in the Grid Code;

[1] Information Exchange under the STC – Ofgem conclusions (March 2005) – Paragraph 3.33

1.6 The Data Exchange Working Group's preferred approach will not place any new obligations on Users in terms of data submitted, nor will it result in more data being passed to the TOs. The proposed changes will make it clear on the face of the Code what data items submitted to National Grid via the Data Registration Code provisions will be transferred to the TOs. The proposals will not have any implications for the TOs in terms of the data required to undertake their investment planning activities and fulfilling their licence obligations.

1.7 The Data Exchange Working Group discussions have focused on the User data collected via the Week 24/28 processes. However the Working Group has identified other data streams of User information currently permitted under Schedule 3 of the STC. It is the recommendation of the Working Group that changes to the Grid Code as outlined in this report should continue and for the GCRP to discussion how best to approach these alternative data streams.

1.8 It is the view of the Data Exchange Working Group that the proposed changes outlined in this report are not dependant on a consequential amendment of Schedule 3 of the STC.

2.0 BACKGROUND

2.1 At Vesting in 1990 the British Grid Systems Agreement (BGSA) originally contained provisions for the exchange of data between National Grid and the Scottish TOs. This contained a significant amount of User information necessary for robust investment planning and to ensure stability of the interconnected systems.

2.2 It was recognised that for BETTA a new Code (STC) was necessary and during consultation on the new Code, Users expressed their concerns over the unregulated flow of User data exchanged previously under the BGSA. Users wanted governance arrangements for the transfer of User data to prevent the transfer of their data to associated interests of the Scottish TOs (e.g. generators) which could then be used for commercial purposes.

2.3 Ofgem accepted the validity of those concerns and decided that at the time of BETTA Go-Live a specific reference to the relevant version of the STC (and associated Schedule 3 provisions) should be inserted into the Grid Code. This would enable Users to monitor future changes to the exchange of User data under Schedule 3 of the STC by way of any necessary consequential changes to the Grid Code (a User facing Code unlike the STC which only comprised the GB System Operator and the GB TOs). These arrangements were further reinforced by the change coordination provisions inserted into GC 4.6 of the Grid Code and B 7.2.9.1 of the STC.

2.4 Since BETTA Go-Live the STC, and in particular Schedule 3, has been amended to better facilitate processes which form part of the TOs' licence obligations but the corresponding changes to Grid Code provisions have been out of synchronism with the STC changes and as such have resulted in inconsistencies between the Grid Code and STC.

2.5 It has therefore been accepted by the GCRP that based on current experience the existing provisions do not provide the most effective and efficient solution in terms of alleviating User concerns regarding the exchange of their data and making the best use of the code governance frameworks.

3.0 PURPOSE AND SCOPE OF THE DATA EXCHANGE WORKING GROUP

3.1 The Data Exchange Working Group was established to identify an enduring solution to the interaction between the STC and Grid Code regarding the exchange of User data.

3.2 The Terms of Reference (Annex 1) were formally agreed at the first Data Exchange Working Group meeting.

4.0 WORKING GROUP DISCUSSIONS

4.1 The Working Group noted that the Grid Code User data transferred to the TOs comprises the information collected under the Week 24 submissions. The data exchange is necessary to ensure that National Grid and the TOs are planning investment on their systems on the basis of a consistent set of data and thereby meeting their licence and 1989 Electricity Act obligations to develop and maintain an efficient, coordinated and economical system of electricity transmission.

4.2 The Working Group agreed that both the Users and the TOs want to retain a contractual link to the data exchange provisions and the governance under which they can be changed. The TOs want to ensure that they are receiving the information that they require to plan and operate their respective networks. Users want to ensure that the data made available to transmission companies is necessary for planning or operational reasons and does not give rise to any commercial concerns, given that these companies also have associated generation and supply interests.

4.3 Furthermore, Users have expressed concerns about the appropriateness of the STC in determining the User information which can be exchanged between National Grid and the TOs. Users have indicated their preference that control over this exchange should be reflected in User facing Codes such as the Grid Code.

4.4 It was noted that Users' data obtained via CUSC processes or data based on National Grid modelling that employed the User data was not within the scope of the Working Group's terms of reference as specified in Appendix 1. It was acknowledged that this may necessitate a separate review of the interaction between STC and the CUSC regarding the exchange of User data.

4.5 The Working Group discussed various solutions which would potentially enable the necessary data exchange between National Grid and the TOs whilst alleviating Users' concerns. The Working Group agreed that the solution should ideally not involve parallel obligations in more than one Code. The Working Group noted that it would be useful to have an enduring solution implemented before the Offshore Transmission Owners (OFTOs) were established and operating under the Offshore Transmission regime.

4.6 The potential solutions were categorised into two groups: code governance processes and formal code changes. Each potential solution was discussed by the Working Group in turn, the debate focusing on the pros and cons of each solution.

4.7 Code Governance Process

Option 1- STC Schedule 3 and Grid Code change via coordinated governance

4.7.1 This would involve a concurrent change to the STC and the Grid Code, triggering a Grid Code consultation at the same time as the STC consultation commenced.

4.7.2 The aim of the proposal would be to ensure that both Amendment Proposals under the two Codes should reach Ofgem in similar timescales so that they could be implemented together if the Authority approved them.

4.7.3 The timing of the consideration of the Amendments under the two Codes would be an issue under this proposal since the STC was prescriptive in terms of the timescale by which a report should be provided to the Authority for decision whereas the Grid Code provisions were much more flexible in this area.

4.7.4 The main advantages of this proposal were that the amendment process provided a reasonable element of User scrutiny and involved minimal changes to the current Codes. The disadvantages were that the proposed processes were highly dependent on National Grid coordinating the necessary work for both Codes without express requirements in either Code to do so and where a joint Working Group was required there were also no express governance arrangements to cover the workings of such a Group.

Option 2 – Joint STC/Grid Code Working Group to consider changes to Schedule 3 of the STC

4.7.5 This option would involve convening a joint Working Group to consider any changes to Schedule 3 of the STC. The Working Group could not identify any immediate governance reasons why such an option should be ruled out although it was noted that the option could require an amendment to the STC. This option would give User visibility to changes to Schedule 3 of the STC.

4.7.6 The preferred code governance process solution would be the closer alignment of the STC and Grid code amendments process (as outlined by Option 1). The Working Group acknowledged that it may be possible and beneficial to align the STC and Grid Code amendments processes closer together via the existing governance framework but queried whether this solution delivered the assurances that Users were seeking in the context of adequate monitoring of the exchange of their data between National Grid and the TOs.

4.7.7 The proposal also had limitations in that the details of the User Data to be exchanged would not be described in the Grid Code but remain in the STC. The Working Group noted that the proposal was flexible but would rely on significant cooperation between all Parties without the arrangements being reinforced in a User facing Code.

4.8 Formal Grid Code Codification

Option 1 – STC Arrangements backed off in the Grid Code

4.8.1 This option would involve consequential changes to the relevant Grid Code clauses for any changes to the data exchange provisions in the STC. Pros of this option were relative simplicity and some provision for User participation in the STC governance arrangements. Cons were User participation was not via a User facing Code and administratively cumbersome.

Option 2 – Data Provisions and Process Mechanism Governed by the STC

4.8.2 This option would involve restricting the data exchange provisions and process mechanism to the STC.

4.8.3 Pros of this option were alleviation of any possible inconsistencies between the STC and the Grid Code, no cross-governance issues and administratively simple.

4.8.4 Cons were that the STC was not a User-facing document and Users would have very limited input as to what data was exchanged between National Grid and the TOs. A majority of the Group considered that this option was probably not viable.

Option 3a – Schedule 3 Provisions transferred from the STC to the Grid Code

4.8.5 This option would involve inserting the current STC Schedule 3 provisions regarding the data exchange permitted into the Grid Code. Pros were active User participation in the proposed changes via the appropriate User forum (GCRP). Cons included the need to amend the Grid Code such that TOs are party to the relevant provisions, the impact of the timeline of any proposed changes on operational activities and the appropriateness of the GCRP forum to the discussion of investment planning by TOs. A majority of the Working Group considered that option 3a was probably viable.

Option 3b – Schedule 3 Provisions replicated in the Grid Code

4.8.6 This option would involve simply reproducing the STC Schedule 3 provisions in the Grid Code. Pros of this option were that Users would have full visibility of the proposed changes and could comment via User-facing governance arrangements. Cons included the complication of cross-governance arrangements, the greater potential for inconsistencies in the Codes and the evaluation of proposals under different objectives/criteria.

Option 4 – New Obligations for Permitting the Transfer of User Data

4.8.7 This option would involve the insertion of new high level obligations into the Grid Code clarifying the requirements on National Grid in the context of exchange of User data. Pros included the avoidance of cross-governance issues between the Codes. Cons included the fact that Users would still have limited visibility of what data was exchanged between National Grid and the TOs via the STC governance arrangements. A majority of the Group did not consider that option 4 was viable.

Option 5 – Cross Reference STC Schedule 3 in the Data Registration Code

4.8.8 This option would involve the cross referencing of Schedule 3 to the STC in the Grid Code Data Registration Code. This would give User visibility to any changes to the Grid Code following changes to Schedule 3 of the STC but would probably have similar disadvantages to option 3b.

4.8.9 The preferred codification solution is the development and inclusion of new provisions within the Grid Code which would specify the User data being exchanged to the TOs (as outlined in option 3a).

4.8.10 By having the data items highlighted in the Grid Code, it would be transparent to the industry which User data items were being transferred to the TOs. Any subsequent changes to the User data being transferred would necessitate a formal change to the Grid Code with Users having an opportunity to fully debate and to inform the debate of the proposed changes in accordance with existing Grid Code governance.

4.9 Working Group Preferred Approach

4.9.1 The Working Group agreed that the optimum solution, both in terms of User transparency and ensuring the TOs obtained the necessary User data for their license obligations, was for the Grid Code to specific the User data being exchanged to the TOs as outlined in option 3a (formal Grid Code modification).

4.9.2 The Working Group agreed to develop this option further such that it met the terms of reference of the group. The Working Group agreed that the other solutions would not mitigate Users' concerns regarding the transfer of their data to parties other than National Grid and therefore would not be further developed. This decision was based on the following considerations:

- would potentially be cumbersome/less effective in terms of cross code governance arrangements
- may result in unnecessary duplication in code obligations
- may result in the TOs not being a party/privileged to the forum at which the data exchange items are discussed
- may result in the TOs not obtaining the relevant data required to fulfil their license obligations
- would not provide the level of transparency regarding the data exchanges requested by Users

4.9.3 The Working Group agreed that it was important for the preferred solution to be fully worked up as it was acknowledged that key aspects of the proposal were contained in the detail of any proposed changes. The Working Group acknowledged that it was important that the proposed Grid Code solution did not undermine the current data exchange provisions currently permitted under the STC.

4.9.4 The Working Group agreed that it would be useful from a User perspective for the Data Registration Codes to specify which data items would be transferred to the TOs. The Working Group noted that, depending on the data being transferred, the information would be on a Relevant Unit (reflective of the Boundary of Influence) or GB Transmission System basis. The DRC would differentiate between the different data exchange provisions.

4.9.5 The Working Group noted that the preferred approach may require a review of the STC provisions, Schedule 3 in particular, such that it was reflective of the Grid Code provisions regarding data exchange. It was acknowledged that the proposed Grid Code changes would not eliminate the need for having a Schedule 3 in the STC as provisions have a remit wider than just the exchange of User data.

5.0 WORKING GROUP RECOMMENDATIONS

5.1 The Working Group preferred solution is for the Grid Code to specify the User data being exchanged to the TOs as outlined in option 3a (formal Grid Code modification).

5.2 The Working Group acknowledged that the exchange of User data was inclusive of information obtained from Network Operators, other Generators groups (specifically Medium and Small Generators) and Non Embedded Customers and noted the absence of participation from these User groups within the Working Group membership.

5.3 The Working Group noted that it was important to ensure that the other relevant User groups were informed of the preferred solution and invited to input any relevant comments. Following invitation to comment the Network Operators and other Generators groups have indicated that they were in favour of the preferred solution and had no substantive comments on the proposal.

Benefits and Potential Consequences of Proposed Changes

5.4 The Working Group believes that the changes contained in this report will:

- improve the transparency of User data derived from Grid Code obligations which is transferred to the TOs ;
- improve the provisions relating to Users' data exchanged situated in a User facing Code
- alleviate Users concerns pertaining to the exchange of User data to companies with generation and supplier interests;
- enable the Relevant Transmission Licensees to participate actively in GCRP and industry discussion to any Grid Code proposed amendments regarding the data exchange provisions.

5.5 The Working Group believes that the changes contained in this report will result in the following disbenefits:

- in an extended governance process timeline for changing the remit/scope of the Grid Code data exchange requirements (based on current Grid Code Amendment Proposal timelines);
- in the data exchange obligations residing across two codes, requiring increased cross code governance vigilance;
- in the data requirements for the TOs being discussed/influenced by parties not bound to the same obligations/activities which may unduly influence the outcome of the proposal.

5.6 The Working Group believed that the benefits outlined in paragraph 5.4 outweighed the disbenefits outlined in paragraph 5.5.

5.7 In summary the recommended changes are:

5.7.1 Existing provisions regarding data exchange replaced by specifying and listing the relevant data items transferred in the appropriate sections of the Grid Code.

5.7.2 Relevant DRC Schedules to illustrate what data items are being transferred to TOs, specifying whether the data is exchanged on a GB Transmission System or Relevant Unit basis.

5.7.3 The TOs remit in the Grid Code is modified such that it is reflective of the data exchange provisions specified in the Grid Code

5.8 The preferred approach will not place any new obligations on Users in terms of data submitted or data passed to the TOs. The proposed changes will make it clear on the face of the Code what data items submitted to National Grid via the Data Registration Code provisions will be transferred to the TOs. The Working Group's recommendation will not have any implications for the TOs in terms of the data required to undertake their investment planning activities and fulfilling their licence obligations.

6.0 Alternative User Data Streams

6.1 The focus of the Working Group discussions has been on the User data collected via the Week 24/28 processes. The Working Group has identified other data streams of User information currently permitted under Schedule 3 of the STC.

6.2 These data streams permit the exchange of data required for:

- TO Construction Agreements (inclusive of compliance process and data)
- Responding to CUSC Applications

6.3 The STC provisions also permit the exchange of information regarding the physical characteristics of plant and apparatus.

6.4 The Working Group noted that the data for these additional streams are not collated via the Week 24/28 process and therefore are not included in the work completed to date. It was acknowledged that some elements of the User data stream relating to CUSC applications would be outside the remit of any Grid Code Working Group and subsequent amendment proposal.

6.5 The Working Group acknowledges the importance of having full transparency of all User data derived from Grid Code obligations which is transferred to the TOs but would like to prevent any delay to the progression of the significant piece of work already completed.

6.6 Therefore the recommendation of the Working Group is to progress with the changes to the Grid Code as outlined in this report and for the GCRP to discuss how best to approach these alternative streams. Options which the Grid Code Review Panel would consider are the reactivation of this Working Group to deal with the issue in due course or remitting the issues to an existing Working Group e.g. Compliance.

7.0 INITIAL VIEW OF NATIONAL GRID

7.1 National Grid agrees with the Working Group recommendations. Pending discussion at the GCRP of this Working Group Report, National Grid would intend to consult with Authorised Electricity Operators on making changes to the Grid Code in line with the Working Group recommendations contained in this report.

8.0 IMPACT ON GRID CODE

8.1 The proposed changes require amendments to the following Grid Code sections:

i. Data Registration Code
ii. General Conditions
iii. Glossary and Definitions
iv. OC2 (Operational Planning and Data Provisions) Code
v. Planning Code

8.2 The associated legal text for the Working Group recommendations is outlined in Annex 2 (Part 1).

Interactivity with other Grid Code Amendments

8.3 The Working Group noted that the proposals outlined in this report will potentially interact with the following existing Grid Code proposals:

- Grid Code Consultation B/07 (Improved Planning Code Data Exchange for Compliance Assessments Connection)

- Grid Code Consultation G/07 (Black Start)

8.4 Associated legal text which represents the interactivity will be provided in Annex 2 (Part 2 and 3) of this report.

9.0 IMPACT ON INDUSTRY DOCUMENTS

Impact on Core Industry Documents

9.1 The Working Group acknowledges the close interaction between the Grid Code and the STC regarding this issue. However it is the view of Data Exchange Working Group that the proposed changes outlined in this report are not dependent on a consequential amendment of Schedule 3 of the STC.

9.2 The STC Committee may wish to consider an amendment of Schedule 3 of the STC which would reflect the proposed Grid Code changes at an appropriate time in the future.

9.3 The non User data required by the TOs will still need to be identified and described in the STC.

9.4 It was noted that Users' data obtained via the CUSC process or data based on National Grid modelling that employed the User data was not within the scope of the Working Group's terms of reference as specified in Appendix 1. It was acknowledged that this may necessitate a separate review of the interaction between STC and the CUSC regarding the exchange of User data.

Impact on other Industry Documents

9.5 None.

10.0 IMPACT ON GB TRANSMISSION SYSTEM

10.1 The Working Groups' preferred solution will have no material impact on the GB Transmission System provided the new provisions in the Grid Code reflect the existing STC arrangements regarding the transfer of User data.

11.0 IMPACT ON GRID CODE USERS

11.1 The Working Groups' preferred solution will provide a high level of transparency within the Grid Code of the User data items that need to be exchanged with the TOs.

11.2 The approach will also enable Users to participate actively with any Grid Code proposed amendments regarding the data exchange provisions.

11.3 There will be no impact on Users regarding the preparation of DRC data. The proposals will highlight explicitly within the Grid Code, DRC data which will be transferred to the TOs.

12.0 ASSESSMENT AGAINST GRID CODE OBJECTIVES

12.1 The proposed changes outlined in the Working Group would better facilitate Grid Code Objectives:

ii) to facilitate competition in the generation and supply of electricity

by reassuring Users that their data will not be used by other parties to gain an unfair advantage in the market place.

ANNEX 1 – WORKING GROUP TERMS OF REFERENCE

It was agreed at the Extraordinary Grid Code Review Panel (GCRP) meeting on 31st July that a GCRP Working Group would be established and tasked with identifying an enduring solution to the interaction between the STC and Grid Code.

The terms of reference for the working group are:

1. Review the investment planning data requirements and current code provisions/obligations

2. Consider the interaction between the STC and Grid Code provisions, in particular:
   a. the cross governance issues
   b. whether the existing change coordination provisions are sufficient

3. Identify and consider the nature/content of the data exchange provisions and where the obligation(s) would be best situated

4. Identify and consider an enduring solution which will fulfill the necessary obligations and minimise any cross governance issues

5. Recommend changes required to the Grid Code

6. Identify consequential changes which may be required to other industry codes

Working Group Members

Members GCRP Working group will be as follows:

Chair		*Secretary*	
Duncan Burt	National Grid	Richard Dunn	National Grid

National Grid Representatives
Lilian Macleod
John Zammit-Haber/Richard Proctor

Industry Representatives

Sigrid Bolik	Econnect Consulting Ltd
Claire Maxim	E.ON
Alan Michie	Scottish Power Transmission Ltd
Jim Molley	Scottish Hydro Electric Transmission Ltd
John Morris	British Energy

Authority Observer

Bridget Morgan	Ofgem

ANNEX 2 (Part 1(i)) – PROPOSED GRID CODE CHANGES

Proposed Changes to Glossary and Definitions

Insert new definition for Relevant Units

Relevant Units as defined in the **STC**, Schedule 3.

Proposed Changes to OC2 (Operational Planning and Data Provision)

Insert new OC2 provision

OC2.3.2 **NGET** may provide to the **Relevant Transmission Licensees** any data which has been submitted to **NGET** by any **Users** in respect of **Relevant Units** pursuant to the following paragraphs of the **OC2**.

OC2.4.1.2.1(a)
OC2.4.1.2.1(e)
OC2.4.1.2.1(j)
OC2.4.1.2.2(a)
OC2.4.1.2.2(i)
OC2.4.1.3.2(a)
OC2.4.1.3.2(b)
OC2.4.1.3.3
OC2.4.2.1(a)

Proposed Changes to General Conditions

Amended provisions GC.4.2 and GC12.2 as follows:

GC.4.2 The **Panel** shall:

(b) review all suggestions for amendments to the **Grid Code** which the **Authority** or any **User** or any **Relevant Transmission Licensee** (in respect of PC.3.4, PC.3.5, PC.6.2, PC Appendix A and C, CC.6.1, CC.6.2, CC.6.3, OC2.3.2, OC8 and GC.11, OC7.6, OC9.4 and OC9.5) may wish to submit to **NGET** for consideration by the **Panel** from time to time;

GC.12.2 **NGET** has obligations under the **STC** to inform **Relevant Transmission Licensees** of certain data. **NGET** may pass on **User** data to a **Relevant Transmission Licensee** where **NGET** is required to do so under a provision of the **STC**. ~~current as at 29 October 2007. Those categories of **User** information that **NGET** is permitted to disclose to a **Relevant Transmission Licensee**, where required to do so by a provision of the **STC**, are set out in Schedule Three of the **STC** ('Information and data exchange specification').~~

Proposed Changes to Planning Code

Amended PC1.1 as follows:

PC.1.1 The **Planning Code** ("**PC**") specifies the technical and design criteria and procedures to be applied by **NGET** in the planning and development of the **GB Transmission System** and to be taken into account by **Users** in the planning and development of their own **Systems**. It details information to be supplied by **Users** to **NGET**, and certain information to be supplied by **NGET** to **Users**. In Scotland, **NGET** has obligations under the **STC** to inform **Relevant Transmission Licensees** of data required for the planning of the **GB Transmission System**. **NGET** may pass on **User** data to a **Relevant Transmission Licensee** where **NGET** is required to do so under a provision of the **STC** ~~current as at 29 October 2007. Those categories of **User** information that **NGET** is permitted to disclose to a **Relevant Transmission Licensee,** where required to do so by a provision of the **STC,** are set out in Schedule Three of the **STC** ('Information and data exchange specification')~~.

Insert new Planning Code provisions

PC.3.4 **NGET** may provide to the **Relevant Transmission Licensees** any data which has been submitted to **NGET** by any **Users** pursuant to the following paragraphs of the **PC**. For the avoidance of doubt, **NGET** will not provide to the **Relevant Transmission Licensees**, the types of data specified in Appendix D. The **Relevant Transmission Licensees'** use of such data is detailed in the **STC**.

PC.A.2.3
PC.A.2.5
PC.A.3.1
PC.A.3.2.1
PC.A.3.2.2
PC.A.3.3
PC.A.3.4
PC.A.4
PC.A.5.1
PC.A.5.2
PC.A.5.3.1
PC.A.5.3.2
PC.A.5.4.1
PC.A.5.4.2
PC.A.5.4.3.1
PC.A.5.4.3.2
PC.A.5.4.3.3
PC.A.5.4.3.4
PC.A.7

PC.3.5 In addition to the provisions of PC.3.4 **NGET** may provide to the **Relevant Transmission Licensees** any data which has been submitted to **NGET** by any **Users** in respect of **Relevant Units** pursuant to the following paragraphs of the **PC**.

PC.A.2.2
PC.A.2.4
PC.A.5.5
PC.A.6.2
PC.A.6.3
PC.A.6.4
PC.A.6.5
PC.A.6.6

Insertion of a new Planning Code Appendix

PLANNING CODE – APPENDIX D

Pursuant to PC.3.4, **NGET** will not disclose to a **Relevant Transmission Licensee** data items specified in the below extract:

PC REFERENCE	DATA DESCRIPTION	UNITS	DATA CAT.
PC.A.3.2.2 (f) (i)	Performance Chart at **Generating Unit** stator terminals		**SPD**
PC.A.3.2.2 (b)	**Output Usable** (on a monthly basis)	MW	**SPD**
PC.A.5.3.2 (d) Option 1 (iii)	GOVERNOR AND ASSOCIATED PRIME MOVER PARAMETERS Option 1 BOILER & STEAM TURBINE DATA Boiler time constant (Stored **Active Energy**) HP turbine response ratio: (Proportion of **Primary Response** arising from HP turbine) HP turbine response ratio: (Proportion of **High Frequency Response** arising from HP turbine)	 S % %	 **DPD** **DPD** **DPD**
Part of PC.A.5.3.2 (d) Option 2 (i)	Option 2 All **Generating Units** Governor Deadband - Maximum Setting - Normal Setting - Minimum Setting	 ±Hz ±Hz ±Hz	 **DPD** **DPD** **DPD**

Part of PC.A.5.3.2 (d) Option 2 (ii)	**Steam Units** Reheater Time Constant Boiler Time Constant HP Power Fraction IP Power Fraction	 sec sec % %	 **DPD** **DPD** **DPD** **DPD**
Part of PC.A.5.3.2 (d) Option 2 (iii)	**Gas Turbine Units** Waste Heat Recovery Boiler Time Constant		
Part of PC.A.5.3.2 (e)	UNIT CONTROL OPTIONS* Maximum droop Minimum droop Maximum frequency deadband Normal frequency deadband Minimum frequency deadband Maximum Output deadband Normal Output deadband Minimum Output deadband Frequency settings between which Unit Load Controller droop applies: Maximum Normal Minimum Sustained response normally selected	 % % ±Hz ±Hz ±Hz ±MW ±MW ±MW Hz Hz Hz Yes/No	 **DPD** **DPD** **DPD** **DPD** **DPD** **DPD** **DPD** **DPD** **DPD** **DPD** **DPD** **DPD**
PC.A.3.2.2 (f) (ii)	Performance Chart of a **Power Park Modules** at the connection point		**SPD**
PC.A.3.2.2 (b)	**Output Usable** (on a monthly basis)	MW	**SPD**
PC.A.3.2.2 (e) and (j)	**DC CONVERTER STATION** DATA **ACTIVE POWER** TRANSFER CAPABILITY (PC.A.3.2.2) Import MW available in excess of **Registered Import Capacity**. Time duration for which MW in excess of **Registered Import Capacity** is available	 MW Min	 **SPD** **SPD**

	Export MW available in excess of **Registered Capacity**. Time duration for which MW in excess of **Registered Capacity** is available	MW Min	**SPD** **SPD**
Part of PC.A.5.4.3.3	LOADING PARAMETERS MW Export Nominal loading rate Maximum (emergency) loading rate MW Import Nominal loading rate Maximum (emergency) loading rate	 MW/s MW/s MW/s MW/s	 **DPD** **DPD** **DPD** **DPD**

Proposed Changes to Data Registration Code

Amended Data Registration Code as outlined in Annex 2 (Part 1(ii)) – separate document

ANNEX 2 (Part 2(i)) – PROPOSED GRID CODE CHANGES (Interaction with Grid Code Consultation G/07 (Black Start))

In the event of Grid Code Consultation G/07 (Black Start) being approved by the Authority, the following changes to the proposed legal text (as outlined in Annex 2a and in the Grid Code G/07 Report to the Authority) will be required:

Proposed Changes to Planning Code

In addition to the changes to the Planning Code outlined in Annex 2 (Part 1(i)), add new reference, PC.A.5.7, to PC.3.5 provisions, inserted in numerical order.

Proposed Changes to Data Registration Code

In addition to the changes to the Data Registration Code outlined in Annex 2 (Part 1 (ii)), amend Data Registration Code as described in Annex 2 (Part 2(ii)) – separate document

ANNEX 2 (Part 3(i)) – PROPOSED GRID CODE CHANGES (Interaction with Grid Code Consultation B/07 (Improved Planning Code Data Exchange for Compliance Assessment))

In the event of Grid Code Consultation B/07 (Improved Planning Code Data Exchange for Compliance) being approved by the Authority, the following changes to the proposed legal text (as outlined in Annex 2a and in the Grid Code B/07 Report to the Authority) will be required:

Proposed Changes to Planning Code

In addition to the changes to the Planning Code outlined in Annex 2 (Part 1(i)):

- Remove reference PC.A.2.2 from PC.3.5 provisions and add to PC.3.4, inserted in numerical order
- Remove reference PC.A.2.3 from PC.3.4 provisions and add to PC.3.5, insert in numerical order.

Proposed Changes to Data Registration Code

In addition to the changes to the Data Registration Code outlined in Annex 2 (Part 1 (ii)), amend Data Registration Code as described in Annex 2 (Part 3(ii)) – see separate document

ANNEX 2 (Part 1(ii)) – PROPOSED GRID CODE CHANGES to DRC

Proposed Changes to Data Registration Code

DATA REGISTRATION CODE

SCHEDULE 1
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ABBREVIATIONS:

SPD	=	**Standard Planning Data**	**DPD**	=	**Detailed Planning Data**
% on MVA	=	% on Rated MVA	**RC**	=	**Registered Capacity**
% on 100	=	% on 100 MVA	**OC1**, **BC1**, etc	=	**Grid Code** for which data is required

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 **GB 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 Licensees** from **NGET** in respect to **Relevant Units** only
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**.

DATA REGISTRATION CODE SCHEDULE 1

GENERATING UNIT (OR CCGT MODULE) TECHNICAL DATA

POWER STATION NAME: _____ DATE: _____

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CAT.	**GENERATING UNIT** OR STATION DATA						
		CUSC Cont	CUSC App. Form		FYr 0	FYr 1	FYr 2	FYr 3	FYr 4	FYr 5	FYr 6
GENERATING STATION DEMANDS:											
Demand associated with the **Power Station** supplied through the **GB Transmission System** or the Generator's User System *(PC.A.5.2)*											
- The maximum **Demand** that could occur.	MW Mvar	□ □		**DPD** **DPD**							
- **Demand** at specified time of annual peak half hour of **GB Transmission System Demand** at **Annual ACS Conditions.**	MW Mvar	□ □		**DPD** **DPD**							
- **Demand** at specified time of annual minimum half-hour of **GB Transmission System Demand.**	MW Mvar	□ □		**DPD** **DPD**							
(Additional **Demand** supplied through the unit transformers to be provided below)											
INDIVIDUAL **GENERATING UNIT** (OR AS THE CASE MAY BE, **CCGT MODULE)** DATA					G1	G2	G3	G4	G5	G6	STN
Point of connection to the **GB 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 *(PC.A.3.4.1)*	Text	□	■	**SPD**							
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 *(PC.A.3.1.5)*	Section Number	□	■	**SPD**							
Type of **Unit** (steam, **Gas Turbine Combined Cycle Gas Turbine Unit,** tidal, wind, etc.) *(PC.A.3.2.2 (h))*		□									
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. *(PC.A.3.2.2 (g))*		□	■	**SPD**							

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CAT.	**GENERATING UNIT** (OR CCGT MODULE, AS THE CASE MAY BE)						
		CUSC Cont	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
Rated MVA *(PC.A.3.3.1)*	MVA	□	■	**SPD+**							
Rated MW *(PC.A.3.3.1)*	MW	□	■	**SPD+**							
Rated terminal voltage *(PC.A.5.3.2.(a) & PC.A.5.4.2 (b))*	kV	□		**DPD**							
*Performance Chart at **Generating Unit** stator terminals *(PC.A.3.2.2(f)(i))*				**SPD**	(see **OC2** for specification)						
***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	□	■	**SPD+**							
Short circuit ratio (synchronous machines) *(PC.A.5.3.2(a))*		□	■	**SPD+**							
Normal auxiliary load supplied by the **Generating Unit** at rated MW output *(PC.A.5.2.1)*	MW Mvar	□ □		**DPD** **DPD**							
Rated field current at rated MW and Mvar output and at rated terminal voltage *(PC.A.5.3.2 (a))*	A	□		**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	□		**DPD**							
110% rated terminal volts	A	□		**DPD**							
100% rated terminal volts	A	□		**DPD**							
90% rated terminal volts	A	□		**DPD**							
80% rated terminal volts	A	□		**DPD**							
70% rated terminal volts	A	□		**DPD**							
60% rated terminal volts	A	□		**DPD**							
50% rated terminal volts	A			**DPD**							
IMPEDANCES: (Unsaturated)											
Direct axis synchronous reactance *(PC.A.5.3.2(a))*	% on MVA	□		**DPD**							
Direct axis transient reactance *(PC.A.3.3.1(a)& PC.A.5.3.2(a)*	% on MVA	□	■	**SPD+**							
Direct axis sub-transient reactance *(PC.A.5.3.2(a))*	% on MVA	□		**DPD**							
Quad axis synch reactance *(PC.A.5.3.2(a))*	% on MVA	□		**DPD**							
Quad axis sub-transient reactance *(PC.A.5.3.2(a))*	% on MVA	□		**DPD**							
Stator leakage reactance *(PC.A.5.3.2(a))*	% on MVA	□		**DPD**							
Armature winding direct current resistance. *(PC.A.5.3.2(a))*	% on MVA	□		**DPD**							
In Scotland, negative sequence resistance *(PC.A.2.5.6 (a) (iv)*	% on MVA	□		**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 EXCH		DATA CAT.	**GENERATING UNIT** OR STATION DATA						
		CUSC Cont	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	□		**DPD**							
Direct axis sub-transient time constant *(PC.A.5.3.2(a))*	S	□		**DPD**							
Quadrature axis sub-transient time constant *(PC.A.5.3.2(a))*	S	□		**DPD**							
Stator time constant *(PC.A.5.3.2(a))*	S	□		**DPD**							
GENERATING UNIT STEP-UP TRANSFORMER											
Rated MVA *(PC.A.3.3.1 & PC.A.5.3.2)*	MVA	□	■	**SPD+**							
Voltage Ratio *(PC.A.5.3.2)*	-	□		**DPD**							
Positive sequence reactance: *(PC.A.5.3.2)*											
Max tap	% on MVA	□	■	**SPD+**							
Min tap	% on MVA	□	■	**SPD+**							
Nominal tap	% on MVA	□	■	**SPD+**							
Positive sequence resistance: *(PC.A.5.3.2)*											
Max tap	% on MVA	□		**DPD**							
Min tap	% on MVA	□		**DPD**							
Nominal tap	% on MVA	□		**DPD**							
Zero phase sequence reactance *(PC.A.5.3.2)*	% on MVA	□		**DPD**							
Tap change range *(PC.A.5.3.2)*	+% / -%	□		**DPD**							
Tap change step size *(PC.A.5.3.2)*	%	□		**DPD**							
Tap changer type: on-load or off-circuit *(PC.A.5.3.2)*	On/Off	□		**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))*		□		**DPD**							
Max field voltage *(PC.A.5.3.2(c))*	V	□		**DPD**							
Min field voltage *(PC.A.5.3.2(c))*	V	□		**DPD**							
Rated field voltage *(PC.A.5.3.2(c))*	V	□		**DPD**							
Max rate of change of field volts: *(PC.A.5.3.2(c))*											
Rising	V/Sec	□		**DPD**							
Falling	V/Sec	□		**DPD**							
Details of **Excitation Loop** *(PC.A.5.3.2(c))* Described in block diagram form showing transfer functions of individual elements	Diagram	□		**DPD**	(please attach)						
Dynamic characteristics of over- excitation limiter *(PC.A.5.3.2(c))*		□		**DPD**							
Dynamic characteristics of under-excitation limiter *(PC.A.5.3.2(c))*		□		**DPD**							

SCHEDULE 1
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DATA DESCRIPTION	UNITS	DATA EXCH		DATA CAT.	**GENERATING UNIT** OR STATION DATA						
		CUSC Cont	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	□	■	**SPD**							
Excitation System Nominal *(PC.A.5.3.2(c))* **Response** V_E	Sec^{-1}	□		**DPD**							
Rated Field Voltage *(PC.A.5.3.2(c))* U_{fN}	V	□		**DPD**							
No-load Field Voltage *(PC.A.5.3.2(c))* U_{fO}	V	□		**DPD**							
Excitation System On-Load *(PC.A.5.3.2(c))* **Positive Ceiling Voltage** U_{pL+}	V	□		**DPD**							
Excitation System No-Load *(PC.A.5.3.2(c))* **Positive Ceiling Voltage** U_{pO+}	V	□		**DPD**							
Excitation System No-Load *(PC.A.5.3.2(c))* **Negative Ceiling Voltage** U_{pO-}	V	□		**DPD**							
Power System Stabiliser (PSS) *(PC.A.3.4.2* fitted	Yes/No	□	■	**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	□		**DPD**							
Details of **Over-excitation Limiter** *(PC.A.5.3.2(c))* described in block diagram form showing transfer functions of individual elements.	Diagram	□		**DPD**							
Details of **Under-excitation Limiter** *(PC.A.5.3.2(c))* described in block diagram form showing transfer functions of individual elements.	Diagram	□		**DPD**							

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CAT.	**GENERATING UNIT** OR STATION DATA						
		CUSC Cont	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
GOVERNOR AND ASSOCIATED PRIME MOVER PARAMETERS											
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**.											
Option 1											
GOVERNOR PARAMETERS (REHEAT UNITS) *(PC.A.5.3.2(d) – Option 1(i))*											
HP Governor average gain	MW/Hz	□		**DPD**							
Speeder motor setting range	Hz	□		**DPD**							
HP governor valve time constant	S	□		**DPD**							
HP governor valve opening limits		□		**DPD**							
HP governor valve rate limits		□		**DPD**							
Re-heat time constant (stored **Active Energy** in reheater)	S	□		**DPD**							
IP governor average gain	MW/Hz	□		**DPD**							
IP governor setting range	Hz	□		**DPD**							
IP governor time constant	S	□		**DPD**							
IP governor valve opening limits		□		**DPD**							
IP governor valve rate limits		□		**DPD**							
Details of acceleration sensitive elements HP & IP in governor loop		□		**DPD**	(please attach)						
Governor block diagram showing transfer functions of individual elements		□		**DPD**	(please attach)						
GOVERNOR (Non-reheat steam and Gas Turbines) *(PC.A.5.3.2(d) – Option 1(ii))*											
Governor average gain	MW/Hz	□		**DPD**							
Speeder motor setting range		□		**DPD**							
Time constant of steam or fuel governor valve	S	□		**DPD**							
Governor valve opening limits		□		**DPD**							
Governor valve rate limits		□		**DPD**							
Time constant of turbine	S	□		**DPD**							
Governor block diagram		□		**DPD**	(please attach)						

DATA DESCRIPTION	UNITS	DATA EXCH CUSC Cont	DATA EXCH CUSC App. Form	DATA CAT.	**GENERATING UNIT** OR STATION DATA G1	G2	G3	G4	G5	G6	STN
(PC.A.5.3.2(d) – Option 1(iii))											
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		□		**DPD**							
Governor Time Constant *(PC.A.5.3.2(d) – Option 2(i))*	Sec	□		**DPD**							
#Governor Deadband *(PC.A.5.3.2(d) – Option 2(i))*											
- Maximum Setting	±Hz			**DPD**							
- Normal Setting	±Hz			**DPD**							
- Minimum Setting	±Hz			**DPD**							
Speeder Motor Setting Range *(PC.A.5.3.2(d) – Option 2(i))*	%	□		**DPD**							
Average Gain *(PC.A.5.3.2(d) – Option 2(i))*	MW/Hz	□		**DPD**							
Steam Units *(PC.A.5.3.2(d) – Option 2(ii))*											
HP Valve Time Constant	sec	□		**DPD**							
HP Valve Opening Limits	%	□		**DPD**							
HP Valve Opening Rate Limits	%/sec	□		**DPD**							
HP Valve Closing Rate Limits	%/sec	□		**DPD**							
HP Turbine Time Constant *(PC.A.5.3.2(d) – Option 2(ii))*	sec	□		**DPD**							
IP Valve Time Constant	sec	□		**DPD**							
IP Valve Opening Limits	%	□		**DPD**							
IP Valve Opening Rate Limits	%/sec	□		**DPD**							
IP Valve Closing Rate Limits	%/sec	□		**DPD**							
IP Turbine Time Constant *(PC.A.5.3.2(d) – Option 2(ii))*	sec	□		**DPD**							
LP Valve Time Constant	sec	□		**DPD**							
LP Valve Opening Limits	%	□		**DPD**							
LP Valve Opening Rate Limits	%/sec	□		**DPD**							
LP Valve Closing Rate Limits	%/sec	□		**DPD**							
LP Turbine Time Constant *(PC.A.5.3.2(d) – Option 2(ii))*	sec	□		**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 EXCH CUSC Cont	DATA EXCH CUSC App. Form	DATA CAT.	**GENERATING UNIT** OR STATION DATA G1	G2	G3	G4	G5	G6	STN
Gas Turbine Units											
(PC.A.5.3.2(d) – Option 2(iii))											
Inlet Guide Vane Time Constant	sec	□		**DPD**							
Inlet Guide Vane Opening Limits	%	□		**DPD**							
Inlet Guide Vane Opening Rate Limits	%/sec	□		**DPD**							
Inlet Guide Vane Closing Rate Limits	%/sec	□		**DPD**							
(PC.A.5.3.2(d) – Option 2(iii))											
Fuel Valve Time Constant	sec	□		**DPD**							
Fuel Valve Opening Limits	%	□		**DPD**							
Fuel Valve Opening Rate Limits	%/sec	□		**DPD**							
Fuel Valve Closing Rate Limits	%/sec	□		**DPD**							
(PC.A.5.3.2(d) – Option 2(iii))											
Waste Heat Recovery Boiler Time Constant											
Hydro **Generating Units**											
(PC.A.5.3.2(d) – Option 2(iv))											
Guide Vane Actuator Time Constant	sec	□		**DPD**							
Guide Vane Opening Limits	%	□		**DPD**							
Guide Vane Opening Rate Limits	%/sec	□		**DPD**							
Guide Vane Closing Rate Limits	%/sec	□		**DPD**							
Water Time Constant	sec	□		**DPD**							
	End of Option 2										
UNIT CONTROL OPTIONS*											
(PC.A.5.3.2(e)											
Maximum droop	%			**DPD**							
Normal droop	%	□		**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 EXCH		DATA CAT.	**POWER PARK UNIT** (OR **POWER PARK MODULE**, AS THE CASE MAY BE)						
		CUSC Cont	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
Power Park Module Rated MVA *(PC.A.3.3.1(a))*	MVA	□	■	**SPD+**							
Power Park Module Rated MW *(PC.A.3.3.1(a))*	MW	□	■	**SPD+**							
*Performance Chart of a **Power Park Module** at the connection point *(PC.A.3.2.2(f)(ii))*				**SPD**	(see **OC2** for specification)						
***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)						
Number & Type of **Power Park Units** within each **Power Park Module** *(PC.A.3.2.2(k))*		□									
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	□		**DPD**							
Power Park Unit Data (where applicable)											
Rated MVA *(PC.A.3.3.1(e))*	MVA	□	■	**SPD+**							
Rated MW *(PC.A.3.3.1(e))*	MW	□	■	**SPD+**							
Rated terminal voltage *(PC.A.3.3.1(e))*	V	□	■	**SPD+**							
Site minimum air density *(PC.A.5.4.2(b))*	kg/m^3	□	■	**SPD+**							
Site maximum air density	kg/m^3	□	■	**SPD+**							
Site average air density	kg/m^3	□	■	**SPD+**							
Year for which air density data is submitted		□	■	**SPD+**							
Number of pole pairs		□		**DPD**							
Blade swept area	m^2	□		**DPD**							
Gear Box Ratio		□		**DPD**							
Stator Resistance *(PC.A.5.4.2(b))*	% on MVA	□	■	**SPD+**							
Stator Reactance *(PC.A.3.3.1(e))*	% on MVA	□	■	**SPD+**							
Magnetising Reactance *(PC.A.3.3.1(e))*	% on MVA	□	■	**SPD+**							
Rotor Resistance (at starting). *(PC.A.5.4.2(b))*	% on MVA	□		**DPD**							
Rotor Resistance (at rated running) *(PC.A.3.3.1(e))*	% on MVA	□	■	**SPD+**							
Rotor Reactance (at starting). *(PC.A.5.4.2(b))*	% on MVA	□		**DPD**							
Rotor Reactance (at rated running) *(PC.A.3.3.1(e))*	% on MVA	□	■	**SPD**							
Equivalent inertia constant of the first mass (e.g. wind turbine rotor and blades) at minimum speed *(PC.A.5.4.2(b))*	MW secs /MVA	□	■	**SPD+**							
Equivalent inertia constant of the first mass (e.g. wind turbine rotor and blades) at synchronous speed *(PC.A.5.4.2(b))*	MW secs /MVA	□	■	**SPD+**							
Equivalent inertia constant of the first mass (e.g. wind turbine rotor and blades) at rated speed *(PC.A.5.4.2(b))*	MW secs /MVA	□	■	**SPD+**							
Equivalent inertia constant of the second mass (e.g. generator rotor) at minimum speed *(PC.A.5.4.2(b))*	MW secs /MVA	□	■	**SPD+**							
Equivalent inertia constant of the second mass (e.g. generator rotor) at synchronous speed *(PC.A.5.4.2(b))*	MW secs /MVA	□	■	**SPD+**							
Equivalent inertia constant of the second mass (e.g. generator rotor) at rated speed *(PC.A.5.4.2(b))*	MW secs /MVA	□	■	**SPD+**							
Equivalent shaft stiffness between the two masses *(PC.A.5.4.2(b))*	Nm / electrical radian	□	■	**SPD+**							

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CAT.	**POWER PARK UNIT** (OR **POWER PARK MODULE**, AS THE CASE MAY BE)						
		CUSC Cont	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	□	■	**SPD+**							
Maximum generator rotor speed (Doubly Fed Induction Generators) *(PC.A.3.3.1(e))*	RPM	□	■	**SPD+**							
The optimum generator rotor speed versus wind speed *(PC.A.5.4.2(b))*	tabular format	□		**DPD**							
Power Converter Rating (Doubly Fed Induction Generators) *(PC.A.5.4.2(b))*	MVA	□	■	**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	□		**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	□		**DPD**							
The blade angle versus wind speed curve *(PC.A.5.4.2(b))*	Diagram + tabular format	□		**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	□		**DPD**							
Transfer function block diagram, parameters and description of the operation of the power electronic converter including fault ride though capability (where applicable). *(PC.A.5.4.2(b))*	Diagram	□		**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))*		□									

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CAT.	**POWER PARK UNIT** (OR **POWER PARK MODULE**, AS THE CASE MAY BE)						
		CUSC Cont	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
Torque / Speed and blade angle control systems and parameters *(PC.A.5.4.2(c))* 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	Diagram	□		**DPD**							
Voltage/**Reactive Power**/**Power Factor** control system parameters *(PC.A.5.4.2(d))* 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.	Diagram	□		**DPD**							
Frequency control system parameters *(PC.A.5.4.2(e))* 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.	Diagram	□		**DPD**							
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))*	Diagram	□		**DPD**							
Harmonic Assessment Information *(PC.A.5.4.2(h))* (as defined in IEC 61400-21 (2001)) for each **Power Park Unit**:-											
Flicker coefficient for continuous operation		□		**DPD**							
Flicker step factor		□		**DPD**							
Number of switching operations in a 10 minute window		□		**DPD**							
Number of switching operations in a 2 hour window		□		**DPD**							
Voltage change factor		□		**DPD**							
Current Injection at each harmonic for each **Power Park Unit** and for each **Power Park Module**	Tabular format	□		**DPD**							

DC CONVERTER STATION TECHNICAL DATA

DC CONVERTER STATION NAME DATE:_____

Data Description	Units	DATA EXCH		Data Category	**DC Converter Station** Data
(PC.A.4)		CUSC Cont	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	□ □		**DPD** **DPD**	
- **Demand** with all **DC Converters** operating at **Rated MW** export.	MW Mvar	□ □		**DPD** **DPD**	
Additional **Demand** associated with the **DC Converter Station** supplied through the **GB Transmission System. [PC.A.4.1]**					
- The maximum **Demand** that could occur.	MW Mvar	□ □		**DPD** **DPD**	
- **Demand** at specified time of annual peak half hour of **NGET Demand** at **Annual ACS Conditions.**	MW Mvar	□ □		**DPD** **DPD**	
- **Demand** at specified time of annual minimum half-hour of **NGET Demand.**	MW Mvar	□ □		**DPD** **DPD**	
DC CONVERTER STATION DATA					
Number of poles, i.e. number of **DC Converters**	Text	□	■	**SPD+**	
Pole arrangement (e.g. monopole or bipole) Details of each viable operating configuration	Text	□	■	**SPD+**	
Configuration 1 Configuration 2 Configuration 3 Configuration 4 Configuration 5 Configuration 6	Diagram Diagram Diagram Diagram Diagram Diagram	□ □ □ □ □	 ■ ■ ■ ■ ■	**SPD+**	
Remote ac connection arrangement	Diagram	□	■	**SPD**	

Data Description	Units	DATA EXCH		Data Category	Operating Configuration					
		CUSC Cont	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	□	■	**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	□	■	**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	□	■	**SPD**						
Rated MW import per pole **[PC.A.3.3.1]**	MW	□	■	**SPD+**						
Rated MW export per pole **[PC.A.3.3.1]**	MW	□	■	**SPD+**						
ACTIVE POWER TRANSFER CAPABILITY (PC.A.3.2.2)										
Registered Capacity	MW	□	■	**SPD**						
Registered Import Capacity	MW	□	■	**SPD**						
Minimum Generation	MW	□	■	**SPD**						
Minimum Import Capacity	MW	□	■	**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**				**DPD**						
Rated MVA	MVA	□		**DPD**						
Winding arrangement				**DPD**						
Nominal primary voltage	KV	□		**DPD**						
Nominal secondary (converter-side) voltage(s)	KV	□		**DPD**						
Positive sequence reactance				**DPD**						
Maximum tap	% on MVA	□		**DPD**						
Nominal tap	% on MVA	□		**DPD**						
Minimum tap	% on MVA									
Positive sequence resistance				**DPD**						
Maximum tap	% on MVA	□		**DPD**						
Nominal tap	% on MVA	□		**DPD**						
Minimum tap	% on MVA	□		**DPD**						
Zero phase sequence reactance	% on MVA	□		**DPD**						
Tap change range	+% / -%	□		**DPD**						
Number of steps										

Data Description	Units	Data Exch		Data Category	Operating configuration					
		CUSC Cont	CUSC App. Form		1	2	3	4	5	6
DC NETWORK [PC.A.5.4.3.1 (c)]										
Rated DC voltage per pole	KV	□		**DPD**						
Rated DC current per pole	A	□		**DPD**						
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.	Diagram	□		**DPD**						
DC CONVERTER STATION AC HARMONIC FILTER AND REACTIVE COMPENSATION EQUIPMENT **[PC.A.5.4.3.1 (d)]**										
For all switched reactive compensation equipment	Diagram	□	■	**SPD**						
	Text	□	■	**SPD**						
Total number of AC filter banks	Diagram	□	■	**SPD**						
Diagram of filter connections	Text	□	■	**SPD**						
Type of equipment (e.g. fixed or variable)	Mvar	□		**DPD**						
Capacitive rating; or	Mvar	□		**DPD**						
Inductive rating; or	Mvar			**DPD**						
Operating range		□								
Reactive Power capability as a function of various MW transfer levels	Table			**DPD**						

Data Description	Units	Data Exch		Data Category	Operating configuration					
		CUSC Cont	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	□ □		**DPD** **DPD**						
Details of rectifier mode control system, in block diagram form together with parameters showing transfer functions of individual elements.	Diagram	□		**DPD**						
Details of inverter mode control system, in block diagram form showing transfer functions of individual elements including parameters.	Diagram	□		**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 **GB Transmission System**.)	Diagram	□		**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 **GB Transmission System**.)	Diagram	□		**DPD**						
Details of any frequency and/or load control systems in block diagram form showing transfer functions of individual elements including parameters.	Diagram	□		**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	□		**DPD**						
Transfer block diagram representation of the reactive power control at converter ends for a voltage source converter.		□		**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	□		**DPD**						
Maximum recovery time, to 90% of pre-fault loading, following a transient DC Network fault.	s	□		**DPD**						

NOTE:

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

DATA REGISTRATION CODE

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 EXCH		DATA CAT.	**GENSET** OR STATION DATA						
		CUSC Cont	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
OUTPUT CAPABILITY *(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	□	■	**SPD**							
Minimum Generation (on a module basis in the case of a **CCGT Module** or **Power Park Module** at a **Large Power Station)**	MW	□	■	**SPD**							
MW available from **Generating Units** or **Power Park Modules** in excess of **Registered Capacity**	MW	□	■	**SPD**							
REGIME UNAVAILABILITY											
These data blocks are provided to allow fixed periods of unavailability to be registered.											
Expected Running Regime. 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.)*		□	■	**SPD**							
Earliest **Synchronising** time: *OC2.4.2.1(a)*											
Monday	hr/min	■		**OC2**							-
Tuesday – Friday	hr/min	■		**OC2**							-
Saturday – Sunday	hr/min	■		**OC2**							-
Latest **De-Synchronising** time: *OC2.4.2.1(a)*											
Monday – Thursday	hr/min	■		**OC2**							-
Friday	hr/min	■		**OC2**							-
Saturday – Sunday	hr/min	■		**OC2**							-
SYNCHRONISING PARAMETERS *OC2.4.2.1(a)*											
Notice to Deviate from Zero (NDZ) after 48 hour **Shutdown**	Mins	■		**OC2**							
Station **Synchronising** Intervals (SI) after 48 hour **Shutdown**	Mins	■			-	-	-	-	-	-	
Synchronising Group (if applicable)	1 to 4	■		**OC2**							-

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CAT.	**GENSET** OR STATION DATA						
		CUSC Cont	CUSC App. Form		G1	G2	G3	G4	G5	G6	STN
Synchronising Generation (SYG) after 48 hour **Shutdown** *PC.A.5.3.2(f) & OC2.4.2.1(a)*	MW	■		**DPD & OC2**							-
De-Synchronising Intervals (Single value) *OC2.4.2.1(a)*	Mins	■		**OC2**	-	-	-	-	-	-	
RUNNING AND **SHUTDOWN** PERIOD LIMITATIONS:											
Minimum Non Zero time (MNZT) after 48 hour **Shutdown** *OC2.4.2.1(a)*	Mins	■		**OC2**							
Minimum Zero time (MZT) *OC2.4.2.1(a)*	Mins			**OC2**							
Two Shifting Limit (max. per day) *OC2.4.2.1(a)*	No.	■		**OC2**							
Existing AGR Plant Flexibility Limit (Existing AGR Plant onlyNu	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**							
RUN-UP PARAMETERS *PC.A.5.3.2(f) & OC2.4.2.1(a)*											
Run-up rates (RUR) after 48 hour **Shutdown**: (See note 2 page 3)	(Note that for DPD only a single value of run-up rate from Synch Gen to Registered Capacity is required)										
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**							
Run-Down Rates (RDR):	(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 EXCH CUSC Cont	DATA EXCH CUSC App. Form	DATA CAT.	**GENSET** OR STATION DATA G1	G2	G3	G4	G5	G6	STN
REGULATION PARAMETERS *OC2.4.2.1(a)*											
Regulating Range	MW	■		**DPD**							
Load rejection capability while still **Synchronised** and able to supply **Load.**	MW	■		**DPD**							
GAS TURBINE LOADING PARAMETERS: *OC2.4.2.1(a)*											
Fast loading	MW/Min	■		**OC2**							
Slow loading	MW/Min	■		**OC2**							
CCGT MODULE PLANNING MATRIX				**OC2**	(please attach)						
POWER PARK MODULE PLANNING MATRIX				OC2	(please attach)						
Power Park Module Active Power Output/ Intermittent Power Source Curve (eg MW output / Wind speed)				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**.

DATA REGISTRATION CODE

SCHEDULE 3
Page 1 of 3

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 EXCH	
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))*							
						CUSC Cont	CUSC App. Form
	Monthly average OU	MW	F. yrs 5 - 7	Week 24	**SPD**		
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 potential outages)			C. yrs 3 - 5	Week31)		■	
(**NGET** further suggested revisions etc. (as detailed in **OC2** for			C. yrs 3 - 5	) Week42)		■	
Agreement of final **Generation Outage Programme**			C. yrs 3 - 5	Week 45	**OC2**	■	
PLANNING FOR YEARS 1 - 2 AHEAD *(OC2.4.1.2.2(a) & OC2.4.1.2.2(i))*							
Update of previously agreed **Final Generation Outage Programme**			C. yrs 1 - 2	Week 10	**OC2**		
	Weekly OU	MW	"	"		■	

DATA DESCRIPTION	UNITS	TIME COVERED	UPDATE TIME	DATA CAT	DATA EXCH CUSC Cont	DATA EXCH CUSC App. Form
(**NGET** response as detailed in **OC2** for		C. yrs 1 – 2	Week 12)		■	
(**Users**' response to **NGET** suggested changes or update of potential outages)		C. yrs 1 – 2	Week 14)		■	
Revised weekly OU		C. yrs 1 – 2	Week 34	OC2	■	
(**NGET** response as detailed in **OC2** for		C. yrs 1 – 2	Week 39)		■	
(**Users**' response to **NGET** suggested changes or update of potential outages)		C. yrs 1 – 2	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))			
(**NGET** response as detailed in **OC2** for (		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 EXCH	
OUTPUT PROFILES						
					CUSC Cont	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* ■ Contracted)

The Data in this Schedule 4 is to be supplied by **Generators** with respect to all **Large Power Stations** and by **DC Convertor 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:

1. The data provided in this Schedule 4 is not intended to constrain any **Ancillary Services Agreement.**
2. **Registered Capacity** should be identical to that provided in Schedule 2.
3. 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**.
4. **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.
5. 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.

DATA REGISTRATION CODE

USERS SYSTEM DATA

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

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CATEGORY
		CUSC Cont	CUSC App. Form	
USERS SYSTEM LAYOUT *(PC.A.2.2)*				
A **Single Line Diagram** showing all or part of the **User's System** is required. This diagram shall include:-				**SPD**
(a) all parts of the **User's System**, whether existing or proposed, operating at **Supergrid Voltage**, and in Scotland, also all parts of the **User System** operating at 132kV,		■	■	
(b) all parts of the **User's System** operating at a voltage of 50kV, and in Scotland greater than 30kV, or higher which can interconnect **Connection Points**, or split bus-bars at a single **Connection Point**,		■	■	
(c) all parts of the **User's System** between **Embedded Medium Power Stations** or **Large Power Stations** connected to the **User's Subtransmission System** and the relevant **Connection Point**,		■	■	
(d) all parts of the **User's System** at a **Transmission Site**.		■	■	
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**.		■	■	
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 also at 132kV, circuit breakers and phasing arrangements shall be shown.		■	■	

USERS SYSTEM DATA

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CATEGORY
		CUSC Cont	CUSC App. Form	
REACTIVE COMPENSATION *(PC.A.2.4)*				
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, connected at 33kV and above, other than power factor correction equipment associated with a customers **Plant** or **Apparatus**:				
Type of equipment (eg. fixed or variable)	Text	■	■	**SPD**
Capacitive rating; or	Mvar	■	■	**SPD**
Inductive rating; or	Mvar	■	■	**SPD**
Operating range	Mvar	■	■	**SPD**
Details of automatic control logic to enable operating characteristics to be determined	text and/or diagrams	■	■	**SPD**
Point of connection to **User's System** (electrical location and system voltage)	Text	■	■	**SPD**
SUBSTATION INFRASTRUCTURE *(PC.A.2.2.6(b))*				
For the infrastructure associated with any **User's** equipment at a Substation owned by a **Transmission Licensee** or operated or managed by **NGET**:-				
Rated 3-phase rms short-circuit withstand current	kA	■	■	**SPD**
Rated 1-phase rms short-circuit withstand current	kA	■	■	**SPD**
Rated Duration of short-circuit withstand	s	■	■	**SPD**
Rated rms continuous current	A	■	■	**SPD**

USER'S SYSTEM DATA

Circuit Parameters *(PC.A.2.2.4)* *(■ CUSC Contracted &* ■ CUSC Application Form)

The data below is all **Standard Planning Data**. Details are to be given for all circuits shown on the **Single Line Diagram**

Years Valid	Node 1	Node 2	Rated Voltage Kv	Operating Voltage Kv	Positive Phase Sequence % on 100 MVA			Zero Phase Sequence (self) % on 100 MVA			Zero Phase Sequence (mutual) % on 100 MVA		
					R	X	B	R	X	B	R	X	B

Notes

1. 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.

USERS SYSTEM DATA

Transformer Data *(PC.A.2.2.5)* (■ *CUSC Contracted &* ■ CUSC Application Form)

The data below is all **Standard Planning Data**, and details should be shown below of all transformers shown on the **Single Line Diagram**. Details of Winding Arrangement, Tap Changer and earthing details are only required for transformers connecting the **User's** higher voltage system with its **Primary Voltage System**.

Years valid	Name of Node or Conn-ection Point	Trans-former	Rating MVA	Voltage Ratio		Positive Phase Sequence Reactance % on Rating			Positive Phase Sequence Resistance % on Rating			Zero Sequence React-ance % on Rating	Winding Arr.	Tap Changer			Earthing Details (delete as app.) *
				HV	LV	Max. Tap	Min. Tap	Nom. Tap	Max. Tap	Min. Tap	Nom. Tap			range +% to -%	step size %	type (delete	
																ON/ OFF ON/ OFF ON/ OFF ON/ OFF ON/ OFF ON/ OFF ON/OF	Direct/ Res/ Rea Direct/ Res/ Rea Direct /Res/ Rea Direct/ Res/ Rea Direct/ Res/ Rea

*If Resistance or Reactance please give impedance value

Notes

1. 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
2. For a transformer with two secondary windings, the positive and zero phase sequence leakage impedances between the HV and LV1, HV and LV2, and LV1 and LV2 windings are required.

USER'S SYSTEM DATA

Switchgear Data *(PC.A.2.2.6(a))* (■ *CUSC Contracted & 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, 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

USERS SYSTEM DATA

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CATEGORY
		CUSC Cont	CUSC App. Form	
PROTECTION SYSTEMS *(PC.A.6.3)* The following information relates only to **Protection** equipment which can trip or inter-trip or close any **Connection Point** circuit breaker or any **GB Transmission System** circuit breaker. The information need only be supplied once, in accordance with the timing requirements set out in PC.A.1.4 (b) and need not be supplied on a routine annual thereafter, although **NGET** should be notified if any of the information changes.				
(a) A full description, including estimated settings, for all relays and Protection systems installed or to be installed on the **User's System;**		■		**DPD**
(b) A full description of any auto-reclose facilities installed or to be installed on the **User's System**, including type and time delays;		■		**DPD**
(c) A full description, including estimated settings, for all relays and **Protection** systems installed or to be installed on the **Power Park Module** or **Generating Unit's** generator transformer, unit transformer, station transformer and their associated connections;		■		**DPD**
(d) For **Generating Units** (other than **Power Park Units**) having a circuit breaker at the generator terminal voltage clearance times for electrical faults within the **Generating Unit** zone must be declared.		■		**DPD**
(e) Fault Clearance Times: Most probable fault clearance time for electrical faults on any part of the **Users System** directly connected to the **GB Transmission System**.	mSec	■		**DPD**

DATA DESCRIPTION	UNITS	DATA EXCH		DATA CATEGORY
		CUSC Cont	CUSC App. Form	
POWER PARK MODULE/UNIT PROTECTION SYSTEMS Details of settings for the **Power Park Module/Unit** protection relays (to include): *(PC.A.5.4.2(f))*				
(a) Under frequency,		■		**DPD**
(b) Over Frequency,		■		**DPD**
(c) Under Voltage, Over Voltage,		■		**DPD**
(d) Rotor Over current		■		**DPD**
(e) Stator Over current,.		■		**DPD**
(f) High Wind Speed Shut Down Level		■		**DPD**
(g) Rotor Underspeed		■		**DPD**
(h) Rotor Overspeed		■		**DPD**

USER'S SYSTEM DATA

Information for Transient Overvoltage Assessment (**DPD**) *(PC.A.6.2* ■ CUSC Contracted)

The information listed below may be requested by **NGET** from each **User** with respect to any **Connection Site** between that **User** and the **GB 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 **GB Transmission System** without intermediate transformation;

(f) The following data is required on all transformers operating at **Supergrid Voltage** and also in Scotland, 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* ■ Contracted)

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 **GB 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* ■ Contracted)

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* ■ Contracted)

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 REGISTRATION CODE

USERS OUTAGE INFORMATION

DATA DESCRIPTION	UNITS	DATA EXCH		TIMESCALE COVERED	UPDATE TIME	DATA CAT.
		CUSC Cont	CUSC App. Form			
Details are required from **Network Operators** of proposed outages in their **User Systems** and from **Generators** with respect to their outages, which may affect the performance of the **Total System** (eg. at a **Connection Point** or constraining **Embedded Large Power Stations**) *(OC2.4.1.3.2(a) & (b))*		■		Years 2-5	Week 8 (**Network Operator** etc) Week 13 (Generators)	**OC2** **OC2**
(**NGET** advises **Network Operators** of **GB Transmission System** outages (affecting their **Systems**)				Years 2-5	Week 28)	
Network Operator informs **NGET** if unhappy with proposed outages)		■		"	Week 30	**OC2**
(**NGET** draws up revised **GB Transmission System** (outage plan advises **Users** of operational effects)				"	Week 34)	
Generators and **Non-Embedded Customers** provide Details of **Apparatus** owned by them (other than **Gensets**) at each **Grid Supply Point** *(OC2.4.1.3.3)*		■		Year 1	Week 13	**OC2**
(**NGET** advises **Network Operators** of outages affecting (their **Systems**) *(OC2.4.1.3.3)*				Year 1	Week 28)	
Network Operator details of relevant outages affecting the **Total System** *(OC2.4.1.3.3)*		■		Year 1	Week 32	**OC2**
(**NGET** informs **Users** of aspects that may affect (their **Systems**) *(OC2.4.1.3.3)*				Year 1	Week 34)	
Users inform **NGET** if unhappy with aspects as notified *(OC2.4.1.3.3)*		■		Year 1	Week 36	**OC2**
(**NGET** issues final **GB Transmission System** (outage plan with advice of operational) *(OC2.4.1.3.3)* (effects on **Users System**)		■		Year 1	Week 49	**OC2**
Generator, **Network Operator** and **Non-Embedded Customers** to inform **NGET** of changes to outages previously requested				Week 8 ahead to year end	As occurring	**OC2**
Details of load transfer capability of 12MW or more between **Grid Supply Points** in England and Wales and 10MW or more between **Grid Supply Points** in Scotland.				Within Yr 0	As **NGET** request	**OC2**

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.**

DATA REGISTRATION CODE SCHEDULE 7
Page 1 of 1

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 FOR FUTURE YEARS						
DATA DESCRIPTION	UNITS	DATA EXCH		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
		CUSC Cont	CUSC App. Form							
FOR ALL TYPES OF **DEMAND** FOR EACH **GRID SUPPLY POINT**										
The following information is required infrequently and should only be supplied, wherever possible, when requested by **NGET** *(PC.A.4.7)*		□								
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))*		□		(Please Attach)						
Sensitivity of demand to fluctuations in voltage And frequency on **GB Transmission System** at time of peak **Connection Point Demand (Active Power)** *(PC.A.4.7(b))*		□								
Voltage Sensitivity *(PC.A.4.7(b))*	MW/kV Mvar/kV	□								
Frequency Sensitivity *(PC.A.4.7(b))*	MW/Hz Mvar/Hz	□								
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))*		□								
Phase unbalance imposed on the **GB Transmission System** *(PC.A.4.7(d))*										
- maximum	%	□								
- average	%	□								
Maximum Harmonic Content imposed on **GB Transmission System** *(PC.A.4.7(e))*	%	□								
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))*		□								

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 REGISTRATION CODE SCHEDULE 9

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 **GB Transmission System Demand**
	Day of the minimum **GB 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 **GB 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 **GB 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.

DATA REGISTRATION CODE

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
Demand Profiles	*(PC.A.4.2)* (■ – CUSC Contracted & ■ CUSC Application Form)									
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 **GB Transmission System Demand** at **Annual ACS Conditions** (MW) Day of annual minimum **GB 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									:	:
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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									:	:

SCHEDULE 10

DATA DESCRIPTION	Out-turn Actual	Out-turn Weath corr.	F.Yr. 0	Update Time	Data Cat	Data Exch CUSC Cont	Data Exch CUSC App. Form
(PC.A.4.3)							
Active Energy Data				Week 24	**SPD**	■	■
Total annual **Active Energy** requirements under average conditions of each **Network Operator** and each **Non-Embedded Customer** in the following categories of **Customer** Tariff:-						■	■
LV1						■	■
LV2						■	■
LV3						■	■
EHV						■	■
HV						■	■
Traction						■	■
Lighting						■	■
User System Losses						■	■
Active Energy from **Embedded Small Power Stations** and **Embedded Medium Power Stations**						■	■

NOTES:

1. 'F. yr.' means '**Financial Year**'

2. **Demand** and **Active Energy** Data (General)

   Demand and **Active Energy** data should relate to the point of connection to the **GB Transmission System** and 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**. Auxiliary demand of **Embedded Power Stations** should be included in the demand data submitted by the **User** at the **Connection Point**. **Users** should refer to the **PC** for a full definition of the **Demand** to be included.

3. **Demand** profiles and **Active Energy** data should be for the total **System** of the **Network Operator**, including all **Connection Points**, and for each **Non-Embedded Customer**. **Demand Profiles** should give the numerical maximum demand that in the **User**'s opinion could reasonably be imposed on the **GB Transmission System**.

4. In addition the demand profile is to be supplied for such days as **NGET** may specify, but such a request is not to be made more than once per calendar year.

DATA REGISTRATION CODE

SCHEDULE 11
Page 1 of 4

CONNECTION POINT 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	DATA EXCH	
												CUSC Cont	CUSC App. Form
SPECIFIC HALF HOUR **DEMANDS** AND **POWER FACTORS** (see Notes 2, 3 and 5) *(PC.A.4.3)*													
Individual **Connection Point Demands** and **Power Factor** at : (name of GSP)													
The annual peak half Hour at the **Connection Point** at **Annual ACS Conditions**	MW	-	-	-	-	-	-	-	-	Wk.24	**SPD**	□	■
		-	-	-	-	-	-	-	-				
	p.f.	-	-	-	-	-	-	-	-	Wk.24	**SPD**	□	■
		-	-	-	-	-	-	-	-				
Lumped Susceptance (See Note 6. This data item is not required if a **Single Line Diagram** associated with the **Connection Point** has been provided) *(PC.A.2.3)*		-	-	-	-	-	-	-	-	Wk.24	**SPD**	□	■
		-	-	-	-	-	-	-	-				
		-	-	-	-	-	-	-	-				
		-	-	-	-	-	-	-	-				
Deduction made for **Small Power Stations, Medium Power Stations** and **Customer Generating Plant** (MW)										Wk.24	**SPD**	□	■
		-	**-**	**-**	**-**	**-**	**-**	**-**	**-**				
		-	-	-	-	-	-	-	-				
		-	-	-	-	-	-	-	-				
The specified time of the annual peak half hour of **GB Transmission System Demand** at **Annual ACS Conditions**	MW	-	-	-	-	-	-	-	-	Wk.24	**SPD**	□	■
		-	-	-	-	-	-	-	-				
	p.f.	-	-	-	-	-	-	-	-	Wk.24	**SPD**	□	■
		-	-	-	-	-	-	-	-				
Deduction made for **Small Power Stations, Medium Power Stations** and **Customer Generating Plant** (MW)		-	-	-	-	-	-	-	-	Wk.24	**SPD**	□	■
		-	-	-	-	-	-	-	-				
The specified time of the annual minimum half hour of the **GB Transmission System Demand**	MW	-	-	-	-	-	-	-	-	Wk.24	**SPD**	□	■
		-	-	-	-	-	-	-	-				
	p.f.	-	-	-	-	-	-	-	-	Wk.24	**SPD**	□	■
		-	-	-	-	-	-	-	-				
Deduction made for **Small Power Stations, Medium Power Stations** and **Customer Generating** Plant										Wk.24	**SPD**	□	■
		-	**-**	**-**	**-**	**-**	**-**	**-**	**-**				
		-	-	-	-	-	-	-	-				
		-	-	-	-	-	-	-	-	Once			
For such other times as **NGET** may specify	MW	-	-	-	-	-	-	-	-	p.a. max.	**SPD**	□	■
		-	-	-	-	-	-	-	-				
	p.f.	-	-	-	-	-	-	-	-		**SPD**	□	■
		-	-	-	-	-	-	-	-				
Deduction made for **Small Power Stations, Medium Power Stations** and **Customer Generating Plant**		-	-	-	-	-	-	-	-	Once p.a.			
		-	-	-	-	-	-	-	-				
										Max.	**SPD**	□	■

SCHEDULE 11

DATA DESCRIPTION		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	DATA EXCH	
											CUSC Cont	CUSC App. Form
DEMAND TRANSFER CAPABILITY (PRIMARY SYSTEM) *(PC.A.4.5)*												
Where a **User's Demand**, or group of **Demands**, may be fed from alternative **Connection Point(s)** the following information should be provided												
First circuit outage (fault outage) condition												
Name of the alternative **Connection Point(s)**									Wk.24	**SPD**	□	■
Demand transferred	(MW)								Wk.24	**SPD**	□	■
	(Mvar)								Wk.24	**SPD**	□	■
Transfer arrangement i.e Manual (M) Interconnection (I) Automatic (A)									Wk.24	**SPD**	□	■
Time to effect transfer	(hrs)								Wk.24	**SPD**	□	■
Second Circuit outage (planned outage) condition												
Name of the alternative **Connection Point(s)**									Wk.24	**SPD**	□	■
Demand transferred	(MW)								Wk.24	**SPD**	□	■
	(Mvar)								Wk.24	**SPD**	□	■
Transfer arrangement i.e Manual (M) Interconnection (I) Automatic (A)									Wk.24	**SPD**	□	■
Time to effect transfer	(hrs)								Wk.24	**SPD**	□	■

The above demand transfer capability information for specific **Grid Supply Points** is to be updated during the current year - see Schedule 6.

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	DATA EXCH	
											CUSC Cont	CUSC App. Form
SMALL POWER STATION, MEDIUM POWER STATION AND **CUSTOMER** GENERATION SUMMARY *(PC.A.3.1.4)* 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**									Wk.24	**SPD**	□	■
Number of **Generating Units** within these stations									Wk.24	**SPD**	□	■
Summated Capacity of all these **Generating Units**									Wk.24	**SPD**	□	■
Where the **Network Operator's System** places a constraint on the capacity of an **Embedded Large Power Station**												
Station Name									Wk.24	**SPD**	□	■
Generating Unit *(PC.A.3.4)*									Wk.24	**SPD**	□	■
System Constrained Capacity *(PC.A.3.2.2)*									Wk.24	**SPD**	□	■

For each **Single Line Diagram** provided under Schedule 5, nodal **Demands, Power Factors** and lumped susceptances are to be provided for the specified time of the annual peak half hour of **GB Transmission System Demand** at **Annual ACS Conditions:**

Connection Point		Year		Wk.24	**SPD**	■	■
Node	**Demand**	**Power Factor**	Lumped Susceptance				

NOTES:

1. 'F.Yr.' means '**Financial Year**'. F.Yr. 1 refers to the current financial year.

2. **Demand** Data (General)

   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**. **Demand** met by **Suppliers** supplying **Customers** within the **User System** should be included. Auxiliary demand of **Embedded 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.

3. Peak **Demands** 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 **GB Transmission System**. Where the busbars on a **Connection Point** are expected to be run in separate sections separate **Demand** data should be supplied for each such section of busbar.

   In deriving **Demands** 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.

4. **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.

6. **Power Factor** data should allow for series reactive losses on the **User's System** but exclude reactive compensation specified separately in Schedule 5, and any network susceptance provided under Schedule 11.

DATA REGISTRATION CODE SCHEDULE 12

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	
Demand Control **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 **GB 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	"	"	"
Emergency Manual Load Disconnection				
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	%	"	"	"
Automatic Low **Frequency Disconnection**				
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

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

DATA REGISTRATION CODE SCHEDULE 13

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 **GB 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.Yr 0	F.Yr. 1	F.Yr. 2	F.Yr. 3	F.Yr. 4	F.Yr. 5	F.Yr. 6	F.Yr . 7	DATA EXCH	
SHORT CIRCUIT INFEED TO THE **GB TRANSMISSION SYSTEM** FROM **USERS SYSTEM** AT A **CONNECTION POINT**										CUSC Cont	CUSC App. Form
(PC.A.2.5)											
Name of node or **Connection Point**										□	■
Symmetrical three phase short-circuit current infeed											
- at instant of fault	kA									□	■
- after subtransient fault current contribution has substantially decayed	Ka									□	■
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									□	■
- Reactance	% on 100									□	■
Positive sequence X/R ratio at instance of fault										□	■
Pre-Fault voltage magnitude at which the maximum fault currents were calculated	p.u.									□	■
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									□	■
- Reactance	% on 100									□	■

DATA REGISTRATION CODE SCHEDULE 14

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 EXCH	
(PC.A.2.5)										CUSC Cont	CUSC App. Form
Name of **Power Station**										□	■
Number of **Unit Transformer**										□	■
Symmetrical three phase short-circuit current infeed through the **Unit Transformers**(s) for a fault at the **Generating Unit** terminals											
- at instant of fault	kA									□	■
- after subtransient fault current contribution has substantially decayed	kA									□	■
Positive sequence X/R ratio at instance of fault										□	■
Subtransient time constant (if significantly different from 40ms)	ms									□	■
Pre-fault voltage at fault point (if different from 1.0 p.u.)										□	■
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 **GB Transmission System**											
Zero sequence source impedances as seen from the **Generating Unit** terminals consistent with the maximum infeed above:											
- Resistance	% on 100									□	■
- Reactance	% on 100									□	■

DATA REGISTRATION CODE SCHEDULE 14
Page 2 of 3

Fault infeeds via **Station Transformers**

A submission is required for each **Station Transformer** directly connected to the **GB 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 EXCH	
(PC.A.2.5)										CUSC Cont	CUSC App. Form
Name of **Power Station**										□	■
Number of **Station Transformer**										□	■
Symmetrical three phase short-circuit current infeed for a fault at the **Connection Point**											
- at instant of fault	kA									□	■
- after subtransient fault current contribution has substantially decayed	kA									□	■
Positive sequence X/R ratio At instance of fault										□	■
Subtransient time constant (if significantly different from 40ms)	mS									□	■
Pre-fault voltage (if different from 1.0 p.u.) at fault point (See note 1)										□	■
Zero sequence source Impedances as seen from the **Point of Connection** Consistent with the maximum Infeed above:											
- Resistance	% on 100									□	■
- Reactance	% on 100									□	■

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

DATA REGISTRATION CODE SCHEDULE 14

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. 0	F.Yr. 1	F.Yr. 2	F.Yr. 3	F.Yr. 4	F.Yr. 5	F.Yr. 6	F.Yr. 7	DATA EXCH	
(PC.A.2.5)										CUSC Cont	CUSC App. Form
Name of **Power Station**										□	■
Name of Power Park Module										□	■
Power Park Unit type										□	■
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.										□	■
- 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 after fault inception at 10ms intervals	Graphical and tabular kA 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						
			<1 month	1-2 months	2-3 months	3-6 months	6-12 months	>12 months	Total MW being returned
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 notice to physically 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	Minutes					
For on-line changeover:						
Time to carry out on-line fuel changeover	Minutes					
Maximum output during on-line fuel changeover	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.

< End of **Data Registration Code** (**DRC**) >

ANNEX 2 (Part 2(ii)) – PROPOSED GRID CODE CHANGES to DRC (Interaction with Grid Code Consultation G/07 (Black Start))

Schedule (TBC) - Black Start

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 Contracted)*	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 49.5 Hz – 50.5Hz. The data should identify any required 'hold' points.	Tabular or Graphical	DPD

ANNEX 2 (Part 3(ii)) – PROPOSED GRID CODE CHANGES to DRC (Interaction with Grid Code Consultation B/07 (Improved Planning Code Data Exchange for Compliance Assessment))

USERS SYSTEM DATA

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

DATA REGISTRATION CODE
CONNECTION POINT DATA

SCHEDULE 11
Page 1 of 2

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 **GB Transmission System Demand** *(specified by **NGET**)* c) minimum **GB 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 Contracted □ & 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 (MVAr)											**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:		

*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** (MVAr)											**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)**

SCHEDULE 11
Page 2 of 2

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)**

NOTES:

1. 'F.Yr.' means '**Financial Year**'. F.Yr. 1 refers to the current financial year.

2. 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.

3. 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 **GB Transmission System**. **Users** my 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.

4. **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.

DATA REGISTRATION CODE

SCHEDULE (TBC)

ACCESS PERIOD DATA

(PC.A.4 - CUSC Contracted ■)

Access Group	

Asset Identifier	Start Week	End Week	Maintenance Year (1, 2 or 3)	Duration	Potential Concurrent Outage (Y/N)

Comments