WORKING GROUP REPORT

Regional Differences Working Group

Prepared by the Regional Differences Working Group
for submission to the Grid Code Review Panel

Reference	RDWG Report
Issue	1.0
Date of Issue	09/02/06
Prepared by	RDWG

I DOCUMENT CONTROL

a National Grid Document Control

Version	Date	Author	Change Reference
0.1	31/01/06	RDWG	Initial Draft for Comment by Working Group Members
1.0	09/02/06	RDWG	Final Draft for GCRP Members

b Distribution

Name	Organisation
The Gas and Electricity Markets Authority	Ofgem
Panel Members	Various
National Grid Industry Information Website	

II CONTENTS TABLE

1.0 SUMMARY AND RECOMMENDATIONS

Executive Summary

1.1 The Regional Differences Working Group has examined the existing definitions of a Small, Medium and Large Power Station and certain hard coded MW thresholds within the Grid Code. Based upon their discussions the Working Group believes that changes can be made in the following areas:

- To the definitions of Small, Medium and Large Power Stations
- To the threshold below which Power Park Modules are not obligated to provide a frequency response capability
- The threshold above which Demand side BM Units must provide PNs

1.2 Working Group discussions have revealed that due to the differing nature of the three licensed areas across Great Britain differing definitions must exist between each licensed area. However some Regional Differences have been minimised through the recommendations put forward in this report. These include:

- The removal of a Medium Power Station range across all of Scotland
- The requirement for a Power Park Module to have a Frequency Response Requirement in Scotland has been aligned with that of England and Wales.

1.3 National Grid agrees with the Working Group recommendations. Following discussion at the Grid Code Review Panel of this Working Group Report National Grid intends to consult with Authorised Electricity Operators on making changes to the Grid Code in line with the Working Group recommendations contained in this report.

Working Group Recommendation

1.4 The Working Group Recommendations are as follows:

Small, Medium and Large Power Station Definitions

1.5 The Working Group recommend that the "amalgamated TO Proposal" for the definitions of Small, Medium and Large Power Stations be taken forward as a Grid Code Amendment Proposal.

Proposer	Area	Small	Medium	Large
Amalgamated TO Proposal	NGET	<50MW	≥50MW, <100MW	≥100MW
	SPT	<30MW	-	≥30MW
	SHETL	<10MW	-	≥10MW

Frequency Response Capability of Power Park Modules in Scotland

1.5.1 The Working Group recommends that hard coded thresholds (currently 30MW) within the Grid Code concerning the ability of Power Park Modules to be capable of "…contributing to Frequency control by continuous modulation of Active Power…" may be relaxed to 50MW.

Submission of Demand PNs

1.5.2 The Working Group recommends that the hard coded thresholds regarding the de-minimis level for the submission of Demand PNs within the Grid Code be realigned to be consistent with the proposed new thresholds in each Transmission Owners Licensed Area that is that BM Units with a Demand Capacity of 10MW or more in SHETL's Licensed Area, of 30MW or more in SPT's Licensed Area and 50MW or more in England and Wales will be required to submit Physical Notifications.

2.0 INTRODUCTION

2.1 The GB Grid Code includes within it a number of regional differences where technical or critical procedural variations meant that some differentiation became necessary between rights or obligations in Scotland and the equivalent rights or obligations in England and Wales. The recognition of 132kV as a transmission voltage in Scotland has also resulted in other regional differences.

2.2 In developing the GB Grid Code it was acknowledged that given the timescales it would not be possible to harmonise all arrangements, and in certain circumstances there may be justifiable reasons for treating plant in Scotland differently. To ensure that work continued after Go-live the duties of the Grid Code Review Panel as defined in the Grid Code General Conditions were amended to include:

'Consider and identify changes to the Grid Code to remove any unnecessary differences in the treatment of issues in Scotland from their treatment in England and Wales'

2.3 The GCRP agreed at their meeting in July 2005 that a GCRP working group should be formed to review the regional differences triggered by the existing definition of Small, Medium and Large Power Stations within the Grid Code requesting that the Working Group report back to the GCRP in February 2006.

3.0 PURPOSE AND SCOPE OF WORKING GROUP

3.1 The paper presented to the GCRP recommending that that Working Group be set up identified the following four areas where Regional Differences were present within the Grid Code:

a) Definition of Small, Medium and Large Power Station (incl. BC1.4.2 (a)).
b) Technical requirements, covering CC6, CC.A.3, Planning Code requirements, OC5, BC2.A.2.6 and including relevant definitions.
c) Site Safety, CC5, CC7 and CC.A.1 / OC8, including relevant definitions.
d) Operational processes and interfaces, mainly the Operating Codes, including relevant definitions.

3.2 Of these four areas it was agreed by the GCRP that the first – the definition of a Small, a Medium and a Large Power Station across Great Britain warranted the most immediate attention. Consideration of the other areas identified may follow the review of the Small, Medium and Large Power Station definitions.

3.3 Alongside the review of the Small, Medium and Large Power Station Definitions the GCRP also recommended that the Working Group examine the hard-coded MW thresholds that are also used in certain places within the Grid Code.

4.0 WORKING GROUP DISCUSSIONS

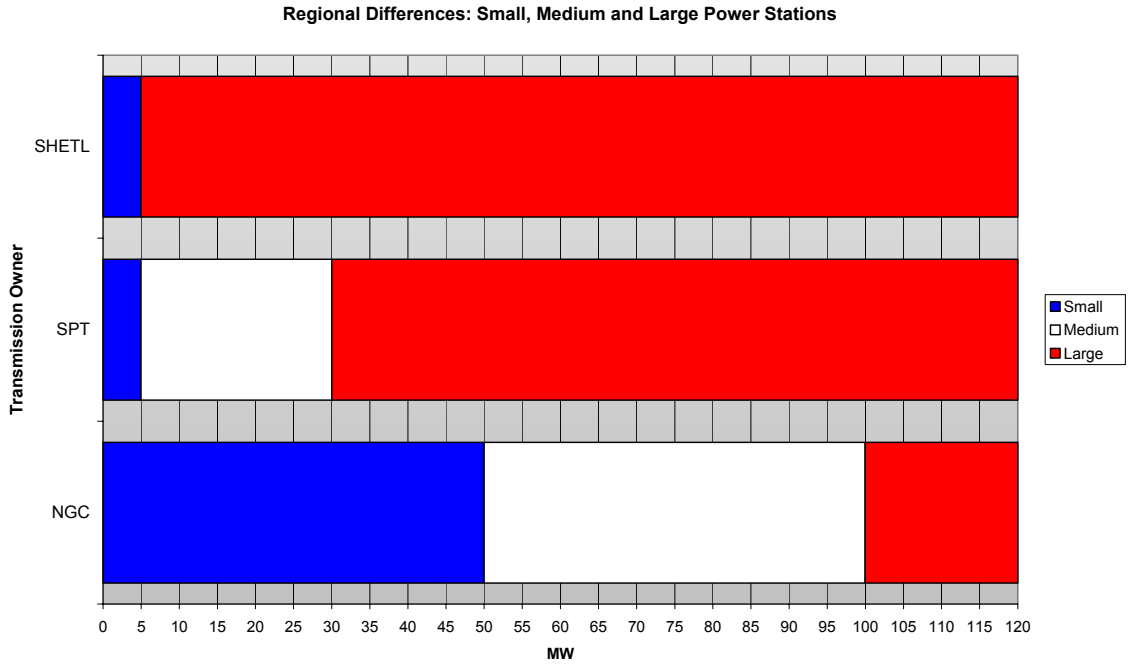
4.1 The Working Group established that in order to be able to judge properly the most appropriate levels at which the Small, Medium and Large Power Station definitions should be set, the following areas needed to be researched:

- The historic reasons behind the setting of the existing Small, Medium and Large thresholds
- The numbers of generators that would be affected by any change to the definitions – split between those that already exist and those that are planned
- Which Small, Medium and Large thresholds would allow Transmission Licence compliance in planning timescales
- Which Small, Medium and Large thresholds would allow Transmission Licence compliance in operational timescales
- The Small, Medium and Large Power Station thresholds and their relevance to the provision of data to the Transmission Network Operator under the Grid Code.
- The impact of the Small, Medium and Large Power Station thresholds upon other Grid Code compliance issues.
- Whether there are any potential impacts upon other Codes of a change to the definitions

4.2 History

4.2.1 The current thresholds for Small Medium and Large Power Stations are as follows:

	Small	**Medium**	**Large**
National Grid	<50MW	≥50MW & <100MW	≥100MW
SP Transmission Ltd	<5MW	≥5MW & <30MW	≥30MW
Scottish Hydro-Electric Transmission Ltd	<5MW	-	≥5MW



4.2.2 The definitions of Small, Medium and Large Power Stations in England and Wales have their origins in the pre-NETA Grid Code. In the pre-NETA Grid Code there were three definitions:

Generating Plant	Those Units subject to Central Despatch (i.e. those units over 100MW)
Small Independent Generating Plant	Those Units not subject to central despatch above 50MW
Minor Independent Generating Plant	Those Units not subject to central despatch below 50MW

4.2.3 The Generating Plant definition was tied to the Central Despatch limit of 100MW that was specified in the generation licence of the time. It meant that the vast majority of generators that were capable of exporting 100MW to the total system were required to become subject to central despatch. The other levels of "Independent" non-centrally despatched generating plant were then set mainly for the provision of planning information to National Grid with larger amounts of data being required to be submitted by Small Independent Generating Plant than Minor Independent Generating Plant. At NETA Go-Live there was an obvious need to update the above definitions and the current Large, Medium and Small Power Station definitions were introduced in line with the above thresholds.

4.2.4 In SPT's area the Large Power Station threshold was set based upon the old SPT Central Despatch Limit. It appears that this was established based upon the following operational rationale:

- Various limits of 10MW, 30MW and 50MW were considered.

- A key driver was the British Grid Systems Agreement transfer limit of ±100MW. The relative sizes of the SHE, SP and NGC transmission areas (as they were then called) meant that de-facto:
  - SHE controlled the tie line transfers between SHE and SP
  - SP controlled the tie line transfers between SP and NGC
  - NGC controlled the frequency of the British Grid

  SP thus had to control the tie line transfer to England and Wales so that at all times, the spot transfer was within ±100MW of the agreed transfer.

- Concerns were expressed that with a 50MW limit, this obligation would be unachievable.

- 30MW was therefore chosen with reference to the existing plant mix on the SP system at that time

4.2.5 Regarding the 5MW Large Power Station Limit in Scotland SHETL stated that this was due to the following reasons:

- Under BETTA the Transmission/Distribution interface in the North of Scotland was designated as 11kV and 33kV rather that 132kV. The bulk of generation connects at 132kV or below where the system is comparatively weak. The network capacity at, and close to, the DNO interface where generation is connected is considerably less than that in NGET's system with circuit ratings typically around 100MVA and the average Grid transformer rating of 44MVA. Exporting GSPs are not uncommon.
- The 5MW threshold was chosen to capture generators and demand which may have an effect on the transmission network. During planning this level is required for the design of a compliant network enabling generation connections whilst maintaining a secure, stable and controllable system. Operationally this level is required to assist in outage placement, demand estimation and network modelling.

4.2.6 Upon BETTA Go-Live a Medium band was adopted between 5MW and 30MW within SPT's area.

4.3 Analysis of Existing and Future Generation Connections:

4.3.1 National Grid noted early in its analysis that the amendment of the existing definitions within England and Wales was not warranted. It also soon became apparent that the existing England and Wales definitions could not be applied to either TO's licensed area without causing operational difficulties. Therefore National Grid focussed its analysis in an attempt to derive a single set of definitions for Small Medium and Large Power Stations across Scotland. National Grid's analysis of the existing plant within Scotland for which it has agreements and the profile of future connections currently within the "GB Queue" reveals the following:

Directly connected Generation:

Cumulative TEC (MW)	MW band						
TO	**0-4.9MW**	**5-9.9MW**	**10-29.9MW**	**30-49.9MW**	**50-99.9MW**	**>=100MW**	**Grand Total**
SHETL	0	0	165	202	216	1824	**2407**
SPTL	0	0	0	0	0	6429	**6429**
Grand Total	**0**	**0**	**165**	**202**	**216**	**8253**	**8836**

Embedded Generation:

Cumulative TEC (MW)	MW band						
TO	**0-4.9MW**	**5-9.9MW**	**10-29.9MW**	**30-49.9MW**	**50-99.9MW**	**>=100MW**	**Grand Total**
SHETL	0	82	367	264	123	0	**836**
SPTL	0	0	40	33	63	120	**256**
Grand Total	**0**	**82**	**407**	**297**	**186**	**120**	**1092**

4.3.2 In addition analysis by SPT also reveals that there are an additional 19 Embedded Medium Power Stations (in the range 5MW – 30MW) in SPT's area for which National Grid does not have a Bilateral Agreement in force.

4.3.3 SHETL presented the following information for all existing power stations within its licensed area (both embedded and directly connected):

Cumulative TEC (MW)	MW band						
TO	**0-4.9MW**	**5-9.9MW**	**10-29.9MW**	**30-49.9MW**	**50-99.9MW**	**>=100MW**	**Grand Total**
SHETL	96	85	470	383	303	Not supplied	**1337**

4.3.4 Regarding future generator connections National Grid presented the following information:

4.3.5 A key driver behind the ability of National Grid to operate the system effectively is the likely levels of future generation connections. If there were to be a significant increase in generation connected to the distribution system that could not be used to support reactive flows or where National Grid would not receive PN information then its ability to operate the system in an economic, efficient and secure manner may be prejudiced. The analysis of future years reveals the following trends in new generation:

SHETL

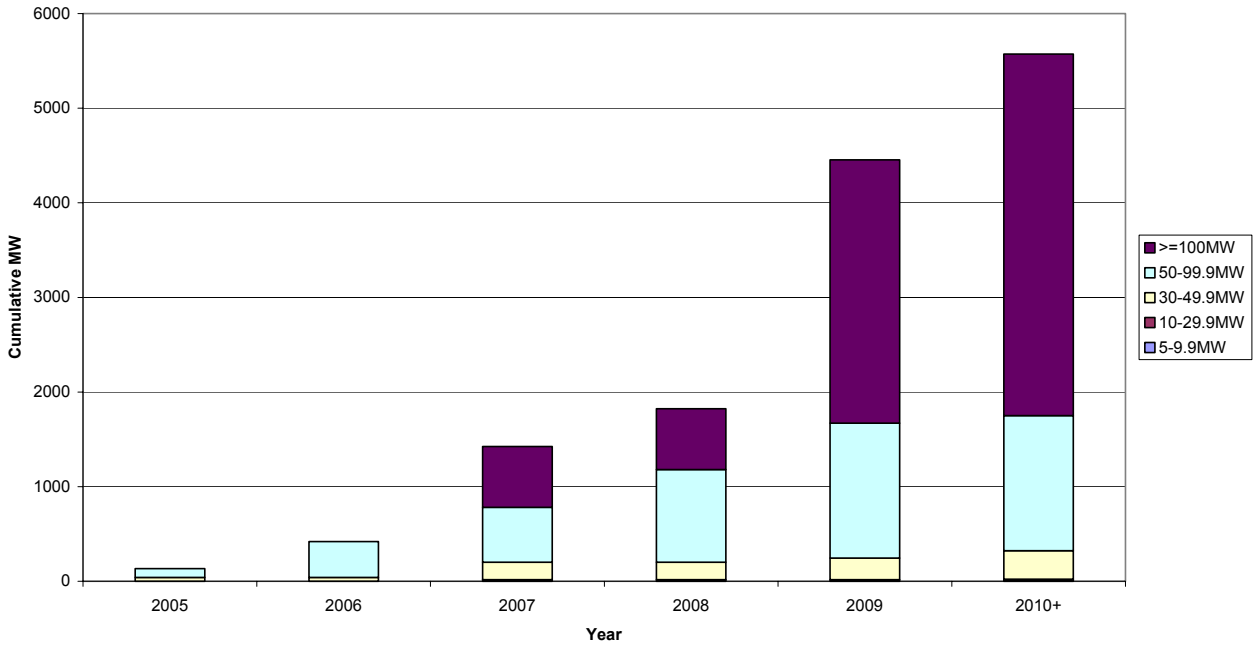
Directly Connected Generation:

There is a significant volume (~5500MW) of T-Connected Generation anticipated to come on line over the coming years. The majority of which is anticipated to be at units with a capacity of 50MW or greater.

TO	SHETL
T/D	T

Sum of TEC (MW)	MW band					
Connection Year	**5-9.9MW**	**10-29.9MW**	**30-49.9MW**	**50-99.9MW**	**>=100MW**	**Grand Total**
2005	0	0	42	92	0	**134**
2006	0	0	0	285	0	**285**
2007	0	16	142	203	644	**1005**
2008	0	0	0	400	0	**400**
2009	0	0	45	446	2138	**2629**
2010+	6	0	73	0	1040	**1119**
Grand Total	**6**	**16**	**302**	**1426**	**3822**	**5572**

Cumulative New Transmission Connected Generation SHETL 2005-2010

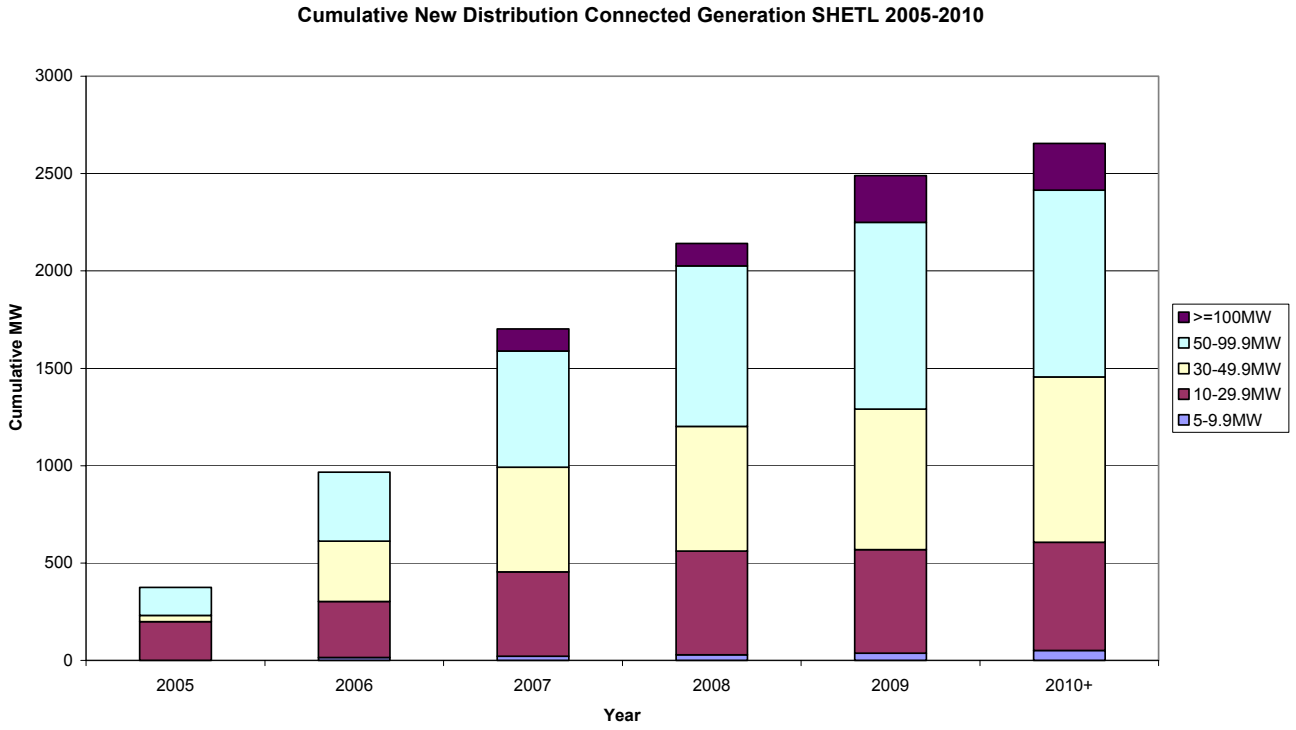


Embedded Generation:

The volumes of embedded generation planning to connect over the coming years is again significant at ~2600MW. This volume shows a more even spread around various sized projects although there is little planned below 10MW in capacity.

TO	SHETL
T/D	D

Sum of "TEC" (MW)	MW band					
Connection Year	**5-9.9MW**	**10-29.9MW**	**30-49.9MW**	**50-99.9MW**	**>=100MW**	**Grand Total**
2005	0	199	32	144	0	**375**
2006	15	89	278	210	0	**592**
2007	7	146	227	243	114	**738**
2008	7	99	104	228	0	**437**
2009	8	0	80	135	126	**349**
2010+	14	24	128	0	0	**166**
Grand Total	**51**	**557**	**849**	**960**	**240**	**2657**



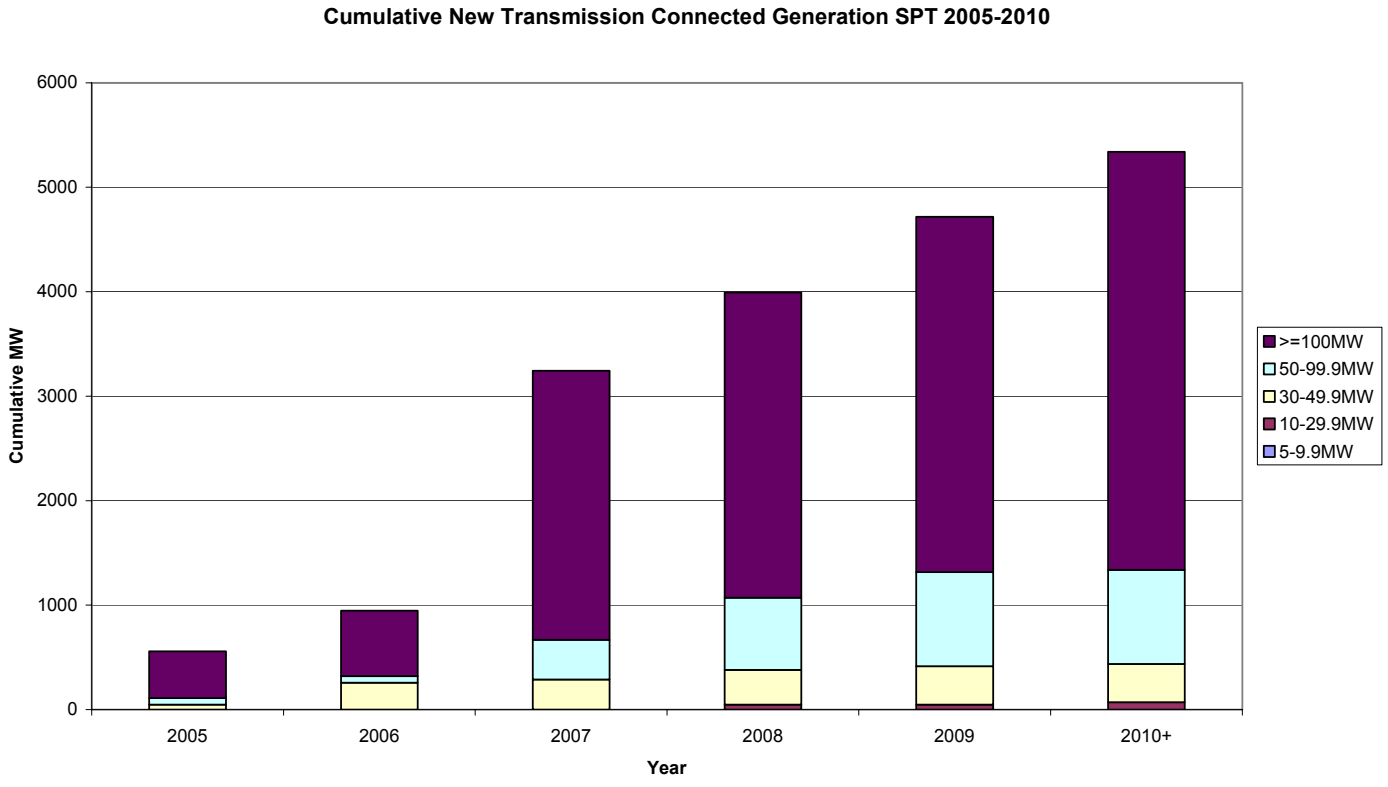
SP Transmission:

Directly Connected Generation:

Once again there is a significant volume of capacity (~5300MW) that is planning to connect to the Transmission System in SPT's area over the coming years. As was the case with SHETL almost all of this transmission connected capacity is expected from units of individual capacities of 50MW or greater.

TO	SPT
T/D	T

Sum of TEC (MW)	MW band					
Connection Year	**5-9.9MW**	**10-29.9MW**	**30-49.9MW**	**50-99.9MW**	**>=100MW**	**Grand Total**
2005	0	0	48	63	446	**557**
2006	0	0	209	0	180	**389**
2007	0	0	30	318	1949	**2297**
2008	0	48	45	309	348	**750**
2009	0	0	35	211	480	**726**
2010+	0	21	0	0	600	**621**
Grand Total	**0**	**69**	**367**	**901**	**4003**	**5340**



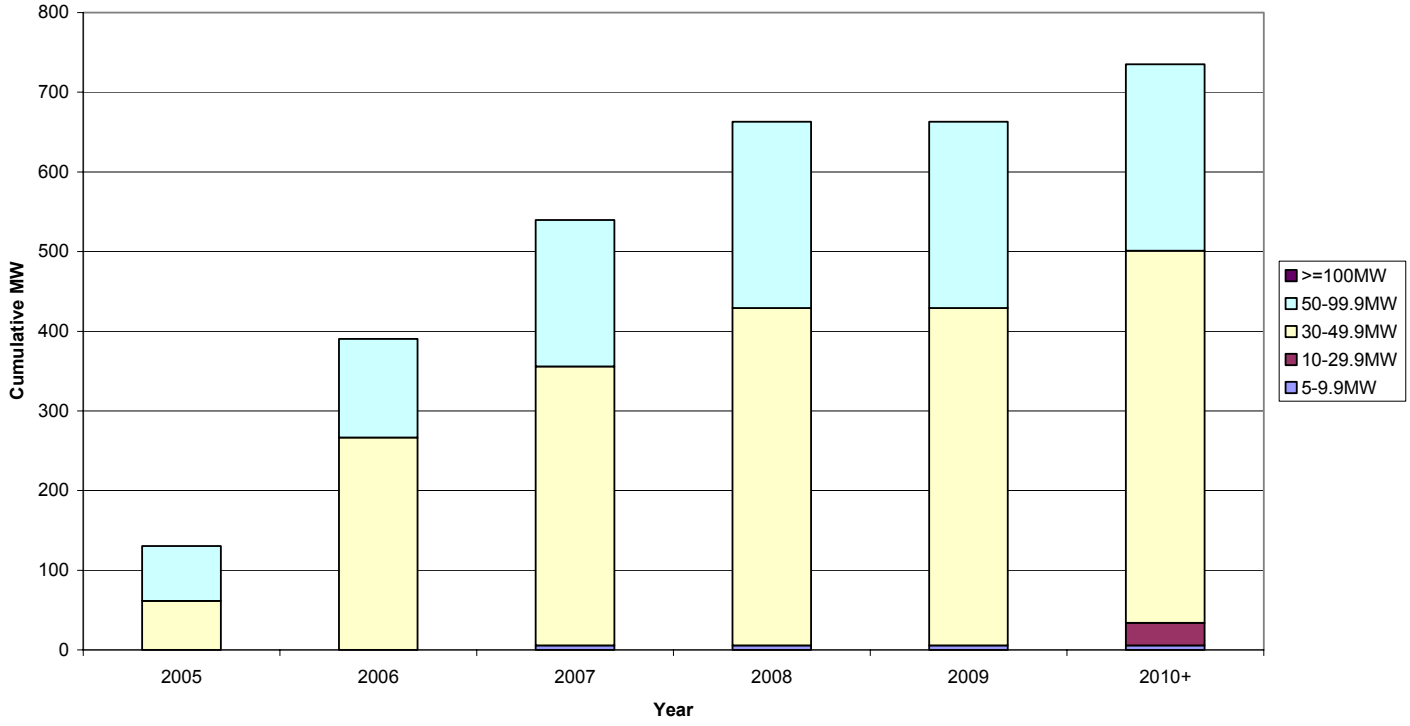
Embedded Generation:

The levels of Embedded Generation in SPT's area are small in comparison to the levels of planned directly connected generation at approximately 700MW. Again the size of the individual projects is smaller although there is very little planned to be connected that is below 30MW.

TO	SPT
T/D	D

Sum of "TEC" (MW)	MW band					
Connection Year	**5-9.9MW**	**10-29.9MW**	**30-49.9MW**	**50-99.9MW**	**>=100MW**	**Grand Total**
2005	0	0	62	69	0	**131**
2006	0	0	205	55	0	**260**
2007	6	0	84	60	0	**150**
2008	0	0	73	50	0	**123**
2009	0	0	0	0	0	**0**
2010+	0	28	44	0	0	**72**
Grand Total	**6**	**28**	**468**	**234**	**0**	**736**

Cumulative New Distribution Connected Generation SPT 2005-2010



4.3.6 SPT presented the following analysis on expected future generation connections (both Transmission and Distribution connected) that at that point were in the GB Queue:

	SHETL	SPT
5MW-30MW	611MW (39 projects)	102MW (5 projects)
30MW-50MW	1106MW (29 projects)	834MW (21 projects)
50MW-100MW	2386MW (34 projects)	1134MW (16 projects)
100MW +	4062MW (17 projects)	3737MW (17 projects)

4.3.7 SHETL also presented the following information regarding expected levels of connected generation for 2008.

Cumulative TEC (MW)	**MW band**						
TO	**0-4.9MW**	**5-9.9MW**	**10-29.9MW**	**30-49.9MW**	**50-99.9MW**	**>=100MW**	**Grand Total**
SHETL	299	141	775	709	1305	Not supplied	**3229**

4.3.8 From the analysis of the above data it became clear that the volumes of additional connections were primarily focussed on projects above a certain capacity threshold, that is to say in SHETL's area those projects above 10MW capacity and in SPT's area those projects above 30MW in capacity. This analysis has then led to the following proposals being put forward by National Grid and each of the TOs.

4.4 Proposals

SPT Views and Proposals

4.4.1 SPT stated that in their view the issue of Grid Code compliance becomes a matter of judgement of the effect of new generation on the transmission system. From the SPT point of view, the current critical break comes at 30MW. Most of the Medium Power Stations within the SPT network (including embedded Power Stations) are not currently required to be Grid Code compliant.

4.4.2 SPT stated that by examining the queue of possible connectees and the MW involved compared to the plant currently connected, there appears no good reason to extend the Grid Code compliance regime down towards 5MW in the SPT area. However, raising the limit from 30MW creates difficulties. The potential connection queue in the 30-50MW band in the SPT network (comprised mainly of new connection applications from windfarms) is significantly larger the existing levels of wind generation. Given this significant volume of new generation coming on line in the 30-50MW band SPT believes that information and Grid Code compliance from these windfarms will need to be retained so as to allow SPT to plan their licensed area in an efficient and secure manner.

4.4.3 Overall, SPT believes that a small relaxation of the current Grid Code limits for the SPT network could be made with the Medium Power Station category being abolished, creating limits of:

- 0MW – 30MW: Small Power Station
- 30MW and above: Large Power Station

4.4.4 Eliminating the Medium Power Station category for SP Transmission would bring harmonisation with the arrangements for SHETL – albeit that the size threshold for SHETL remained different.

4.4.5 SPT also believe that on the basis of their experience of operating the SPT network, the proposed limits should not preclude the effective operation of the SPT portion of the GB Transmission System.

SHETL Views and Proposals:

4.4.6 SHETL having examined the proposed levels of future connections believed that there was little scope for a significant increase in the threshold level between a Small and a Large Power Station. However on consideration that the majority of future generation projects were of a capacity in excess of 10MW, SHETL were content that they would be able to plan the SHETL portion of the GB Transmission System in accordance with their Transmission Licence obligations if the Small-Large threshold level was increased to 10MW from its existing level of 5MW.

National Grid Views and Proposals:

4.4.7 National Grid has carefully considered a number of scenarios. These considerations focussed upon the ability of National Grid in its role of GB System Operator to be able to operate the GB Transmission System in accordance with its transmission licence obligations. We have also examined the likely impact of any change upon the transmission planning process and also provide our views upon the impact of any change in this area. National Grid's objective in this exercise was initially to consider whether a single definition could apply across Great Britain. However it soon became apparent that the existing England and Wales definitions could not be applied to either TO's licensed area without causing operational difficulties. Therefore National Grid focussed its analysis in an attempt to derive a single set of definitions for Small Medium and Large Power Stations across Scotland.

Existing Operational Environment:

4.4.8 The factor National Grid considers to be key in the assessment of each of the scenarios is that of voltage control. By its nature this is a localised service and so in each area of the Transmission System National Grid needs to retain access to an adequate supply of reactive support be this through the provision of ancillary services from generators or through reactive assets owned by the Transmission Owners.

4.4.9 In the North West of Scotland National Grid places a reliance on the provision of ancillary services from generation to ensure voltage security. A significant proportion of the available services are provided by embedded Cascade

Hydro generation. It is therefore a key consideration in the short to medium term that National Grid can retain access to such services following any change to the definitions of a Small, Medium or Large Power Station on the Grid Code.

4.4.10 With the current ability to despatch all Cascade Hydro units in SHETL's network the system can be secured without undue reliance on other generation. If the ability to despatch these Cascade Hydro units were lost then the increased reliance on other generation would impact on the flexibility of outage placement. Through this reduction in the number of ancillary service providers is likely that the costs associated with outage placement would increase. The increased reliance on fewer service providers may also mean that the placement of outages in the North West of Scotland would become more problematic with the possibility that this will then impact on the successful implementation of any outage programme.

4.4.11 Moving forward there are increasing volumes of generation planning to connect to the system. This should in the longer term result in additional voltage support service providers and in doing so decrease the reliance on existing providers. However National Grid believe that it is important to view this against the following factors:

- Though there is a large volume of new generation planning to connect it is so far unclear what proportion of such new generation will proceed to completion.
- There is so far limited certainty regarding the closure of any existing plant.
- A significant proportion of the new generation planning to connect is wind powered and the performance of the system with large volumes of wind generation connected to it has yet to be experienced.

Planning Process:

4.4.12 The existing planning background for Transmission system has been developed in accordance with the GB Security & Quality of Supply Standards (SQSS) and Planning Assumptions that are based on the Grid Code requirements, and the known operational ability to utilise such capabilities, for each power station. The Grid Code specifies the required capability of each power station dependent on the registered capacity of that particular generator, i.e. small, medium or large.

4.4.13 If the Grid Code definitions for large, medium and small power stations were to change, then adjustments would be made to the Planning Assumptions, which would reflect the capabilities required by these revisions. These revised assumptions would automatically be reflected into the development of the Transmission System. Should the definitions for large, medium and small power stations change then there is a risk of misdirected investment in transmission assets identified using these Planning Assumptions. This could occur where the capabilities of a significant proportion of embedded generation is not known. This may potentially result in either over investment in the Transmission System in areas due to a lack of knowledge of the technical capabilities of embedded generation or under investment in Grid

Supply Point capacity resulting in overloaded primary plant and a greater risk of Loss of Supply. Any changes must therefore be carefully considered to ensure that such issues can be mitigated as far as is possible.

4.4.14 Another issue that needs to be considered is a potential reduction in the number of notifications or applications to the System Operator for the connection of embedded power stations should greater numbers of Small and/or Medium Power Stations result as following any adjustment of the Grid Code Small, Medium and Large Power Station definitions. This information is used to assess the impact that power stations within the distribution system have on Transmission System performance, including stability, thermal, fault level and voltage issues. A reduction in the level of information received by the System Operator for embedded power stations could resultant in an increase in the number derogations required against the SQSS whilst retrospective transmission works are undertaken. However, the proposed CUSC amendments (CAP097) that are discussed later in this paper may resolve this issue.

Initial Views:

4.4.15 Although National Grid has the above concerns regarding the effective operation and planning of the GB Transmission System we also believe that there are strong arguments for an increase in the existing thresholds for Small, Medium and Large Power Stations. The benefits around such an increase include:

- A reduction in the number of parties that need to have a direct agreement with National Grid resulting in a reduction in the administrative resource placed upon National Grid, the Host TO and the generator by the CUSC processes to strike such an agreement

- A reduction in the costs incurred by a generator in ensuring that a set is compliant with its relevant Grid Code obligations as there are generally fewer Grid Code obligations for any Power Station classified as Medium or Small.

4.4.16 In tandem with the above benefits National Grid also believes that it would be appropriate to harmonise the definitions of Small, Medium and Large Power Stations across Scotland, thus removing an additional complexity in the current arrangements.

4.4.17 Given National Grid's concerns our initial view is that scenarios that would result in a Large threshold greater than 30MW may compromise the ability of National Grid to ensure voltage security in the North West of Scotland.

4.4.18 Options that remain that would retain a single set of definitions applicable across Scotland could therefore be to harmonise at the existing SPT levels or to harmonise Scotland with a Small Power Station <30MW and a Large Power Station ≥30 MW. Each set the threshold for a Large Power Station at 30MW. The key difference is the incorporation (or otherwise) of a Medium Power Station band below 30MW primarily to allow for the retention of access to planning data for Power Stations below 30MW in the SHETL area. An

important aspect of the medium Band is that Medium Power Stations would not (should the LEEMPS proposals be implemented) have a direct agreement with National Grid. Therefore National Grid believe that the Medium Band is useful as a mechanism to retain access to information regarding the Medium Power Station (especially in the SHETL area) whilst at the same time not also placing the obligation upon the owner of the Power Station to enter into an agreement with National Grid.

4.4.19 National Grid's proposed scenario is therefore to harmonise the definitions in Scotland at the existing SPT levels. However the caveat is such that National Grid believes that there is merit in increasing the Small threshold to 10MW. National Grid believes that examining the current levels of generation connected to the system and the likely MW capacities of future connections, it will not adversely affect National Grid's ability to operate the Transmission System if Power Stations between 5MW and 10MW are reclassified as Small Power Stations. There is not a significant volume of such Power Stations currently nor are there plans for significant volumes in the medium term. The reclassification is therefore not felt to have a significant operational effect on National Grid and we recognise that any reclassification as a Small Power Station may have significant benefit for the owner of the Power Station.

Summary of Small, Medium and Large Power Station Definition Proposals

4.4.20 The following table summarise the two proposals put to the Working Group for discussion.

Proposer	Area	Small	Medium	Large
Amalgamated TO Proposal	NGET	<50MW	≥50MW, <100MW	≥100MW
	SPT	<30MW	-	≥30MW
	SHETL	<10MW	-	≥10MW
National Grid Proposal	NGET	<50MW	≥50MW, <100MW	≥100MW
	SPT	<10MW	≥10MW, <30MW	≥30MW
	SHETL	<10MW	≥10MW, <30MW	≥30MW

4.4.21 The Working Group discussed both the options presented to the Working Group. The main point of discussion centred on the use of a Medium Band in the National Grid proposal. National Grid explained that because the underlying rationale for the proposal was to create a single definition for Scotland the Medium band needed to be employed to "bridge the gap" between the SHETL system and the SPT system. Effectively while information from Power Stations in the 10-30MW band in the SPT area is not currently perceived as vital to transmission system operation and planning, in SHETL's area this is not the case. Data down to the 10MW level is required to allow for the effective planning of the system by SHETL.

4.4.22 The medium band in National Grid's views would provide (subject to the LEEMPS proposals being recommended by the Authority) provide for a route for information to be gathered by the National Grid (and then forwarded to the

TO – possibly subject to some SO-TO Code amendments to facilitate this) whilst not requiring the generator to have a direct contractual relationship with National Grid. National Grid saw this as being less burdensome for a generator than keeping such Power Stations classified as Large and National Grid retaining a direct contractual relationship with such Power Stations.

4.4.23 SHETL put forward their view that they would prefer such Power Stations in the 10-30MW band to continue to be classified as Large. Their reasons behind this were predominantly due to a lack of certainty in the contractual framework for Medium Power Stations.

4.4.24 SHETL pointed to the fact that the LEEMPS proposals had been drafted without their involvement, as they currently do not have Medium Power Stations operating in their licensed area. Therefore SHETL could not state with any certainty that the LEEMPS Proposals if implemented would enable them to effectively discharge their transmission licence obligations.

4.4.25 Further SHETL pointed to the fact that the Embedded Medium Power Station contractual framework is still very much in development. The LEEMPS Proposals were at that time subject to an industry consultation and that there was no certainty that the Authority would even approve them. SPT also pointed out that there might also be the requirement to take forward amendments to the SO-TO Code, as the SPT representatives could not recall provisions for the transfer of information regarding Medium Power Stations being contained within that Code.

4.4.26 Finally SHETL pointed out that the existing provisions within the Codes regarding Large Power Stations were enabling them to discharge their transmission licence obligations effectively. Therefore given the perceived uncertainty over the Medium Power Station contractual framework they stated that their preference would be to retain the classification of Power Stations in the 10-30MW range in the SHETL licensed area as Large Power Stations.

4.4.27 Given the SHETL desire to retain a Large Power Station definition down to 10MW in their licensed area SPT stated that it then appeared to be impractical to introduce a single definition for Scotland. SPT had reservations with the original National Grid proposal, as they did not believe that it was necessary for the Grid Code provisions relating to Medium Power Stations needed to be enforced on Embedded Power Stations in the range 10-30MW in their area. In support of this they pointed to the fact that there were already a number of Embedded Medium Power Stations in their area with which National Grid does not appear to have a contractual relationship. Given that these Power Stations do not appear to have caused National Grid any operational difficulties since BETTA Go-Live, SPT could not support their continuing classification as Medium Power Stations and certainly not as Large Power Stations. SPT also pointed to the fact that over the timescales covered by the GB Queue only a further 5 Power Stations in the 10-30MW band were due to be constructed. Therefore they also could also not see any future justification for retaining a Medium Power Station classification between 10MW and 30MW in their licensed area.

4.4.28 National Grid agreed with the viewpoint that the existing Medium Power Stations for which it had no contractual relationship had not to date caused it

any operational difficulties. Therefore with this in mind National Grid agreed with the Working Group that it would probably become necessary to retain distinct definitions in SPT's area and SHETL's area. Therefore given the support from the Scottish TO's for their amalgamated proposals, National Grid also supported them. The Working Group as a whole agreed with National Grid and each of the TOs.

4.5 Other Proposals.

4.5.1 Alongside the above proposals put forward by National Grid and each of the Transmission Owners a further proposal was put to the Working Group regarding the hard coded MW thresholds within the Grid Code. These hard coded thresholds can be found within the Grid Code relating to the following areas:

- Frequency Response requirements
- Fault Ride Through Capability
- Submission of Demand PNs

4.5.2 Relating to the provision of a Frequency Response Capability by Power Park Modules within the Grid Code. For Power Park Modules in Scotland with a Completion Date after 1 July 2004 all Power Park Modules above 30MW must be capable of "…contributing to Frequency control by continuous modulation of Active Power…".

4.5.3 Based on the rationale that the threshold for the provision of a frequency response in England and Wales is 50MW, and as frequency response is a "national" service some Working Group members queried whether it would be more appropriate to set the threshold in Scotland at 50MW also. Some Working Group members also requested that the possibility that this level be raised further to 100MW be investigated.

4.5.4 SPT put forward their views on this subject stating that the 30MW threshold was originally set through the Scottish Grid Code. This level was set based upon the requirements placed on the Scottish transmission system operators to manage the system frequency in Scotland alone. In their view now that the system frequency was being managed on a GB Basis they saw no reason why this limit should remain and that the threshold could be raised to 50MW.

4.5.5 National Grid expressed some concerns over the proposal to raise the threshold to 50MW at the meeting of the Working Group, however agreed to consider the proposal in greater detail away from the meeting.

4.5.6 National Grid has now had the opportunity to consider the proposal in greater detail and now believes that moving the threshold to 50MW could be accommodated. However any further increase to 100MW could not be justified. National Grid bases its rationale on its experience of operating the system with only a limited number of Power Park Modules embedded within it. Although frequency response is notionally a "national" service there is still the requirement to hold some response on a geographic basis for system security reasons. Increasing the threshold to 100MW would see a significant volume of Power Park Module output being incapable of contributing to

frequency control in Scotland. It is noted that the "conventionally" fuelled units in Scotland may be generating and be able to provide the required levels of frequency response. However this cannot be guaranteed and where this is not the case National Grid would have to take actions in the Balancing Mechanism to synchronise additional "conventionally" fuelled units. This would drive up the costs of system operation and so cannot be supported by National Grid.

4.5.7 However examining the likely future connections to the system in Scotland over the coming years reveals that there is a significant volume of generation connecting between 50MW-100MW. With this connecting to the system, and being capable of providing a frequency response service, National Grid believes that there is scope to relax the requirement on Power Park Modules below 50MW.

4.5.8 Regarding Fault Ride through capability the hard coded MW thresholds apply only on a historic basis and so therefore amending the levels would have no practical effect. As such no changes are proposed in this area.

4.5.9 Regarding the submission of Demand Side PNs the Working Group noted that these thresholds aligned with the Small Power Station thresholds within the Grid Code. Given that the Small Power Station thresholds were being realigned it seemed sensible to also realign these PN thresholds in an identical fashion. That is to say that BM Units with a Demand Capacity of 10MW or more in SHETL's Licensed Area, of 30MW or more in SPT's Licensed Area and 50MW or more in England and Wales will be required to submit Physical Notifications.

4.5.10 In addition to the above issue regarding hard-coded MW thresholds within the Grid Code a further issue regarding the status of Embedded Power Stations connecting to DNO networks along the interface between two Transmission Owner licensed areas was raised. Essentially at certain points along this interface a Power Station may be connected to a DNO network that is geographically sited within England and Wales however the only point of connection to that part of the DNO system my be to the Transmission Network of SP Transmission. In such a circumstance it was suggested that the definitions of Small, Medium and Large applicable in the SPT area should be applied rather than the England and Wales definitions. As similar issue has the potential to exist across the SPT-SHETL interface.

4.5.11 National Grid has considered this issue and agrees that this is an area where further clarification may be necessary. National Grid is currently considering possible legal text changes to the Grid Code and as a result of these considerations may bring forward Grid Code amendments to clarify issues in this area if and when consulting upon the other recommendations of this Working Group Report.

5.0 WORKING GROUP RECOMMENDATION

Small, Medium and Large Power Station Definitions

5.1 The Working Group recommend that the "amalgamated TO Proposal" for the definitions of Small, Medium and Large Power Stations be taken forward as a Grid Code Amendment Proposal.

Proposer	Area	Small	Medium	Large
Amalgamated TO Proposal	NGET	<50MW	≥50MW, <100MW	≥100MW
	SPT	<30MW	-	≥30MW
	SHETL	<10MW	-	≥10MW

5.1.1 The Working Group recommends that hard coded thresholds (currently 30MW) within the Grid Code concerning the ability of Power Park Modules to be capable of "…contributing to Frequency control by continuous modulation of Active Power…" may be relaxed to 50MW.

5.1.2 The Working Group recommends that the hard coded thresholds regarding the de-minimis level for the submission of Demand PNs within the Grid Code be realigned to be consistent with the proposed new thresholds in each Transmission Owners Licensed Area. That is to say that BM Units with a Demand Capacity of 10MW or more in SHETL's Licensed Area, of 30MW or more in SPT's Licensed Area and 50MW or more in England and Wales will be required to submit Physical Notifications.

6.0 INITIAL VIEW OF NATIONAL GRID

6.1 National Grid agrees with the Working Group recommendations. Pending discussion at the Grid Code Review Panel of this Working Group Report National Grid intends to consult with Authorised Electricity Operators on making changes to the Grid Code in line with the Working Group recommendations contained in this report.

7.0 IMPACT ON GRID CODE

7.1 The required changes to the Grid Code are as follows:

Change to Small, Medium and Large Power Station Definitions:

Large Power Station A **Power Station** in **NGET's Transmission Area** with a **Registered Capacity** of 100MW or more or a **Power Station** in **SPT's Transmission Area** with a **Registered Capacity** of 30MW or more; or a **Power Station** in **SHETL's Transmission Area** with a **Registered Capacity** of ~~5MW~~ 10MW or more.

Medium Power Station A **Power Station** in **NGET's Transmission Area** with a **Registered Capacity** of 50MW or more, but less than 100MW~~; or a **Power Station** in **SPT's Transmission Area** with a **Registered Capacity** of 5MW or more, but less than 30MW~~.

Small Power Station A **Power Station** in **NGET's Transmission Area** with a **Registered Capacity** of less than 50MW or a **Power Station** in **SPT's Transmission** Area with a **Registered Capacity** of less than 30MW or **SHETL's Transmission Area** with a **Registered Capacity** of less than ~~5~~ 10 MW.

Changes to Power Park Module Frequency Response Capability Threshold

7.2 The following clauses in the Grid Code will need references to a 30MW threshold amended to a 50MW threshold:

CC.6.3.6, CC.6.3.7, CC.A.3.1, BC3.3, BC3.4.1, BC3.5.1, BC3.5.3, BC3.5.4

Changes to Demand PNs Threshold

7.3 The following clauses in the Grid Code will need amending:

BC1.4.2, BC2.5.5.1, BC2.5.5.2

8.0 IMPACT ON INDUSTRY DOCUMENTS

Impact on Core Industry Documents

8.1 None.

Impact on other Industry Documents

8.2 None.

Annex 1 – Working Group Terms of Reference and Membership

Review of the Grid Code Definition and Requirements for Small Medium and Large Power Stations

Terms of Reference

1. To identify those clauses within the Grid Code for which there is a regional difference brought about by the exiting definition of a Small, Medium and/or Large Power Station.

2. To identify whether these regional differences could be removed or eliminated through the adjustment of the thresholds for a Small, Medium and/or Large Power Station.

3. Alongside the above review of the regional differences inherent within the definition of Small, Medium and Large Power Stations to undertake a similar review of BC1.4.2 and any identified related clauses. Such a review is to examine whether the regional difference surrounding the Demand Capacity threshold above which submission Parties must submit PNs is appropriate and whether it is possible for the regional difference to be minimised or removed.

4. As part of the review the working groups shall:

   (a) Consider the impact any adjustment to the existing conditions with the GB Grid Code has on the security of supply
   (b) Consider the impact any adjustment to the existing conditions with the GB Grid Code has on information provision
   (c) Consider the impact any adjustment to the existing conditions with the GB Grid Code has on the CUSC and its surrounding contractual framework
   (d) Consider the impact any adjustment to the existing conditions with the GB Grid Code has on the STC

5. The membership of the working group will be drawn from the GCRP or their nominated representatives, the Relevant Transmission Licensees and Ofgem.

6. The working group will aim to complete its work for the GCRP meetings that is to take place in February 2006.

MEMBERSHIP

The Working Group has the following members:

Chair	Ben Graff
National Grid	Mark Duffield
	Brian Taylor
Industry Representatives	Neil Sandison (SHETL)
	Brian Punton (SHETL)
	David Nicol (SP Transmission)
	Grant McBeath (SP Transmission)
	Simon Cowdroy (Econnect)
	Claire Maxim (Eon)
	John Norbury (RWE)
	John Morris (British Energy)
	Malcolm Taylor (AEP)
	Charlie Zhang (EdF)
	Mike Kay (United Utilities)
	George Spowart (Scottish Power)
Authority Representative	Bridget Morgan
Technical Secretary	Lilian Macleod

[NB: Working Group must comprise at least 5 Members (who may be Panel Members) and will be selected by the Panel with regard to WG List held by the Secretary]

Annex 2 – Original GCRP Paper

Grid Code Review Panel

REVIEW OF REGIONAL DIFFERENCES

1. The GB Grid Code includes within it a number of regional differences where technical or critical procedural variations meant that some differentiation became necessary between rights or obligations in Scotland and the equivalent rights or obligations in England and Wales. The recognition of 132kV as a transmission voltage in Scotland has also resulted in other regional differences.

2. In developing the GB Grid Code it was acknowledged that given the timescales it would not be possible to harmonise all arrangements, and in certain circumstances there may be justifiable reasons for treating plant in Scotland differently. To ensure that work continued after Go-live the duties of the Grid Code Review Panel as defined in the Grid Code General Conditions were amended to include:

   'Consider and identify changes to the Grid Code to remove any unnecessary differences in the treatment of issues in Scotland from their treatment in England and Wales'

3. In developing the GB Grid Code regional differences were allowed to occur if:

   - it was likely that changing the technical requirements would have a significant material impact on Users or RTLs, then the existing technical requirements would be adopted;
   - Safety related, then the existing RTL procedures would be incorporated;
   - the Grid Code needed to recognise that 132kV was a transmission voltage in Scotland;
   - where the RTL interfaces directly with the User and this arrangement needs to be recognised directly in the Grid Code for clarity and safety.

4. The main area where the review of Regional Differences might be expected to bring about changes relates to the first area identified above. These differences generally occur in the Connections Conditions and/or are as a result of the applicability of the Code through differences in definitions (e.g. Small, Medium and Large Power Station definition).

5. Within this first area, Ofgem also requested a review of definitions of Small, Medium and Large Power Station definitions in the final conclusion on Embedded Exemptable Large Power Stations under BETTA.

6. We recognise that there may also be benefits in reviewing certain aspects of the remaining three areas, although many of these are fundamental to the design of BETTA and are clearly justifiable. NGC believes however it would be beneficial to review the requirement for and the manner in which each is expressed.

7. NGC has identified within the Grid Code those areas where it believes Regional Differences exist. This list is attached to this paper at Appendix 1. The list also includes NGC's initial views on the priorities associated with taking forward each

of the issues together with a summary of the background to each issue. After consideration of this list NGC's initial view is that the following areas require review:

a) Definition of Small, Medium and Large Power Station (incl. BC1.4.2 (a)).
b) Technical requirements, covering CC6, CC.A.3, Planning Code requirements, OC5, BC2.A.2.6 and including relevant definitions.
c) Site Safety, CC5, CC7 and CC.A.1 / OC8, including relevant definitions.
d) Operational processes and interfaces, mainly the Operating Codes, including relevant definitions.

8. Any review will need to be mindful of and identify consequential changes to other codes and documents, principally the CUSC, STC (including STCPs) and the BSC although any consequential amendments would of course have to be referred to and taken forward through the appropriate change governance processes of those codes. The information received through the Planning Code and the assumption made based on the application of Connection Conditions are fundamental in the design of the System and connections. There may also be changes to information that the market would see e.g. arising from a change in definition of Large Power Station

9. NGC proposes that a GCRP working group is formed to review the existing regional differences triggered by the existing definition of Small, Medium and Large Power Stations within the Grid Code commencing in September 2005, probably for a period of 6 months. This Working Group would also be charged with seeking appropriate way forward in those areas where the working group believes that the regional difference can be reduced or eliminated. Either the same or separate working group would be charged with reviewing the other areas of work. Draft Terms of Reference for such a Working Group is attached at Appendix 2 to this paper.

Regional Differences (priority U -urgent, H /M/L, C, consequential, N no action ; Number denotes sub priority)

Code	Section	Priority	Context	Notes
G&D	Control Point	C	Applies to >50MW E&W, >5MW Scotland	Linked to the demand capacity under BC1.4.2 (a). Recommend that BC1.4.2 (a) be reviewed as a Urgent priority and this is changed as a consequence.
	Customer Demand Management Notification Level	C	12MW E&W, 5MW Scotland	OC1/2 review is proposing to remove CDM.
	Demand Control Notification Level	M	12MW E&W, 5MW Scotland	Used in OC6. Linked to the fact that GSP are generally 132/33 kV in Scotland and network is 132kV. NGC believe that it is justifiable that the limit should be different.
	High Voltage	M	>650 volts E&W, >1000 volts Scotland	The Grid Code definition for England and Wales does not appear to be consistent with rest of Industry. Review H&S issues, wider GC issues impact on other documents and bring forward changes as soon as practicable.
	Large Power Station	U 1	>=100MW E&W, >=30MW SP, >=5MW SHETL	Significant impact on all parties. This interacts with GC15 and the need for derogations. NGC to carry out an initial assessment and information gathering exercise and bring forward recommendations to progress a review. Initial plan has two threads: 1) Seek a 12 month extension to GC 15, 2) Present ToRs for a WG to July Panel, to report back to February GCRP. This affects nearly every area of the Code and the applicability of the wider framework. Note impact on requirement for EELPS to accede to CUSC is driven by the Grid Code definition of Large.

Code	Section	Priority	Context	Notes
	Local Joint Restoration Plan	L	In Scotland a LJRP may cover more than one BS Station and includes Gensets other than those at a BS Station and the creation of one or more Power Island.	The pre BETTA BS plans were adopted for BETTA go-live. In Scotland the existing procedures involved plant that was not Black Start. The framework also provides for the RTL carrying out specified control activities under a procedure. Would suggest this be reviewed when the existing Black Start plans are reviewed. NGC's initial view is that this reflects the arrangements in the STC and the role of the RTLs. This needs to be maintained if the RTL is to continue to carry out Black Start locally.
	Low Voltage	C	<=250 volts E&W, >50<=1000 volts Scotland	Links to 'High Voltage' and therefore take same approach.
	Operational Switching	N	To the instruction of NGC in E&W, to the instruction of Relevant Transmission Licensee in Scotland.	Required due to the switching model implemented under BETTA, RTLs issue operational instructions for switching at sites they own.
	Permit for work for Proximity Work	N	Issued by NGC in E&W, issued by RTL in Scotland	RTLs are responsible for safety at sites they own.
	Power Island	L	May include more than one Power Station in Scotland	Reflects the pre BETTA Black Start arrangements that were adopted. To be reviewed when the Black Start plans are reviewed.
	Responsible Manager	N	Authorised by the RTL in Scotland	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	Safety Coordinator	N	Nominated by the RTL in Scotland	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	Safety Rules	N	Rules of the RTL in Scotland	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.

Code	Section	Priority	Context	Notes
	Small Power Station	C	<50MW E&W, <5MW Scotland	Linked to review of Large Power Station.
	Transmission Site	N	Site owned by RTL in Scotland	Required to differentiate ownership. Different arrangements are required due to the role of the RTL and to allow the RTLs to carry out their obligations under the STC and other statutory documents / Licence.
	User Site	N	Site owned by RTL in Scotland (rather than NGC in E&W) and occupied by a User.	Required to differentiate ownership.
PC	PC.1.1	N	NGC obligation under STC to inform RTL in Scotland of data required	Required under STC obligations.
	PC.6.2	L	Appendix C lists technical criteria applying to RTL in Scotland	The RTL is responsible for planning in its area. Potential benefits from convergence of criteria is regulatory and /or STC issue not for Grid Code to dictate these. Possible benefit of listing additional standards e.g. G74.
	PC.A.2.2.2	N	Single Line Diagram, Voltage differences for sub-transmission systems.	Nature of Transmission.
	PC.A.2.2.3	N	Single Line Diagram, Voltage differences.	Nature of Transmission.
	PC.A.2.2.5.1	N	Single Line Diagram, Voltage differences.	Nature of Transmission.
	PC.A.2.4.1	N	Single Line Diagram, Voltage differences.	Nature of Transmission.
	PC.A.6.2.1(f)	N	Transient Overvoltage Assessment Data, Voltage differences	Nature of Transmission.

Code	Section	Priority	Context	Notes
	PC.A.8.1	N	Single Point of Connection, Voltage differences	Nature of Transmission.
	PC.A.8.3(d)	N	Voltage differences	Nature of Transmission.
CCs	CC.5.2 (c)	N	For User sites in Scotland NGC consults with RTL on safety procedures	RTL is responsible for safety on its sites and NGC needs to consult with RTL.
	CC.5.2 (m)	N	For sites in Scotland lists of responsible persons for various duties provided.	Reflects RTL safety rules / practice. Changes initiated by Users / RTLs not NGC.
	CC.6.1.5(b)	M	Phase Unbalance, below 1% E&W, below 2% Scotland	Requires a technical review of impact, possible impact on wider design standards. Option to relax England and Wales or to tighten up for Scotland. As with most design issues retrospective application could a have serious implications.
	CC.6.1.7 (a)	M	Voltage Fluctuation, defined in Grid Code for E&W, in Scotland ER P28 applies.	Requires technical review. Assess if P28 can be applied in England and Wales without additional Grid Code obligations to supplement. Figure 4 in ER P28 (p. 10) gives limits for step-size as a function of time between steps (larger steps require a longer interval between steps), this limits Pst to 0.5, assuming no other sources of flicker. CC.6.1.7 allows 1% repetitive steps, but does not limit their frequency. P28 (figure 4) allows 1% steps, provided they are at least 20 s apart. P28 introduces the time dimension. On the other hand, it would allow larger steps at longer intervals. Note that P28 limits steps to 3% for repetition times above 600 s.

Code	Section	Priority	Context	Notes
	CC.6.2.1.1(b)	M	Earth Fault Factor below 1.4 E&W, below 1.5 Scotland. Phase to earth voltage differences under fault conditions.	Requires technical review. Going from 140% to 150% for maximum voltage (under fault conditions) may have implications in terms of equipment rating for NGC / England and Wales Users. Going from 150% to 140 % may mean some existing Users in Scotland cannot comply.
	CC.6.2.1.2(a)(ii), (a)(iii), (a)(iv)	N	References to RTL in Scotland.	Reflects role of RTL under BETTA arrangement.
	CC.6.2.2.2.2 (b), (c)	H	Fault clearance time differences and voltage level differences.	Requires technical review. May be associated with the different licensees internal protection policies and assumptions about the number of protections / terminology.
	CC.6.2.2.4	M	Work on Protection Equipment, In E&W NGC representative to be present but in Scotland written authority from NGC suffices	As drafted this paragraph can be misinterpreted as 'written authority' sufficing in E&W as well as in Scotland. Need to review clarity of paragraph, possibly overly complex. Review whether NGC can relax, Scotland to tighten up or the difference is justifiable. Need data on how often it actually happens in Scotland / E&W. We are not aware of it causing any problems in E&W.
	CC.6.2.3.1.1 (c)(i)	M	Circuit breaker fail protection provision, voltage differences.	Need to understand why it isn't, or if it actually is in practice, applied to at 132kV in E&W. Review the technical requirement with RTLs to have it connected at 132kV. The requirement may be more about the nature of the system (i.e. active and inter connected) rather than the voltage level.
	CC.6.2.3.5	M	Work on protection equipment. Similar to CC.6.2.2.4	Similar to CC.6.2.2.4, review with CC.6.2.2.4.

Code	Section	Priority	Context	Notes
	CC.6.3.7(e)(f)	M	Frequency response requirement profile, generating unit/CCGT Module completion date differences.	Review if date can be harmonised, impact on both systems. If Scottish limit moved back it implies it would be retrospective application, and the date is in the E&W because it was not seen to be viable to implement it retrospectively in E&W. Could lead to increased cost on Generators and / or increase the number of derogations required. In E+W the main impact would be that for completion dates between that current in E&W and a later date. This is unlikely to affect the actual capability delivered (the implementation date being in the past), but affect the requirement to have the capability available if the units were commissioned between these dates. Review the volume of plant affected on both systems.
	CC.6.5.6(a)	C	Operational metering. In Scotland anemometer readings required from wind turbines.	Removed by Generic provisions.
	CC.7.2.1	N	In Scotland, work to Safety Rules of RTL, as advised by NGC.	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	CC.7.2.2	N	User Sites in Scotland, NGC to ensure that RTL works to User Safety Rules.	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	CC.7.2.3	N	For Transmission Sites in Scotland NGC seek opinion of RTL as to whether User Safety Rules adequate.	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	CC.7.2.4	N	For a User Site in Scotland NGC may apply to a User for RTL to use RTL Safety Rules	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.

Code	Section	Priority	Context	Notes
	CC.7.2.5	N	Entry and access to Transmission site in Scotland by User RTL rules apply.	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	CC.7.2.6	N	User Sites in Scotland, Users notify NGC of Safety Rules that apply to RTL staff.	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	CC.7.3.1	N	Site Responsibility Schedules in Scotland reference RTL.	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	CC.7.6.1	N	Access, provisions set out in Interface agreement with RTL and Users in Scotland.	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	CC.7.6.2	N	In Scotland unaccompanied access only granted to individuals holding Authority for Access granted by RTL.	BETTA model. Used in relation to safety and RTLs are responsible for safety at sites they own.
	CC.7.7.1	M	Maintenance Standards. E&W NGC has right to inspect test results and maintenance records. In Scotland User responsibility to ensure Users plant tested and maintained.	Review individual requirements / processes. Possible interaction with Safety Rules and Construction / Interface agreements. Current wording implies it is not the Users responsibility in England and Wales. This was explicit in the SGC so carried over, but not extended to England and Wales
	CC.A.1.1.9	N	E&W Site Responsibility Schedule signed on behalf of NGC by NGC Responsible Manager. In Scotland SRS also signed on behalf of RTL by RTL Responsible Manager.	Reflects asset ownership and roles under BETTA.

Code	Section	Priority	Context	Notes
	CC.A.1.1.6 Footnote bottom of page 27	M	Differences in dates from when details of traversing circuits are required.	Investigate harmonisation. Linked to individual safety procedures / requirements. Note implementation date: it is already implemented in E+W. Investigate possibility of agreeing and hard-coding date that is reasonable for the RTLs.
	CC.A.1.1.16	N	Responsible Managers – E&W NGC supplies name of NGC's Responsible Managers in Scotland NGC send Name of RTLs Responsible Manager.	Reflects roles under BETTA, links to CC5.2.
	CC Appendix 3 Title	C	Variation in completion dates (Relates to Frequency Response Profile and Operating Range).	Linked to CC6.3.7 dates, review with CC6.3.7.
	CC.A.3.1	C	Variation in completion dates for generating units and CCGT modules.	Linked to CC6.3.7 dates, review with CC6.3.7.
OC1	OC1.5.5.3	M	In Scotland Suppliers who control Load Management Blocks of Demand>5MW submit a schedule to NGC. Not a requirement in E&W.	Review requirement under GB arrangements and review the MW limit if arrangement justified. Possibly incorporate in longer term OC1/2 proposals.
OC2	OC2.1.8	M	In Scotland where output or demand small NGC may agree to reduce admin burden on Users of producing planning information	Review if still required following Small, Medium and Large review.
	OC2.4.1.3.4 (c)	C	Details of Load Transfer capability available to NGC – E&W 12MW or more, Scotland 10MW or more.	Review justification for different limits along with Small, Medium and Large. Note interaction with existing OC1/2 review, possibly incorporate.

Code	Section	Priority	Context	Notes
OC5	OC5.5.3 (Table 3 places)	C	Relates to Phase Unbalance and Voltage Fluctuations	Links to the review of the original technical requirement in the CCs
OC6	OC6.2.2	L	In Scotland may not be possible to meet certain requirements in OC6 and NGC may agree requirements with relevant Network Operator.	Related to the definition of Transmission. Where Demand Control is implementation on a Grid Supply Point basis due to the fact that GSPs in Scotland are at different voltage level an even spread or report on a GSP may not be possible / practicable.
	OC6.6.1	L	Automatic Low Frequency Demand Disconnection – E&W at least 60%, Scotland at least 40% of total Peak Demand.	Influenced by where the relays have historically been required. Review, ensure justification robust.
OC7	OC7.1.6	C	Refers to OC7.6 Operational Switching in Scotland.	Linked to OC7.6.
	OC7.2.4	C	Refers to Operational Switching procedure in Scotland.	Linked to OC7.6.
	OC7.3.1	C	Scope says OC7.6 also applies to RTL	Linked to OC7.6.
	OC7.6	L	Whole of OC7.6 relates to Operational Switching in Scotland	Required to facilitate BETTA switching model. Review scope and applicability of obligation following experience.
OC8	OC8.1.1	N	OC8B applies in Scotland	Purpose of OC8B.
	OC8.3.1	N	Scope, OC8 also applies to RTL	Reflects role of RTLs under BETTA.
	OC8.4.1.1	N	OC8A applies when Safety precautions to be established in E&W when work to be carried out in Scotland	Recognises role of RTLs under BETTA on safety in E+W, cascading Safety Precaution cross the interface.

Code	Section	Priority	Context	Notes
	OC8.4.2.1	N	OC8B applies when Safety precautions to be established in Scotland when work to be carried out in E&W	Recognises role of NGC under BETTA on safety in Scotland, cascading Safety Precautions across the interface.
	OC8A.1.1	N	Introduction recognises OC8B exists	Not a Regional Difference as such.
	OC8B	M	Safety Co-ordination in Scotland	The procedure applicable in Scotland. Review differences between OC8A and OC8B, harmonised if possible. Main impact on Users and RTLs. Ensure relationship between CCs and OC8B is consistent. OC8B was based on SGC OC6, but the split in the SGC between CC and OC6 was different to that in the E+W GC.
OC9	OC9.2.4	N	Objective to describe role of RTL Scotland with respect to Desynchronised Island Procedure and Local Joint Restoration Procedure	Recognises RTL role
	OC9.3.3	N	In Scotland OC9.4 and OC9.5 also apply to RTL	Recognises RTL role
	OC9.4.5.3	L	Black Start Stations - In Scotland LJRP may cover more than 1 BS station and may include RTL's etc	Covers existing procedures in Scotland. Change would have a significant impact on the current Black Start philosophy. Would also need to initiate a fundamental review of the Black Start procedures. Expect to review in future.
	OC9.4.6		Under exception circumstances RTL may invoke LJRP for its own area.	Recognises RTL role, required to maintain standards.
	OC9.4.7.3		Black Start – In Scotland RTL acts on NGC's behalf	Recognises RTL role

Code	Section	Priority	Context	Notes
	OC9.4.7.4	L	In Scotland Gensets which are not at BS stations but in LJRP may be instructed in accordance with the LJRP. In E&W relates to BS stations only generally.	For BETTA go-live the existing black start procedures were adopted. A review of the obligations in OC9 would need to be carried along with a licensees review of the Black Start philosophy for Scotland.
	OC9.4.7.6	C	Special arrangements for Scotland	To be considered along with OC9.4.7.4
	OC9.4.7.11	C	LJRP establishment (a) includes RTL in discussion in Scotland. (c) details provisions in Scotland when LJRP arises.	To be considered along with OC9.4.7.4
	OC9.5.1(b)	N	In Scotland OC9.5 also provides for Transmission connected generation in De Synch Islands.	Allows for RTL to manage an island. Consistent with roles under STC.
	OC9.5.4.1(b), (c)(v)(vi)	N	In E&W De Synch Island Procedure covers all relevant GSPs. In Scotland OC9 De Synch Island Procedure also covers parts of GB Transmission System connected to Users Systems and directly connected Power Stations. Procedure – will include RTL obligations in Scotland.	Allows for RTL to manage an island. Consistent with roles under STC.
OC11	OC11.4.1.1	N	Reference to site owned by RTL in Scotland rather than NGC in E&W	Required by BETTA ownership model
	OC11.4.1.2		Reference to site owned by RTL in Scotland rather than NGC in E&W	Required by BETTA ownership model

Code	Section	Priority	Context	Notes
	OC11.4.2		Reference to site owned or occupied by RTL in Scotland rather than NGC in E&W	Required by BETTA ownership model
	OC11.4.6		Reference to installation by RTL in Scotland rather than NGC in E&W	Required by BETTA ownership model
BC1	BC1.4.2(a)	U1	Physical Notifications required from BM Units with Demand Capacity >50MW in E&W or >5MW in Scotland	Review along with Definition of Small, Medium and Large Power Station
BC2	BC2.5.5.1	C	Demand Capacity <50MW in E&W or <5MW in Scotland	Related to BC1.4.2(a)
	BC2.5.5.2	C	Demand Capacity >50MW in E&W or >5MW in Scotland	Related to BC1.4.2(a)
	BC2.A.2.6	H	Mvar tolerance difference	Review along with Technical requirements
DRC	Sched 1 Page 3	C	Negative sequence resistance required in Scotland	
	Sched 5 Page 1	C	Operating Voltage differences	
	Sched 5 Page 2	C	Operating Voltage differences	
	Sched 5 Page 5	C	Operating Voltage differences	
	Sched 5 Page 7(f)	C	Operating Voltage differences	
	Sched 6 Page 1	C	Load Transfer capability 12MW E&W, 10MW in Scotland	
	Sched 12 Page 1	C	Load Management Blocks of >5MW in Scotland	

Code	Section	Priority	Context	Notes
GCs	GC.4.2(f)	N	Carry out review of Regional differences.	Consistent, seek to remove if all material regional differences. removed.
	GC.4.3(c)(iv)	N	Scottish Network Operators rep on GCRP.	BETTA model.
	GC.15.1(b)	U1	Applies to Embedded Exemptable Medium Power Stations in Scotland until 31st March 2006.	Expires in 2006, in order to allow a review on size definitions to be addressed in a considered manner NGC propose that this be extended to 2007. When this clause expires one of the following must have occurred • A derogation have been put in place, or • The plant compliance is confirmed, or • The Grid Code obligation removed. It would be inappropriate to seek compliance or derogations prior to reviewing the size definition.
	GC.A1.11(d)	N	Potential amendment to the GB Grid Code related to operational liaison including Black Start in Scotland	Transitional
	GC.A2.7	N	Data to be provided to NGC to implement with effect from Go Live the GB Grid Code in relation to Scotland.	Transitional

Review of the Grid Code Definition and Requirements for Small Medium and Large Power Stations

Terms of Reference

1. To identify those clauses within the Grid Code for which there is a regional difference brought about by the exiting definition of a Small, Medium and/or Large Power Station.

2. To identify whether these regional differences could be removed or eliminated through the adjustment of the thresholds for a Small, Medium and/or Large Power Station.

3. Alongside the above review of the regional differences inherent within the definition of Small, Medium and Large Power Stations to undertake a similar review of BC1.4.2 and any identified related clauses. Such a review is to examine whether the regional difference surrounding the Demand Capacity threshold above which submission Parties must submit PNs is appropriate and whether it is possible for the regional difference to be minimised or removed.

4. As part of the review the working groups shall:

   (e) Consider the impact any adjustment to the existing conditions with the GB Grid Code has on the security of supply
   (f) Consider the impact any adjustment to the existing conditions with the GB Grid Code has on information provision
   (g) Consider the impact any adjustment to the existing conditions with the GB Grid Code has on the CUSC and its surrounding contractual framework
   (h) Consider the impact any adjustment to the existing conditions with the GB Grid Code has on the STC

5. The membership of the working group will be drawn from the GCRP or their nominated representatives, the Relevant Transmission Licensees and Ofgem.

6. The working group will aim to complete its work for the GCRP meetings that is to take place in February 2006.