SDC2 SCHEDULING AND DISPATCH CODE NO.2

CONTROL SCHEDULING AND DISPATCH

SDC2.1 INTRODUCTION

SDC2.1.1 **SEM** Provisions

(a) This Scheduling and Dispatch Code No. 2 ("SDC2") forms part of the **Sections under Common Governance** of the **Grid Code**. The **Sections under Common Governance** are those parts of the **Grid Code** which are under common governance in both the **Grid Code** and the **Other Grid Code**.

(b) The form of this SDC2 is similar to the SDC2 in the **Other Grid Code.** Differences relate to references to relevant power systems and related terms. Where there is a difference between a provision in this **Grid Code** and an equivalent provision in the **Other Grid Code**, the wording in question is shaded in grey. In addition, those parts of this SDC2 that are not part of the **Other Grid Code** are shaded in grey in this SDC2. Differences between the form of this SDC2 and the SDC2 in the **Other Grid Code** are summarised in Annex 1 to this SDC2.

(c) This SDC2 is intended to work in conjunction with other documents, including the **Trading and Settlement Code ("TSC")**. The provisions of the **Grid Code** and the **Other Grid Code** will take precedence over the **TSC**. The **TSC** is the document under which the principal elements of the market for electricity operate. Every **User** which trades in electricity above certain minimum thresholds is required to be a party to the **TSC**. The **Market Operator** is a party to the **TSC**, as is the **TSO** and the **Other TSO**.

(d) The obligation to submit data in relation to some of the information required to be provided to the **TSO** by this SDC2 may be fulfilled by **Users** where such information submitted under the **TSC** by a **User** or by an **Intermediary** on behalf of **Users** is then provided to the **TSO** by the **Market Operator** under the provisions of the **TSC**, as further provided in this SDC2. The **TSO** may require **Users** to verify or update data received by it via the **Market Operator**.

(e) Further provisions dealing with the **Sections under Common Governance** are contained in the **General Conditions**.

SDC2.1.2 SDC2 sets out the procedure for the **TSO** to issue **Dispatch Instructions** to:-

(a) **Generators** in respect of their **CDGUs** (which for the avoidance of doubt comprise, **Generating Units** subject to **Central Dispatch**, **CCGT Installations**, **Hydro Units**, **Pumped Storage Generation** and **Dispatchable WFPSs**);

(b) **Pumped Storage Generators** in respect of their **Pumped Storage Plant Demand**;

(c) **Interconnector Owners** in respect of their **Interconnectors**;

(d) **Dispatchable Demand Customers** in respect of their **Individual Demand Sites**;

(e) **Dispatchable Demand Customers** in respect of their **Aggregated Demand Sites**; and

(e) **Generator Aggregators** in respect of their **Aggregated Generating Units**.

Controllable WFPSs are not currently subject to **Dispatch Instructions.**

SDC2.2 OBJECTIVE

The procedure for the issue of **Dispatch Instructions** by the **TSO**, is intended to enable (as far as possible) the **TSO** to match continuously **CDGU**, **Demand Side Unit**, **Aggregated Generating Units** output (or reduction as the case may be) and/or **Interconnector** transfers to **Demand**, and thereby in conjunction with the **Other TSO**, the demand on the Island of Ireland, by utilising the **Merit Order** derived pursuant to SDC1 and the factors to be taken into account listed there and by taking into account any **NCDGU MW Output** in both cases together with an appropriate margin of reserve, whilst maintaining (so far as possible) the integrity of the **Transmission System** together with the security and quality of supply (with the **Other TSO** having a similar objective with regard to its **Transmission System**).

SDC2.3 SCOPE

SDC2 applies to the **TSO**, and:-

(a) **Generators** with regard to their **CDGUs**;

(b) **Pumped Storage Generators** with regard to their **Pumped Storage Plant Demand**;

(c) **Interconnector Owners** with regard to their **Interconnectors**;

(d) **Dispatchable Demand Customers** in relation to their **Individual Demand Sites**;

(e) **Dispatchable Demand Customers** in relation to their **Aggregated Demand Sites**; and

(f) **Generator Aggregators** in respect of their **Aggregated Generating Units**.

Each of which (other than the **TSO**) is a "**User**" under this SDC2.

SDC2.4 PROCEDURE

SDC2.4.1 Information Used

SDC2.4.1.1 The information which the **TSO** shall use in assessing which **CDGU**, **Demand Side Unit**, **Interconnector** transfers, **Pumped Storage Plant Demand** and/or **Aggregated Generating Units** to **Dispatch**, will be:

(a) the **Availability Notices**;

(b) the **Merit Order** as derived under SDC1;

(c) the other factors to be taken into account under SDC1 and which were used by the **TSO** to compile the **Indicative Operations Schedule**; and

(d) the:

(i) **Technical Parameters**;

(ii) **Additional Grid Code Characteristics Notices**;

(iii) **Reserve Characteristics**; and

(iv) **Other Relevant Data**,

in respect of that **CDGU**, **Demand Side Unit**, **Interconnector** transfers**,** **Pumped Storage Plant Demand** and/or **Aggregated Generating Units** subject to any subsequent revisions to the data under SDC1 and SDC2.

SDC2.4.1.2 Additional factors which the **TSO** will also take into account are:

(a) those **Generators** or **Dispatchable Demand Customers** who have not complied with **Dispatch Instructions** or **Special Actions**;

(b) real time variation requests; and

(c) the need to **Dispatch CDGUs**, **Aggregated Generating Units, Demand Side Units**, **Interconnector** transfers, and **Pumped Storage Plant Demand** for **Monitoring, Testing** or **Investigation** purposes (and/or for other trading purposes whether at the request of a **User**, for **Commissioning** or **Acceptance**, **System Tests** or otherwise).

SDC2.4.1.3 In the event of two or more **CDGUs**, **Demand Side Units**, **Pumped Storage Plant Demand** and/or **Aggregated Generating Units** having the same **Price Set** and the **TSO** not being able to differentiate on the basis of the factors identified in SDC1.4.8.2, SDC1.4.8.3 and SDC1.4.8.4, then the **TSO** will select first for **Dispatch** the one which in the **TSO**'s reasonable judgement is most appropriate in all the circumstances.

SDC2.4.2 **Dispatch Instructions**

SDC2.4.2.1 Introduction

Dispatch Instructions relating to the **Trading Day** will normally be issued at any time during the period beginning immediately after the issue of the first **Indicative Operations Schedule** in respect of that **Trading Day**. The **TSO** may, however, at its discretion, issue **Dispatch Instructions** in relation to a **CDGU**, **Demand Side Unit**, **Interconnector** transfers, **Pumped Storage Plant Demand** and/or **Aggregated Generating Units** prior to the issue of an **Indicative Operations Schedule** which includes that **CDGU**, **Demand Side Unit**, **Interconnector**, **Pumped Storage Plant Demand** and/or **Aggregated Generating Units**.

SDC2.4.2.2 Issue of **Dispatch Instructions**

The **TSO** will issue **Dispatch Instructions** direct to:

(a) the **Generator** for the **Dispatch** of each of its **CDGUs**.

(b) the **Generator Aggregator** for the **Dispatch** of its **Aggregated Generating Units**.

(c) the **Dispatchable Demand Customer** and the **Pumped Storage Demand User** in respect of each of their **Demand Side Units** and **Pumped Storage Plant Demand** respectively.

(d) the **Interconnector Owner** for the **Dispatch** of the **Interconnector** transfers.

(e) The **TSO** may issue **Dispatch Instructions** for any **CDGU**, **Demand Side Unit**, **Interconnector** transfers, **Pumped Storage Plant Demand** and/or **Aggregated Generating Units** which has been declared **Available** in an **Availability Notice** even if that **CDGU**, **Demand Side Unit**, **Interconnector** transfers, **Pumped Storage Plant Demand** and/or **Aggregated Generating Units** was not included in an **Indicative Operations Schedule**.

SDC2.4.2.3 Scope of **Dispatch Instructions**

*In addition to instructions relating to the **Dispatch** of **Active Power**, **Dispatch Instructions** (unless otherwise specified by the **TSO** at the time of giving the **Dispatch Instructions**) shall be deemed to include an automatic instruction of **Operating Reserve**, the level of which is to be provided in accordance with the **Declared Operating Reserve Availability** under SDC1 and the **Ancillary Service Agreement.***

SDC2.4.2.4 In addition to instructions relating to the **Dispatch** of **Active Power**, **Dispatch Instructions** in relation to **CDGUs** and, **Demand Side Units** and/or **Pumped Storage Plant Demand** may include:

(a) a **Dispatch Instruction** to provide an ***Ancillary Service***;

(b) (i) **Mvars**: the individual **Reactive Power** output from **CDGUs** at the **Generator Terminals** or ***Voltage*** levels (at instructed **MW** level) at the **Connection Point** which will be maintained by the **CDGU**.

(ii) The issue of **Dispatch Instructions** for **Active Power** will be as at the **Connection Point** and will be made with due regard to any resulting change in **Reactive Power** capability and may include instruction for reduction in **Active Power** generation to increase **Reactive Power** capability.

(iii) In the event of a sudden change in **System** voltage a **Generator** must not take any action in respect of any of its **CDGUs** to override automatic **Mvar** response unless instructed otherwise by the **TSO** or unless immediate action is necessary to comply with stability limits. A **Generator** may take such action as is in its reasonable opinion necessary to avoid an imminent risk of injury to persons or material damage to property (including the **CDGU**).

(iv) *Further provisions in relation to **Dispatch Instructions** regarding **Generator Reactive Power Dispatch** are set out in Appendix B to this SDC2.*

(c) Fuels: **Fuels** to be used by the **Generator** in operating the **CDGU**. The **Generator** shall only be permitted to change **Fuels** with the **TSO's** prior consent.

(d) **Special Protection Scheme**: an instruction to switch into or out of service an **Special Protection Scheme** or other **Intertripping Scheme**;

(e) Time to **Synchronise**/react: a time to **Synchronise** or **De-Synchronise CDGUs** and, where appropriate **Demand Side Units** and/or **Pumped Storage Plants** in relation to **Pumped Storage Plant Demand** and time to react for **Demand Side Units**;

(f) **Synchronous Compensation**: an instruction, (where contracted, where that is necessary), for a **CDGU** to operate in **Synchronous Compensation** mode;

(g) **Testing** etc: an instruction in relation to the carrying out of **Testing, Monitoring** or **Investigations** as required under *OC10*, or testing at the request of a **User** under *OC8.5*, or **Commissioning Testing** under the CC;

[Note: Please note that the SONI Grid Code will referring to "OC11" and "OC11.8", whereas the EirGrid Grid Code will be referring to "OC10" and "OC8.5".]

(h) **System Tests**: an instruction in relation to the carrying out of a **System Test** as required under *OC 8.4*;

(i) **Maximisation**: in the case of a **CDGU** which is subject to an agreement with the **TSO** for the provision of **Maximisation** an instruction requiring it to generate at a level in excess of its **Availability** but not exceeding its **Short Term Maximisation Capability** which may only be given if, at the time of issue of the instruction, the **CDGU** is **Dispatched** to a **MW Output** equal to its **Availability** and provided that the limit on the number of hours for which such instructions may be given in any year, as set out in any arrangement relating to the relevant agreement is not thereby exceeded. Such an instruction shall be identified as a "**Maximisation Instruction**". When the **TSO** gives a **Dispatch Instruction** which is in excess of the **Availability** of the **CDGU** which is not designated a "**Maximisation Instruction**", the **Generator** must inform the **TSO** immediately that the **Dispatch Instruction** is so in excess in order that the **TSO** can so designate the **Dispatch Instruction** as a **Maximisation Instruction** or withdraw the instruction. The **Generator** shall not then be obliged to comply with the **Dispatch Instruction** unless and until the **TSO** notifies it that the instruction is designated a "**Maximisation Instruction**";

(j) **Cycle Operating Mode**: in the case of a **CCGT Installation**, an instruction specifying the **Cycle Operating Mode** and/or an instruction to **Dispatch** a **CCGT Installation** in **Open Cycle Mode**. The **Generator** must then ensure that the **CCGT Installation** achieves the new **Dispatched Operating Mode**, without undue delay, in accordance with the **CCGT Installation's** declared **Availability** and declared **Technical Parameters. Dispatch Instructions** in relation to **Cycle Operating Modes** issued by the **TSO** shall reflect the applicable **Availability Notice** and **Technical Parameters**;

(k) **Pumped Storage**: mode changes for **Pumped Storage Plants**, where contracted, in relation to **Pumped Storage Plant Demand**;

(l) **Under Test Flags**: **Dispatch Instructions** will, where appropriate, contain a flag to indicate that a unit is under **Within Day Test** and the part of the **Dispatch Instruction** subject to the flag will not be deemed to be a **Dispatch Instruction** for settlement purposes;

(m) Gas supply emergency: instructions relating to gas supply emergencies, where the ordinary **Dispatch** process may not be followed;

SDC2.4.2.5 Form of Instruction

(a) Instructions may normally be given via **Electronic Interface** but can be given by telephone, by facsimile transmission. In the case of a **Special Protection Scheme**, a **Low Frequency Relay** *or any other automatic* ***Primary Frequency Control*** *scheme (excluding governor response)*

initiated response from a **CDGU**, **Demand Side Unit**, and/or **Pumped Storage Plant** in relation to **Pumped Storage Plant Demand,** the instruction will be given for the effective time which is consistent with the time at which the **Low Frequency Relay** operation occurred. This **Dispatch Instruction** will be issued retrospectively.

(b) The reduction by a **Generator** of the **MW Output** of one of its **CDGUs** under *OC4.3* shall be deemed to have followed a **Dispatch Instruction** issued by the **TSO**.

(c) (i) In the event of a temporary loss of the ***NI Control Centre/National Control Centre*** as described under *OC9*, each **Generator** shall, subject to the provisions of SDC2.4.2.5(c)(ii), continue to operate its **CDGUs** in accordance with the last **Dispatch Instructions** to have been issued by the **TSO** but shall use all reasonable endeavours to maintain **System Frequency** at the indicated **Target Frequency** *plus or minus 0.05Hz* by monitoring **Frequency** and increasing/decreasing the **MW Output** of its **CDGUs** as necessary until such time as new **Dispatch Instructions** are received from the **TSO**.

(ii) When operating its **CDGUs** in the circumstances described under SDC2.4.2.5(c)(i), a **Generator** shall never be required to **Dispatch** these units in a manner in which the **TSO** would not be entitled to require such units to be **Dispatched** by means of a **Dispatch Instruction** issued in accordance with this SDC2.

(d) The **De-Synchronisation** of a **CDGU** following the operation of a **Special Protection Scheme** selected by the **TSO** shall be deemed to have happened as a result of a **Dispatch Instruction** issued by the **TSO**.

SDC2.4.2.6 **Target Frequency**

(a) **Dispatch Instructions** to **Generators** will generally indicate the target **MW** (at **Target Frequency**) to be provided at the **Connection Point** to be achieved in accordance with the respective **CDGU's Technical Parameters** and/or parameters as provided in the **Additional Grid Code Characteristics Notices** provided under SDC1 or this SDC2, or such rate within those parameters as is specified by the **TSO** in the **Dispatch Instructions**.

(b) **Dispatch Instructions** deemed to be given upon the operation of an agreed **Low Frequency Relay** will be deemed to indicate the target **MW** (at **Target Frequency**), which may either be at maximum **MW Output** or at some lower **MW Output** (as previously specified by the **TSO**), to be provided at the **Connection Point** which reflects and is in accordance with the **CDGU's Technical Parameters** and/or parameters as provided in the **Additional Grid Code Characteristics Notice** data given under (or as revised in accordance with) SDC1 or this SDC2.

SDC2.4.2.7 To aid clarity, the form of and terms to be used by the **TSO** in issuing instructions together with their meanings are set out in the Appendices to this SDC2.

SDC2.4.2.8 (a) Subject only to SDC2.4.2.9 and as provided below in this SDC2.4.2.8**,** **Dispatch Instructions** will not be inconsistent with the **Availability** and/or **Technical Parameters** and/or **Additional Grid Code Characteristics Notice** data and **Other Relevant Data** notified to the **TSO** under SDC1 (and any revisions under SDC1 or this SDC2 to that data).

(b) A new **Dispatch Instruction** may be subsequently given (including an instruction for a **Cancelled Start**) at any time.

(c) **Dispatch Instructions** may however be inconsistent with the **Availability** and/or **Technical Parameters** and/or **Additional Grid Code Characteristics Notice** data and/or **Other Relevant Data** so notified to the **TSO** for the purposes of carrying out a test at the request of the relevant **Generator** under *OC8.5* or a **System Test** at the request of the relevant **Generator** under *OC8.6*, to the extent that such **Dispatch Instructions** are consistent with the procedure agreed (or otherwise determined) for conducting the test or **System Test** (as the case may be).

(d) For the avoidance of doubt, any **Dispatch Instructions** issued by the **TSO** for the purposes of carrying out a test at the request of the relevant **Generator** under *OC8.5* or a **System Test** at the request of the relevant **Generator** under *OC8.6* shall not be deemed to be **Dispatch Instructions** given pursuant to SDC2.4.2.9.

SDC2.4.2.9 (a) To preserve **System** integrity under emergency circumstances where, for example, **Licence Standards** cannot be met the **TSO** may, however, issue **Dispatch Instructions** to change **CDGU**, **Aggregated Generating Units**, **Demand Side Unit, Interconnector** transfers and/or **Pumped Storage Plant Demand MW Output** or **Demand Reduction** even when this is outside parameters so registered or so amended. This may, for example, be an instruction to trip or partially load a **CDGU**. The instruction will be stated by the **TSO** to be one in relation to emergency circumstances under SDC2.4.2.9.

(b) A **User** may refuse to comply or continue to comply with instructions referred to in this SDC2.4.2.9 but only in order to avoid, in the **Generator's** reasonable opinion, an imminent risk of injury to persons or material damage to property (including in the case of a **Generator**, the **CDGU**).

SDC2.4.2.10 Communication with **Users**

(a) **Dispatch Instructions** whether given via **Electronic Interface**, by telephone, by facsimile transmission must formally acknowledged immediately by the **User** at the **Control Facility** by **Electronic Interface** or, with the **TSO's** prior consent, by telephone, by return facsimile transmission, in the manner agreed between the **User** and the **TSO** or a reason must be given as soon as possible for non-acceptance, which may (subject to SDC2.4.2.9) only be to avoid, in the **User's** reasonable opinion, an imminent risk of injury to persons or material damage to property (including the **CDGU**) or because they are not in accordance with the applicable **Availability Notice,** or **Technical Parameters**, or **Additional Grid Code Characteristics Notices** or do not reflect **Other Relevant Data** submitted by the **User** pursuant to SDC1.

(b) In the event that in carrying out the **Dispatch Instructions**, an unforeseen problem arises, giving rise, in the **User's** reasonable opinion, to an imminent risk of injury to persons or material damage to property (including the **CDGU**) the **TSO** must be notified as soon as possible by telephone.

SDC2.4.2.11 Action Required from **Users**

(a) Each **User** will comply in accordance with SDC2.4.2.12 with all **Dispatch Instructions** given by the **TSO** unless the **User** has given notice to the **TSO** under the provisions of SDC2.4.2.10 regarding non-acceptance of **Dispatch Instructions**.

(b) When complying with **Dispatch Instructions** for a **CCGT Installation** a **Generator** will operate its ***CCGT Units*** in accordance with the applicable **CCGT Installation Matrix**.

(c) Where the **TSO** issues a **Synchronising** time to a **Generator** for a specific **CDGU** (other than an **Open Cycle Gas Turbine**) and the **Generator** identifies that such **CDGU** will not be **Synchronised** within *+/- 10 minutes* of the instructed time, the **Generator** must immediately (at the time the discrepancy is identified) inform the **TSO** of the situation and estimate the new **Synchronising** time.

(d) If the **Synchronising** time of the **CDGU** (other than an **Open Cycle Gas Turbine**) is different from the instructed time by more than 15 minutes but less than 1 hour, this will constitute a **Short Notice Re-declaration** by the **CDGU** for that **Generator.**

(e) If the **Synchronising** time of the **CDGU** (other than an **Open Cycle Gas Turbine**) is different from the instructed time by more than 1 hour, this will constitute a **Re-declaration** for the **CDGU** by the **Generator.**

SDC2.4.2.12 Implementation of Instructions by **Users**

When a **User** has received a **Dispatch Instruction** given by the **TSO**, it will react by responding to that **Dispatch Instruction** given by the **TSO** without undue delay, and, in any event, within one minute in accordance with the instruction *or in the case of **Dispatch Instructions** for **Mvars** within two minutes of the instruction*, including those **Dispatch Instructions** issued pursuant to SDC2.4.2.9. Instructions indicating a target **MW Output** at the **Target Frequency** will be complied with by **Users** notwithstanding any tolerance bands set out in any **Testing** requirement or elsewhere in the **Grid Code**.

SDC2.4.2.13 (a) Subject to the exception set out below in this SDC2.4.2.13, **Generators** will only **Synchronise** or **de-Synchronise CDGUs** to the **Dispatch Instructions** of the **TSO** or unless it occurs automatically as a result of **Special Protection Schemes** or **Low Frequency Relay** operations. Subject to the exception set out below in this SDC2.4.2.13, **Dispatchable Demand Customers** will only reduce or increase their **Demand Reduction** to the **Dispatch Instructions** of the **TSO** or unless it occurs automatically as a result of **Special Protection Schemes** or **Low Frequency Relay** operations.

(b) **De-Synchronisation** may otherwise only take place without the **TSO's** prior agreement if it is to avoid, in the **Generator's** reasonable opinion, an imminent risk of injury to persons or material damage to property (including the **CDGU**). **Demand Side Units**, who can not maintain the provision of any **Demand Reduction,** may otherwise only take place without the **TSO's** prior agreement if it is to avoid, in the **Dispatchable Demand Customer's** reasonable opinion, an imminent risk of injury to persons or material damage to property (including the **Demand Side Unit**).

(c) If one of these exceptions occur, then the **TSO** must be informed that it has taken place as soon as possible.

SDC2.4.2.14 The **TSO** may suspend the issue of **Dispatch Instructions** to **User's Plant** in accordance with the **Merit Order** (having taken account of and applied the factors referred to in SDC1.4.8.3) to the extent that the conditions in SDC1.4.8.6 or SDC2.4.2.4(m) arise. When necessary the **TSO** will issue **Dispatch Instructions** for a **Black Start**.

SDC2.4.2.15 **User Plant** Changes

Each **User** at its **Control Facility** will, without delay, notify the **TSO** by **Electronic Interface**, telephone or by facsimile transmission of any change or loss (temporary or otherwise) to the operational capability of its **Plant** including any changes to the **Technical Parameters** and/or **Additional Grid Code Characteristics Notice** data of each of the **User's Plant** (in the case of **Technical Parameters**, by the submission of a **Technical Parameters Revision Notice**) indicating (where possible) the magnitude and the duration of the change. In the case of **CDGUs** already **Synchronised** to the **System**, each **Generator**, in respect of its **Generating Units**, must also state whether or not the loss was instantaneous.

SDC2.4.2.16 Each **Generator**, in respect of its **Generating Units**, will operate its **Synchronised CDGUs** with **AVRs** and **Var** limiters in service at all times (where required pursuant to *CC7.3 and SDC2.B.7*) unless released from this obligation in respect of a particular **CDGU** by the **TSO**.

SDC2.4.2.17 Each **Generator**, in respect of its **Generating Units**, shall request the **TSO's** agreement for one of its **CDGUs** at that **Generating Plant** to be operated without the **AVR** or **Var** limiter in service. The agreement of the **TSO** will be dependent on the risk that would be imposed on the **System**. However, a **Generator** may, in any event, take such action in relation to that **CDGU** as is reasonably necessary to avoid, in the **Generator's** reasonable opinion, an imminent risk of injury to persons or material damage to property (including the **CDGU**).

SDC2.4.2.18 **Minimum Demand Regulation ("MDR")**

Synchronised CDGUs must at all times be capable of reducing **MW Output** sufficient to allow a sufficient **Regulating Margin** for adequate **Frequency Control**. The **TSO** will monitor the **MW Output** data of the **Indicative Operations Schedule** against the forecast **Demand** to see whether the level of **MDR** for any period is insufficient, and may take any shortfall into account in **Dispatch**.

SDC2.4.3 **Special Actions**

The **TSO** may also issue **Dispatch Instructions** for **Special Actions** (either pre- or post-fault) to a **User** in respect of any of its **Plant** in the event that the **TSO** in its reasonable opinion believes that such instructions are necessary in order to ensure that the **Licence Standards** are met. **Special Actions** will generally involve a **Load** change, a **Load** reduction change or a change in required **Notice to Synchronise** (or, in the case of a **Demand Side Unit** or **Pumped Storage Plant Demand**, a change in the relevant effective time) in a specific timescale on individual or groups of **CDGUs**. They may also include selection of **Special Protection Scheme** for stability or thermal reasons. Instructions for **Special Actions** will always be within **Technical Parameters**.

SDC2 - APPENDIX A

Dispatch Instructions for **CDGUs and Demand Side Units**

SDC2.A.1 General

This Appendix A to SDC2 provides further information on the form of a **Dispatch Instruction** as well as an example of a **Dispatch Instruction** for **CDGUs** and **Demand Side Units**.

SDC2.A.2 Form of **Dispatch Instruction**

SDC2.A.2.1 All **Loading/De-Loading Rates** will be assumed to be in accordance with **Technical Parameters** and **Additional Grid Code Characteristics Notice** data. Each **Dispatch Instruction** will, wherever possible, be kept simple, drawing as necessary from the following forms and SDC2.4.2**.**

SDC2.A.2.2 The **Dispatch Instruction** given by **Electronic Interface**, telephone, or facsimile transmission will normally follow the form:

(a) where appropriate, the specific **CDGU** or **User's Plant** to which the instruction applies;

(b) the **MW Output** (or **Demand Reduction**) to which it is instructed;

(c) if the start time is different from the time the instruction is issued, the start time will be included;

(d) where specific **Loading/De-Loading Rates** are concerned, a specific target time;

(e) the issue time of the instruction;

(f) the fuel;

(g) in the case of **CDGUs** , if the instruction is designated as a "**Maximisation Instruction**", this will be stated; and

(h) in the case of a **CCGT Installation**, the **Operating Mode** to which it is instructed.

SDC2.A.3 **Dispatching** a **Synchronised CDGU** to increase or decrease **MW Output**

SDC2.A.3.1 If the time of the **Dispatch Instruction** is 1400 hours, the Unit is Unit 1 and the **MW Output** to be achieved is 205 **MW**, the relevant part of the instruction would be, for example:

"Time 1400 hours. Unit 1 to 205 **MW**"

SDC2.A.3.2 If the start time is 1415 hours, it would be, for example:

"Time 1400 hours. Unit 1 to 205 **MW**, start at 1415 hours"

SDC2.A.3.3 **Loading** and **De-Loading Rates** are assumed to be in accordance with **Technical Parameters** and **Additional Grid Code Characteristics Notice** data unless otherwise stated. If different **Loading** or **De-Loading Rates** are required, the time to be achieved will be stated, for example:

"Time 1400 hours. Unit 1 to 205 **MW** by 1420 hours"

SDC2.A.4 **Dispatching** a **CDGU** to **Synchronise/de-Synchronise**

SDC2.A.4.1 **CDGU Synchronising**

SDC2.A.4.1.1 In this instance, for **CDGUs**, the **Dispatch Instruction** issue time will always have due regard for the **Synchronising** time declared to the **TSO** by the **Generator** as a **Technical Parameters** or as part of **Additional Grid Code Characteristics Notice** data.

The instruction will follow the form, for example:

"Time 1300 hours. Unit 1, **Synchronise** at 1600 hours"

In relation to an instruction to **Synchronise**, the start time referred to in SDC2.A.2.2 will be deemed to be the time at which **Synchronisation** is to take place.

SDC2.A.4.1.2 Unless a **Loading** programme is also given at the same time it will be assumed that the **CDGU(s)** are to be brought to **Minimum Generation** and on the **Generator** reporting that the unit has **Synchronised** a further **Dispatch Instruction** will be issued.

SDC2.A.4.1.3 When a **Dispatch Instruction** for a **CDGU** to **Synchronise** is cancelled (ie. a **Cancelled Start**) before the unit is **Synchronised**, the instruction will follow the form, for example:

"Time 1400 hours. Unit 1, cancel **Synchronising** instruction"

SDC2.A.4.1.4 If a **CDGU** fails to **Synchronise** more than 5 minutes after the time specified in a **Notice to Synchronise**, the **TSO** may issue a **Failure to Follow Notice to Synchronise Instruction**. If a **Generator** requests to **Synchronise** a **CDGU** more than 15 minutes before the time set out in the **Notice to Synchronise**, the **TSO** may agree to the **CDGU** being **Synchronised** at that time or request that the **CDGU** be **Synchronised** at the original **Notice to Synchronise** time. If the **TSO** accepts the request to **Synchronise** more that 15 minutes before the original **Notice to Synchronise** time, the **TSO** will not amend the original **Notice to Synchronise** time but the **Generator** shall be entitled to **Synchronise the CDGU**, and the **CDGU** shall be deemed to have met the original **Notice to Synchronise** time.

SDC2.A.4.1.5 When in respect of a **CDGU** a **Generator** receives a **Failure to Follow Notice to Synchronise Instruction** the original **Notice to Synchronise** is deemed never to have been issued and the **CDGU** is not entitled to **Synchronise**. The **TSO** will then decide whether or not to instruct again the **Generator to Synchronise** the **CDGU**, and will notify the **Generator** in relation to that **CDGU** accordingly.

SDC2.A.4.1.6 When a **CDGU** trips before reaching **Minimum Generation** a **Failure to Reach Minimum Generation Instruction** will be issued. The **Failure** to **Reach Minimum Generation Instruction** will negate the **Notice to Synchronise** received by the **CDGU**. The **TSO** will then decide whether or not to instruct the **CDGU** to **Synchronise** again, and will notify the **Generator** in relation to that **CDGU** accordingly.

SDC2.A.4.2 **CDGUs De-Synchronising**

SDC2.A.4.2.1 The **Dispatch Instruction** will normally follow the form, for example:

"Time 1300 hours. Unit 1, **Shutdown**"

If the instruction start time is for 1400 hours the form will be, for example:

"Time 1300 hours. Unit 1, **Shutdown**, start at 1400 hours"

Both the above assume **De-Loading Rate** at declared **Technical Parameters**. Otherwise the message will conclude with, for example:

"... and **De-Synchronise** at 1500 hours"

SDC2.A.5 **Frequency Control**

SDC2.A.5.1 All the above **Dispatch Instructions** will be deemed to be at the instructed **Target Frequency**, i.e. where a **CDGU** is in the **Frequency Sensitive Mode** instructions refer to target **MW Output** at **Target Frequency**. **Target Frequency** changes will always be given to the **Generator** by telephone or **Electronic Interface** and will normally only be 49.95, 50.00, 50.05Hz.

*The adjustment of **MW Output** of a **CDGU** for **System Frequency** other than an average of 50 Hz, shall be made in accordance with the current **Declared** value of **Governor Droop** for the **CDGU**.*

SDC2.A.5.2 **CDGUs** required to be **Frequency** insensitive will be specifically instructed as such. The **Dispatch Instruction** will be of the form for example:

"Time 2100 hours. Unit 1, to **Frequency** insensitive mode"

SDC2.A.5.3 **Frequency Control** instructions may be issued in conjunction with, or separate from, a **Dispatch Instruction** relating to **MW Output**.

SDC2.A.6 ***Emergency* Load** Drop

The **Dispatch Instruction** will be in a pre-arranged format and normally follow the form, for example:

"Time 2000 hours. Emergency **Load** drop of "X"**MW** in "Y" minutes"

SDC2.A.7 **Voltage Control** Instruction

[Note: Voltage is used as a defined term in the EirGrid code but not in the SONI Code.]

In order that adequate **System *Voltage*** profiles are maintained under normal and fault conditions a range of **Voltage Control** instructions will be utilised from time to time, for example:

(a) Operate to target ***Voltage*** of 117 kV;

(b) Maximum production or absorption of **Reactive Power** (at current instructed **MW Output)**

(c) Increase reactive output by 10 **Mvar** (at current instructed **MW Output**);

*(d) Change **Reactive Power** to 100 **Mvar** production or absorption;*

*(e) Increase **CDGU Generator** step-up transformer tap position by [one] tap or go to tap position [x];*

*(f) For a **Simultaneous Tap Change**, change **CDGU Generator** step-up transformer tap position by one [two] taps to raise or lower (as relevant) **System Voltage**, to be executed at time of telegraph (or other) **Dispatch Instruction**.*

*(g) Achieve a target **Voltage** of 210 kV and then allow to vary with **System** conditions; and*

*(h) Maintain a target **Voltage** of 210 kV until otherwise instructed. Tap change as necessary."*

*In relation to **Mvar Dispatch** matters, **Mvar** production is an export onto the **System** and is referred to as "lagging **Mvar**", and **Mvar** absorption is an import from the **System** and is referred to as "leading **Mvar**".*

*It should be noted that the excitation control system constant **Reactive Power** level control mode or constant **Power Factor** output control mode will always be disabled, unless agreed otherwise with the **TSO**.*

SDC2.A.8 Instruction to change fuel

When the **TSO** wishes to instruct a **Generator** to change the fuel being burned in the operation of one of its **CDGUs** from one **Dispatched Fuel** (or fuel) to another (for example from 1% sulphur oil to 3% sulphur oil), the **Dispatch Instruction** will follow the form, for example:

"Time 1500 hours. Unit 2 change to 3% fuel at 1700 hours".

SDC2.A.9 Instruction to change fuel for a dual firing **CDGU**

When the **TSO** wishes to instruct a **Generator** to change the fuel being burned in the operation of one of its **CDGUs** which is capable of firing on two different fuels (for example, coal or oil), from one **Designated Fuel** (or fuel) to another (for example, from coal to oil), the instruction will follow the form, for example:

"Time 1500 hours. Unit 1 generate using oil at 1800 hours".

SDC2.A.10 **Maximisation Instruction** to **CDGUs**

When the **TSO** wishes to instruct a **Generator** to operate a **CDGU** at a level in excess of its **Availability** in accordance with SDC2.4.2.4(i), the instruction will follow the form, for example:

"**Maximisation Instruction**. Time 1800 hours. Unit GT2 to 58 **MW**."

SDC2.A.11 ***Emergency Instruction***

*If a **Dispatch Instruction** is an **Emergency Instruction** the **Dispatch Instruction** will be prefixed with the words. This is an **Emergency Instruction.** It may be in a pre-arranged format and normally follow the form, for example:*

*This is an **Emergency Instruction.** Reduce **MW Output** to "X"MW in "Y" minutes, **Dispatch Instruction** timed at 2000 hours.*

SDC2.A.12 **Dispatching** a **Demand Side Unit** to increase or decrease **Demand Reduction**

SDC2.A.12.1 If the time of the **Dispatch Instruction** is 1400 hours, the Unit is Unit 1 and the **Demand Reduction** to be achieved is 25 **MW**, the relevant part of the instruction would be, for example:

"Time 1400 hours. Unit 1 to 25 **MW**"

SDC2.A.12.2 If the start time is 1415 hours, it would be, for example:

"Time 1400 hours. Unit 1 to 25 **MW**, start at 1415 hours"

SDC2.A.12.3 **Max Ramp Up** and **Max Ramp Down Rates** are assumed to be in accordance with **Technical Parameters** and **Additional Grid Code Characteristics Notice** data unless otherwise stated. If different **Max Ramp Up** and **Max Ramp Down Rates** are required, the time to be achieved will be stated, for example:

"Time 1400 hours. Unit 1 to 25 **MW** by 1420 hours"

SDC2.A.13 **Dispatching** a **Demand Side Unit** to an **Initial Demand Reduction**

SDC2.A.13.1 In this instance, for **Demand Side Units**, the **Dispatch Instruction** issue time will always have due regard for the **Initial Demand Reduction Time** declared to the **TSO** by the **Dispatchable Demand Customer** as a **Technical Parameter** or as part of **Additional Grid Code Characteristics Notice** data.

The instruction will follow the form, for example:

"Time 1300 hours. Unit 1, **Initial Demand Reduction** at 1600 hours"

In relation to an instruction to the **Initial Demand Reduction**, the start time referred to in SDC2.A.12.1 will be deemed to be the time at which **Initial Demand Reduction** is to take place.

SDC2 - APPENDIX B

[Note: This Appendix applies to the EirGrid Grid Code only.]

Dispatch Instructions for Generator Reactive Power

SDC2.B.1 *The **Mvar Output** of any **CDGU** in respect of which a **Dispatch Instruction** is given under SDC2.4.2.4(b) shall, in accordance with its declared **Technical Parameters**, be adjusted to the new target **Mvar** level so **Instructed**, within, a tolerance of +/- 2% of the target or +/- 2 **Mvar**, whichever is greater. The **Reactive Power** output of a **CDGU** shall not be adjusted (other than under **AVR** action) except in response to a **Dispatch Instruction** from the **TSO**.*

SDC2.B.2 ***Generators** having achieved the new target **Mvar Output**, should not attempt to sustain this level of **Mvar Output** as the **System Voltage** varies but should, rather, allow the **Reactive Power** output to vary under **AVR** control in accordance with the then applicable **Declarations of Ancillary Service** capabilities and **Technical Parameters**.*

SDC2.B.3 *While a **Reactive Power Dispatch Instruction** shall normally specify a new **Mvar** target for a **CDGU**, the **TSO** may also from time to time instruct **Generators** to perform one or more tap changes on the generator step-up transformer of a **CDGU**. The **Dispatch Instructions** for tap changes may be a **Simultaneous Tap Change Instruction** whereby the tap change shall be effected by the **Generator** in response to a **Dispatch Instruction** from the **TSO** issued simultaneously to relevant **Power Stations**. The **Dispatch Instruction**, which is normally preceded by advance warning, shall be effected within 1 minute of receipt from the **TSO** of the **Dispatch Instruction**.*

SDC2.B.4 ***Dispatch Instructions** in relation to **Reactive Power** may include target voltage levels to be achieved by the **CDGU** on the **Transmission System** at **Grid Connection Point** (or on the **User System** at the **User System Entry Point** in the case of an **Embedded Generator**, namely on the higher voltage side of the **Generator** step-up transformer). Where a **CDGU** is **Instructed** to a specified target voltage, the **Generator** shall achieve that target within a tolerance of 1 kV by tap changing on the **Generator** step-up transformer unless otherwise agreed with the **TSO**. Under normal operating conditions, once this target voltage level has been achieved, the **Generator** shall not tap change again without prior consultation with and agreement of the **TSO**.*

SDC2.B.5 *Under certain conditions such as low **System Voltage**, a **Dispatch Instruction** to maximum **Mvar** production at **Instructed MW Output** may be given and the **Generator** shall take appropriate action to maximise **Mvar** production unless constrained by plant operational limits or safety grounds relating to personnel or plant.*

SDC2.B.6 *Under certain conditions such as high **System Voltage**, a **Dispatch Instruction** to maximum **Mvar** absorption at **Instructed MW Output** may be given and the **Generator** shall take appropriate action to maximise **Mvar** absorption unless constrained by plant operational limits or safety grounds relating to personnel or plant.*

SDC2.B.7 *The excitation system, unless otherwise agreed with the **TSO**, shall be operated only in its constant terminal voltage mode of operation with var limiters in service, with any constant **Reactive Power** output control mode or constant **Power Factor** output control mode always disabled, unless agreed otherwise with the **TSO**.*

SDC2.B.8 *A **Dispatch** Instruction relating to **Reactive Power** will be implemented without delay and, notwithstanding the provisions of SDC2.4.2.12 and subject as provided*

*in this Appendix B will be achieved not later than 2 minutes after the **Dispatch Instruction** time, or such longer period as the **TSO** may **Instruct**.*

SDC2.B.9 *Where **Dispatch Instructions** relating to **Active Power** and **Reactive Power** are given together, and to achieve the **Reactive Power** output would cause the **CDGU** to operate outside **Technical Parameters** as a result of the **Active Power Dispatch Instruction** being met at the same time, then the adjustment of the **Reactive Power** output may be delayed until the operating limits no longer prevent the change. In any case the **Active** and **Reactive Power Dispatch Instruction** shall be followed without undue delay.*

SDC2.B.10 *In circumstances where the **TSO** issues new **Dispatch Instructions** in relation to more than one **CDGU** at the same **Power Station** at the same time tapping will be carried out by the **Generator** one tap at a time either alternately between (or in sequential order, if more than two), or at the same time on, each **CDGU**, as the case may be.*

SDC2.B.11 *Where the **Dispatch Instructions** require more than two taps per **CDGU** and that means that the **Dispatch Instructions** cannot be achieved within 2 minutes of the time of the **Dispatch Instructions** (or such longer period at the **TSO** may have Instructed), the **Dispatch Instructions** shall each be achieved with the minimum of delay after the expiry of that period;*

SDC2.B.12 *On receiving a new **MW Dispatch Instruction**, no tap changing shall be carried out to change the **Mvar Output** unless there is a new **Mvar Dispatch Instruction**.*

SDC2.B.13 *Where a **Dispatch Instructions** to **Synchronise** is given, or where a **CDGU** is **Synchronised** and a **MW Dispatch Instruction** is given, a **Mvar Dispatch Instruction** consistent with the **CDGU's** relevant parameters may be given. In the absence of a **Mvar Dispatch Instruction** with an instruction to **Synchronise**, the **Mvar Output** should be 0 **Mvar**.*

SDC2.B.14 *Where a **Dispatch Instructions** to **De-Synchronise** is given, a **Mvar Dispatch Instruction**, compatible with shutdown, may be given prior to **De-Synchronisation** being achieved. In the absence of a separate **Mvar Dispatch Instruction**, it is implicit in the **Dispatch Instructions** to **De-Synchronise** that **Mvar** output should at the point of synchronism be 0 **Mvar** at **De-Synchronisation**.*

SDC2.B.15 *A **Dispatch Instruction** relating to **Reactive Power** may be given in respect of **CCGT Units** within a **CCGT Installation** where running arrangements and/or **System** conditions require, in both cases where connection arrangements permit.*

SDC2.B.16 *On receipt of a **Dispatch Instruction** relating to **Reactive Power**, the **Generator** may take such action as is necessary to maintain the integrity of the **CDGU** (including, without limitation, requesting a revised **Dispatch Instruction**), and shall contact the **TSO** without delay.*

SDC2.B.17 *Under **System** fault conditions it is possible for **AVR** action to drive **Reactive** Power output for a **CDGU** outside of its **Declared Operating Characteristic** limits. The **Generator** shall immediately inform the **TSO** of the situation. However if the **Generator** reasonably believes that the situation may be dangerous to personnel or **Plant**, then limited action may be taken to improve the situation.*

SDC 2 ANNEX I

Explanatory Note of differences between SDC2 in the SONI Grid Code and EirGrid Grid Code

This annex is an explanatory note only and does not form part of the Grid Code.

1. General Differences in wording

The table below summarises the general differences in wording between the form of SDC2 in the SONI Grid Code and the form of SDC2 in the EirGrid Grid Code, which appear repeatedly throughout SDC2.

Terms used in SONI Grid Code	Equivalent terms used in EirGrid Grid Code (where different)	Reason
System Support Services	Ancillary Service(s)	The existing arrangements for Ancillary Services and System Support Services are continuing until further notice.
CCGT Module	CCGT Unit	This is the phrase currently used to describe the individual parts of a Combined Cycle Plant CCGT Module is an important concept in Northern Ireland and is reflected in many other agreements. EirGrid is keeping the phrase CCGT Unit, as it more closely describes the concept of an individual unit and EirGrid has formerly used CCGT Module to describe the whole CCGT Installation.
voltage	Voltage	"Voltage" is a defined term in the EirGrid Grid Code but not in the SONI Grid Code.
emergency	Emergency	"Emergency" is a defined term in the EirGrid Grid Code but not in the SONI Grid Code.

2. Specific differences in wording between equivalent provisions in both Grid Codes

The table below provides a list of the other specific differences in wording between equivalent provisions of SDC1 in both Grid Codes.

Provision	SONI Grid Code	EirGrid Grid Code	Reason
SDC2.1.2(a)	Reference is made to "but not Pumped Storage Demand" after the words "Pumped Storage Generation".		Reference to these words in the SONI Grid Code is made for clarity reasons.
SDC2.4.2.4(g)	Reference is made to "OC11" and "OC11.8"	Reference is made to "OC10" and "OC8.5" and to the word "Acceptance" after "Commissioning"	These are the respective requirements in relation to testing, monitoring and investigations
SDC2.4.2.4(h)	Reference is made to "OC10"	Reference is made to "OC8.4"	These are the respective System Tests requirements

SDC2.4.2.5	Reference is made to “radio telephones” in the list of means of communications of a Dispatch Instruction	No reference is made to “radio telephones” and in addition, after the words “Frequency Relay” the EirGrid Grid Code also refers to “or any other automatic Primary Frequency Control Scheme (excluding governor response)”.	These are respective requirements regarding the form of a Dispatch Instruction
SDC2.4.2.5(b)	Reference is made to “SDC3.6.1”	Reference is made to “OC4.3”	These are the respective requirements in relation to actions required in response to high frequency
SDC2.4.2.5(c)(i)	Reference is made to “OC7”	Reference is made to “OC9”	These are the respective references in respective of temporary losses at the TSOs’ Control Centres
SDC2.4.2.8(c)	Reference is made to “OC11.8” and “OC10.4”	Reference is made to “OC8.5” and “OC8.6”	These are the respective requirements in respect of testing and System Tests
SDC2.4.2.8(d)	Reference is made to “OC11.8” and “OC10.4”	Reference is made to “OC8.5” and “OC8.6”	These are the respective requirements in respect of testing and System Tests
SDC2.4.2.10(a)	Reference is made to “radio telephones” in the list of means of communication	No reference is made to “Radio telephones”	The reference to “radio telephones” is specific to the means of communication under the SONI Grid Code.
SDC2.4.2.11(c)	Reference is made to “+15/-5 minutes”	Reference is made to “+/-10 minutes”	These are the respective delays in synchronising times which trigger an obligation on a Generator to notify the TSO of the delay in synchronising times.
SDC2.4.2.12	No reference is made to Dispatch Instructions for Mvars	Reference is made to “or in the case of a Dispatch Instruction for Mvars within two minutes of the instruction” after the words “in accordance with the instruction”	The EirGrid Grid Code has several specific requirements for the dispatch of Generator Reactive Power.
SDC2.4.2.16	Reference is made to	Reference is made to	These are the

	"CC.S1.5"	"CC7.3 and SDC2.B.7"	respective requirements for Generating Unit Control arrangements
SDC2.A.2.2	Reference is made to "Designated Fuel" and "Declared Fuel"	Reference is only made to "fuel"	This is due to the PPA specific fuel terminology in the SONI Grid Code

3. Provisions applicable to one Grid Code only

The table below provides a list of the provisions of SDC1 which exist in one Grid Code only.

Provisions used in SONI Grid Code only	**Reason**
SDC2.1.3	This paragraph cross-refers to Appendices C and D which both deal with specific issues applicable to PPA Generation only.
SDC2.4.1.4	This provision is necessary in the SONI Grid Code to specify that specific CCGT requirements contained in the Generating Unit Agreements, Power Station Agreements and System Support Services Agreements prevail over the requirements of the Grid Code in case of inconsistency.
SDC2.4.2.3	This paragraph is necessary to deal with issues specific to PPA Generation, and in particular the fact that for PPA Generation, a Dispatch Instruction may include an automatic instruction of Spinning Reserve.
SDC2.4.2.4(c) – final sentence	This final sentence is specific to the SONI Grid Code as it cross-refers to Appendix C that sets out the different terminology and requirements relating to fuel for PPA Generation.
SDC2.4.2.4(n)	This is a SONI Grid Code only requirement in respect of instructions to change Generator Transformer tap positions
SDC2.A.1 – second paragraph	This is a SONI Grid Code only provision which provides that for PPA CCGT Modules and Units, provisions in the Power Purchase Arrangements and SSSAs prevail over Grid Code requirements where there is an inconsistency.
SDC2 Appendix C	This appendix deals with fuel provisions which apply to PPA Generation only.
SDC2 Appendix D	This appendix deals with additional provisions which apply to PPA Generation only.

Provisions used in EirGrid Grid Code only	
SDC2.4.2.3	This paragraph is necessary in order to deal with the EirGrid specific requirement that a Dispatch Instruction may include an automatic instruction of Operating Reserve.
SDC2.4.2.4(b)(iv)	This paragraph is EirGrid specific as it cross-refers to Appendix B which sets out EirGrid specific requirements for Generator Reactive Power

	Dispatch.
SDC2.A.5.1 – second paragraph	This provision deals with EirGrid specific requirements in respect of MW Output adjustment of a CDGU for System Frequency.
SDC2.A.7 (d) to (h) and final 2 paragraphs	These additional paragraphs deal with EirGrid specific Generator Reactive Power dispatch requirements
SDC2.A.11	This additional paragraph deals with EirGrid specific Dispatch Instructions in relation to emergencies.
SDC2 Appendix B	This appendix deals with the EirGrid specific requirements for the Dispatch of Generator Reactive Power