OPERATING CODE NO. 2

(OC2)

OPERATIONAL PLANNING AND DATA PROVISION

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OC2.1 <u>INTRODUCTION</u>

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

- (a) the co-ordination of the release of Synchronous Generating Units and Power Park Modules, External Interconnections, the National Electricity Transmission System and Network Operators' Systems for construction, repair and maintenance;
- (b) provision by **NGET** of the **Surpluses** both for the **National Electricity Transmission System** and **System Zones**;
- (c) the provision by Generators of Generation Planning Parameters for Gensets, including CCGT Module Planning Matrices and Power Park Module Planning Matrices, to NGET for planning purposes only; and
- (d) 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 National Electricity Transmission System Demand together with a reserve of generation to provide a margin, taking into account outages of certain Generating Units, Power Park Modules, External Interconnections, and DC Converters, and of parts of the National Electricity 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 NGET'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 Synchronous Generating Units, Power Park Modules and External Interconnections, and for the release of parts of the National Electricity 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** and **Interconnector Owner** 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** and **Interconnector Owner's** "best estimate" shall be that **Generator's** or **Interconnector Owner's** best estimate acting as a reasonable and prudent **Generator** or **Interconnector Owner** in all the circumstances.
- OC2.1.5 References to **NGET** planning the **National Electricity Transmission System** outage programme on the basis of the **Final Generation Outage Programme**, are to **NGET** planning against the **Final Generation Outage Programme** current at the time it so plans.
- 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 **NGET**, 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 **NGET** shall, in its reasonable discretion, determine. However, **NGET** 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 In Scotland, it may be possible with the agreement of **NGET** to reduce the administrative burden for **Users** in producing planning information where either the output or demand is small.

OC2.2 <u>OBJECTIVE</u>

- OC2.2.1

 (a) The objective of OC2 is to seek to enable NGET to harmonise outages of Synchronous Generating Units, Power Park Modules and External Interconnections in order that such outages are co-ordinated (taking account of Embedded Medium Power Stations) between Generators and Network Operators, and that such outages are co-ordinated taking into account National Electricity Transmission System outages and other System outages, so far as possible to minimise the number and effect of constraints on the National Electricity Transmission System or any other System.
 - (b) In the case of Network Operator' User Systems directly connected to the National Electricity Transmission System this means in particular that there will also need to be harmonisation of outages of Embedded Synchronous Generating Units and Embedded Power Park Modules, and National Electricity 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 **NGET** of the **Surpluses** both for the **National Electricity Transmission System** and **System Zones**.
- OC2.2.3 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 **NGET** from time to time taking into account the disposition of **Generators' Power Stations** and **Interconnector Owners' External Interconnections** within the **System Zones**. The location of the boundaries will be made available to all **Users**. Any **User** may request that **NGET** 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 **NGET** will review the boundaries if, in **NGET's** reasonable opinion, such a review is justified.

OC2.3 SCOPE

- OC2.3.1 OC2 applies to NGET and to Users which in OC2 means:
 - (a) Generators, only in respect of their Large Power Stations or their Power Stations
 which are directly connected to National Electricity Transmission System (and the
 term Generator in this OC2 shall be construed accordingly);
 - (b) Network Operators; and
 - (c) Non-Embedded Customers; and
 - (d) DC Converter Station owners; and
 - (e) Interconnector Owners in respect of their External Interconnections.
- OC2.3.2 **NGET** may provide to the **Relevant Transmission Licensees** any data which has been submitted to **NGET** by any **Users** in respect of **Relevant Units** pursuant to the following paragraphs of the **OC2**.
 - OC2.4.1.2.1 (a)
 - OC2.4.1.2.1 (e)
 - OC2.4.1.2.1 (j)
 - OC2.4.1.2.2 (a)
 - OC2.4.1.2.2 (i)
 - OC2.4.1.3.2 (a)
 - OC2.4.1.3.2 (b)
 - OC2.4.1.3.3
 - OC2.4.2.1 (a)

OC2.3.3 For the purpose of OC2 only, the term Output Usable shall include the terms Interconnector Export Capacity and Interconnector Import Capacity where the term Output Usable is being applied to an External Interconnection.

OC2.4 PROCEDURE

OC2.4.1 <u>Co-ordination of Outages</u>

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

(a) Each **Generator**, and each **Interconnector Owner** and **NGET**

In respect of outages of Synchronous Generating Units, Power Park Modules and External Interconnection Circuits and in respect of outages of other Plant and/or Apparatus directly connected to the National Electricity Transmission System;

(b) NGET and each Generator and each Inteconnector Owner

in respect of National Electricity Transmission System outages relevant to each Generator (other than in respect of Embedded Small Power Stations or Embedded Medium Power Stations) and Interconnector Owner:

(c) NGET 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;

(d) NGET and each Network Operator and each Non-Embedded Customer in respect of National Electricity Transmission

System outages relevant to the particular Network

Operator or Non-Embedded Customers;

(e) Each Network Operator and each Non-Embedded Customer and NGET

in respect of **User System** outages relevant to **NGET**; and

in respect of **Network Operators** only, outages of the **Network Operator's User System** that may impact upon an **Offshore Transmission System** connected to that **Network Operator's User System**.

- OC2.4.1.2 Planning Of Synchronous Generating Unit And External Interconnection And Power Park Module Outages

In each calendar year:

(a) By the end of week 2

Each Generator and each Interconnector Owner will provide NGET in writing with:

- (i) a provisional Synchronous Generating Unit and Power Park Module outage programme (covering all non-Embedded Power Stations and Embedded Large Power Stations) for Year 3 to Year 5 (inclusive) specifying the Synchronous Generating Unit and/or Power Park Module and External Interconnection Circuits 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** and **External Interconnections** for Year 3 to Year 5.
- (b) Between the end of week 2 and the end of week 12

NGET will be:

- calculating total winter peak generating capacity assumed to be available to the Total System;
- 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 NGET (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 **Synchronous Generating Units** and **Power Park Modules**.

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

(c) By the end of week 12

NGET will:

- (i) having taken into account the information notified to it by **Generators** and **Interconnector Owners** and taking into account:
 - (1) National Electricity Transmission System constraints and outages,
 - (2) Network Operator System constraints and outages, known to NGET, and
 - (3) the **Output Usable** required, in its view, to meet weekly total MW requirements,

provide each **Generator** and each **Interconnector Owner** in writing with any suggested amendments to the provisional outage programme supplied by the **Generator** and **Interconnector Owner** which **NGET** believes necessary, and will advise **Generators** with **Large Power Stations** of the **Surpluses** both for the **National Electricity 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 Synchronous Generating Units, External Interconnection Circuits and/or Power Park Modules which may, in the reasonable opinion of NGET and the Network Operator, affect the integrity of that Network Operator's User System provided that, in such circumstances NGET has notified the Generator concerned at least 48 hours beforehand of its intention to do so (including identifying the Synchronous Generating Unit and/or Power Park Module concerned).

(d) By the end of week 14

- (i) Where a Generator or Interconnector Owner or a Network Operator is unhappy with the suggested amendments to its provisional outage programme (in the case of a Generator or Interconnector Owner) or such potential outages (in the case of a Network Operator) it may contact NGET to explain its concerns and NGET and that Generator or an Interconnector Owner or Network Operator will then discuss the problem and seek to resolve it.
- (ii) The possible resolution of the problem may require NGET 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 NGET. 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 NGET in writing with an updated provisional Synchronous Generating Unit and Power Park Module 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 Synchronous Generating Unit and Power Park Module 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.

Each Interconnector Owner will provide NGET in writing with an updated provisional External Interconnection Circuit outage programme together with best estimate weekly Output Usable forecast for each External Interconnection, in all cases for Year 3 to Year 5 (inclusive). The updated provisional External Interconnection Circuit 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

NGET will be considering the updated provisional Synchronous Generating Unit, Power Park Module and External Interconnection Circuit outage programmes, together with the best estimate weekly Output Usable forecasts supplied to it by Generators and Interconnector Owners under (e) and their Registered Capacity and will be analysing Operational Planning Margins for the period.

(g) By the end of week 28

NGET will:

- (i) provide each Generator and each Interconnector Owner in writing with details of any suggested revisions considered by NGET as being necessary to the updated provisional Synchronous Generating Unit, Power Park Module and External Interconnection Circuit outage programmes supplied to NGET under (e) and will advise Generators with Large Power Stations and Inteconnector Owners of the Surpluses for the National Electricity 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 Synchronous Generating Units, External Interconnection Circuits and/or Power Park Modules which, in the reasonable opinion of NGET and the Network Operator, affect the integrity of that Network Operator's User System.

(h) By the end of week 31

Where a **Generator**, **Interconnector Owner** or a **Network Operator** is unhappy with the revisions suggested to the updated provisional **Synchronous Generating Unit**, **Power Park Module** and **External Interconnector Circuit** outage programme (in the case of a **Generator**) or such update of potential outages (in the case of an **Interconnector Owner** or **Network Operator**) under (g) it may contact **NGET** to explain its concerns and the provisions set out in (d) above will apply to that process.

(i) By the end of week 42

NGET will:

- (1) provide each Generator and each Interconnector Owner in writing with details of suggested revisions considered by NGET as being necessary to the updated provisional Synchronous Generating Unit, Power Park Module and External Inteconnection Circuit outage programmes supplied to NGET and will advise Generators with Large Power Stations and Interconnector Owners of the Surpluses for the National Electricity 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 Synchronous Generating Units and/or Power Park Modules which may, in the reasonable opinion of NGET and the Network Operator, affect the integrity of that Network Operator's User System provided that, in such circumstances NGET has notified the Generator or, as appropriate, the Interconnector Owner concerned at least 48 hours beforehand of its intention to do so (including identifying the Synchronous Generating Units and/or Power Park Modules concerned).

(j) By the end of week 45

NGET will seek to agree a Final Generation Outage Programme for Year 3 to Year 5. If agreement cannot be reached on all aspects, NGET and each Generator and each Interconnector Owner will record their agreement on as many aspects as have been agreed and NGET will advise each Generator with Large Power Stations, Interconnector Owner and each Network Operator, of the Surpluses for the National Electricity 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, Interconnector Owners or NGET to abide by it, but NGET will be planning the National Electricity Transmission System outage programme on the basis of the Final Generation Outage Programme and if in the event the Generator's or the Interconnector Owner's outages differ from those contained in the Final Generation Outage Programme, or in any way conflict with the National Electricity Transmission System outage programme, NGET need not alter the National Electricity Transmission System outage programme.

OC2.4.1.2.2 <u>Operational Planning Phase - Planning for Calendar Year 1 and Calendar Year 2 – Weekly</u> 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 and each Interconnector Owner will provide NGET in writing with its previously agreed Final Generation Outage Programme updated and best estimate weekly Output Usable forecasts for each Genset and for each External Interconnection Circuit for weeks 1-52 of Years 1 and 2.

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

NGET will be considering the updated proposed Synchronous Generating Unit, Power Park Module and External Interconnection Circuit outage programme together with the estimate of Output Usable supplied by Generators and Interconnector Owners under (a) and will be analysing Operational Planning Margins for the period. Taking these into account together with National Electricity Transmission System constraints and outages and Network Operator User System constraints and outages known to NGET, NGET will assess whether the estimates of Output Usable supplied by Generators and Interconnector Owners are sufficient to meet forecast National Electricity Transmission System Demand plus the Operational Planning Margin.

(c) By the end of week 12

NGET will:

- (i) notify each Generator and each Interconnector Owner 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 and each Interconnector Owner of the Surpluses both for the National Electricity 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 and Interconnector Owners for weeks 1-52 of Years 1 and 2, and updated details of potential outages of Synchronous Generating Units, Power Park Modules and/or External Interconnection Circuits which may, in the reasonable opinion of NGET and the Network Operator, affect the integrity of that Network Operator's User System provided that, in such circumstances, NGET has notified the Generator or, as appropriate, the Interconnector Owner concerned at least 48 hours beforehand of its intention to do so (including identifying the affected Gensets or Synchronous Generating Units or Power Park Modules and/or External Interconnection Circuits, as appropriate).

(d) By the end of week 14

Where a **Generator**, **Interconnector Owner** 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 an **Interconnector Owner** or **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** and each **Interconnector Owner** will provide **NGET** in writing with revised best estimate weekly **Output Usable** forecasts for each **Genset** or **External Interconnection**, as appropriate, for weeks 1-52 of Years 1 and 2.

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

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

(g) By the end of week 39

NGET will:

- (i) notify each Generator and each Interconnector Owner 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 and Interconnector Owners of the Surpluses both for the National Electricity 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 and Interconnector Owners for weeks 1-52 of Years 1 and 2, and updated details of potential outages of Synchronous Generating Units, Power Park Modules and/or External Interconnection Circuits which may, in the reasonable opinion of NGET and the Network Operator, affect the integrity of that Network Operator's User System provided that, in such circumstances, NGET has notified the Generator or, as appropriate, Interconnector Owner concerned at least 48 hours beforehand of its intention to do so (including identifying the affected Gensets or Synchronous Generating Units or Power Park Modules and/or External Interconnection as appropriate).

(h) By the end of week 46

Where a **Generator**, an **Interconnector Owner** 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 an **Interconnector Owner** or **Network Operator**), equivalent provisions to those set out in OC2.4.1.2.1(d) will apply.

(i) By the end of week 48

NGET will seek to agree the revised Final Generation Outage Programme for Year 1 and Year 2. If agreement cannot be reached on all aspects, NGET and each Interconnector Owner and each Generator will record their agreement on as many aspects as have been agreed and NGET will advise each Generator with Large Power Stations, Interconnector Owner 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, Interconnector Owners or NGET to abide by it, but NGET will be planning the National Electricity Transmission System outage programme on the basis of the Final Generation Outage Programme and if, in the event, a Generator's and/or Interconnector Owner's outages differ from those contained in the Final Generation Outage Programme, or in any way conflict with the National Electricity Transmission System outage programme, NGET need not alter the National Electricity 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 and each Interconnector Owner will provide NGET in writing with an update of the Final Generation Outage Programme and a best estimate weekly Output Usable forecast for each of its Gensets or its External Interconnection Circuits, as appropriate, from the 2nd week ahead to the 52nd week ahead.

(b) Between 1600 hours Wednesday and 1600 hours Friday

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

(c) By 1600 hours each Friday

NGET will:

- (i) notify each Generator with Large Power Stations, Interconnector Owner and Network Operator, in writing if it considers the Output Usable forecasts will give Surpluses and potential export limitations both for the National Electricity 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 Gensets and External Interconnection from the 2nd week ahead to the 52nd week ahead and updated outages of Synchronous Generating Units, Power Park Modules and/or External Interconnection Circuits which may, in the reasonable opinion of NGET and the Network Operator, affect the integrity of that Network Operator's User System and in such circumstances, NGET shall notify the Generator and Interconnector Owner concerned within 48 hours of so providing (including identifying the affected Gensets or Synchronous Generating Units and/or Power Park Modules and/or External Interconnection Circuits, as appropriate), 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

NGET will notify in writing each **Generator** with **Large Power Stations**, **Interconnector Owner** 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) By 1100 hours each Business Day

Each Generator and each Interconnector Owner shall provide NGET in writing with the best estimate of daily Output Usable for each Genset or each External Interconnection Circuit as appropriate 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, Power Park Module or External Interconnection subject to Planned Outage or breakdown.

(c) By 1100 hours each Wednesday

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

(d) Between 1100 hours and 1600 hours each Business Day

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

(e) By 1600 hours each Business Day

- NGET will notify in writing each Generator with Large Power Stations, each Interconnector Owner and each Network Operator, of the Surpluses both for the National Electricity 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, Interconnector Owner or Network Operator if all the information from all Generators and Interconnector Owners was made available to NGET by 1100 hours and if a suitable electronic data transmission facility is in place between NGET and the Generator, or the Interconnector Owner 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, NGET reserve the right to extend the timescale for issue of the information required under this sub-paragraph to each, or the relevant, Generator, Interconnector Owner and/or Network Operator (as the case may be) provided that such information will in any event be issued by 1800 hours.
- (ii) NGET will provide each Network Operator, where it has an effect on that User, in writing with Output Usable estimates of Gensets and External Interconnections from and including day 2 ahead to day 14 ahead and updated outages of Synchronous Generating Units, Power Park Modules and/or External Interconnection Circuits which are either in its User System or which may, in the reasonable opinion of NGET and the Network Operator, affect the integrity of that Network Operator's User System and in such circumstances, NGET shall notify the Generator and Interconnector Owner concerned within 48 hours of so providing (including identifying the affected Gensets or Synchronous Generating Units or Power Park Modules and/or External Interconnection Circuits, as appropriate), for the period from and including day 2 ahead to day 14 ahead.

OC2.4.1.3 Planning of National Electricity Transmission System Outages

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

NGET shall plan **National Electricity 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 **National Electricity Transmission System** outages required in Years 0 and 1 ahead, when **NGET** also takes into account **National Electricity Transmission System** outages required as a result of maintenance.

Users should bear in mind that NGET will be planning the National Electricity Transmission System outage programme on the basis of the previous year's Final Generation Outage Programme and if in the event a Generator's, an Interconnector Owner'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 NGET, or in any way conflict with the National Electricity Transmission System outage programme, NGET need not alter the National Electricity 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 **NGET** 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 **Synchronous Generating Units** and/or **Power Park Modules Embedded** within that **User System**).

Each Network Operator will notify NGET in writing of details of proposed outages in Years 2-5 ahead in its User System which may affect the declared values of Maximum Export Capacity and/or Maximum Import Capacity for each Interface Point within its User System together with the Network Operator's revised best estimate of the Maximum Export Capacity and/or Maximum Import Capacity during such outages. Network Operators will also notify NGET of any automatic and/or manual post fault actions that it intends to utilise or plans to utilise during such outages.

(b) By the end of week 13

Each Generator will inform NGET in writing of proposed outages in Years 2 - 5 ahead of Generator owned Apparatus (eg. busbar selectors) other than Synchronous Generating Units, and/or Power Park Modules, at each Grid Entry Point.

NGET will provide to each **Network Operator** and to each **Generator** and each **Interconnector Owner** a copy of the information given to **NGET** 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 planning and 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

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

(d) By the end of week 30

Where **NGET** 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

NGET will draw up a draft National Electricity Transmission System outage plan covering the period Years 2 to 5 ahead and NGET will notify each Generator, Interconnector Owner 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), Interconnector Owner or Network Operator. NGET will also indicate where a need may exist to issue other operational instructions or notifications (including but not limited to the requirement for the arming of an Operational Intertripping scheme) or Emergency Instructions to Users in accordance with BC2 to allow the security of the National Electricity 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 **NGET** shall update the draft **National Electricity 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 NGET in writing of proposed outages for Year 1 of Generator owned Apparatus at each Grid Entry Point (e.g. busbar selectors) other than Synchronous Generating Units and/or Power Park Modules or Non-Embedded Customer owned Apparatus, as the case may be, at each Grid Supply Point.

(b) By the end of week 28

NGET will provide each Network Operator and each Non-Embedded Customer in writing with details of proposed outages in Year 1 ahead which may, in NGET'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 **NGET** 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 **Synchronous Generating Units** and/or **Power Park Modules Embedded** within that **User System**).

Each Network Operator will notify NGET in writing of details of proposed outages in Year 1 in its User System which may affect the declared values of Maximum Export Capacity and/or Maximum Import Capacity for each Interface Point within its User System together with the Network Operator's revised best estimate of the Maximum Export Capacity and/or Maximum Import Capacity during such outages. Network Operators will also notify NGET of any automatic and/or manual post fault actions that it intends to utilise or plans to utilise during such outages.

Each **Network Operator** will also notify **NGET** in writing of any revisions to **Interface Point Target Voltage/Power Factor** data submitted pursuant to PC.A.2.5.4.2.

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

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

(e) By the end of week 34

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

NGET will provide to each **Network Operator** and to each **Generator** and each **Interconnector Owner** a copy of the information given to **NGET** 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 planning and 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**, **Interconnector Owner** 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

NGET will draw up a final **National Electricity Transmission System** outage plan covering Year 1.

(h) By the end of week 49

- (i) **NGET** will complete the final **National Electricity 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) NGET will notify each Generator, each Interconnector Owner 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), Interconnector Owner or Network Operator including in particular proposed start dates and end dates of relevant National Electricity Transmission System outages. NGET will also indicate where a need may exist to issue other operational instructions or notifications (including but not limited to the requirement for the arming of an Operational Intertripping scheme) or Emergency Instructions to Users in accordance with BC2 to allow the security of the National Electricity Transmission System to be maintained within the Licence Standards. NGET 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 National Electricity Transmission System outage plan for Year 1, NGET will provide to each Generator and each Interconnector Owner a copy of the final National Electricity Transmission System outage plan for that year. OC2.4.1.3.4 contains provisions whereby updates of the final National Electricity Transmission System outage plan are provided. The plan and the updates will be provided in writing. It should be noted that the final National Electricity Transmission System outage plan for Year 1 and the updates will not give a complete understanding of how the National Electricity Transmission System will operate in real time, where the National Electricity 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 **NGET**, 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 **NGET** 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 **NGET** and the **User**, **NGET** 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 NGET 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 National Electricity Transmission System; or

System Data Exchange

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

- (1) NGET will make available to each Network Operator, the National Electricity Transmission System Study Network Data Files covering Year 1 which are of relevance to that User's System;
- (2) where NGET 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 National Electricity 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 NGET and may be subject to separate agreements governing the manner of access. In the absence of agreement, the copy of the National Electricity Transmission System Study Network Data Files will be given to the User on a disc, or in hard copy, as determined by NGET;
- (3) the data contained in the National Electricity Transmission System Study Network Data Files represents NGET's view of operating conditions although the actual conditions may be different;
- (4) NGET will notify each Network Operator, as soon as reasonably practicable after it has updated the National Electricity 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). NGET 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 National Electricity 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 **National Electricity Transmission System Study Network Data Files** received by each **Network Operator** must only be used by that **User** in planning and 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 **National Electricity 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 Interconnector Owner or Network Operator or Non-Embedded Customer may at any time during Year 0 request NGET 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, NGET shall determine whether the changes are possible and shall notify the Generator, Interconnector Owner, 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 NGET of the written request in question.

Where NGET determines that any change so requested is possible and notifies the relevant User accordingly, NGET will provide to each Network Operator, each Interconnector Owner, and each Generator a copy of the request to which NGET 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 planning and 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 **NGET's** request make available to **NGET** 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.

During Year 0 (including the **Programming Phase**) each **Network Operator** shall notify **NGET** of any revisions to the information provided pursuant to OC2.4.1.3.3 (c) for **Interface Points** as soon as reasonably practicable after the **Network Operator** becomes aware of the need to make such revisions.

(d) When necessary during Year 0, NGET will notify each Generator, each Interconnector Owner and Network Operator and each Non-Embedded Customer, in writing of those aspects of the National Electricity Transmission System outage programme in the period from the 8th week ahead to the 52nd week ahead, which may, in NGET's reasonable opinion, operationally affect that Generator (other than those aspects which may operationally affect Embedded Small Power Stations or Embedded Medium Power Stations) Interconnector Owner or Network Operator or Non-Embedded Customer including in particular proposed start dates and end dates of relevant National Electricity Transmission System outages.

NGET will also notify changes to information supplied by **NGET** 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) NGET 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 National Electricity 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 National Electricity Transmission System Study Network Data Files covering Year 0 which are of relevance to that User's System.
- (ii) NGET will notify each relevant Network Operator, as soon as reasonably practicable after it has updated the National Electricity Transmission System Study Network Data Files covering Year 0, that it has done so. NGET will then make available to each such Network Operator, the updated National Electricity 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.

NGET will also indicate where a need may exist to issue other operational instructions or notifications (including but not limited to the requirement for the arming of an **Operational Intertripping** scheme) or **Emergency Instructions** to **Users** in accordance with **BC2** to allow the security of the **National Electricity Transmission System** to be maintained within the **Licence Standards**.

(e) In addition, by the end of each month during Year 0, NGET will provide to each Generator and each Interconnector Owner a notice containing any revisions to the final National Electricity Transmission System outage plan for Year 1, provided to the Generator or the Interconnector Owner 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) NGET shall continue to update a preliminary National Electricity Transmission System outage programme for the eighth week ahead, a provisional National Electricity Transmission System outage programme for the next week ahead and a final day ahead National Electricity Transmission System outage programme for the following day.
 - (ii) NGET will notify each Generator, Interconnector Owner and Network Operator and each Non-Embedded Customer, in writing of those aspects of the preliminary National Electricity 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 Interconnector Owner or Network Operator and each Non-Embedded Customer including in particular proposed start dates and end dates of relevant National Electricity Transmission System outages.

NGET will also notify changes to information supplied by **NGET** 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:

- (1) **NGET** will, by way of update of the information supplied by it pursuant to OC2.4.1.3.3(i)(z), make available the **National Electricity Transmission System Study Network Data Files** for the next week ahead and
- (2) NGET will notify each relevant Network Operator, as soon as reasonably practicable after it has updated the National Electricity Transmission System Study Network Data Files covering the next week ahead that it has done so, and
- (3) 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 OC2.4.1.3.5(a)(ii) as if set out in full.

NGET may make available the **National Electricity Transmission System Study Network Data Files** for the next week ahead where **NGET** and a particular **User** agree, and in such case the provisions of OC2.4.1.3.3(i)(x) and (y) and the provisions of OC2.4.1.3.4(d) and OC2.4.1.3.5(a) which relate to OC2.4.1.3.3(i)(x) and (y) shall not apply. In such case the provisions of this OC2.4.1.3.5(a)(ii)2 and 3 shall apply to the provision of the data under this part of OC2.4.1.3.5(a)(ii) as if set out in full.

NGET will also indicate where a need may exist to arm an **Operational Intertripping** scheme, 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 **National Electricity Transmission System** to be maintained within the **Licence Standards**.

(b) By 1000 hours each Friday

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

Network Operators shall confirm for the following week:

- (i) the details of any outages of its **User System** that will restrict the **Maximum Export Capacity** and/or **Maximum Import Capacity** at any **Interface Points** within its **User System** for the following week; and
- (ii) any changes to the previously declared values of the Interface Point Target Voltage/Power Factor.

(c) By 1600 hours each Friday

- (i) NGET shall finalise the preliminary National Electricity Transmission System outage programme up to the seventh week ahead. NGET 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) **NGET** shall finalise the provisional **National Electricity Transmission System** outage programme for the next week ahead.
- (iii) **NGET** shall finalise the **National Electricity Transmission System** outage programme for the weekend through to the next normal working day.
- (iv) In each case **NGET** 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 National Electricity 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 NGET 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 NGET 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 NGET may take the outage despite that Generator's concerns.
- (d) By 1600 hours each Monday, Tuesday, Wednesday and Thursday
 - NGET shall prepare a final National Electricity Transmission System outage programme for the following day.
 - (ii) NGET 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 <u>DATA REQUIREMENTS</u>

- 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 (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 **NGET** 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 NGET promptly.
- (f) Generators should note that amendments to the composition of the CCGT Module or Power Park Module at Large Power Stations may only be made in accordance with the principles set out in PC.A.3.2.3 or PC.A.3.2.4 respectively. If in accordance with PC.A.3.2.3 or PC.A.3.2.4 an amendment is made, any consequential changes to the Generation Planning Parameters should be notified to NGET promptly.
- (g) The Generator Performance Chart must be as described below and demonstrate the limitation on reactive capability of the System voltage at 3% above nominal. It must also include any limitations on output due to the prime mover (both maximum and minimum), Generating Unit step up transformer or User System.
 - (i) For a **Synchronous Generating Unit** on a **Generating Unit** specific basis at the **Generating Unit** Stator Terminals. It must include details of the **Generating Unit** transformer parameters.
 - (ii) For a Non-Synchronous Generating Unit (excluding a Power Park Unit) on a Generating Unit specific basis at the Grid Entry Point (or User System Entry Point if Embedded).
 - (iii) For a Power Park Module, on a Power Park Module specific basis at the Grid Entry Point (or User System Entry Point if Embedded).
 - (iv) For a **DC Converter** on a **DC Converter** specific basis at the **Grid Entry Point** (or **User System Entry Point** if **Embedded**).
- (h) For each CCGT Unit, and any other Generating Unit or Power Park Module whose performance varies significantly with ambient temperature, the Generator Performance Chart shall show curves for at least two values of ambient temperature so that NGET 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 or Power Park Module's output, as appropriate, equals its Registered Capacity.
- (i) The **Generation Planning Parameters** supplied under OC2.4.2.1 shall be used by **NGET** for operational planning purposes only and not in connection with the operation of the **Balancing Mechanism** (subject as otherwise permitted in the **BC**).
- (j) Each Generator shall in respect of each of its CCGT Modules at Large Power Stations submit to NGET 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 **NGET** 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.3.2.3. If in accordance with PC.A.3.2.3 an amendment is made, an updated **CCGT Module Planning Matrix** must be immediately submitted to **NGET** in accordance with this OC2.4.2.1(b).

The **CCGT Module Planning Matrix** will be used by **NGET** 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.
- (I) Each Generator shall in respect of each of its Power Park Modules at Large Power Stations submit to NGET in writing a Power Park Module Planning Matrix. It shall be prepared on a best estimate basis relating to how it is anticipated the Power Park Module will be running and which shall reasonably reflect the operating characteristics of the Power Park Module and the BM Unit of which it forms part. 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 number of each type of Power Park Unit in the Power Park Module typically expected to be available to generate and the BM Unit of which it forms part, in the format indicated in Appendix 4. The Power Park Module Planning Matrix shall be accompanied by a graph showing the variation in MW output with Intermittent Power Source (e.g. MW vs wind speed) for the Power Park Module. The graph shall indicate the typical value of the Intermittent Power Source for the Power Park Module.

Any changes must be notified to **NGET** promptly. **Generators** should note that amendments to the composition of the **Power Park Module** at **Large Power Stations** may only be made in accordance with the principles set out in PC.A.3.2.4. If in accordance with PC.A.3.2.4 an amendment is made, an updated **Power Park Module Planning Matrix** must be immediately submitted to **NGET** in accordance with this OC2.4.2.1(a).

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

- (m) For each Synchronous Generating Unit where the Generator intends to adjust the Generating Unit terminal voltage in response to a MVAr Output Instruction or a Target Voltage Level instruction in accordance with BC2.A.2.6 the Generator Performance Chart shall show curves corresponding to the Generating Unit terminal voltage being controlled to its rated value and to its maximum value.
- OC2.4.2.2 Each **Network Operator** shall by 1000 hrs on the day falling seven days before each **Operational Day** inform **NGET** 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).
- OC2.4.2.3 Under European Commission Regulation No. 543/2013, **Users** are required to submit certain data for publication on the Central European Transparency Platform managed by the European Network of Transmission System Operators for Electricity (ENTSO-E). **NGET** is required to facilitate the collection, verification and processing of data from **Users** for onward transmission to the Central European Transparency Platform.

Each Generator and each Non-Embedded Customer connected to or using the National Electricity Transmission System shall provide NGET with such information as required by and set out in DRC Schedule 6 (Users' Outage Data EU Transparency Availability Data) in the timescales detailed therein.

OC2.4.3 NEGATIVE RESERVE ACTIVE POWER MARGINS

- OC2.4.3.1 In each calendar year, by the end of week 39 **NGET** will, taking into account the **Final Generation Outage Programme** and forecast of **Output Usable** supplied by each **Generator** and by each **Interconnector Owner**, issue a notice in writing to:-
 - (a) all **Generators** with **Large Power Stations** and to all **Interconnector Owners** listing any period in which there is likely to be an unsatisfactory **System NRAPM**; and

(b) all Generators with Large Power Stations and to all Interconnector Owners which may, in NGET'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. **NGET** and each **Generator** and each **Interconnector Owner** 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 **NGET** 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 **NGET** 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 **NGET**, 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, Interconnector Owners, 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, Interconnector Owners, and Network Operators which may, in NGET'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) NGET will then contact Generators in respect of their Large Power Stations and Interconnector Owners to discuss outages as set out in the following paragraphs of this OC2.4.3.2.
- (iii) NGET will contact all Generators and Interconnector Owners in the case of low System NRAPM and will contact Generators in relation to relevant Large Power Stations and Interconnector Owners in the case of low Localised NRAPM. NGET will raise with each Generator and Interconnector Owner 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 or External Interconnection 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 or an Interconnector Owner (which unlike the remainder of OC2 will constitute a binding agreement), then such Generator or Interconnector Owner will take such outage, as agreed with NGET, and NGET will issue a revised notice in writing to the Generators, Interconnector Owners, 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 or Interconnector Owners.

(d) By 1600 hours each day

- (i) If **NGET**, 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, Interconnector Owners, 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, Interconnector Owners, and Network Operators which may, in NGET'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) NGET will contact all Generators in respect of their Large Power Stations (or in the case of Localised NRAPM, all Generators which may, in NGET'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).
 - In the case of **External Interconnections**, **NGET** may contact **Interconnector Owners** to discuss outages during 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 NGET's reasonable opinion, too low, then in accordance with the procedures and requirements set out in BC1.5.5 NGET 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 NGET 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) NGET 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 NGET provided the request is within the Existing AGR Plant Flexibility Limit.

(ii) NGET 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

- Using such information as **NGET** 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**, **NGET** 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 **NGET** 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 NGET 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 Gensets (the MW amount being determined by NGET but the Gensets involved being determined by the Generator) will take outages to coincide with such period as NGET 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 NGET. If agreement is not reached, then the provisions of BC2.9.5 may apply.
- OC2.4.5 If in NGET'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 <u>Modifications to relay settings</u>

'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 **NGET** 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 **NGET** may have specified) provided the overall capacity at each setting and **System** requirements can, in **NGET'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 **NGET** by 1200 hours on the Friday prior to the Monday on which it would like to institute the changes to seek **NGET's** agreement. If **NGET** agrees, **NGET** 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, **NGET** will take account of any **Large Power Station** unavailability (as notified under OC2.4.1.2 submissions) in its total **Operating Reserve** policy.

NGET 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, **NGET** will provide an indication of the level of **Operating Reserve** to be utilised by **NGET** 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 **NGET** 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.

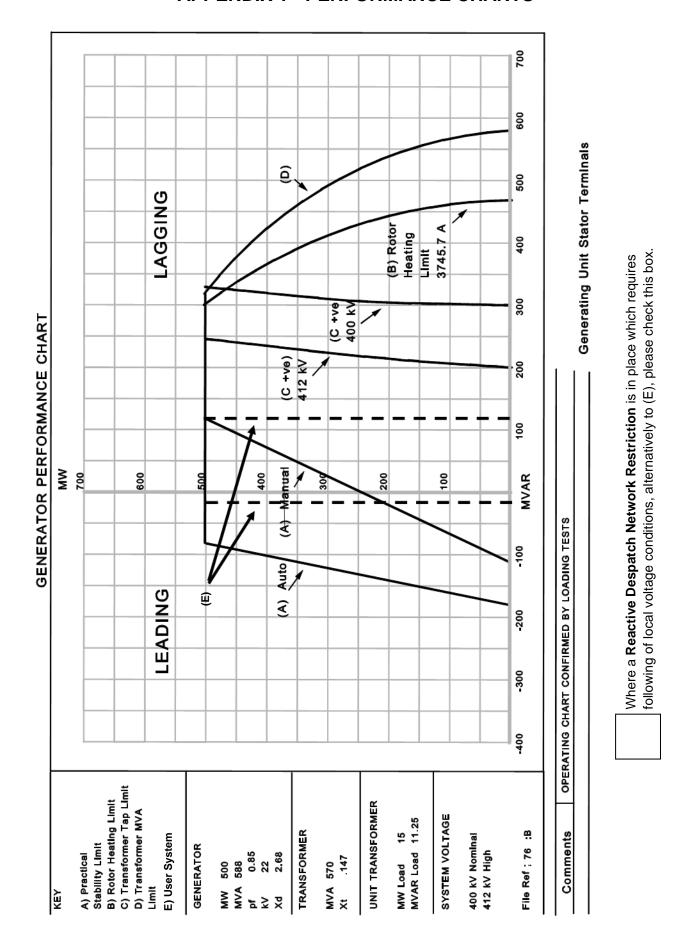
OC2.4.7 In the event that:

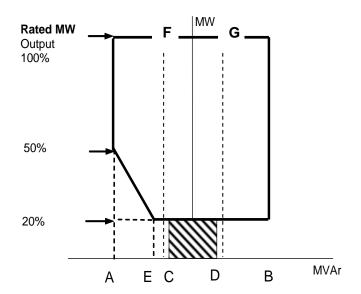
- a Non-Embedded Customer experiences the planned unavailability of its Apparatus resulting in the reduction of Demand of 100MW or more, or a change to the planned unavailability of its Apparatus resulting in a change in Demand of 100MW or more, for one Settlement Period or longer; or
- b) a **Non-Embedded Customer** experiences a change in the actual availability of its **Apparatus** resulting in a change in Demand of 100MW or greater; or
- c) a Generator experiences a planned unavailability of a Generating Unit resulting in a change of 100MW or more in the Output Usable of that Generating Unit below its previously notified availability, which is expected to last one Settlement Period or longer and up to three years ahead; or
- a Generator experiences a change of 100Mw or more in the Maximum Export Limit of a Generating Unit which is expected to last one Settlement Period or longer; or
- e) a **Generator** experiences a planned unavailability resulting in a change of 100MW or more in its aggregated **Output Usable** below its previously notified availability for a **Power Station** with a **Registered Capacity** of 200MW or more and which is expected to last one **Settlement Period** or longer and up to three years ahead, save where data has been provided pursuant to OC.2.4.7(c) above; or

f) a Generator experiences a change of 100MW or more in the aggregated Maximum Export Limit of a Power Station with a Registered Capacity of 200MW or more, which is expected to last one Settlement Period or longer, save where data has been provided pursuant to OC.2.4.7(d) above;

such **Non-Embedded Customer** or **Generator** shall provide **NGET** with the **EU Transparency Availability Data** in accordance with **DRC** Schedule 6 (Users' Outage Data) using **MODIS** and, with reference to points OC2.4.7(a) to (f), EU Transparency Regulation articles 7.1(a), 7.1(b), 15.1(a), 15.1(b), 15.1(c) and 15.1(d) respectively.

APPENDIX 1 - PERFORMANCE CHARTS





LEADING LAGGING

Point A is equivalent (in MVAr) to: 0.95 leading **Power Factor** at **Rated MW** output

Point B is equivalent (in MVAr) to: 0.95 lagging **Power Factor** at **Rated MW** output

Point C is equivalent (in MVAr) to: -5% of **Rated MW** output

Point D is equivalent (in MVAr) to: +5% of Rated MW output

Point E is equivalent (in MVAr) to: -12% of **Rated MW** output

Line F is equivalent (in MVAr) to: Leading Power Factor Reactive Despatch Network Restriction

Line G is equivalent (in MVAr) to: Lagging Power Factor Reactive Despatch Network Restriction

Where a **Reactive Despatch Network Restriction** is in place which requires following of local voltage conditions, alternatively to Line F and G, please check this box.

APPENDIX 2 - GENERATION PLANNING PARAMETERS

OC2.A.2 Generation Planning Parameters

The following parameters are required in respect of each Genset.

OC2.A.2.1 Regime Unavailability

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

- 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** in a **Synchronising Group** assuming all **Gensets** have been **Shutdown** for 48 hours;
- (b) The **Synchronising Group** within the **Power Station** to which each **Genset** should be allocated.

OC2.A.2.3 <u>De-Synchronising Interval</u>

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

OC2.A.2.4 Synchronising Generation

The amount of MW produced at the moment of **Synchronising** assuming the **Genset** 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** 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** 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** following instruction from **NGET** assuming the **Genset** has been **Shutdown** for 48 hours.

OC2.A.2.9 <u>Minimum Zero time (MZT)</u>

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

OC2.A.2.10 Not used.

OC2.A.2.11 Gas Turbine Units loading parameters

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

APPENDIX 3 - CCGT MODULE PLANNING MATRIX

CCGT Module Planning Matrix Example Form

CCGT MODULE	CCGT GENERATING UNITS AVAILABLE								
	1st GT	2nd GT	3rd GT	4th GT	5th GT	6th GT	1st ST	2nd ST	3rd ST
OUTPUT USABLE	OUTPUT USABLE								
MW	150	150	150				100		
0MW to 150MW	/								
151MW to 250MW	,						/		
251MW to 300MW	/	/							
301MW to 400MW	/	/					/		
401MW to 450MW	/	/	/						
451MW to 550MW	/	/	/				/		

APPENDIX 4 - POWER PARK MODULE PLANNING MATRIX

Power Park Module Planning Matrix Example Form

BM Unit Name						
Power Park Module [unique identifier]						
POWER PARK	POWER PARK UNITS					
UNIT AVAILABILITY	Type A	Type B	Type C	Type D		
Description						
(Make/Model)						
Number of units						
Power Park Module [unique identifier]						
POWER PARK	POWER PARK UNITS					
UNIT AVAILABILITY	Type A	Type B	Type C	Type D		
Description						
(Make/Model)						
Number of units						

The **Power Park Module Planning Matrix** may have as many columns as are required to provide information on the different make and model for each type of **Power Park Unit** in a **Power Park Module** and as many rows as are required to provide information on the **Power Park Modules** within each **BM Unit**. The description is required to assist identification of the **Power Park Units** within the **Power Park Module** and correlation with data provided under the **Planning Code**.

< END OF OPERATING CODE NO. 2 >