

OC8 OPERATIONAL TESTING

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OC8 OPERATIONAL TESTING

OC8.1 INTRODUCTION

OC8.1.1 OC8 deals with the responsibilities and procedures for arranging and carrying out **Operational Tests** which may have an effect on the **Systems** of the **TSO** and **Users**

OC8.1.2 By their nature, **Operational Tests** may impinge on either or both of:

- (a) the **TSO's** responsibilities in respect of the **Transmission System**, including **Dispatch** of generation and **Demand Side Unit MW Availability**; and
- (b) the operations of **Users** and the quality and continuity of supply of electricity to **Users**.

OC8.1.3 To minimise disruption to the operation of the **Transmission System** and to the **Systems** of other **Users**, it is necessary that tests which affect the operation of the **Transmission System** or **Users' Systems** as under OC8.1.2, are subject to central co-ordination and control.

OC8.1.4 To achieve the primary objective as outlined in OC8.2.1, OC8 sets out procedures for establishing and reporting **Operational Tests**.

OC8.2 OBJECTIVE

OC8.2.1 The primary objective of OC8 is to establish procedures for central co-ordination and control of an **Operational Test** required by the **TSO** or a **User**, where such test will or may:

- (a) affect the secure operation of the **Transmission System**; or
- (b) have a significant effect on the operation of the **Transmission System**, the **Other Transmission System** or a **User's System**; or
- (c) affect the economic operation of the **Transmission System** or a **User's System**; or
- (d) affect the quality or continuity of supply of electricity to **Users**.

OC8.2.2 By way of example, tests that are typical of those which may be expected to be covered by OC8 are listed in OC8.4 to OC8.5. This list is not intended to be exhaustive and other tests which fall within the definition of **Operational Tests** shall also be covered by the procedures outlined in this OC8.

OC8.2.3 OC8 is not intended to deal with tests which may be called routinely by the **TSO** in order to assess compliance of **Users** with their design, operating and connection requirements as specified in the **Grid Code** and in each **User's Connection Agreement, Ancillary Services Agreements** and **System Support Agreement**, or to assess that **Generators or Interconnector Operators** are in compliance with their **Registered Data** as notified by **Declarations**, where appropriate, or to determine that **Generation Units or Interconnectors** are in compliance with **Dispatch Instructions**. These issues are covered under OC10 (**Monitoring, Testing and Investigation**).

OC8.3 SCOPE

OC8 applies to the **TSO** and to all **Users**, which term in this OC8 means:

- (a) **Generators** which includes all **Generators** with units with **Registered Capacity** greater than 5 MW and **Generator Aggregators**;
- (b) **Interconnectors**;
- (c) **Demand Side Unit Operators**;
- (d) The **Distribution System Operator**; and
- (e) **Demand Customers**.

OC8.4 TESTS REQUIRED BY THE TSO

OC8.4.1 The **TSO** as operator of the **Transmission System** will in accordance with **Prudent Utility Practice**, need to carry out **Operational Tests** in order to maintain and develop operational procedures, to train staff, and to acquire information in respect of **Power System** behaviour under abnormal system conditions. The **TSO** will endeavour to limit the frequency of occurrence, scope, extent of effects and type of **Operational Tests** to those that are required by **Prudent Utility Practice**.

OC8.4.2 **Operational Tests** required by the **TSO** from time to time shall include, but shall not be limited to the following:

- (i) Tests involving the controlled application of **Frequency** and/or **Voltage** variations aimed at gathering information on **Power System** behaviour;
- (ii) **Power System Restoration Tests**;
- (iii) Testing of standing procedures for **System Emergency Conditions** and **Alert** conditions
- (iv) Testing or monitoring of **Power Quality** under various Power System conditions and **Dispatch** configurations.

OC8.4.3 The provisions of OC8.6, OC8.7, OC8.8, OC8.10.4 and OC8.11 shall not apply to **Operational Tests** required by the **TSO** under this OC8.4.

OC8.4.4 Where the **TSO** intends to carry out an **Operational Test** in accordance with this OC8.4 and, in the **TSO's** reasonable opinion, such an **Operational Test** will or may have an **Operational Effect** on a **User's System**, the **TSO** shall, in accordance with OC7 (Information Exchange) provide such notice to the **User** of the scheduled time and effect of the **Operational Test** as is reasonable in all the circumstances and shall keep the **User** informed as to any changes to the scheduled time and nature of the **Operational Test**.

OC8.4.5 Where a **User**, having been informed about an **Operational Test** under OC8.4.4 may, acting reasonably, contact the **TSO** to request additional time to consider the impact of the test on the **User**. The **TSO** shall co-operate with the **User** to assess the risks. The test shall not proceed until all **Users** are satisfied unless, in the **TSO's** view, a **User** is acting unreasonably.

OC8.5 TESTS REQUIRED BY THE USERS

OC8.5.1 Operation of **Users' Plant** in accordance with **Good Industry Practice** requires **Operational Testing** in order to maintain and develop operational procedures, develop and measure **Plant** performance, comply with statutory or other industry obligations and to train staff.

OC8.5.2 In accordance with **Good Industry Practice** each **User** shall endeavour to limit the frequency of occurrence of **Operational Tests** and to limit the effects of such **Operational Tests** on the **Transmission System**.

OC8.5.3 **Operational Tests** can comprise of a **Significant Test** and/or a **Minor Test**.

OC8.6 PROCEDURE FOR REQUESTING OPERATIONAL TESTS

OC8.6.1 **Users** shall submit proposals for an **Operational Test** in a timely fashion in accordance with OC7 (Information Exchange) or alternative procedures agreed with the **TSO**. Notwithstanding the other requirements in OC7, in the case of a **Significant Test**, **Users** shall submit proposals to the **TSO** at least five **Business Days** before the test start date or, with the agreement of the **TSO**, no later than 09:00 two **Business Days** before the test start date.

- OC8.6.2 As part of the proposal **Users**, when requesting an **Operational Test**, shall supply sufficient detail to the **TSO** to allow any operational consequences of the test to be adequately assessed. This shall include the following information:
- OC8.6.2.1 the reason for the proposed test indicating whether the **Operational Test** is a test required by statute, required for compliance with licence conditions, statutory regulations, or safety codes, which may require that execution of the **Operational Test** be expedited and given priority over other **Operational Tests**.
- OC8.6.2.2 the preferred time or times for the test;
- OC8.6.2.3 the milestones for individual stages of the **Operational Test** (if any) which can be completed separately, and/or do not require to be repeated if the **Operational Test** is interrupted by the **TSO** after completion of each stage;
- OC8.6.2.4 whether there may be an adverse material impact on the **User** if the **Operational Test** is cancelled at short notice or delayed (reasonable detail being given by the **User** to the **TSO** of the impact).
- OC8.6.2.5 where the **User** is a **Generator**, **Interconnector Operator**, **Generator Aggregator** or **Demand Side Unit Operator**, the **Dispatch** or **Dispatches** required by the **Generator**, **Interconnector Operator**, **Generator Aggregator** or **Demand Side Unit Operator** for completion of the test, if any, including the duration of **Dispatch** shall be supplied to the **TSO** as part of the proposal. Where the **Generator**, **Interconnector Operator**, **Generator Aggregator** or **Demand Side Unit Operator** may not know the entire **Dispatches** required for completion of the test until part of the test is completed then the **Generator**, **Interconnector Operator**, **Generator Aggregator** or **Demand Side Unit Operator** when proposing the test shall:
- (a) divide the test into sections as appropriate;
 - (b) indicate and discuss with the **TSO** which sections of the test can be completed in stages and which cannot; and
 - (c) indicate possible variations of the test for the sections that can be completed in stages.
- Additionally, the factors that influence the completion of the stages should be outlined to the **TSO**, namely, if the procedure to be followed for a certain stage depends on the outcome of a previous stage.
- OC8.6.3 A request by the **Generator**, **Interconnector Operator**, **Generator Aggregator** or **Demand Side Unit Operator** for an **Operational Test** requiring a **Generation Unit**, **Interconnector** or **Demand Side Unit** to be **Dispatched** to a particular **MW**

Output or operating condition shall not be considered a **Re-declaration** of **Availability, Ancillary Service** capability or **Operating Characteristics**.

OC8.7 EVALUATION OF PROPOSED OPERATIONAL TESTS

OC8.7.1 The **TSO** shall, on receipt of an **Operational Test** request from the **User**, assess the impact of the proposed test on the operation of the **Power System**. The **TSO** may request additional information from the **User** required to evaluate the impact or impacts of the test.

OC8.7.2 The **TSO** will evaluate the impact (in terms of continuity and quality of supply only) of the **Operational Test** with significantly affected **Users**. Any reasonable objections from any such **Operationally Affected Users** shall be considered. When discussing the **Operational Test** with any affected **User**, the **TSO** shall not disclose what it reasonably believes to be commercially sensitive or otherwise potentially sensitive information to **Users** without the consent of the **User** requesting the test.

OC8.7.3 Where an **Operational Test** proposed by a **Generator, Interconnector Operator, Generator Aggregator** or **Demand Side Unit Operator** in respect of one of its **Generation Units, Interconnector** or **Demand Side Units** requires a **Dispatch** that exceeds the currently declared values of **Availability, Ancillary Service** capability where applicable, or **Operating Characteristics** of the **Generation Unit, Interconnector** or **Demand Side Units**, then the **TSO** may so **Dispatch** the **Generation Unit, Interconnector** or **Demand Side Units** for the period required for the **Operational Test**, in accordance with the relevant provisions of the **Grid Code**.

OC8.8 APPROVAL FOR OPERATIONAL TESTING

OC8.8.1 Following receipt of an **Operational Test** proposal and evaluation of the **Operational Test's** likely impact, including discussions of test requirements with the **User** requesting the **Operational Test** and with **Operationally Affected Users** as appropriate, the **TSO** will decide if approval for the requested **Operational Test** is granted.

OC8.8.2 The criteria for approving **Operational Test** include:
(a) the impact of the **Operational Test** on **Transmission System** operation security

- (b) the impact of the **Operational Test** on **Transmission System** operation economics or on the economics of the operation of the **Other Transmission System**;
- (c) the impact of the **Operational Test** on other **Users'** Systems
- (d) the effect of the **Operational Test** on continuity and quality of electricity supply

OC8.8.3 On approval by the **TSO** of an **Operational Test** proposed by a **User**, the **TSO** shall contact the **User** outlining the proposed **Dispatch** procedure and schedule.

OC8.8.3.1 On receipt of the proposed **Dispatch** procedure and schedule of the **Operational Test**, the **Test Proposer** shall notify the **TSO** without undue delay, of the **Test Proposer's** acceptance or rejection of the proposed **Dispatch** procedure and schedule for the test.

OC8.8.3.2 On notification of rejection of the proposed **Dispatch** procedure and schedule for the **Operational Test** by the **Test Proposer**, then the **Operational Test** shall not take place. The **Test Proposer** may enter into discussions with the **TSO** as to an alternative schedule for the **Operational Test**, or may request a different **Operational Test** or may request the **Operational Test** at an alternative time.

OC8.8.3.3 On notification of acceptance of the proposed **Dispatch** procedure and schedule for the **Operational Test** by the **Test Proposer**, the **TSO** shall inform other **Users** as to the scheduled time and nature of the test, if in the opinion of the **TSO** those **Users** will or may be significantly affected by the test, or otherwise as dictated by standing arrangements.

OC8.8.3.4 If **Operationally Affected Users** are not satisfied with the proposed **Operational Test**, they shall advise the **TSO** of their concerns. The **TSO** shall not cancel proposed **Operational Test** unless these objections are reasonable. If **Operationally Affected Users** are still not satisfied with the **Operational Test** being approved, then they may appeal the decision to the **CER** in accordance with OC8.12.

OC8.8.3.5 Notification by the **TSO** to the **Test Proposer** of the proposed **Dispatch** procedure and schedule for an **Operational Test**, or notification by the **Test Proposer** to the **TSO** of acceptance of the proposed **Dispatch** procedure and schedule, does not constitute a **Dispatch Instruction** from the **TSO** to the **Test Proposer**.

OC8.8.4 On rejection of the proposed **Operational Test** by the **TSO**, the **Test Proposer** may enter into discussions with the **TSO** as to an alternative schedule for the **Operational Test**, or may request a different **Operational Test** or may request the **Operational Test** at an alternative time. If the amended proposal for an **Operational Test** is approved by the **TSO**, and the **User** requesting the **Operational Test** is a **Generator**, then OC8.8.3 shall apply.

OC8.8.5 If the **Test Proposer** is not satisfied that there are reasonable grounds for rejecting the proposed **Operational Test**, then they may appeal to the **CER** according to OC8.12.

OC8.9 SCHEDULING OF OPERATIONAL TESTS

OC8.9.1 **Operational Tests** will usually, but not necessarily, be scheduled by the **TSO** in accordance with SDC1.

OC8.9.2 Where an **Operational Test** is requested by a **User**, the **User** shall submit **Physical Notifications** consistent with planned **Operational Tests** in accordance with **SDC1** and the **Trading and Settlement Code** consistent with planned **Operational Tests**. The **User** shall also submit all other data as normal as required under the **SDC1**.

OC8.9.3 The **TSO** shall use reasonable endeavours to prioritise **Operational Tests** where the **Test Proposer** has notified the **TSO** that **Operational Tests** are required in accordance with licence conditions, statutory regulations or safety codes or a delay in the execution of the tests may have an adverse material impact on a **User**.

OC8.10 DISPATCHING OF OPERATIONAL TESTS

OC8.10.1 **Dispatch Instructions** for **Operational Tests** shall be issued by the **TSO** in the normal manner for issuing **Dispatch Instructions** in accordance with **SDC2**.

OC8.10.2 The **TSO** shall use reasonable endeavours to ensure that scheduled **Operational Tests** are dispatched in accordance with the agreed **Dispatch** procedures.

OC8.10.3 Where the **TSO** foresees a requirement or likely requirement to cancel, postpone or otherwise significantly alter an agreed **Dispatch** procedure and schedule, then the **TSO** shall inform the **Test Proposer** as soon as reasonably possible. In this case the provisions of OC.8.10.4 and OC.8.10.5 apply.

OC8.10.4 Where the **TSO** assesses that the impact of an **Operational Test** on **Transmission System** security or on the continuity and quality of supply or operation of a **User** may or is likely to be significantly greater than originally estimated, the **TSO** may contact the **Test Proposer** to discuss a revised test procedure or schedule.

OC8.10.5 The **TSO** may where it considers it necessary cancel, interrupt or postpone an **Operational Test** at any time, but shall where possible utilise the procedures outlined under OC8.10.4 prior to taking such action where the cancellation, interruption or postponement is for other than technical reasons.

OC8.10.6 If the **Test Proposer** wishes to cancel an **Operational Test** either before commencement of the test or during the test, the **TSO** must be notified by the **Test Proposer**, in accordance with OC7.

OC8.11 TEST REPORTING

OC8.11.1 Upon conclusion of the scheduled time for an **Operational Test** the **Test Proposer** shall notify the **TSO** as to whether the test has been completed, or sections of the test if divided into sections under OC8.6.2.3 have been completed.

OC8.11.2 At the conclusion of the **Operational Test**, the **Test Proposer** shall be responsible for preparing a written report on the **Operational Test** (the "**Final Report**") which shall be available within three months of the conclusion of the **Operational Test** to the **TSO**, **Operationally Effected Users** and the **CER** on request.

OC8.11.3 The **Final Report** shall not be submitted to any person who is not a representative of the **TSO** or the **Test Proposer** unless the **TSO** and the **Test Proposer** having reasonably considered the confidentiality issues arising, shall have unanimously approved such submission.

OC8.11.4 The **Final Report** shall include a description of the **Plant** and/or **Apparatus** tested and a description of the **System Test** carried out together with the results, conclusions and recommendations as they relate to the **TSO** and **Operationally Effected Users**.

OC8.12 DISPUTES

OC8.12.1 **Operationally Affected Users** who consider that the implementation of the proposed **Operational Test** will have a significant negative impact on them may appeal to the **CER** providing details of their objections.

OC8.12.2 The **Test Proposer** has right of appeal to the **CER** if it considers that rejection of the proposed **Operational Test** is unreasonable.

SDC1 SCHEDULING AND DISPATCH CODE NO.1

UNIT SCHEDULING

SDC1.1 INTRODUCTION

SDC1.1.1 SEM Provisions

- (a) This Scheduling and Dispatch Code No. 1 ("SDC1") 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 SDC1 is similar to the SDC1 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 SDC1 that are not part of the **Other Grid Code** are shaded in grey in this SDC1. Differences between the form of this SDC1 and the SDC1 in the **Other Grid Code** are summarised in Annex 1 to this SDC1.
- (c) This SDC1 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**.
- (d) Where stated in this SDC1 the obligation to submit data in relation to some of the information required to be provided to the **TSO** 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** in accordance with the **TSC**, as further provided in this SDC1. The **TSO** may require **Users** to verify or provide revisions to data received by it via the **Market Operator**.
- (e) Further provisions dealing with the **Sections under Common Governance** are contained in the **General Conditions**.

SDC1.1.2 SDC1 sets out the procedure used by the **TSO** to develop unit commitment schedules in respect of **CDGU's, Controllable WFPSs** and **Demand Side Units** including the requirements for **Users** to submit data to support this procedure:

- (a) **Availability**: the submission by a **User** to the **TSO** of an **Availability Notice** in respect of each of its:
 - (i) **CDGUs** (which for the avoidance of doubt comprise, **Generating Units** subject to **Central Dispatch**, **CCGT Installations**, **Hydro Units**, **Pumped Storage Generation** (but not **Pumped Storage Plant Demand**) and **Dispatchable WFPSs**);
 - (ii) **Pumped Storage Plant Demand**;
 - (iii) **Interconnector Availability** (in the case of the **Interconnector Owner**);
 - (iv) **Demand Side Units**;

- (v) in the case of **Generator Aggregators**, its **Aggregated Generating Units**; and
 - (vi) **Controllable WFPSs**.
- (b) **Technical Parameters**: the daily notification to the **TSO** of the **Technical Parameters**, in respect of the following **Trading Day**, by each **User** in a **Technical Parameters Notice**, notification of **Other Relevant Data** and notification of other technical data including **Ancillary Services** capability;
- (c) **Commercial Offer Data**: the notification of **Commercial Offer Data** in accordance with the **TSC**;
- (d) **Physical Notifications**: the declaration by a **User** to the **TSO** of **Physical Notifications** data in accordance with the **TSC**;
- (e) **Revisions/Re-declarations**: revisions / **Re-declarations** of such information as provided for this in SDC1;
- (f) **Indicative Operations Schedules**: the periodic production and issuing by the **TSO** of **Indicative Operations Schedules** as required under SDC1.4.8 as a statement of which:
- (i) **CDGUs**;
 - (ii) **Pumped Storage Plant Demand**;
 - (iii) **Interconnectors**;
 - (iv) **Demand Side Units**;
 - (v) **Aggregated Generating Units**; and/or
 - (vii) **Controllable WFPSs**;
- may be required.

SDC1.1.3 The **TSO** (in conjunction with the **Other TSO**) shall develop, maintain and publish the process describing the methodology and parameters to be used by the **TSO** (and the **Other TSO**) in fulfilling their responsibilities under this SDC1 and SDC2;

SDC1.2 OBJECTIVE

The objectives of SDC1 are:

- (a) to ensure (so far as possible) the integrity of the **Transmission System** and to ensure that the **TSO** acts in conjunction with the **Other TSO** so that the **Other TSO** can ensure the integrity of the **Other Transmission System** (with the **Other TSO** having a similar objective in the **Other Grid Code**);
- (b) to ensure the security and quality of supply in relation to the **Transmission System** and to ensure that the **TSO** acts in conjunction

with the **Other TSO** so that the **Other TSO** can ensure the security and quality of supply in relation to the **Other Transmission System** (with the **Other TSO** having a similar objective in the **Other Grid Code**);

- (c) to ensure that sufficient available capacity is scheduled to meet the electrical power demand, and thereby in conjunction with the **Other TSO** to ensure that sufficient available capacity is scheduled to meet the demand on the Island of Ireland at all times and in both cases together with an appropriate margin of reserve;
- (d) to enable the **TSO**, in conjunction with the **Other TSO**, to prepare and update **Indicative Operations Schedules** to be used in the scheduling and **Dispatch** process;
- (e) to ensure that **Indicative Operations Schedules** are published as provided for in this SDC1.

and, subject to delivering the objectives in SDC1.2 (a), SDC1.2(b), and SDC1.2(c) and taking account of the factors set out in [SDC1.4.8.3],

- (f) to minimise the cost of scheduled deviations from the **Physical Notifications** in accordance with **Merit Order**, subject to SDC1.2(g);
- (g) in fulfilling the objective in SDC1.2(c), minimise the requirement to issue **Notices to Synchronise** before **Gate Closure 2**.

SDC1.3

SCOPE

SDC1 applies to the **TSO** and to the following **Users**:

- (a) **Generators** with regard to their:
CDGUs; and
Controllable WFPs.
- (b) **Pumped Storage Generators** with regard to their **Pumped Storage Plant Demand**;
- (c) In respect of the submission of **Availability Notices** under SDC1.4.1, **Technical Parameters Notice** under SDC1.4.4.1, **Interconnector Owners** with regard to their **Interconnectors**;
- (d) In respect of the submission of **Physical Notifications** under SDC1.4.4.6, **Shipping Agents** in respect of **Interconnector** imports and exports;
- (e) **Demand Side Unit Operators** in relation to their **Demand Side Units**; and
- (f) **Generator Aggregators** in respect of their **Aggregated Generating Units**.

Each of which (other than the **TSO**) is a “**User**” under this SDC1.

SDC1.4 PROCEDURE

SDC1.4.1 Availability Notice

SDC1.4.1.1 Requirement

- (a) Each **User** shall, by not later than the **Gate Closure** 1 each day, notify the **TSO** by means of an **Availability Notice** (in such form as the **TSO** may reasonably notify from time to time or in the form published on the **TSO** website) of changes to the **Availability**, and/or **Demand Side Unit MW Availability** (as the case may be) of each of its:
- (i) **CDGUs**;
 - (ii) **Controllable WFPSs**;
 - (iii) **Pumped Storage Plant Demand**;
 - (iv) **Interconnectors** (to be submitted by the **Interconnector Owner**);
 - (v) **Demand Side Units**; or
 - (vii) **Aggregated Generating Units** as the case may be.
- (b) A **User** may satisfy this obligation by submitting the data under the **TSC**, unless the **TSO** requires, by notice to the **User**, the data to be submitted to it directly under the **Grid Code**.
- (c) A **Generator Aggregator** will satisfy the obligation in this SDC1.4.1.1 by notifying to the **TSO** in an **Availability Notice** in the form described in paragraph (a) above the **Availability** of its **Aggregated Generating Units** as the case may be.
- (d) As a general requirement, the **User** shall ensure that the data in any **Availability Notice** or any revision thereto is consistent with its obligations under SDC1.4.3.2 and SDC1.4.3.4.

SDC1.4.1.2 Content

- (a) The **Availability Notice** shall state the **Availability** of the relevant **CDGU, Controllable WFPS, Interconnector, Demand Side Unit or Pumped Storage Plant Demand** as the case may be, (including, in the case of a **CCGT Installation**, the **Availability** of each of the **CCGT Units** within it) for each **Imbalance Settlement Period** in the time up to and including the end of the relevant **Trading Day** (subject to revision under SDC1.4.3.6). A new **Availability Notice** will supersede the previous one in relation to **Availability** for **Imbalance Settlement Periods** which are covered by the new one.
- (b) In respect of **Interconnectors**, the **Availability Notice** shall state the physical capability of the **Interconnector**, and shall take account of any further restrictions placed by any relevant agreement or the provisions of any licence in respect of the **Interconnector**, but shall not otherwise take account of any expected transmission constraints or other aspects of the operation of the Transmission System or an **External System**. A new **Availability Notice** will supersede the previous one in relation to

Availability for Imbalance Settlement Periods which are covered by the new one.

- (c) In the case of a **Generator Aggregator**, the **Availability Notice** shall state the **Availability** of its **Aggregated Generating Units** as a whole.

SDC1.4.1.3 Whole Numbers: The **MW** figure stated in the **Availability Notice** shall be a whole number.

SDC1.4.1.4 Atmospheric Conditions: In the case of **CDGUs** and **Controllable WFPSs** which are affected by ambient conditions, an **Availability Notice** submitted by a **Generator** shall be stated as being the **User's** best estimate of the prevailing atmospheric conditions for the **Imbalance Settlement Period** to which each part of the **Availability Notice** relates.

SDC1.4.2 **Additional Grid Code Availability Notice**

The following items are required to be submitted by each **User** by no later than the **Gate Closure 1** each day, with the exception of **Aggregators** and **Demand Side Unit Operator**, direct to the **TSO**, regardless of whether these have to be submitted under the **TSC**. The requirements in SDC1.4.1 in relation to data apply to this SDC1.4.2 as if repeated here.

SDC1.4.2.1 Fuels: In the case where a **CDGU** is capable of firing on different fuels, then the **Generator** shall submit an **Availability Notice** setting out the information in SDC1.4.1 above for each fuel for the **CDGU**.

SDC1.4.2.2 **CCGT Availability**

- (a) The **Availability** of each **CCGT Unit** within each **CCGT Installation**;
- (b) In the case of a **CCGT Installation**, the **CCGT Installation Matrix** submitted by the **Generator** *under PC.A4.3 of the Planning Code Appendix* (as may be revised as therein provided is used and relied upon by the **TSO** as a 'look up table' to determine the number of **CCGT Units** within a **CCGT Installation** which will be synchronised to achieve the **MW Output** specified in a **Dispatch Instruction**. When using a **CCGT Installation Matrix** for **Scheduling** purposes, the **TSO** will take account of any updated information on the individual **Availability** of each **CCGT Unit** contained in an **Availability Notice** submitted by a **Generator** pursuant to this SDC1. The individual **Availability** figures submitted under this SDC1.4.2.2 must be consistent with the **Generator's** submission under the **TSC**.
- (c) It is accepted that in cases of change in **MW Output** in response to **Dispatch Instructions** issued by the **TSO**, there may be a transitional variance to the conditions reflected in the **CCGT Installation Matrix**. Each **Generator** shall notify the **TSO** as soon as practicable after the event of any such variance.
- (d) In achieving a **Dispatch Instruction** the range or number of **CCGT Units** envisaged in moving from one **MW Output** level to the other should not be departed from.
- (e) There is a provision in SDC1.4.5 for the **Generator** to revise the individual **Availability** of each **CCGT Unit** within each **CCGT Installations**, subject always to the provisions of this SDC1.4.2.2;

SDC1.4.3 **General Availability Requirements**

SDC1.4.3.1 **Availability of Generating Units**

Each **Generator** and **Generator Aggregator** shall in relation to its **CDGUs**, **Controllable WFPSs** or **Aggregated Generating Units** maintain, repair, operate and fuel the **CDGU** and/or **Controllable WFPS** and/or **Aggregated Generating Unit** as required by **Prudent Utility Practice** and any legal requirements applicable to its jurisdiction, with a view to providing the required **Ancillary Services as provided for in an Ancillary Services Agreement**.

SDC1.4.3.2 Each **Generator**, and where relevant each **Generator Aggregator**, shall, subject to the exceptions in SDC1.4.3.3, use reasonable endeavours to ensure that it does not at any time declare in the case of its **CDGU**, **Controllable WFPS**, or **Aggregated Generating Unit**, the **Availability** or **Technical Parameters** at levels or values different from those that the **CDGU**, **Controllable WFPS**, and/or an **Aggregated Generating Unit** could achieve at the relevant time. The **TSO** can reject declarations to the extent that they do not meet these requirements.

SDC1.4.3.3 SDC1.4.3.2 shall not apply to the extent:

- (a) it would require the **Generator** or, where relevant, the **Generator Aggregator** to declare levels or values better than the **Registered Capacity** and **Technical Parameters** as submitted under the **Planning Code** in respect of a **CDGU**, a **Controllable WFPS** and/or an **Aggregated Generating Unit**;
- (b) necessary during periods of **Scheduled Outage** or **Short Term Scheduled Outage** or otherwise with the consent of the **TSO**;
- (c) necessary while repairing or maintaining the **CDGU**, the **Controllable WFPS** and/or the **Aggregated Generating Unit** or equipment necessary to the operation of the **CDGU**, the **Controllable WFPS** and/or the **Aggregated Generating Unit** where such repair or maintenance cannot reasonably, in accordance with **Prudent Utility Practice**, be deferred to a period of **Scheduled Outage** or **Short Term Scheduled Outage**;
- (d) necessary to avoid an imminent risk of injury to persons or material damage to property (including the **CDGU**, the **Controllable WFPS** and/or the **Aggregated Generating Unit**); or
- (e) it is not lawful for the **Generator** to operate the **CDGU**, the **Controllable WFPS** and/or the **Aggregated Generating Units**.

SDC1.4.3.4 **Availability of Demand Side Units**

Each **Demand Side Unit Operator** shall, subject to the exceptions in SDC1.4.3.5, use reasonable endeavours to ensure that it does not at any time declare the **Demand Side Unit MW Availability** and the **Demand Side Unit** characteristics of its **Demand Side Unit** at levels or values different from those that the **Demand Side Unit** could achieve at the relevant time. The **TSO** can reject declarations to the extent that they do not meet these requirements.

SDC1.4.3.5 SDC1.4.3.4 shall not apply to the extent:

- (a) it would require the **Demand Side Unit Operator** to declare levels or values better than **Demand Side Unit MW Capacity** and **Technical Parameters** as submitted under the **Planning Code** in respect of a **Demand Side Unit**;

- (b) necessary during periods of **Scheduled Outage** or **Short Term Scheduled Outage** or otherwise with the consent of the TSO;
- (c) necessary while repairing or maintaining the **Demand Side Unit** or equipment necessary to the operation of the **Demand Side Unit** where such repair or maintenance cannot reasonably, in accordance with **Prudent Utility Practice**, be deferred to a period of **Scheduled Outage** or **Short Term Scheduled Outage**.
- (d) necessary to avoid an imminent risk of injury to persons or material damage to property (including the **Demand Side Unit**);
- (e) it is not lawful for the **Demand Side Unit Operator** to change its **Demand Side Unit MW Response** or to operate its **Demand Side Unit**.

SDC1.4.3.6 Changes in Availability:

- (a) A **User** may, subject to this SDC1.4.3 and as provided for in this SDC1, make revisions to the **Availability Notice** submitted to the TSO under SDC1.4.1.1 at any time after submission of the **Availability Notice** in accordance with its obligations to make the unit **Available** under SDC1.4.3 by submission by the **Electronic Interface** of a revised **Availability Notice** which shall be in the form set out on the TSO website or in such other form as the TSO may reasonably notify to each **User** from time to time.
- (b) In the event that the TSO submits a **Post Event Notice** under **OC10** in relation to any part of the period covered by the **Availability Notice** at any time after submission of the **Availability Notice**, the **User** shall be deemed to have submitted a revised **Availability Notice** consistent with such **Post Event Notice**.
- (c) The revisions to the **Availability Notice** may include revisions of the levels of **Availability** in the **CCGT Installation Matrix** reflecting the revised **Availability**.
- (d) Additional Grid Code Availability Notice: A **User** may, subject to SDC1.4.3 and to the provisions of this SDC1, make revisions to the **Additional Grid Code Availability Notice** submitted to the TSO under SDC1.4.2 at any time after the submission of the **Additional Grid Code Availability Notice** in accordance with its obligations to make the unit **Available** under SDC1.4.3 by submission by the **Electronic Interface** of a revised **Additional Grid Code Availability Notice**. The Notice shall be in the form set out on the TSO website or in such other form as the TSO may reasonably notify each **User** from time to time.
- (e) Increasing Availability: If a **Generator**, a **Generator Aggregator** or a **Demand Side Unit Operator** in respect of a **CDGU**, an **Aggregated Generating Unit**, a **Demand Side Unit** or **Pumped Storage Plant** in relation to **Demand**, issues an **Availability Notice** increasing (from zero or otherwise) the level of **Availability** or **Demand Side Unit MW Availability** from a specified time, such notice shall be construed as meaning that:
 - (i) in the case of a **CDGU** and/or **Aggregated Generating Unit**, the **CDGU** and/or **Aggregated Generating Unit** is capable of being synchronised to the **Transmission System** or **Distribution System** at that specified time or increasing its **MW Output** at that specified time as the case may be;

- (ii) in the case of a **CDGU** which is an **Open Cycle Gas Turbine**, the **CDGU** is capable of being started at that specified time; or
 - (iii) in the case of a **Demand Side Unit**, the **Demand Side Unit** is capable of delivering a greater **Demand Side Unit MW Response** at that specified time.
- (f) **Controllable WFPS:** If a **Generator** or, where relevant a **Generator Aggregator**, in respect of a **Controllable WFPS**, issues an **Availability Notice** increasing (from zero or otherwise) or decreasing the level of **Availability** from a specified time, such notice shall be effective from the **Imbalance Settlement Period** following the specified time.
- (g) **Decreasing Availability:** When a **CDGU** and/or **Controllable WFPS** is **Synchronised** to the **System** the **Generator** may have occasion to issue an **Availability Notice** decreasing the level of **Availability** of the **CDGU** and/or **Controllable WFPS** from a specified time. Such notice shall be construed as meaning that the **CDGU** and/or **Controllable WFPS** is capable of maintaining **Load** at the level of the prevailing **Availability** until the time specified in the notice. Thereafter, the **CDGU** and/or **Controllable WFPS** shall be capable of maintaining **Load** to the level which would have been achieved if a **Dispatch Instruction** had been given to reduce the **Load**. This would have occurred with effect from the specified time, at the maximum **De-Loading Rate** and/or **Ramp-Down Rate** declared for the **CDGU** and/or **Controllable WFPS** as a **Technical Parameter** at such time down to the level of **Availability** specified in the new **Availability Notice**.

When a **Demand Side Unit** is providing a **Demand Side Unit MW Response** the **Demand Side Unit** may have occasion to issue an **Availability Notice** decreasing the level of **Demand Side Unit MW Availability** of the **Demand Side Unit** from a specified time. Such notice shall be construed as meaning that the **Demand Side Unit** is capable of maintaining **Demand Side Unit MW Response** at the level of the prevailing **Demand Side Unit MW Availability** until the time specified in the notice. Thereafter, the **Demand Side Unit** shall be capable of maintaining **Demand Side Unit MW Response** to the level which would have been achieved if a **Dispatch Instruction** had been given to reduce the **Demand Side Unit MW Response**. This would have occurred with effect from the specified time, at the **Maximum Ramp Down Rate** declared for the **Demand Side Unit** as a **Technical Parameter** at such time down to the level of **Demand Side Unit MW Availability** specified in the new **Availability Notice**.

- (h) If an **Interconnector Owner** in respect of an **Interconnector** issues an **Availability Notice** increasing (from zero or otherwise) or decreasing the **Availability** of the **Interconnector** as a whole from a specified time, such notice shall, subject to SDC1.4.5.1(a), be effective immediately following the specified time.

SDC1.4.3.7 Default Availability

- (a) Insofar as any data submitted or deemed to have been submitted on any particular day in any **Availability Notice**, or any revision thereto is inconsistent with any other data in any other such notice, then the most recently submitted data which, if substituted for the inconsistent data, would make the data in such notices consistent, shall apply for the next

following **Trading Day** *or any other values that the TSO may reasonably deem appropriate.*

- (b) Insofar as an **Availability Notice** is not submitted, the **User** shall be deemed to have submitted an **Availability Notice** by **Gate Closure 1** stating that the **Availability** of the relevant **CDGU**, **Controllable WFPS**, **Demand Side Unit** and/or the **Aggregated Generating Units** for the whole of the relevant **Trading Day** will be the level of **Availability** and **Operating Mode** declared in respect of the final **Imbalance Settlement Period** of the current **Trading Day** *or any other values that the TSO may reasonably deem appropriate.*

SDC1.4.4 **Technical and Commercial Data Requirements**

SDC1.4.4.1 **Technical Parameters**

- (a) (i) By not later than the **Gate Closure 1**, each **User** shall in respect of each:
- **CDGU**;
 - **Controllable WFPS**;
 - **Aggregated Generating Unit**,
 - **Pumped Storage Plant Demand**; and/or
 - **Demand Side Unit**,
- submit to the **TSO** a **Technical Parameters Notice** in such form as the **TSO** may reasonably notify to each **User** or in the form published on the **TSO** website from time to time, containing the **Technical Parameters** to apply for the relevant **Trading Day**.
- (ii) A **User** may satisfy this obligation by submitting the data under the **TSC**, unless the **TSO** requires, by notice in writing to the **User**, the data to be submitted to it under the **Grid Code**.
- (iii) Subsequent revisions to the **Technical Parameters Notice** may be submitted according to the technical offer data submission provisions as set out in the **TSC**. If there is a change to the data submitted under the **TSC**, the **User** shall notify the **TSO**.
- (iv) As a general requirement, the **User** shall ensure that the data in any **Technical Parameters Notice**, or any revision thereto is consistent with its obligations under SDC1.4.3.2 and SDC1.4.3.4.
- (b) **Flexibility**:
- (i) In the case of any **Technical Parameters** as to which the **User** should, acting in accordance with **Prudent Utility Practice**, have some flexibility either in the revision itself or in the time at which the revision is to take effect the **TSO** may, acting reasonably, suggest an amended data figure and/or an amended time at which the data figure is to take effect.

- (ii) Insofar as it is able to do so without breaching any obligations regarding confidentiality contained either in the **TSO Licence** or in any agreement, the **TSO** shall notify the **User** of the reasons for such flexibility request in such degree of detail as the **TSO** considers reasonable in the circumstances.
- (iii) If the **User** agrees to such suggestion (such agreement not to be unreasonably withheld) the **User** shall use reasonable endeavours to accommodate such suggestion and submit a revised **Technical Parameters Notice** accordingly. In any event, the **TSO** may require such further information on the revision as is reasonable and the **User** shall give the **TSO** such information as soon as reasonably practicable.

A **User** shall notify the **TSO** as soon as it becomes aware, acting in accordance with **Prudent Utility Practice**, that any of the data submitted under SDC1.4.4.1 changes.

(c) **Changes to Technical Parameters:**

If any of the data submitted to the **TSO** under this SDC1.4.4.1 changes, a **User** shall, subject to SDC1.4.3, make revisions to such data. The **User** shall notify the **TSO** of any revisions to any previously revised data by submitting by the **Electronic Interface** a revised **Technical Parameters Notice** in the form set out on the **TSO** website or in such other form as the **TSO** may reasonably notify to each **User** from time to time.

(d) **Energy Limits for Hydro Units:** A **Generator** in respect of its **Hydro Units** shall resubmit **Energy Limits** on the **Trading Day** regardless of whether the **Energy Limits** have changed since the **Gate Closure 1**. Revised **Energy Limits** for **Hydro Units** may be submitted at any time up until 11.00 hours on the relevant **Trading Day** in a format specified by the **TSO**.

(e) **Default Technical Parameters:**

Insofar as any data submitted or deemed to have been submitted on any particular day in any **Technical Parameters Notice** (such notice not being relevant to an **Interconnector Owner**), or any revision thereto is inconsistent with any other data in any other such notice, then the most recently submitted data which, if substituted for the inconsistent data, would make the data in such notices consistent, shall apply for the next following **Trading Day** *or any other values that the TSO may reasonably deem appropriate*.

Insofar as not submitted or revised, the applicable **Standing Technical Offer Data** for **Technical Parameters** shall apply for the next relevant **Trading Day**.

Default **Energy Limits** for **Hydro Units:** Notwithstanding the obligations in SDC1.4.4.1(d), in respect of **Hydro Units**, the **Energy Limit** that applied to the previous **Trading Day** will be used.

SDC1.4.4.2 **Additional Grid Code Characteristics Notice**

The following items are required to be submitted by each **User** direct to the **TSO**:

- (a) Individual **CCGT Unit** data equivalent to the data required for a **CCGT Installation**. It shall also show any revisions to the **Technical Parameters** for each of the **CCGT Units** within it.

[Note: The term “CCGT Module” applies to the SONI Grid Code and the term “CCGT Unit” will apply to the EirGrid Grid Code.]

- (b) **Different Fuels:** In the case where a **CDGU** is capable of firing on different fuels, then the **Generator** shall submit an **Additional Grid Code Characteristics Notice** in respect of any additional fuel for the **CDGU**, each containing the information set out in SDC1.4.4.1 above for each fuel and each marked clearly to indicate to which fuel it applies.

- (c) **Export adjustment factors applied by the User in submitting data and that may be applied by the TSO where applicable in issuing Dispatch Instructions and otherwise in calculations relating to instructions in relation to the relevant Plant and/or Apparatus, between the Generator Terminals and the Connection Points.**

- (d) In the case of **Interconnector Owners**, **Interconnector** data, including but not limited to the **Availability** of **Interconnector Filters**.

- (e) In relation to each **Demand Side Unit**, the **Demand Side Unit Energy Profile** and the **Demand Side Unit MW Response Time**.

- (f) Where there is a **Ancillary Services Agreement** in place, the **Ancillary Services** which are **Available**.

- (g) The parameters listed in Appendix A Part 2 of SDC1.

- (h) **A Generator shall submit to the TSO the Operating Reserve capabilities for each category of Operating Reserve defined in OC4.6.3 for each of its CDGUs for each Imbalance Settlement Period.**

[Note: Please note that the above paragraph only applies to the EirGrid Grid Code only.]

A **User** shall notify the **TSO** as soon as it becomes aware, acting in accordance with **Prudent Utility Practice**, that any of the data submitted under SDC1.4.4.2 is no longer correct.

A **User** may make revisions to the **Additional Grid Code Characteristics Notice** submitted to the **TSO** under SDC1.4.4.2 at any time after the submission of the **Additional Grid Code Characteristics Notice** by submitting by the **Electronic Interface** a revised **Additional Grid Code Characteristics Notice**. The notice shall be in the form set out on the **TSO** website or in such other form as the **TSO** may reasonably notify to each **User** from time to time.

SDC1.4.4.3

Not used.

Other Relevant Data

- (a) By not later than **Gate Closure** 1 each day, each **User** in respect of each of its **Plant**, shall in respect of the following **Trading Day** submit to the **TSO** in writing in the form set out on the **TSO** website or in such other form as the **TSO** may reasonably notify to each **User** from time to time), details in relation to the relevant **Trading Day** of any newly arisen special factors, including abnormal risk to loss, which in the reasonable opinion of the **User** may have a material effect on the likely **MW Output** or **Demand Side Unit MW Response** of such **Plant** (including, for a **CCGT Installation** in relation to each of the **CCGT Units** therein). The notice shall be consistent with the **User's** obligations under SDC1.4.3.2. The provisions of this paragraph also apply to **Interconnector Owners** in relation to their **Interconnector Filters**.

[Note: The term "CCGT Module" will apply to the SONI Grid Code and the term "CCGT Unit" will apply to the EirGrid Grid Code.]

- (b) Where a **CDGU** is capable of firing on different fuels, then the **Generator** shall submit details in respect of each fuel for the **CDGU**. Each set of details shall contain the information set out in (a) above for each fuel and each shall be marked clearly to indicate to which fuel it applies.
- (c) A **User**, acting in accordance with **Prudent Utility Practice**, shall notify the **TSO** as soon as it becomes aware that any of the data submitted under SDC1.4.4.4 has changed.

(d) **Changes to Other Relevant Data**

If any of the data submitted to the **TSO** under this SDC1.4.4.4 is no longer correct, a **User** shall, subject to SDC1.4.3, make revisions to such data. The **User** must notify the **TSO** of any new **Other Relevant Data** of which it becomes aware at any time, in writing.

(e) **Default Other Relevant Data**

Insofar as any data submitted or deemed to have been submitted on any particular day in any notice of **Other Relevant Data** or any revision thereto is inconsistent with any other data in any other such notice, then the most recently submitted data which, if substituted for the inconsistent data, would make the data in such notices consistent, shall apply for the next following **Trading Day** *or any other values that the TSO may reasonably deem appropriate.*

Insofar as not submitted or revised, the last notice relating to **Other Relevant Data** to have been submitted shall apply for the next relevant **Trading Day**.

- (f) As a general requirement, the **User** shall ensure that the data in any **Availability Notice, Technical Parameters Notice**, or notice of any **Other Relevant Data** or any revision thereto is consistent with its obligations under SDC1.4.3.2 and SDC1.4.3.4.

SDC1.4.4.5 **Commercial Offer Data**

- (a) Each:
- **Generator;**
 - **Pumped Storage Generator;**
 - **Demand Side Unit Operator;** and
 - **Generator Aggregator,**

Shall in respect of:

Each of its **CDGUs;**
Each of its **Pumped Storage Plant Demand;**
Each of its **Demand Side Units;** and
Its **Aggregated Generating Units,**

submit to the TSO, either directly or by means of an Intermediary on its behalf (if applicable), Commercial Offer Data in accordance with the TSC.

- (b) The **TSO** may require, by notice to the relevant **User**, the data referred to at SDC1.4.4.5 (a) to be submitted to it directly under the **Grid Code**. All data items submitted under this SDC1.4.4.5 are to be at levels of **MW Output** at the **Connection Point**.
- (c) Amendments to **Commercial Offer Data** shall be in accordance with the **TSC**.
- (d) Default **Commercial Offer Data**:
Insofar as not submitted or revised, **Commercial Offer Data** shall be deemed in accordance with the **TSC**.

SDC1.4.4.6 **Physical Notifications**

- (a) Each:
- **Generator;**
 - **Pumped Storage Generator;**
 - **Shipping Agent;**
 - **Demand Side Unit Operator;** and
 - **Generator Aggregator,**

shall in respect of:

Each of its **CDGUs;**
Each of its **Pumped Storage Plant Demand;**
Each of its **Interconnectors;**
Each of its **Demand Side Units;** and
Its **Aggregated Generating Units,**

submit to the **TSO**, either directly or by means of an **Intermediary** on its behalf (if applicable), **Physical Notifications** by **Gate Closure 1** for the corresponding **Trading Days** in accordance with the **TSC**. **Physical Notifications** shall be technically feasible. **Users** shall ensure that the accuracy of **Physical Notifications** is commensurate with **Good Industry Practice**.

- (b) Prior to **Gate Closure 2, Physical Notifications** submitted in accordance with SDC1.4.4.6(a) shall be amended by the **User** (or **Intermediary** if applicable) to align with changes to their expected **Active Power Generation** or **Active Power Demand**. At **Gate Closure 2, Physical Notifications** for the relevant **Imbalance Settlement Period** become **Final Physical Notifications** for that **Imbalance Settlement Period**. **Final Physical Notifications** may not be amended.
- (c) Each **Generator** may, in respect of their **Controllable WFPS** submit **Physical Notifications** in accordance with the provisions of SDC1.4.4.6(a) and SDC1.4.4.6(b).
- (d) Notwithstanding the obligations in SDC1.4.4.6(a) and SDC1.4.4.6(b), a value of zero will be deemed in all **Imbalance Settlement Periods**, or parts thereof, for which **Physical Notifications** data has not been submitted.
- (e) If a **User** has submitted proposals for a test to the **TSO** and subsequently receives approval for the test from the **TSO**, the **User** (or their **Intermediary**, if applicable) shall submit **Physical Notifications** for the unit under test in accordance with the **TSC** to identify the time periods during which their units are under test. The **User** shall ensure that the **Physical Notifications** submitted in respect of a unit under test align with the approved test start time, test **MW Output** profile (or **Demand Unit MW Response** profile in the case of **Demand Side Units**) and test end time.

SDC1.4.5 The **TSO** shall, insofar as it is reasonably able, take account of revisions or notifications submitted under SDC1.4 for **Scheduling** and **Dispatch** purposes.

SDC1.4.7 Form of Submission

- (a) Where this SDC1 requires a **User** to submit a notice, it may instead of submitting it in writing, submit the information required in such a notice (which information shall be supplied in full) by telephone subject to the **TSO's** prior consent (identifying unambiguously the type of notice which is thereby being submitted).
- (b) The individual who is giving the notice by telephone on behalf of the **User** shall firstly specify the time at which the notice is being given, then identify himself and ask the individual receiving the notice on behalf of the **TSO** also to identify himself. The information required by the notice shall then be given, including (without limitation) the identity of the **CDGU, Controllable WFPS, Aggregated Generating Unit, Pumped Storage Plant** and **Demand Side Unit** to which the notice relates.
- (c) The notice shall then be confirmed by facsimile transmission or by any electronic means as agreed with the **TSO** as soon as possible thereafter (and in any event be sent to the **TSO** within 2 hours). Where a facsimile is so sent by way of confirmation, it shall state clearly that it is in confirmation of a notice already given by telephone and shall state the exact time at which the notice was given by telephone.

SDC1.4.8 Compilation of Indicative Operations Schedules

SDC1.4.8.1 **Indicative Operations Schedules** will be compiled by the **TSO** in conjunction with the **Other TSO** as further provided in this SDC1.4.8 as a statement of which

CDGUs and/or **Controllable WFPS** and/or transfers across any **Interconnector** and/or **Demand Side Units** and/or **Pumped Storage Plant Demand** and/or **Aggregated Generating Units** and equivalent units in *Northern Ireland* may be required to operate and their expected **MW Output**. The **TSO** in conjunction with the **Other TSO** will periodically update the **Indicative Operations Schedules**.

SDC1.4.8.2

Merit Order

Subject as provided below, a **Merit Order** will be compiled by the **TSO** (in conjunction with the **Other TSO**) for each **Imbalance Settlement Period** from the **Incremental Price Quantity Pairs, Decremental Price Quantity Pairs, Start-Up Cost, Shutdown Cost and No-Load Cost** (which together shall be known as the “**Price Set**”) and, subject as provided in this SDC1, used to determine which of the **CDGUs, Controllable WFPSs, Pumped Storage Plant Demand, Demand Side Units, Aggregated Generating Units** or **Interconnector** power transfer to schedule and **Dispatch** in relation to their **Price Sets** at values that differ from those indicated by **Physical Notifications**, as required to deliver the objectives set out in SDC1.2(a), SDC1.2(b) and SDC1.2(c). The **Merit Order** for increasing **MW Output** above the level indicated in **Physical Notifications** will be on the basis of ascending prices so that the **CDGU, Controllable WFPS, Pumped Storage Plant Demand, Demand Side Unit, or Aggregated Generating Unit Price Set** or bid-offer data from an **External System Operator** at the head of a **Merit Order** will be that which has the lowest **Incremental Price** per **MWh**, and that at the foot of a **Merit Order** shall be the one with the highest **Incremental Price** per **MWh**. Each **CDGU, Controllable WFPS, Pumped Storage Plant Demand, Demand Side Unit, Aggregated Generating Units** and/or bid-offer data from an **External System Operator** shall appear in the **Merit Order** for each **Price Set** submitted.

The **Merit Order** for dispatching **MW Output** to a level below that indicated in **Physical Notifications** will be on the basis of descending prices so that the **CDGU, Controllable WFPS, Pumped Storage Plant Demand, Demand Side Unit, Aggregated Generating Unit Price Set** or bid-offer data from an **External System Operator** at the head of a **Merit Order** will be that which has the highest **Decremental Price** per **MWh**, and that at the foot of a **Merit Order** shall be the one with the lowest **Decremental Price** per **MWh**. Each **CDGU, Controllable WFPS, Pumped Storage Plant Demand, Demand Side Unit, Aggregated Generating Units** or bid-offer data from an **External System Operator** shall appear in the **Merit Order** for each **Price Set** submitted.

SDC1.4.8.3

In compiling the **Indicative Operations Schedules** in conjunction with the **Other TSO**, the **TSO** will take account of and give due weight to the following factors (and the equivalent factors on the **Other Transmission System** will be so treated separately by the **Other TSO**):

- (i) **Physical Notifications** or **Final Physical Notifications** (as the case may be) submitted in accordance with SDC1.4.4.6;
- (ii) **Transmission System** constraints from time to time, as determined by the **TSO**;
- (iii) Reserve constraints from time to time, as determined by the **TSO**;
- (iv) the need to provide an **Operating Margin** (by using the various categories of reserve as specified in *OC4.6 and CC7.3.1.1* (as the case may be), as determined by the **TSO** acting in conjunction with the **Other TSO**;
- (v) **Transmission System** stability considerations;

- (vi) the level of **MW Output** and availability covered by **Non Centrally Dispatched Generating Units**, by **Plant** subject to **Priority Dispatch** and by **Controllable WFPS**;
- (vii) the **Energy Limits** for **Hydro Units**;
- (viii) in respect of all **Plant**, the values of their **Technical Parameters** registered under this SDC1 and other information submitted under SDC1.4.4.4;
- (ix) **Commercial Offer Data** for each **CDGU** and/or **Controllable WFPS** and **Demand Side Unit** and equivalent commercial data provided by an **External System Operator** in respect of **Interconnectors**;
- (x) the requirements, as determined by the **TSO**, for **Voltage Control** and **Mvar** reserves;
- (xi) **CDGU** and/or **Controllable WFPS** stability, as determined by the **TSO**;
- (xii) other matters to enable the **TSO** to meet its **Licence Standards** and the **Other TSO** to meet its equivalent;
- (xiii) the requirements as determined by the **TSO**, for maintaining **Frequency Control**;
- (xiv) **Monitoring** and/or **Testing** and/or **Investigations** to be carried out, or being carried out, under **OC10** (as the case may be), Testing to be carried out, or being carried out, at the request of a User under **OC8** and/or **Commissioning Testing** under the CC;
- (xv) **System Tests, Operational Tests and Commissioning Tests**;
- (xvi) the inability of any **CDGU** and/or **Controllable WFPS** to meet its full reserve capability;
- (xvii) **Inter-jurisdictional Tie Line** limits;
- (xviii) other facts as may be reasonably considered by the **TSO** to be relevant to the **Indicative Operations Schedule**;
- (xix) the inflexible characteristics as declared by the **Generator** and abnormal risks;
- (xx) losses on the **Transmission System** and on the **Other Transmission System**;
- (xxi) requirements within any **Constrained Group**;
- (xxii) factors used by the **TSO** (and the **Other TSO**) in order to comply with Statutory Instruments, Statutory Regulations and/or the **Licence** which may impact scheduling and **Dispatch**;
- (xxiii) factors used by the **TSO** (and the **Other TSO**) to comply with the objectives in SDC1.2(g).

SDC1.4.8.4

Taking account of and applying the factors referred to in SDC1.4.8.3, **Indicative Operations Schedules** shall be compiled by the **TSO** in conjunction with the **Other TSO** to schedule such **CDGUs, Controllable WFPS, Pumped Storage Plant Demand, Demand Side Units, Aggregated Generating Units** and/or such

Interconnector power transfers, and equivalent units or power transfers of equivalent units in *Northern Ireland*, which have been declared **Available** in an **Availability Notice** (and the equivalents on the **Other Transmission System**):

- (i) in accordance with the applicable **Merit Order**;
- (ii) as will in aggregate (after taking into account electricity delivered other than from **CDGUs**, **Controllable WFPSs**, **Aggregated Generating Units**, and/or **Interconnector** power transfers and variation in **Demand** from **Pumped Storage Plant Demand** and **Demand Side Units**) be sufficient to match at all times (to the extent possible having regard to the **Availability** or **Demand Side Unit MW Availability** of **CDGUs**, **Controllable WFPSs**, **Pumped Storage Plant Demand**, **Demand Side Units**, **Aggregated Generating Units** and **Interconnector** power transfers) the forecast aggregated **Demand** (derived under OC1 of the **Grid Code** and the **Other Grid Code**) together with such margin of reserve as the **TSO** working in conjunction with the **Other TSO** shall consider to be appropriate; and
- (iii) as will in aggregate be sufficient to match minimum forecast **Demand** levels together with a sufficient **Minimum Demand Regulation**.

The taking account of and application of the factors in SDC1.4.8.3 will mean that, in general, strict adherence to **Merit Order** may not necessarily be feasible.

SDC1.4.8.5 The **TSO** will periodically rerun the scheduling process and issue revised **Indicative Operations Schedules** to take account of any of the following factors (and the equivalent factors on the **Other Transmission System** which will be so dealt with separately by the **Other TSO**):

- (a) changes to **Physical Notifications**;
- (b) changes to **Commercial Offer Data** [and bid-offer data from **External Transmission System Operators**];
- (c) changes to **Availability** or **Demand Side Unit MW Availability** and/or **Technical Parameters** of **CDGUs** and/or **Controllable WFPS** and/or **Aggregated Generating Units** and/or **Interconnectors** and/or **Demand Side Units** notified to the **TSO**;
- (d) changes to **Demand** forecasts on the Island of Ireland;
- (e) changes to wind power forecasts on the Island of Ireland;
- (f) changes to **Transmission System** constraints, emerging from the necessarily iterative process of **Scheduling** and network security assessment;
- (g) changes to **CDGU** and/or **Controllable WFPS** requirements following notification to the **TSO** of the changes in capability of a **Generator** to provide a **Special Action** as described in SDC2;
- (h) changes to **CDGU** and/or **Controllable WFPS** requirements within **Constrained Groups**, following re-appraisal of **System Demand** forecasts on the Island of Ireland within that **Constrained Group**;
- (i) changes to **Monitoring** and/or **Testing** and/or **Investigations** to be carried out, or being carried out, under **OC10** (as the case may be), changes to testing to be carried out, or being carried out, at the request of a **User** under **OC8** and/or **Commissioning Testing** under **CC15**;

- (j) changes to any conditions which in the reasonable opinion of the **TSO**, would impose increased risk to the **Transmission System** and would therefore require an increase in the **Operating Margin**;
- (k) known (or emerging) limitations and/or deficiencies of the **Scheduling** process.

SDC1.4.8.6 When:

- (a) adverse weather is anticipated;
- (b) there is a high risk to the whole or part of the **Transmission System** and/or the **Other Transmission System**;
- (c) **Demand Control** has been instructed by the **TSO**; or
- (d) a **Total Shutdown** or **Partial Shutdown** exists;

these factors may mean that a **CDGU, Controllable WFPS, Pumped Storage Plant Demand, Demand Side Unit, Aggregated Generating Unit** and/or **Interconnector** transfers is/are chosen other than in accordance with the profile described in **Physical Notifications** and amended in line with **Merit Order** to a greater degree than would be the case when merely taking into account and giving due weight to the factors listed in SDC1.4.8.3 in order to seek to maintain the integrity of the **Transmission System**.

SDC1.4.8.7

- (a) The **Synchronising** and **De-Synchronising** times (and, in the case of **Pumped Storage Plant Demand**, the relevant effective time) shown in the **Indicative Operations Schedule** are indicative only and it should be borne in mind by **Users** that the **Dispatch Instructions** could reflect more or different **CDGU, Aggregated Generating Unit** and/or **Controllable WFPS, Pumped Storage Plant Demand** and/or **Aggregate Generating Unit** requirements than in the **Indicative Operations Schedule**. The **TSO** may issue **Dispatch Instructions** in respect of any **CDGU** and/or **Aggregated Generating Unit, Controllable WFPS, Pumped Storage Plant Demand** or **Aggregated Generating Unit** which has not declared an **Availability** or **Demand Side Unit MW Availability** of 0 MW in an **Availability Notice**. **Users** with **CDGUs** and/or **Aggregated Generating Units, Controllable WFPS, Pumped Storage Plant Demand** shall ensure that their units are able to be **Synchronised**, or in the case of **Pumped Storage Plant Demand**, used at the times **Scheduled**, but only if so **Dispatched** by the **TSO** by issue of a **Dispatch Instruction**. **Users** shall, as part of a revision to the **Technical Parameters**, indicate to the **TSO** the latest time at which a **Dispatch Instruction** is required to meet the scheduled **Synchronising** time or in the case of **Pumped Storage Plant Demand**, the **Scheduled** relevant effective time.
- (b) The provisions of SDC1.4.8.7(a) shall apply to **Demand Side Units** with the exception that reference to relevant effective time shall be read as a reference to **Demand Side Unit NoticeTime**.

SDC1.4.8.8

Content of **Indicative Operations Schedules**

The information contained in the **Indicative Operations Schedules** will indicate, where appropriate, on an individual **CDGU, Controllable WFPS, Pumped Storage Plant Demand, Demand Side Unit, Aggregated Generating Units**, and/or **Interconnector** basis, the period and **Loading** for which it is **Scheduled**. In the case of a **CDGU** which is capable of firing on two different

fuels, it will also indicate the fuel for which it is **Scheduled**. If no fuel is contained in the **Indicative Operations Schedule**, then the most recently specified fuel shall be treated as having been indicated.

SDC1.4.8.9 Issue of Indicative Operations Schedules

- (a) The initial **Indicative Operations Schedule** for a **Trading Day** will be published for access by **Users** by 1600 hours on the **Trading Day** preceding the relevant **Trading Day**. However, if on any occasion the **TSO** is unable to meet this time, the **TSO** also reserves the right to extend the timescale for the issue of the **Indicative Operations Schedules** to the extent necessary. Following the issue of the initial **Indicative Operations Schedule** preceding the relevant **Trading Day**, the **TSO** will periodically issue revised **Indicative Operations Schedules** to reflect updated information from the scheduling process.
- (b) **Indicative Operations Schedules** issued by the **TSO** may comprise several schedules covering short term, medium term or long term timeframes where long term covers the period up to 48 hours immediately following real time.
- (c) The **TSO** may issue **Dispatch Instructions** to **Users** in respect of **CDGUs, Controllable WFPs, Pumped Storage Plant Demand** and/or **Demand Side Units** and/or **Aggregated Generating Units** and/or **Interconnector** power transfers before the issue of the initial **Indicative Operations Schedule** for the **Trading Day** to which the **Dispatch** instruction relates if the **Synchronous Start Up Time** for the relevant **CDGUs** and/or **Controllable WFPs, Pumped Storage Plant Demand** and/or **Demand Side Unit** and/or **Aggregated Generating Unit** requires the **Dispatch** instruction to be given at that time. When the length of the time required for **Notice to Synchronise** is within 30 minutes of causing the **CDGU** and/or **Controllable WFPs** and/or **Pumped Storage Plant Demand** to be unable to meet the indicative **Synchronising** time in the **Indicative Operations Schedule** or a subsequent indicative **Synchronising** time and no **Dispatch Instruction** has been received, the **Generator** shall inform the **TSO** without delay.

SDC1.4.8.10 Regulation

It is a requirement for running the **Transmission System** that all **Synchronised CDGUs** and/or **Controllable WFPs** shall 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 forecast of **System Demand** on the Island of Ireland to see whether the level of regulation for any period is sufficient, and may take any shortfall into account in **Scheduling** and **Dispatch**.

SDC1.4.8.11 Data Requirements

SDC1 Appendix A Part 1 sets out the **Technical Parameters** for which values are to be supplied by a **User** in respect of each of its **CDGUs** and/or **Controllable WFPs** and/or **Pumped Storage Plant Demand** and/or **Demand Side Units** and/or **Aggregated Generating Units** by not later than **Gate Closure 1** for the relevant **Trading Day**.

SDC1 Appendix A Part 2 sets out the additional data items required in respect of an **Additional Grid Code Characteristics Notice**.

SDC1 – APPENDIX A

Part 1. Technical Parameters

[Note: The factors applicable to CDGUs below 10 MW apply to the EirGrid Grid Code only.]

Technical Parameter	CDGU				Control WFPS	DSU		Agg. Gen	CDGU <10 MW	Pump Storage Demand
	Thermal	Hydr/ En Ltd	Disp. WFPS	Pump S Gen		Individual Demand Site	Aggregate d Demand Sites			
Block Load Cold	✓	✓	✓	✓	✓				✓	
Block Load Hot	✓								✓	
Block Load Warm	✓								✓	
Demand Side Unit Energy Profile						✓	✓			
Demand Side Unit MW Availability						✓	✓			
Demand Side Unit MW Response Time						✓	✓			
Demand Side Unit Notice Time						✓	✓			
Deload Break Point	✓	✓	✓	✓	✓				✓	
De-Loading Rate 1	✓	✓	✓	✓	✓				✓	
De-Loading Rate 2	✓	✓	✓	✓	✓				✓	
Dwell Time Up 1	✓	✓	✓	✓	✓				✓	
Dwell Time Up 2	✓	✓	✓	✓	✓				✓	
Dwell Time Up 3	✓	✓	✓	✓	✓				✓	
Dwell Time Down 1	✓	✓	✓	✓	✓				✓	
Dwell Time Down 2	✓	✓	✓	✓	✓				✓	
Dwell Time Down 3	✓	✓	✓	✓	✓				✓	
Dwell Time Up Trigger Point 1	✓	✓	✓	✓	✓				✓	
Dwell Time Up Trigger Point 2	✓	✓	✓	✓	✓				✓	
Dwell Time Up Trigger Point 3	✓	✓	✓	✓	✓				✓	
Dwell Time Down Trigger Point 1	✓	✓	✓	✓	✓				✓	
Dwell Time Down Trigger Point 2	✓	✓	✓	✓	✓				✓	
Dwell Time Down Trigger Point 3	✓	✓	✓	✓	✓				✓	
End Point of Start Up Period	✓	✓	✓	✓	✓				✓	
Energy Limit		✓								
Forecast Minimum Output Profile				✓						✓
Forecast Minimum Generation Profile	✓	✓	✓	✓					✓	
Demand Side Unit MW Response Time						✓	✓			
Load Up Break Point Cold (1)	✓	✓	✓	✓	✓				✓	
Load Up Break Point Cold (2)	✓	✓	✓	✓	✓				✓	
Load Up Break Point	✓								✓	

Technical Parameter	CDGU				Control WFPS	DSU		Agg. Gen	CDGU <10 MW	Pump Storage Demand
	Thermal	Hydr/ En Ltd	Disp. WFPS	Pump S Gen		Individual Demand Site	Aggregate d Demand Sites			
Hot (1)					-				-	-
Load Up Break Point Hot (2)	✓								✓	
Load Up Break Point Warm (1)	✓								✓	
Load Up Break Point Warm (2)	✓								✓	
Loading Rate Cold (1)	✓	✓	✓	✓	✓				✓	
Loading Rate Cold (2)	✓	✓	✓	✓	✓				✓	
Loading Rate Cold (3)	✓	✓	✓	✓	✓				✓	
Loading Rate Hot (1)	✓								✓	
Loading Rate Hot (2)	✓								✓	
Loading Rate Hot (3)	✓								✓	
Loading Rate Warm (1)	✓								✓	
Loading Rate Warm (2)	✓								✓	
Loading Rate Warm (3)	✓								✓	
Max Ramp Down Rate (shall be a number greater than zero)						✓	✓			
Max Ramp Up Rate (shall be a number greater than zero)						✓	✓			
Maximum Down Time						✓	✓			
Maximum Generation / Registered Capacity	✓	✓	✓	✓	✓				✓	
Maximum On Time	✓	✓	✓	✓	✓				✓	
Maximum Storage Capacity				✓						
Minimum Down Time						✓	✓			
Minimum Generation	✓	✓	✓	✓	✓				✓	
Minimum off time	✓	✓	✓	✓	✓				✓	
Minimum on time	✓	✓	✓	✓	✓				✓	
Minimum Storage Capacity				✓						✓✓
(Other relevant technical parameters)	✓	✓	✓	✓	✓			✓	✓	
Pumping capacity				✓						✓
Ramp Down Break Point 1	✓	✓	✓	✓	✓			✓	✓	
Ramp Down Break Point 2	✓	✓	✓	✓	✓			✓	✓	
Ramp Down Break Point 3	✓	✓	✓	✓	✓			✓	✓	
Ramp Down Break Point 4	✓	✓	✓	✓	✓			✓	✓	
Ramp Down Rate 1	✓	✓	✓	✓	✓			✓	✓	
Ramp Down Rate 2	✓	✓	✓	✓	✓			✓	✓	
Ramp Down Rate 3		✓	✓	✓	✓			✓		
Ramp Down Rate 4	✓	✓	✓	✓	✓			✓	✓	
Ramp Down Rate 5	✓	✓	✓	✓	✓			✓	✓	
Ramp Up Break Point 1	✓	✓	✓	✓	✓			✓	✓	
Ramp Up Break Point 2	✓	✓	✓	✓	✓			✓	✓	
Ramp Up Break Point 3	✓	✓	✓	✓	✓			✓	✓	

Technical Parameter	CDGU				Control WFPS	DSU		Agg. Gen	CDGU <10 MW	Pump Storage Demand
	Thermal	Hydr/En Ltd	Disp. WFPS	Pump S Gen		Individual Demand Site	Aggregated Demand Sites			
					-				-	-
Ramp Up Break Point 4	✓	✓	✓	✓	✓			✓	✓	
Ramp Up Rate 1	✓	✓	✓	✓	✓			✓	✓	
Ramp Up Rate 2	✓	✓	✓	✓	✓			✓	✓	
Ramp Up Rate 3	✓	✓	✓	✓	✓			✓	✓	
Ramp Up Rate 4	✓	✓	✓	✓	✓			✓	✓	
Ramp Up Rate 5	✓	✓	✓	✓	✓			✓	✓	
Short Term Maximisation Capability	✓	✓	✓	✓	✓				✓	
Short Term Maximisation Time	✓	✓	✓	✓	✓				✓	
Soak Time Cold (1)	✓	✓	✓	✓	✓				✓	
Soak Time Cold (2)	✓	✓	✓	✓	✓				✓	
Soak Time Hot (1)	✓								✓	
Soak Time Hot (2)	✓								✓	
Soak Time Trigger Point Cold (1)	✓	✓	✓	✓	✓				✓	
Soak Time Trigger Point Cold (2)	✓	✓	✓	✓	✓				✓	
Soak Time Trigger Point Hot (1)	✓								✓	
Soak Time Trigger Point Hot (2)	✓								✓	
Soak Time Trigger Point Warm (1)	✓								✓	
Soak Time Trigger Point Warm (2)	✓								✓	
Soak Time Warm (1)	✓								✓	
Soak Time Warm (2)	✓								✓	
Synchronous Start-Up Time Cold	✓	✓	✓	✓	✓				✓	
Synchronous Start-Up Time Hot	✓	✓	✓	✓	✓				✓	
Synchronous Start-Up Time Warm	✓								✓	
Start of Restricted Range 1	✓	✓	✓	✓	✓				✓	
End of Restricted Range 1	✓	✓	✓	✓	✓				✓	
Start of Restricted Range 2	✓	✓	✓	✓	✓				✓	
End of Restricted Range 2	✓	✓	✓	✓	✓				✓	

[Part 2. Additional data items required in an Additional Grid Code Characteristics Notice]

Table (i)

Variable	Applies to
Declared POR	CDGUs, excluding Dispatchable WFPSS
Declared SOR	CDGUs, excluding Dispatchable WFPSS
Declared TOR1	CDGUs, excluding Dispatchable WFPSS
Declared TOR2	CDGUs, excluding Dispatchable WFPSS
Declared Replacement Reserve	CDGUs, excluding Dispatchable WFPSS
Minimum MW for POR	CDGUs, excluding Dispatchable WFPSS
Minimum MW for SOR	CDGUs, excluding Dispatchable WFPSS
Minimum MW for TOR1	CDGUs, excluding Dispatchable WFPSS
Minimum MW for TOR2	CDGUs, excluding Dispatchable WFPSS
Minimum MW for Replacement Reserve	CDGUs, excluding Dispatchable WFPSS
POR Decrement Rate	CDGUs, excluding Dispatchable WFPSS
SOR Decrement Rate	CDGUs, excluding Dispatchable WFPSS
TOR1 Decrement Rate	CDGUs, excluding Dispatchable WFPSS
TOR2 Decrement Rate	CDGUs, excluding Dispatchable WFPSS
Replacement Reserve Decrement Rate	CDGUs, excluding Dispatchable WFPSS
Governor Droop	CDGUs, excluding Dispatchable WFPSS

Table (ii)

Black Start Capability (yes/no)	CDGUs, excluding Dispatchable WFPSS
Declared Reactive Power (Consumption)	CDGUs, excluding Dispatchable WFPSS
Declared Reactive Power (Production)	CDGUs, excluding Dispatchable WFPSS
Correction Factor (Mvar consumption)	CDGUs, excluding Dispatchable WFPSS
Correction Factor (Mvar Production)	CDGUs, excluding Dispatchable WFPSS
Export Adjustment Factor 1	CDGUs, excluding Dispatchable WFPSS
Export Adjustment Factor 2	CDGUs, excluding Dispatchable WFPSS
Unit Loss Factor	CDGUs, excluding Dispatchable WFPSS

SDC1 ANNEX I

Explanatory Note of differences between SDC1 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 SDC1 in the SONI Grid Code and the form of SDC1 in the EirGrid Grid Code, which appear repeatedly throughout SDC1.

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.
System Support Services Agreement	Ancillary Service(s) Agreement	These agreements will continue to stay in place with their existing names
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.
Prudent Operating Practice	Prudent Utility Practice	Each Code uses a different phrase for this concept.
Planned Outage	Schedule Outage	Each Code uses a different phrase for this concept.
Planned Maintenance Outage	Short Term Scheduled Outage	Each Code uses a different phrase for this concept.

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
SDC1.4.2.2(b)	Reference is made to "PCA2.3.4"	Reference is made to "PCA.4.3 of the Planning Code Appendix"	These are the respective requirements for the provision of the CCGT Installation data.
SDC1.4.3.6(b)	Reference is made to "OC11"	Reference is made to "OC10"	These are the respective requirements for Testing

			Monitoring and Investigation
SDC1.4.3.6(d)	Reference is made to a User acting in accordance with its obligations under “SDC1.4.3 and Appendix B to this SDC1”	Reference is made to a User acting in accordance with its obligations under “SDC1.4.3” only	SONI has separate requirements for Availability and Technical Parameter related issues in respect of PPA Generation.
SDC1.4.3.7		The EirGrid Grid Code contains the following additional words at the end of the paragraph: <i>“or any other values that the TSO may reasonably deem appropriate”</i>	Difference is due to different requirements in both jurisdictions.
SDC1.4.8.1	Reference is made to “the Republic of Ireland”.	Reference is made to “Northern Ireland”.	Reference is being made in each Grid Code to the other jurisdiction.
SDC1.4.8.3(iv)	Reference is made to “OC3”	Reference is made to “OC4.6 and CC7.3.1.1”	These are the respective references to Operating Margin.
SDC1.4.8.3(xiv)	Reference is made to “OC11” and then to “OC11.8”	Reference is made to “OC10” and then to “OC8”	These are the respective references to Testing Monitoring and Investigation and Operational Testing.
SDC1.4.8.3(xiv)	Reference is made to “Commissioning/Acceptance Testing”	Reference is made to “Commissioning/Testing”	These are the respective terms used in each Grid Code
SDC1.4.8.3(xv)	Reference is made to “System Tests” only	Reference is made to “System Tests, Operational Tests and Commissioning Tests”	The EirGrid Grid Code definition of System Tests excludes Operational and Commissioning Tests whereas the SONI definition includes them.
SDC1.4.8.4	Reference is made to “the Republic of Ireland”.	Reference is made to “Northern Ireland”.	Reference is being made in each Grid Code to the other jurisdiction.
SDC1 Appendix Part 2 A	Part 2 refers to factors applicable to the SONI Grid Code only	Part 2 refers to factors applicable to the EirGrid Grid Code only	The two System Operators require some data items specific to that

			system and they are detailed here.
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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
SDC1.1.4	SONI has extra requirements due to the presence of PPA Generation in Northern Ireland.
SDC1.4.3: Introductory sentence	
SDC1.4.4: Introductory sentence	
SDC1.4.8.3(xxiv)	
SDC1 Appendix B	
SDC1.4.2.2(f)	The CCGT Matrix can be amended in the SONI Grid Code as per a specific requirement in the Planning Code Appendix, whereas the EirGrid Code can be amended as per any Planning Code data.
SDC1.4.4.2(i)	This provision is necessary to deal with conversion factors applicable to PPA Generators in Northern Ireland.
SDC1.4.4.3	There are differences in how Reserve capabilities are notified to both SONI and EirGrid.

Provisions used in EirGrid Grid Code only	
SDC1.4.4.2 (h)	There are differences in how Operating Reserve capabilities are notified to both SONI and EirGrid.
SDC1.4.4.2(c)	The SONI Grid Code addresses the issue of conversion factors in a different way by cross-referring to the Planning Code.

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**.
- (d) Where stated in this SDC2, 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** in accordance with 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) **Demand Side Unit Operators** in respect of their **Demand Side Units**; 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 **Physical Notifications** and **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) **Demand Side Unit Operators** in relation to their **Demand Side Units**;
and
- (e) **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) **Final Physical Notifications** (or **Physical Notifications** in circumstances where **Dispatch Instructions** must be issued before **Gate Closure 2**);the;
- (b) **Availability Notices**;
- (c) **Merit Order** derived under SDC1
- (d) the other factors to be taken into account under SDC1 and which were used by the **TSO** to compile the **Indicative Operations Schedule**; and
- (e) 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 **Demand Side Unit Operators** 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.

SDC2.4.1.4 Following **Gate Closure 2, Users** may no longer amend **Physical Notifications** or **Commercial Offer Data** in respect of **Imbalance Settlement Periods** for which the **Gate Closure 2** has occurred. Notwithstanding SDC1.4.8, the **TSO** will continue to rerun the scheduling process and issue **Indicative Operations Schedules**.

SDC2.4.2 **Dispatch Instructions**

SDC2.4.2.1 Introduction

As far as is reasonably practicable, **Dispatch Instructions** will normally be issued at any time following **Gate Closure 2** in respect of the relevant **Imbalance Settlement Periods**. 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 **Gate Closure 2**.

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 **Demand Side Unit Operator** 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 be 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) **Dispatch Instruction Test Flags**: **Dispatch Instruction Test Flags** shall be applied to **Dispatch Instructions** in respect of new or amended test proposals submitted by a **Generator** after **Gate Closure 2** has already occurred for the relevant **Imbalance Settlement Periods** (since **Final Physical Notifications** cannot be amended) and the **Generator** could not have reasonably foreseen the need for the new or amended test request before **Gate Closure 2** for the relevant **Imbalance Settlement Period**. The **Dispatch Instruction Test Flag** shall be applied to the portion of the **Dispatch Instruction** which deviates from **Physical Notifications** submitted by a **Generator** in respect of a test proposal which has been approved by the **TSO**. The part of a **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 Side Unit MW Response** 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 be 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** when they have received these **Dispatch Instructions** from 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, **Demand Side Unit Operators** will only reduce or increase their **Demand Side Unit MW Response** 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 cannot maintain the provision of any **Demand Side Unit MW Response**, may otherwise only take place without the **TSO's** prior agreement if it is to avoid, in the **Demand Side Unit Operator'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)
 - (i) the **MW Output** (or **Demand Side Unit MW Response**) to which it is instructed or;
 - (ii) the **MW Output** (or **Demand Side Unit MW Response**) to which it is instructed until, a specified time, in which case the instructed **MW Output** shall be followed until a further **Dispatch Instruction** is issued;
- (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.2.3 Where the **MW Output** (or **Demand Side Unit MW Response**) is instructed until a specified time, that time shall normally be within the **Trading Days** for which **Gate Closure 1** has passed. The **TSO** may, however, at its discretion, specify a time beyond the end of the **Trading Days** for which **Gate Closure 1** has passed.

- 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** until further notice"
 Or,
 "Time 1400 hours. Unit 1 to 205 **MW** effective until 1500 hours"
- SDC2.A.3.2 If the start time is 1415 hours, it would be, for example:
 "Time 1400 hours. Unit 1 to 205 **MW** until further notice, start at 1415 hours"
 Or
 "Time 1400 hours. Unit 1 to 205 **MW** effective until 1500 hours, 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 until further notice"
 Or
 "Time 1400 hours. Unit 1 to 205 **MW** by 1420 hours, effective until 1500 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 than 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 a Demand Side Unit MW Response

SDC2.A.12.1 For **Demand Side Units**, the **Dispatch Instruction** issue time will always have due regard for the **Demand Side Unit Notice Time** declared to the **TSO** by the **Demand Side Unit Operator** as a **Technical Parameter** or as part of **Additional Grid Code Characteristics Notice** data.

SDC2.A.12.2 If the time of the **Dispatch Instruction** is 1400 hours, the **Demand Side Unit** is XX1, the **Demand Side Unit Notice Time** is 10 minutes and the **Demand Side Unit MW Response** to be achieved is 20 **MW**, the relevant part of the instruction would be for example:

"Time 1400 hours. Unit XX1 to 20 **MW** until further notice, start at 1410 hours"

or

"Time 1400 hours. Unit XX1 to 20 **MW** until 1500 hours, start at 1410 hours"

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 respect 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

Glossary

1. Acronyms
2. Units
3. Definitions

Glossary-2

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ACRONYMS

AC	Alternating Current
AFR	Automatic Frequency Restoration
AGC	Automatic Generator Control
ALVDD	Automatic Low Voltage Demand Disconnection
AVR/AVC	Automatic Voltage Regulation / Automatic Voltage Control
BGE	Bord Gais Éireann
BS	British Standard
BSP	Bulk Supply Point
CB	Circuit Breaker
CCGT	Combined Cycle Gas Turbine
CDGU	Centrally Dispatched Generation Unit
CENELEC	Comité Européen de Normalisation Electrotechnique
CER	Commission for Energy Regulation
CO₂	Carbon Dioxide
COP	Committed Outage Programme
DC	Direct Current
DCC	Distribution Control Centre
DI	Dispatch Instruction
DMOL	Design Minimum Operating Level
DSO	Distribution System Operator
DWFPS	Dispatchable Wind Farm Power Station
ECC	Emergency Control Centre
ESB	Electricity Supply Board
ESO	External System Operator
ETSO	European Transmission System Operators
GC	General Conditions
GCRP	Grid Code Review Panel
GS	Generation Schedule
GT	Gas Turbine
HV	High Voltage
HVDC	High Voltage Direct Current
IEC	International Electrotechnical Committee
IOP	Indicative Outage Programme
ITU	International Telecommunications Union
JGCRP	Joint Grid Code Review Panel
LV	Low Voltage
MEC	Maximum Export Capacity
MO	Market Operator
MV	Medium Voltage

NCC	National Control Centre
NCDGU	Non-Centrally Dispatched Generating Unit
NIAUR	Northern Ireland Authority for Utility Regulation
NIE	Northern Ireland Electricity
OC	Operating Code
OLTC	On load Tap Changer
POP	Provisional Outage Programme
POR	Primary Operating Reserve
PSP	Pumped Storage Plant
RMS	Root Mean Square
RTU	Remote Terminal Unit
SCADA	Supervisory Control and Data Acquisition
SDC	Scheduling and Dispatch Code
SEM	Single Electricity Market
TSC	Trading and Settlement Code
SLR	Special Load Reading
SONI	System Operator Northern Ireland
SOR	Secondary Operating Reserve
SVC	Static Var Compensator
TAO	Transmission Asset Owner
TRM	Transmission Reliability Margin
TOR	Tertiary Operating Reserve
TSO	Transmission System Operator
TTC	Total Transfer Capacity
UFR	Under Frequency Relay
Un	Nominal Voltage
VO	Voluntary Outage
WFPS	Wind Farm Power Station
WTG	Wind Turbine Generator

UNITS

A	Amp(s)
°C	Degrees Celsius
GW	Giga Watt
GWh	Giga Watt hour
hPa	hecto Pascal
Hz	Hertz
kA	kilo Ampere
kW	kilo Watt
kWh	kilo Watt hour

kV	Kilo Volt
MWh	Mega Watt hour
MW	Mega Watt
TWh	Tera Watt hour
MVA	Mega Volt Ampere
Mvar	Mega Volt Ampere reactive / Megavar
Mvarh	Megavar hour
var	Volt Ampere reactive

DEFINITIONS

Act	The Electricity Regulation Act 1999.
Active Energy	<p>The electrical energy produced, flowing or supplied by an electric circuit during a time interval, being the integral with respect to time of the instantaneous Active Power, measured in units of Watt-hours or standard multiples thereof, i.e.:</p> <p>1000 Watt-hours = 1 Kilo Watt-hour (kWh)</p> <p>1000 Kilo Watt-hour = 1 Mega Watt-hour (MWh)</p> <p>1000 Mega Watt-hour = 1 Giga Watt-hour (GWh)</p> <p>1000 Giga Watt-hour = 1 Tera Watt-hour (TWh)</p>
Active Power	<p>The product of the components of alternating current and voltage that equate to true power which is measured in units of watts and standard multiples thereof, for example:</p> <p>1000 Watts = 1 kW;</p> <p>1000 kW = 1 MW;</p> <p>1000 MW = 1 GW.</p>
Active Power Control	The automatic change in Active Power output from a Controllable WFPS in a response to an Active Power Control Set-point received from the TSO .
Active Power Control Mode	A mode of operation of a Controllable WFPS where the Controllable WFPS has been instructed by the TSO to maintain its Active Power output at the Active Power Control Set-Point .
Active Power Control Set-point	The maximum amount of Active Power in MW, set by the TSO , that the Controllable WFPS is permitted to export.
Active Power Control Set-Point Ramp Rate	The rate of increase or decrease of Active Power output of a Controllable WFPS in response to an Active Power Control Set-point instruction.
Additional Grid Code Availability Notice	A notice submitted by a User to the TSO pursuant to SDC1.4.2 relating to additional data on Availability .
Additional Grid Code Characteristics Notice	A notice to be submitted to the TSO pursuant to SDC1.4.4.2 relating to additional technical data.
AGC Control Range	The range of loads over which AGC may be applied.

AGC Maximum Load	The upper limit of the AGC Control Range .
AGC Minimum Load	The lower limit of the AGC Control Range .
Aggregate Interconnector Ramp Rate	The maximum Ramp Up Rate for an Interconnector or maximum Ramp Down Rate as determined by the TSO .
Aggregated Demand Site	A group of Individual Demand Sites represented by a Demand Side Unit Operator , which together are capable of a Demand Side Unit MW Capacity equal to or above 4 MW (and which is therefore subject to Central Dispatch from the TSO). Each Individual Demand Site comprising an Aggregated Demand Site shall be in one currency zone and shall have a Demand Side Unit MW Capacity of no greater than 10 MW. Unless otherwise specified, information submitted in respect of an Aggregated Demand Site shall always be at an aggregated level.
Aggregated Generating Unit	A group of Generating Units represented by a Generator Aggregator , each of which must not have a Registered Capacity greater than 10 MW. An Aggregated Generating Unit with a total Registered Capacity of 4 MW or more shall be subject to Central Dispatch, but one with a total Registered Capacity of less than 4 MW may be subject to Central Dispatch subject to agreement with the TSO . Unless otherwise specified by the TSO or otherwise in the Grid Code , information submitted in respect of an Aggregated Generating Unit shall always be at an aggregated level.
Aggregated Maximum Export Capacity	In the case of a Generator Aggregator , the aggregated value (in MW, MVA, kW and/or kVA) provided in each Connection Agreement (or connection agreement to the Distribution System , as the case may be) for the Generating Units for which the Generator Aggregator is responsible.
Aggregator	Either a Generator Aggregator or a Demand Side Unit Operator in respect of an Aggregated Demand Site .
Alert	A Red Alert , an Amber Alert or a Blue Alert or other Alert warning as agreed pursuant to OC9 (Emergency Control and Power System Restoration)
Amber Alert	An alert issued by the TSO to the Users when a single Event would give rise to a reasonable possibility of failure to meet the Power System Demand , or of Frequency or Voltage departing significantly from normal or if multiple Events are probable due to

	prevailing weather conditions.
Ancillary Service	A service, other than the production of electricity, which is used to operate a stable and secure Power System including. Reactive Power, Operating Reserve, Frequency Control and Blackstart Capability .
Ancillary Service Agreement	The bilateral agreement between the TSO and the User , which contains the detail specific to the User's provision of Ancillary Services .
Annual SLR Conditions	12.30 and 18.00 on the second Tuesday of January or any other day nominated by DSO .
Apparatus	An item of equipment in which electrical conductors are used, supported or of which they may form part and includes meters, lines, cables and appliances used or intended to be used for carrying electricity for the purpose of supplying or using electricity.
Apparent Power	The product of voltage and of alternating current measured in units of volt-amperes and standard multiples thereof.
Automatic Frequency Restoration	A system for reconnecting Demand Customers automatically following a low frequency Event on the Transmission System , once the frequency has recovered.
Automatic Generator Control (AGC)	A control system installed between the NCC and a Power Station whereby MW set points can be adjusted remotely by the TSO to reflect the Dispatch Instruction
Automatic Low Voltage Demand Disconnection (ALVDD)	The automatic disconnection of Demand Customers when the Voltage or the rate of change of voltage has violated acceptable limits as determined by the TSO .
Automatic Mains Failure Mode	The operation of Generation Unit(s) at an Individual Demand Site of a Demand Side Unit where in the event of Disconnection , the Generation Unit(s) is(are) enabled and supplies(y) the Demand Customer's or DSO Demand Customer's Load while not Synchronised to the Transmission System or Distribution System . Upon sustained restoration of the connection to the Transmission System or Distribution System for a settable period of time, the Generation Unit(s) Synchronise to the Transmission System or Distribution System for a short period of time not exceeding 180 seconds to facilitate the smooth transfer of power prior to Shutdown of the

	Generation Unit(s).
Automatic Voltage Regulation	Automatic maintenance of a Generation Unit's terminal voltage or Interconnector's Reactive Power output at a desired setpoint
Automatic Voltage Regulator	A continuously acting automatic closed loop control system acting on the excitation system so as to maintain a Generation Unit's terminal voltage at a desired setpoint.
Autoproducer	Persons to whom electrical Energy is provided and by whom the electrical Energy is generated essentially for their own use, by means of a direct connection to the Transmission System .
Auxiliaries	Any item of Plant and/or Apparatus not directly a part of the boiler plant or Generating Unit , but required for the boiler plant's or Generating Unit's functional operation. 'Auxiliary' shall be defined accordingly.
Auxiliary Diesel Engine	A diesel engine driving a Generating Unit which can supply a Unit Board or Station Board , which can start without an electrical power supply from outside the Power Station within which it is situated.
Auxiliary Fuel	A fuel other than a Primary Fuel which may be used for start up purposes or for support of combustion or Maximisation when the Generation Unit is producing Energy
Auxiliary Load	The electrical Demand of the Generation Unit's Auxiliary Plant required for the operation of the Generation Unit .
Auxiliary Plant	Any item of Plant and/or Apparatus not directly a part of the boiler plant or Generation Unit , but required for the boiler plant's or Generation Unit's functional operation.

<p>Availability</p>	<p>At any given time the measure of Active Power a Generation Unit(s) is capable of delivering to the Connection Point and the term “Availabilities” shall be construed accordingly. This can be calculated as a gross figure.</p> <p>In terms of a Demand Side Unit the measure at any given time of the Active Power the Demand Side Unit is capable of delivering to the System.</p> <p>At any given time the measure of Active Power an Interconnector is capable of importing to or exporting from the Connection Point and the term “Availabilities” shall be constructed accordingly. This can be calculated as a gross figure.</p>
<p>Availability Notice</p>	<p>A notice to be submitted to the TSO pursuant to SDC1.4.1.1.</p>
<p>Availability Factor</p>	<p>The ratio of the Energy that could have been produced during a specified period of time by a Generation Unit operating in accordance with its Availability, and the Energy that could have been produced during the same period by that Generation Unit operating at its Registered Capacity. Availability Factor can alternatively be reported in gross terms.</p>
<p>Available Active Power</p>	<p>The amount of Active Power that the Controllable WFPS could produce based on current wind conditions. The Available Active Power shall only differ from the actual Active Power if the Controllable WFPS has been curtailed, constrained or is operating in a restrictive Frequency Response mode.</p>
<p>Black Start</p>	<p>The procedure necessary for a recovery from a Total Shutdown or Partial Shutdown.</p>
<p>Black Start Capability</p>	<p>Ability in respect of a Black Start Station, for at least one of its Centrally Dispatched Generation Units or Interconnector to start-up from Shutdown, without importing energy from the Transmission System, and to energise a part of the Transmission System and be Synchronised or energised (for Interconnectors) to the Transmission System upon instruction from the TSO.</p>
<p>Black Start Shutdown</p>	<p>In the event of a Partial Shutdown or Total Shutdown of the Transmission System, the Controllable WFPS shall be sent a Black Start Shutdown signal by the TSO and upon receipt of the signal, the Controllable WFPS shall trip the circuit breaker(s) at the</p>

	Connection Point and shutdown the Controllable WFPS in a controlled manner.
Black Start Station	A Power Station and/or Interconnector which is registered pursuant to Grid Code as having a Black Start Capability
Block Load	The level of output that a Generating Unit immediately produces following Synchronisation . For avoidance of doubt, Block Load can equal 0 MW.
Block Load Cold	Block Load during a Cold Start .
Block Load for an Interconnector	The level of output, in either flow direction, that an Interconnector immediately produces following energisation. For avoidance of doubt, Block Load can equal 0 MW and can be different in either flow direction.
Block Load Hot	Block Load during a Hot Start .
Block Load Warm	Block Load during a Warm Start .
Blue Alert	An alert issued by the TSO signifying that either a Partial Shutdown or a Total Shutdown of the Power System has taken place.
Business Day	Monday through Friday excluding public holidays and holidays observed by ESB .
Cancelled Start	A response by a Generator to an instruction from the TSO cancelling a previous instruction to Synchronise to the Transmission System .
Capacity	The rated continuous load-carrying ability, expressed in megawatts (MW) or megavolt-amperes (MVA) of generation, transmission, or other electrical equipment.
Capacity Adequacy	When there is sufficient Generation Capacity to meet the Demand and Reserve requirements.
Capacity Adequacy Indicator	An indication issued by the TSO for each weekly peak of the year based on Availability and Demand forecasts whether or not there is sufficient Generation Capacity to meet Demand .
Capacity Shortfall Warning	A warning issued by the TSO that based on Availability and Demand forecasts there is insufficient Generation Capacity to meet the peak Demand .
CCGT Installation Matrix	The matrix which must be submitted by a Generator under the Planning Code and which is used by the TSOs for Scheduling

	and Dispatch purposes under the SDCs as a “look up” table determining which CCGT Units will be operating at any given MW Dispatch level subject to any updated Availability information submitted by a Generator to a TSO under SDC1 .
CCGT Installation	A collection of Generation Units comprising one or more Combustion Turbine Units and one or more Steam Units where, in normal operation, the waste heat from the Combustion Turbine Units is passed to the water/steam system of the associated Steam Unit or Steam Units and where the component Generation Units within the CCGT Installation are directly connected by steam or hot gas lines which enable those Units to contribute to the efficiency of the combined cycle operation of the CCGT Installation .
CCGT Unit	A Generation Unit within a CCGT Installation
Central Dispatch	<p>The process of Scheduling and issuing Dispatch Instructions directly to a Control Facility by the TSO pursuant to the Grid Code.</p> <p>All Dispatchable WFPs, Interconnectors, Pumped Storage Plant Demand, Demand Side Units, and Aggregated Generating Units are subject to Central Dispatch. In relation to all other Generation Units, thresholds apply as follows:</p> <ul style="list-style-type: none"> ▪ all other Generation Units with a Registered Capacity of 10 MW or more are subject to Central Dispatch; ▪ all other Generation Units with a Registered Capacity of 5 MW or more and less than 10 MW are not subject to Central Dispatch unless required by the TSO; however, such Generation Units can elect to be subject to Central Dispatch; ▪ all other Generation Units with a Registered Capacity of less than 5 MW are not subject to Central Dispatch unless required by the TSO; ▪ any Power Station, which has an aggregate Registered Capacity of 10 MW or more, consisting of more than one Generation Unit that is not otherwise subject to Central Dispatch, is subject to Central Dispatch as an Aggregated Generating Unit; ▪ all Generation Units with a Registered Capacity of less than 10 MW can elect whether to comply with SDC1.4.4.5

	relating to the submission of Commercial Offer Data .
Centrally Dispatched Generating Unit	A Generating Unit within a Power Station subject to Central Dispatch , which comprises, unless specified otherwise in relation to a particular use of the term, a Thermal Plant including a CCGT Installation , a Dispatchable WFPS , Hydro Unit and Pumped Storage Plant in respect of its Pumped Storage Generation .
Cold Start	Any Synchronisation of a Generating Unit that has previously not been Synchronised for a period of time longer than its submitted Warm Cooling Boundary .
Collector Network	The network of cables and overhead lines within a Controllable WFPS used to convey electricity from individual WTGs to the Connection Point .
Combustion Turbine Unit	A Generation Unit which compresses the inlet air and feeds fuel to the combustion chamber. The fuel and air burn to form hot gases which in turn forces these hot gases into the turbine, causing it to spin. The turbine can be fuelled by natural gas, by distillate or by other such fuels as technology may allow.
Commercial Energy Metering	Metering which is utilised to measure Energy for Tariff charging purposes.
Commercial Offer Data	Data of that name submitted by a User or an Intermediary to the MO pursuant to the TSC .
Commissioning	Activities involved in undertaking the Commissioning Test or implementing the Commissioning Instructions pursuant to the terms of the Connection Agreement or as the context requires the testing of any item of users equipment required pursuant to this Grid Code prior to connection or re-connection in order to determine that it meets all requirements and standards for connection to the Transmission System . It also includes activities that determine the new values of parameters that apply to it following a material alteration or modification and in addition those activities involved in undertaking the Commissioning Tests or implementing the Commissioning Instructions as the context requires.
Commissioning Instructions	A step-by-step test procedure for a Commissioning Test .
Commissioning Test	Testing of a CDGU , Controllable WFPS , Pumped Storage Plant Demand , Demand Side Units , Aggregated Generating Units , Interconnector or an item of User's Equipment required pursuant

	to the Connection Conditions prior to connection or re-connection in order to determine whether or not it is suitable for connection to the System and also to determine the new values of parameters to apply to it following a material alteration or modification of a CDGU, Controllable WFPS, Pumped Storage Plant Demand, Demand Side Units, Aggregated Generating Units, Interconnector or of an item of User's Equipment and the term "Commissioning Testing" shall be construed accordingly.
Committed Outage Programme	A programme of Outages of the Generator's Generation Units and of Interconnectors prepared by the TSO pursuant to Section OC2 and covering year 1.
Committed Project Planning Data	Data relating to a User Development once the offer for a Connection, Use of System Agreement and/or supplemental agreements are accepted.
Communications and Control Room	The communications and control room to be provided by the User in accordance with the Connection Agreement
Connection Agreement	The bilateral agreement between the TSO and the User , which contains the detail specific to the User's connection to the Transmission System .
Connection Conditions	The section of this Grid Code which is identified as the Connection Conditions .
Connection Date	The date on which the Commissioning Instructions have to the TSO's satisfaction been properly implemented in respect of every part of the User's Equipment , following which the TSO shall, as soon as reasonably practicable notify the User to that effect, specifying the date of completion of such implementation
Connection Offer	A quotation letter together with the unsigned Connection Agreement which forms the TSO's offer for connection of the Facility to the Transmission System as the result of an application for connection of the Facility .
Connection Point	The physical point where the User's Plant Apparatus or System is joined to the Transmission System or the Distribution System .
Connection Site	The site at which the Plant and Apparatus of the User at the User's side of the Connection Point is to be installed including the land, spaces, roads and any surfaces.

Constrained Group	A group of Generating Units located within a constrained part of the System as determined by the TSO .
Contingency	The unexpected failure or Outage of a system component, such as a Generation Unit , transmission line, circuit breaker, switch, or other electrical element. A Contingency also may include multiple components, which are related by situations leading to simultaneous component outages.
Contingency Reserve	The margin of available Generation Capacity over forecast System Demand which is required in the period of 24 hours ahead down to real time, to cover against uncertainties in availability of Generation Capacity and against Demand forecast errors or variations
Continuous Parallel Mode	Unrestricted periods of Synchronised operation of Generation Unit(s) to the Transmission System or Distribution System at an Individual Demand Site of a Demand Side Unit , subject to Connection Agreement or DSO Connection Agreement conditions.
Control Action	An action, such as switching, whereby the Transmission System is operated.
Control Centre	A location used for the purpose of monitoring, control and operation of the Transmission System or a User System other than a Generator's System .
Control Facility	A location used for the purpose of Monitoring , control and operation of the User 's Plant and Apparatus and for accepting Dispatch Instructions via Electronic Interface .
Control Phase	The Control Phase follows on from the Programming Phase and starts with the issue of the Generation Schedule for the next day and covers the period down to the real time
Control Synchronising	The coupling (by manual or automatic closing of the circuit breaker) of two asynchronous Systems by means of synchroscope.
Controllable WFPS	A site containing at least one WTG can automatically act upon a remote signal from the TSO to change its Active Power output.
Controllable Availability	The amount of MW the Controllable WFPS can produce given favourable wind conditions.
Controllable WFPS MW	A measure of the maximum Active Power output which can be produced by a Controllable WFPS given favourable wind

Availability Declaration	conditions. Account shall be taken of partial and/or full outages of individual WTG within the Controllable WFPS .
Controllable WFPS Operator	The operator of the Controllable WFPS .
Controlled Active Power	The amount of Active Power that a Controllable WFPS is permitted to export based on the Active Power Control Set-point signal sent by the TSO .
Critical Fault Clearance Time	The longest fault duration not leading to out-of-step conditions such as pole-slipping in a Generating Unit following a Fault Disturbance . Critical Fault Clearance Time will vary according to the active and reactive power output of the Generating Unit . The minimum Critical Fault Clearance Time for a particular Fault Disturbance is likely to occur when the Generating Unit is at maximum Active Power output and maximum leading Reactive Power output.
Current Source Technology	Current source inverters include all static devices generating an AC current from a rectified DC current source. The intermediate DC current is kept constant with a controlled rectifier and high inductance reactors, while the AC output is of variable Frequency and Voltage .
Customer	A person to whom electrical power is provided (whether or not this is the same person who provides the electrical power).
Customer Demand Management	Reducing the supply of electricity to a Customer or disconnecting a Customer in a manner agreed for commercial purposes between a Supplier and its Customers
Cycle Operating Mode	The Open Cycle Mode or combine cycle Operating Mode of a CCGT Installation which may need to be specified pursuant to a Dispatch Instruction under SDC2.4.2.4(j).
Declaration	A notice prepared by the User in respect of a User's Plant submitted to the TSO in accordance with the requirements of SDC1 and setting out the values (and times applicable to those values) of Availability , Ancillary Services capabilities, Operating Characteristics , and " Declared " shall be construed accordingly.
Declared Operating Characteristics	The Operating Characteristics which the Generator or Demand Side Unit Operator shall have informed the TSO under the

	provisions of SDC1 and which shall reasonably reflect the true Operating Characteristics of the Generation Unit or Demand Side Unit .
Decremental Price	The marginal price at a particular MW Output , for decreasing Energy output (or increasing demand) by 1 MWh , once that unit has started to generate Energy (or increase Demand , as the case may be).
Decremental Price Quantity Pairs	Decremental Prices and their respective quantity ranges for Generating Units , Demand Side Units and Aggregated Generating Units as part of Commercial Offer Data .
De-energise	Disconnect from the Transmission System utilising circuit switches etc to isolate the Plant and/or Apparatus , and “ De-energised ” and “ De-energising ” shall be construed accordingly.
Deload Break Point	The point at which due to technical reason a Generating Unit may need to pause during its MW Output reduction process.
De-Loading Rate	The rate at which a Generation Unit reduces MW Output from Minimum Generation to zero when it is instructed to cease output. There are up to two possible deloading rates, which shall be named accordingly: De-Loading Rate 1 and De-Loading Rate 2 .
Demand	The amount of electrical power consumed by the Power System comprising of both Active and Reactive Power , unless otherwise stated.
Demand Control	All or any of the methods of achieving a Demand reduction or an increase in Demand as set out in OC5.
Demand Control Alert	A warning issued by the TSO when the TSO anticipates that it will or may instruct the DSO to implement Demand reduction.
Demand Customer	A person to whom electrical Energy is provided by means of a direct connection to the Transmission System . Autoproducers are to be considered both Generators and Demand Customers .
Demand Disconnection	Disconnection of Demand Customers
Demand Side Unit	An Individual Demand Site or Aggregated Demand Site with a Demand Side Unit MW Capacity of at least 4 MW. The Demand Side Unit shall be subject to Central Dispatch .

Demand Side Unit Energy Profile	The estimated total Energy requirement for an Individual Demand Site or aggregated consumption for each Individual Demand Site which form part of an Aggregated Demand Site for each Imbalance Settlement Period in the following Trading Day and which must be submitted to the TSO in the Availability Notice under SDC1.4.4.2.
Demand Side Unit MW Availability	The forecasted change in Active Power which can be achieved in one currency zone by a Demand Side Unit for each Imbalance Settlement Period in the following Trading Day and which must be submitted by the User to the TSO in an Availability Notice under SDC1.4.1.2.
Demand Side Unit MW Capacity	The maximum change in Active Power that can be achieved by a Demand Side Unit on a sustained basis for the duration of the Demand Side Unit's Maximum Down Time by totalling the potential increase in on-site Active Power Generation and the potential decrease in on-site Active Power Demand at each Individual Demand Site .
Demand Side Unit MW Response	The proportion (in MW) of the Demand Side Unit MW Capacity that is delivered at a given time following a Dispatch Instruction from the TSO . This value will be zero unless dispatched by the TSO .
Demand Side Unit MW Response Time	The time as specified by the Demand Side Unit Operator in the Technical Parameter and is the time it takes for the Demand Side Unit Operator to be able to implement the Demand Side Unit MW Response from receipt of the Dispatch Instruction from the TSO .
Demand Side Unit Notice Time	The time as specified by the Demand Side Unit Operator in the Technical Parameter and is the time it takes for the Demand Side Unit to begin ramping to the Demand Side Unit MW Response from receipt of the Dispatch Instruction from the TSO .
Demand Side Unit Operator	A person who operates a Demand Side Unit , with an aggregated Demand Side Unit MW Capacity not less than 4 MW.
Demand Side Unit Ramp Time	The time it takes for a Demand Side Unit to ramp to the Demand Side Unit MW Response . It is equal to the Demand Side Unit MW Response Time less the Demand Side Unit Notice Time .
De-maximisation Instruction	An instruction issued by the TSO to Generators to cease

	Maximisation.
Design Minimum Operating Level (DMOL):	The minimum Active Power output of Controllable WFPS where all WTGs are generating electricity and capable of ramping upwards at any of the specified ramp rates (given available wind), and shall not be greater than 12% of Registered Capacity .
Designated Operator	The operators approved in writing by the relevant User as competent to carry out the procedures in the agreed Operation Instructions for parties connecting to the Transmission System
De-Synchronise	The act of taking a Generation Unit which is Synchronised to the Transmission System off the Transmission System to which it has been Synchronised and the term " De-Synchronised ", and other like terms, shall be construed accordingly.
De-Synchronising	The act of taking a Generating Unit off the Network , to which it has been Synchronised , and like terms shall be construed accordingly.
Disconnection	The physical separation of Users (or Customers) from the Transmission System or a User System as the case may be.
Dispatch	The issue by the TSO of instructions to a Generator, Pumped Storage Generator, Interconnector Owner, Interconnector Operator, Demand Side Unit Operator or Generator Aggregator in respect of its CDGU, Pumped Storage Plant Demand, Demand Side Unit, Aggregated Generating Units , or Interconnector pursuant to SDC2 and the term " Dispatched " shall be construed accordingly.
Dispatch Instruction	An instruction given by the TSO to a CDGU, Demand Side Unit, Interconnector and/or Pumped Storage Plant Demand to that User's approved Control Facility to change the output, fuel or manner of operation of the CDGU, Demand Side Unit, Interconnector and/or Pumped Storage Plant Demand . " Instruct " and " Instructed " shall be construed accordingly.
Dispatch Instruction Test Flag	The flag indicating that a Dispatch Instruction will not be deemed to be a Dispatch Instruction for settlement purposes, used when the TSO approves new or amended test proposals submitted by a User after Gate Closure 2 (or there is insufficient time for the TSO to evaluate and approve the test proposal before Gate Closure 2) and as a result, the Dispatch Instructions issued by the TSO deviate from the Final Physical Notifications .

Dispatchable WFPS	A Controllable WFPS which must have a Control Facility in order to be dispatched via an Electronic Interface by the TSO .
Disputes Resolution Procedure	The procedures described in the Connection Agreement, Use of System Agreement and Ancillary Services Agreement relating to disputes resolution.
Distribution Control Centre	Control Centre of the Distribution System Operator
Distribution System	The system consisting (wholly or mainly) of electric circuits, transformers and switchgear which are operated by and used for the distribution of electricity from Grid Supply Points or Generating Units or other entry points to the point of delivery to Customers or other Users and any Plant and Apparatus and meters used in connection with the distribution of electricity, but not including any part of the Transmission System .
Distribution System Operator (DSO)	An entity unit within ESB which is responsible for, amongst other things, the planning, development, operation and maintenance of the Distribution System .
Disturbance	An unplanned event that produces an abnormal System condition.
Disturbing Loads	A load on the System that adversely affects Power Quality .
DSO Connection Agreement	The bilateral agreement between the DSO and the DSO Demand Customer , which contains the detail specific to the DSO Demand Customer's connection to the Distribution System .
DSO Demand Customer	A person to whom electrical Energy is provided by means of a direct connection to the Distribution System .
Dwell Time Down	The duration for which the Generating Unit must remain at the Dwell Time Down Trigger Point during a change in its MW Output while ramping down between instructed MW Output and Minimum Generation .
Dwell Time Down Trigger Point	A constant MW level at which a Generating Unit must remain while ramping down between instructed MW Output and Minimum Generation . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Dwell Time Up	The duration for which the Generating Unit must remain at the Dwell Time Up Trigger Point during a change in its MW Output

	while ramping up between Minimum Generation and instructed MW Output .
Dwell Time Up Trigger Point	A constant MW level at which a Generating Unit must remain while ramping up between Minimum Generation and instructed MW Output . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Earthing	A way of providing a connection between conductors and earth by an Earthing Device .
Earthing Device	A means of providing a connection between a conductor and earth being of adequate strength and capability for the intended purpose.
Effect of Parallel Flows	The effect of the flow of electricity on an electric system's transmission facilities resulting from scheduled electric power transfers between two electric systems. Electric power flows on all interconnected parallel paths in amounts inversely proportional to each paths resistance.
Electronic Alert System	The primary means by which an Alert is transmitted by the TSO to Users (or to certain Users only) in accordance with OC9 .
Electronic Interface	A system, in accordance with the requirements of the TSO's data system, at the Control Facility , providing an electronic interface between the TSO and a User , for issuing and receiving instructions, including Dispatch Instructions as provided for in the Grid Code and established pursuant to an agreement between the TSO and the User .
Embedded Generation	Generation Units within a Power Station which are directly connected to a Distribution System or the system of any other User , such connection being either a direct connection or a connection via a busbar of another User but with no other Connection to the Transmission System
Embedded Generator Interface Protection	Protection designed to disconnect Generation Units from the Distribution System during abnormal system conditions by tripping a dedicated circuit breaker or recloser located as close as practically possible to the interface between the DSO Demand Customer equipment and the Distribution System .
Emergency	Any abnormal system condition that requires automatic or

	immediate manual action to prevent or limit loss of transmission facilities or generation supply that could adversely affect the reliability of the Transmission System
Emergency Control Centre (ECC)	A site, remote from the National Control Centre , providing at least the minimum level of control capabilities necessary for secure operation of the Power System , to be utilised in the event that an emergency situation or major failure of facilities at the National Control Centre prevents operation from the National Control Centre , or otherwise as determined by the TSO (e.g. for NCC maintenance, testing or training).
Emergency Instruction	A Dispatch instruction issued by the TSO , pursuant to SDC2.11 to a CDGU or an Interconnector which may require an action or response which is outside the limits implied by the then current Declarations .
End of Restricted Range	The end point in MW of a Forbidden Zone . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
End Point of Start-up Period	The time after which the rate of change of the Generating Unit Output is not dependent upon the initial Warmth of the Generating Unit .
Energise	The movement of any isolator, breaker or switch so as to enable active power and reactive power to be transferred to and from the Facility through the Generator's Plant and Apparatus and "Energised" and "Energising" shall be construed accordingly.
Energy	The electrical energy produced, flowing or supplied by an electrical circuit during a time interval and being the integral with respect to time of the instantaneous Active Power , measured in units of Watt-hours or standard multiples thereof.
Energy Limit	The forecasted maximum amount of Energy that can be generated by an Energy Limited Generating Unit within the Trading Day .
Energy Limited Generating Unit	A Hydro Unit with a limit on the Energy it can deliver in a specified time period.
ESB Networks Electrical Safety Rules	The current version of the document prepared by ESB and entitled "ESB Networks Electrical Safety Rules"
ESB Power Generation Electrical Safety Rules	The current version of the document prepared by ESB and entitled "ESB Power Generation Electrical Safety Rules".

Estimated Registered Data	Those items of Planning Data which either upon connection will become Registered Data , or which for the purposes of the Plant and/or Apparatus concerned as at the date of submission are Registered Data , but in each case which for the seven succeeding the TSO financial years will be an estimate of what is expected.
Event	An unscheduled or unplanned occurrence on, or relating to either the Transmission System or a User's System , including faults, incidents and breakdowns.
External Interconnection	Apparatus for the transmission of electricity to (from) the Transmission System or the Other Transmission System from (to) a transmission or distribution system located outside the island of Ireland.
External System	In relation to an External System Operator means the transmission or distribution system which it operates which is located outside the island of Ireland and any Apparatus or Plant which connects that system to the External Interconnection and which is owned or operated by such External System Operator .
External System Operator	A person who operates an External System which is connected to the Transmission System or the Other Transmission System by an External Interconnection .
Externally Interconnected Party	The operator of an electrical transmission or distribution system outside the island of Ireland which is connected to the Transmission System by an External Interconnection .
Extraordinary AVR Response	Any response to a Voltage Dip that requires an extraordinary response from normal behaviour of the Automatic Voltage Regulator of a Generation Unit . For the avoidance of doubt any action of an Automatic Voltage Regulator , which results in anything other than an adjustment of the excitation field current is deemed to be an Extraordinary AVR Response . Where such schemes, including fast valving, are being considered by a Generator they need to be formally agreed with the TSO before implementation, such agreement not to be unreasonably withheld.
Extraordinary Governor Response	Any response to a Voltage Dip that requires an extraordinary response from normal behaviour of the Governor Control System

	of a Generation Unit . For the avoidance of doubt any action other than Governor Control System with respect to Frequency dips is deemed to be an Extraordinary Governor Response . Where such schemes, including fast valving, are being considered by a Generator they need to be formally agreed with the TSO before implementation, such agreement not to be unreasonably withheld.
Facility	The User's facility located at the Connection Site including the User's Plant and Apparatus plus the Plant and Apparatus to be installed at the User's side of the Connection Point necessary to effect the connection
Failure to Follow Notice to Synchronise Instruction	An instruction given by the TSO to a Generator in respect of its CDGU confirming that it has failed to Synchronise more than 5 minutes after the time specified in the Notice to Synchronise .
Failure to Reach Minimum Generation Instruction	An instruction given by the TSO to a Generator in respect of its CDGU confirming that it has De-Synchronised where it has tripped before reaching Minimum Generation .
Fault Disturbance	Any type of fault including, but not limited to, single line to ground, line to line and three-phase short-circuits, in any single item of Plant anywhere in the Transmission System where the operation of the TSO protection will not disconnect the Generator Plant from the existing or planned Transmission System under normal or Scheduled Outages conditions. For the avoidance of doubt this Fault Disturbance can include bus zone protection.
Fault Inception	The point in time at which the Transmission System Voltage at the Connection Point goes outside the range as defined in CC.8.3.2, on any or all phases. At nominal voltages less than 110 kV, this shall be the point in time at which the Voltage under construction is less than 0.9pu of the nominal Voltage .
Fault Ride-Through	The ability of a Generating Unit to stay Synchronised to the Transmission System during and following a Fault Disturbance .
Fault Ride-Through Time	The required fault duration that a Generating Unit shall ride through

	for a particular Fault Disturbance , and is equivalent to the Critical Fault Clearance Time .
Final Physical Notification	In respect of an Imbalance Settlement Period , the last Physical Notification received for that Imbalance Settlement Period before Gate Closure 2 for that Imbalance Settlement Period .
Flexible Outage	An Outage scheduled in the Committed Outage Programme as a Flexible Outage which is not within four Business Days of the scheduled start date and time
Forbidden Zone	A MW range within which a Generator or Interconnector cannot operate in a stable manner due to an inherent technical limitation of the machine.
Forced Outage Probability	The probability, in percentage terms, of a Generation Unit or an Interconnector not being available to provide Energy or Ancillary Services .
Forecast Minimum Generation Profile	The User's forecast of the average level of Minimum Generation , in MW , for the User's Plant for each Imbalance Settlement Period in the Trading Day .
Forecast Minimum Output Profile	The User's forecast of the average level of minimum MW Output , in MW , for a Pumped Storage Plant for each Imbalance Settlement Period in the Trading Day .
Forecast Statement	A statement as defined in Section 38 of the Act
Frequency	The number of alternating current cycles per second (expressed in Hertz) at which a System is running.
Frequency Control	The control of the Frequency on the Power System .
Frequency Deadband	A Frequency range within which the Governor Control System is not expected to respond to changes in Transmission System Frequency . The purpose of the Frequency Deadband is to filter out noise and not to restrict the normal Frequency response of the Governor Control System .
Frequency Demand Disconnection	Disconnection of Demand Customers when Frequency falls to a particular threshold.
Frequency Event	An event where the Transmission System Frequency deviates to a value below 49.5Hz.
Frequency Regulation	The automatic adjustment of Active Power output by a Generation Unit , initiated by free governor action in response to continuous minor fluctuations of Frequency on the Power System .

Frequency Response	The automatic adjustment of Active Power output from a Generation Unit(s) or Interconnector in response to Frequency changes
Frequency Response Ramp Rate	The minimum rate of increase or decrease of Active Power output of a Controllable WFPS when acting to control Transmission System Frequency .
Frequency Response System	A facility providing the means to automatically adjust the Active Power output from a Generation Unit(s) in response to changes in Frequency .
Frequency Sensitive Mode	The operation of a Generating Unit whereby its generation level is varied automatically to compensate for variations in the Frequency of the System .
Gas Turbine Unit	A Generation Unit driven by gas..
Gate Closure 1	In respect of a Trading Day is 13.30 hours on the Trading Day prior to that Trading Day .
Gate Closure 2	In respect of an Imbalance Settlement Period , 1 hour before the start of that Imbalance Settlement Period .
General Conditions	The part of Grid Code which is defined as the General Conditions
Generating Plant	A Power Station subject to Central Dispatch .
Generating Unit	Has the same meaning as Generation Unit .
Generation	The process of producing electrical energy from other forms of energy; also, the amount of electric energy produced, usually expressed in megawatthours (MWh).
Generation Outage Programme	Any or all of the Indicative Outage Programme , the Provisional Outage Programme and the Committed Outage Programme .
Generation Unit	Any apparatus which produces electricity and, for the purpose of SDC1 and SDC2 , shall include a CCGT Installation or a CCGT Unit , where running arrangements and/or System conditions apply.
Generation Unit Output	The Active Power and Reactive Power produced by a Generation Unit net of Generation Unit Auxiliary Load
Generator	A person or Power Station as the case may be who generates electricity and is subject to the Grid Code pursuant to any agreement with the TSO or otherwise.

	Autoproducers are to be considered both Generators and Demand Customers .
Generator Aggregator	A person who represents several Generating Units , each of which does not have a Registered Capacity greater than 10 MW and the combined Registered Capacity of which is equal to or greater than 4 MW, by in particular preparing notices under SDC1, in relation to those Generating Units and receiving Dispatch Instructions in relation to those Generating Units under SDC2. For the avoidance of doubt, a Generator Aggregator cannot aggregate a Generating Unit with an output equal to or above 10 MW.
Generator Declared Inflexibilities	The inflexibilities declared by a Generator to the TSO under SDC1 and which the TSO must take into account under SDC1.4.5.3 when compiling the Indicative Operations Schedule .
Generator Site	The site owned (or occupied pursuant to a lease, licence or other agreement) by the Generator which contains the Connection Point .
Generator Transformer	A transformer whose principal function is to provide the interconnection between the Generation Unit and the Network and to transform the Generation Unit voltage to the Network voltage.
Generator Terminal	The stator terminals of a Generating Unit .
Good Industry Practice	Those standards, practices, methods and procedures conforming to safety and legal requirements which are attained by exercising that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced person engaged in the same type of undertaking under the same or similar circumstances.
Governor Control System	A system which will result in Active Power output of a Generation Unit changing, in response to a change in System Frequency , in a direction which assists in the recovery to Target Frequency
Governor Droop	The percentage drop in the Frequency that would cause the Generation Unit under free governor action to change its output from zero to its full Capacity . In the case of a Controllable WFPS , it is the percentage drop in the Frequency that would cause the Controllable WFPS to increase its output from zero to its full Registered Capacity .

Grid Code	This code prepared by the TSO pursuant to section 33 of the Act , and approved by the CER , as from time to time revised, amended, supplemented or replaced with the approval of or at the instance of the CER .
Grid Code Review Panel	The panel as set out in GC5 of the General Conditions
Grid Code Test	A test that is to be mutually agreed, with agreement not to be unreasonably withheld, and conducted in accordance with Grid Code .
Grid Connected	Connected to the Transmission System
Grid Connected Transformer	Any transformer directly connected to the Transmission System .
Grid Connection Point	The point at which a Generating Unit , Interconnector or a CCGT Installation or a CCGT Unit or a Customer or an External System , is directly connected to the Transmission System .
Grid Supply Point or GSP	A point of connection between the Transmission System and the Distribution System or a Demand Customer or other network operator.
Hot Cooling Boundary	The period of time, following De-Synchronisation of a Generating Unit after which the Warmth State transfers from being hot to being warm.
Hot Start	Any Synchronisation of a Generating Unit that has previously not been Synchronised for a period of time shorter than or equal to its submitted Hot Cooling Boundary .
Hydro Unit	A Unit which generates electricity from the movement of water excluding Pumped Storage .
Imbalance Settlement Period	A thirty minute period beginning on the hour or the half-hour.
In Writing	This includes typewriting, printing, lithography, electronic mail, facsimile and other modes of reproducing words in a legible and non-transitory form;
Incremental Price	The marginal price at a particular MW Output , for increasing Energy output (or reducing demand) by 1 MWh , once that unit has started to generate Energy (or reduce Demand , as the case may be).
Incremental Price Quantity Pairs	Incremental Prices and their respective quantity ranges for Generating Units , Demand Side Units and Aggregated Generating Units as part of Commercial Offer Data .

Independent Sector Users	A person who has been authorised by the TSO to use the interconnector pursuant to a valid Use of System Agreement.
Indicative Operations Schedule	A schedule prepared by the TSO in conjunction with the Other TSO pursuant to SDC1.4.8.1.
Indicative Outage Programme	A programme of Outages of the Generator's Generation Units or Interconnectors prepared by the TSO pursuant to OC2 and covering years 4-7 ahead.
Individual Demand Site	A single premises of a Demand Customer connected to the Transmission System or a DSO Demand Customer connected to the Distribution System with a Demand Side Unit MW Capacity .
Installed Plant	The size, nature and name plate rating of each fundamental constituent part of the Generation Unit . For a conventional Generation Unit this should include, at a minimum, information on each constituent part of the alternator, excitation system and turbine. For a windfarm this should, at a minimum, include the individual Wind Turbine Generator size, make and model and the number of Wind Turbine Generator(s) installed. Relevant, additional information should also be included, such as Power System Stabilisers . Where a User is not clear on the requirements, clarification must be sought from the TSO .
Interconnection Agreement	An agreement between the TSO and an External System Operator , which may include agreement with the Interconnector Owner and/or Interconnector Operator .
Interconnector	A HVDC electrical transmission system as a means for the bulk transmission of electrical power to or from the Transmission System or Other Transmission System to or from an External Transmission System .
Interconnector Filter	A tuned device within an Interconnector which prevents the transmission of harmonics to the Transmission System to which that Interconnector is connected and which also provides a means of controlling the Mvar flow to and from that Interconnector .
Interconnector Frequency Droop	In relation to an Interconnector transferring power into the Transmission System , it is the percentage drop in the Frequency that would, under the action of the Interconnector Frequency

		<p>Control system, cause a change in the Interconnector's output from zero to its full Interconnector Registered Import Capacity. In relation to an Interconnector transferring power to an External System, it is the percentage drop in the Frequency that would, under the action of the Interconnector Frequency Control system, cause a change in the Interconnector's output from its full Interconnector Registered Export Capacity to zero. In both cases, it is assumed that the Frequency Control system is regulating the Frequency in the Transmission System.</p>
Interconnector Export Load	Minimum	Minimum MW output an Interconnector can export continuously to a remote network while maintaining stability.
Interconnector Import Load	Minimum	Minimum MW output an Interconnector can import continuously from a remote network while maintaining stability.
Interconnector Load	Minimum	Absolute sum of the Interconnector Minimum Export Load and Interconnector Minimum Import Load representing the minimum range of bi-directional power transfer.
Interconnector Protocol	Operating	The Interconnector Operating Protocol is a protocol for specific operating conditions of the Interconnector which may exist between the Interconnector Operator , the TSO and the External TSO . The Interconnector Operating Protocol shall be agreed as appropriate by all parties before operation of the Interconnector . The Interconnector Operating Protocol shall include but is not limited by the following; planned outage coordination, Operating Procedures, Interconnector Instructions, Interconnector Faults, Emergency Power Functionality, Operational Liaison, System Testing, Operational and Safety Switching.
Interconnector Operator		A person who operates an Interconnector and is subject to the Grid Code pursuant to any agreement with the TSO or otherwise.
Interconnector Owner		A person who owns an Interconnector . For the avoidance of doubt the Interconnector Owner shall be responsible for all Grid Code requirements concerning the Interconnector Operator in relation to the Interconnector .
Interconnector's Plant		An Interconnector subject to Central Dispatch which will include appropriate control and response of each converter station and Apparatus upon Dispatch Instruction issued by the TSO . It shall consist of all aspects of the technology including, converter

	station, DC cable filter banks etc. up to the Connection Point .
Interconnector Ramp-down Capability	The rate of decrease of an Interconnector . Ramp-down Capabilities apply over the bi-directional range from its Interconnector Registered Import Capacity to its Interconnector Registered Export Capacity .
Interconnector Ramp-up Capability	The rate of increase of an Interconnector . Ramp-up Capabilities apply over the bi-directional range from its Interconnector Registered Export Capacity to its Interconnector Registered Import Capacity .
Interconnector Ramp Rate	The maximum rate of increase or decrease of the power transferred, in either flow direction, by an Interconnector .
Interconnector Registered Capacity	The maximum Capacity , in either flow direction, expressed in whole MW , that an Interconnector can deliver on a sustained basis, without accelerated loss of equipment life, at the Connection Point . This figure shall include transmission power losses for the Interconnector .
Interconnector Registered Export Capacity	The maximum Capacity , expressed in whole MW that an Interconnector may export (transfer energy from the Power System to a remote network) on a sustained basis, without accelerated loss of equipment life, as registered with the TSO .
Interconnector Registered Import Capacity	The maximum Capacity , expressed in whole MW that an Interconnector may import (transfer energy from a remote network into the Power System) on a sustained basis, without accelerated loss of equipment life, as registered with the TSO .
Interconnector Transformer	A transformer whose principal function is to provide the interconnection between the Interconnector and the Network and to transform the Interconnector voltage to the Network voltage.
Inter-jurisdictional Tie Line	The lines, facilities and equipment that connect the transmission system of the Republic of Ireland to the transmission system of Northern Ireland.
Intermediary	The person representing a Generating Unit for the purposes provided for in the TSC .
Interruptible Tariff	Special tariff paid for Energy due to the arrangement that the Customer is automatically interruptible by use of Under Frequency Relay or other means in accordance with arrangements made between the Customer [and Supplier].

Interruptible Tariff Customers	Customers who purchase electricity under an Interruptible Tariff .
Initial Symmetrical Short-Circuit Current	RMS value of the AC symmetrical component of a prospective (available) short-circuit current applicable at the instant of short circuit if the impedance remains at the zero time value.
Investigation	Investigation carried out by the TSO under OC10, and “Investigate” shall be construed accordingly.
Joint Grid Code Review Panel	The panel as set out in GC.6 of the General Conditions
Licence	An electricity generation licence or an electricity supply licence, as the context requires, granted pursuant to Section 14 of the Act .
Licence Standards	The standards set out or referred to in the TSO Licence .
Load	The Active Power or Reactive Power , as the context requires, generated, transmitted or distributed and all like terms shall be construed accordingly.
Load Factor	The ratio of the actual electrical Energy produced by a Generation Unit to the possible maximum electrical Energy that could be produced by that Generation Unit in any defined period
Load Up Break Point Cold	The break point which defines the shared MW boundary between the two Loading Rates Cold . The first Loading Rate Cold applies from Block Load to the first Load Up Break Point Cold , the second Loading Rate Cold applies from the first Load Up Break Point Cold to the second Load Up Break Point Cold , the third Loading Rate Cold applies from the second Load Up Break Point Cold to the end point of the Start Up period, which should be set equal to the Minimum Generation .
Load Up Break Point Hot	The break point which defines the shared MW boundary between the Loading Rates Hot . The first Loading Rate Hot applies from Block Load to the first Load Up Break Point Hot , the second Loading Rate Hot applies from the first Load Up Break Point Hot to the second Load Up Break Point Hot , the third Loading Rate Hot applies from the second Load Up Break Point Hot to the end point of the Start Up period, which should be set equal to the Minimum Generation .
Load Up Break Point Warm	The break point which defines the shared MW boundary between the Loading Rates Warm . The first Loading rate applies from Block Load to the first Load Up Break Point Warm , the second Loading Rate Hot applies from the first Load Up Break Point

	Warm to the second Load Up Break Point Warm , the third Loading Rate Warm applies from the second Load Up Break Point Warm to the end point of the Start Up period, which should be set equal to the Minimum Generation .
Loading Rate	The Loading Rate Cold , Loading Rate Hot or Loading Rate Warm as the case may be.
Loading Rate Cold	The rate at which a Generating Unit increases Output from Block Load to Minimum Generation when it is instructed to Cold Start . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Loading Rate Hot	The rate at which a Generating Unit increases Output from Block Load to Minimum Generation when it is instructed to Hot Start . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Loading Rate Warm	The rate at which a Generating Unit increases Output from Block Load to Minimum Generation when it is instructed to Warm Start . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Lopping Mode	The operation of Generation Unit(s) at an Individual Demand Site of a Demand Side Unit where the Generation Unit(s) supplies the Demand Customer's or DSO Demand Customer's Load while not Synchronised to the Transmission System or Distribution System . The Generation Unit(s) is(are) Synchronised to the Transmission System or Distribution System for short periods of time not exceeding 180 seconds at Start-Up and Shutdown of the Generation Unit(s) to facilitate a smooth transfer of power.
Low Frequency Relay	An electrical measuring relay intended to operate when its characteristic quantity (Frequency) reaches the relay settings by decrease in Frequency .
Margin	The difference between maximum Active Power (net of Auxiliary Loads) from Available Generation Units and net System Demand expressed in MW.
Market Operator	Shall have the meaning set out in the TSC .

Maximisation	An increase in MW Output above the Registered Capacity up to the level of the Short Term Maximisation Capability , and the terms " Maximise " and " Maximised " shall be construed accordingly.
Maximisation Instruction	An instruction issued by the TSO to the Generator to Maximise the MW Output of a Generation Unit .
Maximum Continuous Rating	The maximum capacity (MW) (or effective rating), modified for ambient limitations, that a Generation Unit can sustain indefinitely without loss of equipment life, less the capacity used to supply the Auxiliary Load .
Maximum Down Time	In the case of a Demand Side Unit , the maximum period of time during which Demand Side Unit MW Response can be greater than zero.
Maximum Export Capacity	The value (in MW, MVA, kW and/or kVA) provided in accordance with the User's Connection Agreement or DSO Demand Customer's DSO Connection Agreement .
Maximum Import Capacity	The values (kW and/ or kVA) provided in accordance with the User's Connection Agreement or DSO Demand Customer's DSO Connection Agreement .
Maximum On Time	The maximum time that a Generating Unit can run following Start Up .
Maximum Ramp Down Rate	The maximum Ramp Down Rate of a Demand Side Unit . In the case of a Demand Side Unit which consists of an Aggregated Demand Site this shall be the aggregated maximum Ramp Down Rate of the Individual Demand Sites .
Maximum Ramp Up Rate	The maximum Ramp Up Rate of a Demand Side Unit . In the case of a Demand Side Unit which consists of an Aggregated Demand Site this shall be the aggregated maximum Ramp Up Rate of the Individual Demand Sites .
Maximum Storage Capacity	The maximum amount of Energy that can be produced from the reservoir of a Pumped Storage Generator for a Trading Day .
Measurement Point	The Measurement Point shall be the Connection Point to the Transmission System or such other point or points as may be agreed between the TSO and the User .
Merit Order	An order, compiled by the TSO in conjunction with the Other TSO pursuant to SDC1 of Commercial Offer Data sorted in price

	order.
Meteorological Mast	A device erected at the Controllable WFPS which has the capability measure representative wind speed, wind direction, air temperature and air pressure to a degree of accuracy corresponding to the appropriate prevailing European Standard at that time.
Meter	A device for measuring and recording units of electrical energy.
Metering Code	The code that specifies the minimum technical design and operational criteria to be complied with for metering and data collection equipment and associated procedures as required under the Trading and Settlement Code .
Metering Equipment	Meters , time switches, measurement transformers, metering protection and isolation equipment, circuitry and their associated data storage and data communications equipment and wiring which are part of the Active Energy and Reactive Energy measuring equipment at or related to a Site .
Minimum Demand Regulation (MDR)	That minimum margin of Active Power to provide a sufficient regulating margin for adequate Frequency Control .
Minimum Down Time	Generation Units , the minimum time that must elapse from the time a Generation Unit De-Synchronises until the next Start-Up . In the case of Demand Side Units , the minimum period of time during which Demand Side Unit MW Response at a Demand Side Unit can be greater than zero.
Minimum Generation	The minimum MW Output which a Generating Unit can generate continuously, registered with the TSO under SDC1 as a Technical Parameter .
Minimum Load	Minimum MW Output a Generator can maintain on a continuous basis, whilst providing System Services .
Minimum off time	The minimum time that must elapse from the time of a Generation Unit Shutdown before it can be instructed to Start-up . In the case of Demand Side Units , the minimum time that must elapse while the Demand Side Unit MW Response is at zero until the next delivery of Demand Side Unit MW Response .
Minimum on time	The minimum time that must elapse from the time of a Generation Unit Start-up before it can be instructed to Shutdown .

Minimum Storage Capacity	The minimum amount of Energy that must be produced from the reservoir of a Pumped Storage Generator for a Trading Day .
Minimum Up Time	The minimum time that must elapse from the time of a Generation Unit Start-up before it can be instructed to Shutdown .
Minor Test	An Operational Test with a total duration of less than 6 hours in any Trading Day or were the active energy produced during the total duration of the test is less than: <ul style="list-style-type: none"> (i) 3 times the Active Energy which would be produced by the Test Proposer's Plant during 1 hour of operation at the Plant's Registered Capacity; and (ii) 500 MWh.
Modification	Any actual or proposed replacement, renovation, modification, alteration or construction by or on behalf of a User or the TSO to either that User's Plant or Apparatus or the TSO's Plant or Apparatus or the TAO's Plant or Apparatus , as the case may be, or the manner of its operation which has or may have a material effect on a User or the TSO , as the case may be, at a particular Connection Site .
Monitoring	Monitoring carried out by the TSO under OC10, and " Monitor " shall be construed accordingly.
Mvar Output	The Reactive Power produced or absorbed by a Generation Unit net of Generation Unit Auxiliary Load
MW Dispatch Instruction	An instruction given by the TSO from its National Control Centre to the Generator's approved contact person or location regarding the MW Output of the Generation Unit .
MW Output	The actual Active Power output in MW of a Generation Unit at the Connection Point .
National Control Centre	The TSO's National Control Centre, as notified by the TSO to the Generator from time to time.
Network	The Transmission System and the Distribution System taken together.
Network Control	Network switching and Control Actions that the TSO needs to carry out in implementing the Transmission Outage Programme , in routine operation of the Transmission System and in responding to emergency and fault situations on the Transmission System , which may from time to time affect the operations of Users

	or security of supply to Users .
NI System	Together, the Other Transmission System and the distribution system in Northern Ireland.
No Load Cost	A price which forms part of Commercial Offer Data expressed in € or £/hour and which is invariant in the level of MW Output and which applies at all times when the level of MW Output is greater than zero.
Non- Centrally Dispatched Generation Unit (NCDGU)	A Generating Unit not subject to Central Dispatch .
Normal Dispatch Condition	The condition of the Generation Unit at the End of the Start-up Period .
Notice to Synchronise	A Dispatch Instruction given by the TSO from its National Control Centre to the Generator's approved contact person or location to Synchronise the Generation Unit .
Off-Site Storage Location	The site in close vicinity to the Generator Site where (pursuant to a lease, licence or other agreement) the User stores stocks of Primary Fuel and/or Secondary Fuel . A dedicated pipeline with a dedicated pump must be in place on this site between the dedicated fuel tank off-site and the Generating Plant . As a maximum, this Off-Site Storage Location should be no more than 6 km from the Generating Plant .
Open Cycle Gas Turbine Unit	A Generation Unit driven by a gas turbine other than a CCGT Installation or CCGT Unit .
Open Cycle Mode	The mode of operation of a CCGT Installation where only the Gas Turbine Unit is operational (i.e. without operation of any associated Steam Turbine Units).
Operating Characteristics	The technical capabilities, flexibilities and limitations for the operation of a Generation Unit or Demand Side Unit as registered or declared in accordance with the provisions of the Grid Code .
Operating Code (OC)	The part of Grid Code which is identified as the Operating Code
Operating Margin	Contingency Reserve and Operational Reserve .
Operating Mode	An Operating Mode of a Generating Unit is a pre-defined method of operating that Generating Unit , as agreed between the TSO and the User .
Operating Reserve	The additional MW Output required from Generation Units or

	Interconnector import or Interconnector export adjustment or Demand reduction which must be realisable in real time operation to contain and correct any potential Power System Frequency deviation to an acceptable level. It will include Primary Operating Reserve , Secondary Operating Reserve and Tertiary Operating Reserve
Operation	A scheduled or planned action relating to the operation of a System (including an Embedded Independent Generating Plant).
Operation Instructions	Management instructions and procedures, both in support of the Safety Rules and for the local and remote operation of Plant and Apparatus , issued in connection with the actual operation of Plant and/or Apparatus at or from a Connection Site .
Operational Control Phase	The period from real time to one week ahead of real time.
Operational Data	Data required under the Operating Codes and/or Scheduling and Dispatch Codes .
Operational Date	When the TSO is satisfied that all of the Grid Code Tests have been carried out correctly and satisfactorily completed the TSO will as soon as is practicable notify the User , specifying the time and date of such completion.
Operational Effect	Any effect on the operation of the relevant other system that causes the Transmission System or the User's System to operate (or be at a materially increased risk of operating) differently to the way in which they would or may have normally operated in the absence of that effect. Operationally Effected shall be construed accordingly.
Operational Planning Phase	The period from 1 week to the end of the 7 th year ahead of real time
Operational Tests	Tests carried out by the TSO in order to maintain and develop operational procedures, to train staff and to acquire information in respect of Transmission System behaviour under abnormal System conditions, and also tests carried out by other Users for similar purposes in respect of their Plant .
OPTEL	The operational telephony system owned by ESB and used by the TSO for voice communication with Users .
Other Grid Code	The code prepared pursuant to the licence to carry out electricity transmission activities granted to the Other TSO pursuant to Article

	10(1)(b) of the Electricity (Northern Ireland) Order 1992 in Northern Ireland, as from time to time revised in accordance with such licence.
Other Relevant Data	The data referred to in SDC1.4.4.4.
Other Transmission System	The transmission system operated by the Other TSO in Northern Ireland.
Other TSO	The holder of a licence granted pursuant to Article 10(1)(b) of the Electricity (Northern Ireland) Order 1992 in Northern Ireland to participate in the transmission of electricity in the capacity of co-ordinating and directing the flow of electricity onto and over the Other Transmission System .
Outage	<p>In relation to a Generation Unit, a total or partial reduction in Availability such that the Generation Unit is unavailable to achieve its full Registered Capacity in accordance with its Registered Operating Characteristics.</p> <p>In relation to a Demand Side Unit, a total or partial change in Availability such that the Demand Side Unit is unavailable to achieve its full Demand Side Unit MW Capacity in accordance with its submitted Technical Parameters.</p> <p>In relation to an Interconnector, a total or partial reduction in Availability such that the Interconnector is unavailable to achieve its full Interconnector Registered Capacity in accordance with its Registered Operating Characteristics.</p>
Partial Shutdown	The situation existing when all generation has ceased in part of the Power System and there is no electricity supply from External Interconnection or any other part of the System .
Phase Voltage	Voltage measured between the line and System neutral.
<u>Physical Notifications</u>	A declaration submitted by certain Users in accordance with SDC1.4.4.6 and the TSC indicating expected MW Output profile or Active Power Demand profile. Physical Notifications shall not take account of any Dispatch Instructions already issued to the User .
Planned Rota Load Shedding	Planned De-Energisation of Customers on a rota basis where there is a significant shortfall of Generation required to meet the Total Demand for a protracted period.
Planning Code	That part of Grid Code which is identified as the Planning Code

Plant	Fixed and movable items used in the generation and/or consumption of and/or supply and/or transmission of electricity other than Apparatus .
Post Control Phase	The days following the Control Phase
Post Event Notice	A notice issued by the TSO in accordance with OC10
Power Factor	The ratio of Active Power to Apparent Power .
Power Quality	Target conditions for power quality and the variation in power quality that can be expected at Grid Connection Points .
Power Station	An installation consisting of Generation Unit(s) .
Power System	The Transmission System and all User System's within the Republic of Ireland.
Power System Restoration	The restoration of the Power System or part of the Power System to a state of normal operation from a state of Total Shutdown or Partial Shutdown as the context requires.
Power System Restoration Plan	A plan, prepared and maintained by the TSO pursuant to OC9 setting out guidelines assisting those involved in Power System Restoration to achieve Power System Restoration as safely and as quickly as possible.
Power System Stabiliser	Device that injects a supplementary signal into the AVR (Automatic Voltage Regulator) in order to improve Power System damping.
Pre-Incident Frequency	The value is the average Transmission System Frequency between 60 and 30 seconds prior to the occurrence of a significant Frequency disturbance.
Preliminary Project Planning Data	Data relating to a proposed User Development at the time the User applies for a Connection and Use of System Agreement and/or a supplemental Agreement but before an offer is made and accepted.
Price Sets	The Incremental Price Quantity Pairs, Decremental Price Quantity Pairs, Start-up Costs, Shutdown Costs and No Load Costs submitted by a User under SDC1.
Primary Frequency Control	Primary Frequency Control takes place in the period of up to 30 seconds after a change in Frequency and is achieved by automatic corrective responses to Frequency deviations occurring on the Transmission System . This automatic correction arises from:

	<p>(a) natural frequency demand relief of motor load;</p> <p>(b) automatic MW output adjustment of Generation Units initiated by Governor Droop or other responses including peaking of Combustion Turbine Units, condensate stop or frequency triggered response of pumped storage units; and</p> <p>(c) automatic load shedding.</p>
Primary Fuel	The fuel or fuels registered in accordance with the Grid Code as the principal fuel(s) authorised for Energy production by the Generation Unit
Primary Fuel Switch Over Output	The MW output, not lower than Minimum Load at which a Generation Unit can achieve a switch over from Primary Fuel to Secondary Fuel .
Primary Operating Reserve (POR)	The additional increase in MW Output (and/or reduction in Demand) required at the Frequency nadir (minimum), compared to the pre-incident output (or Demand) where the nadir occurs between 5 and 15 seconds after an event. If the actual Frequency nadir is before 5 seconds or after 15 seconds after the event, then for the purpose of POR monitoring the nadir is deemed to be the lowest Frequency which occurred between 5 and 15 seconds after the event.
Priority Customers	<p>Customers which are either:</p> <ul style="list-style-type: none"> • exempt from load shedding under the rota load shedding scheme or • exempt from load shedding under the technical under-frequency load shedding scheme or • prioritised for supply under the technical under-frequency load shedding scheme.
Priority Dispatch	The Dispatch given priority as afforded under governing legislation in either jurisdiction.
Programming Phase	The period between Operational Planning Phase and the Control Phase . It starts at the 1 week ahead stage and finishes with the issue of the Generation Schedule for the day ahead
Provisional Outage Programme	An Outage programme of the Generator's Generation Units and of Interconnectors , as prepared by the TSO pursuant to OC2 and covering years 2-3 ahead.

Provisional Running Orders	A statement prepared and issued by the TSO to the Generator pursuant to SDC1, which indicates for each Generation Unit owned or controlled by the Generator , the expected load pattern, the required fuel or fuels and Synchronising and De-Synchronising times for the following day.
Prudent Utility Practice	Those standards, practices, methods and procedures conforming to safety and legal requirements which are attained by exercising that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from skilled and experienced operatives engaged in the same type of undertaking under the same or similar circumstances.
Pumped Storage Generation	A Pumped Storage Plant in its operation of producing Energy by releasing water from an upper reservoir.
Pumped Storage Generator	A Generator which owns and/or operates any Pumped Storage Plant .
Pumped Storage Mode	A mode of operation of a Pumped Storage Unit including
Pumped Storage Plant	A Generation Plant that produces Active Energy using water from an upper reservoir and takes energy by pumping water up to the same reservoir.
Pumped Storage Plant Demand	A Pumped Storage Plant in its operation of consuming Energy by pumping water to an upper reservoir.
Pumped Storage Unit	A Generation Unit within a Pumped Storage Plant .
Ramp Down Break Point	The MW level at which the Ramp Down Rate changes. There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Ramp-down Capability	The rate of decrease in a Generation Unit' Output after the End Of Start-up Period . Ramp-down Capabilities apply over the output range from its Registered Capacity to Minimum generation . The rate of change is not dependent upon the initial warmth of the plant but may depend on the MW Output .
Ramp Down Rate	The maximum rate of decrease in a Generating Unit's Output after the End Of Start-up Period . The Ramp Down Rate applies over the output range from its Registered Capacity to Minimum Generation . The rate of change is not dependent upon the initial Warmth of the plant but may depend on the MW Output . There

	may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Ramp Up Break Point	The MW level at which the Ramp Up Rate changes. There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Ramp-up Capability	The rate of increase in a Generation Unit' Output after the End Of Start-up Period . This rate of increase continues until the Generation Unit reaches the level of output instructed by the control room operator or its Registered Capacity . Following the End Of Start-up Period , the rate of increase is not dependent upon the initial warmth of the plant but may depend on the MW Output .
Ramp Up Rate	The maximum rate of increase in a Generating Unit's Output after the End Of Start-up Period . This rate of increase continues until the Generating Unit reaches the level of output instructed by the control room operator of its Registered Capacity . The rate of increase is not dependent upon the initial Warmth of the plant but may depend on the MW Output . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Reactive Power	Means the product of voltage and current and the sine of the phase angle between them measured in units of volt-amperes reactive and standard multiples thereof.
Red Alert	An Alert issued by the TSO to the User in the circumstances set out in OC9
Re-declaration	Notification to the TSO by the User of any revisions to data, pursuant to SDC1.4.5.
Registered Capacity	The maximum Capacity , expressed in whole MW, that a Generation Unit can deliver on a sustained basis, without accelerated loss of equipment life, at the Connection Point which is under the dispatch (or control of a Controllable WFPS) of the TSO . This shall be the value at 10°C, 70 % relative humidity and 1013 hPa. The values of an Interconnector's Operating Characteristics for operation of the Interconnector pursuant to the Grid Code registered under the Connection Conditions .
Registered Data	Those items of Standard Planning Data and Detailed Planning

	Data that upon connection become fixed (subject to any subsequent changes).
Registered Fuel	The fuel(s) registered under the Planning Code of the Grid Code
Registered Operating Characteristics	The values of a Generation Unit's Operating Characteristics for operation of the Generation Unit pursuant to the Grid Code registered under the Connection Conditions . The values of an Interconnector's Operating Characteristics for operation of the Interconnector pursuant to the Grid Code registered under the Connection Conditions .
Regulating Margin	The margin of generating Capacity that is Synchronised over Demand which is required in order to maintain Frequency Control .
Regulatory Authority	The authority appointed under legislation to regulate the electricity industry in the respective jurisdiction. In the Republic of Ireland it is the CER and in Northern Ireland it is NIAUR (Northern Ireland Authority for Utility Regulation).
Regulatory Authorities	Each Regulatory Authority taken together.
Remote Terminal Unit (RTU)	A device that collects, codes and transmits data. An RTU collects information from a master device and implements processes that are directed by that master. RTUs are equipped with input channels for sensing or metering, output channels for control, indication or alarms and a communications port.
Remote Transmission Assets	Any Plant and Apparatus or meters owned by the TAO which: a) are Embedded in a User System and which are not directly connected by Plant and/or Apparatus owned by the TAO to a sub-station owned by the TAO ; and b) are by agreement between the TAO and such User operated under the direction and control of such User .
Replacement Reserve	Replacement Reserve is the additional MW Output (and/or reduction in Demand) required compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 20 minutes to 4 hours following an Event .
Reserve Characteristics	The MW level of reserve available at any given MW Output of a CDGU or Interconnector as set out in the available Ancillary Service Agreement .

Responsible Manager	A manager who has been duly authorised by a User or the TSO to deal with issues including matters related to the Grid Code on behalf of that User or the TSO , as the case may be.
Responsible Operator	A person nominated by a User to be responsible for control of Plant and Apparatus related to the User's System
Rise Time	In relation to reactive current response from Controllable WFPS , it is the length of time from Fault Inception for reactive current to reach 90% of its steady-state value.
Rota Load Shedding Plan	A plan that provides for disconnection and reconnection of defined blocks of demand on instruction from the TSO
Safety Rules	ESB Networks Electrical Safety Rules, ESB Power Generation Electrical Safety Rules or the rules of a User , compliance with which ensures that persons working on Plant and/or Apparatus to which the rules apply are safeguarded from hazards arising from the System .
Settling Time	In relation to reactive current response from Controllable WFPS , it is the length of time from Fault Inception for reactive current to settle within +/-10% of its steady-state value.
Scheduled Operational Date	Has the meaning set out in the Connection Agreement .
Scheduled Outage	Any Fixed Outage, Flexible Outage or Short Term Scheduled Outage .

Scheduling and Dispatch Code (SDC)	The parts of the Grid Code which specify the scheduling and Dispatch process.
Sections Under Common Governance	In order to support the efficient running of the SEM , certain sections of the Grid Code are under common governance. Modifications and derogations to these sections of the Grid Code will effectively require agreement and direction from both Regulatory Authorities . SDC1 and SDC2 are the Sections Under Common Governance .
Secondary Frequency Control	Secondary Frequency Control takes place in the time scale from 5 seconds up to 10 minutes after the change in Frequency . It is provided by a combination of automatic and manual actions. These include: (a) a contribution from automatic governor action and other control systems on Generation Units ; (b) manual action by Generation Unit operators altering the MW Output of Generation Units in response to Dispatch Instructions issued by the TSO in accordance with SDC2.
Secondary Fuel	The fuel or fuels registered in accordance with the Grid Code as the secondary or back-up fuel(s) authorised for Energy production by the Generation Unit .
Secondary Fuel Switchover Output	The MW output, not lower than Minimum Load at which a Generation Unit can achieve a switch over from Secondary Fuel to Primary Fuel .
Secondary Operating Reserve (SOR)	The additional MW Output (and/or reduction in Demand) required compared to the pre-incident output (or Demand), which is fully available by 15 seconds from the time of the start of the Frequency fall and sustainable up to 90 seconds following an Event .
Settlement Day	The period from 0000 to 2400 hours in each day.
Shaving Mode	The Synchronised operation of Generation Unit(s) to the Distribution System at an Individual Demand Site of a Demand Side Unit where the Generation Unit(s) supplies part of, or, the DSO Demand Customer's entire Load . Normally the Generation Unit(s) would operate for 2 hours per day as agreed with the DSO .
Shipping Agent	In relation to an Interconnector , a person appointed by the Regulatory Authorities to perform the role of the shipping agent

	(within the meaning of the EU Guideline on Capacity Allocation and Congestion Management) in respect of the Interconnector .
Short Notice Re-declaration	A Re-declaration where changes apply to values relating to Imbalance Settlement Periods occurring within 4 hours of receipt by the TSO of the Re-declaration .
Short-Term Maximisation Capability	The capability of a Generating Unit to deliver, for a limited duration of time, MW Output greater than its Registered Capacity .
Short-Term Maximisation Time	The time that the Short-Term Maximisation Capability could be maintained.
Shutdown	The condition of a Generation Unit where the generator rotor is at rest or on barring.
Shutdown Costs	The costs associated with shutting down a Demand Side Unit .
Significant System Incident (SSI)	Events which have had or might have had or might have an operational effect on the Transmission System or a User's System .
Significant Test	An Operational Test with a total duration of equal to or greater than 6 hours, or where the Active Energy produced during the total duration of the test is equal to or greater than: <ul style="list-style-type: none"> (i) 3 times the Active Energy which would be produced by the Test Proposer's Plant during 1 hour of operation at the Plant's Registered Capacity; or (ii) 500 MWh
Simultaneous Tap Change	A tap change implemented on the generator step-up transformers of CDGUs , effected by Generators in response to a Dispatch Instruction from the TSO issued simultaneously to the relevant Power Stations . The Dispatch Instruction , which is normally preceded by advance warning, must be effected within 1 minute of receipt from the TSO of the Dispatch Instruction .
Single Electricity Market (SEM)	The wholesale all-island single electricity market established and governed pursuant to the relevant legislation and the TSC .
Site	A TSO Site , TAO Site or User Site , as the case may be.
Small Scale Generators	(i) Generators with Registered Capacity of 2MW or less (on a single Site); and Generators with Registered Capacity less than 5MW (on a single Site) and greater than 2MW (on a site basis) where the

	TSO consider that the Generator is in a location that does not make its operation particularly critical to the operation of the Transmission System .
Soak Time Cold	The duration of time for which the Generating Unit must remain at the Soak Time Trigger Point Cold during a Cold Start . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Soak Time Hot	The duration of time for which the Generating Unit must remain at the Soak Time Trigger Point Hot during a Hot Start . . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Soak Time Trigger Point Cold	A constant MW level at which a Generating Unit must remain while loading up between Block Load and Minimum Generation after a Cold Start . . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Soak Time Trigger Point Hot	A constant MW level at which a Generating Unit must remain while loading up between Block Load and Minimum Generation after a Hot Start . . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Soak Time Trigger Point Warm	A constant MW level at which a Generating Unit must remain while loading up between Block Load and Minimum Generation after a Warm Start . . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Soak Time Warm	The duration of time for which the Generating Unit must remain at that Soak Time Trigger Point Warm during a Warm Start . . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Special Action	Those actions referred to in SDC2.4.3.
Special Protection Scheme	A control or protection scheme to facilitate System operation by the intertripping of circuit breakers or other Control Actions .

Spin Generation	A mode of operation of a Pumped Storage Unit where it is spinning in air in the same direction as it would if it was generating Active Power
Spin Pump	A mode of operation of a Pumped Storage Unit which is intermediate between the Unit being at standstill and pumping.
Stable/Stability	A Generation Unit is adjudged to be stable if the various machine states and variables, including but not limited to rotor angle, active power output, and reactive power output, do not exhibit persistent or poorly damped oscillatory behaviour, when the Generation Unit is subjected to a Fault Disturbance or other transient event on the Transmission System .
Standard Planning Data	The general data required by the TSO under the PC . It is generally also the data that the TSO requires from a new User in applications for Connection and Use of System Agreements .
Standby Mode	The operation of Generation Unit(s) at an Individual Demand Site of a Demand Side Unit where the Generation Unit(s) supplies the Demand Customer's or DSO Demand Customer's Load while not Synchronised to the Transmission System or Distribution System . The Generation Unit(s) is(are) never Synchronised to the Transmission System or Distribution System .
Standing Technical Offer Data	Technical offer data provided on registration to the TSC , and updated in accordance with the TSC , by a User of each of its Units in accordance with the TSC . For CDGUs with a Registered Capacity of 10 MW or less, this data shall be advised directly to the TSO .
Start of Restricted Range	The start point in MW of a Forbidden Zone . There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter.
Start-Up	The action of bringing a Generation Unit from Shutdown to Synchronous Speed .
Start-Up Cost	The costs associated with Start-Ups .
Station Board	A switchboard through which electrical power is supplied to the Auxiliaries of a Power Station , and which is supplied by a Station Transformer . It may be interconnected with a Unit Board .

Station Transformer	A transformer supplying electrical power to the Auxiliaries of a Power Station , which is not directly connected to the Generating Unit terminals.
Steam Unit	A Generation Unit whose prime mover converts the heat-energy in steam to mechanical energy.
Step Change	A step change is defined as a single, rapid change of the RMS voltage. Transmission System step changes can occur due to switching in and out of capacitors, lines, cables, transformers and other plant.
Substitute Reserve	The additional MW output (and/or reduction in Demand) required compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 4 hours to 24 hours following an Event .
Supplier	The holder of a Supply Licence .
Supply	The process of delivering electrical energy by a Supplier ; also, the amount of electric energy delivered, usually expressed in megawatthours (MWh).
Synchronise	The condition where an incoming Generation Unit or system is connected to another System so that the frequencies and phase relationships of that Generation Unit or System , as the case may be, and the System to which it is connected are identical and the terms “ Synchronise ”, “ Synchronising ” and “ Synchronisation ” shall be construed accordingly.
Synchronous Compensation	The operation of rotating synchronous Apparatus for the specific purpose of either the Generation or absorption of Reactive Power .
Synchronous Start-Up Time Cold	The time taken to bring a Generating Unit to a Synchronised state from a Cold (De-Synchronised) state.
Synchronous Start-Up Time Hot	The time taken to bring a Generating Unit to a Synchronised state from a Hot (De-Synchronised) state.
Synchronous Start-Up Time Warm	The time taken to bring a Generating Unit to a Synchronised state from a Warm (De-Synchronised) state.
System	Any User System and/or the Transmission System as the case may be.
System Capacity Shortfall	A warning issued by the TSO if, the Availability forecast and

Warning	Demand forecast indicate that there will be a deficit in any week,
System Emergency Condition	<p>A Partial Shutdown or Total Shutdown or any other physical or operational condition and/or occurrence on the Power System which, in the TSO's opinion, is</p> <p>(i) imminently likely to endanger or is endangering life or property; or</p> <p>(ii) is imminently likely to impair or is impairing:</p> <p>(a) the TSO's ability to discharge any statutory, regulatory or other legal obligation and/or</p> <p>(b) the safety and/or reliability of the Power System.</p>
System Planning	The process by which the performance of the System is evaluated and future changes and additions to the System are determined.
System Planning Data	Data that must be submitted at regular periods by all Users , or other such data or information as requested by the TSO under PC.6
System Services	Services which are required for System reasons and which include those which must be provided by Users in accordance with the Connection Conditions and those which must be provided by a User if the User has agreed to provide them under supplemental agreements
System Support Agreement	A bilateral agreement between the TSO and a User for services which are required for System reasons and which exclude those which must be provided by Users in accordance with the Connection Conditions .
System Support Services	Those services defined as System Support Services in Condition 1 of the TSO Licence granted to the Other TSO .
System Test	Tests which involve simulating conditions, or the controlled application of irregular, unusual or extreme conditions, on the System , or any part of the System , but which do not include Commissioning or recommissioning tests or any other tests of a minor nature.
Target Frequency	That Frequency determined by the TSO , in its reasonable opinion, as the desired operating Frequency of the Power System .
Technical Parameters	The technical capabilities, flexibilities and limitations for the

	operation of a User's Plant as registered or declared in accordance with the provisions of the Grid Code including those parameters listed in Appendix A to SDC1.
Technical Parameters Notice	A notification as submitted under SDC1.4.4.1.
Tertiary Operating Reserve	Tertiary Operating Reserve band 1 and Tertiary Operating Reserve band 2
Tertiary Operating Reserve band 1	The additional MW Output (and/or reduction in Demand) required compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 90 seconds to 5 minutes following an event.
Tertiary Operating Reserve band 2	The additional MW Output (and/or reduction in Demand) required compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 5 minutes to 20 minutes following an event.
Test Proposer	The User submitting proposal for a test under OC8.
Testing	Testing carried out by the TSO pursuant to OC10 and/or CC and the term " Test " shall be construed accordingly.
Thermal Overload	A Thermal Overload occurs when the designed thermal rating of a transmission line or cable is exceeded. The thermal rating of a transmission line is dictated by its physical construction and varies with the ambient weather conditions, while the thermal rating of a transmission cable is dependent solely on its physical construction.
Thermal Plant	A Generating Unit that uses any source of thermal Energy .
Total Shutdown	The situation existing when all generation has ceased and there is no electricity supply from External Interconnection .
Total Transfer Capacity	The total amount of power that can be exchanged continuously to or from the Transmission System over the Interconnector while ensuring the safe operation of the Transmission System . It is set based on physical and electrical realities according to system security requirements including thermal limits (including single contingencies), voltage limits and stability limits.
Trading and Settlement Code	The Single Electricity Market Trading and Settlement Code which the Market Operator is required to administer and maintain in force under the Market Operator licences issued by the Regulatory Authorities

Trading Day	A 24-hour period combining forty-eight 30 minute Imbalance Settlement Periods (except on the clock change days in spring and autumn when the period will be 23 and 25 hours respectively with forty-six and fifty 30 minute Imbalance Settlement Periods respectively). Each Trading Day commences at 23.00 hours.
Transmission Asset Owner (TAO)	The ESB , acting in its capacity as the Transmission System Owner .
Transmission Planning Criteria	System Planning practices and considerations that the TSO follows. The application of Transmission Planning Criteria may vary to match local conditions and local System requirements. The Transmission Planning Criteria are available on the TSO's website.
Transmission Reliability Margin	A transmission transfer capacity margin which accounts for the security margin for regulation, reserve sharing, and Rescue Flows between the Transmission System and any External System and may also take into account uncertainties of system conditions and other assumptions made to produce Total Transfer Capacity ex-ante.
Transmission Station	A node in the electricity Transmission System with transmission circuit/s, transformer/s, circuit breakers and their associated protection and communications systems.
Transmission System	The System consisting (wholly or mainly) of high Voltage electric lines and cables operated by the TSO for the purposes of transmission of electricity from one Power Station to a sub-station or to another Power Station or between sub-stations or to or from any External Interconnection including any Plant and Apparatus and meters owned or operated by the TSO or TAO in connection with the transmission of electricity.
Transmission System Operator (TSO)	The holder of the licence granted pursuant to Section 14 of the Act 1999 to operate a Transmission System .
Transmission System Owner	The holder of the licence granted pursuant to Section 14 of the Act to own the Transmission System .
TSO Licence	A Licence authorising a TSO to carry out electricity transmission activities, granted either pursuant to Article 10(1)(b) of the Electricity (Northern Ireland) Order 1992 in Northern Ireland or pursuant to section 14 of the Electricity Regulation Act 1999 in the Republic of Ireland.

TSO Telecommunication Interface Cabinet	The physical interface point between the TSO's telecommunications equipment and the Controllable WFPS's control equipment.
Unit Board	A switchboard through which electrical power is supplied to the Auxiliaries of a Generating Unit and which is supplied by a Unit Transformer . It may be interconnected with a Station Board .
Unit Transformer	A transformer directly connected to a Generating Unit's terminals, and which supplies power to the Auxiliaries of a Generating Unit .
Use of System Agreement	An agreement between the TSO and a User setting out the terms relating to the use of the Transmission System .
Use of System Tariffs	Tariffs set by the TSO subject to approval by the CER for use of the Transmission System .
User	A term utilised in various sections of the Grid Code to refer to the persons using the Transmission System , as more particularly identified in each section of the Grid Code concerned. The term means any person (other than the TSO) to whom the Grid Code applies.
User Development	In the Planning Code means either User's Plant and/or Apparatus to be connected to the Transmission System , or a Modification relating to a User's Plant and/or Apparatus already connected to the Transmission System , or a proposed new connection or Modification to the connection within the User System .
User Site	A site owned (or occupied pursuant to a lease, licence or other agreement) by a User in which there is a Connection Point .
User System	Any system owned or operated by a User comprising:- (i) Generating Units ; (ii) Interconnectors ; and/or (iii) systems consisting (wholly or mainly) of electric circuits used for the distribution of electricity from Grid Supply Points or Generating Units or other entry points to the point of delivery to Customers , or other Users ; and Plant and/or Apparatus connecting:- (i) the system as described above; or

	<p>(ii) Demand Customers' equipment;</p> <p>to the Transmission System or to the relevant other User System, as the case may be.</p> <p>The User System includes any Remote Transmission Assets operated by such User or other person and any Plant and/or Apparatus and meters owned or operated by the User or other person in connection with the distribution of electricity but does not include any part of the Transmission System.</p>
User System Entry Point	A point at which a Generation Unit , a CCGT Installation or a CCGT Unit , as the case may be, which is Embedded connects to the User System .
Var	A single unit of Reactive Power .
Voltage	Voltage of relevant section of Transmission System - nominally 400kV, 220kV or 110kV
Voltage Control	The retention of the Voltage on the System within acceptable limits.
Voltage Dip	The is a short-duration reduction in Voltage on any or all phases due to a Fault Disturbance or other Significant System Incident , resulting in Transmission System Voltages outside the ranges as specified in CC.8.3.2, and more generally, bus Voltages or terminal Voltages of less than 90% of nominal voltage on any or all phases. Percentage Voltage Dip shall be calculated with respect to nominal voltage.
Voltage Regulation	The automatic adjustment of Reactive Power output from a Generation Unit(s) in response to Voltage changes (e.g. from a Generation Unit).
Voltage Regulation Set-point	The Voltage in kV that the Voltage Regulation System will act to regulate by continuous modulation of the Interconnector's or Wind Farms Power Station's Reactive Power .
Voltage Regulation System	A facility providing the means to automatically adjust the Reactive Power output (e.g from a Generation Unit(s)) in response to changes in Voltage .
Voltage Regulation System Slope Setting	The percentage change in Transmission System Voltage that would cause the Reactive Power output of the Interconnector to vary from maximum Mvar production to maximum Mvar absorption or vice-versa or Controllable WFPS to vary from maximum Mvar

	production capability of Q/Pmax of 0.33 to maximum Mvar absorption capability of Q/Pmax of -0.33 or vice-versa, as per Figure WFPS1.4.
Warm Cooling Boundary	The period of time, which must be greater than that defined by the Hot Cooling Boundary , post De-Synchronisation of a Generating Unit after which the Generating Unit's Warmth State transfers from being warm to cold.
Warm Start	Any Synchronisation of a Generating Unit that has previously not been Synchronised for a period of time longer than its submitted Hot Cooling Boundary and shorter than or equal to its submitted Warm Cooling Boundary .
Warmth	The temperature related condition of a CDGU which changes according to the length of time since the CDGU was last De-Synchronised , expressed as various levels of warmth (dependent upon the design of the CDGU).
Warmth State	Either cold, warm or hot, as defined under the timeframes since last De-Synchronisations for Cold Start , Warm Start or Hot Start respectively.
Warning	A warning as provided for in OC10.7.1.1
WFPS Extension	An increase to the Registered Capacity of any Controllable WFPS .
Wind Farm Control System	The control system at the Controllable WFPS which provides for Active Power Control , Frequency Response , ramp rate control and other WTG control features.
Wind Following Mode	A mode of operation of a Controllable WFPS where the system frequency is within normal range and the Controllable WFPS is not under Active Power Control by the TSO , allowing the Controllable WFPS to produce up to 100% of its Available Active Power , depending on the Power-Frequency Curve in operation. When operating on Power-Frequency Curve 2, the Controllable WFPS is required to maintain its Active Power output at a fixed percentage of its Available Active Power when Transmission System Frequency is within the range F_B - F_C .
Wind Following Ramp Rate	The maximum rate of increase of Active Power output of a Controllable WFPS in response to an increase in wind speed.

Wind Turbine Generator(s) (WTG)	A Generation Unit(s) generating electricity from wind.
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