GCRP 05/07

OC1 OC2 ‘Phase 2 – short term’ Proposals

for GCRP on 19 May 2005

1 INTRODUCTION

The OC1/OC2 Working Group discussions have focussed on two broad areas of work, namely, the framework documents which form the basis of a complete revision of the OC1 and OC2 and the specific proposals which have been split into short-term and long-term proposals. It is NGC's view that the short-term proposals could be implemented prior to the 05/06 winter and the long-term proposals, which are likely to require significant changes to both NGC's and Users' systems, could be implemented after the 05/06 winter. NGC believes that, since the long-term proposals are likely to have a major impact on OC1 and OC2, a complete revision of OC1 and OC2 should be carried out at the same time as the development of long-term proposals. It is anticipated that this revision will also consider the OC1/OC2 provisions which could either reside elsewhere in the Grid Code or are no longer required.

This paper focuses on the short-term proposals with a view to implementation for the 05/06 winter.

It is intended that, after input from the Working Group, the paper will be presented to the Grid Code Review Panel in May 2005. This will be followed by a formal industry consultation on the proposals.

2 DESCRIPTION OF PROPOSALS

The proposals in this Paper consist of the following:

- Definition of Output Usable
- Removal of Suppliers' Customer Demand Management obligations
- Provision of Generator outage data at Generating Unit level
- Rationalisation of geographic zonal boundaries
- Removal of NGC's obligations to provide its outage plan to unaffected Generators

Brief descriptions of the above proposals are given in sections 2.1 to 2.5. It should be noted that the proposed legal text for these proposals could be affected by other 'live' proposals. For avoidance of doubt, the Grid Code version used as the baseline for the changes proposed in this paper is Revision 5 of Issue 3; it is recognised that this baseline may change later in the process.

2.1 Definition of Output Usable

The longer-term (>2 days ahead) and shorter-term (<2 days ahead) forecasts of available generation and margins are based on different assumptions, driven by different definitions in the Grid Code. The longer-term forecasts are derived from the Output Usable which is currently based on the Registered Capacity of a Genset, whilst the shorter-term forecasts are based on the Maximum Export Level (MEL) of BM Units. The resulting discontinuity in the forecasts at 2 days ahead does not provide for the most efficient market signals to emerge.

The discontinuity can be resolved by ensuring that the two sets of forecasts are based on the same assumptions and this could be achieved by using MEL as the basis for an OU definition. However, the revised definition also needs to take into account the output from the power stations that are not necessarily BMUs i.e. the Embedded

Exemptable Large Power Stations (EELPS). Therefore, the revised definition of OU is broadly based on the '*wording'* of MEL rather the exact definition of MEL. The proposed definition of OU is as follows:

Output Usable is *"the (daily or weekly) forecast value, at the time of the (daily or weekly) peak demand, of the maximum level at which the Genset may be exporting (in MW) to the Connection Site".*

The proposed legal text for the revised definition of OU is given in Appendix 1. Industry views are requested on the use of "Connection Site" in the above definition.

In order to ensure consistency between the definitions of OU, MEL, MIL (Maximum Import Limit), SEL (Stable Export Limit) and SIL (Stable Import Limit), there may be a requirement to alter the definitions of MEL, MIL, SEL and SIL; industry views are also requested on any changes to the definitions of these parameters.

2.2 Removal of Suppliers' Customer Demand Management obligations

The current OC1 provisions specify Suppliers' obligation to notify NGC of any Customer Demand Management (CDM). During earlier Working Group discussions, NGC outlined how the CDM information contributed to more accurate demand forecasts, reduced BSUoS costs as a result of fewer and more appropriate reserve actions, improved margin accuracy and reduced frequency of NISMs, improved credibility of demand forecasts and better market signals. During these discussions, it also transpired that the Suppliers might not be in a position to provide the required information (e.g. Customers may carry out CDM without informing the Suppliers). NGC has taken the industry views into consideration and has concluded that the removal of the CDM obligations is in the best interests of the industry as a whole. This proposal therefore proposes to remove the definition of CDM and associated obligations on Suppliers from the Grid Code.

The proposed changes to the relevant legal text are provided in Appendices 1 (proposed removal of the definition of CDM) 2 (proposed removal of the CDM obligations on Suppliers) and 3 (consequential changes to other sections of the GB Grid Code).

2.3 Provision of Generator outage data at Generating Unit level

NGC currently receives Generator outage data at both Generating Unit and BM Unit levels. The majority of the data received by NGC already corresponds to the Generating Units, however this proposal would result in around 23% of BM Units (based on England & Wales generation only) having to provide further information when compared to current practice. NGC proposes that, for the reasons outlined below, all outage data should be provided at the Generating Unit level.

<u>Fault level analysis</u>

- NGC analyses fault levels in order to ensure optimal system configuration. If all the Generating Units within a CCGT Module had the same fault profiles, the outage information at a BM Unit level would be less critical although indication that a unit was to be desynchronised would be required. However, the Generating Units within a CCGT do not necessarily have an equal effect on the site fault levels and NGC therefore requires outage information on individual Generating Units within a CCGT.

Voltage stability analysis

- Voltage stability analysis forms a key input into NGC's assessment of system security and system requirements for reactive power. The voltage stability depends on the reactive capability of Generating Units which do not necessarily have the same characteristics within a CCGT module. In fact, only 6% of the CCGT modules have equal reactive capacity across the Generating Units. Therefore, the outage data is required at the Generating Unit level for accurate assessment of reactive power requirements.
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System stability analysis

- System stability analysis forms a key input to NGC's assessment of system security and system requirements for reduction in generation. The outage data is required at the Generating Unit level for accurate assessment of these requirements due to the differing stability characteristics of some units.
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Other reasons

- The number of modular type generators is increasing and this trend will increase the need for outage data requirements at the Generating Unit level.
- As generators age, the characteristics of Generating Units tend to diverge due to different fault rates, maintenance cycle etc.
- Where the outage data is not provided at the Generating Unit level, NGC has to use its engineering judgement to determine the expected unit profiles which can lead to inefficient operation or increased security risk.

The proposed changes to the relevant legal text are provided in Appendix 4.

2.4 Rationalisation of geographic zonal boundaries

At present, the OC2 System Zonal boundaries are used for data corresponding to longer timescales (> 2 days ahead) and BMRS Zones for data corresponding to shorter timescales (< 2 days ahead). It is proposed that the BMRS Zones should be used across all timescales. Consequently, the OC2 System Zonal boundaries would be redundant and would be removed from the Grid Code.

A key implication of this proposal is that the OC2 zonal OU-based data currently received by Users via OC2 will no longer be made available by NGC. NGC believes that all zonal data should only be available via the BMRS to ensure that the whole market has access to the same data at the same time. This will avoid the current position where some Generators have privileged access (time wise) to market data ahead of other participants.

The BMRS Zones are defined in the BSC as *"the zones set from time to time by the Panel in consultation with the Transmission Company...."*. Any future modifications to the BMRS Zones can therefore be made via the BSC process.

The proposed changes to the relevant legal text are provided in Appendices 1 (proposed removal of the definition of the System Zones) and 4 (proposed removal of provisions associated with Zonal data).

2.5 Removal of NGC's obligations to provide its outage plan to unaffected Generators

NGC currently provides Generators with its Final Outage Plan for Year 1, as well as any revisions to the Outage Plan. This information is provided to the Generators regardless of whether they are affected by the outages or not. NGC believes that the Outage Plan should only be made available to those parties that are affected by it.

This proposal proposes to remove the prevailing provisions associated with the provision of Final Outage Plan for Year 1 to Generators.

The proposed changes to the relevant legal text are provided in Appendix 4 (these changes are concerned with paragraphs OC2.4.1.3.3 (h)(iii) and OC2.4.1.3.4 (e)).

2.6 Summary of longer-term proposals

The Working Group has also discussed a range of proposals that could be implemented in the longer-term i.e. at some point after the 05/06 winter. These proposals are likely to require significant changes to both NGC's and Users' systems. These proposals are under development and will be further considered once sufficient experience with the BETTA regime has been gained. They are summarised here for completeness.

The longer-term proposals consist of the following:

- Publication of disaggregated OU data;
- Rationalisation of OC2 timescales;
- Rationalisation of OC1 timescales;
- Provisions of additional demand information for shorter timescales;
- Provisions of additional demand information for longer timescales.

A brief description of each proposal is given in Table 1.

Table 1

Title	Description
Publication of disaggregated OU data	At present, the OU data is published as a single daily or weekly figure which does not distinguish between various sources of generation, particularly the less predictable ones such as intermittents. This proposal intends to publish OU as a stack of its constituent parts i.e. OUs for BMUs, intermittents and French interconnector. The disaggregated OU will be published on BMRS rather than the Elexon website where the OU is currently published.
Rationalisation of OC2 timescales	This proposal removes the current duplications in OU submissions and removes requirements for less reliable longer-term OU submissions. It requires simultaneous implementation of the proposal "Rationalisation of OC1 timescales" and consists of the following 4 elements: ✓ Combine the current 2-14 day daily submission (daily resolution) and the current 2-49 day weekly submission (daily resolution) into a single 2-49 day daily submission (daily resolution). ✓ Remove the current 2-7 week requirement (weekly resolution) so that the weekly submission corresponds to 8-52 weeks (weekly resolution). ✓ Retain current requirements for years 1, 2 and 3;

Title	Description
	✓ Remove current requirements for years 4 and 5.
Rationalisation of OC1 timescales	This proposal removes the current duplications in demand forecasts and, for consistency with the proposal "Rationalisation of OC2 timescales", removes requirements for longer-term demand forecasts. It requires simultaneous implementation of the proposal "Rationalisation of OC1 timescales" and consists of the following 4 elements: ✓ Extend the current 2-14 day daily 'normal' peak demand forecast to 2-49 days ahead of real time; ✓ Remove the current 2-7 week weekly 'normal' peak demand forecast so that the future forecasts correspond to 8-52 weeks ahead of real time; ✓ Retain current requirements for years 1, 2 and 3; ✓ Remove current requirements for years 4 and 5.
Provision of additional demand information for shorter timescales	At present, the published short term (0 – 48 hours) demand forecast can not be reconciled with the outturned demand because the published forecast does not include pump storage and interconnector exports whereas the published outturned demand does include these figures. It is proposed that additional demand forecast data with pump storage and interconnector exports, and additional outturned figure without pump storage and interconnector is published.
Provision of additional demand information for longer timescales	NGC currently publishes the daily 'normal' peak demand forecast for 2 – 14 days ahead of real time and the weekly 'normal' peak demand forecast for 2 – 52 weeks ahead of real time. The published forecasts do not show any confidence bands around the 'normal' demand figure. Under this proposal, NGC will publish the confidence levels for the demand forecasts and associated temperatures for longer timescales (beyond 2 days ahead of real time). If the proposal to rationalise the OC1 timescales (proposal 8) is implemented, the confidence levels could be published for the revised timescales (2 – 49 days, 8 – 52 weeks and 1 – 3 years ahead of real time).

The above proposals are likely to have a significant impact on the market information provided via the BSC/BMRS. Consequently, it will be necessary to raise this issue under the BSC governance process. NGC intends to raise the *'BSC issue'* in May 2005.

3 CONCLUSIONS AND WAY FORWARD

This paper has put forward a range of proposals that could be implemented for the 05/06 winter. The legal text for these proposals has also been provided. For completeness, the paper also summarises the longer-term proposals for implementation after winter 05/06.

NGC is seeking views of the Working Group on the proposed changes. These views will be reflected in the paper which will be presented to the GCRP in May 2005.

Following the May GCRP, NGC intends to circulate a Consultation Paper on these proposals for a formal consultation with the industry.

NGC also intends to raise a *BSC issue* in order to initiate the related BSC discussions.

APPENDIX 1

Glossary and Definitions

Proposed definition of Output Usable or OU

The (daily or weekly) forecast value, at the time of the (daily or weekly) peak demand, of the maximum level at which the Genset can export (in MW) to the Connection Site. ~~That portion of **Registered Capacity** which is expected to be available and which is not unavailable due to a **Planned Outage**.~~

Proposed removal of the definition of Customer Demand Management or CDM

~~Reducing the supply of electricity to a **Customer** or disconnecting a **Customer** in a manner agreed for commercial purposes between a **Supplier** and its **Customer**.~~

Proposed removal of the definition of Customer Demand Management Notification Level

~~The level above which a **Supplier** has to notify **NGC** of its proposed or achieved use of **Customer Demand Management** which is 12 MW in England and Wales and 5 MW in Scotland.~~

Proposed removal of the definition of System Zones

~~A region of the **GB Transmission System** within a described boundary or the whole of the **GB Transmission System**, as further provided for in OC2.2.4, and the term "**Zonal**" will be construed accordingly.~~

APPENDIX 2

PROPOSED CHANGES TO OC1 (DEMAND FORECASTS) and

Change OC1.5.4 as follows:

OC1.5.4 Other Codes

Under **OC6** each **Network Operator** will notify **NGC** of their proposed use of **Demand Control** (which may result in a **Demand** change equal to or greater than the **Demand Control Notification Level**)~~, and under **BC1**, each **Supplier** will notify **NGC** of their proposed use of **Customer Demand Management** (which may result in a **Demand** change equal to or greater than the **Customer Demand Management Notification Level**) in this timescale~~.

Delete OC1.5.5.2 (a) and (b):

~~(a) Each **Supplier** will notify **NGC** of any **Customer Demand Management** proposed by itself which may result in a **Demand** change equal to or greater than the **Customer Demand Management Notification Level** averaged over any half hour on any **Grid Supply Point** which is planned to occur at any time in the **Control Phase** and of any changes to the planned **Customer Demand Management** already notified to **NGC** as soon as possible after the formulation of the new plans.~~

~~(b) The following information is required on a Grid Supply Point and half-hourly basis:~~

~~(i) the proposed date, time and duration of implementation of **Customer Demand Management;** and~~

~~(ii) the proposed reduction in Demand by use of Customer Demand Management.~~

Delete OC1.5.6 (b):

~~(b) ***Customer Demand Management:***~~

~~Each **Supplier** will supply MW profiles of the amount and duration of **Demand** reduction achieved by itself from the use of **Customer Demand Management** equal to or greater than the **Customer Demand Management Notification Level** (averaged over any half hour on any **Grid Supply Point**) on a half hourly and **Grid Supply Point** basis during the previous calendar day.~~

Delete OC1.6.1 (f):

~~(f) **Customer Demand Management** equal to or greater than the **Customer Demand Management Notification Level** (averaged over any half hour at any **Grid Supply point**) proposed to be exercised by **Suppliers** and of which **NGC** has been informed.~~

Renumber items (g)-(k) in OC1.6 as follows:

~~(g)~~(f) Other information supplied by **Users**.

~~(h)~~(g) Anticipated **Pumped Storage Unit** demand.

~~(i)~~(h) the sensitivity of **Demand** to anticipated market prices for electricity.

~~(j)~~(i) **BM Unit Data** submitted by **BM Participants** to **NGC** in accordance with the provisions of **BC1** and **BC2.**

~~(k)~~(j) **Demand** taken by **Station Transformers**

Change OC1.6.3 as follows:

OC1.6.3 The methodology will be based upon factors (a), (b) and (c) above to produce, by statistical means, unbiased forecasts of **GB National Demand**. **GB Transmission System Demand** will be calculated from these forecasts but will also take into account factors (d), (e), (f), (g), (h) and (i) ~~and (j)~~ above. No other factors are taken into account by **NGC**, and it will base its **GB Transmission System Demand** forecasts on those factors only.

APPENDIX 3

PROPOSED CONSEQUENTIAL CHANGES TO BC1 (PRE GATE CLOSURE PROCESS)

Delete BC1.4.2 (f) (iv):

~~(iv)~~ ~~in the case of **Suppliers**, details of **Customer Demand Management** taken into account in the preparation of its **BM Unit Data**;~~

Renumber items (v) and (vi) in BC1.4.2 (f) as follows:

~~(v)~~(iv) details of any other factors which **NGC** may take account of when issuing **Bid-Offer Acceptances** for a **BM Unit** (e.g., **Synchronising** or **De-Synchronising i**ntervals, the minimum notice required to cancel a **Synchronisation**, etc); and

~~(vi)~~(v) in the case of a **Cascade Hydro Scheme**, the **Cascade Hydro Scheme Matrix a**s described in **BC1** Appendix 1.

APPENDIX 4

PROPOSED CHANGES TO OC2

OPERATIONAL PLANNING AND DATA PROVISION

Amend OC2 provisions as follows:

OC2.1 INTRODUCTION

OC2.1.1 **Operating Code No. 2** ("**OC2**") is concerned with:

(a) the co-ordination of the release of ~~**Gensets**~~**Generating Units**, the **GB Transmission System** and **Network Operators' Systems** for construction, repair and maintenance;

~~(b) provision by **NGC** of the **Surpluses** both for the **GB Transmission System** and **System Zones**;~~

~~(c)~~(b) the provision by **Generators** of **Generation Planning Parameters** for ~~**Gensets**~~**BM Units**, including **CCGT Module Planning Matrices**, to **NGC** for planning purposes only; and

~~(d)~~(c) the agreement for release of **Existing Gas Cooled Reactor Plant** for outages in certain circumstances.

OC2.1.2 (a) **Operational Planning** involves planning, through various timescales, the matching of generation output with forecast **GB Transmission System Demand** together with a reserve of generation to provide a margin, taking into account outages of certain **Generating Units**, and of parts of the **GB Transmission System** and of parts of **Network Operators' Systems** which is carried out to achieve, so far as possible, the standards of security set out in **NGC's Transmission Licence**, each **Relevant Transmission Licensee's Transmission Licence** or **Electricity Distribution Licence** as the case may be.

(b) In general terms there is an "envelope of opportunity" for the release of ~~**Gensets**~~ **Generating Units** and for the release of parts of the **GB Transmission System** and parts of the **Network Operator's User Systems** for outages. The envelope is defined by the difference between the total generation output expected from **Large Power Stations**, **Medium Power Stations** and **Demand**, the operational planning margin and taking into account **External Interconnections**.

OC2.1.3 In this **OC2** for the purpose of **Generator** outage co-ordination Year 0 means the current calendar year at any time, Year 1 means the next calendar year at any time, Year 2 means the calendar year after Year 1, etc. For the purpose of **Transmission** outage planning Year 0 means the current **Financial Year** at any time, Year 1 means the next **Financial Year** at any time, Year 2 means the **Financial Year** after Year 1, etc. References to 'weeks' in **OC2** are to calendar weeks as defined in ISO 8601.

OC2.1.4 References in **OC2** to a **Generator's** "best estimate" shall be that **Generator's** best estimate acting as a reasonable and prudent **Generator** in all the circumstances.

OC2.1.5 References to **NGC** planning the **GB Transmission System** outage programme on the basis of the **Final Generation Outage Programme**, are to **NGC** planning against the **Final Generation Outage Programme** current at the time it so plans.

OC2.1.6 Where in **OC2** data is required to be submitted or information is to be given on a particular day, that data does not need to be submitted and that information does not

need to be given on that day if it is not a **Business Day** or it falls within a holiday period (the occurrence and length of which shall be determined by **NGC**, in its reasonable discretion, and notified to **Users).** Instead, that data shall be submitted and/or that information shall be given on such other **Business Day** as **NGC** shall, in its reasonable discretion, determine. However, **NGC** may determine that that data and/or information need not be submitted or given at all, in which case it shall notify each **User** as appropriate.

OC2.1.7 Where in this **OC2** a **Generator** is required to submit an **Output Usable** forecast of its **Large Power Stations** or of each of its **Gensets**, in the case of **Embedded Large Power Stations** and **Embedded Gensets**, the **Output Usable** forecast must be adjusted by the **User** prior to submission to represent MW at the relevant **Grid Supply Point**.

OC2.1.8 In Scotland, it may be possible with the agreement of **NGC** to reduce the administrative burden for **Users** in producing planning information where either the output or demand is small.

OC2.2 OBJECTIVE

OC2.2.1 (a) The objective of **OC2** is to seek to enable **NGC** to harmonise outages of ~~**Gensets**~~ **Generating Units** in order that such outages are co-ordinated (taking account of **Medium Power Stations**) between **Generators** and **Network Operators**, and that such outages are co-ordinated taking into account **GB Transmission System** outages and other **System** outages, so far as possible to minimise the number and effect of constraints on the **GB Transmission System** or any other **System**.

(b) In the case of **Network Operator' User Systems** directly connected to the **GB Transmission System** this means in particular that there will also need to be harmonisation of outages of **Embedded** ~~**Gensets**~~**Generating Units,** and **GB Transmission System** outages, with **Network Operators** in respect of their outages on those **Systems**.

~~OC2.2.2 The objective of **OC2** is also to enable the provision by **NGC** of the **Surpluses** both for the **GB Transmission System** and **System Zones**.~~

OC2.2.~~3~~2 A further objective of **OC2** is to provide for the agreement for outages for **Existing Gas Cooled Reactor Plant** in certain circumstances and to enable a process to be followed in order to provide for that.

~~OC2.2.4 The boundaries of the **System Zones** will be determined by **NGC** from time to time taking into account the disposition of **Generators' Power Stations** within the **System Zones.** The location of the boundaries will be made available to all **Users**. Any **User** may request that **NGC** reviews any of the **System Zonal** boundaries if that **User** considers that the current boundaries are not appropriate, giving the reasons for their concerns. On receipt of such a request **NGC** will review the boundaries if, in **NGC's** reasonable opinion, such a review is justified.~~

OC2.3 SCOPE

OC2.3.1 **OC2** applies to **NGC** and to **Users** which in **OC2** means:-

(a) **Generators**, other than those which only have **Embedded Small Power Stations** or **Embedded Medium Power Stations**, (and the term **Generator** in this **OC2** shall be construed accordingly);

(b) **Network Operators**; and

(c) **Non-Embedded Customers**.

OC2.4 PROCEDURE

OC2.4.1 Co-ordination of Outages

OC2.4.1.1 Under **OC2** the interaction between **NGC** and **Users** will be as follows:

Each **Generator** and **NGC**	In respect of outages of ~~**Gensets**~~ **Generating Units** and in respect of outages of other **Plant** and/or **Apparatus** directly connected to the **GB Transmission System**;
NGC and each **Generator**	in respect of **GB Transmission System** outages relevant to each **Generator** (other than in respect of **Embedded Small Power Stations** or **Embedded Medium Power Stations**);
NGC and each **Network Operator**	in respect of outages of all **Embedded Large Power Stations** and in respect of outages of other **Plant** and/or **Apparatus** relating to such **Embedded Large Power Stations**;
NGC and each **Network Operator** and each **Non-Embedded Customer**	in respect of **GB Transmission System** outages relevant to the particular **Network Operator** or **Non-Embedded Customers**;
Each **Network Operator** and each **Non-Embedded Customer** and **NGC**	in respect of **User System** outages relevant to **NGC**.

OC2.4.1.2 PLANNING OF ~~**GENSET**~~ **GENERATING UNIT** OUTAGES

OC2.4.1.2.1 **Operational Planning Phase** - Planning for Calendar Years 3 to 5 inclusive – Weekly Resolution

In each calendar year:

(a) By the end of week 2

Each **Generator** will provide **NGC** in writing with:

(i) a provisional ~~**Genset**~~ **Generating Unit** outage programme (covering all non-**Embedded Power Stations** and **Embedded Large Power Stations**) for Year 3 to Year 5 (inclusive) specifying the ~~**Genset**~~ **Generating Unit** and MW concerned, duration of proposed outages, the preferred date for each outage and where there is a possibility of flexibility, the earliest start date and latest finishing date; and

(ii) a best estimate weekly **Output Usable** forecast of all its **Gensets** for Year 3 to Year 5.

(b) Between the end of week 2 and the end of week 12

NGC will be:

(i) calculating total winter peak generating capacity assumed to be available to the **Total System** (taking into account the import capacity which may be available from **External Interconnections**);

(ii) calculating the total winter peak generating capacity expected from **Large Power Stations**, taking into account **Demand** forecasts and details of proposed use of **Demand Control** received under **OC1**, and an operational planning margin set by **NGC** (the "**Operational Planning Margin**");

(iii) calculating the weekly peak generating capacity expected from **Large Power Stations** taking into account demand forecasts and details of proposed use of **Demand Control** received under **OC1**, and the **Operational Planning Margin** ~~and **Zonal System Security Requirements**~~**.** The total weekly peak MW needed to be available is the "weekly total MW required".

The calculation under (iii) will effectively define the envelope of opportunity for outages of ~~**Gensets**~~**Generating Units**.

During this period, **NGC** may, as appropriate, contact each **Generator** who has supplied information to seek clarification on points.

(c) By the end of week 12

NGC will:

(i) having taken into account the information notified to it by **Generators** and taking into account:-

(1) **GB Transmission System** constraints and outages,

(2) **Network Operator System** constraints and outages, known to **NGC**, and

(3) the **Output Usable** required, in its view, to meet weekly total MW requirements,

provide each **Generator** in writing with any suggested amendments to the provisional outage programme supplied by the **Generator** which **NGC** believes necessary~~, and will advise **Generators** with **Large Power Stations** of the **Surpluses** both for the **GB Transmission System** and **System Zones** and potential export limitations, on a weekly basis, which would occur without such amendments~~;

(ii) provide each **Network Operator** in writing with potential outages of ~~**Gensets**~~ **Generating Units** which may, in the reasonable opinion of **NGC** and the **Network Operator**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances **NGC** has notified the **Generator** concerned at least 48 hours beforehand of its intention to do so (including identifying the ~~**Genset**~~ **Generating Unit** concerned).

(d) By the end of week 14

(i) Where a **Generator** or a **Network Operator** is unhappy with the suggested amendments to its provisional outage programme (in the case of a **Generator**) or such potential outages (in the case of a **Network Operator**) it may contact **NGC** to explain its concerns and **NGC** and that **Generator** or **Network Operator** will then discuss the problem and seek to resolve it.

(ii) The possible resolution of the problem may require **NGC** or a **User** to contact other **Generators** and **Network Operators**, and joint meetings of all parties may, if any **User** feels it would be helpful, be convened by **NGC**. The need for further discussions, be they on the telephone or at meetings, can only be determined at the time.

(e) By the end of week 25

Each **Generator** will provide **NGC** in writing with an updated provisional ~~**Genset**~~ **Generating Unit** outage programme covering both **Embedded** and non-**Embedded Large Power Stations** together with the best estimate weekly **Output Usable** forecasts for each **Genset**, in all cases for Year 3 to Year 5 (inclusive). The updated provisional ~~**Genset**~~ **Generating Unit** outage programme will contain the MW concerned, duration of proposed outages, the preferred date for each outage and, where applicable, earliest start date and latest finishing date, together with an update of the **Output Usable** estimate supplied under (a)(ii) above.

(f) Between the end of week 25 and the end of week 28

NGC will be considering the updated provisional ~~**Genset**~~ **Generating Unit** outage programme, together with the best estimate weekly **Output Usable** forecasts supplied to it by **Generators** under (e) and their **Registered Capacity** and will be analysing **Operational Planning Margins** for the period.

(g) By the end of week 28

NGC will:

(i) provide each **Generator** in writing with details of any suggested revisions considered by **NGC** as being necessary to the updated provisional ~~**Genset**~~ **Generating Unit** outage programme supplied to **NGC** under (e) ~~and will advise **Generators** with **Large Power Stations** of the **Surpluses** for the **GB Transmission System** and **System Zones** and potential export limitations on a weekly basis which would occur without such revisions~~; and

(ii) provide each **Network Operator** in writing with the update of potential outages of ~~**Gensets**~~ **Generating Units** which, in the reasonable opinion of **NGC** and the **Network Operator**, affect the integrity of that **Network Operator's User System**.

(h) By the end of week 31

Where a **Generator** or a **Network Operator** is unhappy with the revisions suggested to the updated provisional ~~**Genset**~~ **Generating Unit** outage programme (in the case of a **Generator**) or such update of potential outages (in the case of a **Network Operator**) under (g) it may contact **NGC** to explain its concerns and the provisions set out in (d) above will apply to that process.

(i) By the end of week 42

NGC will:

(1) provide each **Generator** in writing with details of suggested revisions considered by **NGC** as being necessary to the updated provisional ~~**Genset**~~ **Generating Unit** outage programme supplied to **NGC** ~~and will advise **Generators** with **Large Power Stations** of the **Surpluses** for the **GB Transmission System** and **System Zones** and potential export limitations, on a weekly basis which would occur without such revisions~~;

(2) provide each **Network Operator** in writing with the update of potential outages of ~~**Gensets**~~ **Generating Units** which may, in the reasonable opinion of **NGC** and the **Network Operator**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances **NGC** has notified the **Generator** concerned at least 48 hours beforehand of its intention to do so (including identifying the ~~**Gensets**~~ **Generating Units** concerned).

(j) By the end of week 45

NGC will seek to agree a **Final Generation Outage Programme** for Year 3 to Year 5. If agreement cannot be reached on all aspects, **NGC** and each **Generator** will record their agreement on as many aspects as have been agreed ~~and **NGC** will advise each **Generator** with **Large Power Stations** and each **Network Operator**, of the **Surpluses** for the **GB Transmission System** and **System Zones** on a weekly basis which would occur in relation to those aspects not agreed~~. It is accepted that agreement of the **Final Generation Outage Programme** is not a commitment on **Generators** or **NGC** to abide by it, but **NGC** will be planning the **GB Transmission System** outage programme on the basis of the **Final Generation Outage Programme** and if in the event the **Generator's** outages differ from those contained in the **Final Generation Outage Programme**, or in any way conflict with the **GB Transmission System** outage programme, **NGC** need not alter the **GB Transmission System** outage programme.

OC2.4.1.2.2 **Operational Planning Phase** - Planning for Calendar Year 1 and Calendar Year 2 – Weekly Resolution

The basis for **Operational Planning** for Year 1 and Year 2 will be the **Final Generation Outage Programmes** agreed for Years 2 and 3:

In each calendar year:

(a) By the end of week 10

Each **Generator** will provide **NGC** in writing with its previously agreed **Final Generation Outage Programme** updated and best estimate weekly **Output Usable** forecasts for each **Genset** for weeks 1-52 of Years 1 and 2.

(b) Between the end of week 10 and the end of week 12

NGC will be considering the updated proposed ~~**Genset**~~ **Generating Unit** outage programme together with the estimate of **Output Usable** supplied by **Generators** under (a) and will be analysing **Operational Planning Margins** for the period. Taking these into account together with **GB Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGC**, **NGC** will assess whether the estimates of **Output Usable**

supplied by **Generators** are sufficient to meet forecast **GB Transmission System Demand** plus the **Operational Planning Margin**.

(c) By the end of week 12

NGC will:

(i) notify each **Generator** in writing whether the **Output Usable** estimates are adequate for weeks 1-52 of Years 1 and 2, together with suggested changes to its **Final Generation Outage Programme** where necessary ~~and will advise each **Generator** with **Large Power Stations** of the **Surpluses** both for the **GB Transmission System** and **System Zones** and potential export limitations, on a weekly resolution which would occur without such changes~~;

(ii) provide each **Network Operator** in writing with weekly **Output Usable** estimates of **Generators** for weeks 1-52 of Years 1 and 2, and updated details of potential outages of ~~, in each case relating to **Gensets**~~ **Generating Units** which may, in the reasonable opinion of **NGC** and the **Network Operator**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances, **NGC** has notified the **Generator** concerned at least 48 hours beforehand of its intention to do so (including identifying the affected **Gensets** or **Generating Units**, as appropriate ~~concerned~~).

(d) By the end of week 14

Where a **Generator** or a **Network Operator** is unhappy with any suggested changes to its **Final Generation Outage Programme** (in the case of a **Generator**) or such update of potential outages (in the case of a **Network Operator**), equivalent provisions to those set out in OC2.4.1.2.1(d) will apply.

(e) By the end of week 34

Each **Generator** will provide **NGC** in writing with revised best estimate weekly **Output Usable** forecasts for each **Genset** for weeks 1-52 of Years 1 and 2.

(f) Between the end of week 34 and the end of week 39

NGC will be analysing the revised estimates of **Output Usable** supplied by **Generators** under (e) and will be analysing **Operational Planning Margins** for the period. Taking these into account together with **GB Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGC**, **NGC** will assess whether the estimates of **Output Usable** supplied by **Generators** are sufficient to meet forecast **GB Transmission System Demand** plus the **Operational Planning Margin**.

(g) By the end of week 39

NGC will:

(i) notify each **Generator** in writing whether it accepts the **Output Usable** estimates for weeks 1-52 of Years 1 and 2, and of any suggested changes to its **Final Generation Outage Programme** where necessary ~~and will advise **Generators** with **Large Power Stations** of the **Surpluses** both for the **GB Transmission System** and **System Zones** and potential export limitations on a weekly basis which would occur without such changes~~;

(ii) provide each **Network Operator** in writing with **Output Usable** estimates of **Generators** for weeks 1-52 of Years 1 and 2, and updated details of

potential outages of ~~, in each case relating to **Gensets**~~ **Generating Units** which may, in the reasonable opinion of **NGC** and the **Network Operator**, affect the integrity of that **Network Operator's User System** provided that, in such circumstances, **NGC** has notified the **Generator** concerned at least 48 hours beforehand of its intention to do so (including identifying the affected **Gensets** or **Generating Units,** as appropriate ~~concerned~~).

(h) By the end of week 46

Where a **Generator** or a **Network Operator**, is unhappy with any suggested changes to its **Final Generation Outage Programme** (in the case of a **Generator**) or such update of potential outages (in the case of a **Network Operator**), equivalent provisions to those set out in OC2.4.1.2.1(d) will apply.

(i)By the end of week 48

NGC will seek to agree the revised **Final Generation Outage Programme** for Year 1 and Year 2. If agreement cannot be reached on all aspects, **NGC** and each **Generator** will record their agreement on as many aspects as have been agreed. ~~and **NGC** will advise each **Generator** with **Large Power Stations** and each **Network Operator**, of **Generating Plant Demand Margins** for national and zonal groups, on a weekly basis, which would occur in relation to those aspects not agreed.~~ It is accepted that agreement of the **Final Generation Outage Programme** is not a commitment on **Generators** or **NGC** to abide by it, but **NGC** will be planning the **GB Transmission System** outage programme on the basis of the **Final Generation Outage Programme** and if, in the event, a **Generator's** outages differ from those contained in the **Final Generation Outage Programme**, or in any way conflict with the **GB Transmission System** outage programme, **NGC** need not alter the **GB Transmission System** outage programme.

OC2.4.1.2.3 Planning for Calendar Year 0 – Weekly Resolution

The basis for **Operational Planning** for Year 0 will be the revised **Final Generation Outage Programme** agreed for Year 1:

In each week:

(a) By 1600 hours each Wednesday – Weekly Resolution

Each **Generator** will provide **NGC** in writing with an update of the **Final Generation Outage Programme** and a best estimate weekly **Output Usable** forecast for each of its **Gensets** from the 2nd week ahead to the 52nd week ahead.

(b) Between 1600 hours Wednesday and 1600 hours Friday

NGC will be analysing the revised estimates of **Output Usable** supplied by **Generators** under (a) and will be analysing **Operational Planning Margins** for the period. Taking into account **GB Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGC**, **NGC** will assess whether the estimates of **Output Usable** supplied by **Generators** are sufficient to meet forecast **GB Transmission System Demand** plus the **Operational Planning Margin**.

(c) By 1600 hours each Friday

NGC will~~:~~

~~(i) notify each **Generator** with **Large Power Stations** and **Network Operator**, in writing if it considers the **Output Usable** forecasts will give **Surpluses** and potential export limitations both for the **GB Transmission System** and **System Zones** from the 2nd week ahead to the 52nd week ahead;~~

~~(ii)~~ provide each **Network Operator**, in writing with weekly **Output Usable** estimates of **Genset** from the 2nd week ahead to the 52nd week ahead and updated outages of ~~, each relating to **Gensets**~~**Generating Units** which may, in the reasonable opinion of **NGC** and the **Network Operator**, affect the integrity of that **Network Operator's User System** and in such circumstances, **NGC** shall notify the **Generator** concerned within 48 hours of so providing (including identifying the affected **Gensets** or **Generating Units,** as appropriate ~~concerned~~), from the 2nd week ahead to the 52nd week ahead.

OC2.4.1.2.4 Programming Phase – 2-49 Days Ahead – Daily Resolution

~~(a) By 1200 hours each Friday~~

~~**NGC** will notify in writing each **Generator** with **Large Power Stations** and **Network Operator** if it considers the **Output Usable** forecasts will give MW shortfalls both nationally and for constrained groups for the period 2-7 weeks ahead.~~

(~~b~~a) By 1100 hours each **Business Day**

Each **Generator** shall provide **NGC** in writing with the best estimate of daily **Output Usable** for each **Genset** for the period from and including day 2 ahead to day 14 ahead, including the forecast return to service date for any such **Generating Unit** subject to **Planned Outage** or breakdown.

(~~c~~b) By 1100 hours each Wednesday

For the period 2 to 49 days ahead, every Wednesday by 11:00 hours, each **Generator** shall provide **NGC** in writing best estimate daily **Output Usable** forecasts for each **Genset**, and changes (start and finish dates) to **Planned Outage** or to the return to service times of each ~~**Genset**~~ **Generating Unit** which is subject to breakdown.

(~~d~~c) Between 1100 hours and 1600 hours each **Business Day**

NGC will be analysing the revised estimates of **Output Usable** supplied by **Generators** under (b) and will be analysing **Operational Planning Margins** for the period 2-14 days ahead. Taking into account **GB Transmission System** constraints and outages and **Network Operator User System** constraints and outages known to **NGC**, **NGC** will assess whether the estimates of **Output Usable** are sufficient to meet forecast **GB Transmission System Demand** plus the **Operational Planning Margin**.

(~~e~~d) By 1600 hours each **Business Day**,

~~(i) **NGC** will notify in writing each **Generator** with **Large Power Stations** and each **Network Operator**, of the **Surpluses** both for the **GB Transmission System** and **System Zones** and potential export limitations, for the period from and including day 2 ahead to day 14 ahead which it considers the **Output Usable** forecasts will give. The time of 1600 hours can only be met~~

~~in respect of any **Generator** or **Network Operator** if all the information from all **Generators** was made available to **NGC** by 1100 hours and if a suitable electronic data transmission facility is in place between **NGC** and the **Generator** or the **Network Operator**, as the case may be, and if it is fully operational. In the event that any of these conditions is not met, or if it is necessary to revert to a manual system for analysing the information supplied and otherwise to be considered, **NGC** reserve the right to extend the timescale for issue of the information required under this sub-paragraph to each, or the relevant, **Generator** and/or **Network Operator** (as the case may be) provided that such information will in any event be issued by 1800 hours.~~

~~(ii)~~ **NGC** will provide each **Network Operator**, where it has an effect on that **User**, in writing with **Output Usable** estimates of **Gensets** from and including day 2 ahead to day 14 ahead and updated outages of~~, each relating to **Gensets**~~**Generating Units** which are either in its **User System** or which may, in the reasonable opinion of **NGC** and the **Network Operator**, affect the integrity of that **Network Operator's User System** and in such circumstances, **NGC** shall notify the **Generator** concerned within 48 hours of so providing (including identifying the affected **Gensets** or **Generating Units**, as appropriate~~ concerned~~), for the period from and including day 2 ahead to day 14 ahead.

OC2.4.1.3 Planning of **GB Transmission System** Outages

OC2.4.1.3.1 **Operational Planning Phase** - Planning for **Financial Years** 2 to 5 inclusive ahead

NGC shall plan **GB Transmission System** outages required in Years 2 to 5 inclusive required as a result of construction or refurbishment works. This contrasts with the planning of **GB Transmission System** outages required in Years 0 and 1 ahead, when **NGC** also takes into account **GB Transmission System** outages required as a result of maintenance.

Users should bear in mind that **NGC** will be planning the **GB Transmission System** outage programme on the basis of the previous year's **Final Generation Outage Programme** and if in the event a **Generator's** or **Network Operator's** outages differ from those contained in the **Final Generation Outage Programme**, or in the case of **Network Operators**, those known to **NGC**, or in any way conflict with the **GB Transmission System** outage programme, **NGC** need not alter the **GB Transmission System** outage programme.

OC2.4.1.3.2 In each calendar year:

(a) By the end of week 8

Each **Network Operator** will notify **NGC** in writing of details of proposed outages in Years 2-5 ahead in its **User System** which may affect the performance of the **Total System** (which includes but is not limited to outages of **User System Apparatus** at **Grid Supply Points** and outages which constrain the output of ~~**Gensets**~~ **Generating Units** **Embedded** within that **User System**).

(b) By the end of week 13

Each **Generator** will inform **NGC** in writing of proposed outages in Years 2 - 5 ahead of **Generator** owned **Apparatus** (eg. busbar selectors) other than ~~**Gensets**~~**Generating Units**, at each **Grid Entry Point**.

NGC will provide to each **Network Operator** and to each **Generator** a copy of the information given to **NGC** under paragraph (a) above (other than the information given by that **Network Operator**). In relation to a **Network Operator**, the data must only be used by that **User** in operating that **Network Operator's User System** and must not be used for any other purpose or passed on to, or used by, any other business of that **User** or to, or by, any person within any other such business or elsewhere.

(c) By the end of week 28

NGC will provide each **Network Operator** in writing with details of proposed outages in Years 2-5 ahead which may, in **NGC's** reasonable judgement, affect the performance of that **Network Operator's User System**.

(d) By the end of week 30

Where **NGC** or a **Network Operator** is unhappy with the proposed outages notified to it under (a), (b) or (c) above, as the case may be, equivalent provisions to those set out in OC2.4.1.2.1 (d) will apply.

(e) By the end of week 34

NGC will draw up a draft **GB Transmission System** outage plan covering the period Years 2 to 5 ahead and **NGC** will notify each **Generator** and **Network Operator** in writing of those aspects of the plan which may operationally affect such **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) or **Network Operator**. **NGC** will also indicate where a need may exist to issue other operational instructions or notifications or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **GB Transmission System** to be maintained within the **Licence Standards**.

OC2.4.1.3.3 **Operational Planning Phase** - Planning for **Financial Year** 1 ahead

Each calendar year **NGC** shall update the draft **GB Transmission System** outage plan prepared under OC2.4.1.3.2 above and shall in addition take into account outages required as a result of maintenance work.

In each calendar year:

(a) By the end of week 13

Generators and **Non-Embedded Customers** will inform **NGC** in writing of proposed outages for Year 1 of **Generator** owned **Apparatus** at each **Grid Entry Point** (e.g. busbar selectors) other than ~~**Gensets**~~ **Generating Units** or **Non-Embedded Customer** owned **Apparatus**, as the case may be, at each **Grid Supply Point**.

(b) By the end of week 28

NGC will provide each **Network Operator** and each **Non-Embedded Customer** in writing with details of proposed outages in Year 1 ahead which may, in **NGC's** reasonable judgement, affect the performance of its **User System** or the **Non-Embedded Customer Apparatus** at the **Grid Supply Point**.

(c) By the end of week 32

Each **Network Operator** will notify **NGC** in writing with details of proposed outages in Year 1 in its **User System** which may affect the performance of the

Total System (which includes but is not limited to outages of **User System Apparatus** at **Grid Supply Points** and outages which constrain the output of ~~**Gensets**~~ **Generating Units** **Embedded** within that **User System**).

(d) Between the end of week 32 and the end of week 34

NGC will draw up a revised **GB Transmission System** outage plan (which for the avoidance of doubt includes **Transmission Apparatus** at the **Connection Points**).

(e) By the end of week 34

NGC will notify each **Generator** and **Network Operator**, in writing, of those aspects of the **GB Transmission System** outage programme which may, in **NGC's** reasonable opinion, operationally affect that **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) or **Network Operator** including in particular proposed start dates and end dates of relevant **GB Transmission System** outages.

NGC will provide to each **Network Operator** and to each **Generator** a copy of the information given to **NGC** under paragraph (c) above (other than the information given by that **Network Operator**). In relation to a **Network Operator**, the data must only be used by that **User** in operating that **Network Operator's User System** and must not be used for any other purpose or passed on to, or used by, any other business of that **User** or to, or by, any person within any other such business or elsewhere.

(f) By the end of week 36

Where a **Generator** or **Network Operator** is unhappy with the proposed aspects notified to it under (e) above, equivalent provisions to those set out in OC2.4.1.2.1 (d) will apply.

(g) Between the end of week 34 and 49

NGC will draw up a final **GB Transmission System** outage plan covering Year 1.

(h) By the end of week 49

(i) **NGC** will complete the final **GB Transmission System** outage plan for Year 1. The plan for Year 1 becomes the final plan for Year 0 when by expiry of time Year 1 becomes Year 0.

(ii) **NGC** will notify each **Generator** and each **Network Operator** in writing of those aspects of the plan which may operationally affect such **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) or **Network Operator** including in particular proposed start dates and end dates of relevant **GB Transmission System** outages. **NGC** will also indicate where a need may exist to issue other operational instructions or notifications or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **GB Transmission System** to be maintained within the **Licence Standards**. **NGC** will also inform each relevant **Non-Embedded Customer** of the aspects of the plan which may affect it.

~~(iii) In addition, in relation to the final **GB Transmission System** outage plan for Year 1, **NGC** will provide to each **Generator** a copy of the final **GB**~~

~~**Transmission System** outage plan for that year. OC2.4.1.3.4 contains provisions whereby updates of the final **GB Transmission System** outage plan are provided. The plan and the updates will be provided in writing. It should be noted that the final **GB Transmission System** outage plan for Year 1 and the updates will not give a complete understanding of how the **GB Transmission System** will operate in real time, where the **GB Transmission System** operation may be affected by other factors which may not be known at the time of the plan and the updates. Therefore, **Users** should place no reliance on the plan or the updates showing a set of conditions which will actually arise in real time.~~

(i) Information Release or Exchange

This paragraph (i) contains alternative requirements on **NGC**, paragraph (z) being an alternative to a combination of paragraphs (x) and (y). Paragraph (z) will only apply in relation to a particular **User** if **NGC** and that **User** agree that it should apply, in which case paragraphs (x) and (y) will not apply. In the absence of any relevant agreement between **NGC** and the **User, NGC** will only be required to comply with paragraphs (x) and (y).

Information Release to each **Network Operator** and **Non-Embedded Customer**

Between the end of Week 34 and 49 **NGC** will upon written request:

(x) for radial systems, provide each **Network Operator** and **Non Embedded Customer** with data to allow the calculation by the **Network Operator**, and each **Non Embedded Customer**, of symmetrical and asymmetrical fault levels; and

(y) for interconnected **Systems**, provide to each **Network Operator** an equivalent network, sufficient to allow the identification of symmetrical and asymmetrical fault levels, and power flows across interconnecting **User Systems** directly connected to the **GB Transmission System**; or

System Data Exchange

(z) as part of a process to facilitate understanding of the operation of the **Total System**,

(1) **NGC** will make available to each **Network Operator**, the **GB Transmission System Study Network Data Files** covering Year 1 which are of relevance to that **User's System**;

(2) where **NGC** and a **User** have agreed to the use of data links between them, the making available will be by way of allowing the **User** access to take a copy of the **GB Transmission System Study Network Data Files** once during that period. The **User** may, having taken that copy, refer to the copy as often as it wishes. Such access will be in a manner agreed by **NGC** and may be subject to separate agreements governing the manner of access. In the absence of agreement, the copy of the **GB Transmission System Study Network Data Files** will be given to the **User** on a disc, or in hard copy, as determined by **NGC**;

(3) the data contained in the **GB Transmission Study Network Data Files** represents **NGC's** view of indicative operating conditions only and should be used for technical analysis only on the basis that it only represents a view and that operating conditions may be different in the event;

(4) **NGC** will notify each **Network Operator**, as soon as reasonably practicable after it has updated the **GB Transmission System Study Network Data Files** covering Year 1 that it has done so, when this update falls before the next annual update under this OC2.4.1.3.3(i). **NGC** will then make available to each **Network Operator** who has received an earlier version (and in respect of whom the agreement still exists), the updated **GB Transmission System Study Network Files** covering the balance of Years 1 and 2 which remain given the passage of time, and which are of relevance to that **User's System**. The provisions of paragraphs (2) and (3) above shall apply to the making available of these updates;

(5) the data from the **GB Transmission System Study Network Data Files** received by each **Network Operator** must only be used by that **User** in operating that **Network Operator's User System** and must not be used for any other purpose or passed on to, or used by, any other business of that **User** or to, or by, any person within any other such business or elsewhere.

OC2.4.1.3.4 **Operational Planning Phase** - Planning in **Financial Year** 0 down to the **Programming Phase** (and in the case of load transfer capability, also during the **Programming Phase**)

(a) The **GB Transmission System** outage plan for Year 1 issued under OC2.4.1.3.3 shall become the plan for Year 0 when by expiry of time Year 1 becomes Year 0.

(b) Each **Generator** or **Network Operator** or **Non-Embedded Customer** may at any time during Year 0 request **NGC** in writing for changes to the outages requested by them under OC2.4.1.3.3. In relation to that part of Year 0, excluding the period 1-7 weeks from the date of request, **NGC** shall determine whether the changes are possible and shall notify the **Generator**, **Network Operator** or **Non-Embedded Customer** in question whether this is the case as soon as possible, and in any event within 14 days of the date of receipt by **NGC** of the written request in question.

Where **NGC** determines that any change so requested is possible and notifies the relevant **User** accordingly, **NGC** will provide to each **Network Operator** and each **Generator** a copy of the request to which **NGC** has agreed which relates to outages on **Systems** of **Network Operators** (other than any request made by that **Network Operator**). The information must only be used by that **Network Operator** in operating that **Network Operator's User System** and must not be used for any other purpose or passed on to, or used by, any other business of that **User** or to, or by, any person within any other such business or elsewhere.

(c) During Year 0 (including the **Programming Phase**) each **Network Operator** shall at **NGC's** request make available to **NGC** such details of automatic and manual load transfer capability of:

(i) 12MW or more (averaged over any half hour) for England and Wales
(ii) 10MW or more (averaged over any half hour) for Scotland

between **Grid Supply Points.**

(d) When necessary during Year 0, **NGC** will notify each **Generator** and **Network Operator** and each **Non-Embedded Customer**, in writing of those aspects of the **GB Transmission System** outage programme in the period from the 8th week ahead to the 52nd week ahead, which may, in **NGC's** reasonable opinion, operationally affect that **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) or **Network Operator** or **Non-Embedded Customer** including

in particular proposed start dates and end dates of relevant **GB Transmission System** outages.

NGC will also notify changes to information supplied by **NGC** pursuant to OC2.4.1.3.3(i)(x) and (y) except where in relation to a **User** information was supplied pursuant to OC2.4.1.3.3(i)(z). In that case:-

(i) **NGC** will, by way of update of the information supplied by it pursuant to OC2.4.1.3.3(i)(z), make available at the first time in Year 0 that it updates the **GB Transmission System Study Network Data Files** in respect of Year 0 (such update being an update on what was shown in respect of Year 1 which has then become Year 0) to each **Network Operator** who has received an earlier version under OC2.4.1.3.3(i)(z) (and in respect of whom the agreement still exists), the **GB Transmission System Study Network Data Files** covering Year 0 which are of relevance to that **User's System**.

(ii) **NGC** will notify each relevant **Network Operator**, as soon as reasonably practicable after it has updated the **GB Transmission System Study Network Data Files** covering Year 0, that it has done so. **NGC** will then make available to each such **Network Operator**, the updated **GB Transmission System Study Network Data Files** covering the balance of Year 0 which remains given the passage of time, and which are of relevance to that **User's System.**

(iii) The provisions of OC2.4.1.3.3(i)(z)(2), (3) and (5) shall apply to the provision of data under this part of OC2.4.1.3.4(d) as if set out in full.

NGC will also indicate where a need may exist to issue other operational instructions or notifications or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **GB Transmission System** to be maintained within the **Licence Standards**.

~~(e) In addition, by the end of each month during Year 0, **NGC** will provide to each **Generator** a notice containing any revisions to the final **GB Transmission System** outage plan for Year 1, provided to the **Generator** under OC2.4.1.3.3 or previously under this provision, whichever is the more recent.~~

OC2.4.1.3.5 Programming Phase

(a) By 1600 hours each Thursday

(i) **NGC** shall continue to update a preliminary **GB Transmission System** outage programme for the eighth week ahead, a provisional **GB Transmission System** outage programme for the next week ahead and a final day ahead **GB Transmission System** outage programme for the following day.

(ii) **NGC** will notify each **Generator** and **Network Operator** and each **Non-Embedded Customer**, in writing of those aspects of the preliminary **GB Transmission System** outage programme which may operationally affect each **Generator** (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) or **Network Operator** and each **Non-Embedded Customer** including in particular proposed start dates and end dates of relevant **GB Transmission System** outages and changes to information supplied by **NGC** pursuant to OC2.4.1.3.3(i)(x) and (y) (if OC2.4.1.3.3(i)(z) does not apply).

NGC will also indicate where a need may exist to use **Operational Intertripping**, emergency switching, emergency **Demand** management or

other measures including the issuing of other operational instructions or notifications or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **GB Transmission System** to be maintained within the **Licence Standards**.

(b) By 1000 hours each Friday

Generators and **Network Operators** will discuss with **NGC** and confirm in writing to **NGC**, acceptance or otherwise of the requirements detailed under OC2.4.1.3.5.

(c) By 1600 hours each Friday

(i) **NGC** shall finalise the preliminary **GB Transmission System** outage programme up to the seventh week ahead. **NGC** will endeavour to give as much notice as possible to a **Generator** with nuclear **Large Power Stations** which may be operationally affected by an outage which is to be included in such programme.

(ii) **NGC** shall finalise the provisional **GB Transmission System** outage programme for the next week ahead.

(iii) **NGC** shall finalise the **GB Transmission System** outage programme for the weekend through to the next normal working day.

(iv) In each case **NGC** will indicate the factors set out in (a)(ii) above (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**) to the relevant **Generators** and **Network Operators** and **Non-Embedded Customers**.

(v) Where a **Generator** with nuclear **Large Power Stations** which may be operationally affected by the preliminary **GB Transmission System** outage programme referred to in (i) above (acting as a reasonable operator) is concerned on grounds relating to safety about the effect which an outage within such outage programme might have on one or more of its nuclear **Large Power Stations,** it may contact **NGC** to explain its concerns and discuss whether there is an alternative way of taking that outage (having regard to technical feasibility). If there is such an alternative way, but **NGC** refuses to adopt that alternative way in taking that outage, that **Generator** may involve the **Disputes Resolution Procedure** to decide on the way the outage should be taken. If there is no such alternative way, then **NGC** may take the outage despite that **Generator's** concerns.

(d) By 1600 hours each Monday, Tuesday, Wednesday and Thursday

(i) **NGC** shall prepare a final **GB Transmission System** outage programme for the following day.

(ii) **NGC** shall notify each **Generator** and **Network Operator** and **Non-Embedded Customer** in writing of the factors set out in (a)(ii) above (other than those aspects which may operationally affect **Embedded Small Power Stations** or **Embedded Medium Power Stations**).

OC2.4.2 DATA REQUIREMENTS

OC2.4.2.1 When a **Statement** of **Readiness** under the **Bilateral Agreement** and/or **Construction Agreement** is submitted, and thereafter in calendar week 24 in each calendar year,

(a) each **Generator** shall (subject to OC2.4.2.1(k))in respect of each of its:-

(i) ~~**Gensets**~~**BM Units** (in the case of the **Generation Planning Parameters**); and

(ii) **CCGT Units** within each of its **CCGT Modules** at a **Large Power Station** (in the case of the **Generator Performance Chart**)

submit to **NGC** in writing the **Generation Planning Parameters** and the **Generator Performance Chart**.

(b) Each shall meet the requirements of CC.6.3.2 and shall reasonably reflect the true operating characteristics of the **Genset**.

(c) They shall be applied (unless revised under this **OC2** or (in the case of the **Generator Performance Chart** only) **BC1** in relation to **Other Relevant Data**) from the **Completion Date,** in the case of the ones submitted with the **Statement of Readiness,** and in the case of the ones submitted in calendar week 24, from the beginning of week 25 onwards.

(d) They shall be in the format indicated in Appendix 1 for these charts and as set out in Appendix 2 for the **Generation Planning Parameters**.

(e) Any changes to the **Generator Performance Chart** or **Generation Planning Parameters** should be notified to **NGC** promptly.

(f) **Generators** should note that amendments to the composition of the **CCGT Module** at **Large Power Stations** may only be made in accordance with the principles set out in PC.A.3.2.2. If in accordance with PC.A.3.2.2 an amendment is made, any consequential changes to the **Generation Planning Parameters** should be notified to **NGC** promptly.

(g) **The Generator Performance Chart** must be on a **Generating Unit** specific basis at the **Generating Unit** Stator Terminals and must include details of the **Generating Unit** transformer parameters and demonstrate the limitation on reactive capability of the **System** voltage at 3% above nominal. It must include any limitations on output due to the prime mover (both maximum and minimum) and **Generating Unit** step-up transformer.

(h) For each **CCGT Unit**, and any other **Generating Unit** whose performance varies significantly with ambient temperature, the **Generator Performance Chart** shall show curves for at least two values of ambient temperature so that **NGC** can assess the variation in performance over all likely ambient temperatures by a process of linear interpolation or extrapolation. One of these curves shall be for the ambient temperature at which the **Generating Unit**'s output, or **CCGT Module** at a **Large Power Station** output, as appropriate, equals its **Registered Capacity.**

(i) The **Generation Planning Parameters** supplied under OC2.4.2.1 shall be used by **NGC** for operational planning purposes only and not in connection with the operation of the **Balancing Mechanism** (subject as otherwise permitted in the **BCs**).

(j) Each **Generator** shall in respect of each of its **CCGT Modules** at **Large Power Stations** submit to **NGC** in writing a **CCGT Module Planning Matrix**. It shall be prepared on a best estimate basis relating to how it is anticipated the **CCGT Module** will be running and which shall reasonably reflect the true operating characteristics of the **CCGT Module.** It will be applied (unless revised under this OC2) from the **Completion Date,** in the case of the one submitted with the

Statement of Readiness, and in the case of the one submitted in calendar week 24, from the beginning of week 31 onwards. It must show the combination of **CCGT Units** which would be running in relation to any given MW output, in the format indicated in Appendix 3.

Any changes must be notified to **NGC** promptly. **Generators** should note that amendments to the composition of the **CCGT Module** at **Large Power Stations** may only be made in accordance with the principles set out in PC.A.3.2.2. If in accordance with PC.A.3.2.2 an amendment is made, an updated **CCGT Module Planning Matrix** must be immediately submitted to **NGC** in accordance with this OC2.4.2.1(b).

The **CCGT Module Planning Matrix** will be used by **NGC** for operational planning purposes only and not in connection with the operation of the **Balancing Mechanism**.

(k) Each **Generator** shall in respect of each of its **Cascade Hydro Schemes** also submit the **Generation Planning Parameters** detailed at OC2.A.2.6 to OC2.A.2.10 for each **Cascade Hydro Scheme**. Such parameters need not also be submitted for the individual **Gensets** within such **Cascade Hydro Scheme**.

OC2.4.2.2 Each **Network Operator** shall by 1000 hrs on the day falling seven days before each **Operational Day** inform **NGC** in writing of any changes to the circuit details called for in PC.A.2.2.1 which it is anticipated will apply on that **Operational Day** (under **BC1** revisions can be made to this data).

OC2.4.3 NEGATIVE RESERVE ACTIVE POWER MARGINS

OC2.4.3.1 In each calendar year, by the end of week 39 **NGC** will, taking into account the **Final Generation Outage Programme** and forecast of **Output Usable** supplied by each **Generator**, issue a notice in writing to:-

(a) all **Generators** with **Large Power Stations** listing any period in which there is likely to be an unsatisfactory **System NRAPM**; and

(b) all **Generators** with **Large Power Stations** which may, in **NGC's** reasonable opinion be affected, listing any period in which there is likely to be an unsatisfactory **Localised NRAPM**, together with the identity of the relevant **System Constraint Group** or **Groups**,

within the next calendar year, together with the margin. **NGC** and each **Generator** will take these into account in seeking to co-ordinate outages for that period.

OC2.4.3.2 (a) By 0900 hours each **Business Day**

Each **Generator** shall provide **NGC** in writing with a best estimate of **Genset** inflexibility on a daily basis for the period 2 to 14 days ahead (inclusive).

(b) By 1600 hours each Wednesday

Each **Generator** shall provide **NGC** in writing with a best estimate of **Genset** inflexibility on a weekly basis for the period 2 to 7 weeks ahead (inclusive).

(c) Between 1600 hours each Wednesday and 1200 hours each Friday

(i) If **NGC**, taking into account the estimates supplied by **Generators** under (b) above, and forecast **Demand** for the period, foresees that:-

(1) the level of the **System NRAPM** for any period within the period 2 to 7 weeks ahead (inclusive) is too low, it will issue a notice in writing to all **Generators** and **Network Operators** listing any periods and levels of **System NRAPM** within that period; and/or

(2) having also taken into account the appropriate limit on transfers to and from a **System Constraint Group**, the level of **Localised NRAPM** for any period within the period 2 to 7 weeks ahead (inclusive) is too low for a particular **System Constraint Group**, it will issue a notice in writing to all **Generators** and **Network Operators** which may, in **NGC's** reasonable opinion be affected by that **Localised NRAPM**, listing any periods and levels of **Localised NRAPM** within that period. A separate notice will be given in respect of each affected **System Constraint Group**.

Outages Adjustments

(ii) **NGC** will then contact **Generators** in respect of their **Large Power Stations** to discuss outages as set out in the following paragraphs of this OC2.4.3.2.

(iii) **NGC** will contact all **Generators** in the case of low **System NRAPM** and will contact **Generators** in relation to relevant **Large Power Stations** in the case of low **Localised NRAPM**. **NGC** will raise with each **Generator** the problems it is anticipating due to the low **System NRAPM** or **Localised NRAPM** and will discuss:-

(1) whether any change is possible to the estimate of **Genset** inflexibility given under (b) above; and

(2) whether **Genset** outages can be taken to coincide with the periods of low **System NRAPM** or **Localised NRAPM** (as the case may be).

In relation to **Generators** with nuclear **Large Power Stations** the discussions on outages can include the issue of whether outages can be taken for re-fuelling purposes to coincide with the relevant low **System NRAPM** and/or **Localised NRAPM** periods.

(iv) If agreement is reached with a **Generator** (which unlike the remainder of **OC2** will constitute a binding agreement), then such **Generator** will take such outage, as agreed with **NGC**, and **NGC** will issue a revised notice in writing to the **Generators** and **Network Operators** to which it sent notices under (i) above, reflecting the changes brought about to the periods and levels of **System NRAPM** and/or **Localised NRAPM** by the agreements with **Generators**.

(d) By 1600 hours each day

(i) If **NGC**, taking into account the estimates supplied under (a) above, and forecast **Demand** for the period, foresees that:-

(1) the level of **System NRAPM** for any period within the period of 2 to 14 days ahead (inclusive) is too low, it will issue a notice in writing to all **Generators** and **Network Operators** listing the periods and levels of **System NRAPM** within those periods; and/or

(2) having also taken into account the appropriate limit on transfers to and from a **System Constraint Group**, the level of **Localised NRAPM** for any period within the period of 2 to 14 days ahead (inclusive) is too low for a particular **System Constraint Group**, it will issue a notice in

writing to all **Generators** and **Network Operators** which may, in **NGC's** reasonable opinion be affected by that **Localised NRAPM**, listing any periods and levels of **Localised NRAPM** within that period. A separate notice will be given in respect of each affected **System Constraint Group**.

(ii) **NGC** will contact all **Generators** in respect of their **Large Power Stations** (or in the case of **Localised NRAPM**, all **Generators** which may, in **NGC's** reasonable opinion be affected, in respect of their relevant **Large Power Stations**) to discuss whether any change is possible to the estimate of **Genset** inflexibility given under (a) above and to consider **Large Power Station** outages to coincide with the periods of low **System NRAPM** and/or **Localised NRAPM** (as the case may be).

(e) If on the day prior to a **Operational Day**, it is apparent from the **BM Unit Data** submitted by **Users** under **BC1** that **System NRAPM** and/or **Localised NRAPM** (as the case may be) is, in **NGC's** reasonable opinion, too low, then in accordance with the procedures and requirements set out in BC1.5.5 **NGC** may contact **Users** to discuss whether changes to **Physical Notifications** are possible, and if they are, will reflect those in the operational plans for the next following **Operational Day** or will, in accordance with BC2.9.4 instruct **Generators** to **De-Synchronise** a specified **Genset** for such period. In determining which **Genset** to so instruct, **BC2** provides that **NGC** will not (other than as referred to below) consider in such determination (and accordingly shall not instruct to **De-Synchronise**) any **Genset** within an **Existing Gas Cooled Reactor Plant**. **BC2** further provides that:-

(i) **NGC** is permitted to instruct to **De-Synchronise** any **Gensets** within an **Existing AGR Plant** if those **Gensets** within an **Existing AGR Plant** have failed to offer to be flexible for the relevant instance at the request of **NGC** provided the request is within the **Existing AGR Plant Flexibility Limit**.

(ii) **NGC** will only instruct to **De-Synchronise** any **Gensets** within an **Existing Magnox Reactor Plant** or within an **Existing AGR Plant** (other than under (i) above) if the level of **System NRAPM** (taken together with **System** constraints) and/or **Localised NRAPM** is such that it is not possible to avoid **De-Synchronising** such **Generating Unit**, and provided the power flow across each **External Interconnection** is either at zero or results in an export of power from the **Total System**. This proviso applies in all cases in the case of **System NRAPM** and in the case of **Localised NRAPM**, only when the power flow would have a relevant effect.

OC2.4.4 FREQUENCY SENSITIVE OPERATION

By 1600 hours each Wednesday

OC2.4.4.1 Using such information as **NGC** shall consider relevant including, if appropriate, forecast **Demand**, any estimates provided by **Generators** of **Genset** inflexibility and anticipated plant mix relating to operation in **Frequency Sensitive Mode**, **NGC** shall determine for the period 2 to 7 weeks ahead (inclusive) whether it is possible that there will be insufficient **Gensets** (other than those **Gensets** within **Existing Gas Cooled Reactor Plant** which are permitted to operate in **Limited Frequency Sensitive Mode** at all times under BC3.5.3) to operate in **Frequency Sensitive Mode** for all or any part of that period.

OC2.4.4.2 BC3.5.3 explains that **NGC** permits **Existing Gas Cooled Reactor Plant** other than **Frequency Sensitive AGR Units** to operate in a **Limited Frequency Sensitive Mode** at all times.

OC2.4.4.3 If **NGC** foresees that there will be an insufficiency in **Gensets** operating in a **Frequency Sensitive Mode**, it will contact **Generators** in order to seek to agree (as soon as reasonably practicable) that all or some of the **Generating Units** comprising each **Generator's** relevant **Large Power Stations** (the MW amount being determined by **NGC** but the **Generating Units** involved being determined by the **Generator**) will take outages to coincide with such period as **NGC** shall specify to enable replacement by other **Gensets** which can operate in a **Frequency Sensitive Mode**. If agreement is reached (which unlike the remainder of OC2 will constitute a binding agreement) then such **Generator** will take such outage as agreed with **NGC**. If agreement is not reached, then the provisions of BC2.9.5 may apply.

OC2.4.5 If in **NGC's** reasonable opinion it is necessary for both the procedure set out in OC2.4.3 (relating to **System NRAPM** and **Localised NRAPM**) and in OC2.4.4 (relating to operation in **Frequency Sensitive Mode**) to be followed in any given situation, the procedure set out in OC2.4.3 will be followed first, and then the procedure set out in OC2.4.4. For the avoidance of doubt, nothing in this paragraph shall prevent either procedure from being followed separately and independently of the other.

OC2.4.6 **OPERATING MARGIN** DATA REQUIREMENTS

OC2.4.6.1 Modifications to relay settings

'Relay settings' in this OC2.4.6.1 refers to the settings of **Low Frequency Relays** in respect of **Gensets** that are available for start from standby by **Low Frequency Relay** initiation with **Fast Start Capability** agreed pursuant to the **Bilateral Agreement.**

By 1600 hours each Wednesday

A change in relay settings will be sent by **NGC** no later than 1600 hours on a Wednesday to apply from 1000 hours on the Monday following. The settings allocated to particular **Large Power Stations** may be interchanged between 49.70Hz and 49.60Hz (or such other **System Frequencies** as **NGC** may have specified) provided the overall capacity at each setting and **System** requirements can, in **NGC's** view, be met.

Between 1600 hours each Wednesday and 1200 hours each Friday

If a **Generator** wishes to discuss or interchange settings it should contact **NGC** by 1200 hours on the Friday prior to the Monday on which it would like to institute the changes to seek **NGC's** agreement. If **NGC** agrees, **NGC** will then send confirmation of the agreed new settings.

By 1500 hours each Friday

If any alterations to relay settings have been agreed, then the updated version of the current relay settings will be sent to affected **Users** by 1500 hours on the Friday prior to the Monday on which the changes will take effect. Once accepted, each **Generator** (if that **Large Power Station** is not subject to forced outage or **Planned Outage**) will abide by the terms of its latest relay settings.

In addition, **NGC** will take account of any **Large Power Station** unavailability (as notified under OC2.4.1.2 submissions) in its total **Operating Reserve** policy.

NGC may from time to time, for confirmation purposes only, issue the latest version of the current relay settings to each affected **Generator**

OC2.4.6.2 **Operating Margins**

By 1600 hours each Wednesday

No later than 1600 hours on a Wednesday, **NGC** will provide an indication of the level of **Operating Reserve** to be utilised by **NGC** in connection with the operation of the **Balancing Mechanism** in the week beginning with the **Operational Day** commencing during the subsequent Monday, which level shall be purely indicative.

This **Operating Margin** indication will also note the possible level of **Operating Reserve** (if any) which may be provided by **Interconnector Users** in the week beginning with the **Operational Day** commencing during the subsequent Monday.

This **Operating Margin** indication will also note the possible level of **High Frequency Response** to be utilised by **NGC** in connection with the operation of the **Balancing Mechanism** in the week beginning with the **Operational Day** commencing during the subsequent Monday, which level shall be purely indicative.

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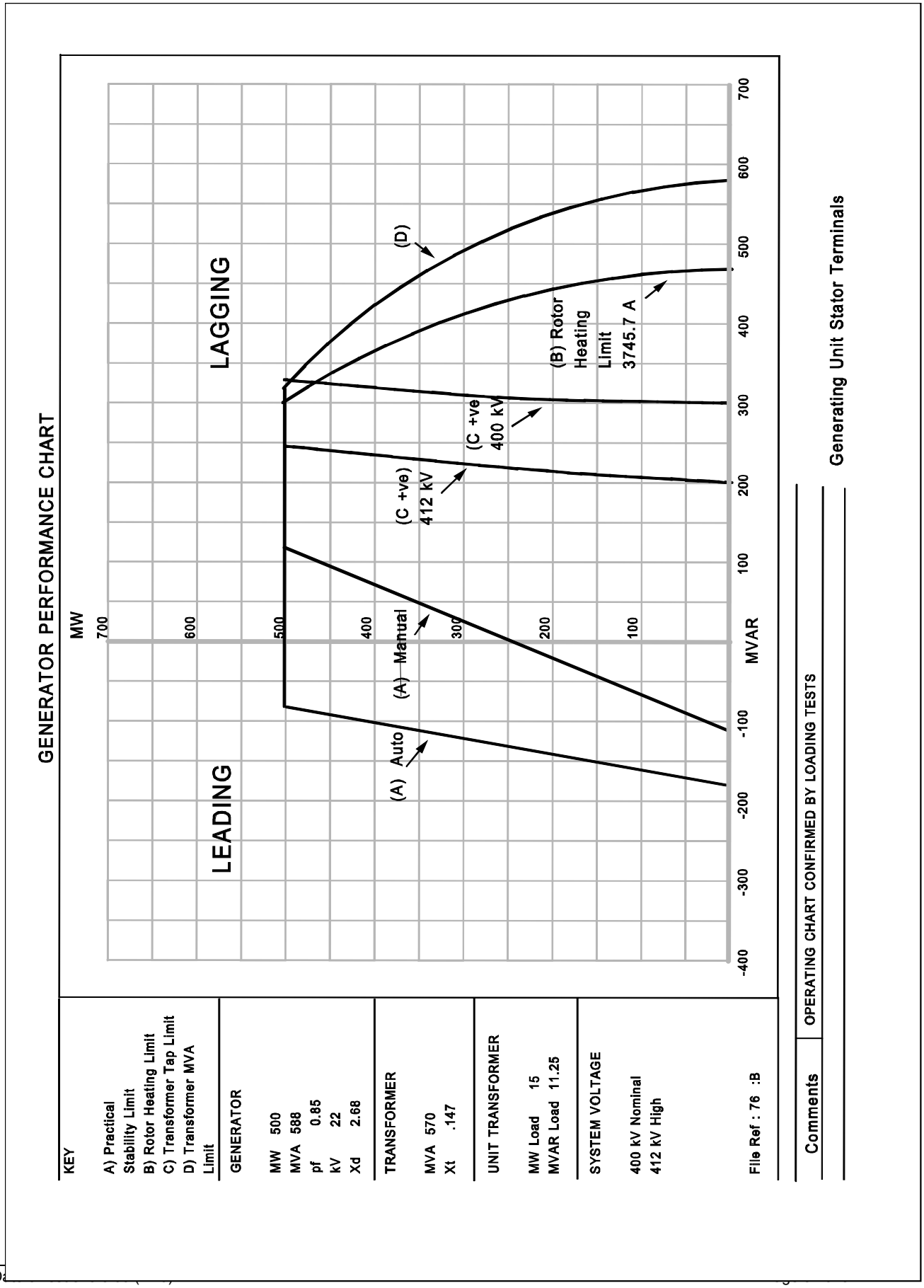

OC2 APPENDIX 2

OC2.A.2 Generation Planning Parameters

The following parameters are required in respect of each ~~Genset~~BM Unit.

OC2.A.2.1 Regime Unavailability

Where applicable the following information must be recorded for each ~~Genset~~BM Unit.

- Earliest synchronising time:
  Monday
  Tuesday to Friday
  Saturday to Sunday

- Latest de-synchronising time:
  Monday to Thursday
  Friday
  Saturday to Sunday

OC2.A.2.2 **Synchronising** Intervals

(a) The **Synchronising** interval between ~~Gensets~~BM Units in a **Synchronising Group** assuming all ~~Gensets~~BM Units have been **Shutdown** for 48 hours;

(b) The **Synchronising Group** within the **Power Station** to which each ~~Genset~~BM Unit should be allocated.

OC2.A.2.3 **De-Synchronising** Interval

A fixed value **De-Synchronising** interval between ~~Gensets~~BM Units within a **Synchronising Group.**

OC2.A.2.4 **Synchronising Generation**

The amount of MW produced at the moment of **Synchronising** assuming the ~~Genset~~BM Unit has been **Shutdown** for 48 hours.

OC2.A.2.5 Minimum Non-zero time (MNZT)

The minimum period on-load between **Synchronising** and **De-Synchronising** assuming the ~~Genset~~BM Unit has been **Shutdown** for 48 hours.

OC2.A.2.6 Run-Up rates

A run-up characteristic consisting of up to three stages from **Synchronising Generation** to **Output Usable** with up to two intervening break points assuming the ~~Genset~~BM Unit has been **Shutdown** for 48 hours.

OC2.A.2.7 Run-down rates

A run down characteristic consisting of up to three stages from **Output Usable** to **De-Synchronising** with breakpoints at up to two intermediate load levels.

OC2.A.2.8 Notice to Deviate from Zero (NDZ)

The period of time normally required to **Synchronise** a ~~**Genset**~~**BM Unit** following instruction from **NGC** assuming the **Genset** has been **Shutdown** for 48 hours**.**

OC2.A.2.9 Minimum Zero time (MZT)

The minimum interval between **De-Synchronising** and **Synchronising** a ~~**Genset**~~**BM Unit.**

OC2.A.2.10 Two Shifting Limit

The maximum number of times that a ~~**Genset**~~**BM Unit** may **De-Synchronise** per **Operational Day**.

OC2.A.2.11 **Gas Turbine Units** loading parameters

- Loading rate for fast starting
- Loading rate for slow starting

OC2 APPENDIX 3

CCGT Module Planning Matrix example form

5 **CCGT MODULE**	**CCGT GENERATING UNITS** AVAILABLE								
5.7 OUTPUT USABLE									
5.8 MW	***5.9 OUTPUT USABLE***								
0MW to 150MW									
151MW to 250MW									
251MW to 300MW									
301MW to 400MW									
401MW to 450MW									
451MW to 550MW									

< End of OC2 >