

## The Single Electricity Market (SEM)

### Trading and Settlement Code

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# 1. INTRODUCTION AND INTERPRETATION

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## INTRODUCTION

- 1.1 The Single Electricity Market (or “SEM”) was developed by the Commission for Energy Regulation and the Northern Ireland Authority for Utility Regulation pursuant to a Memorandum of Understanding dated 23 August 2004, the subsequent All-Island Energy Market Development Framework agreed in November 2004 between Noel Dempsey TD, then Minister for Communications, Marine and Natural Resources in Ireland and Barry Gardiner MP, then Minister with responsibility for Enterprise, Trade and Investment in Northern Ireland, and the Memorandum of Understanding between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Ireland of December 2006. This Code was developed as part of the process of establishing the SEM and constitutes the trading arrangements and Trading and Settlement Code for the SEM in Northern Ireland pursuant to section 23 of the Northern Ireland (Miscellaneous Provisions) Act 2006 and the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007, and in Ireland pursuant to section 9BA(1) of the Electricity Regulation Act 1999 (Ireland) and as designated pursuant to regulations made under section 9BA(2)(a) of the Electricity Regulation Act 1999 (Ireland). The SEM incorporates the Pool for trading between participating generators and suppliers. It is a condition of the Market Operator Licences that the Market Operator shall enter into and at all times administer and maintain in force a code which:
1. sets out the terms of the trading and settlement arrangements for the sale and purchase of wholesale electricity in the Pool;
  2. is designed to facilitate the achievement of the objectives set out in paragraph 1.3 below; and
  3. contains modification procedures which provide that any modifications to the Code (but not necessarily, to the Agreed Procedures) must be subject to the prior approval of the Regulatory Authorities and which enable the Regulatory Authorities to propose modifications to the Code.
- 1.2 This Code sets out the trading and settlement rules and procedures for participation in the Pool.

### Code Objectives

- 1.3 The aim of this Code is to facilitate the achievement of the following objectives:
1. to facilitate the efficient discharge by the Market Operator of the obligations imposed upon it by its Market Operator Licences;
  2. to facilitate the efficient, economic and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner;
  3. to facilitate the participation of electricity undertakings engaged in the generation, supply or sale of electricity in the trading arrangements under the Single Electricity Market;

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- 4. to promote competition in the single electricity wholesale market on the island of Ireland;
- 5. to provide transparency in the operation of the Single Electricity Market;
- 6. to ensure no undue discrimination between persons who are parties to the Code; and
- 7. to promote the short-term and long-term interests of consumers of electricity on the island of Ireland with respect to price, quality, reliability, and security of supply of electricity.

1.4 Paragraphs 1.1 to 1.3 of this Section 1 are for information only and, without prejudice to the rights, duties and obligations set out in the Licences and legislation referred to therein, are not intended of themselves and should not be construed so as to create legally binding obligations as between or impose rights and duties on the Parties, provided that the Modifications Committee shall be required to have regard to the Code Objectives in accordance with paragraph 2.149 and any Dispute Resolution Board shall be required to have regard to the Code Objectives in accordance with paragraph 2.286.

#### **Appendices and Agreed Procedures**

- 1.5 The Appendices and the Agreed Procedures, as may be amended or modified from time to time, shall be construed as and form part of this Code and shall be subject to the terms of this Code. The Agreed Procedures set out the detail of procedures to be followed by Parties in performing obligations and functions under this Code.
- 1.6 Appendix D “Scope of Agreed Procedures” describes and sets out the scope of each of the Agreed Procedures.

### **INTERPRETATION**

#### **Interpretation**

- 1.7 In this Code, the following interpretations shall apply unless the context requires otherwise:
  - 1. the Table of Contents, and any index and headings in this Code, are for ease of reference only and do not form part of the contents of this Code and do not and shall not affect its interpretation;
  - 2. words in the singular shall include the plural and vice versa and the masculine gender shall include the feminine and neuter;
  - 3. the word “including” and its variations are to be construed without limitation;
  - 4. any reference to any legislation, primary or secondary, in this Code includes any statutory interpretation, amendment, modification, re-enactment or consolidation of any such legislation and any regulations or orders made thereunder and any general reference to any legislation includes any regulations or orders made thereunder;
  - 5. any references to Sections, paragraphs, Appendices and Agreed Procedures are references to Sections, paragraphs, Appendices and Agreed Procedures of this Code as amended or modified from time to time in accordance with the provisions of this Code;

6. any reference to another agreement or document, or any deed or other instrument is to be construed as a reference to that other agreement, or document, deed or other instrument as lawfully amended, modified, supplemented, substituted, assigned or novated from time to time;
7. any reference to a day is to be construed as a reference to a calendar day except where provided otherwise, and any reference to a year is to be construed as a reference to a period of 12 months;
8. any reference to a time is to be construed as a reference to the time prevailing in Belfast;
9. where any obligation is imposed on any Party pursuant to this Code and is expressed to require performance within a specified time limit that obligation shall, where appropriate, continue to be binding and enforceable after that time limit if the Party fails to perform that obligation within that time limit (but without prejudice to all rights and remedies available against that person by reason of that person's failure to perform that obligation within the time limit);
10. zero is to be treated as a positive, whole number;
11. capitalised words and phrases, acronyms, abbreviations and subscripts have the meaning given to them in the Glossary;
12. where a specified number of days is expressed to elapse or expire from or after the giving of a notice or the issue or making available of a document before an action may be taken or by which an action is required to be taken then, unless explicitly stated otherwise, the day on which the notice is given or issued or the document is made available shall not be counted in the reckoning of the period;
13. a reference to a "person" includes any individual, partnership, firm, company, corporation (statutory or otherwise), joint venture, trust, association, organisation or other entity, whether or not having separate legal personality;
14. references to a Participant shall be construed as a reference to the relevant Party in its capacity as registrant of the relevant Units. Any obligation expressed to be on a Party shall, where appropriate, be construed as an obligation on that Party in respect of each of its Participants;
15. where this Code requires data to be published by the Market Operator, it shall be made publicly available (which, for the avoidance of doubt means available to all members of the public and not only to Parties) in a format that readily lends itself to processing by standard computer and analysis tools, through an easily accessible public interface and the terms "publish", "publication" and "published" shall be construed accordingly;
16. where this Code requires the Market Operator to publish information and no timeline is specified for such publication, it shall be required to publish such information as soon as reasonably practicable;
17. in the event of any conflict between algebraic formulae and English language text in Sections 4 to 6 inclusive, the algebraic formula shall apply, save in the case of manifest error in the algebraic formula;

18. where no timeframe for performance is specified in respect of any obligation to be performed by a Party, then such obligation shall be performed within a reasonable time;
19. each run of the MSP Software relates to a single Optimisation Time Horizon; and, where a run of the MSP Software or an Optimisation Time Horizon is associated with a Trading Day, it means the Trading Day that is entirely within the Optimisation Time Horizon; and where a Trading Day is associated with an Optimisation Time Horizon or a run of the MSP Software, it means the Optimisation Time Horizon or run of the MSP Software that starts at the same time as the start of that Trading Day; and
20. payments or charges may be either positive or negative in accordance with their calculated value except where otherwise stated.

1.8 Where any provision of this Code provides that the Regulatory Authorities shall determine or approve certain values which are required for the performance of calculations under the Code and which apply for a specific period, and on expiry of such period no replacement values have been determined by the Regulatory Authorities, or the Regulatory Authorities have not communicated such determination to the Market Operator, then the values applicable immediately prior to the expiry of the relevant period shall continue to apply until the Regulatory Authorities have determined or approved new values and this has been communicated to the Market Operator in accordance with the Code.

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## 2. LEGAL AND GOVERNANCE

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### GOVERNING LAW

- 2.1 This Code and any disputes arising under, out of, or in relation to the Code shall be interpreted, construed and governed in accordance with the laws of Northern Ireland.

### JURISDICTION

- 2.2 Subject to the provisions relating to the Dispute Resolution Process, the Parties hereby submit to the exclusive jurisdiction of the Courts of Ireland and the Courts of Northern Ireland for all disputes arising under, out of, or in relation to the Code.

### TERM

- 2.3 The Code shall commence on the Commencement Date and shall have no fixed duration.

### PRIORITY

- 2.4 In the event of any conflict between any Party's obligation pursuant to any Legal Requirements and the Code, such conflict shall be resolved according to the following order of priority:
1. requirements under Applicable Laws;
  2. any applicable requirement, direction, determination, decision, instruction or rule of any Competent Authority;
  3. applicable Licence;
  4. Grid Code applicable to the relevant Unit concerned;
  5. Metering Code applicable to the relevant Unit concerned;
  6. this Code (subject to paragraph 2.8 below).
- 2.5 If and for so long as a Party complies with the relevant Legal Requirements set out in paragraph 2.4.1 to 2.4.5, it shall be relieved of its obligations under the Code to the extent that and for so long as the performance of such obligations is in conflict with any of the relevant Legal Requirements taking priority over the Code, provided that such conflict does not arise as a result of a failure of the relevant Party to procure, comply with or maintain any consent, permission, licence or Licence in accordance with paragraph 2.130.2.
- 2.6 A Party shall only be relieved of its obligations pursuant to paragraph 2.5 for so long as and to the extent that resolution of the conflict is not within the reasonable control of the relevant Party.
- 2.7 Until such time as such conflict is resolved through the Modifications Process or otherwise, the applicable obligations under the Legal Requirements set out in paragraphs 2.4.1 to 2.4.5 shall prevail over the provisions of the Code for each Party or Unit in relation to which they are in conflict.
- 2.8 It is not intended that there be any inconsistency or conflict between any provision of any of the Sections, Appendices or Agreed Procedures of the

Code. However, in the event of any inconsistency or conflict, such inconsistency or conflict shall be resolved in the following order of priority:

1. Section 8;
2. Section 7;
3. Sections 1, 2, 3, 4, 5 and 6 and the Glossary;
4. Appendices; and
5. Agreed Procedures.

2.9 The provisions of paragraph 2.8 shall be subject to any express provision to the contrary in the Code.

## **PARTIES AND ACCESSION PROCESS**

2.10 A person may only become a Party to the Code in accordance with the terms of the Code and the Framework Agreement.

2.11 The original signatories to the Framework Agreement, as determined by the Regulatory Authorities, are Parties to the Code and are not required to complete the Accession Process.

2.12 Any person that is at the relevant time an adhering party to the Framework Agreement shall be a Party to the Code, in accordance with and subject to the Accession Process outlined below.

2.13 Subject to paragraph 2.11, in order to become a Party, a person (the "Applicant") must complete and sign an application form which shall be in the form provided for in Agreed Procedure 1 "Participant and Unit Registration and Deregistration" and send it to the Market Operator. The application form specifies all conditions which the Applicant must meet to become a Party which include that the Applicant shall;

1. pay the Accession Fee; and
2. when provided, execute the Accession Deed to adhere to the Framework Agreement and the Code .

2.14 The Accession Fee shall be non-refundable.

2.15 Where the Market Operator receives an application from an Applicant, it must within 10 Working Days of receiving the application, send a notice to the Applicant informing the Applicant of any further information or clarification which is required in relation to the application or where the application is incomplete. The Market Operator shall provide details of what clarification is required or where the application is incomplete.

2.16 If the Market Operator does not receive the clarification or the additional information required within 20 Working Days of the Applicant having been informed by the Market Operator of the need for such clarification, the Applicant shall be deemed to have withdrawn the application. An Applicant may request additional time to provide any clarification or additional information and the Market Operator shall not unreasonably withhold consent to any such request.

2.17 On receipt of a completed application form and any clarification or additional information requested by the Market Operator and provided that the Applicant fulfils the conditions for accession specified in the application form, the Market Operator shall within 10 Working Days of final receipt of all required information provide the Applicant with an Accession Deed. The



Applicant must submit an executed Accession Deed within 20 Working Days of receipt. An Applicant may request additional time to submit an executed Accession Deed and the Market Operator shall not unreasonably withhold consent to any such request, provided that the date of receipt of the executed Accession Deed shall be earlier than the effective date specified in the Accession Deed.

- 2.18 Following receipt by the Market Operator of an executed Accession Deed in accordance with paragraph 2.17, the Applicant shall become a Party on the date specified in the Accession Deed unless the Market Operator and the Applicant agree on a different date separately in writing.
- 2.19 The Market Operator shall publish the fact and date of the accession of each new Party to the Code.

#### **DE MINIMIS THRESHOLD**

- 2.20 The De Minimis Threshold for the purposes of the Code and mandatory participation in the Pool shall be a Maximum Export Capacity of 10MW.
- 2.21 A Party shall register every Generator which it owns or legally controls, which has Maximum Export Capacity greater than or equal to the De Minimis Threshold and which is covered by a single Connection Agreement, as a Generator Unit under the Code. If a Party is permitted, pursuant to the consent of the Regulatory Authorities, to appoint an Intermediary in respect of a Generator, it shall satisfy the requirements of this paragraph 2.21 for that Generator if it procures the registration of the Generator as a Generator Unit by the relevant Intermediary in accordance with the Code.
- 2.22 A Party which has been authorised by the Unit Owner, under a Form of Authority and with the consent of the Regulatory Authorities, to act as Intermediary in respect of any Generator which has Maximum Export Capacity greater than or equal to the De Minimis Threshold and which is covered by a single Connection Agreement, shall register such Generator as a Generator Unit in accordance with the Code.
- 2.23 A Party shall register every Generator which it owns or legally controls which is not covered by a Connection Agreement but which is located on a Contiguous Site, having an overall Maximum Export Capacity greater than or equal to the De Minimis Threshold, as a Generator Unit under the Code. If a Party is permitted, pursuant to the consent of the Regulatory Authorities, to appoint an Intermediary in respect of a Generator to which this paragraph applies, it shall satisfy the requirements of this paragraph 2.23 for that Generator if it procures the registration of the Generator as a Generator Unit by the relevant Intermediary in accordance with the Code.
- 2.24 A Party which has been authorised by the Unit Owner, under a Form of Authority and in accordance with the consent of the Regulatory Authorities, to act as Intermediary in respect of any Generator which is not covered by a Connection Agreement but which is located on a Contiguous Site, having an overall Maximum Export Capacity greater than or equal to the De Minimis Threshold shall register such Generator as a Generator Unit in accordance with the Code.
- 2.25 A Party may register any Generator which it owns or legally controls and which is covered by a single Connection Agreement, or is located on a Contiguous Site which does not have a Connection Agreement, which has a Maximum Export Capacity less than the De Minimis Threshold, as a Generator Unit under the Code. If a Party is permitted, pursuant to the

**Deleted:** consent of the Regulatory Authorities, to appoint an Intermediary in respect of a Generator to which this paragraph applies, it may procure registration of the Generator as a Generator Unit by the relevant Intermediary in accordance with the Code.

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2.26 A Party which has been authorised by the Unit Owner, under a Form of Authority and in accordance with the consent of the Regulatory Authorities, to act as Intermediary in respect of any Generator which is covered by a single Connection Agreement, or is located on a Contiguous Site which does not have a Connection Agreement, which has Maximum Export Capacity less than the De Minimis Threshold shall register such Generator as a Generator Unit in accordance with the Code.

2.27 Demand Side Units shall not be required to be registered under paragraph 2.21 or 2.23.

### **PARTICIPATION AND REGISTRATION OF UNITS**

2.28 In order for a Party to participate in the Pool in respect of any Unit, a Party must register that Unit in accordance with the registration procedure provided for in paragraphs 2.30 to 2.112.

2.29 On or prior to its first application to register a Unit, a Party (or Applicant, as applicable) shall complete and return a First Participation Information Notice.

2.30 An Applicant may submit an application to register Units prior to becoming a Party provided that registration of Units shall not take effect until the Applicant has become a Party.

2.31 In addition to the requirements set out in paragraph 2.33, a Party (or Applicant as applicable) shall complete such documentation as may be required by the Market Operator in respect of any requirement to register a charge on any SEM bank account.

2.32 On registration of a Unit, a Party shall become the Participant in respect of that Unit.

2.33 A Party (or Applicant, as applicable) shall apply to register any Units by completing a Participation Notice in respect of such Units which shall include the following information:

1. whether the Unit concerned is a Generator Unit or Supplier Unit;
2. if the Unit is a Generator Unit, details of the Trading Site to which that Unit shall be registered;
3. the Currency Zone of the Unit;
4. the name address and contact details (including email and fax) of the Participant to which the Unit is to be registered;
5. the billing address of the Participant;
6. full details of the bank account to which amounts payable by the Market Operator to that Participant shall be paid;
7. the proposed Effective Date, being the Trading Day on which, from the start of the first Trading Period on that Trading Day, the Party intends that trading in respect of that Unit shall be effective. The proposed Effective Date shall be no earlier than 23 Working Days

from the date the Participation Notice is sent to the Market Operator in accordance with this paragraph 2.33;

8. the Communication Channels which the Participant designates pursuant to paragraph 3.8;
9. evidence of compliance with metering requirements;
10. evidence that all necessary Connection Agreements are in place, valid and effective;
11. evidence that all necessary Use of System Agreements are in place, valid and effective;
12. evidence that the Party (or on registration by an Intermediary, the appointing Generator) holds a valid Licence (including an authorisation or exemption) to generate or supply electricity in the relevant Jurisdiction(s) (as appropriate) and details of all other Licences (including authorisations or exemptions relevant to the SEM);
13. VAT details for all relevant Jurisdictions;
14. any other participation roles which the Party (or Applicant as applicable) has or intends to have and the Effective Date from which it has or intends to have such capacity;
15. in the case of a relevant Generator Unit, where no Trading Site Supplier Unit exists or is proposed, the identity of the Participant that it is intended shall record the Associated Supplier Unit;
16. initial Default Data in respect of each Generator Unit, that may be used by the Market Operator in relation to that Unit; and
17. such other Registration Data as is required by the Market Operator pursuant to Appendix H "Participant and Unit Registration and Deregistration" and Agreed Procedure 1 "Participant and Unit Registration and Deregistration".

2.34 A Party (or Applicant, as applicable) shall, on registration of a Generator Unit, specify if the Unit is:

1. a Wind Power Unit;
2. an Energy Limited Generator Unit;
3. a Pumped Storage Unit;
4. a Demand Side Unit;
5. a Netting Generator Unit; or
6. an Interconnector Unit.

2.35 The Market Operator shall publish details of the Accession and Participation Fees expressed both in euro and in pounds sterling with those in pounds sterling being converted into euro using the Annual Capacity Exchange Rate.

2.36 A Party (or an Applicant as applicable) shall send the required Participation Fees with the Participation Notice to the Market Operator. The Market Operator shall specify the components of the Participation Fee that will apply in respect of each Participation Notice.

- 2.37 If a Participation Notice is withdrawn or rejected, the Market Operator shall refund those elements of the Participation Fee for which it has not incurred any costs.
- 2.38 Where a Party (or an Applicant, as applicable) applies to register Units in more than one Currency Zone, it shall register as a separate Participant for Units in each Currency Zone.
- 2.39 In the event that a Party (or an Applicant, as applicable) does not apply to register as a separate Participant in relation to Units where those Units are located in different Currency Zones, it shall be automatically deemed to be a separate Participant in respect of the Units located in each Currency Zone for the purposes of the Code. The Market Operator shall in such circumstances notify the Participants of the requisite Participation Fees and the Party (or Applicant, as applicable) shall, within 3 Working Days, pay the requisite Participation Fees for each deemed Participant.
- 2.40 A Party (or Applicant, as applicable) shall not register as more than one Participant save as provided for in paragraph 2.38 or as permitted with the prior written consent of the Regulatory Authorities. Any such consent must be submitted with the relevant Participation Notice.
- 2.41 Where the Market Operator receives a Participation Notice from a Party (or an Applicant, as applicable) it must, within 10 Working Days of receiving the Participation Notice, send a notice to the Party (or Applicant, as applicable) informing it of any further information or clarification which is required in relation to the Participation Notice or where the Participation Notice is incomplete. The Market Operator will provide details of what clarification is required or where the Participation Notice is incomplete.
- 2.42 If the Market Operator does not receive the clarification or the additional information required from the Party (or the Applicant, as applicable) within 20 Working Days of having been informed by the Market Operator of the need for such clarification or additional information, the Party (or the Applicant as applicable) shall be deemed to have withdrawn the Participation Notice and the Market Operator shall refund the Participation Fees. An Applicant may request additional time to submit any clarification or additional information and the Market Operator shall not unreasonably withhold consent to any such request.
- 2.43 On receipt of a Participation Notice, the Participation Fees and any additional clarification or information requested by the Market Operator from a Party (or an Applicant, as applicable) within the timelines provided for in paragraph 2.42, the Market Operator shall within 5 Working Days send a notice to the Party (or Applicant as applicable) informing the Party (or Applicant as applicable) of any conditions for registration of each Unit which was the subject of the Participation Notice from the following list as applicable:
1. the amount of Credit Cover required to be put in place by the proposed Participant prior to the Effective Date in respect of each such Unit calculated with effect from the Effective Date;
  2. any qualification requirements pursuant to Agreed Procedure 3 "Communication Channel Qualification" for the Participant's designated Communication Channels;

3. the requirement for the satisfactory provision of the Registration Data set out in Agreed Procedure 1 “Participant and Unit Registration and Deregistration” (if not already provided); and
  4. the requirement that the relevant facilities are Connected to the Distribution System or Transmission System.
- 2.44 If a Party (or Applicant as applicable) fails to satisfy any of the conditions for participation specified by the Market Operator under paragraphs 2.43.2 to 2.43.4 within 20 Working Days (or such shorter period as specified by the Market Operator) of being notified of such conditions by the Market Operator, its Participation Notice shall be deemed to be withdrawn and the Market Operator shall refund the relevant portion of the Participation Fees. A Party (or Applicant as applicable) may request additional time to satisfy any of the conditions under paragraph 2.43 and the Market Operator shall not unreasonably withhold consent to any such request.
- 2.45 The Market Operator shall share Registration Data received from a Party with the System Operators in accordance with Appendix J “Market Operator and System Operator Data Transactions” and shall be entitled to share Registration Data received from a Party with the Meter Data Providers for the purpose of processing registration and facilitating participation in respect of the relevant Units. All Parties shall co-operate with and provide such assistance as the Market Operator may reasonably request for these purposes.
- 2.46 Notwithstanding any date specified by the Party (or Applicant as applicable) in its Participation Notice, registration of Units shall not become effective until such time as the Market Operator specifies in a Commencement Notice in accordance with paragraph 2.47 or such later date provided for under paragraph 2.48.
- 2.47 Where the Party (or Applicant, as applicable) concerned:
1. has supplied all information required and satisfied all such conditions as notified to the Party (or Applicant, as applicable) pursuant to paragraphs 2.43.2 to 2.43.4;
  2. has paid the Participation Fees; and
  3. is not otherwise in breach of the Code or the Framework Agreement;
- then the Market Operator shall issue a Commencement Notice to the Participant as soon as reasonably practicable. The Commencement Notice shall specify the Effective Date, being the Trading Day on which, from the start of the first Trading Period on that Trading Day, registration of the Units concerned shall be effective, provided that the Required Credit Cover has been put in place prior to the Effective Date.
- 2.48 Where a Party (or Applicant, as applicable) has not put in place the Required Credit Cover before the Effective Date specified in a Commencement Notice, the Effective Date shall be deferred to commence on the first Trading Period of the first Trading Day after the Required Credit Cover is put in place, provided that such Trading Day is within twelve months of the initial effective date specified in the relevant Commencement Notice. Otherwise the Participation Notice shall be deemed to have been withdrawn and none of the Participation Fee shall be refunded.
- 2.49 Units shall be deemed registered for the purposes of participation in the Pool from the start of the Effective Date.

- 2.50 A Participant shall commence trading in respect of a Unit at the start of the relevant Effective Date. For that purpose, a Party (or Applicant, as applicable) may, following submission of its Participation Notice and prior to the Effective Date, submit data in respect of trading for the Effective Date and any subsequent date in accordance with the Code.
- 2.51 The Market Operator shall publish the Effective Date and the fact of the registration of each new Participant and the registration of each new Unit to a Participant. The Market Operator shall maintain and publish a current list of Parties, Participants and each of their Units.
- 2.52 Parties or Participants may apply to change registration details of Units by application to the Market Operator pursuant to Agreed Procedure 4 “Transaction Submission and Validation”, provided that if a Party applies to reduce the number of Meter Point Registration Numbers registered to any of its Supplier Units, it must comply with the terms of the applicable Metering Code in respect of that Unit.

#### **Registration as Price Maker Generator Unit or Price Taker Generator Unit**

- 2.53 Save as provided in paragraphs 2.54 to 2.56 below and as otherwise set out in Section 5, a Party (or Applicant, as applicable) registering a Generator Unit shall register such Unit as a Price Maker Generator Unit.
- 2.54 Parties may apply for registration of Generator Units which have Priority Dispatch for their entire capacity and which are Variable or Predictable Generator Units as either:
1. A Price Maker Generator Unit; or
  2. A Price Taker Generator Unit.
- 2.55 A Party (or Applicant, as applicable) registering an Autonomous Generator Unit shall register such Unit as a Price Taker Generator Unit.
- 2.56 Parties which have registered Units that have Priority Dispatch as Variable Generator Units or Predictable Generator Units may change the status of such Unit(s) as Price Taker Generator Units or Price Maker Generator Units by application to the Market Operator, giving at least 29 days notice pursuant to Agreed Procedure 4 “Transaction Submission and Validation”.

#### **Transmission Loss Adjustment Factors**

- 2.57 On the registration of any new Generator Unit (other than a Demand Side Unit), the relevant System Operator shall provide to the Market Operator, in accordance with Appendix K “Market Data Transactions” and subject to the prior approval of the Regulatory Authorities, a set of Transmission Loss Adjustment Factors for that Generator Unit for each Trading Period from the start of the Effective Date to the end of the Year.

#### **REGISTRATION OF ERROR SUPPLIER UNIT**

- 2.58 One Error Supplier Unit shall be registered in each Jurisdiction.
- 2.59 In each Jurisdiction, the Party that is required pursuant to its Licence to register an Error Supplier Unit shall register the Error Supplier Unit in accordance with the Code.

## **REGISTRATION OF TRADING SITE**

- 2.60 Any Party (or Applicant, as applicable) registering a Generator Unit shall register such Generator Unit as part of a Trading Site except as expressly provided for in Section 2 or Section 5.
- 2.61 Each Trading Site shall include at least one Generator Unit and may include a single Trading Site Supplier Unit which must contain all of the Demand for the Trading Site and only the Demand within the same Trading Site. Except as provided for in paragraphs 2.65 to 2.68 inclusive, each Trading Site shall include all Generator Units on the Generator Site.
- 2.62 On registration of a Trading Site, the Market Operator, on behalf of the Participant that registers the Generator Unit(s) for the Trading Site, shall register a Netting Generator Unit for that Trading Site to the same Participant that registers the Generator Unit(s) for that Trading Site.
- 2.63 Subject to paragraph 2.64, each Unit within a registered Trading Site must be registered to the same Participant.
- 2.64 If a Party (or Applicant as applicable) registering a Trading Site does not register a Trading Site Supplier Unit to that Trading Site, then on the first registration of a Generator Unit to that Trading Site, the Party (or Applicant as applicable) registering the Generator Unit shall notify the Market Operator of the identity of the Participant who it is intended shall record an Associated Supplier Unit to the Trading Site. The Participant concerned shall record the association of its Supplier Unit with the relevant Trading Site in accordance with Agreed Procedure 1 "Participant and Unit Registration and Deregistration". The Associated Supplier Unit may be registered to a different Participant than the other Units in the Trading Site. The Associated Supplier Unit may contain Demand outside of the Trading Site. No Unit can be both (i) an Associated Supplier Unit and (ii) either a Trading Site Supplier Unit or an Error Supplier Unit.

### **Differences between Trading Sites and Connection Agreements**

- 2.65 Where there is more than one Meter Point Registration Number or more than one Generator Unit at a Generation Site, such a Generation Site may be registered as more than one Trading Site, each such Trading Site having either one Trading Site Supplier Unit registered by the same Participant which registers the Generator Unit, or one Associated Supplier Unit recorded to the Trading Site.
- 2.66 Where there is more than one Meter Point Registration Number at a Generation Site, such a Generation Site may be registered as a single Trading Site which excludes one or more of the Meter Point Registration Numbers from that Trading Site's Trading Site Supplier Unit or recorded Associated Supplier Unit as appropriate, so long as those excluded Meter Point Registration Numbers do not represent Export Points and the excluded Meter Point Registration Numbers are included in another Supplier Unit or Supplier Units.
- 2.67 Where there is only one Meter Point Registration Number and more than one Generator Unit at a Generation Site, and the Generation Site is, as permitted under paragraph 2.65, registered as more than one Trading Site, the Meter Point Registration Number will be attributable to only one such Trading Site, by the Trading Site Supplier Unit or the Associated Supplier Unit for that Trading Site and including the Demand related to the Generation Site Meter Point Registration Number. Each other Trading Site

Supplier Unit and Associated Supplier Unit registered or recorded to a Trading Site within the same Generation Site shall contain no Demand related to that Trading Site.

- 2.68 Where there is more than one Meter Point Registration Number or more than one Generator Unit at a Generation Site, and such Generation Site is registered as more than one Trading Site, each such Trading Site will have a separate registered Netting Generator Unit.

#### **Generator Unit with Non-Firm Access**

- 2.69 A Generator Unit has Non-Firm Access where it operates under a Connection Agreement which provides for a Firm Access Quantity which is less than the Maximum Export Capacity of the relevant site. As part of the registration process for such Generator Units, the Firm Access Quantity of Trading Sites for each Trading Day  $t$  (FAQS $t$ ) shall be recorded in accordance with Appendix H "Participant and Unit Registration and Deregistration". No Netting Generator Unit or Demand Side Unit shall be deemed to have Non-Firm Access.
- 2.70 Where a Generation Site is, as permitted under paragraph 2.65, registered as more than one Trading site, and the Generation Site under the Connection Agreement has Non-Firm Access, the relevant Participant shall record a value of Firm Access Quantity for each such Trading Site in such a way that the Firm Access Quantities recorded for all such Trading Sites together sum to the Firm Access Quantity set out in the Connection Agreement of the Generation Site.

#### **REGISTRATION OF AN INTERCONNECTOR**

- 2.71 A Party (or an Applicant, as applicable), being the relevant Interconnector Owner, may register an Interconnector in accordance with the procedure for registration of Units (as if references to Units were references to an Interconnector) subject to the additional requirements set out in paragraphs 2.72 to 2.84. The Party registering the Interconnector shall be treated as the Interconnector Owner for the purposes of the Code
- 2.72 For each Interconnector, the Interconnector Administrator may be the Interconnector Owner or another Party.
- 2.73 On registration of an Interconnector, the Interconnector Owner shall procure that the person nominated in the Interconnector Registration Data to act as the Interconnector Administrator in respect of the relevant Interconnector, shall register as Interconnector Administrator in accordance with the procedure for the registration of Units (as if references to Units were references to the Interconnector) subject to paragraph 2.77.
- 2.74 The Interconnector Owner applying to register an Interconnector shall provide the Interconnector Registration Data in its Participation Notice.
- 2.75 Notwithstanding paragraph 2.33, the Interconnector Registration Data for an Interconnector shall comprise:
1. the Aggregate Import Capacity;
  2. the Aggregate Export Capacity;
  3. the Aggregate Interconnector Ramp Rate, which must be a number greater than zero;
  4. the Minimum Interconnector Import Level;



5. the Minimum Interconnector Export Level;
  6. the identity of the person nominated to register as Interconnector Administrator;
  7. the identity of the person nominated to register as Participant in respect of the Interconnector Error Unit;
  8. the name address and contact details (including email and fax) of the Party (or Applicant, as applicable) to which the Interconnector is registered;
  9. the proposed date from which it is intended that the Interconnector be registered, which date shall be no earlier than 20 Working Days from the date the Participation Notice is sent to the Market Operator;
  10. evidence of compliance with metering requirements;
  11. evidence that all necessary Connection Agreements are in place, valid and effective;
  12. evidence that all necessary Use of System Agreements are in place, valid and effective;
  13. evidence that the Party holds a valid Licence as applicable (including an authorisation or exemption) for the activities that it is proposing to undertake in respect of the Interconnector;
  14. the identity of any other Party which is an Affiliate of that Party; and
  15. such other Registration Data as are required by the Market Operator pursuant to Appendix H "Participant and Unit Registration and Deregistration" and Agreed Procedure 1 "Participant and Unit Registration and Deregistration".
- 2.76 After initial registration by the Interconnector Owner, the Interconnector Owner shall be responsible for maintaining the Interconnector Registration Data. The Interconnector Owner may in addition procure that the Interconnector Administrator may maintain those elements of Interconnector Registration Data which are defined as Interconnector Technical Data, and the Market Operator shall facilitate this.
- 2.77 A Party (or an Applicant, as applicable) who is nominated to register as Interconnector Administrator as part of the Interconnector Registration Data may register as Interconnector Administrator in accordance with the procedure for registration of Units (as if references to Units were references to the Interconnector Administrator), subject to the requirements set out in this paragraph 2.77. Notwithstanding anything in paragraph 2.33, the information to be provided by a Party (or an Applicant, as applicable) applying to register as Interconnector Administrator shall comprise:
1. the Interconnector to which the Participation Notice relates;
  2. the name, address and contact details (including email and fax) of the Party (or Applicant, as applicable);
  3. the proposed date on which the Party (or Applicant, as applicable) intends to commence acting as Interconnector Administrator, which date shall be no earlier than 20 Working Days from the date the Participation Notice is sent to the Market Operator;

4. the Communication Channels which the Participant designates pursuant to paragraph 3.8 for use in respect of the Interconnector; and
  5. such other Registration Data as are required by the Market Operator pursuant to Appendix H "Participant and Unit Registration and Deregistration" and Agreed Procedure 1 "Participant and Unit Registration and Deregistration".
- 2.78 No Party shall use an Interconnector to import energy to the Pool or export energy from the Pool unless and until the Market Operator has published a notification, in accordance with Appendix E "Data Publication", that:
1. the Interconnector is registered;
  2. an Interconnector Administrator is registered in respect of the relevant Interconnector; and
  3. the Participant in respect of the Interconnector Error Unit is registered in respect of the relevant Interconnector.
- 2.79 No Party, other than the relevant Interconnector Owner, shall be entitled to voluntarily deregister an Interconnector.
- 2.80 In relation to any Interconnector, the Interconnector Owner shall provide the Market Operator with notice of its intention to withdraw or terminate the appointment of the Interconnector Administrator and such withdrawal or termination shall not take effect unless and until another Party has been appointed by the Interconnector Owner to register as Interconnector Administrator and has so registered pursuant to paragraph 2.82, or the Interconnector Owner has Deregistered the Interconnector in accordance with the Code.
- 2.81 Notwithstanding paragraph 2.115, in relation to any Interconnector, the Interconnector Administrator shall be required to give the Market Operator 60 days notice of its intention to Deregister as Interconnector Administrator and such Deregistration shall not take effect unless and until another Party has been appointed by the Interconnector Owner to register as Interconnector Administrator and has so registered in accordance with paragraph 2.82, or the Interconnector Owner has Deregistered the Interconnector in accordance with the Code.
- 2.82 Once the Market Operator has received a notice from an Interconnector Owner or an Interconnector Administrator in accordance with paragraph 2.80 or 2.81, the Market Operator shall accept a Participation Notice from a Party (or Applicant, as applicable) which has been authorised by the Market Operator to act as the new Interconnector Administrator and Deregistration of the existing Interconnector Administrator shall not take effect until registration of the new Interconnector Administrator is complete and effective in accordance with paragraphs 2.30 to 2.52 subject to paragraph 2.77.
- 2.83 Where the Interconnector Administrator is, in relation to the Interconnector, Suspended or Terminated under the Code or otherwise ceases to participate in respect of the Interconnector and the Interconnector Administrator is not the System Operator for the Jurisdiction in which the Interconnector is connected, then the System Operator for the Jurisdiction in which the relevant Interconnector is connected shall temporarily assume the responsibilities of the Interconnector Administrator under the Code for a maximum of 2 months from the date of such Suspension, Termination or

cessation (“the Interconnector Administrator Grace Period”) or such longer period agreed by the System Operator and the previous Interconnector Administrator shall co-operate with the System Operator’s requirements in this regard.

- 2.84 If the Interconnector Administrator has not resumed participating in accordance with the Code and a new Interconnector Administrator is not registered during the Interconnector Administrator Grace Period (if any), the Market Operator shall Suspend the Interconnector from the expiry of the Interconnector Administrator Grace Period or if none, from the date of such Suspension, Deregistration, Termination or cessation of the Interconnector Administrator and shall issue an appropriate Suspension Order. No Party shall use the Interconnector to import energy to the Pool, or export energy from the Pool until such time as a new Interconnector Administrator is registered.

#### **Interconnector Residual Capacity Unit**

- 2.85 For each Interconnector, there shall be an Interconnector Residual Capacity Unit.
- 2.86 For each Interconnector, the System Operator for the Jurisdiction in which the Interconnector is connected shall register the Interconnector Residual Capacity Unit in accordance with the procedure for registration of Units set out in paragraphs 2.30 to 2.52, subject to paragraph 2.87 and 2.88.
- 2.87 Notwithstanding anything in paragraph 2.33, the information to be provided in a Participation Notice by a Party (or Applicant, as applicable) applying to register the Interconnector Residual Capacity Unit shall comprise:
1. the Interconnector to which the Participation Notice relates;
  2. the Currency Zone of the Unit;
  3. the name address and contact details (including email and fax) of the Participant to which the Unit is to be registered;
  4. the billing address of the Participant;
  5. full details of the bank account to which amounts payable by the Market Operator to that Participant shall be paid;
  6. the proposed date on which the Party (or Applicant, as applicable) intends to commence acting as Participant in respect of the Interconnector Residual Capacity Unit, which date shall be no earlier than 20 Working Days from the date the Participation Notice is sent to the Market Operator;
  7. the Communication Channels which the Participant designates pursuant to paragraph 3.8;
  8. VAT details for all relevant Jurisdictions; and
  9. such other Registration Data as are required by the Market Operator pursuant to Appendix H “Participant and Unit Registration and Deregistration” and Agreed Procedure 1 “Participant and Unit Registration and Deregistration”.
- 2.88 An Interconnector Residual Capacity Unit may not form part of any Trading Site and shall not be classified either as a Price Maker or as a Price Taker.

### **Interconnector Error Unit**

- 2.89 For each Interconnector, there shall be an Interconnector Error Unit. The Interconnector Owner shall register that Interconnector Error Unit, or, where it has nominated a third party to register the Interconnector Error Unit in the Registration Data, shall procure the registration of the Interconnector Error Unit by that person, in accordance with the procedure for registration of Units set out in paragraphs 2.30 to 2.52, subject to the requirements in paragraphs 2.90 and 2.94.
- 2.90 Notwithstanding anything in paragraph 2.33, the information to be provided in a Participation Notice by a Party (or Applicant, as applicable) applying to register an Interconnector Error Unit shall comprise:
1. the Interconnector to which the Participation Notice relates;
  2. the Currency Zone of the Unit;
  3. the name address and contact details (including email and fax) of the Participant to which the Unit is to be registered;
  4. the billing address of the Participant;
  5. full details of the bank account to which amounts payable by the Market Operator to that Participant shall be paid;
  6. the proposed date on which the Party (or Applicant, as applicable) intends to commence acting as Participant in respect of the Interconnector Error Unit, which date shall be no earlier than 20 Working Days from the date the Participation Notice is sent to the Market Operator;
  7. the Communication Channels which the Participant designates pursuant to paragraph 3.8;
  8. VAT details for all relevant Jurisdictions; and
  9. such other Registration Data as are required by the Market Operator pursuant to Appendix H "Participant and Unit Registration and Deregistration" and Agreed Procedure 1 "Participant and Unit Registration and Deregistration".
- 2.91 In relation to any Interconnector, the Interconnector Owner shall provide the Market Operator with notice of its intention to withdraw or terminate the appointment of the Participant in respect of the Interconnector Error Unit and such withdrawal or termination shall not take effect unless and until another Party has been appointed by the Interconnector Owner to register the Interconnector Error Unit and has so registered in accordance with paragraphs 2.89 and 2.93, or the Interconnector Owner has Deregistered the Interconnector in accordance with the Code.
- 2.92 Notwithstanding paragraph 2.113, in relation to any Interconnector, the Participant in respect of the Interconnector Error Unit shall be required to give the Market Operator 60 days notice of its intention to Deregister the Interconnector Error Unit and such Deregistration shall not take effect unless and until another Party has been appointed by the Interconnector Owner to register the Interconnector Error Unit and has so registered pursuant to paragraphs 2.89 and 2.93, or the Interconnector Owner has Deregistered the Interconnector in accordance with the Code.
- 2.93 Once the Market Operator has received notice from an Interconnector Owner or an Interconnector Administrator in accordance with paragraph

2.91 or 2.92, the Market Operator shall accept a Participation Notice from a Party (or Applicant, as applicable) who has been authorised by the Market Operator to act as the new Participant in respect of the Interconnector Error Unit and Deregistration of the Interconnector Error Unit from the existing Participant shall not take effect until registration of the Interconnector Error Unit to the new Participant is complete and effective in accordance with paragraphs 2.30 to 2.52 subject to paragraphs 2.90 and 2.94

- 2.94 An Interconnector Error Unit may not form part of any Trading Site.
- 2.95 Where the Participant in respect of an Interconnector Error Unit is Suspended or Deregistered (in relation to the Interconnector Error Unit) or Terminated under the Code or otherwise ceases to participate in respect of the Interconnector Error Unit and the Participant in respect of the Interconnector Error Unit is not the System Operator for the Jurisdiction in which the relevant Interconnector is located, then the System Operator for the Currency Zone in which that Unit is registered shall temporarily assume the responsibilities of the Participant in respect of the Interconnector Error Unit for a maximum of 2 months from the date of such Suspension, Deregistration, Termination or cessation (the "Interconnector Error Unit Grace Period") and the previous Participant in respect of the Interconnector Error Unit shall co-operate with the System Operator's requirements in this regard.
- 2.96 If the Participant in respect of the Interconnector Error Unit has not resumed participating in accordance with the Code and a new Participant in respect of the Interconnector Error Unit is not registered during the Interconnector Error Unit Grace Period (if any) and the Interconnector Administrator declines or is unable to be the Participant in respect of the Interconnector Error Unit, the Market Operator shall Suspend the Interconnector as and from the expiry of the Interconnector Error Unit Grace Period, or if none, from the date of such suspension, Deregistration, Termination or cessation of the Participant in respect of the Interconnector Error Unit, and shall issue an appropriate Suspension Order. No Party shall use the Interconnector to import energy to the Pool, or export energy from the Pool until such time as a new Participant is registered in respect of the Interconnector Error Unit.

#### **Interconnector Unit**

- 2.97 A Party (or Applicant, as applicable), being an Interconnector User, may apply for registration of an Interconnector Unit in relation to the relevant Interconnector in accordance with paragraphs 2.30 to 2.52 and subject to paragraphs 2.98 and 2.99. As part of the registration process, pursuant to Appendix H "Participant and Unit Registration and Deregistration" and Agreed Procedure 1 "Participant and Unit Registration and Deregistration", the Interconnector Administrator shall verify to the Market Operator whether or not the Party (or Applicant, as applicable) is an Interconnector User.
- 2.98 Notwithstanding anything in paragraph 2.33, the information to be provided in a Participation Notice by a Party (or Applicant, as applicable) applying to register an Interconnector Unit shall comprise:
1. the Interconnector to which the Participation Notice relates;
  2. the Currency Zone of the Unit;
  3. the name address and contact details (including email and fax) of the Participant to which the Unit is to be registered;

4. the billing address of the Participant;
5. full details of the bank account to which amounts payable by the Market Operator to that Participant shall be paid;
6. the proposed date on which the Party intends that trading by that Unit in the Pool is to commence, which date shall be no earlier than 20 Working Days from the date the Participation Notice is sent to the Market Operator;
7. the Communication Channels which the Participant designates pursuant to paragraph 3.8;
8. VAT details for all relevant Jurisdictions;
9. the participation capacities which the Party (or Applicant, as applicable) has or intends to have and the effective date from which it has or intends to have such capacity; and
10. such other Registration Data as are required by the Market Operator pursuant to Appendix H "Participant and Unit Registration and Deregistration" and Agreed Procedure 1 "Participant and Unit Registration and Deregistration".

2.99 Interconnector Units may not form part of any Trading Site.

2.100 If an Interconnector is Suspended under paragraphs 2.84 or 2.96 or otherwise, the Market Operator shall ensure that for each Party's Interconnector Units registered on that Interconnector the Active Interconnector Unit Import Capacity Holding and Active Interconnector Unit Export Capacity Holding values shall be set to zero until such time as such suspension is lifted.

2.101 The Interconnector Administrator shall notify the Market Operator at least 10 Working Days prior to the expiry or termination of an Interconnector User's authority to act as an Interconnector User. The Market Operator shall Deregister the Interconnector User as and from the date of such expiry or termination and shall set the relevant Active Interconnector Unit Import Capacity Holding and Active Interconnector Unit Export Capacity Holding values for that Interconnector Unit to zero.

### **INTERMEDIARIES**

2.102 A Party (or an Applicant, as applicable) may, as an Intermediary, register a Generator, other than an Interconnector Residual Capacity Unit, which is owned or controlled by a third party (the Unit Owner), as a Generator Unit under the Code in accordance with paragraphs 2.103 to 2.107.

2.103 The Intermediary must be a Party to the Code provided that an Applicant may submit an application to register Units as an Intermediary prior to becoming a Party except that registration of Generator Units shall not take effect until the Applicant has become a Party. For the purposes of the appointment of an Intermediary under the Code, the person appointing the Intermediary is not required to be a Party to the Code.

2.104 An Intermediary may register any Generator Units in accordance with the participation procedure in paragraphs 2.30 – 2.52 provided that:

1. the Regulatory Authorities have consented to the registration of the relevant Generator Units by the Intermediary; and

2. the Intermediary has submitted a Form of Authority to the Market Operator, executed by the Intermediary and the Unit Owner.
- 2.105 Intentionally blank.
- 2.106 Intentionally bland.
- 2.107 The Intermediary shall, for the purposes of the Code, be the Participant for any Generator Units registered to the Intermediary in accordance with the Code unless and until its authority under the Form of Authority has expired or been revoked.
- 2.108 The Form of Authority shall specify a time period for which the Intermediary may participate in respect of the relevant Generator Units. Such a time period shall not exceed the time period given in the Regulatory Authorities' consent pursuant to 2.104.1.
- 2.109 The Market Operator shall Deregister any Generator Units registered to an Intermediary automatically on expiry of the Intermediary's authority under the Form of Authority.
- 2.110 An Intermediary shall, in respect of any Generator Units registered to it as Intermediary, notify the Market Operator as soon as reasonably practicable on receipt of notice from the Unit Owner of its intention to revoke the Intermediary's authority, that its authority is being revoked and the effective date or proposed effective date of such revocation.
- 2.111 If the Market Operator receives notice from the Intermediary that the Intermediary's authority to act in respect of any Unit has been or will be revoked in accordance with applicable Legal Requirements, or otherwise, on a particular date, the Market Operator shall Deregister the relevant Units on the date of revocation of the Intermediary's authority, or where notice is received following any such revocation, shall immediately on receipt of such notice, Deregister the relevant Generator Units with effect from the next Trading Day.
- 2.112 During the 60 day period immediately prior to the expiry of an Intermediary's authority in respect of any Unit under the Form of Authority, or, where the Market Operator has been notified in advance of the proposed revocation of an Intermediary's authority in respect of any Generator Unit in accordance with paragraph 2.111, then at any time following such notification, the Market Operator shall accept a Participation Notice for the registration of the relevant Unit to a new Participant prior to Deregistration of the Units from the Intermediary, provided that any new registration shall be subject to the provisions of paragraphs 2.28 to 2.56 and shall not have an Effective Date prior to the Deregistration of the Units from the Intermediary.

#### **VOLUNTARY DEREGISTRATION OF UNITS**

- 2.113 A Party may apply at any time to Deregister any Units registered in its name pursuant to paragraphs 2.114 to 2.116 and Agreed Procedure 1 "Participant and Unit Registration and Deregistration". A Party shall notify the Market Operator and the Regulatory Authorities of its intention to deregister any Units at least 60 days in advance of its intended date of Deregistration, using the appropriate form for Deregistration set out in Agreed Procedure 1 "Participant and Unit Registration and Deregistration".
- 2.114 Where the Party applying for Deregistration complies with the procedures set out in Agreed Procedure 1 "Participant and Unit Registration and

Deregistration”, the Market Operator shall issue a Deregistration Consent Order, permitting the Deregistration of the relevant Units provided that:

1. all amounts due and payable by the relevant Party pursuant to the Code in respect of the relevant Unit(s) and participation in the Pool up to and including the date of termination shall have been paid in full; and
  2. in the case of Deregistration of Supplier Unit(s), the provisions of the applicable Metering Code have been complied with; and
  3. in the case of Deregistration of Generator Unit(s), any relevant provisions of the applicable Grid Code have been complied with.
- 2.115 The Market Operator shall specify in each Deregistration Consent Order the Credit Cover which the relevant Party is required, in accordance with paragraphs 6.171.5 and 6.171.6, to maintain in respect of any Units being Deregistered pursuant to the Deregistration Consent Order.
- 2.116 Where the Market Operator has received a notice that a Participant wishes to Deregister a Unit in accordance with paragraph 2.113, the Market Operator shall, during the notice period provided for in paragraph 2.113, accept a Participation Notice from a Party (or Applicant, as applicable) to become the new Participant in respect of that Unit and any such new registration shall be subject to the requirements of paragraphs 2.28 to 2.70, provided that for the purposes of paragraph 2.33.12, it shall suffice that the Party (or Applicant, as applicable) applying to re-register the Unit complies with paragraph 2.33.12 prior to the proposed effective date specified in the Participation Notice.

#### **MARKET OPERATOR**

- 2.117 The Market Operator shall not unduly discriminate between any Parties in any capacity under the Code in exercising its rights and powers and performing its functions and obligations.
- 2.118 Save as provided for by law or under this Code, no undertaking(s) licensed to be the Market Operator may participate in the Pool as a Participant (including as an Intermediary) and the Market Operator shall not be the counterparty or act as principal in any sale and purchase of electricity in the Pool.
- 2.119 The Market Operator may not assign any of its obligations, functions or powers under this Code to any person. The Market Operator may not, without the prior written consent of the Regulatory Authorities, enter into any agreement to subcontract or delegate any of its obligations, functions or powers under this Code where either:
1. the relevant agreement, if it relates to the supply of goods or services, has a cumulative or aggregate value equal to or exceeding the then current threshold under Article 16 of the Utilities Directive applicable to contracts for supplies and services; or
  2. the relevant agreement, if it relates to the performance of works, has a cumulative or aggregate value equal to or exceeding the then current threshold under Article 16 of the Utilities Directive applicable to contracts for works; or



3. where the obligations, functions or powers in question are of material relevance to the role of the Market Operator and/or the proper functioning of the Pool.
- 2.120 The Regulatory Authorities shall be entitled to direct a Modification to the Code to change the definition of Market Operator at any time and no other person shall be entitled to request such a Modification. The definition of Market Operator under this Code may not be amended save in accordance with this paragraph.
  - 2.121 The Market Operator shall be responsible for carrying out all the runs of the MSP Software required under the Code.
  - 2.122 If at any time there is more than one person licensed to act as Market Operator, each of the persons licensed to act as Market Operator shall be jointly and severally liable in performing the role of licensed Market Operator under this Code.
  - 2.123 Without prejudice to the obligations of Parties to comply with the Code, if at any time there is more than one person licensed to act as Market Operator then where any other Party owes an obligation or liability to the Market Operator, if that Party discharges that obligation or liability to either person comprising the Market Operator, then the Party shall be deemed to have discharged the obligation or liability to all persons comprising the Market Operator.
  - 2.124 The Market Operator is authorised by all Parties to exercise and perform the rights, obligations and functions granted to it under the Code to the extent required under, and in accordance with, the Code.
  - 2.125 The Market Operator shall make available to the Regulatory Authorities details of its disaster recovery plan to the extent that it relates to its functions and obligations under the Code and it shall, to that extent, maintain and develop such disaster recovery plan.

#### **OBLIGATIONS ON PARTIES**

- 2.126 Each Party shall comply with the Code and the Framework Agreement in exercising its rights and powers and performing its functions and obligations under the Code.
- 2.127 Without prejudice to the generality of paragraph 2.126, no Party shall, either directly or indirectly, on its own or in conjunction with any other Party or person, obstruct the proper functioning of the Pool in accordance with the Code.
- 2.128 Each Party agrees that the Market Operator shall have the right, as agent and trustee for and on behalf of each Party, to sue any other Party to recover any Shortfall or Unsecured Bad Debt under the Code.
- 2.129 Where the performance of any obligation arising under or in relation to this Code requires the prior approval or action by the Regulatory Authorities, such obligation shall be subject to such prior approval or action by the Regulatory Authorities.
- 2.130 Without prejudice to any other provision of the Code or the Framework Agreement, each Party:
  1. shall perform all its rights, functions and obligations under the Code with the degree of care and to the standard expected of a Prudent

Industry Operator and in accordance with Prudent Electric Utility Practice;

2. shall at all times comply with and maintain, and shall at all times procure compliance with and maintenance of, all consents, permissions, licences and Licences (and the conditions attaching to any exemptions) required to be obtained and maintained to participate in the SEM or to be a Party to the Code for each capacity in which it acts as a Party or Participant under the Code;
3. shall pay all fees, levies, charges and other payments arising under the Code as they become due;
4. shall ensure that, save as expressly permitted otherwise, any information or data it is required to submit to the Market Operator, Market Auditor or any other person, or to maintain, as required by virtue of being a Party or Participant, shall, to the best of its knowledge and belief, be true, valid, correct, complete and accurate at the time it is given and, save as expressly provided otherwise, while it is maintained and, where appropriate, it shall keep the Market Operator informed of any mistakes or omissions in, and corrections or updates to any information or data which it has submitted to the Market Operator, the Market Auditor or any other person under the Code;
5. shall ensure that any information or data it is required to submit to the Market Operator, Market Auditor or any person as required by virtue of being a Party or Participant will be submitted in a timely manner to enable the Market Operator, Market Auditor or such other person to perform their obligations and functions arising pursuant to the Code; and
6. shall co-operate with and provide all reasonable assistance to the Market Operator on request for the purposes of the Market Operator performing its functions and obligations under the Code.

#### **MARKET AUDIT, CONSULTATION AND INFORMATION SHARING**

- 2.131 The Regulatory Authorities will appoint a person or firm as Market Auditor every three years for a three year term, such appointment to take effect from the date specified by the Regulatory Authorities.
- 2.132 Where the appointment is terminated or the Market Auditor resigns before the expiry of the three year term, the Regulatory Authorities may appoint a person or firm to fulfil the role of Market Auditor on a temporary basis pending the appointment by the Regulatory Authorities of a person or firm as Market Auditor for a three year term. The three year term of the person or firm next so appointed as Market Auditor shall commence from their date of appointment.
- 2.133 The Market Auditor shall conduct an audit of the Code, its operation and implementation and the operations, trading arrangements, procedures and processes under the Code at least once a Year.
- 2.134 The annual period covered by the audit shall be 1 January to 31 December unless the terms of reference specify a different period.
- 2.135 The Regulatory Authorities shall consult with Parties on the terms of reference for the audit at least 10 weeks in advance of the commencement of the audit period.

- 2.136 The Regulatory Authorities shall specify annually the precise terms of reference for the audit 4 weeks in advance of the commencement of each Year of the audit or audit period, if different, and shall publish the terms of reference before the commencement of each Year or audit period if different.
- 2.137 The Market Auditor shall be of good repute with the appropriate experience to enable it to carry out the audit with the appropriate level of expertise, care, skill and diligence.
- 2.138 The Market Auditor, pursuant to these provisions and such terms of reference as the Regulatory Authorities shall specify, shall:
1. report to the Regulatory Authorities at such reasonable intervals as the Regulatory Authorities shall specify in the terms of reference during the course of the audit;
  2. deliver its Audit Report to the Regulatory Authorities in draft form prior to it being finalised;
  3. deliver its Audit Report in final form to the Regulatory Authorities within 4 weeks of delivering its draft audit;
  4. meet with the Regulatory Authorities at the request of the Regulatory Authorities at any time during the Market Auditor's engagement. The Regulatory Authorities will, in any event, require the Market Auditor to attend a meeting with it within 6 weeks of its delivery of the Audit Report in final form. Nominated representatives of the Market Operator and the Modifications Committee shall be entitled to attend such meeting.
- 2.139 Each Party shall provide without charge to the Market Auditor in a timely manner such information as is reasonably required by the Market Auditor to enable the Market Auditor to comply with its functions and obligations and terms of reference for the purposes of conducting the audit and preparing and finalising the Audit Report. This is subject to any obligations of confidentiality which the relevant Party claims are owed to any third parties which prevent disclosure of the information required. In such circumstances, the relevant Party shall be obliged to explain the nature of the obligations of confidentiality, the information to which they apply and to demonstrate to the satisfaction of the Regulatory Authorities that it has used its best endeavours to obtain a clearance from the third party to whom the obligation of confidentiality is owed to release the information required to the Market Auditor.
- 2.140 The Market Auditor shall be entitled to make recommendations in its Audit Report. The Regulatory Authorities may direct implementation of any recommendation of the Market Auditor and shall consult with the Market Operator and the Modifications Committee before so doing. Any recommendation which the Regulatory Authorities direct to implement by way of an amendment of the Code shall be deemed to be an approved Modification Proposal and shall be published accordingly by the Market Operator.
- 2.141 The Market Operator shall arrange for the publication of the Audit Report in final form in accordance with the provisions of the Code upon its delivery in accordance with paragraph 2.138.3 subject to any confidentiality obligations under paragraphs 2.344 to 2.349.

- 2.142 Each Party shall keep complete, accurate and up to date records whilst a Party to the Code and, where applicable, of its participation in the Pool for a minimum period of 3 years from the date of creation of such records.
- 2.143 The fees and costs of the Market Auditor shall be paid by the Market Operator.

### **Information Sharing**

- 2.144 The Market Operator shall report to the Regulatory Authorities in writing on a monthly basis or at such other intervals as the Regulatory Authorities may

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1. the performance by the Market Operator of its rights, powers, functions and obligations under the Code;
  2. factual information relating to the exercise of rights and the carrying out of functions by Parties under the Code.
- 2.145 Subject to Applicable Laws, each Party shall allow the Regulatory Authorities, on reasonable notice and at reasonable times, access to inspect and copy any records relating to the Party's obligations and functions under the Code and, where applicable, its participation in the Single Electricity Market.
- 2.146 Subject to any confidentiality provisions under paragraphs 2.344 to 2.349, where information is provided by any Party to the Market Auditor or the Market Operator pursuant to the Code, the Market Auditor and the Market Operator shall have the right, without charge, to use, make available, copy, adapt and deal with such data or other information for the purposes of exercising their rights and performing their powers, functions and obligations under the Code (and, in the case of the Market Auditor, its terms of reference) but for no other reason.

### **MODIFICATIONS**

- 2.147 Modifications shall be processed in accordance with paragraphs 2.148 to 2.236 and Agreed Procedure 12 "Modifications Committee Operation".
- 2.148 The objective of the Modifications Committee is to progress Modification Proposals with a view to better facilitating the achievement by the Code of the Code Objectives.

### **Functions of the Modifications Committee**

- 2.149 The functions of the Modifications Committee are to facilitate the Modifications Process by:
1. co-ordinating the resources of Parties to facilitate the development and processing of a Modification Proposal;
  2. assessing Modification Proposals and the impact of any Modification Proposals for the Pool having regard to the Code Objectives;

3. further developing Modification Proposals which are not rejected as being spurious;
4. working up the detail of Modification Proposals;
5. consulting on Modification Proposals as required;
6. compiling reports and making recommendations on Modification Proposals to the Regulatory Authorities; and
7. making any appropriate changes to Agreed Procedures.

#### **Constitution of the Modifications Committee and Voting Rules**

- 2.150 The Modifications Committee shall consist of:
1. one member appointed by the Commission and one member appointed by NIAUR;
  2. at least nine (9) and no more than fifteen (15) further members appointed as follows, such persons to include at all times:
    - (a) at least three (3) members nominated by or elected in respect of Generation Participants;
    - (b) at least three (3) members nominated by or elected in respect of Supply Participants;
    - (c) one member appointed by the Market Operator;
    - (d) one member appointed by each of the System Operators; and
    - (e) one member appointed by each of the Meter Data Providers (to the extent not already represented).
- 2.151 A member elected or appointed to represent a particular type of party shall represent the interests of the type of party it is elected or appointed to represent.
- 2.152 Unless directed otherwise by the Regulatory Authorities and subject to paragraphs 2.154 and 2.155, there shall at all times be an equal number of persons nominated by or elected in respect of Generation Participants and persons nominated by or elected in respect of Supply Participants on the Modifications Committee.
- 2.153 If the Regulatory Authorities determine at any time that any particular type of party is not adequately represented on the Modifications Committee, the Regulatory Authorities may seek nominations from relevant persons and appoint a person from such nominations, or otherwise to represent that type of person. Such a person shall be a voting member of the Modifications Committee and shall be appointed for an initial term of two years. A member appointed in accordance with this paragraph 2.153 shall not be deemed to be a representative of Generation Participants or Supply Participants for the purposes of paragraph 2.150 or 2.154.
- 2.154 The Regulatory Authorities may from time to time stipulate the minimum or maximum representation for Supply Participants and Generation Participants.
- 2.155 The total number of members of the Modifications Committee shall be not less than eleven (11) persons and not more than seventeen (17) persons.
- 2.156 Save as expressly provided otherwise, only members appointed or elected to represent Nominating Participants shall be entitled to vote at any Meeting

and those members shall have one vote each. Save as expressly provided otherwise, those members who are appointed by, and to represent, the Commission, NIAUR, System Operators, Meter Data Providers and the Market Operator shall not have any vote.

- 2.157 The Market Operator shall make available to the Modifications Committee a fulltime Secretariat. None of the Secretariat's personnel shall be a member of the Modifications Committee.
- 2.158 The Market Operator shall be responsible for the performance by the Secretariat of its functions necessary for the proper functioning of the Modifications Process under the Code.
- 2.159 Agreed Procedure 12 "Modifications Committee Operation" sets out the rules for the Quorum of the Modifications Committee and the voting rules. No decision or recommendation of the Modifications Committee can be reached without a Quorum. Voting will be by simple majority, with the chairperson casting the deciding vote in the event of a tied vote.

#### **Chairperson**

- 2.160 The Modifications Committee shall have a chairperson and vice-chairperson who shall be elected from the voting members of the Modifications Committee by the voting members of the Modifications Committee. In the event of a tie for the election of the chairperson or vice-chairperson, a subsequent ballot or ballots shall take place until a chairperson and vice-chairperson are elected.
- 2.161 The term of appointment for the chairperson and the vice-chairperson shall be one year.
- 2.162 In the event that the chairperson cannot attend a meeting or chair a meeting for its entirety for any reason, the vice-chairperson shall take his or her place as the chairperson of the meeting.
- 2.163 In the event that the chairperson retires, resigns or is removed from the Modifications Committee, or otherwise becomes unavailable to act as chairperson of the Modifications Committee, the vice-chairperson shall take his or her place for the remainder of the term for which that person was appointed chairperson and a new vice-chairperson shall be elected from the voting members of the Modifications Committee by the voting members of the Modifications Committee.
- 2.164 The chairperson will chair meetings of the Modifications Committee and seek to ensure the efficient organisation and conduct of the functions of the Modifications Committee pursuant to the Code.

#### **Nomination of Participant Members**

- 2.165 Each Nominating Participant may put forward one nominee and an alternate for that nominee for appointment to the Modifications Committee at such times as may be notified by the then existing Modifications Committee.

#### **Nominations of Other Members**

- 2.166 The Commission, the NIAUR, the Market Operator, each of the System Operators and each of the Meter Data Providers shall each nominate one member and one alternate member for appointment to the Modifications Committee at such times as the then existing Modifications Committee may notify.

### **Appointment of Subsequent Members**

- 2.167 On the termination of the appointment or the removal of any member of the Modifications Committee who is a nominee of any of the Market Operator, either System Operator or any Meter Data Provider, that person shall be replaced by a nominee of the relevant Party, who shall be automatically appointed to the Modifications Committee.
- 2.168 The Commission and the NIAUR shall be entitled to replace any member nominated by the Commission or the NIAUR (as representatives of the Commission and the NIAUR) at any time by giving notice to the Secretariat and with effect from the date specified in such notice.
- 2.169 At least 8 weeks prior to the expiry of any person's membership of the Modifications Committee, the existing Modifications Committee shall:
1. where that person is a member appointed by the Commission, NIAUR, Market Operator, a System Operator or a Meter Data Provider, notify the relevant party that is required to appoint a new member and new alternate member;
  2. where that person is a member appointed in respect of Generation Participants or Supply Participants, request the Secretariat to arrange an election in accordance with paragraph 2.170;
  3. where that person is a member appointed by the Regulatory Authorities in accordance with paragraph 2.153, inform the Regulatory Authorities of the pending expiry of the member's term.
- 2.170 Prior to the expiry of membership of any Nominating Participant member, the Secretariat shall arrange a Nominating Participant Election to fill that vacancy in accordance with such of the following steps as are necessary:
1. relevant Nominating Participants shall be requested to propose new nominees and alternates for election;
  2. each Nominating Participant shall be entitled to vote to elect members from the Participant nominees in accordance with paragraphs 2.171 to 2.176;
  3. nominating Supply Participants shall be entitled to vote to elect a member from the persons nominated by them;
  4. nominating Generation Participants shall be entitled to vote to elect a member from the persons nominated by them;
  5. the number of nominees with the most votes from Supply Participants but not exceeding three nominees in number, shall be appointed to the Modifications Committee to replace any retiring, terminated or removed Supply Participant member;
  6. the number of nominees with the most votes from Generation Participants, but not exceeding three nominees in number, shall be appointed to replace any retiring, terminated or removed Generation Participant; and
  7. the constitution of the Modifications Committee shall, unless agreed otherwise by the Regulatory Authorities, continue to comply with paragraphs 2.150 to 2.155.
- 2.171 Nominating Participant Elections shall take place, where practicable, not later than 4 weeks prior to the date of expiry of the membership of any one

or more of the elected nominee(s) to replace such persons on the Modifications Committee.

- 2.172 In the event that a nominee of any Nominating Participant is elected, the person put forward as an alternate to that nominee shall automatically be deemed to be that person's alternate member.
- 2.173 The Modifications Committee may at any time stipulate that an outgoing member who is a nominee of Generation Participants or Supply Participants must be replaced in any election with a nominee of Generation Participants or Supply Participants respectively in order to preserve the requisite constitution of the Modifications Committee in accordance with paragraph 2.150 or as may be stipulated from time to time by the Regulatory Authorities pursuant to paragraph 2.152 or 2.154.
- 2.174 Members who have previously served on the Modifications Committee may be re-appointed or re-elected to the Modifications Committee provided that they have not at any time been removed from the Modifications Committee or otherwise ceased to be eligible in accordance with paragraph 2.177.
- 2.175 If for any reason the procedures set out in paragraphs 2.165 to 2.173 do not result in a sufficient number of Nominating Participant members, the Regulatory Authorities may appoint additional members.
- 2.176 Without prejudice to paragraph 2.175, membership of the Modifications Committee shall automatically terminate at the end of a member's term unless such termination would leave the Modifications Committee with less than 11 members, in which case the term of membership may be extended until a replacement member is appointed or elected to the Modifications Committee.

#### **Resignation and Removal of Members of the Modifications Committee**

- 2.177 Any member may be removed during his or her term by the majority decision of the Modifications Committee (subject to veto by the Regulatory Authorities) if that person:
1. ceases to be in a position to represent those Supply Participants or Generation Participants from which the member was nominated;
  2. is or becomes of unsound mind or is, or otherwise becomes incapable of performing the functions of a member of the Modifications Committee;
  3. has been, or is, in the reasonable opinion of the majority of the other members of the Modifications Committee, engaged in conduct which is inconsistent with or detrimental to being a member of the Modifications Committee; or
  4. fails to discharge the obligations of a member of the Modifications Committee.
- 2.178 A member may resign on giving at least 5 weeks' notice in writing to the Secretariat which shall convey the notice to the Modifications Committee.

#### **Alternate Members of the Modifications Committee**

- 2.179 An alternate member shall be appointed to the Modifications Committee only as provided for in the Code.
- 2.180 Should a member be removed, resign or retire from the Modifications Committee, the Modifications Committee may initiate relevant nominations



and elections to replace the member in accordance with paragraphs 2.171 to 2.176. Meanwhile, the alternate member shall take the place of that member on the Modifications Committee for no longer than the remainder of that member's term.

- 2.181 In the circumstances set out in paragraph 2.180, a new alternate member shall be appointed by the person who nominated the removed, resigning or retiring member.
- 2.182 If any member is unable to attend a meeting of the Modifications Committee, the alternate member shall be entitled to take the place of that member in that meeting.

#### **Meetings of the Modifications Committee**

- 2.183 The Modifications Committee shall have a Meeting at least once every 2 months.
- 2.184 The Modifications Committee acting through the Secretariat, shall set the date of each Meeting and, where possible, shall publish such date at least two weeks in advance.
- 2.185 Any person may attend Meetings of the Modifications Committee in an observatory capacity where that person has informed the Secretariat to the Modifications Committee in advance and the Secretariat has confirmed that person's attendance in accordance with Agreed Procedure 12 "Modifications Committee Operation". Where space is limited, and with the agreement of the chairperson of the Modifications Committee, attendance of non-members may be limited on a first come first served basis.

#### **Costs of the Modifications Committee**

- 2.186 The costs of the Secretariat, Meetings and all other costs of the Modifications Committee shall be included as costs and expenses of the Market Operator for the purposes of the Code.
- 2.187 Members of the Modifications Committee shall not be entitled to remuneration or expenses.

#### **Proposal of Modifications to the Code**

- 2.188 Modification Proposals to the Code can be proposed by any person including the Market Operator and the Regulatory Authorities. Any Modification Proposal shall be submitted to the Secretariat.
- 2.189 Any person raising a Modification Proposal shall ensure that their proposal is clear and substantiated with appropriate detail, including how it furthers the Code Objectives, to enable it to be considered by the Modifications Committee.
- 2.190 Each Modification Proposal shall include draft text of the relevant provision of the Code as amended by the Modification Proposal.

#### **Modification Recommendation Report Timeline**

- 2.191 Save as expressly provided otherwise, the Modifications Committee shall produce a Modification Recommendation Report in respect of each Modification Proposal.
- 2.192 The Modification Recommendation Report shall be submitted to the Regulatory Authorities within 8 months of receipt of a Modification Proposal

unless such period is extended with the consent of the Regulatory Authorities.

#### **Procedure for Developing Proposals**

- 2.193 The Secretariat shall, as soon as practicable after receipt of a Modification Proposal, publish a notice containing the relevant Modification Proposal (“Proposal Notice”).
- 2.194 A Modification Proposal shall be considered by the Modifications Committee at the next appropriate Meeting in accordance with Agreed Procedure 12 “Modifications Committee Operation”.
- 2.195 The person making a Modification Proposal or its representative shall be entitled to present the Modification Proposal at the Meeting at which it is to be initially considered.
- 2.196 At the Meeting where it first considers a Modification Proposal, the Modifications Committee shall first determine whether the Modification Proposal is spurious in accordance with paragraph 2.203.
- 2.197 The Modifications Committee may decide to modify or combine Modification Proposals. Modified or combined Modification Proposals shall reference the original Modification Proposals.
- 2.198 The Modifications Committee may specifically invite appropriate persons, such as Participants, the Market Operator, the System Operators, industry groups, customer representatives or other persons to express their opinions on any Modification Proposal, including providing an impact analysis, in the manner provided for in Agreed Procedure 12 “Modifications Committee Operation”.
- 2.199 Parties invited to assist the Modifications Committee under paragraph 2.198 will make available reasonable resources to respond to such request by the Modifications Committee.
- 2.200 The Modifications Committee may hold a public consultation in relation to a Modification Proposal. Where there is a public consultation, a minimum consultation period of 10 Working Days from the date of publication of the relevant consultation paper shall be provided.
- 2.201 In working up the detail of a Modification Proposal, the Modifications Committee shall have due regard to comments and submissions received during the consultation process.
- 2.202 The Modifications Committee may contract consultants, experts or advisers at reasonable cost to advise the Modifications Committee regarding any Modification Proposal, including the preparation of an impact analysis report. Any reasonable costs incurred by the Modifications Committee in connection with this shall form part of the costs of the Secretariat.

#### **Spurious Proposals**

- 2.203 A Modification Proposal shall be deemed to be spurious if, inter alia, it is clearly contrary to the Code Objectives or does not further the Code Objectives. If the Modifications Committee reasonably considers a Modification Proposal to be spurious, it shall reject such Modification Proposal.
- 2.204 Any decision of the Modifications Committee under paragraph 2.203 to reject a Modification Proposal must set out the reasons for the decision in

writing and provide them to the person making the Modification Proposal and the Regulatory Authorities.

- 2.205 The Regulatory Authorities reserve the right to veto any decision of the Modifications Committee that a proposal is spurious and in such event, the relevant Modification Proposal must be processed by the Modifications Committee in accordance with the Code.

#### **Urgent Modifications**

- 2.206 Any person submitting a Modification Proposal may mark it as “Urgent”. A person submitting a Modification Proposal marked “Urgent” shall submit the Modification Proposal to the Secretariat and to the Regulatory Authorities.

- 2.207 The Secretariat shall, as soon as possible on receipt of a Modification Proposal which is marked “Urgent”, contact the Regulatory Authorities which shall determine whether or not it shall be treated as Urgent.

- 2.208 A Modification Proposal shall be determined to be Urgent by the Regulatory Authorities where, if not made, it can reasonably be anticipated that the event or circumstance with which the Modification Proposal is concerned would imminently:

1. threaten or prejudice safety, security or reliability of supply of electricity; or
2. unduly interfere with, disrupt or threaten the operation of the Single Electricity Market;

or if a Modification is required to correct an obviously material error or inconsistency in the Code.

- 2.209 If the Regulatory Authorities determine that a Modification Proposal is Urgent under paragraph 2.208, the Modifications Committee shall convene an Emergency Meeting.

- 2.210 If the Secretariat or the Modifications Committee considers that any of the criteria in paragraph 2.208 apply in respect of any Modification Proposal that has not been marked “Urgent” by the person submitting the Modification Proposal, the Secretariat shall promptly submit the Modification Proposal to the Regulatory Authorities for consideration in accordance with paragraph 2.207 and 2.208.

- 2.211 In the event that a Modification Proposal is deemed to be Urgent, the Modifications Committee shall propose the procedure and timetable to be followed in making a recommendation in respect of the Urgent Modification which may fast-track the normal processes provided for in this Code. The Regulatory Authorities shall have the right to veto or direct amendments to the procedure and timetable proposed by the Modifications Committee within 2 Working Days of any such proposal by the Modifications Committee.

#### **Alternative Proposals**

- 2.212 If any person does not agree with a Modification Proposal to the Code, it may propose an alternative Modification Proposal, which if received in sufficient time to be considered within the Modifications Committee’s plans for progressing the initial original Modification Proposal may be considered in conjunction with, or in substitution for, the initial Modification Proposal.

### **Final Modification Recommendation & Report**

- 2.213 The Modifications Committee shall make the determination for the Final Modification Recommendation by majority vote of voting members of the Modifications Committee. The Modifications Committee shall send the Final Modification Recommendation as part of the Modification Recommendation Report in relation to the Modification Proposal to the Regulatory Authorities as soon as practicable after the determination.
- 2.214 The Modifications Committee shall recommend to the Regulatory Authorities the adoption of such Modification Proposals as it concludes will better facilitate achievement of the Code Objectives.
- 2.215 The Final Modification Recommendation of the Modifications Committee shall be part of the Modification Recommendation Report which shall include:
1. the determination of the Modifications Committee on whether or not the Modification Proposal should be adopted;
  2. the reasons for such determination;
  3. where the Modifications Committee is in favour of the proposal, a draft of the text of the proposed Modification;
  4. the original draft of the Modification Proposal;
  5. any dissenting opinions of members of the Modifications Committee;
  6. a copy the Market Operator's opinion and each System Operator's opinion on the Modification;
  7. the views of any respondents submitted during the consultation process (including any views of persons invited to give opinions or consultants, experts or advisors contracted to provide advice pursuant to paragraphs 2.198 and 2.202 respectively);
  8. an assessment of the impact of the Modification Proposal including in relation to the Code, any Legal Requirements, any other codes relating to the operation of the SEM (including the Grid Codes and the Metering Codes) or any other relevant matter;
  9. an assessment, where the Modifications Committee deems appropriate, of any alternative Modification Proposal proposed by any person;
  10. a draft of the specific changes that it is proposed would be necessary to make to the Code if the Modification Proposal would be accepted;
  11. proposed timescales for implementation; and
  12. a cost/resource requirements assessment.

### **No Recommendation or Decision by Modifications Committee**

- 2.216 In the event that the Modifications Committee is unable to make a determination in respect of a Modification Proposal within the timeframes set out in paragraph 2.192 the matter shall be referred to the Regulatory Authorities. This referral shall detail the proposal and the information referred to in paragraphs 2.215 (with the exception of sub-paragraphs 2.215.1 to 2.215.2 and 2.215.11 to 2.215.12). In such event, the Regulatory Authorities shall either make a binding decision in accordance with

paragraph 2.220, or shall extend the applicable time-limit for the Modifications Committee under paragraph 2.192.

- 2.217 In the event that the Modifications Committee does not issue a determination in respect of a Modification Proposal within the timeframes set out in paragraph 2.192 and does not refer the matter to the Regulatory Authorities under paragraph 2.216, the Regulatory Authorities shall either make a binding decision in accordance with paragraph 2.220, or shall extend the applicable time-limit for the Modifications Committee under paragraph 2.192.

#### **Decision of the Regulatory Authorities**

- 2.218 Following receipt of a the Modification Recommendation Report created by the Modifications Committee, the Regulatory Authorities shall decide whether to:

1. direct a Modification in accordance or otherwise with the Final Modification Recommendation of the Modifications Committee;
2. reject the Final Modification Recommendation of the Modifications Committee; or
3. direct the Modifications Committee that further work is required in respect of the Modification Proposal concerned in the Final Modification Recommendation, extending the 8 month timeline if necessary.

- 2.219 The Regulatory Authorities shall make their decision under paragraph 2.218 in relation to a Modification Proposal as soon as reasonably practicable following receipt of the Final Modification Recommendation or for the purposes of paragraphs 2.216 and 2.217.

- 2.220 If approved by the Regulatory Authorities, the Modification shall become effective 2 Working Days after the date of the decision of the Regulatory Authorities or such other date as may be specified by the Regulatory Authorities in its decision.

- 2.221 Once any Modification has been made, the Market Operator will be required to implement the change, including making the necessary changes to systems and processes with effect from the date provided for pursuant to paragraph 2.220. The Market Operator shall publish the decision of the Regulatory Authorities promptly on its receipt.

#### **Modifications of Agreed Procedures**

- 2.222 If at a Meeting at which any Agreed Procedure Modification Proposal is considered, a unanimous determination is made by the Modifications Committee, which, for the purposes of this paragraph, shall be required to be by the vote of all members except the Regulatory Authorities' representatives, in respect of the Agreed Procedure Modification Proposal including, where the decision is to adopt the Agreed Procedure Modification Proposal, the text of the relevant Agreed Procedure Modification, the decision of the Modifications Committee shall be final and binding, provided that the Regulatory Authorities shall have a right to veto any such decision within 2 Working Days of the decision being made.

- 2.223 In the event that the Modifications Committee makes a determination to modify an Agreed Procedure in accordance with paragraph 2.222, the Modification shall be made to the relevant Agreed Procedure in the form

determined by the Modifications Committee. The Modifications Committee shall notify the Regulatory Authorities of this and the Agreed Procedure Modification shall become effective on a date specified by the Modifications Committee.

- 2.224 If the Modifications Committee does not make a determination in relation to an Agreed Procedure Modification Proposal in accordance with paragraph 2.222 at the relevant Meeting, the Secretariat shall send the Agreed Procedure Modification Proposal to the Regulatory Authorities for determination and the Regulatory Authorities shall:
1. direct a Modification in accordance or otherwise with the Agreed Procedure Modification Proposal; or
  2. reject the Agreed Procedure Modification Proposal; or
  3. direct the Modifications Committee that further work is required in respect of the Agreed Procedure Modification Proposal.
- 2.225 The Regulatory Authorities shall make a decision in relation to an Agreed Procedure Modification Proposal as soon as reasonably practicable after receipt.
- 2.226 Any Modification of Agreed Procedures shall be published by the Market Operator within 2 Working Days after approval by the Modifications Committee or the Regulatory Authorities as the case may be.
- 2.227 Any proposal to introduce a new Agreed Procedure, or a modification to an existing Agreed Procedure which has the object or effect of changing the scope of that Agreed Procedure from that set out in Appendix D "Scope of Agreed Procedures" shall not be an Agreed Procedure Modification Proposal but shall constitute a Modification Proposal and be dealt with accordingly pursuant to paragraphs 2.194 to 2.221.

#### **Information about the Modifications Process**

- 2.228 The Market Operator shall publish information relating to the Modifications Process and the status of each Modification Proposal and Agreed Procedure Modification Proposal subject to the confidentiality provisions set out in paragraphs 2.344 to 2.349.
- 2.229 The Market Operator shall provide for a website location or other similar means of publication to be available to the Secretariat and the Modifications Committee for the Modifications Process.
- 2.230 The Market Operator shall publish notices submitted to it by the Modifications Committee as soon as practicable after receipt of such notices and in any event within 2 Working Days after receipt of such notices.
- 2.231 The Modifications Committee shall submit a quarterly report to the Regulatory Authorities including the progress and status of Modification Proposals. These reports shall be published by the Market Operator as soon as reasonably practicable after receipt.
- 2.232 The Market Operator shall publish the determination of the Regulatory Authorities in relation to a Modification Proposal within 2 Working Days after such decision has been made and submitted to the Market Operator and, where a Modification Proposal has been accepted, such publication shall include the text of the Modification.

### **Intellectual Property Issues Associated With Modification Proposals**

- 2.233 Each Party submitting a Modification Proposal shall be deemed to have irrevocably licensed any Intellectual Property Rights or other rights to, and to have waived any moral rights in, the content, form or other aspect of the Modification Proposal and such licence and waiver shall be a precondition to the valid submission of a Modification Proposal.
- 2.234 Each person who is not a Party and submits a Modification Proposal shall be required to irrevocably licence any Intellectual Property Rights or other rights to and waive any moral rights in the content, form or other aspect of the Modification Proposal and such licence and waiver shall be a precondition to the acceptance of a Modification Proposal.
- 2.235 A form for Modification Proposals shall be made available on the website provided for the Modifications Committee and such form shall include a licence of Intellectual Property Rights, and waiver of moral rights in respect of the content, format or other aspects of the proposal.

### **No Retrospective Effect**

- 2.236 For the avoidance of doubt, a Modification shall have effect as and from the date specified by the Regulatory Authorities or, where applicable, the Modifications Committee and in no event shall that date be earlier than the date on which the Modification is approved by the Regulatory Authorities, or, where applicable, the Modifications Committee. Under no circumstances shall Modifications have retrospective effect.

## **DEFAULT, SUSPENSION AND TERMINATION**

### **Default**

- 2.237 The following sections on default, suspension and termination shall apply in respect of Default by any Party other than the Market Operator.
- 2.238 A Party shall be in Default where it is in material breach of any provision of the Code or the Framework Agreement.
- 2.239 A Party shall notify the Market Operator as soon as reasonably practicable upon becoming aware of any circumstance that will give rise to a Default or of any of the events listed in paragraph 2.246, and upon the occurrence of a Default.

### **Default Notice**

- 2.240 On becoming aware of a Default in relation to a Party, the Market Operator shall issue to the Defaulting Party a Default Notice specifying the Default.
- 2.241 The Market Operator shall specify in a Default Notice:
1. the nature of the Default;
  2. if the Default is capable of remedy, the time from the date of the Default Notice within which the Defaulting Party is required to remedy the Default;
  3. any other action which the Market Operator may reasonably require the Defaulting Party to take in respect of the Default.
- 2.242 The Defaulting Party must comply with the Default Notice.

## **Suspension**

2.243 In the event that:

1. a Credit Call is made and a Participant's Credit Cover Provider fails to meet such demand within the timeframe as provided for in paragraphs 6.54 and 6.55; or
2. a Participant fails at any time to provide the Required Credit Cover as specified under this Code and in accordance with the timeframe as provided for in Section 6 and Agreed Procedure 9 "Management of Credit Cover and Credit Default";

then, notwithstanding paragraph 2.246 and subject to paragraphs 2.244 and 2.245, the Market Operator shall at the same time as or following the issue of the Default Notice to the Defaulting Party in respect of such Default, issue a Suspension Order in respect of all of the relevant Participant's Units. A Suspension Order issued under this paragraph 2.243 shall have immediate effect, save as expressly provided under paragraph 2.244.

2.244 A Suspension Order issued under paragraph 2.243 or 2.246 shall be expressed to take effect no earlier than the date of the expiry of the Supplier Suspension Delay Period in respect of any Supplier Unit included in the Suspension Order and no earlier than the expiry of the Generator Suspension Delay Period in respect of any Generator Unit included in the Suspension Order. In respect of each Supplier Unit, the Suspension Order shall not take effect unless the relevant Regulatory Authority has directed that all demand represented by that Supplier Unit shall be met by a Supplier of Last Resort. During the period before the Suspension Order comes into effect in respect of a particular Unit, the Regulatory Authorities may instruct the Market Operator to issue a notice or notices amending or lifting the Suspension Order in respect of that Unit or any or all of the Units concerned.

2.245 A Suspension Order shall not be issued under paragraph 2.243 solely by reason of the failure of the Participant to have its Credit Cover in place under paragraph 2.243.2 during the 2 Working Days permitted for replenishment of Credit Cover under paragraph 6.170 or during the 10 Working Days permitted to acquire a new Credit Cover Provider under paragraph 6.165.

2.246 The Market Operator may, with the prior written approval of the Regulatory Authorities, issue a Suspension Order in respect of all or any of a Party's Units where:

1. it becomes unlawful for a Party to comply with any of its obligations under the Code;
2. it becomes unlawful for a Party's Credit Cover Provider to comply with any of its Credit Cover obligations;
3. a Legal Requirement necessary to enable a Party or its Credit Cover Provider to fulfil its obligations and functions under the Code is amended or revoked in whole or in part so as to prevent a Party or its Credit Cover Provider from fulfilling its obligations and functions under the Code;
4. a Party or its Credit Cover Provider suspends or ceases to carry on its business, or any part of its business which is relevant to its activities under the Code;
5. a Party's Credit Cover Provider ceases to be eligible for the purposes of the Code to be able to provide the Credit Cover and the Party has



not acquired a new Credit Cover Provider within 10 Working Days as required under paragraph 6.165;

6. a Party enters into or takes any action to enter into an arrangement or composition with its creditors (except in the case of a solvent and bona fide reconstruction or amalgamation);
7. a Party's Credit Cover Provider enters into or takes any action to enter into an arrangement or composition with its creditors (except in the case of a solvent and bona fide reconstruction or amalgamation);
8. a receiver, manager, receiver and manager, administrative receiver, examiner or administrator is appointed in respect of a Party or its Credit Cover Provider or any of their respective assets, or a petition is presented for the appointment of an examiner or administrator, or a petition is presented or an order is made or a resolution is passed for the dissolution of, winding up of or appointment of a liquidator to a Party or its Credit Cover Provider, or a liquidator, trustee in bankruptcy or other similar person is appointed in respect of a Party or its Credit Cover Provider, or any steps are taken to do any of the foregoing or any event analogous to any of the foregoing happens in any jurisdiction;
9. a Party or its Credit Cover Provider is dissolved or struck off;
10. a Party or its Credit Cover Provider is unable to pay its debts for the purposes of section 214 of the Companies Act, 1963 (Ireland), Article 103 (1) or (2) of the Insolvency Order (Northern Ireland) 1989, or Section 123 (1) or (2) of the Insolvency Act 1986 (Great Britain) (as applicable) or if any voluntary arrangement is proposed in relation under Article 14 of the Insolvency Order (Northern Ireland) 1989, or section 1 of the Insolvency Act 1986 (Great Britain)(as applicable), or for the purpose of any similar or analogous legislation under the laws of any jurisdiction. For the purposes of this paragraph 2.246.10, Section 213 of the Companies Act, 1963 shall have effect as if for "£60,000" there was substituted "€100,000" and Article 103 of the Insolvency Order (Northern Ireland) and section 123 of the Insolvency Act, 1986 (Great Britain) shall have effect as if for "£750" there was substituted "£60,000" or such higher figure as the Market Operator may specify from time to time;
11. a Party which is required to be licensed in respect of any or all of its roles under the Code has its Licence revoked in whole or in part or amended, so as to prevent the Party from fulfilling its obligations and functions under the Code;
12. a Party has committed 3 Defaults within a period of 20 Working Days; or
13. a Party has committed a Default and has failed for a period of 20 consecutive days, or such longer period as may be set out in the relevant Default Notice, to comply with the terms of such Default Notice.

2.247 Where the Market Operator issues a Suspension Order, the Market Operator shall at the same time send a copy of the Suspension Order to the Regulatory Authorities, the System Operators (in accordance with Appendix J "Market Operator and System Operator Data Transactions") and the relevant Distribution System Operators and publish the Suspension Order.

### **Effect of Suspension Order**

- 2.248 Where the Market Operator issues a Suspension Order, the Suspension Order shall specify the Units to which the Suspension Order shall apply, the date and time from which the suspension will take effect and the terms of the suspension.
- 2.249 The Supplier Suspension Delay Period and the Generator Suspension Delay Period shall be determined from time to time by the Regulatory Authorities and notified to the Market Operator. A determination by the Regulatory Authorities in relation to the duration of the Generator Suspension Delay Period or the Supplier Suspension Delay Period, which amends an existing determination in this regard, shall not have effect until the expiry of a period of 10 Working Days following the amending determination, or such longer period as may be specified by the Regulatory Authorities, and, in any event, shall not affect any then current Generator Suspension Delay Period or Generator Suspension Delay Period.
- 2.250 On receipt of any determination by Regulatory Authorities pursuant to paragraph 2.249, the Market Operator shall publish such determination indicating the date from which it shall take effect.
- 2.251 When a Suspension Order takes effect, the Units to which the Suspension Order applies shall be suspended from participation in the Pool until such time as the Market Operator publishes a notice stating that:
1. the Suspension Order has either been lifted or will be lifted (specifying the date and time); or
  2. the participation of the relevant Party in the Pool has been Terminated, or the relevant Units have been Deregistered, in each case in accordance with the Code.
- 2.252 The Participation of Suspended Units in the Pool may resume but only in accordance with such restrictions as specified in the Suspension Order.
- 2.253 A Suspension Order shall not affect the continuing obligation of any Party whose Units have been suspended to maintain the Required Credit Cover in respect of all of its Units.
- 2.254 Without prejudice to the generality of paragraphs 2.251 to 2.252, a Suspension Order may suspend or restrict any or all of a Party's Units. The Market Operator shall, while a Suspension Order is in place, be entitled to do any act, matter or thing to give effect to the Suspension Order including, without limitation:
1. rejecting any Commercial Offer Data submitted by the relevant Party;
  2. making a Credit Call;
  3. setting-off any amount owed by the relevant Participant against the payment of any amounts otherwise due to that Participant under the Code;
  4. cancelling any Settlement Reallocation Agreement, or rejecting any Settlement Reallocation Request, to which the relevant Participant is a party; or
  5. requesting the Regulatory Authorities and System Operators or any other Party to take such measures as the Market Operator, acting reasonably, decides are appropriate to give effect to the Suspension Order.

- 2.255 The Market Operator shall remove the Suspension Order if the relevant Party remedies the matter or matters giving rise to the Suspension Order, or the circumstances giving rise to the Suspension Order no longer apply.
- 2.256 Where any Suspension Order is removed by the Market Operator, the Market Operator shall notify this to the Regulatory Authorities, the System Operators (in accordance with Appendix J “Market Operator and System Operator Data Transactions”) and the relevant Distribution System Operators where appropriate and shall publish a notice that the Suspension Order has been lifted.
- 2.257 The Participant that has registered the Units to which a Suspension Order applies must comply with the Suspension Order.

#### **Termination and Deregistration**

- 2.258 The Market Operator may with the prior written approval of the Regulatory Authorities issue a Termination Order where a Party is in breach of a Suspension Order, or has not remedied a Default or taken such action as required by the Market Operator within the timeframe specified in the Suspension Order. A Termination Order may direct the Deregistration of any or all of a Party’s Units or the Termination of a Party as a party to the Code. Termination of a Party as a party to the Code shall have the effect of Deregistration of all of the Party’s Units.
- 2.259 The Market Operator shall specify in each Termination Order the Credit Cover which the relevant Party is required, in accordance with paragraphs 6.141.5 and 6.141.6, to maintain in respect of any Units being Deregistered pursuant to the Termination Order.

#### **Effect of Termination Order**

- 2.260 Where the Market Operator issues a Termination Order, the Termination Order shall specify the time and date from which the Termination or Deregistration will take effect and the terms of the Termination or Deregistration.
- 2.261 Where the Market Operator issues a Termination Order, the Market Operator shall at the same time send a copy of the Termination Order to the Regulatory Authorities, the System Operators (in accordance with Appendix J “Market Operator and System Operator Data Transactions”) and the relevant Distribution System Operators and shall publish the Termination Order.

#### **Voluntary Termination of a Party**

- 2.262 Subject to paragraph 2.263 below, a Party may apply at any time to cease to be a Party.
- 2.263 A Party shall give at least 90 Working Days notice in writing to the Market Operator (with a copy to the System Operators and the Regulatory Authorities) of its intention to cease being a Party and shall specify the time and date upon which it wishes the Termination to take effect. Voluntary Termination shall have the effect of Deregistration of all of a Party’s Units.
- 2.264 Following receipt of a request for Voluntary Termination, the Market Operator shall issue a Voluntary Termination Consent Order if the relevant Party has complied with the following conditions:

1. all amounts due and payable by the relevant Party pursuant to the Code have been paid in full;
  2. any outstanding Default by the relevant Party of the Code which is capable of remedy has been remedied;
  3. the written consent of the Regulatory Authorities has been obtained; and
  4. if the Party has registered Supplier Units, the terms of any applicable Metering Code have been complied with in relation to the Deregistration or transfer of those Supplier Units.
- 2.265 The Market Operator shall specify in each Termination Consent Order the Credit Cover which the relevant Party is required, in accordance with paragraphs 6.171.5 and 6.171.6, to maintain in respect of any Units being Deregistered pursuant to the Termination Consent Order.
- 2.266 The Voluntary Termination shall take effect at the end of the last Trading Period of the Trading Day specified by the Market Operator in the Voluntary Termination Consent Order so long as, at that time, the relevant Party remains in compliance with the conditions set out in paragraph 2.264.
- 2.267 The Market Operator, the System Operators, the Transmission Asset Owners, the Distribution System Operators, the System Operators and the Meter Data Providers shall not be permitted to terminate their being a party to the Code except where so required by the Regulatory Authorities.

#### **Consequences of Termination of a Party**

- 2.268 When a Party is Terminated, then:
1. the Market Operator shall Deregister all of that Party's Units;
  2. the Party must stop all trading in the Pool in respect of all of its Units at the time and date specified in the Termination Order or the Termination Consent Order; and
  3. the Party must maintain the Credit Cover for each of its Units in the amounts and for the duration provided for in paragraphs 6.171.5 and 6.171.6 (as specified in the Termination Order or Termination Consent Order as applicable).
- 2.269 Intentionally blank.
- 2.270 Any Termination of a Party will not affect the accrued rights or obligations of any Party which arose out of or which relate to any act or omission prior to the date of such Termination and including:
1. payment of any amount which was or becomes payable under the Code in respect of any period before the date of the Termination of the Party (including in relation to any Dispute regarding an event before the Termination of the Party even if the Notice of Dispute is given after the date of Termination of the Party); and
  2. any outstanding breach by it of the Code or Framework Agreement.
- 2.271 A Party shall continue to be liable after its Termination in respect of any obligation under the Code for a period of 6 years or any longer period specified under any Applicable Law.

- 2.272 Any provisions of this Code which expressly, or by implication are intended to, commence or continue in effect on or after Termination of a Party shall continue to bind a Terminated Party.
- 2.273 For the avoidance of doubt, a Terminated Party shall continue to be bound by the Dispute Resolution Process in respect of any Disputes arising following its Termination.

#### **Consequences of Deregistration**

- 2.274 Where any of a Participant's Units are Deregistered in accordance with the provisions of this Code, whether voluntarily or otherwise:
1. the Participant must stop all trading in the Pool in respect of the relevant Units at the time and date specified in the Termination Order or the date specified in the Deregistration Consent Order; and
  2. the Participant must maintain the Credit Cover in respect of each of the relevant Units in the amounts and for the duration provided for in paragraphs 6.171.5 and 6.171.6 (as specified in the Termination Order or Deregistration Consent Order as applicable).
- 2.275 Where the Market Operator, in the circumstances provided for under the Code, accepts a new Participation Notice from a Party or Applicant to register a Unit which is at that time registered to another Participant, prior to the Deregistration of that Unit from the existing Participant, then the acceptance of the new Participation Notice shall, unless expressly provided otherwise, be without prejudice to the process for Deregistration of the Unit from the existing Participant in accordance with the timelines set out in the Code and the new registration of that Unit shall not take effect until such process has been completed.

### **DISPUTE RESOLUTION**

#### **Preliminaries**

- 2.276 A "Dispute" means any claim, dispute or difference of whatever nature between any of the Parties howsoever arising under, out of or in relation to the Code or the Framework Agreement (including the existence or validity of the same) in respect of which (i) one Party has served a Notice of Dispute, or (ii) a Notice of Dispute is deemed to have been served under paragraph 2.282. A Dispute includes any Settlement Dispute.
- 2.277 A Notice of Dispute may be served on any number of Parties. Where the Market Operator reasonably determines that the resolution of a Disputed Event will impact a third Party who has not been served a Notice of Dispute, the Market Operator will inform that third Party of the existence, nature and progress of the Dispute, while maintaining the confidentiality of the Disputing Parties.
- 2.278 Subject to the rules concerning the commencement of certain Settlement Disputes set out in paragraph 2.282, a Dispute is deemed to exist when one Party notifies another Party or Parties in writing of the Dispute by way of a Notice of Dispute within 28 days of that Party having become aware of the Disputed Event and in any event within 2 years of the Disputed Event having occurred.
- 2.279 The Notice of Dispute shall briefly set out the nature of the Dispute (including the Disputed Event(s)) and the issues involved. A copy of the

Notice of Dispute shall be sent to the Market Operator and, where the Market Operator is a party to the Dispute, to the Regulatory Authorities.

- 2.280 The provisions set out in this Dispute Resolution Process shall not prejudice or restrict any Party's entitlement to seek interim or interlocutory relief directly from the appropriate Court or Courts with jurisdiction pursuant to paragraph 2.2.
- 2.281 The obligations of the Parties under the Code (including payment of any invoice amounts by the Invoice Due Date) shall not be affected by reason of the existence of a Dispute, save as provided for in any determination of the Dispute Resolution Board or a Court.

### **Settlement Disputes**

- 2.282 In the event that the Market Operator does not resolve a Settlement Query within the timeframes set out in paragraph 6.102, or does not resolve a Data Query within the timeframes set out in paragraph 6.81, the Settlement Query or Data Query, as appropriate, shall automatically become a Settlement Dispute and the Notice of Dispute shall be deemed to have been

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- 2.283 Without prejudice to the jurisdiction of a Court to award costs pursuant to its jurisdiction in that regard where applicable, the Market Operator shall be liable for all costs in connection with a Settlement Dispute arising by operation of paragraph 2.282.
- 2.284 In the event that a Party is dissatisfied with the Market Operator's determination in respect of a Settlement Query or Data Query, the Party that raised the Settlement Query or Data Query may raise a Dispute by issuing a Notice of Dispute to the Market Operator within 5 Working Days of receipt of the Market Operator's determination, subject to paragraphs 6.103 and 6.104.
- 2.285 A matter which is described as a Settlement Query or Data Query under Section 6 shall not be raised as a Dispute save in accordance with paragraph 2.282 or 2.284.

### **Objectives of the Dispute Resolution Process**

- 2.286 It is intended that the Dispute Resolution Process set out in or implemented in compliance with the Code and described in detail in the following paragraphs should to the extent possible:
1. be simple, quick and inexpensive;
  2. preserve or enhance the relationship between the Disputing Parties;
  3. resolve and allow for the continuing and proper operation of the Code and the Pool having regard to the Objectives of the Code;
  4. resolve Disputes on an equitable basis in accordance with the provisions of the Code having regard to the Objectives of the Code;
  5. take account of the skills and knowledge that are required for the relevant procedure; and

6. encourage resolution of Disputes without formal legal representation or reliance on legal procedures.

#### **Dispute Resolution Board**

- 2.287 Where a Notice of Dispute has been served in accordance with paragraph 2.278, 2.282, or 2.284 a representative of each of the Disputing Parties, each with authority to resolve the Dispute, must meet within 10 Working Days of the date of the Notice of Dispute to seek in good faith to resolve the Dispute. The Disputing Parties shall negotiate in good faith and attempt to agree a resolution.
- 2.288 If the Disputing Parties are unable to reach agreement within a further period of 10 Working Days of meeting in accordance with paragraph 2.287, the Dispute may within a further period of 20 Working Days be referred by any Disputing Party to a Dispute Resolution Board (“DRB”) by way of notice in writing to the other Disputing Party or Parties (“Referral Notice”) unless expressly provided otherwise in the Code. The Disputing Party shall immediately send a copy of the Referral Notice to the Market Operator (or to the Regulatory Authorities where the Market Operator is a Disputing Party), and the Market Operator shall forward the Referral Notice to the chairperson of the Panel referred to in paragraph 2.291. The Referral Notice shall state that it is given under this paragraph and identify the relevant Dispute and Notice of Dispute.
- 2.289 The Disputing Parties may mutually agree in writing with the written consent of the Market Operator (or the Regulatory Authorities where the Market Operator is a Disputing Party) to extend the period for negotiation or any other time period set out in the Dispute Resolution Process.
- 2.290 Referral of a Dispute to a DRB in accordance with the Dispute Resolution Process and compliance with the provisions set out in paragraphs 2.276 to 2.315 is a pre-condition to the entitlement to refer a Dispute to Court.
- 2.291 The DRB shall be comprised of either a sole member or three members and shall be appointed from a panel of available DRB members established and maintained by the Market Operator with the prior approval of the Regulatory Authorities (“the Panel”).
- 2.292 The Panel shall consist of no less than 10 members subject to any vacancies which may arise from time to time which shall be filled as soon as practicable in accordance with paragraph 2.293. Any vacancies arising from time to time shall not invalidate the Panel. The Regulatory Authorities shall from time to time nominate a member of the Panel to act as chairperson of the Panel. The identity of the members of the Panel and the chairperson shall be published by the Market Operator. The chairperson shall be responsible for nominating the member(s) of the DRB if the parties to a Dispute fail to agree on the composition of the DRB from the members of the Panel. The members of the DRB so appointed shall be independent of any Disputing Party to any dispute on which they shall be called to deliberate. The Regulatory Authorities shall appoint a replacement chairperson immediately on the position of chairperson being vacated on a permanent basis for any reason.
- 2.293 The chairperson shall nominate a vice-chairperson from time to time to perform the chairperson’s function in the event of the latter’s unavailability or in the event of the chairperson’s position being temporarily vacant. The Market Operator shall with the prior approval of the Regulatory Authorities

nominate further members to the Panel from time to time as may be necessary to fill any vacancies and to maintain the membership of the panel at 10 members. Subject to paragraph 2.294, there shall be no restriction on the ability or entitlement of the chairperson or vice-chairperson to act as a member of a DRB by virtue of holding those positions except where a dispute arises between the Disputing Parties in respect of the number of Members or the identity of Members of the DRB in relation to the Dispute concerned in which case the chairperson shall be proscribed from appointing himself to the DRB.

2.294 The Panel shall include suitably qualified experts from relevant disciplines who:

1. are experienced in and familiar with alternative dispute resolution procedures which do not involve litigation; and/or
2. have an understanding of the electricity industry or have the ability quickly to acquire such an understanding.

2.295 Where there are no more than two Disputing Parties, the Disputing Parties may agree within 10 Working Days of date of receipt by the receiving Party of the Referral Notice to establish a sole member.

**Deleted:** DRB or a three member DRB. If the Disputing Parties to a Dispute agree to establish a sole member DRB, they shall agree to appoint the sole DRB member within a further 5 Working Days. If the Disputing Parties agree on a three member DRB, then each Disputing Party will within a further period of 5 Working Days nominate one member of the Panel to the DRB and the two members so nominated will appoint the third member within a further period of 5 Working Days.

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2.296 In the event the Disputing Parties do not within the relevant period agree on:

1. the number of members of the DRB; or
2. (if having agreed a sole member DRB) the identity of the sole member;

then, the chairperson of the Panel will within a further period of 10 Working Days of a request by any or all of the Disputing Parties determine the number of members of the DRB and appoint the appropriate number from the Panel, or in the case of the appointment of a sole member DRB, appoint the sole member from the Panel. In making any such determination and appointment, the chairperson will take account of the complexity of the Dispute as set out in the Dispute Notice and the range of issues which may be relevant.

2.297 In the event that the Disputing Parties agree upon a three member DRB but a Disputing Party concerned fails to make a nomination from the Panel then the chairperson, upon notification of the failure, shall make the necessary nomination from the Panel within 10 Working Days of notification that there has been a failure by one Disputing Party to make a nomination.

2.298 Where there are more than two Disputing Parties to any Dispute then the DRB shall be appointed by the chairperson unless all Disputing Parties have, within 10 Working Days of the date of receipt by the counter-Parties of the Referral Notice, agreed the composition of the DRB both as to the number of members which shall be either one or three and as to the identity of member(s) to be selected from the Panel. On notification that the 10



Working Day period has expired without such agreement, the chairperson shall (a) determine whether a sole member or three member DRB is appropriate; and (b) appoint the member or members of the DRB from the Panel, and shall notify the Disputing Parties. In making any such determination and appointment, the chairperson will take account of the complexity of the Dispute as set out in the Notice of Dispute and the range of issues which may be relevant.

- 2.299 The agreement between the Disputing Parties and either the sole member DRB or each of the three members of a three member DRB shall incorporate by reference the Dispute Resolution Agreement contained in Appendix B "Dispute Resolution Agreement", with such amendments as are agreed between them.
- 2.300 Subject to paragraphs 2.283 and 2.301, each Disputing Party shall be responsible for paying an equal share of the costs of the DRB in respect of the Dispute involving them and shall bear its own costs of the procedure.
- 2.301 Notwithstanding paragraph 2.300, the DRB may make a decision as to the award of costs in any Dispute which decision shall be binding on the Disputing Parties.
- 2.302 In the event any member of a DRB declines to act or is unable to act as a result of death, disability, incapacity, resignation or termination of appointment, the chairperson of the Panel or, where the chairperson of the Panel is the member affected, the vice-chairperson of the Panel shall appoint a replacement within 5 Working Days of notification of the relevant event. Such appointment shall be final and binding.
- 2.303 The appointment of any member of the DRB may be terminated by unanimous agreement of the Disputing Parties. Should this occur, paragraph 2.302 shall apply.
- 2.304 Disputing Parties shall continue to perform all of their obligations and functions as required by the Code including, for the avoidance of doubt, fulfilling any payment obligations as payment falls due.

#### **Obtaining the DRB's Decision**

- 2.305 For the purpose of paragraph 2.288, a Dispute is deemed to be referred to the DRB as of the date of the receipt of the Referral Notice by the Market Operator.
- 2.306 Disputing Parties shall promptly make available to the DRB all such additional information as they consider appropriate or as the DRB may require for the purposes of making a decision on a Dispute. The DRB may request any information it considers relevant.
- 2.307 The DRB shall be entitled to determine the applicable procedure including the manner and the timing of any written submissions and any oral hearings. In determining the applicable procedure, the DRB shall have regard to the considerations set out in paragraph 2.286 above as well as the number of Disputing Parties. The DRB shall not act as arbitrator and the Arbitration Act 1996 (United Kingdom) shall not apply.
- 2.308 The DRB shall give its decision within (i) 30 Working Days after the appointment of the DRB where there are no more than two Disputing Parties; (ii) 40 Working Days after the appointment of the DRB where there are more than two Disputing Parties; or (iii) such other period as may be proposed by the DRB and approved by the Disputing Parties. Its decision

shall be in writing providing reasons and state that it is given under this paragraph 2.308. Subject to paragraphs 2.309 to 2.313 below, the decision shall be binding on all Disputing Parties, who shall promptly give effect to it unless or until it shall be revised in an amicable settlement pursuant to paragraph 2.312. The Parties shall continue to comply with the Code in all respects.

- 2.309 If any Disputing Party is dissatisfied with the DRB's decision, then that Party may, within 15 Working Days after receiving the decision, give notice to the other Disputing Party or Parties and the DRB in writing of its dissatisfaction. If the DRB fails to give its decision within the relevant period set out in paragraph 2.308, then any Disputing Party may, within 15 Working Days after such period has expired, give notice to the other Disputing Party or Parties and the DRB in writing of its dissatisfaction.
- 2.310 A notice of dissatisfaction referred to in paragraph 2.309 shall state that it is given under paragraph 2.310, shall set out the Dispute and the reason(s) for dissatisfaction. Except as stated in paragraphs 2.280 and 2.315, no Disputing Party shall be entitled to commence any Court proceedings of whatever nature in relation to or in connection with a Dispute unless a notice of dissatisfaction has been given in accordance with paragraph 2.309.
- 2.311 If the DRB has given its decision on a Dispute to the Disputing Parties and no notice of dissatisfaction has been given by any Disputing Party within 15 Working Days after the date of the DRB's decision, then the decision shall be final and binding upon all Disputing Parties.

#### **Amicable Dispute Settlement**

- 2.312 Where notice of dissatisfaction has been given under paragraph 2.309 above, the Disputing Parties shall attempt to settle the dispute amicably before the commencement of any court proceedings may take place. However, unless both Parties agree otherwise, Court proceedings may be commenced on or after the twenty first Working Day after the day on which notice of dissatisfaction was given, even if no attempt at amicable settlement has been made.

#### **Court Proceedings**

- 2.313 Unless settled amicably, any Dispute in respect of which a Notice of Dissatisfaction has been issued may only be finally settled by Court proceedings.
- 2.314 A Disputing Party may, in the proceedings before any Court having jurisdiction, adduce evidence or raise arguments not previously put before the DRB in the course of its consideration of the Dispute or included in the notice of dissatisfaction given by that Party. Any decision of the DRB shall be admissible as evidence in any Court proceedings.

#### **Failure to Comply with DRB's Decision**

- 2.315 In the event that:
1. no Disputing Party has given notice of dissatisfaction within the period stated in paragraph 2.309; and
  2. the DRB's related decision (if any) has become final and binding; and
  3. a Disputing Party fails to comply with this decision,

then any other Disputing Party may take such action as it deems necessary, including the commencement of court proceedings, to enforce the relevant DRB decision. There shall be no mandatory reference to the Dispute Resolution Board or requirement to refer the matter to amicable settlement in respect of such a reference.

### **SUPPLIER OF LAST RESORT**

- 2.316 In the event that a Regulatory Authority directs that any demand shall be met by a Supplier of Last Resort in the relevant Jurisdiction, the Market Operator shall take whatever steps are necessary to enable and assist the relevant Meter Data Providers to transfer all relevant Demand Sites, final customers or consumers represented within the Supplier Units to which such a direction relates, to the Supplier Unit that is treated as registered by the Supplier of Last Resort in that Jurisdiction, with effect from the date set out in the direction. Such steps shall include the amendment by the Market Operator of the registration of any affected Trading Site Supplier Units and Associated Supplier Units.

### **LIMITATION OF LIABILITY**

- 2.317 No Party shall be liable to any other Party for loss arising from any breach of the Code or the Framework Agreement other than for loss resulting directly from such breach (but without prejudice to any other provision of the Code which excludes or limits liability in respect of any breach for loss directly resulting from such breach) and which was reasonably foreseeable as not unlikely to occur in the ordinary course of events from such breach in respect of:
1. physical damage to the property of any other Party or its officers, employees, or agents; and/or
  2. the liability (in law) of any other such Party to any other person for loss in respect of physical damage to the property of such other person.
- 2.318 No Party shall in any circumstances be liable to any other Party in respect of any breach of the Code or the Framework Agreement for:
1. loss of profits, loss of income, loss of contract, loss of anticipated savings, loss of investment return, loss of goodwill, loss of use, or loss of reputation; or
  2. any indirect or consequential loss or any incidental or special damages (including punitive damages); or
  3. loss resulting from the liability of any other Party to any other person howsoever and whensoever arising save as provided in paragraphs 2.317.2 and 2.320.
- 2.319 The limitations of liability set out in paragraph 2.317 are without prejudice to any provision of the Code or the Framework Agreement which provides for an indemnity and shall not relieve any Party of an obligation to pay any amounts due pursuant to the Code.
- 2.320 Nothing in the Code or the Framework Agreement shall limit or exclude the liability of any Party for death or personal injury resulting from the negligence of such Party or for fraudulent misrepresentation or any other liability which cannot be limited or excluded under Applicable Laws.

- 2.321 All terms, conditions, warranties and representations implied pursuant to Sections 13 to 15 of the Sale of Goods Act, 1893 and Section 39 of the Sale of Goods and Supply of Services Act, 1980 (Ireland) and Sections 13 to 15 of the Supply of Goods Act, 1979 (United Kingdom) and Sections 2 to 5 and 7 to 10 of the Supply of Goods and Services Act, 1982 (United Kingdom) are excluded to the fullest extent permitted by law.
- 2.322 The rights and remedies of the Parties pursuant to the Code and the Framework Agreement as set out therein are, save as expressly provided otherwise, cumulative and are in exclusion of all other substantive (but not procedural) rights or remedies express or implied and whether provided by common law, statute, tort, in equity or otherwise by law. Without prejudice to the foregoing and paragraph 2.333 (Waiver), each Party to the fullest extent permitted by law:
1. waives any rights or remedies; and
  2. releases each other Party from any duties, liabilities, responsibilities or obligations
- arising or provided by common law, statute, tort, in equity or otherwise by law in respect of the Code.
- 2.323 Without prejudice to the preceding paragraph 2.322, where any provision of the Code or decision of the DRB provides for any amount to be payable by a Party upon or in respect of that Party's breach of the Code or the Framework Agreement, each Party agrees and acknowledges that the remedy conferred by such provision or decision is exclusive of and is in substitution for any remedy in damages in respect of such Default or the event or circumstance giving rise thereto.
- 2.324 Nothing in the Code or the Framework Agreement relating to limitation on liability shall prevent or restrict any Party from enforcing any obligation owed to it under or pursuant to the Code in accordance with the provisions of the Code subject to any applicable limitation of liability.
- 2.325 Save as expressly provided otherwise in the Code or the Framework Agreement, nothing in paragraphs 2.317 to 2.323 shall apply to or restrict the exercise or enforcement of any rights or remedies which one Party may have against another Party or person pursuant to any other agreement besides the Code and the Framework Agreement.
- 2.326 For the purposes of paragraphs 2.317, 2.318 and 2.320, references to a "Party" includes any of its Participants, officers, employees or agents, and each Party shall hold the benefit of those paragraphs for itself and as trustee and agent for its officers, employees and agents.
- 2.327 Each of paragraphs 2.317 to 2.326 shall be construed as a separate and severable contract term, and shall remain in full force and effect and shall continue to bind the Parties even if a Party ceases to be a Party to the Code or the Code is terminated.

#### **FORCE MAJEURE**

- 2.328 For the purposes of the Code, "Force Majeure" means any event beyond the reasonable control of the Affected Party and which could not have been reasonably prevented or the consequences of which could not have been prevented by Prudent Electric Utility Practice and which is not due to the act, error, omission, breach, default or negligence of the Affected Party, its employees, agents or contractors and which has the effect of preventing the

Affected Party from complying with its obligations under this Code, and including, without limitation:

1. acts of terrorism;
2. war (declared or undeclared), blockade, revolution, riot, insurrection, civil commotion, invasion or armed conflict;
3. sabotage or acts of vandalism or criminal damage;
4. natural disasters and phenomena, including extreme weather or environmental conditions, fire, meteorites, the occurrence of pressure waves caused by aircraft or other aerial devices travelling at supersonic speeds, impact by aircraft, volcanic eruption, explosion, including nuclear explosion, radioactive or chemical contamination or ionising radiation; or
5. nationwide or industry wide strikes, lockouts or other industrial actions or labour disputes provided that such occurrence is not limited to the Affected Party and/or its suppliers, contractors, agents or employees;

or other events beyond the Affected Party's reasonable control and which could not be reasonably be expected to comply with in accordance with Prudent Electric Utility Practice provided that Force Majeure shall not include:

1. any inability (however caused) of an Affected Party to pay any amounts owing under the Code and/or a lack of funds or Credit Cover;
2. mechanical or electrical breakdown or failure of machinery, plant or systems owned or operated by the Affected Party; or
3. the failure or inability of the Affected Party's IT systems or manual processes to perform any function necessary for that Party to comply with the Code.

other than where such events arise as a result of the circumstances in subparagraphs 1-5 above.

2.329 In the event of the Affected Party other than the Market Operator being unable to perform all or any of its obligations under this Code by reason of Force Majeure:

1. the Affected Party shall notify the Market Operator of the circumstances of Force Majeure, identifying the nature of the event, its expected duration and the particular obligation(s) affected to enable the Market Operator to assess whether Force Majeure applies;
2. if the Market Operator finds in its reasonable opinion that the conditions in paragraph 2.328 are satisfied, it shall notify all Parties that the Affected Party is subject to Force Majeure;
3. the Affected Party shall furnish reports at such intervals as the Market Operator may reasonably request in respect of the circumstance of Force Majeure during the period of Force Majeure;
4. no obligations of any Party that arose before the Force Majeure and which can reasonably be expected to be performed are excused as a result of Force Majeure;
5. on the occurrence of the Force Majeure, the Affected Party shall consult with the Market Operator as to how best to give effect to the

- obligations of the Affected Party under this Code so far as is reasonably practicable during the period of Force Majeure;
6. the Affected Party shall use all reasonable efforts to remedy and mitigate the consequences of any Force Majeure to enable it to resume full performance of its obligations under the Code insofar as such is practicable during any Force Majeure; and
  7. the Affected Party shall resume full performance of its obligations under the Code on cessation of any Force Majeure and shall provide the Market Operator with written notice to that effect without delay.
- 2.330 Where the Market Operator is affected by Force Majeure, the Market Operator shall immediately inform the Regulatory Authorities of such. Where the Market Operator is affected by an event of Force Majeure:
1. no obligations of any Party that arose before the Force Majeure and which can reasonably be expected to be performed are suspended as a result of Force Majeure;
  2. the Market Operator in consultation with, and where required by, the Regulatory Authorities, shall do all acts to mitigate the consequences of the Force Majeure to enable it to resume the full performance of its functions and obligations under the Code;
  3. the Market Operator shall resume full performance of its obligations under the Code on cessation of any Force Majeure and shall inform the Regulatory Authorities of this; and
  4. the Market Operator shall be relieved of its obligations only for so long as and to the extent that the occurrence of the Force Majeure and/or its effects could not be overcome by measures which the Market Operator might reasonably be expected to take acting prudently with a view to continuing or resuming performance of its obligations as appropriate including, where applicable, the implementation of Administered Settlement.
- 2.331 When an Affected Party is rendered wholly or partially unable to perform all or any of its obligations under the Code by reason of Force Majeure, the Affected Party's relevant obligations under this Code shall be suspended and the Affected Party shall be relieved from liability, subject to paragraph 2.332, in respect of such obligations provided that such liability and suspension shall be of no greater scope and of no longer duration than is required by the Force Majeure.
- 2.332 The Affected Party shall be relieved from liability only for so long as and to the extent that the occurrence of Force Majeure and/or the effects of such occurrence could not be overcome by measures which the Affected Party might reasonably be expected to take as a Prudent Industry Operator with a view to continuing or resuming performance of its obligations as appropriate. Notwithstanding the foregoing, Force Majeure shall not relieve any Affected Party from any liability to make any payments due under the Code save to the extent that any failure to pay is caused by Force Majeure affecting all reasonable means of payment in which event on the cessation of the Force Majeure event, the Affected Party shall pay Interest on any amounts due from the Payment Due Date to the actual date of payment.

## **WAIVER**

- 2.333 No failure to exercise, nor any delay in exercising, on the part of any Party hereto any right or remedy under the Code or the Framework Agreement shall operate as a waiver thereof, nor shall any single or partial exercise of any right or remedy prevent any further or other exercise thereof or the exercise of any other right or remedy under the Code or the Framework Agreement.

## **SEVERANCE**

- 2.334 Each of the provisions of the Code and the Framework Agreement is severable. If at any time any provision or part of a provision of the Code or the Framework Agreement is or becomes illegal, invalid or unenforceable in any respect for the purposes of any Applicable Law or by the decision of any Competent Authority, it shall be deemed severed from the Code and the legality, validity or enforceability of the remaining provisions (in whole or in part) of the Code or the Framework Agreement shall not in any way be affected or impaired thereby.

## **THIRD PARTY BENEFICIARIES**

- 2.335 Subject to paragraph 2.336, a person who is not a Party shall not have the right (whether under the Contracts (Rights of Third Parties) Act 1999 (United Kingdom), or otherwise) to enforce any provision of the Code or the Framework Agreement, and the Code and the Framework Agreement shall not be construed as granting rights to or imposing any duty or liability on or to, or any duty of care with reference to, any person who is not a Party.
- 2.336 Where rights are granted to the Regulatory Authorities or the Market Auditor pursuant to the Code or the Framework Agreement, the Parties confirm and acknowledge that the Regulatory Authorities, or the Market Auditor, as applicable, shall be entitled to enforce the rights granted to them under the Code as against any other Party to the Code by virtue of the Contracts (Rights of Third Parties) Act, 1999 (United Kingdom).
- 2.337 Subject to any express rights which the Regulatory Authorities have under the Code and to any rights, powers or functions of the Regulatory Authorities under Applicable Laws, where a person who is not a party to the Code has a right to enforce any provisions of the Code pursuant to paragraph 2.336, the Parties may vary or terminate the Code in accordance with its provisions and without requiring the consent of that person.

## **NO ASSOCIATION**

- 2.338 Except where expressly provided, the Code and the Framework Agreement shall not be interpreted or construed as creating an association, agency, joint venture or partnership between the Parties. Further, except where expressly provided, nothing in the Code or the Framework Agreement shall give any Party the right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or to be an agent or representative of, or otherwise to bind, any other Party.

## **ASSIGNMENT**

- 2.339 Except with the prior written consent of the Regulatory Authorities, or as otherwise expressly provided herein, a Party shall not assign or transfer or purport to assign or transfer all or any of its rights or obligations under the

Code or the Framework Agreement. Any request to assign or transfer any or all of a Party's rights under the Code or the Framework Agreement shall be notified to the Market Operator and shall be subject to the prior consent of the Regulatory Authorities but not of any Party. In giving consent under this paragraph, the Regulatory Authorities may impose such conditions as they determine are necessary for the purposes of the proper functioning of the Pool.

- 2.340 A Party may authorise a Data Processing Entity to submit Data in respect of its Units as provided for in Section 3, provided that each Party shall always remain liable at all times for fulfilling its obligations under the Code.

### **ENTIRE AGREEMENT**

- 2.341 The Code and the Framework Agreement together constitute the whole and only agreement between all of the Parties hereto relating to the operation of the Pool and supersede all prior representations, arrangements, understandings and agreements between the Parties (whether written or oral) relating to the subject matter hereof. Each Party warrants to the others that, in entering into this Agreement, it has not relied on any representation, arrangement, warranty, understanding, or agreement not expressly laid out or referred to in the Code or the Framework Agreement. Nothing in this paragraph shall operate so as limit or exclude any liability of any one of the Parties to any other Party in respect of fraudulent misrepresentation.

### **PUBLICATION OF THE CODE**

- 2.342 The Market Operator shall at all times publish the current, effective version of the Code. The published version of the Code shall be amended to reflect any Modifications as soon as such Modifications take effect. The date of publication of the complete amended version of the Code shall not affect the date of coming into effect of the relevant Modification. The Market Operator shall also publish at all times a list of pending Modifications which have been approved (if any) but have not yet come into effect.
- 2.343 The Market Operator shall not be obliged to publish any material that it reasonably believes may be of an obscene or libellous or similar nature.

### **CONFIDENTIAL INFORMATION**

- 2.344 Confidential Information means, in relation to any Party, information which is designated in writing by that Party as "confidential information", or which would be considered as being confidential by its nature, and which is disclosed in connection with the Code, the Framework Agreement or the disclosing Party's activities in connection with the Code. Confidential Information shall not include:
1. the existence of and terms of the Code or the Framework Agreement; and
  2. Data Records or items which are at the relevant time required to be published in accordance with this Code.
- 2.345 For the purpose of this section, a "Recipient Party" is any Party which receives, acquires possession or control of, or otherwise becomes aware of Confidential Information of another Party. A "Disclosing Party" is any Party by whom the Confidential Information is disclosed.



2.346 Each Recipient Party shall keep confidential any Confidential Information relating to any Disclosing Party and shall:

1. use the Confidential Information only for the purpose of performing its obligations under the Code and for no other purpose whatsoever;
2. not at any time disclose, reveal, or otherwise disseminate the Confidential Information to any person or Party whatsoever or to permit any person or Party any form of access to the Confidential Information without the prior written consent of the Disclosing Party;
3. treat and safeguard as private and confidential all Confidential Information received at any time keeping it and treating it with the same care as any Prudent Industry Operator would be expected to exercise;
4. not use the Confidential Information, or permit or assist a third party to use the Confidential Information, to procure a commercial advantage over, or an advantage which is in any way likely to be prejudicial, whether directly or indirectly to, the Disclosing Party or to its business, goodwill or reputation;
5. not use the Confidential Information or permit or assist a third party to use the Confidential Information to attract management, employees, advisors, agents, representatives, consultants, contractors, sub-contractors or customers away from the Disclosing Party.

#### **Exceptions**

2.347 The obligations set out in paragraph 2.346 do not apply to:

1. information which at the time of disclosure to the Receiving Party is within the public domain;
2. information which comes into the public domain other than by reason of a breach of the Code or of any Legal Requirement by the Recipient Party; or
3. information which was lawfully within the possession of the Recipient Party prior to its being furnished to it by or on behalf of the Disclosing Party as evidenced by the written records of the Recipient Party or the sworn evidence of an officer of the Recipient Party, provided that the source of such information was not bound by a confidentiality agreement or any other obligation of secrecy in respect thereof.

#### **Permitted Disclosures**

2.348 Nothing in paragraph 2.346 shall prevent the disclosure of Confidential Information by a Recipient Party:

1. to any lending or other financial institution proposing to provide or arrange the provision of finance or Credit Cover to the Recipient Party, where and to the extent that the disclosure of such Confidential Information is reasonably required for the purposes of the provision or arrangement of such finance or Credit Cover, and provided that the person to whom the Confidential Information is disclosed is bound by confidentiality provisions equivalent to those in paragraph 2.346;
2. as may be required by the regulations of any recognised stock exchange on which the share capital of the Recipient Party (or any parent or affiliated undertaking of the Recipient Party) is or is

proposed to be from time to time listed or dealt in, and the Recipient Party shall, if reasonably practicable prior to making the disclosure, and in any event as soon as reasonably practicable thereafter, supply the Disclosing Party with a copy of such disclosure or statement and details of the persons to whom the Confidential Information is to be, or has been, disclosed. Where a copy of such disclosure or statement has been supplied prior to making the disclosure, the Disclosing Party may give comments on that disclosure or statement to the Recipient Party;

3. as may be required to comply with Legal Requirements of the Recipient Party;
4. as may be necessary in relation to an application by any person for a connection to or use of the Transmission System or Distribution System in accordance with Section 34 of the Energy Regulation Act, 1999 (Ireland) or with the Northern Ireland Grid Code or for use of an Interconnector Unit;
5. as may be required by the DRB or a Court having competent jurisdiction or Competent Authority; or
6. as may be otherwise agreed in writing by the Disclosing Party prior to disclosure by the Recipient Party.

2.349 The confidentiality obligations set out in paragraphs 2.344 to 2.348 shall continue to apply to any Terminated Party in respect of Confidential Information which came into its possession while it was a Party.

#### **FREEDOM OF INFORMATION ACTS**

2.350 All Parties confirm and acknowledge that although they may inform the Market Operator, the System Operators and/or the Regulatory Authorities in writing that specific data submitted under this Code may be classified as Confidential Information, such information may be subject to disclosure in accordance with the provisions of the Freedom of Information Act 1997 and 2003 (Ireland) and/or the Freedom of Information Act, 2000 (United Kingdom) where applicable. All Parties acknowledge that any such statement does not bind the Market Operator, any System Operator or the Regulatory Authorities nor guarantee that any such described information will not be subject to disclosure under Freedom of Information legislation.

#### **DATA PROTECTION**

2.351 Without prejudice to the generality of any other provision of this Code, each Party shall comply with applicable requirements of Data Protection Legislation in respect of any Personal Data which it Processes in the course of its activities in connection with the Code. All Parties shall use their reasonable endeavours to enter into any contract necessary to legitimise the Processing of Personal Data under Data Protection Legislation.

2.352 Each Party ("Indemnifying Party") shall indemnify each other Party and the Regulatory Authorities in respect of any loss or liability howsoever arising incurred by that Party, or the Regulatory Authorities, as appropriate, as a result of a breach of preceding paragraph 2.351 by the Indemnifying Party.

## **NOTICES**

- 2.353 Paragraphs 2.354 to 2.364 apply to Notices which shall, for the avoidance of doubt, include:
1. Default Notices;
  2. Suspension Orders;
  3. Termination Orders;
  4. Notice of Dispute (including Settlement Disputes) and the current status of each;
  5. Notices of Dissatisfaction;
  6. Referral Notices;
  7. notification of Force Majeure;
  8. Notice of revocation of an Intermediary's authority under paragraph 2.111;
  9. Notice of proposed revocation of an Interconnector Administrator's authority under paragraph 2.80;
  10. Notice of resignation of an Interconnector Administrator under paragraph 2.81;
  11. Notice of proposed revocation of the authority of the Participant in respect of an Interconnector Error Unit under paragraph 2.91;
  12. Notice of proposed Deregistration of the Interconnector Error Unit under paragraph 2.92;
  13. Notices required for the purposes of disputes determination procedure as described in detail in Agreed Procedure 14 "Disputes";
  14. Notices required for the purposes of the modifications procedure as described in Agreed Procedure 12 "Modifications Committee Operation".

### **Notice to Other Parties**

- 2.354 Any Notices required to be given for the purposes of the Code shall be given in writing unless otherwise specified in the Code.
- 2.355 Any Notice required to be given in writing, other than a notice listed in paragraph 2.353, or a communication for which a prescribed form is otherwise required in the Code, may also be given by email.
- 2.356 Notices in writing shall be addressed and sent to the receiving Party at the address, fax number or email address specified by the receiving Party for the purposes of the receipt of Notices under the Code or such other address, fax number or email address as the receiving Party may from time to time specify by notice given in writing in accordance with this Section 2 to the Party giving the notice.
- 2.357 Notices shall be marked for the attention of the representative of the receiving Party specified for the purpose of receipt of Notices or such other person as may be notified by the receiving Party to the Sending Party in accordance with the provisions of this Section 2.
- 2.358 Any Notice given by fax or email shall be confirmed by forwarding a copy of the same by pre-paid registered post provided that failure to receive such

confirmation shall not prejudice effective receipt of the notice under the following paragraph 2.359.

- 2.359 Any Notice in writing shall be deemed to have been received:
1. in the case of delivery by hand, when delivered; or
  2. in the case of prepaid post, on the second Working Day following the day of posting or, if sent from another jurisdiction other than Northern Ireland or Ireland, on the fifth Working Day following the day of posting; or
  3. in the case of fax, at 5pm on the Working Day on which the Notice was sent as evidenced by a fax transmission report of the sending Party showing that the Notice has been transmitted; or
  4. in the case of email when the email enters the receiving Party's IT system.
- 2.360 Each Party shall, on registration, specify at least one postal address, fax number, and email address and one representative for the service of Notices in writing and may amend such details by notifying the relevant Market Operator representative in writing.
- 2.361 A Party may specify different addresses (including email addresses) or fax numbers and representatives for the purposes of Notices of different kinds or relating to different matters.

**Notice to the Regulatory Authorities**

- 2.362 Any Notice to the Regulatory Authorities shall be in writing (which for the purposes of this paragraph shall not include email) and shall be addressed:
1. in respect of matters relating to a particular Unit or Participant, to the relevant Regulatory Authority at such address or number and marked for the attention of such person as that Regulatory Authority may publish; and
  2. in respect of other matters, to each Regulatory Authority, or to such single address as may be published by the Regulatory Authorities for the purposes of the joint receipt of notifications under the SEM.
- 2.363 Notices to the Regulatory Authorities shall be effective upon actual receipt.

**Market Operator Notices**

- 2.364 Notices which are required to be published by the Market Operator shall be published on its website within any applicable timeframes set out in this Code.

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## 3. DATA AND INFORMATION SYSTEMS

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### GENERAL

#### Introduction and Interpretation

- 3.1 This Section 3 sets out rules relating to the systems and procedures for the communication of Data Transactions by each Party to the Market Operator and by the Market Operator to one or more Parties and the rules and principles for the publication by the Market Operator of data and information relating to the trading arrangements in the Pool.
- 3.2 A Party (other than the Market Operator) may appoint a Data Processing Entity, in accordance with Agreed Procedure 1 "Participant and Unit Registration and Deregistration", to do any or all of the following tasks for and on behalf of the Party or any of its Participants: (i) to submit Data Transactions; (ii) to raise Data Queries or Settlement Queries; or (iii) to view but not modify Settlement Statements.
- 3.3 The Isolated Market System used by any Data Processing Entity must comply with the requirements set out in the Code and must pass Communication Channel Qualification as described in the relevant provisions of Agreed Procedure 3 "Communication Channel Qualification". A Party shall at all times remain liable for the performance of, and compliance with the Code by, its Data Processing Entity.
- 3.4 An obligation on a Party or Participant (except the Market Operator) in relation to the submission of Data Transactions shall, where that Party has appointed a Data Processing Entity, include an obligation to procure that it shall be done by the relevant Data Processing Entity.
- 3.5 Where the Code requires data forming part of a Data Transaction to be "submitted", it must be submitted in accordance with the applicable rules for submission of Data Transactions as set out in Section 3 and Appendices F to L.
- 3.6 Where the Market Operator is required to "issue", "submit" or "send" data to a Party, unless otherwise specified, the Market Operator may meet this requirement in respect of users of Communication Channels 2 and 3 by making the data available for retrieval by the relevant Party in accordance with timescales specified under this Code. In the event that:
1. no timescale is specified for the issue, submission or sending of data; or
  2. the event or circumstance giving rise to the issue, submission or sending of data is not timetabled; or
  3. the Market Operator has failed to "issue", "submit" or "send" the data, as appropriate, in accordance with the specified timescale;

the Market Operator will meet the requirement in respect of users of Communication Channels 2 and 3 by making the data available for retrieval by the relevant Party and by notifying the Party that the data is available, provided that in relation to the circumstances set out in paragraph 3.6.3, such action shall not meet the timing element of the requirement.

## **DATA COMMUNICATION CHANNELS**

### **Communication Channel Types**

- 3.7 The Market Operator shall establish and maintain three distinct Communication Channels, as more particularly described in Agreed Procedure 3 “Communication Channel Qualification”:
1. Type 1 Channel, meaning manual communication comprising but not limited to paper based communications and fax communications;
  2. Type 2 Channel meaning assisted communication (human to computer);and
  3. Type 3 Channel meaning automated communication (computer to computer).
- 3.8 Each Participant must designate, by Notice to the Market Operator, one or both of the Type 2 Channel and the Type 3 Channel.
- 3.9 Agreed Procedure 4 “Transaction Submission and Validation” sets out the specific rules relating to Data Transactions.

### **Obligation of Parties to Maintain a Functional Interface to the Communication Channels**

- 3.10 A Party or Participant must meet any requirements as specified pursuant to paragraph 2.43.2 to use a Communication Channel.
- 3.11 Subject to paragraph 3.13, a Participant must remain qualified for each Communication Channel which it designates in accordance with Agreed Procedure 3 “Communication Channel Qualification” for the duration of its participation in the Pool.
- 3.12 The Market Operator may temporarily suspend a Participant’s use of a Type 2 Channel or Type 3 Channel, or both, where the Market Operator reasonably determines, as provided for in Agreed Procedure 3 “Communication Channel Qualification”, that the Participant’s communications over that Channel materially fail to meet the standards in Agreed Procedure 3 “Communication Channel Qualification” or Agreed Procedure 5 “Data Storage and IT Security”. In such an event, the Market Operator shall immediately contact the affected Participant to explain the reason for the suspension, and shall take steps with that Participant to resolve the issue.
- 3.13 A Party may apply to change its designated Communication Channel(s) for any of its Participants in accordance with Agreed Procedure 1 “Participant and Unit Registration and Deregistration” and Agreed Procedure 3 “Communication Channel Qualification”, provided that it continues to designate at least one of Type 2 Channel and Type 3 Channel for each Participant. No such change shall take effect without the Market Operator’s prior written consent which shall not be unreasonably withheld or delayed.
- 3.14 The Market Operator shall provide technical and operational advice to Parties in relation to the Communication Channels and the interfaces to those Communication Channels. This is set out in Agreed Procedure 11 “Market System Operation, Testing, Upgrading, and Support”.

**Obligation on Parties to Maintain IT Security**

- 3.15 Parties shall ensure that their interfaces for Type 2 Channels and Type 3 Channels shall comply with the IT security requirements set out or referenced in Agreed Procedure 5 “Data Storage and IT Security”.

**Specific IT Security Obligations on the Market Operator**

- 3.16 The Market Operator shall put in place and maintain procedures for the security of the Market Operator’s entire Isolated Market System in accordance with Agreed Procedure 5 ‘Data Storage and IT Security’.
- 3.17 Notwithstanding the requirements of the Modifications Process, no document required to be published in connection with the process of modifying Agreed Procedure 5 ‘Data Storage and IT Security’ shall contain a level of detail such that its publication could reasonably be expected to compromise the implemented security of the Market Operator’s Isolated Market System.

**Obligation on Parties during Testing and Upgrading of Isolated Market Systems and Communication Channels**

- 3.18 The Market Operator shall co-ordinate and facilitate testing of the Market Operator’s Isolated Market System and the interfaces to Communication Channels as described under Agreed Procedure 11 “Market System Operation, Testing, Upgrading, and Support”.
- 3.19 The Market Operator shall provide reasonable prior notice to all affected Parties of any proposed testing, upgrading or down-time of the Market Operator’s Isolated Market System or the Communication Channels.
- 3.20 The Market Operator shall, where practicable, schedule testing, upgrading, or down-time of the Market Operator’s Isolated Market System or the Communication Channels in consultation with Parties under Agreed Procedure 11 “Market System Operation, Testing, Upgrading, and Support”. The Market Operator will endeavour to reasonably minimise the impact of the testing or down-time of the Market Operator’s Isolated Market System on Parties.
- 3.20A The Market Operator shall ensure that the scheduled testing or down-time will not preclude Settlement and will not preclude Commercial Offer Data and Technical Offer Data being submitted before Gate Closure for any Trading Day.
- 3.21 Notwithstanding paragraph 3.20, scheduled Market Operator Isolated Market System down-time will not constitute failure by the Market Operator to fulfil its obligations under the Code where:
1. the down-time is of reasonable duration; and
  2. the procedure of notification under paragraph 3.19 was followed by the Market Operator.
- 3.22 All Parties shall facilitate the co-ordination of testing and upgrading of the Communication Channels and the Market Operator’s Isolated Market System as and when requested by the Market Operator in connection with a proposed event of which notice has been given pursuant to paragraph 3.19.
- 3.23 Any Party proposing to undertake any testing or upgrading work which may impact on the interfaces of the Market Operator or other Party’s Isolated Market Systems shall inform the Market Operator of this in advance. The

Market Operator shall be entitled to issue instructions in relation to the undertaking of any such work for the purposes of the proper operation of the Pool, and the Party concerned shall comply with such instructions. Each Party shall ensure that any testing or upgrading of its own Isolated Market System is undertaken at a time and in a manner so as to minimise any adverse effect for any other Party's Isolated Market System or the use by any other Party of any Communication Channel.

**Data categories and Data Transactions**

- 3.24 The requirements and procedures relating to Data Transactions are more particularly described in Appendices F to L and Agreed Procedure 4 "Transaction Submission and Validation".
- 3.25 For each Data Transaction, the Sending Party, other than the System Operators, Meter Data Providers and any Interconnector Administrator, may assign it an identifier in accordance with Agreed Procedure 4 "Transaction Submission and Validation" that shall be stored by the Receiving Party to assist the Sending Party in identifying the Data Transaction.
- 3.26 For each Data Transaction or group of Data Transactions in a single communication for which the Market Operator is the Receiving Party, it shall assign it a unique identifier in accordance with Agreed Procedure 4 "Transaction Submission and Validation" and shall store such identifier to enable it to uniquely identify the Data Transaction.
- 3.27 In the event that a Data Transaction is wrong or defective, the Sending Party shall, after becoming aware of the error or defect, re-submit that Data Transaction within any applicable timelines.
- 3.28 On request by a Sending Party, the Market Operator shall, within the timelines provided for pursuant to Agreed Procedure 4 "Transaction Submission and Validation", identify, or shall facilitate identification by that Sending Party of, the Accepted data for that Party or any of its Units, for any particular Trading Period.

**SUBMISSION, VALIDATION AND REJECTION OF CENTRAL MARKET SYSTEM DATA**

- 3.29 Parties and Participants shall, where applicable, submit Central Market System (CMS) Data Transactions in accordance with the Code.
- 3.30 Subject to paragraphs 3.52 to 3.70 (concerning communication failures and system failures), the Sending Party shall send a CMS Data Transaction using either the Type 2 Channel or Type 3 Channel, and all System Operators, Meter Data Providers and Interconnector Administrators shall use Type 3 Channels.
- 3.31 A CMS Data Transaction shall be deemed to be received by the Market Operator when it enters the Market Operator's Isolated Market System via a valid, functioning Type 2 Channel or Type 3 Channel, or if sent by another means as permitted under paragraphs 3.52 to 3.70, when deemed received in accordance with paragraph 2.359 and has completed initial validation checks that ensure that the Market Operator's Isolated Market System can receive the data as specified in Agreed Procedure 4 "Transaction Submission and Validation".
- 3.32 On receipt of a CMS Data Transaction, the Market Operator shall send a Confirmation Notice to the Sending Party using the same Communication



Channel as used by the Sending Party. The Confirmation Notice shall contain a time stamp and sufficient information to enable the Sending Party to identify the Data Transaction to which it relates.

- 3.33 If the Sending Party does not receive a Confirmation Notice within the relevant timescale set out in Agreed Procedure 4 “Transaction Submission and Validation”, then:
1. for CMS Data Transactions in Appendix I “Offer Data”, the Sending Party may, but shall not be obliged to, contact the Market Operator by calling the Market Operator helpdesk as described subject to Agreed Procedure 7 “Emergency Communications”; or
  2. for CMS Data Transactions in Appendix J “Market Operator and System Operator Data Transactions” or Appendix L “Meter Data Transactions”, the Sending Party must contact the Market Operator by calling the Market Operator helpdesk as described in Agreed Procedure 7 “Emergency Communications”,

in order to establish whether or not its CMS Data Transaction has been received.

- 3.34 The Market Operator shall be under no obligation to pursue any Party that has not submitted any particular CMS Data Transaction and shall have no liability in respect of any CMS Data Transaction which it has not received under paragraph 3.31, or which contains defective or incorrect data.
- 3.35 The Market Operator shall, in respect of each CMS Data Transaction received by it prior to the deadlines set out in Appendix I “Offer Data”, Appendix K “Market Data Transactions” and Appendix L “Meter Data Transactions” (as applicable), process the CMS Data Transaction to determine whether it is valid in accordance with Agreed Procedure 4 “Transaction Submission and Validation”. The Market Operator shall determine a CMS Data Transaction to be valid if the conditions set out in Agreed Procedure 4 “Transaction Submission and Validation” are satisfied in respect of that CMS Data Transaction and shall reject the CMS Data Transaction if such conditions are not so satisfied.
- 3.36 Following the processing of a CMS Data Transaction under paragraph 3.35, the Market Operator shall send a Validation Notice or a Rejection Notice to the Sending Party using the same Communication Channel as that used by the Sending Party to send the Data Transaction and in accordance with Agreed Procedure 4 “Transaction Submission and Validation”. The Market Operator shall specify in any Rejection Notice the reasons for the Rejection.
- 3.37 The Market Operator may send both a Confirmation Notice and a Validation Notice or Rejection Notice in respect of a CMS Data Transaction in a single communication provided that it satisfies the timelines provided for pursuant to Agreed Procedure 4 “Transaction Submission and Validation” for the issue of each of the Confirmation Notice and the Validation Notice or Rejection Notice.
- 3.38 If a Meter Data Provider or a System Operator does not receive confirmation of the receipt of a Data Transaction within the timeline provided for pursuant to Agreed Procedure 4 “Transaction Submission and Validation” then it must contact the Market Operator by calling the Market Operator helpdesk as described in Agreed Procedure 7 “Emergency Communications”.
- 3.39 Save as expressly provided otherwise, for each Participant, Unit and Trading Period, and each relevant category of CMS Data Transaction, the Market

Operator shall be obliged to use, for all purposes set out in the Code, only the most recently received CMS Data Transaction of that category that has been Validated.

- 3.40 The Market Operator shall use a CMS Data Transaction as required by paragraph 3.39 regardless of whether or not it has issued a Confirmation Notice or Validation Notice to the Sending Party in respect of that CMS Data Transaction, or whether that CMS Data Transaction was Validated prior to or following Gate Closure for the relevant Trading Day.
- 3.41 Where two or more Data Transactions are received contemporaneously, the Market Operator may use the procedures provided for in Agreed Procedure 4 “Transaction Submission and Validation” to determine the deemed order of receipt of the Data Transactions.
- 3.42 Notwithstanding paragraph 3.39, the Market Operator shall not use, for any purpose set out in the Code, any CMS Data Transaction specified in Appendix I “Offer Data” that is received by the Market Operator after Gate Closure for the Trading Day to which such CMS Data Transaction relates.

## **CMS DATA TRANSACTION DEFAULT OFFER PROCESSES AND MARKET PROCEDURES**

### **Updating and Use of Default Data**

- 3.43 Each Participant that is required to submit Default Data shall review its submitted Default Data at least once per quarter, and update it as necessary to seek to ensure that the Default Data for each of the Participant’s Units continues to comply with the requirements set out in the Code for Technical Offer Data and Commercial Offer Data as appropriate.
- 3.44 In accordance with Agreed Procedure 4 “Transaction Submission and Validation”, and with the exception of paragraph 5.57, if for a particular Participant, Unit and Trading Day in relation to any one of the CMS Data Transactions listed in Appendix I “Offer Data”:
1. no CMS Data Transaction has been received by the Market Operator by Gate Closure for that Trading Day, or, in the event of a Limited Communications Failure, General Communication Failure or General System Failure, such later time as permitted under Agreed Procedure 7 “Emergency Communications”; or
  2. none of the CMS Data Transactions received prior to Gate Closure for that Trading Day, or, in the event of a Limited Communication Failure, General Communication Failure or General System Failure, such later time as permitted under Agreed Procedure 7 “Emergency Communications”, meets the requirements to be Validated by the Market Operator,

then the Market Operator shall use the relevant Default Data for all purposes set out in the Code in respect of that Participant, Unit, Trading Day and CMS Data Transaction.

### **Market Operator Queries of Submitted Validated Data**

- 3.45 The Market Operator may at any time query Commercial Offer Data or Technical Offer Data (such data to be referred to as “Queried Data” for the purposes of this paragraph 3.45) it has received from a Party if the Data Record and field-level values in that CMS Data Transaction appear,

pursuant to Prudent Electric Utility Practice to be materially incorrect, or the Market Operator reasonably expects that such values as submitted will cause the MSP Software to fail to solve. This discretion of the Market Operator does not in any way diminish the obligations of each Party under paragraph 2.130.4.

**System Operator Market Data Transactions, Interconnector, Administrator Market Data Transactions and Meter Data Transactions**

3.46 The Market Operator shall not estimate or substitute System Operator Market Data Transactions, Interconnector Administrator Market Data Transactions or Meter Data Transactions except as required when Administered Settlement is in effect.

3.47 If for a particular Trading Period, in relation to any one of the CMS Data Transactions listed in Appendix J “Market Operator and System Operator Data Transactions” or Appendix L “Meter Data Transactions” either:

1. no such Data Transaction has been received by the Market Operator before the applicable deadline; or
2. none of the Data Transactions received prior to the applicable deadline meets the requirements to be Validated by the Market Operator,

then, all calculation and processing by the Market Operator to which the relevant data relates shall be deferred until the valid data is provided to and accepted by the Market Operator, unless Administered Settlement is in effect.

3.48 When processing is deferred in accordance with paragraph 3.47, the obligations of the Market Operator in respect of any consequential Data Transactions and publication shall also be deferred.

3.49 Notwithstanding paragraphs 3.47 and 3.48, the Market Operator shall use prudent practice to continue any provisions of the Code that it deems appropriate to avoid further delays.

3.50 In the event that a circumstance of the type set out in paragraph 3.47.1 arises due to a communications failure or any error affecting the System Operator, Interconnector Administrator, or Meter Data Provider outside of the Market Operator’s Isolated Market System, the System Operator, Interconnector Administrator or Meter Data Provider will comply with Agreed Procedure 7 “Emergency Communications” to submit the required Data Transaction to the Market Operator within one day of the specified submission deadline in the Code.

3.51 Following the occurrence of the circumstances described in paragraph 3.47, the Market Operator shall, once the necessary data has been received, take steps to undertake all the necessary deferred processing as rapidly as reasonably possible and shall promptly inform all Parties of the changes to the Settlement Calendar that will result.

**COMMUNICATION AND SYSTEM FAILURES**

3.52 As soon as is practicable following any General Communication Failure, General System Failure, or MSP Failure, the Market Operator shall take all practicable measures to maintain and, where necessary, restore its Isolated Market System and the Communication Channels under its control.

- 3.53 Agreed Procedure 7 “Emergency Communications” sets out the methods of communication to be used for Data Transactions, and any permitted derogations from the required timelines for submission of Data Transactions, which shall apply during a Limited Communication Failure, a General Communication Failure or a General System Failure.

**Limited Communication Failure**

- 3.54 As soon as a Participant becomes aware, or should have become, aware of the commencement of a Limited Communication Failure, that Participant shall notify the Market Operator of the Limited Communication Failure using another valid means of communication, other than the failed Communication Channel(s), as provided for pursuant to Agreed Procedure 7 “Emergency Communications”.
- 3.55 During the Limited Communication Failure, the affected Participant shall use the methods of communication, other than the failed Communication Channel(s), as provided for pursuant to Agreed Procedure 7 “Emergency Communications”.
- 3.56 A Limited Communications Failure shall not affect the obligations of any Party to submit data.
- 3.57 No Party or Participants shall be entitled to reimbursement of costs or expenses incurred in connection with using alternative communication methods during a Limited Communication Failure.

**General Communication Failure**

- 3.58 When the Market Operator becomes, or should reasonably have become, aware of a General Communication Failure, the Market Operator shall inform Parties of the General Communication Failure using the methods of communication provided for pursuant to Agreed Procedure 7 “Emergency Communications”.
- 3.59 During a General Communication Failure, Parties and Participants shall use the methods of communication provided for pursuant to Agreed Procedure 7 “Emergency Communications” until the General Communication Failure ceases.
- 3.60 Notwithstanding paragraph 3.52, in the event of a General Communication Failure, the Market Operator shall act prudently and reasonably to prioritise Data Transactions necessary for the calculation of System Marginal Prices, Market Schedule Quantities, Trading Charges, Trading Payments, and Settlement in the event that some of its obligations under the Code cannot be reasonably fulfilled due to the nature of the General Communication Failure.
- 3.61 No Party or Participant shall be entitled to reimbursement of costs or expenses incurred in connection with using alternative communication methods in case of a General Communication Failure.

**General System Failure**

- 3.62 When the Market Operator becomes aware, or should reasonably have become, aware of a General System Failure, the Market Operator shall inform Parties of the General System Failure using the methods of communication provided for pursuant to Agreed Procedure 7 “Emergency Communications”.

- 3.63 During a General System Failure, Parties shall use the methods of communication provided for pursuant to Agreed Procedure 7 “Emergency Communications” until the General System Failure ceases.
- 3.64 During a General System Failure, all calculation by the Market Operator of Trading Charges and Trading Payments and Settlement relating to Trading Days, or Settlement Days as appropriate, for which the necessary data cannot be accessed or processed shall be deferred, unless Administered Settlement is in effect. The Market Operator may continue processing to the extent possible in respect of any Trading Periods for which all data as required by the Code is available.
- 3.65 In the event of a General System Failure, the Market Operator must restore the Market Operator’s Isolated Market System to working order according to the timelines and standards provided for pursuant to Agreed Procedure 11 “Market System Operation, Testing, Upgrading, and Support”.
- 3.66 Following the restoration of the Market Operator’s Isolated Market System, the Market Operator shall recommence processing and restore its operation to normal timescales as soon as reasonably possible and shall promptly inform all Parties of the changes to the Settlement Calendar that will result.
- 3.67 No Party or Participant shall be entitled to reimbursement of costs or expenses incurred in connection with using alternative communication methods in case of a General System Failure.

**Reporting of General Communication Failures, General System Failures and MSP Failures**

- 3.68 The Market Operator shall commission an externally audited report in accordance with the timelines provided for pursuant to Agreed Procedure 11 “Market System Operation, Testing, Upgrading, and Support” in the event of any General Communication Failure, General System Failure or MSP Failure where such failure materially affects Participants. The purpose of any such report is to investigate and identify the cause of the failure and to assess the resulting response to that failure of all Parties. The Market Operator shall provide the report to the Regulatory Authorities.
- 3.69 During any General Communication Failure, General System Failure or MSP Failure, the Market Operator will keep Parties updated of the best estimate of when the Market Operator’s Isolated Market System will be operational again following the General Communication Failure, General System Failure, or MSP Failure, as provided for pursuant to Agreed Procedure 7 “Emergency Communications”.
- 3.70 Unless indicated otherwise by the Market Operator, a General Communication Failure, General System Failure or MSP Failure shall not affect the obligations of any Party to submit data. As soon as a Party becomes, or should have become, aware of any such failure, that Party shall use another valid means of communication other than the failed Communication Channel(s) as provided for pursuant to Agreed Procedure 7 “Emergency Communications”.

**METER DATA REQUIREMENTS**

- 3.71 Each Meter Data Provider shall provide such meter registration identification, estimation, substitution, aggregation, communication and storage services as are provided for in the Metering Code or Grid Code (as applicable) for the installed meters of categories of electricity generating

- units and electricity consuming units identified under Appendix L “Meter Data Transactions”.
- 3.72 Each Meter Data Provider shall submit to the Market Operator the Data Transactions defined in Appendix L “Meter Data Transactions” in accordance with the timelines provided for in Agreed Procedure 16 “Provision of Metered Data” to the standards specified in the Metering Code or Grid Code as applicable.
- 3.73 A Party (or Applicant as applicable) who applies to register a Generator Unit requesting, or whose Generator Unit is registered with, a Unit Classification other than Autonomous Generator Unit must have appropriate equipment installed at the relevant Generator to permit real-time monitoring of the Output of that Generator.
- 3.74 Each Party that registers a Generator Unit must have Interval Metering installed by the Meter Data Provider responsible for installing, commissioning and maintaining such meters at the Generator to meter Active Power Generation. Such Interval Metering shall be to a standard sufficient to allow polling of that Meter by the responsible Meter Data Provider for provision of data to the Market Operator as identified under Appendix L “Meter Data Transactions”.
- 3.75 All Active Power Demand aggregated by a Meter Data Provider into Trading Site Supplier Unit or an Associated Supplier Unit for a Trading Site that contains a Generator Unit with Non-Firm Access must have Interval Metering installed by the Meter Data Provider responsible for installing, commissioning and maintaining such meters. Such Interval Metering shall be to a standard sufficient to allow polling of that Meter by the responsible Meter Data Provider for provision of data to the Market Operator as identified under Appendix L “Meter Data Transactions”.
- 3.76 All Active Power Demand or Active Power Generation aggregated by a Meter Data Provider to any other Supplier Units not listed in paragraph 3.75 may utilise standard consumption profiles to derive half-hourly metered values in place of Interval Metering.
- 3.77 During the registration process described in Agreed Procedure 1 “Participant and Unit Registration and Deregistration”, the Meter Data Provider or the System Operator as appropriate, shall inform the Market Operator if a Unit does not fulfil its metering or operational requirements for the Unit Classification requested by the relevant Party.
- 3.78 If a Party does not have adequate metering installed in respect of any of its Units under paragraph 3.74 or 3.75 or appropriate equipment to permit real-time monitoring of Generator Unit availability by the System Operator under paragraph 3.73 to facilitate Settlement under the rules of the Code without further netting, aggregation or estimation rules, the Meter Data Provider shall determine, subject to accuracy, practicality and cost, in consultation with the affected Party, and subject to the prior written approval of the Regulatory Authorities, the appropriate bespoke netting, aggregation, or estimation rules to allow for Settlement of that Unit under the Code.
- 3.79 Where such netting, aggregation and estimation rules as provided for under paragraph 3.78 are determined by the Regulatory Authorities to be inaccurate or impractical following any information and advice provided by the Meter Data Provider, the Regulatory Authorities may require the Participant (or Applicant, as applicable) to adjust the form of registration of that Generator Unit or Trading Site until the appropriate metering equipment

or equipment to permit real-time monitoring of Generator Unit availability under paragraph 3.73 is installed in accordance with such timeframes as are provided for in the Metering Code or Grid Code as applicable.

- 3.80 The Meter Data Providers, System Operators and Interconnector Administrators shall facilitate the timely resolution of any relevant Data Query, Settlement Query, or Dispute raised under the Code, so that data shall comply with standards specified in the relevant Metering Code or Grid Code as applicable.
- 3.81 Parties that have registered Units must facilitate Meter Data Providers in fulfilling such obligations regarding the installation, commissioning, calibration, maintenance, testing, inspection, security, repair, reading of and access to meter equipment as are provided for in the relevant Metering Code or Grid Code as applicable.
- 3.82 Meter Data Providers are required to submit to the Market Operator, the Data Transactions as described in Agreed Procedure 1 “Participant and Unit Registration and Deregistration”.

### **DATA PUBLICATION**

- 3.83 Where the Market Operator is required to publish information under the Code, the Market Operator shall publish the information in accordance with paragraphs 1.7.15 and 1.7.16 and as provided for pursuant to Agreed Procedure 6 “Data Publication and Data Reporting”. Agreed Procedure 6 “Data Publication and Data Reporting” sets out details of the procedures for publication of data by the Market Operator under the Code.

### **Items and Data Record Publication**

- 3.84 The Market Operator shall publish any Data Records required to be published pursuant to Appendix E “Data Publication” in accordance with the timelines set out in Appendix E “Data Publication”.
- 3.85 The Market Operator shall not publish any Confidential Information except as otherwise expressly provided for in the Code.

### **Forecast Publication Rationale**

- 3.86 The Market Operator shall publish Load Forecasts and Wind Power Unit Forecasts and the assumptions behind the production of those forecasts using the data most recently submitted by the System Operators to the Market Operator at the time of publication.
- 3.87 The Market Operator shall publish forecasts of Loss of Load Probability in accordance with the timelines provided for pursuant to Agreed Procedure 6 “Data Publication and Data Reporting” using the data submitted to it by the System Operator.

### **Updating Publications**

- 3.88 Where the Market Operator has published data and such data is updated prior to its use in any calculation performed by the Market Operator, then, subject to any contrary provision of the Code, the Market Operator shall publish the updated data in accordance with Appendix E “Data Publication” and Agreed Procedure 6 “Data Publication and Data Reporting”.

## **NUMERICAL ROUNDING OF CALCULATIONS AND PUBLICATIONS**

- 3.89 The Market Operator shall use consistent numerical rounding of all published quantities in accordance with the following rules:
1. all energy variables will be expressed in MWh to three decimal places;
  2. all power variables will be expressed in MW to three decimal places;
  3. all Currency variables (excluding exchange rates) will be expressed in euro or in pounds sterling as appropriate, and to two decimal places;
  4. all parameters, ratios, factors, discounts, premiums, currency exchange rates, rates, and proportions used in calculations shall be published to the same number of decimal places as that used in calculations; and
  5. for the purpose of calculations, the following time variables will be used: Trading Period, Trading Day, Settlement Day, Billing Period, week, Capacity Period, month, or year as appropriate.
  6. within a Trading Period, time shall be expressed to the nearest second; and
  7. for clarity, all time periods start on the hour or half hour.
- 3.90 Without prejudice to paragraph 3.89, the Market Operator shall not round any variable, quantity, parameter, volume, ratio, factor, discount, premium, rate, or proportion during calculation other than that automatically arising from the limitations of its IT systems.
- 3.91 The level of computational precision and the method of computational rounding that shall be employed by the Market Operator's IT systems are set out in more detail in Agreed Procedure 5, "Data Storage and IT Security".

### **Obligation on the Market Operator to Retain Market Data**

- 3.92 The Market Operator shall, in relation to each Trading Day, store, for the period of six years commencing on that Trading Day, at least one copy of all Data Transactions and Accepted data in a safe and secure environment and in a form which shall enable re-calculation or reproduction of any Settlement Statement by the Isolated Market System.

### **Obligation on the Market Operator to Maintain Market Re-Run Facilities**

- 3.93 The Market Operator shall, in relation to each Settlement Day, maintain, for the period of two years commencing on that Settlement Day, the ability to perform a Settlement Rerun for that Settlement Day.
- 3.94 The Market Operator shall, in relation to each Settlement, maintain, for the period of six years (or such longer period as shall be necessary to comply with the requirements of the relevant Revenue Authority) commencing on the date of that Settlement, the ability to manually perform any Resettlement required as a result of a decision of a Dispute Resolution Board or of any other Competent Authority, using SMP prices as determined by the Dispute Resolution Board or the relevant Competent Authority.



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## 4. PRICING

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- 4.1 Section 4 sets out the market rules on pricing relating to Generator Units and Supplier Units. Specific rules relating to pricing for Special Units which apply in addition to, or where appropriate, in place of the rules set out in this Section 4, are set out in Section 5: Categorisation of Units and Rules for Special Units.
- 4.2 Within this Code, payments or charges may be either positive or negative in accordance with their calculated value except where otherwise stated.
- 4.3 Intentionally blank.

### **OFFER STRUCTURES**

#### **Commercial and Technical Offer Data**

- 4.4 A Participant shall submit Commercial Offer Data and Technical Offer Data for each Trading Day for each Generator Unit registered to that Participant as specified within this Code and in accordance with Appendix I "Offer Data". Any such submitted Commercial Offer Data and Technical Offer Data shall be submitted prior to Gate Closure for the Trading Day to which the data relates. Where Commercial Offer Data or Technical Offer Data are not submitted or, where such data are submitted and are not Accepted, then Default Data shall apply for the relevant Trading Day in accordance with paragraph 3.44.
- 4.5 Each set of Commercial Offer Data and Technical Offer Data shall apply in respect of the relevant Generator Unit as set out in this Section 4 and in Appendix N "Operation of the MSP Software". Exceptions in relation to Technical Offer Data and Commercial Offer Data are as set out in Section 5.
- 4.6 Appendix N "Operation of the MSP Software" sets out detailed provisions for data inputs for each of the MSP Software Run Types, and of the values used in Ex-Post Indicative Settlement where these differ from those used in Initial Settlement and are not otherwise stated, whether in this Section 4 or in Section 5.

#### **Commercial Offer Data**

- 4.7 The required Data Records which must be included in the Commercial Offer Data are listed in Appendix I "Offer Data".
- 4.8 Where any Participant submits any value for a monetary sum as part of the Commercial Offer Data for a Generator Unit, it shall express such sum in the Currency that is relevant to the Currency Zone in which the Generator Unit is registered, provided that where such value is in pounds sterling, the Market Operator shall, for the purposes of all calculations within Sections 4 or 5 within this Code, convert the value to euro in accordance with paragraph 6.10.
- 4.9 All data items submitted as part of Commercial Offer Data are deemed to apply to levels of Output which are net of Unit Load.
- 4.10 A Participant submitting Commercial Offer Data in respect of a Generator Unit  $u$  shall include a minimum of one and a maximum of ten Price Quantity Pairs, each comprising a Price ( $P_{ui}$ ) and a Quantity ( $Q_{ui}$ ), where  $i$  is the index of that Price Quantity Pair.

- 4.11 Each Price (P<sub>uh</sub>) can be either positive or negative but cannot exceed the Market Price Cap (PCAP) or be lower than the Market Price Floor (PFLOOR).
- 4.12 The Regulatory Authorities shall determine the Market Price Cap (PCAP) and the Market Price Floor (PFLOOR) from time to time. The Market Operator shall publish the approved values within 5 Working Days of receipt of the Regulatory Authorities' determination or four months before the start of the Year or other period to which the values are intended to apply, whichever is the later.
- 4.13 Each Participant shall, in respect of data submitted in respect of its Generating Units, ensure that the Price Quantity Pairs for each Generator Unit *u* in Trading Period *h* shall be ranked in order of increasing Price Quantity Pair index *i*, and these Prices and Quantities shall each be strictly monotonically increasing and there may not be more than one Price (P<sub>uh</sub>) for the same Quantity (Q<sub>uh</sub>). These relationships are expressed algebraically as follows:
1.  $P_{uh(i+1)} > P_{uh}$  for each *i* in the range  $1 \leq i \leq 9$
  2.  $Q_{uh(i+1)} > Q_{uh}$  for each *i* in the range  $1 \leq i \leq 9$
- 4.14 The Market Operator shall procure that, should any Accepted Quantity (Q<sub>uh</sub>) exceed the Actual Availability (AA<sub>uh</sub>) of the Generator Unit in any Trading Period, the MSP Software will exclude, for that Trading Period, those Price Quantity Pairs which apply entirely to Quantities (Q<sub>uh</sub>) in excess of the Actual Availability (AA<sub>uh</sub>). After any such exclusions, should the greatest remaining Quantity (Q<sub>uh</sub>) be less than the Actual Availability (AA<sub>uh</sub>), then, for the purposes of the MSP Software, the Market Operator shall procure that the Actual Availability (AA<sub>uh</sub>) shall be used in place of the greatest remaining Quantity (Q<sub>uh</sub>).
- 4.15 The Market Operator shall procure that, should any Quantity (Q<sub>uh</sub>) be less than the Minimum Output (MINOUT<sub>uh</sub>) in any Trading Period, the MSP Software shall exclude the Price Quantity Pairs which apply entirely to Quantities less than the Minimum Output (MINOUT<sub>uh</sub>).
- 4.16 The Market Operator shall procure that the Price that shall apply at each level of Output for the calculation of MSP Production Cost, Schedule Production Cost or Dispatch Production Cost, shall be determined as follows:
1. for levels of Output less than or equal to Quantity Q<sub>uh1</sub>, Price P<sub>uh1</sub> applies; and
  2. for levels of Output greater than Quantity Q<sub>uh(i-1)</sub> where  $i > 1$  and less than or equal to Quantity Q<sub>uh</sub>, Price (P<sub>uh</sub>) applies.
- 4.17 Each Participant shall ensure that the Commercial Offer Data submitted in respect of each of its Generator Units shall include one No Load Cost which is applicable to all Trading Periods in the Trading Day. The Accepted No Load Cost shall be treated as that element of operating cost, expressed as an hourly cost, that is invariant with the level of Output and incurred at all times when the level of Output is greater than zero.
- 4.18 Commercial Offer Data so submitted shall include a minimum of one and a maximum of three Start Up Costs which are applicable to each Trading Period in the Trading Day.

- 4.19 Each Cold Start Up Cost shall be greater than or equal to the relevant Warm Start Up Cost, and each Warm Start Up Cost shall be greater than or equal to the relevant Hot Start Up Cost.
- 4.20 Each Participant shall ensure that the Technical Offer Data submitted in respect of each of its Generator Units shall include a Hot Cooling Boundary and a Warm Cooling Boundary, each of which is applicable to each Trading Period in the Trading Day and such that the Warm Cooling Boundary shall be greater than or equal to the Hot Cooling Boundary.
- 4.21 The Market Operator shall procure that, in the event that Commercial Offer Data comprises only a single Start Up Cost, then this value will be used as the Hot Start Up Cost, the Warm Start Up Cost and the Cold Start Up Cost.
- 4.22 The Market Operator shall procure that, in the event that Commercial Offer Data comprises only a Cold Start Up Cost and a Hot Start Up Cost, then the value of the Cold Start Up Cost will be also used as the Warm Start Up Cost.
- 4.23 The Market Operator shall procure that, in the event that Commercial Offer Data comprises only a Cold Start Up Cost and a Warm Start Up Cost, then the value of the Warm Start Up Cost will also be used as the Hot Start Up Cost.
- 4.24 The Market Operator shall procure that, in the event that Commercial Offer Data comprises only a Warm Start Up Cost and a Hot Start Up Cost, then the value of the Warm Start Up Cost will also be used as the Cold Start Up Cost.

***Technical Offer Data***

- 4.25 The required Data Records which must be included in the Technical Offer Data are set out in Appendix I "Offer Data".
- 4.26 Each Participant shall use reasonable endeavours to ensure that all data items submitted as part of Technical Offer Data in respect of each of its Generator Units are accurate and reflect the real capabilities of the relevant Generator Unit at the point where the Unit is Connected, net of Unit Load and with due regard for the impact of forecast ambient conditions on that Generator Unit.
- 4.27 Each Participant shall use reasonable endeavours to ensure that Technical Offer Data (including Default Data) submitted in respect of each of its Generator Units shall be consistent with data which is submitted under the applicable Grid Code in respect of the relevant Unit, provided that Technical Offer Data submitted under this Code must be net of Unit Load and shall first, where appropriate, have been scaled by the appropriate Distribution Loss Adjustment Factor.
- 4.28 Each Participant shall ensure that the Forecast Availability Profile submitted in respect of each of its Generator Units shall contain the Participant's forecast of average level of Availability, in MW, for the Generator Unit for each Trading Period in the Optimisation Time Horizon. The forecast Availability values can be positive (including zero), but cannot be negative.
- 4.29 Similarly, the Forecast Minimum Output Profile shall contain the Participant's forecast of the average level of Minimum Output, in MW, for the Generator Unit for each Trading Period in the Optimisation Time Horizon. The forecast Minimum Output values must be zero except as otherwise specified in Section 5.

- 4.30 Further, the Forecast Minimum Stable Generation Profile shall contain the Participant's forecast of the average level of Minimum Stable Generation, in MW, for the Generator Unit for each Trading Period in the Optimisation Time Horizon. The forecast Minimum Stable Generation values can be positive (including zero) but cannot be negative.

#### **PROVISION OF FORECAST DATA BY THE SYSTEM OPERATORS**

- 4.31 Each System Operator shall submit to the Market Operator the following forecast values pertaining to its Jurisdiction in accordance with Appendix K "Market Data Transactions":
1. Annual Load Forecast;
  2. Monthly Load Forecast;
  3. Four Day Load Forecast; and
  4. Wind Power Unit Forecast.
- 4.32 The Market Operator shall calculate values of Forecast Demand (FD<sub>h</sub>) for each Trading Period h within the relevant Year as the sum of the submitted values of the Annual Load Forecast for each Jurisdiction within 5 Working Days of receipt of the Annual Load Forecast Data from every System Operator.

#### **Net Output Function**

- 4.33 Each System Operator, each Meter Data Provider and each Participant shall provide all values expressed in MW, MW/min or MWh that are used in the MSP Software or in Settlement or referred to in Sections 4, 5 or 6 of the Code, net of Unit Load.
- 4.34 The Net Output Function is a linear transformation that shall be used by each System Operator to convert values relating to Gross Output to values that are net of Unit Load.
- 4.35 The Net Output Function and its application are set out below. If X<sub>Gu</sub> is a quantity gross of Unit Load at the relevant time, then X<sub>Nu</sub> is the quantity net of Unit Load, pertaining to a Generator Unit u at that time, calculated as follows:

$$X_{Nu} = ULSu \times X_{Gu} - FULu$$

Where

1. FUL<sub>u</sub> is the Fixed Unit Load for Generator Unit u for the relevant time;
  2. ULS<sub>u</sub> is the Unit Load Scalar for Generator Unit u for the relevant time.
- 4.36 Each System Operator shall ensure that, with the exception of Pumped Storage Units, Interconnector Units, Interconnector Residual Capacity Units, Netting Generator Units and Interconnector Error Units, the results of applying the Net Output Function shall be positive (including zero) and shall be set to zero if negative.
- 4.37 Each Participant shall register the values of Fixed Unit Load (FUL<sub>u</sub>) and Unit Load Scalar (ULS<sub>u</sub>) in respect of each of its Generator Units in accordance with Appendix H "Participant and Unit Registration and Deregistration" as part of Unit Registration, such that FUL<sub>u</sub> ≥ 0 and 0 ≤ ULS<sub>u</sub> ≤ 1.

- 4.38 The relevant System Operator shall convert the following values using the Net Output Function to represent values net of Unit Load:
1. Outturn Availability;
  2. Outturn Minimum Output;
  3. Outturn Minimum Stable Generation; and
  4. Dispatch Instructions.

#### **TRADING BOUNDARY AND TREATMENT OF LOSSES**

- 4.39 All trading under the Code is deemed to take place at the Trading Boundary. Notwithstanding any provisions in relation to VAT as agreed with the Revenue Authorities, each Participant with Units delivering energy (or, in the case of Demand Side Units, a reduction of demand) to the Pool is deemed to be selling to all Participants with Units taking energy from the Pool and each Participant with Units taking energy from the Pool is deemed to be buying from all Participants with Units delivering energy to the Pool.
- 4.40 In submitting data relating to any Generator Unit or Supplier Unit that is Distribution Connected, the System Operators, Meter Data Providers and Participants shall provide that all values expressed in MW, MW/min or MWh and that are intended to be used in the MSP Software or in Settlement or referred to in Sections 4, 5 or 6 of the Code shall first have been scaled by the appropriate Distribution Loss Adjustment Factor.
- 4.41 At least four months before the start of each Year, each System Operator shall submit to the Regulatory Authorities a set of Transmission Loss Adjustment Factors for each Generator Unit (other than Demand Side Units) that is Connected within its Jurisdiction calculated in co-operation with the System Operator in the other Jurisdiction and in accordance with the statutory and Licence requirements pertaining within its Jurisdiction, for each Trading Period in the Year.
- 4.42 At least two months before the start of each Year each System Operator shall provide to the Market Operator in accordance with Appendix K "Market Data Transactions" the System Parameters Data Transaction which shall comprise a complete set of Transmission Loss Adjustment Factors for each Generator Unit (other than Demand Side Units) Connected within its Jurisdiction for each Trading Period in that Year in accordance with those prepared and submitted to the Regulatory Authorities under paragraph 4.41.
- 4.43 The Market Operator shall publish the approved Transmission Loss Adjustment Factor value(s) within 5 Working Days of receipt of the System Parameters Data Transaction.
- 4.44 The Transmission Loss Adjustment Factor (TLAF<sub>vh</sub>) shall be equal to 1 for each Supplier Unit v.
- 4.45 Within this Code, the term 'Loss-Adjusted' applied to any variable, or the inclusion of letters 'LF' at the end of any variable term denotes that a value is to be calculated at the Trading Boundary, through application of the relevant Transmission Loss Adjustment Factor as set out in Section 4, Section 5 and Section 6 of this Code.
- 4.46 Except for Loss-Adjusted Capacity Payments Eligible Availability (CPEALF<sub>uh</sub>) which are calculated in accordance with paragraph 4.111, then any variable which relates to a Generator Unit u in a Trading Period h, where XXX<sub>uh</sub> is the variable before application of Transmission Losses, and

XXXLFuh is the variable after application of Transmission Losses, shall be calculated as follows:

$$\text{XXXLFuh} = \text{XXXuh} \times \text{TAFuh}$$

Where

1. TAFuh is the Transmission Loss Adjustment Factor for Generator Unit u in Trading Period h.

- 4.47 Except for Error Supplier Units, for which the Loss-Adjusted Net Demand (NDLFv'h) shall be calculated in accordance with paragraph 4.91, then any variable which relates to a Supplier Unit v in a Trading Period h, where XXXvh is the variable before application of Transmission Losses, and XXXLFvh is the variable after application of Transmission Losses, shall be calculated as follows:

$$\text{XXXLFvh} = \text{XXXvh} \times \text{TAFvh}$$

Where

1. TAFvh is the Transmission Loss Adjustment Factor for Supplier Unit v in Trading Period h.

### **AVAILABILITY, MINIMUM STABLE GENERATION AND MINIMUM OUTPUT**

- 4.48 Each System Operator shall submit to the Market Operator the Generator Unit Technical Characteristics, consisting of Outturn Minimum Stable Generation, Outturn Availability and Outturn Minimum Output, in respect of each Generator Unit, which is Dispatchable, registered within its Currency Zone, for the previous Trading Day, in accordance with Appendix K "Market Data Transactions".

- 4.49 The Market Operator shall calculate time-weighted average values of Minimum Stable Generation (MINGENuh), Availability Profile (APuh) and Minimum Output (MINOUTuh) in respect of each Generator Unit u in each Trading Period h as follows:

1. The time-weighted average Minimum Stable Generation (MINGENuh) for Trading Period h is the sum (over all Outturn Minimum Stable Generation values for Generator Unit u that apply during Trading Period h) of the product of each Outturn Minimum Stable Generation value for Generator Unit u and the proportion of the Trading Period for which that Outturn Minimum Stable Generation value applies.
2. The time-weighted average Availability Profile (APuh) for Trading Period h is the sum over all Outturn Availability values for Generator Unit u that apply during Trading Period h of the product of each Outturn Availability value for Generator Unit u and the proportion of the Trading Period for which that Outturn Availability value applies.
3. The time-weighted average Minimum Output (MINOUTuh) for Trading Period h is the sum over all Outturn Minimum Output values for Generator Unit u that apply during Trading Period h of the product of each Outturn Minimum Output value for Generator Unit u and the proportion of the Trading Period for which that Outturn Minimum Output value applies.

- 4.50 For the purposes of the MSP Software and for the purposes of Ex-Post Indicative Settlement, certain interim values, including Availability Profile

(AP<sub>uh</sub>), Minimum Stable Generation (MINGEN<sub>uh</sub>), Minimum Output (MINOUT<sub>uh</sub>), Metered Generation (MG<sub>uh</sub>), Metered Demand (MD<sub>vh</sub>), Dispatch Quantity (DQ<sub>uh</sub>) and other elements of Commercial Offer Data and Technical Offer Data are required, in relation to the relevant Generator Units. The derivation of these values is set out in Appendix N “Operation of the MSP Software”.

**Actual Availability**

- 4.51 The Market Operator shall calculate the Actual Availability (AA<sub>uh</sub>) for each Trading Period, as set out below.

**Actual Availability for Generator Units with no Non-Firm Access**

- 4.52 For each Generator Unit *u* with no Non-Firm Access that is not a Netting Generator Unit, the Actual Availability (AA<sub>uh</sub>) for each Trading Period shall be calculated as follows:

$$AA_{uh} = AP_{uh}$$

Where

1. AP<sub>uh</sub> is the Availability Profile for Generator Unit *u* in Trading Period *h*.

**Actual Availability for Generator Units with Non-Firm Access**

- 4.53 For each Generator Unit *u* with Non-Firm Access, the Actual Availability (AA<sub>uh</sub>) for each Trading Period shall be calculated as set out below:

Step 1: The Firm Access Quantity (FAQ<sub>uh</sub>) for each Generator Unit *u* in Trading Site *s* with Non-Firm Access in Trading Period *h* shall be calculated as follows:

$$\text{if } \sum_{u \text{ in } s} AP_{uh} = 0 \text{ then}$$

$$FAQ_{uh} = 0$$

else

$$FAQ_{uh} = \left( FAQ_{Sst} + \frac{MD_{vh}}{TPD} \right) \times \frac{AP_{uh}}{\sum_{u \text{ in } s} AP_{uh}}$$

Where

1. FAQ<sub>uh</sub> is the Firm Access Quantity of Generator Unit *u* in Trading Period *h*;
2. FAQ<sub>Sst</sub> is the Firm Access Quantity of Trading Site *s* in each Trading Period *h* within Trading Day *t*;
3. MD<sub>vh</sub> in Trading Period *h* is the Metered Demand for Supplier Unit *v* where *v* is the Trading Site Supplier Unit for the Trading Site *s*, or otherwise zero for any Supplier Unit *v* that is not a Trading Site Supplier Unit for the Trading Site;
4. AP<sub>uh</sub> is the Availability Profile for Generator Unit *u* in Trading Period *h*;

5.  $\sum_{u \in s}$  is a summation over all Generator Units  $u$  in Trading Site  $s$ , except the Netting Generator Unit;
6. TPD is the Trading Period Duration.

Step 2: The Access Quantity (AQ<sub>uh</sub>) shall be calculated as follows:

$$AQ_{uh} = \text{Min}\{AP_{uh}, \text{Max}\{FAQ_{uh}, DQ_{uh}\}\}$$

Step 3: The Site Access Quantity (SAQ<sub>sh</sub>) for each Trading Site  $s$  which has Generator Units with Non-Firm Access in Trading Period  $h$ , shall be calculated as follows:

$$SAQ_{sh} = \text{Min}\left\{\sum_{u \in s} AP_{uh}, \text{Max}\left\{FAQ_{Sst} + \frac{MDvh}{TPD}, \sum_{u \in s} DQ_{uh}\right\}\right\}$$

Step 4: The Actual Availability (AA<sub>uh</sub>) for each Generator Unit  $u$  with Non-Firm Access in Trading Period  $h$  shall be calculated as follows:

$$\text{if } \sum_{u \in s} (AQ_{uh} - DQ_{uh}) = 0 \text{ then}$$

$$AA_{uh} = AQ_{uh}$$

else

$$AA_{uh} = AQ_{uh} - \left( \frac{(AQ_{uh} - DQ_{uh})}{\sum_{u \in s} (AQ_{uh} - DQ_{uh})} \right) \times \left( \sum_{u \in s} AQ_{uh} - SAQ_{sh} \right)$$

## ELIGIBLE AVAILABILITY FOR CAPACITY PAYMENTS

- 4.54 The values of Eligible Availability (EA<sub>uh</sub>) for use within the determination of Capacity Payments will be taken from the values of Availability Profile (AP<sub>uh</sub>), which are calculated by the Market Operator from Availability data submitted by the relevant System Operator. The Market Operator shall calculate the values of Availability Profile (AP<sub>uh</sub>) in relation to the Availability of the Generator Unit without consideration of access limitations. The Market Operator shall calculate the Eligible Availability (EA<sub>uh</sub>) for each Generator Unit  $u$  in Trading Period  $h$  as follows:

$$EA_{uh} = AP_{uh}$$

Where

1. AP<sub>uh</sub> is the Availability Profile for Generator Unit  $u$  in Trading Period  $h$ .

## DISPATCH QUANTITY

- 4.55 Each System Operator shall submit to the Market Operator the Dispatch Instructions in respect of each Generator Unit which is Dispatchable and is registered within its Currency Zone, and may submit an associated Ramp Rate for each Dispatch Instruction. Each System Operator shall submit this



information to the Market Operator in accordance with Appendix K “Market Data Transactions”, based on Outturn Data, and the values submitted shall be net of Unit Load and shall, where appropriate, first have been scaled by the appropriate Distribution Loss Adjustment Factor.

- 4.56 The Market Operator shall, in accordance with Appendix O “Instruction Profiling Calculations”, determine the Dispatch Quantity (DQ<sub>uh</sub>) for each Generator Unit u in Trading Period h from the Dispatch Instructions submitted by the relevant System Operator.

**Maximisation Instructions**

- 4.57 The relevant System Operator may issue a Maximisation Instruction to maximise the Output of a Generator Unit under the terms of the Grid Code. Where a System Operator issues a Maximisation Instruction in respect of a Generator Unit, that Generator Unit will be treated as subject to Maximisation in the relevant Trading Period or Trading Periods as set out within Appendix O “Instruction Profiling Calculations”. The values for Outturn Availability which are submitted to the Market Operator by the System Operator or the values of Availability Profile (AP<sub>uh</sub>) which are calculated by the Market Operator for that Generator Unit u for those Trading Periods h will not be revised upwards to reflect the Short-Term Maximisation Capability (STMCut) for Generator Unit u within Trading Day t.
- 4.58 In any Trading Period when a Generator Unit is treated as being subject to Maximisation in accordance with Appendix O “Instruction Profiling Calculations”, the Market Operator shall calculate the revised Dispatch Quantity (DQ’<sub>uh</sub>) as follows:

*Under a Maximisation Instruction,*

$$DQ'_{uh} = \text{Max} \left\{ DQ_{uh}, \text{Min} \left\{ STMCut, \frac{MG_{uh}}{TPD} \right\} \right\}$$

Where

1. DQ’<sub>uh</sub> is the revised Dispatch Quantity in respect of Generator Unit u which is treated as being subject to Maximisation in Trading Period h;
  2. DQ<sub>uh</sub> is the Dispatch Quantity for Generator Unit u in Trading Period h prior to revision, as calculated by the Market Operator in accordance with Appendix O “Instruction Profiling Calculations”;
  3. TPD is the Trading Period Duration;
  4. MG<sub>uh</sub> is the Metered Generation for Generator Unit u in Trading Period h;
  5. STMCut is the Short-Term Maximisation Capability for Generator Unit u for Trading Day t, which applies for all Trading Periods within that Trading Day.
- 4.59 The revised Dispatch Quantity (DQ’<sub>uh</sub>) may at such times exceed both the Registered Capacity (RC<sub>u</sub>) and the Availability Profile (AP<sub>uh</sub>) for the relevant Generator Unit.
- 4.60 In the event that the revised Dispatch Quantity (DQ’<sub>uh</sub>) calculated pursuant to paragraph 4.58 exceeds the greatest Accepted Quantity (Q<sub>uh</sub>), then the revised Dispatch Quantity (DQ’<sub>uh</sub>) shall be used in place of the greatest Accepted Quantity (Q<sub>uh</sub>) in all other relevant calculations under this Code.

## **PRICING ALGORITHM**

### **The MSP Software**

- 4.61 Within this Code, where a run of the MSP Software is associated with a Trading Day, it means the Trading Day that is entirely within the relevant Optimisation Time Horizon.
- 4.62 The Market Operator shall perform the Ex-Ante Indicative MSP Software Run for each Trading Day and shall create the Ex-Ante Indicative Market Schedule and ex-ante indicative values for System Marginal Price for each Trading Period in that Trading Day within one hour of Gate Closure for that Trading Day.
- 4.63 The Market Operator shall perform the Ex-Post Indicative MSP Software Run for each Trading Day and shall create the Ex-Post Indicative Market Schedule and the indicative ex-post values for System Marginal Price for each Trading Period in that Trading Day by 16:00 on the day after the start of the relevant Trading Day.
- 4.64 The Market Operator shall perform the Ex-Post Initial MSP Software Run for each Trading Day and shall create the Ex-Post Initial Market Schedule and the values for System Marginal Price for each Trading Period in that Trading Day by 16:00 four days after the start of the relevant Trading Day.
- 4.65 The Market Operator shall perform additional Ex-Post Initial MSP Software Runs as required for Settlement purposes in accordance with the Code.
- 4.66 The Market Operator shall ensure that the MSP Software operates in accordance with the Code including on the basis of the principles set out below and as further specified within Appendix N "Operation of the MSP Software".
- 4.67 The high level objective of each run of the MSP Software when producing a Unit Commitment Schedule or Market Schedule Quantities, as set out in more detail within Appendix N "Operation of the MSP Software", is to minimise the aggregate sum of MSP Production Cost over the Optimisation Time Horizon, subject to the following constraints:
1. to schedule Output by Price Maker Generator Units to match, in aggregate, Schedule Demand (as set out within Appendix N "Operation of the MSP Software" for the relevant run of the MSP Software) in each Trading Period within the Optimisation Time Horizon;
  2. to schedule each Price Maker Generator Unit at a level of Output between its Minimum Output and its Availability; and
  3. to schedule each Price Maker Generator Unit within the additional Technical Capabilities given within its Minimum Stable Generation and Technical Offer Data, including Ramp Rates, Minimum On Times and Minimum Off Times, with consideration given to the Warmth State.
- 4.68 The overall objective for that part of the MSP Software which calculates Uplift is to set the System Marginal Price to reflect the marginal cost of producing or consuming electricity during the Optimisation Time Horizon, subject to balancing the following supplementary objectives and as set out in further detail within Appendix N "Operation of the MSP Software":

1. energy prices should be reflective of underlying market dynamics; consequently the recovery of Start Up Costs and No Load Costs through SMP should not deviate significantly from the Shadow Prices (the Uplift Profile Objective); and
  2. the revenue paid through Uplift revenues should be minimised (the Uplift Cost Objective).
- 4.69 The calculation of Uplift is subject to the constraint that the Schedule Production Cost for each Price Maker Generator Unit during a Contiguous Operation Period should be recovered through SMP within that period of operation, subject to the detailed specification within Appendix N “Operation of the MSP Software”.
- 4.70 The following three input parameters that are to be used in the calculation of Uplift in each Year shall be determined by the Regulatory Authorities 4 months in advance of that Year:
1. The Uplift Alpha value  $\alpha$ , which governs the importance of the Uplift Cost Objective, such that  $0 \leq \alpha \leq 1$ ;
  2. The Uplift Beta value  $\beta$ , which governs the importance of the Uplift Profile Objective, such that  $0 \leq \beta \leq 1$  and such that  $\alpha + \beta = 1$ ; and
  3. The Uplift Delta value  $\delta$ , to constrain the overall impact on revenue in each Trading Day  $t$  arising from the Uplift calculation, such that  $\delta \geq 0$ .
- 4.71 The Market Operator shall publish the approved values of Uplift Alpha, Uplift Beta and Uplift Delta within 5 Working Days of receipt of the Regulatory Authorities' determination or four months before the start of the Year to which they shall apply whichever is the later.
- 4.72 The Market Operator shall procure that, except for the treatment of Generator Units with Non-Firm Access, the MSP Software shall not take explicit account of the topology of the Transmission System or any requirements for reserve.
- 4.73 An Insufficient Capacity Event occurs for a Trading Period within a run of the MSP Software for a Trading Period where the MSP Software identifies that the Schedule Demand in that Trading Period cannot be met in full by Price Maker Generator Units. The Market Operator shall procure that, in respect of each Insufficient Capacity Event, the balance of Schedule Demand shall be met by a notional generator which is not further used in Settlement, so that Market Schedule Quantities can be determined for other Generator Units.
- 4.74 An Excessive Generation Event occurs for a Trading Period where Schedule Demand in that Trading Period is less than the sum of the Market Schedule Quantities for Price Maker Generator Units as calculated by the MSP Software in that Trading Period.
- 4.75 The MSP Software shall be deemed to produce a Valid MSP Solution when each of the following conditions is met:
1. the run of the MSP Software produces the required set of Market Schedule Quantities and System Marginal Prices in accordance with this Code, including for Trading Periods in which an Insufficient Capacity Event or an Excessive Generation Event has occurred. In the event of an Insufficient Capacity Event, Market Schedule

Quantities for Price Maker Generator Units and System Marginal Prices shall be calculated in accordance with paragraph 4.79, and in the event of an Excessive Generation Event, Market Schedule Quantities for Price Maker Generator Units and System Marginal Prices shall be calculated in accordance with paragraph 4.80;

2. no Price Maker Generator Unit is scheduled inconsistently with its Technical Capabilities, with the exception that:
  - a. where there is no Preceding MSP Run to determine the starting conditions for a Generator Unit then the Market Operator must employ reasonable endeavours to populate surrogate data that best reflects its understanding of the starting conditions of the Generator Unit at that time;
  - b. if Technical Capabilities applying to a Generator Unit within a run of the MSP Software are incompatible with the initial operating level of that Generator Unit, then the MSP Software may disregard limits on Ramp Rates in the first period of the Trading Day for that Generator Unit;
  - c. if Technical Capabilities applying to a Generator Unit within a run of the MSP Software are internally inconsistent so as to allow no possible solution for that Generator Unit, then the MSP Software may disregard one or more Technical Capability limits as required to allow a solution to be found for that Generator Unit.

#### ***Tie-Break Situations***

- 4.76 The Market Operator shall procure that, in the event of a Tie-Break, the MSP Software will resolve the order in which Generator Units are scheduled using a systematic process of random selection which may include making small alterations to the submitted Prices of the Price Maker Generator Units concerned. Such amended prices shall only be used in the calculation of System Marginal Price and Market Schedule Quantities within the MSP Software for the purposes of the Tie-Break concerned, as set out within Appendix N "Operation of the MSP Software". The systematic process of random selection shall be capable of being repeated, should that be necessary, to effect the same selection.

#### ***Calculation of SMP***

- 4.77 The Market Operator shall calculate the System Marginal Price (SMPh) using the MSP Software for each Trading Period h using the methodology specified in Appendix N "Operation of the MSP Software".
- 4.78 The Market Operator shall procure that, except in Trading Periods where the Market Price Cap (PCAP) applies, the System Marginal Price (SMPh) shall allow the recovery of the Start Up Costs and No Load Costs of Price Maker Generator Units (except Interconnector Units and Pumped Storage Units) that are scheduled to generate within that run of the MSP Software. Each Price Maker Generator Unit (except Interconnector Units and Pumped Storage Units) shall recover the Start Up Costs and No Load Costs that it incurred in each Contiguous Operation Period. However, System Marginal Price (SMPh) will not necessarily allow for the recovery of all of the running costs incurred by scheduled Generator Units in all circumstances.
- 4.79 The Market Operator shall procure that, for any Trading Period when an Insufficient Capacity Event has occurred within a run of the MSP Software in

Deleted: accordance with paragraph 4.73 above, then the results of that run of the MSP Software for that Trading Period shall be determined as follows:

1. the System Marginal Price (SMP<sub>h</sub>) for that Trading Period h shall be set equal to the Market Price Cap (PCAP); and
  2. the Market Schedule Quantities for each Price Maker Generator Unit shall be as calculated within that run of the MSP Software.
- 4.80 The Market Operator shall procure that, for any Trading Period h when an Excessive Generation Event has occurred in accordance with Paragraph 4.74 above, then the results of that run of the MSP Software for that Trading Period shall be determined as follows:
1. the System Marginal Price (SMP<sub>h</sub>) in the relevant Trading Periods h shall be set to equal the Market Price Floor (PFLOOR); and
  2. the Market Schedule Quantities for each Price Maker Generator Unit shall be as calculated within that run of the MSP Software.
- 4.81 In the event that the System Marginal Price (SMP<sub>h</sub>) is calculated to exceed the Market Price Cap (PCAP), the System Marginal Price (SMP<sub>h</sub>) in the Trading Period (SMP<sub>h</sub>) will be set to equal the Market Price Cap (PCAP).
- 4.82 In the event that the System Marginal Price (SMP<sub>h</sub>) is calculated to fall below the Market Price Floor (PFLOOR), the System Marginal Price (SMP<sub>h</sub>) in the Trading Period (SMP<sub>h</sub>) will be set to equal the Market Price Floor (PFLOOR).

## DERIVATION OF QUANTITIES USED IN SETTLEMENT

### Trading Sites with a Trading Site Supplier Unit

- 4.83 The Market Operator shall procure that the Eligible Netting Quantity (ENQ<sub>sh</sub>) for each Trading Site s with a Trading Site Supplier Unit v in Trading Period h shall be calculated as follows:

$$ENQ_{sh} = \text{Min} \left\{ \left( \sum_{u \text{ in } s} \text{Min} \left\{ DQ_{uh}, \frac{MG_{uh}}{TPD} \right\} \right), \frac{MD_{vh}}{TPD} \right\}$$

Where

1. DQ<sub>uh</sub> is the Dispatch Quantity in respect of Generator Unit u in Trading Period h;
2. MG<sub>uh</sub> is the Metered Generation for Generator Unit u in Trading Period h;
3. MD<sub>vh</sub> is the Metered Demand of Trading Site Supplier Unit v in Trading Period h;
4. TPD is the Trading Period Duration;
5. the summation  $\sum_{u \text{ in } s}$  is over all Generator Units u in Trading Site s excluding the Netting Generator Unit.

- 4.84 The Market Operator shall procure that, for a Trading Site Supplier Unit  $v$  that is within a Trading Site  $s$ , the Net Demand in Trading Period  $h$  ( $NDvh$ ) shall be calculated as follows:

$$NDvh = MDvh - (ENQsh \times TPD)$$

Where

1. ENQsh is the Eligible Netting Quantity for the relevant Trading Site  $s$  in Trading Period  $h$ ;
2. MDvh is the Metered Demand for Trading Site Supplier Unit  $v$  in Trading Period  $h$ ;
3. TPD is Trading Period Duration.

#### Trading Sites with an Associated Supplier Unit

- 4.85 The Market Operator shall calculate the Eligible Netting Quantity (ENQsh) for each Trading Site  $s$  with an Associated Supplier Unit  $v$  in Trading Period  $h$  as follows:

$$ENQsh = \text{Min} \left\{ \left( \sum_{u \text{ in } s} \text{Min} \left\{ DQuh, \frac{MGuh}{TPD} \right\} \right), 0 \right\}$$

Where

1. DQuh is the Dispatch Quantity at Generator Unit  $u$  in Trading Period  $h$ ;
  2. MGuh is the Metered Generation at Generator Unit  $u$  in Trading Period  $h$ ;
  3. TPD is the Trading Period Duration;
  4. the summation  $\sum_{u \text{ in } s}$  is over all Generator Units  $u$  in Trading Site  $s$  excluding the Netting Generator Unit.
- 4.86 The Market Operator shall procure that, for each Supplier Unit  $v$  which is an Associated Supplier Unit to one or more Trading Sites  $s$ , the Net Demand ( $NDvh$ ) in Trading Period  $h$  shall be calculated as follows:

$$NDvh = MDvh - \left( \sum_{s \text{ with } v} (ENQsh \times TPD) \right)$$

Where

1. ENQsh is the Eligible Netting Quantity for the relevant Trading Site  $s$  in Trading Period  $h$ ;
2. MDvh is the Metered Demand at Supplier Unit  $v$  in Trading Period  $h$ ;
3. TPD is Trading Period Duration;
4. the summation  $\sum_{s \text{ with } v}$  is over all Trading Sites for which the Supplier Unit  $v$  is an Associated Supplier Unit.

**Netting Generator Unit calculations**

4.87 The Market Operator shall procure that, for each Netting Generator Unit  $u'$  at a Trading Site  $s$  (either with a Trading Site Supplier Unit or an Associated Supplier Unit), the Metered Generation ( $MGu'h$ ), Dispatch Quantity ( $DQu'h$ ) and Market Schedule Quantity ( $MSQu'h$ ) in Trading Period  $h$  shall be calculated as follows:

$$MGu'h = -ENQsh \times TPD$$

$$MSQu'h = -ENQsh$$

$$DQu'h = -ENQsh$$

Where

1.  $ENQsh$  is the Eligible Netting Quantity for Trading Site  $s$  in Trading Period  $h$ ;
2.  $TPD$  is the Trading Period Duration.

4.88 The Market Operator shall procure that, for each Netting Generator Unit  $u'$  at a Trading Site  $s$  (either with a Trading Site Supplier Unit or an Associated Supplier Unit), the Eligible Availability ( $E Au'h$ ) in Trading Period  $h$  shall be calculated as follows:

$$E Au'h = -ENQsh + \sum_{u'ins} \left( \text{Min} \left\{ \left( \text{Min} \left\{ DQuh, \frac{MGuh}{TPD} \right\} - MINOUTuh \right), 0 \right\} \right)$$

Where

1.  $ENQsh$  is the Eligible Netting Quantity for Trading Site  $s$  in Trading Period  $h$ ;
2.  $DQuh$  is the Dispatch Quantity at Generator Unit  $u$  in Trading Period  $h$ ;
3.  $MGuh$  is the Metered Generation at Generator Unit  $u$  in Trading Period  $h$ ;
4.  $TPD$  is the Trading Period Duration;
5.  $MINOUTuh$  is the Minimum Output for Generator Unit  $u$  in Trading Period  $h$ ;
6.  $\sum_{u'ins}$  is a summation over all Generator Units  $u$  in Trading Site  $s$  excluding the Netting Generator Unit.

4.89 The Market Operator shall procure that, for each Netting Generator Unit  $u'$ , the Transmission Loss Adjustment Factor ( $TLAFu'h$ ) shall be calculated as follows:

if  $\sum_{u \text{ in } s} RCu \neq 0$  then

$$TLAFu'h = \frac{\left( \sum_{u \text{ in } s} TLA Fuh \times RCu \right)}{\sum_{u \text{ in } s} RCu}$$

else  $TLAFu'h = \text{Max}(\{TLAFuh\} \forall u \text{ in } s)$

Where

1. TLA Fuh is the Transmission Loss Adjustment Factor for Generator Unit u in Trading Period h;
2. RCu is the Registered Capacity of Generator Unit u;
3. the summation  $\sum_{u \text{ in } s}$  is over all Generator Units u (not including the Netting Generator Unit) in Trading Site s (to which the Netting Generator Unit is registered);
4. the expression  $\text{Max}(\{TLAFuh\} \forall u \text{ in } s)$  denotes the highest Transmission Loss Adjustment Factor (TLA Fuh) of each Generator Unit u in Trading Site s (excluding the Netting Generator Unit) in Trading Period h.

#### Actual Output for Generator Units

- 4.90 The Market Operator shall procure that, for each Generator Unit u in each Trading Period h, the value of Actual Output (AOuh) shall be calculated as follows:

$$AOuh = \frac{MGuh}{TPD}$$

Where

1. MGuh is the Metered Generation for Generator Unit u in Trading Period h;
2. TPD is the Trading Period Duration.

#### Error Supplier Units

- 4.91 The Market Operator shall procure that, for each Error Supplier Unit v', each of which is associated with a Jurisdiction e, the Loss-Adjusted Net Demand (NDLFv'h) shall be calculated as follows:

$$NDLFv'h = \sum_{u \text{ in } e} (MGuh) - \sum_{v \text{ in } e} (MDvh) + NIJeh$$

$$-\left( \sum_u (MGuh) - \sum_u (MGLFuh) + \sum_v (MDLFvh) - \sum_v (MDvh) \right) \times \left( \frac{\sum_{u \text{ in } e} (MGuh) + NIJeh}{\sum_u MGuh} \right)$$

Where

1. MG is the Metered Generation of Generator Unit u in Trading Period h;



2.  $MGLF_{uh}$  is the Metered Generation, Loss-Adjusted, of Generator Unit  $u$  in Trading Period  $h$ ;
3.  $\sum_{u \text{ in } e}$  is a summation over all Generator Units  $u$  within Jurisdiction  $e$  excluding Netting Generator Units;
4.  $MD_{vh}$  is the total Metered Demand of Supplier Unit  $v$  in Trading Period  $h$ ;
5.  $MDLF_{vh}$  is the total Metered Demand, Loss-Adjusted, of Supplier Unit  $v$  in Trading Period  $h$ ;
6.  $\sum_{v \text{ in } e}$  is a summation over all Supplier Units  $v$  within Jurisdiction  $e$  excluding the Error Supplier Unit;
7.  $NIJ_{leh}$  is the Net Inter-Jurisdictional Import to Jurisdiction  $e$  in Trading Period  $h$ , expressed in MWh.

#### **Net Demand at Supplier Units**

- 4.92 The Market Operator shall procure that, for all Supplier Units  $v$ , which are not Error Supplier Units, Trading Site Supplier Units or Associated Supplier Units, the Net Demand in Trading Period  $h$  ( $ND_{vh}$ ) shall be calculated as follows:

$$ND_{vh} = MD_{vh}$$

Where

1.  $MD_{vh}$  is the Metered Demand at Supplier Unit  $v$  in Trading Period  $h$ .

### **ENERGY PAYMENTS AND ENERGY CHARGES**

#### **Energy Payments for Generator Units**

- 4.93 The Market Operator shall procure that the Energy Payment ( $ENP_{uh}$ ) payable in respect of each Generator Unit  $u$  for Trading Period  $h$  shall be calculated as follows:

$$ENP_{uh} = TPD \times MSQ_{LFuh} \times SMP_h$$

Where

1.  $TPD$  is Trading Period Duration;
2.  $MSQ_{LFuh}$  is the Loss-Adjusted Market Schedule Quantity for Generator Unit  $u$  in Trading Period  $h$ ;
3.  $SMP_h$  is the System Marginal Price in Trading Period  $h$ .

#### **Energy Charges to Supplier Units**

- 4.94 The Market Operator shall procure that the Energy Charge ( $ENC_{vh}$ ) recoverable in respect of each Supplier Unit  $v$  for Trading Period  $h$  shall be calculated as follows:

$$ENC_{vh} = NDLF_{vh} \times SMP_h$$

Where

1. NDLF<sub>v</sub>h is the Loss-Adjusted Net Demand from Supplier Unit v in Trading Period h;
2. SMP<sub>h</sub> is the System Marginal Price in Trading Period h.

## **CAPACITY PAYMENTS AND CAPACITY CHARGES**

### **Parameters for the determination of Capacity Payments and Capacity Charges**

- 4.95 No later than four months before the start of the first Capacity Period in each Year, the Regulatory Authorities shall consider and shall determine values, which will then be made available to the Market Operator, for the following parameters for the calculation of Capacity Payments and Capacity Charges for that Year:
1. Annual Capacity Payment Sum (ACPS<sub>y</sub>);
  2. Capacity Period Payment Sum (CPPS<sub>c</sub>) for each Capacity Period, such that the total of Capacity Period Payment Sums over the Year is equal to the Annual Capacity Payment Sum (ACPS<sub>y</sub>);
  3. Fixed Capacity Payments Proportion (FCPP<sub>y</sub>), such that  $0 \leq \text{FCPP}_y \leq 1$ ;
  4. Ex-Post Capacity Payments Proportion (ECP<sub>y</sub>), such that  $0 \leq \text{ECP}_y \leq (1 - \text{FCPP}_y)$ ; and
  5. The Value of Lost Load (VOLL).
- 4.96 The Market Operator shall make a report to the Regulatory Authorities at least four months before the start of the Year and in advance of the first Capacity Period in each Year, proposing a value for the following parameter for that Year:
1. the Annual Capacity Exchange Rate (ACER<sub>y</sub>).
- 4.97 The Market Operator's report must set out any relevant research or analysis carried out by the Market Operator and any justification for the specific values proposed. Such a report may, and shall, if so requested by the Regulatory Authorities, include alternative values from those proposed and must set out the arguments for and against such alternatives.
- 4.98 The Market Operator shall publish the approved value(s) for each of the parameters set out in paragraphs 4.95 and 4.96 within 5 Working Days of receipt of the Regulatory Authorities' determination or two months before the start of the Year to which they shall apply whichever is the later.

### **Basis for Capacity Payments and Capacity Charges**

- 4.99 The Market Operator shall procure that Capacity Payments shall be made in respect of each Generator Unit on the basis of its Loss-Adjusted Eligible Availability in each Trading Period as set out algebraically below.
- 4.100 The Market Operator shall procure that Capacity Charges shall be levied in respect of Loss-Adjusted Net Demand at each Supplier Unit in each Trading Period as set out algebraically below.

- 4.101 The System Operator shall calculate prior to the start of each Capacity Period the Loss of Load Probability ( $\lambda_h$ ) in each Trading Period  $h$  of that Capacity Period. The calculation methodology is set out in Appendix M “Description of the Function for the Determination of Capacity Payments”.
- 4.102 The Market Operator shall calculate the Ex-Post Loss of Load Probability ( $\Phi_h$ ) in each Trading Period  $h$ , in accordance with the Settlement Calendar. The relevant calculation methodology is set out in Appendix M “Description of the Function for the Determination of Capacity Payments”.
- 4.103 The Market Operator shall calculate prior to the start of the first Capacity Period in each Year the Forecast Demand (FD $_h$ ) in each Trading Period  $h$  (based on the Annual Load Forecast Data) as set out in paragraph 4.32.

**Calculation of Capacity Payments**

- 4.104 The Capacity Period Payment Sum (CPPSc) shall be divided into the Capacity Period Fixed Sum (CPFSc), the Capacity Period Variable Sum (CPVSc) and the Capacity Period Ex-Post Sum (CPESc) within each Capacity Period  $c$ , using the Fixed Capacity Payments Proportion (FCPPy) and the Ex-Post Capacity Payments Proportion (ECPPy) as follows:

$$CPFSc = CPPSc \times FCPPy$$

$$CPESc = CPPSc \times ECPPy$$

$$CPVSc = CPPSc \times (1 - (FCPPy + ECPPy))$$

Where

1. CPPSc is the Capacity Period Payment Sum in Capacity Period  $c$ ;
2. FCPPy is the Fixed Capacity Payments Proportion for Year  $y$ ;
3. ECPPy is the Ex-Post Capacity Payments Proportion for Year  $y$ .

- 4.105 For each Trading Period  $h$  within Capacity Period  $c$ , the Market Operator shall calculate a Fixed Capacity Payments Weighting Factor (FCPWF $_h$ ) prior to the start of the first Capacity Period in the Year based on the relative values of Forecast Demand (FD $_h$ ) as follows:

$$\text{if } \sum_{h \text{ in } c} (FD_h - \text{Min}FD_c) > 0 \text{ then}$$

$$FCPWF_h = \frac{FD_h - \text{Min}FD_c}{\sum_{h \text{ in } c} (FD_h - \text{Min}FD_c)}$$

$$\text{else } FCPWF_h = \frac{1}{\text{Number of Trading Periods in Capacity Period}}$$

Where

1. FD $_h$  is the Forecast Demand for Trading Period  $h$  determined by the Market Operator;
2. MinFD $_c$  is the minimum value of FD $_h$  in any Trading Period  $h$  within Capacity Period  $c$ ;

3.  $\sum_{h \text{ in } c} (FD_h - MinFD_c)$  is a summation over all Trading Periods h in Capacity Period c.

- 4.106 For each Trading Period h within the Capacity Period, the Market Operator shall calculate a Variable Capacity Payments Weighting Factor (VCPWFh) prior to the start of the relevant Capacity Period based on the relative values of the Loss of Load Probability in Trading Period h ( $\lambda_h$ ) as follows:

if  $\sum_{h \text{ in } c} \lambda_h > 0$  then

$$VCPWFh = \frac{\lambda_h}{\sum_{h \text{ in } c} \lambda_h},$$

$$\text{else } VCPWFh = \frac{1}{\text{Number of Trading Periods in Capacity Period}}$$

Where

1.  $\lambda_h$  is the Loss of Load Probability in Trading Period h determined as set out in Appendix M "Description of the Function for the Determination of Capacity Payments";
2.  $\sum_{h \text{ in } c}$  is a summation over all Trading Periods h in Capacity Period c.

- 4.107 For each Trading Period h within Capacity Period c, an Interim Ex-Post Capacity Payments Weighting Factor (IECPWFh) shall be calculated based on the relative values of the Interim Ex-Post Loss of Load Probability ( $I\phi_h$ ) as follows:

if  $\sum_{h \text{ in } c} I\phi_h > 0$  then

$$IECPWFh = \frac{I\phi_h}{\sum_{h \text{ in } c} I\phi_h},$$

$$\text{else } IECPWFh = \frac{1}{\text{Number of Trading Periods in Capacity Period}}$$

Where

1.  $I\phi_h$  is the Interim Ex-Post Loss of Load Probability in Trading Period h determined as set out in Appendix M "Description of the Function for the Determination of Capacity Payments";
2.  $\sum_{h \text{ in } c}$  is a summation over all Trading Periods h in Capacity Period c.

- 4.108 For each Trading Period h within the Capacity Period c, the Market Operator shall calculate an Ex-Post Capacity Payments Weighting Factor (ECPWFh)

based on the relative values of the Ex-Post Loss of Load Probability in Trading Period h ( $\Phi_h$ ) as follows:

if  $\sum_{h \text{ in } c} \phi_h > 0$  then

$$ECPWFh = \frac{\phi_h}{\sum_{h \text{ in } c} \phi_h},$$

$$\text{else } ECPWFh = \frac{1}{\text{Number of Trading Periods in Capacity Period}}$$

Where

1.  $\Phi_h$  is the Ex-Post Loss of Load Probability in Trading Period h determined as set out in Appendix M "Description of the Function for the Determination of Capacity Payments";
2. summation  $\sum_{h \text{ in } c}$  is over all Trading Periods h in Capacity Period c.

4.109 For each Trading Period h within the Capacity Period c, a Capacity Payments Price Factor (CPPFh) shall be calculated to scale Capacity Payments for Demand and scheduled generation based on the level of System Marginal Price (SMP<sub>h</sub>) and the Value of Lost Load (VOLL) as follows:

$$CPPFh = \text{Max} \left\{ \left( \frac{(VOLL - SMP_h)}{VOLL} \right), 0 \right\}$$

Where

1. SMP<sub>h</sub> is the System Marginal Price in Trading Period h;
2. VOLL is the Value of Lost Load.

#### **Capacity Payments in Respect of Generator Units**

4.110 Capacity Payments shall be determined for each Generator Unit in each Trading Period as set out in this Section 4 and paid to the relevant Participant as a separate payment in each Capacity Period according to the procedures set out in Section 6.

4.111 The Loss-Adjusted Capacity Payments Eligible Availability (CPEALF<sub>uh</sub>) for each Generator Unit u in each Trading Period h shall be calculated as follows:

$$CPEALF_{uh} = TPD \times EALF_{uh}$$

Where

1. TPD is the Trading Period Duration;
2. EALF<sub>uh</sub> is the Loss-Adjusted Eligible Availability for Capacity Payments for Generator Unit u in Trading Period h.

**Capacity Payments Generation Price Factor**

- 4.112 Capacity Payments for Generator Units shall be calculated as set out below.
- 4.113 For Generator Units  $u$  in respect of which Participants submit Prices as part of their Commercial Offer Data, then for each Accepted Price Quantity Pair  $i$  which is applicable in Trading Period  $h$ , the Unscheduled Capacity Offer Quantity (UCOQuhi) and Unscheduled Capacity Offer Price (UCOPuhi) shall be calculated as follows:

$$UCOPuhi = \text{Max}\{SMP_h, P_{uhi}\}$$

$$UCOQuhi = \text{Min}\{EA_{uh}, \text{Max}\{Q_{uhi}, MSQ_{uh}\}\} - \text{Min}\{EA_{uh}, \text{Max}\{Q_{uh}(i-1), MSQ_{uh}\}\}$$

Where

1. SMP<sub>h</sub> is the System Marginal Price in Trading Period  $h$ ;
  2. P<sub>uhi</sub> is the  $i$ th Price for Generator Unit  $u$  which is applicable in Trading Period  $h$ ;
  3. Q<sub>uhi</sub> is the  $i$ th Quantity for Generator Unit  $u$  which is applicable in Trading Period  $h$ ;
  4. Q<sub>uh</sub>(0) is defined as the Minimum Output (MINOUT<sub>uh</sub>) for Generator Unit  $u$  in Trading Period  $h$ ;
  5. EA<sub>uh</sub> is the Eligible Availability for Generator Unit  $u$  in Trading Period  $h$ ;
  6. MSQ<sub>uh</sub> is the Market Schedule Quantity for Generator Unit  $u$  in Trading Period  $h$ .
- 4.114 For any Generator Unit  $u$  for which the relevant Participant is not required to submit Prices as part of its Commercial Offer Data for any Trading Period  $h$ , all values of Unscheduled Capacity Offer Quantity (UCOQuhi) will be calculated by the Market Operator to be zero.
- 4.115 The Capacity Payments Generation Price Factor (CPGPF<sub>uh</sub>) shall be determined for each Generator Unit  $u$  in Trading Period  $h$  as follows:

if  $(MSQ_{uh} + \sum_i UCOQuhi) \neq 0$ , then

$$CPGPF_{uh} = \frac{\left( (MSQ_{uh} \times CPPF_h) + \sum_i \left( UCOQuhi \times \text{Max}\left\{ \frac{VOLL - UCOPuhi}{VOLL}, 0 \right\} \right) \right)}{MSQ_{uh} + \sum_i UCOQuhi}$$

else CPGPF<sub>uh</sub> = 0

Where

1. MSQ<sub>uh</sub> is the Market Schedule Quantity for Generator Unit  $u$  in Trading Period  $h$ ;

2. CPPFh is the Capacity Payments Price Factor for Trading Period h in the Capacity Period c;
3.  $\sum_i$  is a summation over all Accepted Price Quantity Pairs i for Generator Unit u which are applicable in Trading Period h;
4. UCOQuhi is the Unscheduled Capacity Offer Quantity for Generator Unit u, for Price Quantity Pair i which is applicable in Trading Period h;
5. UCOPuhi is the Unscheduled Capacity Offer Price for Generator Unit u, for Price Quantity Pair i which is applicable in Trading Period h;
6. VOLL is the Value of Lost Load.

**Fixed Capacity Payments Generation Price Calculations**

- 4.116 For each Capacity Period c, the Capacity Period Fixed Generation Scaling Price (CPFGSPc) shall be calculated by the Market Operator as follows:

if  $\sum_{u,hinc} (CPEALFuh \times FCPWFh \times CPGPFuh) > 0$  then

$$CPFGSPc = \frac{CPFSc}{\sum_{u,hinc} (CPEALFuh \times FCPWFh \times CPGPFuh)}$$

else  $CPFGSPc = 0$

Where

1. CPFSc is the Capacity Period Fixed Sum in Capacity Period c;
2. CPEALFuh is the Loss-Adjusted Capacity Payments Eligible Availability for Generator Unit u in Trading Period h;
3. FCPWFh is the Fixed Capacity Payments Weighting Factor in Trading Period h;
4. CPGPFuh is the Capacity Payments Generation Price Factor for Generator Unit u in Trading Period h;
5. the summation  $\sum_{u,hinc}$  is a summation over all Generator Units u, and across all Trading Periods h within Capacity Period c.

- 4.117 For each Trading Period h within Capacity Period c, the Fixed Capacity Payments Generation Price (FCGPh) shall be calculated by the Market Operator as follows:

$$FCGPh = FCPWFh \times CPFGSPc$$

Where

1. FCPWFh is the Fixed Capacity Payments Weighting Factor in Trading Period h;
2. CPFGSPc is the Capacity Period Fixed Generation Scaling Price in Capacity Period c.

**Variable Capacity Payments Generation Price Calculations**

4.118 For each Capacity Period c, the Capacity Period Variable Generation Scaling Price (CPVGSPc) shall be calculated by the Market Operator as follows:

$$\text{if } \sum_{u,h \text{ in } c} (CPEALF_{uh} \times CPGPF_{uh} \times VCPWF_h) > 0 \text{ then}$$

$$CPVGSP_c = \frac{CPVSc}{\sum_{u,h \text{ in } c} (CPEALF_{uh} \times VCPWF_h \times CPGPF_{uh})}$$

$$\text{else } CPVGSP_c = 0$$

Where

1. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
2. CPEALF<sub>uh</sub> is the Loss-Adjusted Capacity Payments Eligible Availability for Generator Unit u in Trading Period h;
3. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
4. CPGPF<sub>uh</sub> is the Capacity Payments Generation Price Factor for Generator Unit u in Trading Period h;
5. the summation  $\sum_{u,h \text{ in } c}$  is a summation over all Generator Units u, and across all Trading Periods h within Capacity Period c.

4.119 For each Trading Period h within Capacity Period c, the Variable Capacity Payments Generation Price (VCGPh) shall be calculated by the Market Operator as follows:

$$VCGPh = VCPWF_h \times CPVGSP_c$$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVGSP<sub>c</sub> is the Capacity Period Variable Generation Scaling Price in Capacity Period c.

**Ex-Post Capacity Payments Generation Price Calculations**

4.120 For each Capacity Period c, the Capacity Period Ex-Post Generation Scaling Price (CEGSPc) shall be calculated by the Market Operator as follows:

$$\text{if } \sum_{u,h \text{ in } c} (CPEALF_{uh} \times CPGPF_{uh} \times ECPWF_h) > 0 \text{ then}$$

$$CEGSP_c = \frac{CPESc}{\sum_{u,h \text{ in } c} (CPEALF_{uh} \times ECPWF_h \times CPGPF_{uh})}$$

$$\text{else } CEGSP_c = 0$$



Where

1. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
2. CPEALFuh is the Loss-Adjusted Capacity Payments Eligible Availability for Generator Unit u in Trading Period h;
3. ECPWFh is the Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPGPFuh is the Capacity Payments Generation Price Factor for Generator Unit u in Trading Period h;
5. the summation  $\sum_{u,h \text{ in } c}$  is a summation over all Generator Units u, and across all Trading Periods h within Capacity Period c.

- 4.121 For each Trading Period h within Capacity Period c, the Ex-Post Capacity Payments Generation Price (ECGPh) shall be calculated by the Market Operator as follows:

$$ECGPh = ECPWFh \times CPEGSPc$$

Where

1. ECPWFh is the Ex-Post Capacity Payments Weighting Factor in Trading Period h;
2. CPEGSPc is the Capacity Period Ex-Post Generation Scaling Price in Capacity Period c.

#### **Capacity Payments Generation Price Calculations**

- 4.122 The Capacity Payments Generation Price (CPGPh) shall be calculated by the Market Operator for each Trading Period h as follows:

$$CPGPh = (VCGPh + FCGPh + ECGPh) \times CPPFh$$

Where

1. VCGPh is the Variable Capacity Payments Generation Price in Trading Period h;
2. FCGPh is the Fixed Capacity Payments Generation Price in Trading Period h;
3. ECGPh is the Ex-Post Capacity Payments Generation Price in Trading Period h;
4. CPPFh is the Capacity Payments Price Factor in Trading Period h.

#### **Capacity Payments Calculations**

- 4.123 The Capacity Payment (CPuh) for each Generator Unit u in Trading Period h shall be calculated by the Market Operator as follows:

if  $CPPFh \neq 0$  then

$$CPuh = CPGPh \times CPEALFuh \times \left( \frac{CPGPFuh}{CPPFh} \right)$$

else  $CPuh = CPGPFuh \times CPEALFuh \times (VCGPh + FCGPh + ECGPh)$

Where

1.  $CPPFh$  is the Capacity Payments Price Factor in Trading Period  $h$ ;
2.  $CPGPh$  is the Capacity Payments Generation Price in Trading Period  $h$ ;
3.  $CPEALFuh$  is the Loss-Adjusted Capacity Payments Eligible Availability for Generator Unit  $u$  in Trading Period  $h$ ;
4.  $CPGPFuh$  is the Capacity Payments Generation Price Factor for Generator Unit  $u$  in Trading Period  $h$ ;
5.  $VCGPh$  is the Variable Capacity Payments Generation Price in Trading Period  $h$ ;
6.  $FCGPh$  is the Fixed Capacity Payments Generation Price in Trading Period  $h$ ;
7.  $ECGPh$  is the Ex-Post Capacity Payments Generation Price in Trading Period  $h$ .

4.124 The Capacity Period Payment ( $CPPuc$ ) for each Generator Unit  $u$  in each Capacity Period  $c$  shall be calculated by the Market Operator as follows:

$$CPPuc = \sum_{h \text{ in } c} CPuh$$

Where

1.  $CPuh$  is the Capacity Payment for Generator Unit  $u$  in Trading Period  $h$ ;
2. the summation  $\sum_{h \text{ in } c}$  is over all Trading Periods  $h$  in Capacity Period  $c$ .

### **Capacity Charges**

4.125 Capacity Charges shall be levied by the Market Operator on a Participant in respect of its Supplier Units in each Trading Period according to the procedures set out below.

4.126 For each Capacity Period  $c$ , the Capacity Period Demand Scaling Price ( $CPDSPc$ ) shall be calculated by the Market Operator as follows:

if  $\sum_{v,h \text{ in } c} (NDLFvh \times FCPWFh \times CPPFh) \neq 0$  then

$$CPDSPc = \frac{CPPSc}{\sum_{v,h \text{ in } c} (NDLFvh \times FCPWFh \times CPPFh)}$$

else  $CPDSPc = 0$

Where

1. CPPSc is the Capacity Period Payment Sum in Capacity Period c;
2. NDLFvh is the Loss-Adjusted Net Demand of Supplier Unit v in Trading Period h;
3. FCPWFh is the Fixed Capacity Payments Weighting Factor in Trading Period h;
4. CPPFh is the Capacity Payments Price Factor in Trading Period h;
5. the summation  $\sum_{v,h \text{ in } c}$  is over all Trading Periods h in Capacity Period c and over all Supplier Units v.

- 4.127 The Capacity Payments Demand Price (CPDP<sub>h</sub>) shall be calculated by the Market Operator for each Trading Period h as follows:

$$CPDP_h = FCPWF_h \times CPDSP_c \times CPPF_h$$

Where

1. FCPWF<sub>h</sub> is the Fixed Capacity Payments Weighting Factor in Trading Period h;
2. CPDSP<sub>c</sub> is the Capacity Period Demand Scaling Price in Capacity Period c;
3. CPPF<sub>h</sub> is the Capacity Payments Price Factor in Trading Period h.

#### **Capacity Charge Calculations**

- 4.128 The Capacity Charge (CC<sub>vh</sub>) for each Supplier Unit v in Trading Period h shall be calculated by the Market Operator as follows:

$$CC_{vh} = CPDP_h \times NDLF_{vh}$$

Where

1. CPDP<sub>h</sub> is the Capacity Payments Demand Price in Trading Period h;
2. NDLF<sub>vh</sub> is the Loss-Adjusted Net Demand at Supplier Unit v in Trading Period h.

- 4.129 The Capacity Period Charge (CPC<sub>vc</sub>) for each Supplier Unit v in each Capacity Period c shall be calculated by the Market Operator as follows:

$$CPC_{vc} = \sum_{h \text{ in } c} CC_{vh}$$

Where

1.  $CC_{vh}$  is the Capacity Charge for Supplier Unit  $v$  in Trading Period  $h$ ;
2. the summation  $\sum_{h \text{ in } c}$  is over all Trading Periods  $h$  in Capacity Period  $c$ .

### CONSTRAINT PAYMENTS

- 4.130 The Market Operator shall apply a Constraint Payment to each Participant in respect of each of its Generator Units in any Trading Period for which the Dispatch Production Cost differs from the Schedule Production Cost, as set out algebraically below.
- 4.131 For the avoidance of doubt, Constraint Payments will apply irrespective of the cause for the difference in Dispatch Production Cost and Schedule Production Cost, including, inter alia, the decision of the relevant System Operator to dispatch Generator Units to provide reserve or other ancillary services.

### Calculation of the Market and Dispatch Offer Prices

- 4.132 The calculation of Constraint Payments requires the determination by the Market Operator of the Market Offer Price ( $MOP_{uh}$ ) and the Dispatch Offer Price ( $DOP_{uh}$ ) for each Generator Unit  $u$  in each Trading Period  $h$  as set out below.
- 4.133 The Market Operator shall calculate the Market Offer Price for Generator Unit  $u$  in Trading Period  $h$  ( $MOP_{uh}$ ) as follows:  
if  $MSQ_{uh} \leq Q_{uh1}$ , then  $MOP_{uh} = P_{uh1}$ ,  
else  $MOP_{uh} = P_{uhi}$ , where  $i$  satisfies the equation:  $Q_{uh(i-1)} < MSQ_{uh} \leq Q_{uhi}$

Where

1.  $MSQ_{uh}$  is the Market Schedule Quantity for Generator Unit  $u$  in Trading Period  $h$ ;
  2.  $P_{uhi}$  is the  $i$ th Price Accepted for Generator Unit  $u$  applicable to Trading Period  $h$ ;
  3.  $Q_{uhi}$  is the  $i$ th Quantity for Generator Unit  $u$  applicable to Trading Period  $h$ .
- 4.134 The Market Operator shall calculate the Dispatch Offer Price for Generator Unit  $u$  in Trading Period  $h$  ( $DOP_{uh}$ ) as follows:  
if  $DQ_{uh} \leq Q_{uh1}$ , then  $DOP_{uh} = P_{uh1}$ ,  
else  $DOP_{uh} = P_{uhi}$ , where  $i$  satisfies the equation  $Q_{uh(i-1)} < DQ_{uh} \leq Q_{uhi}$

Where

1.  $DQ_{uh}$  is the Dispatch Quantity for Generator Unit  $u$  in Trading Period  $h$ ;

2.  $P_{u,i,h}$  is the  $i$ th Price for Generator Unit  $u$  applicable to Trading Period  $h$ ;
3.  $Q_{u,i,h}$  is the  $i$ th Quantity for Generator Unit  $u$  applicable to Trading Period  $h$ .

**Calculation of Constraint Payments to Generator Units**

4.135 For the following calculations, where required for the calculation of Constraint Payments, Uninstructed Imbalance Payments or Make Whole Payments for the relevant Generator Unit:

1.  $MSQ_{u,h}$  is the Loss-Adjusted Market Schedule Quantity for Generator Unit  $u$  in Trading Period  $h$ ;
2.  $NLC_{u,h}$  is the No Load Cost for Generator Unit  $u$  in Trading Period  $h$ ;
3.  $MOP_{u,h}$  is the Market Offer Price for Generator Unit  $u$  in Trading Period  $h$ , corresponding to a Market Schedule Quantity of  $MSQ_{u,h}$ , or System Marginal Price (SMP $_h$ ) for any Generator Unit that does not submit Prices as part of its Commercial Offer Data;
4.  $MNLC_{u,h}$  is the Market No Load Cost calculated as follows:

*if  $MSQ_{u,h} > 0$  then*

$$MNLC_{u,h} = NLC_{u,h}$$

*else  $MNLC_{u,h} = 0$*

5.  $MSQCCLF_{u,h}$  is the Loss-Adjusted Market Schedule Quantity Cost Correction for Generator Unit  $u$  in Trading Period  $h$ , as determined according to paragraph 4.137 and then Loss-Adjusted, or zero for any Generator Unit that does not submit Prices as part of its Commercial Offer Data;
6.  $DQ_{u,h}$  is the Loss-Adjusted Dispatch Quantity for Generator Unit  $u$  in Trading Period  $h$ ;
7.  $DOP_{u,h}$  is the Dispatch Offer Price for Generator Unit  $u$  in Trading Period  $h$ , corresponding to a Dispatch Quantity of  $DQ_{u,h}$ , or System Marginal Price (SMP $_h$ ) for any Generator Unit that does not submit Prices as part of its Commercial Offer Data;
8.  $DNLC_{u,h}$  is the Dispatch No Load Cost calculated as follows:

*if  $DQ_{u,h} > 0$  then*

$$DNLC_{u,h} = NLC_{u,h}$$

*else  $DNLC_{u,h} = 0$*

9.  $DQCCLF_{u,h}$  is the Loss-Adjusted Dispatch Quantity Cost Correction for Generator Unit  $u$  in Trading Period  $h$ , as determined according to paragraph 4.138 and then Loss-Adjusted, or zero for any Generator Unit that does not submit Prices as part of its Commercial Offer Data;
10.  $TPD$  is the Trading Period Duration;
11.  $CONP_{u,h}$  is the Constraint Payment payable to Generator Unit  $u$  for Trading Period  $h$ ;
12.  $DSUC_{u,h}$  is the Dispatch Start Up Cost for Generator Unit  $u$  in Trading Period  $h$ , calculated in accordance with paragraph 4.138B;

13. MSUC<sub>uh</sub> is the Market Start Up Cost for Generator Unit *u* in Trading Period *h*, calculated in accordance with paragraph 4.138A;
14. Q<sub>uh</sub>(0) is defined as the Minimum Output (MINOUT<sub>uh</sub>) for Generator Unit *u* in Trading Period *h*, either positive or negative.

4.136 For each Generator Unit *u* in each Trading Period *h*, the Market Operator shall calculate the Constraint Payments (CONP<sub>uh</sub>) as set out below, and the calculated value of CONP<sub>uh</sub> can be either positive or negative:

$$CONP_{uh} = TPD \times \left[ \begin{array}{l} (DQLF_{uh} \times DOP_{uh} + DNLC_{uh} + DQCCLF_{uh}) \\ - (MSQLF_{uh} \times MOP_{uh} + MNLC_{uh} + MSQCCLF_{uh}) \end{array} \right] + DSUC_{uh} - MSUC_{uh}$$

4.137 The Market Operator shall calculate the Market Schedule Quantity Cost Correction (MSQCC<sub>uh</sub>) for Generator Unit *u* in Trading Period *h* as follows:

1. Let *n* = the number of Accepted Price Quantity Pairs for Generator Unit *u* applicable to Trading Period *h*;
2. The integer *k* is defined as the smallest integer such that Q<sub>uh</sub>*k* is greater than zero. If Q<sub>uh</sub>*n* is zero or negative, then *k*=*n*+1;
3. Let:

$$CCX_{uhk} = 0$$

$$CCX_{uhn} = CCX_{uh(n+1)} \text{ (this equation is only required if } k=n+1 \text{)}$$

$$CCX_{uhi} = CCX_{uh(i-1)} + (P_{uh(i-1)} - P_{uhi}) \times Q_{uh(i-1)}, \text{ for each } i \text{ in the range } \text{Max}\{2, k+1\} \leq i \leq n \text{ in ascending order of } i$$

$$CCX_{uh(i-1)} = CCX_{uhi} - (P_{uh(i-1)} - P_{uhi}) \times Q_{uh(i-1)} \text{ for each } i \text{ in the range } \text{Min}\{k, n\} \geq i \geq 2 \text{ in descending order of } i$$

if MSQ<sub>uh</sub> ≤ Q<sub>uh</sub>1 then MSQCC<sub>uh</sub> = CCX<sub>uh</sub>1

else MSQCC<sub>uh</sub> = CCX<sub>uhx</sub>

where *x* is an integer which satisfies the equation

$$Q_{uh}(x-1) < MSQ_{uh} \leq Q_{uhx};$$

4. The subscripts *x* and *k* are re-set after each value of MSQCC<sub>uh</sub> is determined. CCX<sub>uhi</sub> are local variables used for the determination of MSQCC<sub>uh</sub>.

4.138 The Market Operator shall calculate the Dispatch Quantity Cost Correction (DQCC<sub>uh</sub>) as follows:

1. Let *n* = the number of Accepted Price Quantity Pairs for Generator Unit *u* applicable to Trading Period *h*;
2. The integer *k* is defined as the smallest integer such that Q<sub>uh</sub>*k* is greater than zero. If Q<sub>uh</sub>*n* is zero or negative, then *k*=*n*+1;
3. Let:

$$CCX_{uhk} = 0$$

$CCXuhn = CCXuh(n+1)$  (this equation is only required if  $k=n+1$ )

$CCXuhi = CCXuh(i-1) + (Puh(i-1) - Puhi) \times Quh(i-1)$ , for each  $i$  in the range  $\text{Max}\{2, k+1\} \leq i \leq n$  in ascending order of  $i$

$CCXuh(i-1) = CCXuhi - (Puh(i-1) - Puhi) \times Quh(i-1)$ , for each  $i$  in the range  $\text{Min}\{k, n\} \geq i \geq 2$  in descending order of  $i$

if  $DQuh \leq Quh1$  then  $DQCCuh = CCXuh1$

else  $DQCCuh = CCXuhx$ ,

where  $x$  is an integer which satisfies the equation

$$Quh(x-1) < DQuh \leq Quhx;$$

4. The subscripts  $x$  and  $k$  are re-set after each value of  $DQCCuh$  is determined.  $CCXuhi$  are local variables used for the determination of  $DQCCuh$ .

4.138A The Market Operator shall procure that the value of Market Start Up Cost (MSUCuh) for a Generator Unit  $u$  in Trading Period  $h$  shall be zero except in those Trading Periods where that Generator Unit has a Market Schedule Start. In such Trading Periods, the Market Start Up Cost (MSUCuh) shall be set equal to the Accepted Start Up Cost for the relevant Market Schedule Warmth State.

4.138B The Market Operator shall procure that the value of Dispatch Start Up Cost (DSUCuh) for a Generator Unit  $u$  in Trading Period  $h$  shall be zero except in those Trading Periods where that Generator Unit has a Dispatch Start. In such Trading Periods, the Dispatch Start Up Cost shall be set equal to the Accepted Start Up Cost value relating to the Dispatch Warmth State at the time of the Dispatch Start.

### MAKE WHOLE PAYMENTS

4.139 The purpose of Make Whole Payments is to make up any difference between the total Energy Payments to a Generator Unit in a Billing Period, and the Schedule Production Cost within that Billing Period (where the difference is arithmetically positive calculated over the Billing Period), as set out algebraically below.

4.140 The Market Operator shall procure that Make Whole Payments shall be calculated on a Billing Period basis for each Generator Unit  $u$  in Billing Period  $b$ , as follows:

$$MWPub = \text{Max} \left\{ \sum_{hinb} \left[ \left( (MOPuh - SMP_h) \times MSQLFuh \right) \times TPD + MSUCuh \right], 0 \right\}$$

Where

1.  $MWPub$  is the Make Whole Payment for Generator Unit  $u$  in Billing Period  $b$ ;
2.  $MOPuh$  is the Market Offer Price of Generator Unit  $u$  in Trading Period  $h$ ;
3.  $SMP_h$  is the System Marginal Price for Trading Period  $h$ ;

4. MSQLF<sub>uh</sub> is the Loss-Adjusted Market Schedule Quantity for Generator Unit u in Trading Period h;
5. TPD is the Trading Period Duration;
6. MNL<sub>Cuh</sub> is the Market No Load Cost for Generator Unit u in Trading Period h;
7. MSQCCL<sub>Fuh</sub> is the Loss-Adjusted Market Schedule Quantity Cost Correction for Generator Unit u in Trading Period h;
8. MSUC<sub>uh</sub> is the Market Start Up Cost for Generator Unit u in Trading Period h;
9. the summation  $\sum_{h \in b}$  is over all Trading Periods h in Billing Period b excluding any Trading Periods h in which the Generator Unit is Under Test.

## UNINSTRUCTED IMBALANCES

### General Rules for Uninstructed Imbalances

- 4.141 The Market Operator shall procure that Uninstructed Imbalances shall be calculated as set out algebraically below. An Uninstructed Imbalance occurs in a Trading Period if the Actual Output of a Generator Unit differs from its Dispatch Quantity in that Trading Period.
- 4.142 The System Operators shall make a report to the Regulatory Authorities at least four months before the start of the Year, proposing values for the following parameters to be used in the calculation of Uninstructed Imbalances for that Year:
  1. the Engineering Tolerance (ENGTOL) (where  $0 \leq \text{ENGTOL} \leq 1$ );
  2. the MW Tolerance (MWTOL<sub>t</sub>) (where  $0 \leq \text{MWTOL}_t$ ) for each Trading Day t;
  3. the System per Unit Regulation parameter (UREG);
  4. the Discount for Over Generation (DOG<sub>uh</sub>) for each Generator Unit u in each Trading Period h, such that  $0 \leq \text{DOG}_{uh} \leq 1$ ; and
  5. the Premium for Under Generation (PUG<sub>uh</sub>) for each Generator Unit u in each Trading Period h such that  $0 \leq \text{PUG}_{uh} \leq 1$ .
- 4.143 The System Operators' report must set out any relevant research or analysis carried out by the System Operators and any justification for the specific values proposed. Such a report may, and shall if so requested by the Regulatory Authorities, include alternative values from those proposed and must set out the arguments for and against such alternatives.
- 4.144 The System Operators shall, in accordance with Appendix K "Market Data Transactions", provide to the Market Operator at least two months prior to the start of each Year or within 5 Working Days of approval by the Regulatory Authorities, whichever is the later, the Uninstructed Imbalance Parameters Data Transaction, which comprises a complete set of Uninstructed Imbalance Parameters that have been approved by the Regulatory Authorities for that Year.



- 4.145 The Market Operator shall publish the approved value(s) for each Uninstructed Imbalance Parameter within 5 Working Days of receipt of the Regulatory Authorities' determination or two months before the start of the Year to which they shall apply whichever is the later.
- 4.146 For each Trading Day, the System Characteristics Data, consisting of values of Nominal System Frequency (NORFRQh) and Average System Frequency (AVGFRQh) for each Trading Period h in that Trading Day, shall be submitted to the Market Operator by the System Operators, in accordance with Appendix K "Market Data Transactions".

#### **Uninstructed Imbalance Tolerances**

- 4.147 The Market Operator shall calculate the Tolerance Bands for over generation and under generation for each Generator Unit for each Trading Period with reference to system frequency and the frequency characteristics of the Generator Unit as set out algebraically below.
- 4.148 The Engineering Limit (ENGLIMuh), expressed in MW, shall be calculated for each Generator Unit u for each Trading Period h as follows:

$$ENGLIMuh = \text{Max}\{|DQuh| \times ENGTOL, MWTOLt\}$$

Where

1. DQuh is the Dispatch Quantity for Generator Unit u in Trading Period h;
  2. ENGTOL is the Engineering Tolerance;
  3. MWTOLt is the MW Tolerance for the relevant Trading Period h within Trading Day t.
- 4.149 The Tolerance for Over Generation (TOLOGuh) and Tolerance for Under Generation (TOLUGuh) values shall be calculated by the Market Operator as positive values, expressed in MW for each Generator Unit u for each Trading Period h as follows:

*if*  $AVGFRQh \leq NORFRQh$  *then*

$$TOLOGuh = \left( \frac{(NORFRQh - AVGFRQh) \times RCu}{(UREG \times NORFRQh)} \right) + ENGLIMuh$$

$$TOLUGuh = ENGLIMuh$$

*else*

$$TOLOGuh = ENGLIMuh$$

$$TOLUGuh = \left( \frac{(AVGFRQh - NORFRQh) \times RCu}{(UREG \times NORFRQh)} \right) + ENGLIMuh$$

Where

1. AVGFRQh is the Average System Frequency in Trading Period h;
2. NORFRQh is the Nominal System Frequency for Trading Period h;
3. RCu is the Registered Capacity of Generator Unit u;
4. UREG is the System per Unit Regulation parameter;

5. ENGLIM<sub>uh</sub> is the Engineering Limit for Generator Unit *u* for Trading Period *h*.

**Payments to Generator Units for Uninstructed Imbalance**

4.150 For the following calculations:

1. DQLF<sub>uh</sub> is the Loss-Adjusted Dispatch Quantity for Generator Unit *u* in Trading Period *h*;
2. AOLF<sub>uh</sub> is the Loss-Adjusted Actual Output from Generator Unit *u* in Trading Period *h*;
3. TOLOGLF<sub>uh</sub> is the Loss-Adjusted Tolerance for Over Generation for Generator Unit *u* in Trading Period *h*;
4. TOLUGLF<sub>uh</sub> is the Loss-Adjusted Tolerance for Under Generation for Generator Unit *u* in Trading Period *h*;
5. DOG<sub>uh</sub> is the Discount for Over Generation for Generator Unit *u* in Trading Period *h*;
6. PUG<sub>uh</sub> is the Premium for Under Generation for Generator Unit *u* in Trading Period *h*;
7. SMP<sub>h</sub> is the System Marginal Price in Trading Period *h*;
8. DOP<sub>uh</sub> is the Dispatch Offer Price for Generator Unit *u* in Trading Period *h*;
9. TPD is the Trading Period Duration.

4.151 The Market Operator shall calculate the payments for Uninstructed Imbalances (UNIMP<sub>uh</sub>) for each Generator Unit *u* in Trading Period *h* as follows:

*if*  $DQLF_{uh} \leq AOLF_{uh} \leq (DQLF_{uh} + TOLOGLF_{uh})$  *then*

$$UNIMP_{uh} = TPD \times \text{Min}\{SMP_h, DOP_{uh}\} \times (AOLF_{uh} - DQLF_{uh})$$

*else if*  $(DQLF_{uh} - TOLUGLF_{uh}) \leq AOLF_{uh} < DQLF_{uh}$  *then*

$$UNIMP_{uh} = TPD \times \text{Max}\{SMP_h, DOP_{uh}\} \times (AOLF_{uh} - DQLF_{uh})$$

*else if*  $AOLF_{uh} > (DQLF_{uh} + TOLOGLF_{uh})$  *then*

$$UNIMP_{uh} = TPD \times \text{Min}\{SMP_h, DOP_{uh}\} \times TOLOGLF_{uh} + TPD \times [AOLF_{uh} - (DQLF_{uh} + TOLOGLF_{uh})] \times [\text{Min}\{DOP_{uh} - DOG_{uh} \times |DOP_{uh}|, SMP_h - DOG_{uh} \times |SMP_h|\}]$$

*else if*  $AOLF_{uh} < (DQLF_{uh} - TOLUGLF_{uh})$  *then*

$$UNIMP_{uh} = -TPD \times \text{Max}\{SMP_h, DOP_{uh}\} \times TOLUGLF_{uh} - TPD \times [(DQLF_{uh} - TOLUGLF_{uh}) - AOLF_{uh}] \times [\text{Max}\{DOP_{uh} + PUG_{uh} \times |DOP_{uh}|, SMP_h + PUG_{uh} \times |SMP_h|\}]$$

## IMPERFECTIONS CHARGES

- 4.152 The Market Operator shall make a report to the Regulatory Authorities at least four months before the start of the Year, proposing the following parameters to be used in the calculation of Imperfections Charges for that Year:
1. The Imperfections Price in euro/MWh for Year y; and
  2. Values of the Imperfections Charge Factor for each Trading Period h in Year y.
- 4.153 The Market Operator's report must set out any relevant research or analysis carried out by the Market Operator and the justification for the specific values proposed. Such a report may, and shall if so requested by the Regulatory Authorities, include alternative values from those proposed and must set out the arguments for and against such alternatives.
- 4.154 The Market Operator shall publish the approved value(s) for each such parameter within 5 Working Days of receipt of the Regulatory Authorities' determination or two months before the start of the Year to which they shall apply whichever is the later.
- 4.155 The purpose of the Imperfections Charge is to recover the anticipated net payments to Generator Units in respect of Constraint Payments, Uninstructed Imbalances (less Testing Charges for Generator Units), Make Whole Payments and any net imbalance between Energy Payments and Energy Charges over the Year, with adjustments for previous Years as appropriate.
- 4.156 The Market Operator shall calculate the Imperfections Charge (IMPC<sub>vh</sub>) for each Supplier Unit v in each Trading Period h as follows:
- $$IMPC_{vh} = NDLF_{vh} \times IMP_y \times IMPF_h$$
- Where
1. IMP<sub>y</sub> is the Imperfections Price for Year y;
  2. NDLF<sub>vh</sub> is the Loss-Adjusted Net Demand of Supplier Unit v in Trading Period h;
  3. IMPF<sub>h</sub> is the Imperfections Charge Factor for Trading Period h.
- 4.157 The Imperfections Charge Factor (IMPF<sub>h</sub>) shall be set equal to 1 for all Trading Periods.

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## 5. CATEGORISATION OF UNITS AND RULES FOR SPECIAL UNITS

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### DEFINITIONS AND GENERAL

- 5.1 Special Units are subject to the specific rules set out in this Section 5. These specific rules are in addition to, or, where appropriate, in replacement of, the rules set out elsewhere in the Code and, in particular, in Section 4.
- 5.2 The extent of application of any specific conditions in this Section 5 to a Unit shall be determined by:
1. the classification of the Unit into a Generic Settlement Class as set out further below, and/or
  2. the specific category of the Special Unit concerned for the purposes of paragraph 2.34 above.

### Classification of Generator Units

#### *Classification as Predictable, Variable or Autonomous*

- 5.3 At registration, each Generator Unit shall be classified as:
1. A Predictable Generator Unit; or
  2. A Variable Generator Unit; or
  3. An Autonomous Generator Unit.

#### *Classification as Autonomous Generator Unit*

- 5.4 A Generator Unit shall be classified as an Autonomous Generator Unit and a Price Taker Generator Unit if the Unit is not Dispatchable.

#### *Classification as Variable Generator Unit*

- 5.5 A Generator Unit shall be classified as a Variable Generator Unit if:
1. the short-term availability of the Generator Unit is unpredictable as a result of its fuel source; and
  2. the Generator Unit is a Wind Power Unit or a Run-of-River Hydro Unit; and
  3. the Generator Unit is Dispatchable.

#### *Classification as Predictable Generator Unit*

- 5.6 Predictable Generator Units are Generator Units which are Dispatchable and which are not otherwise required to be classified as Variable in accordance with paragraph 5.5.

#### *Generic Settlement Classes for Generator Units*

- 5.7 At registration, each Generator Unit will be classified as one of the following five Generic Settlement Classes.
1. Predictable Price Maker Generator Unit;

2. Predictable Price Taker Generator Unit;
3. Variable Price Maker Generator Unit;
4. Variable Price Taker Generator Unit; or
5. Autonomous Generator Unit.

5.8 The circumstances under which a Generator Unit may be classified as a Price Maker or Price Taker are set out in paragraphs 2.53 to 2.56.

### **CONDITIONS APPLYING TO GENERIC SETTLEMENT CLASSES**

5.9 Paragraphs 5.10 to 5.31 set out the specific conditions which apply to particular Generic Settlement Classes.

#### **Submission of Data**

##### ***Submission of Data for Predictable Price Taker Generator Units***

5.10 The relevant Participant shall submit Technical Offer Data and Commercial Offer Data in respect of each Predictable Price Taker Generator Unit. The Commercial Offer Data so submitted shall include a Decremental Price for each Trading Period  $h$  and a Nomination Profile.

5.11 The values of Decremental Price (DECP<sub>uh</sub>), for each Predictable Price Taker Generator Unit  $u$  in each Trading Period  $h$ , submitted by the Participant shall be equal to zero.

5.12 A Nomination Profile for a Generator Unit  $u$  shall comprise Nominated Quantities (NQ<sub>uh</sub>) in respect of each Trading Period  $h$  during the Trading Day.

5.13 Nominated Quantities shall be equal to the Output intended by the Participant for each of its Generator Units for each Trading Period during the Trading Day.

5.14 The Nominated Quantities in each Trading Period shall be Physically Feasible.

##### ***Submission of Data for Variable Price Taker Generator Units***

5.15 The relevant Participant shall submit Technical Offer Data and Commercial Offer Data for each Variable Price Taker Generator Unit. The Commercial Offer Data shall include only a Nomination Profile (as set out in paragraphs 5.12 to 5.14) and a Decremental Price for each Trading Period.

5.16 The values of Decremental Price (DECP<sub>uh</sub>), for each Variable Price Taker Generator Unit  $u$  in each Trading Period  $h$ , submitted by the Participant shall be equal to zero.

##### ***Submission of Data for Autonomous Generator Units***

5.17 Participants shall not submit Commercial Offer Data or Technical Offer Data in respect of Autonomous Generator Units under the Code.

##### ***Sources of Data Values in Initial Settlement***

5.18 Table 5.1 sets out the source of data values used in Initial Settlement for each of the Generic Settlement Classes under a variety of Dispatch Instructions except for Predictable Price Maker Generator Units.

**Table 5.1 – Source of data for Initial Settlement for each of the Generic Settlement Classes other than Predictable Price Maker Generator Units**

<b>Category</b>	<b>Form of Dispatch Instruction</b>	<b>Dispatch Quantity (DQuh)</b>	<b>Availability Profile (APuh)</b>	<b>Market Schedule Quantity (MSQuh)</b>
<b>Autonomous Generator Units</b>	N/A	Actual Output (AOuh)	Actual Output (AOuh)	Actual Output (AOuh)
<b>Variable Price Taker Generator Units</b>	Run	Actual Output (AOuh)	Actual Output (AOuh)	Actual Output AOuh
<b>Variable Price Taker Generator Units</b>	Unit constrained down in Dispatch Instructions to remain below a level of Output of X MW	Time weighted average of (Ottum Availability when not constrained down below X MW, Min{X MW, Ottum Availability} when constrained down below X MW)	Max {Actual Output (AOuh), Time weighted average of Ottum Availability}	Max {Actual Output (AOuh), Time weighted average of Ottum Availability}
<b>Variable Price Maker Generator Units</b>	Run	Actual Output (AOuh)	Actual Output (AOuh)	Calculated by the MSP Software
<b>Variable Price Maker Generator Units</b>	Unit constrained down in Dispatch Instructions to remain below a level of Output of X MW	Time weighted average of (Ottum Availability when not constrained down below X MW, Min{X MW, Ottum Availability} when constrained down below X MW)	Max (Actual Output (AOuh), Time weighted average of Ottum Availability)	Calculated by the MSP Software
<b>Predictable Price Taker Generator Units</b>	Any	As set out in Section 4	As set out in Section 4	Minimum of Nominated Quantity (NQuh) and Availability Profile (APuh)

5.18A Ex-Post Indicative Settlement for each of the Generic Settlement Classes except for Predictable Price Maker Generator Units is as set out in Table 5.1 above, subject to the following:

1. Appendix N “Operation of the MSP Software” makes provision for the detailed derivation of data values for use in Ex-Post Indicative Settlement; and
2. for Variable Price Maker Generator Units and Variable Price Taker Generator Units for all Trading Periods before 06:00, the form of Dispatch Instruction in Table 5.1 is assumed to be “Run”.

### **Constraint Payments and Other Payments and Charges**

#### ***Autonomous Generator Units***

- 5.19 Participants shall not be liable for Uninstructed Imbalance Payments in respect of Autonomous Generator Units.
- 5.20 Participants shall not receive Constraint Payments or Make Whole Payments in respect of Autonomous Generator Units.
- 5.21 The Market Operator shall calculate the value of Minimum Output (MINOUT<sub>uh</sub>) for each Autonomous Generator Unit *u* in Trading Period *h* including, for the avoidance of doubt, Netting Generator Units, as follows:

$$MINOUT_{uh} = \text{Min}\{AO_{uh}, 0\}$$

Where

1. AO<sub>uh</sub> is the Actual Output for Generator Unit *u* in Trading Period *h*.
- 5.22 There are no Market Schedule Quantities defined for any Autonomous Generator Unit for any Ex-Ante Indicative Market Schedule.
  - 5.23 There are no Market Schedule Quantities defined for any Autonomous Generator Unit for the Trading Periods that are after midnight on that Trading Day for each Ex-Post Indicative Market Schedule, each of which comprises data for an entire Trading Day.

#### ***Variable Price Taker Generator Units***

- 5.24 The Market Operator shall calculate Constraint Payments (CONP<sub>uh</sub>) in respect of each Variable Price Taker Generator Unit *u* in each Trading Period *h* as follows:

*if*  $DQ_{uh} < MSQ_{uh}$  *then*

$$CONP_{uh} = TPD \times (DQLF_{uh} - MSQ_{uh}) \times DECP_{uh}$$

*else*  $CONP_{uh} = 0$

Where

1. TPD is the Trading Period Duration;
2. DQLF<sub>uh</sub> is the Loss-Adjusted Dispatch Quantity for Generator Unit *u* in Trading Period *h*;
3. MSQ<sub>uh</sub> is the Loss-Adjusted Market Schedule Quantity for Generator Unit *u* in Trading Period *h*;
4. DECP<sub>uh</sub> is the Decremental Price for Generator Unit *u* in Trading Period *h*;

- 5. DQuh is the Dispatch Quantity for Generator Unit u in Trading Period h;
  - 6. MSQuh is the Market Schedule Quantity for Generator Unit u in Trading Period h.
- 5.25 Participants shall not receive Make Whole Payments in respect of their Variable Price Taker Generator Units.
- 5.26 For the purpose of the calculation of Uninstructed Imbalances, as set out in paragraphs 4.141 to 4.151, for Variable Price Taker Generator Units u in Trading Period h, the Market Operator shall deem the value of Dispatch Offer Price (DOPuh) to be equal to the System Marginal Price (SMPH).
- 5.27 For each Variable Price Taker Generator Unit u, the Market Operator shall set the indicative value of Market Schedule Quantity (MSQuh) for the Ex-Ante Indicative Market Schedule for each Trading Period h to equal the minimum of the Accepted Nominated Quantity value and the relevant Accepted Forecast Availability value. In the case of Wind Power Units, the relevant value from the System Operator's submitted Wind Power Unit Forecast shall be used in place of the Accepted Nominated Quantity.

**Predictable Price Taker Generator Units**

- 5.28 The Market Operator shall calculate Constraint Payments (CONPuh) in respect of Predictable Price Taker Generator Units u in each Trading Period h as follows:
- 1. where the Dispatch Quantity (DQuh) exceeds the Market Schedule Quantity (MSQuh), Constraint Payments shall be calculated in accordance with Section 4, and based on the relevant Commercial Offer Data;
  - 2. where the Dispatch Quantity (DQuh) is less than or equal to the Market Schedule Quantity (MSQuh), Constraint Payments shall be calculated as follows:

$$CONPuh = TPD \times (DQLFuh - MSQLFuh) \times DECPuh$$

Where

- a. TPD is the Trading Period Duration;
  - b. DQLFuh is the Loss-Adjusted Dispatch Quantity for Generator Unit u in Trading Period h;
  - c. MSQLFuh is the Loss-Adjusted Market Schedule Quantity for Generator Unit u in Trading Period h;
  - d. DECPuh is the Decremental Price for Generator Unit u in Trading Period h.
- 5.29 Participants shall not receive Make Whole Payments in respect of their Predictable Price Taker Generator Units.
- 5.30 For the purpose of calculation of Uninstructed Imbalances for Predictable Price Taker Generator Units as set out in paragraph 4.141 to 4.151, the Market Operator shall deem the value of Dispatch Offer Price (DOPuh) to be equal to the System Marginal Price (SMPH) for each Generator Unit u in Trading Period h for which AOLFuh ≤ MSQLFuh.



- 5.31 For each Predictable Price Taker Generator Unit  $u$ , the indicative values of Market Schedule Quantity for the Ex-Ante Indicative Market Schedule for each Trading Period will equal the minimum of the Accepted Nominated Quantities and the relevant Accepted Forecast Availability value.

### **INTERCONNECTORS**

- 5.32 Each Interconnector Residual Capacity Unit shall be classified as a Predictable Generator Unit, but shall not be classified either as a Price Maker Generator Unit or as a Price Taker Generator Unit. Further special provisions for Settlement for Interconnector Residual Capacity Units are set out below.
- 5.33 Participants shall not submit Commercial Offer Data or Technical Offer Data in respect of any Interconnector Residual Capacity Unit.
- 5.34 Each Interconnector Error Unit shall be classified as an Autonomous Generator Unit and as a Price Taker Generator Unit. Further special provisions for Settlement for Interconnector Error Units are detailed below.
- 5.35 All values expressed in MW or MWh that relate to imports into the Pool in relation to an Interconnector, Interconnector Units, Interconnector Residual Capacity Units or Interconnector Error Units shall be positive (including zero).
- 5.36 All values expressed in MW or MWh that relate to exports from the Pool in relation to an Interconnector, Interconnector Units, Interconnector Residual Capacity Units or Interconnector Error Units shall be negative or zero.

#### **Interconnector Unit**

- 5.37 For the avoidance of doubt, no Interconnector Residual Capacity Unit and no Interconnector Error Unit is an Interconnector Unit for the purposes of this Code.
- 5.38 Each Interconnector Unit shall be classified as a Predictable Price Maker Generator Unit. Further special provisions for Settlement for Interconnector Units are set out below.

#### **Available Transfer Capacity**

- 5.39 For each Trading Day for each Interconnector, the relevant Interconnector Owner shall, or shall procure that the relevant Interconnector Administrator shall, for that Trading Day, calculate the Available Transfer Capacity (consisting of the Maximum Import Available Transfer Capacity and the Maximum Export Available Transfer Capacity) for each Trading Period in the Optimisation Time Horizon and shall submit the resulting values to the Market Operator via the Interconnector Available Transfer Capacity Data Transaction in accordance with Appendix K "Market Data Transactions".
- 5.40 The Market Operator shall publish such Available Transfer Capacity values for each Trading Day by 10:00 on the day prior to Gate Closure for the relevant Trading Day.
- 5.41 Maximum Import Available Transfer Capacity shall relate to the physical capability of the Interconnector to deliver energy to the Transmission System, 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.

- 5.42 Maximum Export Available Transfer Capacity shall relate to the physical capability of the Interconnector to off-take energy from the Transmission System, 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.
- 5.43 If, after the submission of Available Transfer Capacity for an Interconnector in accordance with paragraph 5.39, the Available Transfer Capacity for that Interconnector in either direction is changed in any Trading Period within the relevant Optimisation Time Horizon before Gate Closure for the relevant Trading Day, then the Interconnector Administrator shall submit revised values of Available Transfer Capacity to the Market Operator by Gate Closure if practically possible.

#### **Active Interconnector Unit Capacity Holding Data**

- 5.44 For each Trading Day for each Interconnector, the relevant Interconnector Administrator shall submit the Active Interconnector Unit Capacity Holding Data to the Market Operator by Gate Closure for each Trading Period in that Trading Day, via the Active Interconnector Unit Capacity Holding Data Transaction in accordance with Appendix K “Market Data Transactions”.
- 5.45 The Active Interconnector Unit Capacity Holding Data shall comprise for each Interconnector Unit, the Active Interconnector Unit Import Capacity Holding and the Active Interconnector Unit Export Capacity Holding for each Trading Period during the Optimisation Time Horizon.
- 5.46 The relevant Interconnector Administrator shall make reasonable endeavours to ensure that for each Interconnector Unit, the submitted values of Active Interconnector Unit Capacity Holding Data for the last six hours of the Optimisation Time Horizon are a reasonable estimate of the final values that will be submitted for those Trading Periods.
- 5.47 The Market Operator shall by 10:30 on the day prior to the Trading Day notify each Interconnector User of the Active Interconnector Unit Capacity Holding for its Interconnector Unit.
- 5.48 The relevant Interconnector Administrator shall ensure that the submitted Active Interconnector Unit Capacity Holding Data for each Interconnector is such that the sum of the Active Interconnector Unit Import Capacity Holdings is less than or equal to the Maximum Import Available Transfer Capacity in each Trading Period.
- 5.49 The relevant Interconnector Administrator shall ensure that the submitted Active Interconnector Unit Capacity Holding Data for each Interconnector is such that the sum of the Active Interconnector Unit Export Capacity Holdings is in absolute magnitude less than or equal to the Maximum Export Available Transfer Capacity in each Trading Period.
- 5.50 Agreed Procedure 2 “Interconnector Unit Capacity Right Calculation and Dispatch Notification” sets out the procedure for the calculation and notification of Active Interconnector Unit Capacity Holding.

### **Commercial and Technical Offer Data**

- 5.51 Before Gate Closure for each Trading Day, Interconnector Users shall submit Commercial Offer Data to the Market Operator for that Trading Day in respect of each of their Interconnector Units.
- 5.52 Commercial Offer Data for Interconnector Units must only include:
1. Up to ten Price Quantity Pairs for each Trading Period during the Trading Day for each Interconnector Unit, where negative Quantities relate to exports from the Pool;
  2. Maximum Interconnector Unit Import Capacity offered on the Interconnector Unit for each Trading Period in the Trading Day; and
  3. Maximum Interconnector Unit Export Capacity offered on the Interconnector Unit in each Trading Period in the Trading Day.
- 5.53 Participants shall not submit any Technical Offer Data for any Interconnector Unit.
- 5.54 The Maximum Interconnector Unit Export Capacity may be less in absolute magnitude than the Active Interconnector Unit Export Capacity Holding.
- 5.55 The Maximum Interconnector Unit Import Capacity may be less than the Active Interconnector Unit Import Capacity Holding.
- 5.56 The Price Quantity Pairs for each Interconnector Unit in each Trading Period apply within the range set by the Maximum Interconnector Unit Import Capacity and the Maximum Interconnector Unit Export Capacity.
- 5.57 In the event that no valid Commercial Offer Data is submitted for an Interconnector Unit for a Trading Period in accordance with the Code, the Market Operator shall set the Maximum Interconnector Unit Import Capacity and Maximum Interconnector Unit Export Capacity for the relevant Unit equal to zero for that Trading Period.

### **Interconnector Unit Nominations and Modified Interconnector Unit Nominations**

- 5.58 For each Trading Day, the Market Operator shall by 11:00 on the day prior to the start of the Trading Day determine Interconnector Unit Nominations for each Interconnector Unit from the Ex-Ante Indicative MSP Software Run based on the Active Interconnector Unit Capacity Holding and Commercial Offer Data such that the following conditions are satisfied:
1. the Ramp Rate for each Interconnector Unit that is implied by the Interconnector Unit Nominations shall not exceed a value of 99999.9 MW/min; and
  2. the implied Ramp Rate for the sum of all Interconnector Units on any Interconnector that is implied by their Interconnector Unit Nominations shall not exceed the Aggregate Interconnector Ramp Rate for that Interconnector at any time.
- 5.59 Based on the Interconnector Unit Nominations, the Market Operator shall calculate Modified Interconnector Unit Nominations in accordance with Agreed Procedure 2 "Interconnector Unit Capacity Right Calculation and Dispatch Notifications". These shall be calculated by the Market Operator such that the Modified Interconnector Unit Nominations, when considered in aggregate across any Interconnector, are consistent with the Interconnector Technical Data for that Interconnector at all times.

- 5.59A For each Trading Day, the Market Operator shall by 12:00 on the day prior to the start of the Trading Day submit to each Interconnector User the Modified Interconnector Unit Nominations in respect of its Interconnector Units, via the Modified Interconnector Unit Nominations Data Transaction in accordance with Appendix K “Market Data Transactions”.
- 5.60 For each Trading Day, the Market Operator shall calculate Aggregate Modified Interconnector Unit Nominations for each Interconnector for each Trading Period, and by 12:00 on the day prior to the start of the Trading Day shall submit the Aggregate Modified Interconnector Unit Nomination Data Transaction to the relevant System Operator in accordance with Appendix J “Market Operator and System Operator Data Transactions”.

#### **Technical Failures on an Interconnector**

- 5.61 In the event of a technical failure on an Interconnector which causes a reduction in the magnitude of the Available Transfer Capacity (this includes reductions in the absolute magnitude of the Maximum Import Available Transfer Capacity and/or the Maximum Export Available Transfer Capacity) after the time of submission of the Active Interconnector Unit Capacity Holding Data stated in paragraph 5.44, the procedures detailed in paragraphs 5.63, 5.65 and 5.67 and in Agreed Procedure 2 “Interconnector Unit Capacity Right Calculation and Dispatch Notification” shall be followed.
- 5.62 Following an event as described in paragraph 5.61, if each of the following conditions is satisfied:
1. if there has been a technical failure on the relevant Interconnector causing a reduction in the magnitude of Available Transfer Capacity after Gate Closure for the relevant Trading Periods in accordance with paragraph 5.61;
  2. and if values of the Modified Interconnector Unit Nominations have been calculated and issued to Interconnector Users in accordance with paragraph 5.65; and
  3. and if there has been a subsequent increase in the absolute magnitude of the Available Transfer Capacity for the relevant Interconnector in either direction;
- then the procedures detailed in paragraphs 5.63, 5.65 and 5.67 and in Agreed Procedure 2 “Interconnector Unit Capacity Right Calculation and Dispatch Notification” shall be followed.
- 5.63 In the case of the events described in paragraphs 5.61 or 5.62, then the Market Operator shall recalculate and re-issue the Modified Interconnector Unit Nominations for each Trading Period in the relevant Optimisation Time Horizon to each Interconnector User for each of their Interconnector Units as soon as possible, such that the sum of Modified Interconnector Unit Nominations across all relevant Interconnector Units does not exceed in magnitude the revised Available Transfer Capacity in either direction in any Trading Period and such that the value of each Modified Interconnector Unit Nomination must be in the same direction and must not exceed in absolute magnitude the relevant Interconnector Unit Nomination calculated in accordance with paragraph 5.58, for any Interconnector Unit in any Trading Period.
- 5.64 Intentionally blank.

- 5.65 If the event described in paragraph 5.61 occurs, then the Market Operator shall recalculate and re-issue the Modified Interconnector Unit Nominations to each Interconnector User for each of their Interconnector Units as soon as possible.
- 5.66 For the avoidance of doubt, each Interconnector User will be responsible for any consequent alteration to the position of its Interconnector Unit(s) in any market outside of the Pool.
- 5.67 In the case of the event described in paragraph 5.61, then the Market Operator shall recalculate the Aggregate Modified Interconnector Unit Nominations and the Market Operator shall re-issue the Aggregate Modified Interconnector Unit Nominations Data Transaction to the System Operator as soon as possible.

#### **SO Interconnector Trades**

- 5.68 Subject to commercial agreement, the relevant System Operator which is the Participant in respect of an Interconnector Residual Capacity Unit shall be entitled under the terms of the Code to make SO Interconnector Trades across the relevant Interconnector in either direction, using any available Interconnector capacity which is not allocated to Interconnector Users under the aggregate of the prevailing Modified Interconnector Unit Nominations.
- 5.69 Any SO Interconnector Trades that are conducted by the System Operator must be conducted after Gate Closure and after receipt by the relevant System Operator of the Aggregate Modified Interconnector Unit Nomination Data Transaction.
- 5.70 For each Interconnector *l* on each Trading Day, the relevant System Operator shall submit, as part of the Dispatch Instruction and SO Interconnector Trades Data Transaction in accordance with Appendix K “Market Data Transactions”, data for each Trading Period *h* in the Optimisation Time Horizon relating to that Trading Day to the Market Operator no later than 14:00 on the day on which the Trading Day ends as follows:
  1. SO Interconnector Import Price (SIIP<sub>lh</sub>) which is the volume-weighted average price for each Trading Period for SO Interconnector Trades which are for import to the Pool (or zero if there are no such trades);
  2. SO Interconnector Export Price (SIEP<sub>lh</sub>) which is the volume-weighted average price for each Trading Period for SO Interconnector Trades which are for export from the Pool (or zero if there are no such trades);
  3. SO Interconnector Import Quantity (SIQ<sub>lh</sub>) which is the time-weighted average quantity for each Trading Period (expressed as a positive number in MW) of SO Interconnector Trades which are for import to the Pool (or zero if there are no such trades); and
  4. SO Interconnector Export Quantity (SEQ<sub>lh</sub>) which is the time-weighted average quantity for each Trading Period (expressed as a negative number in MW) of SO Interconnector Trades which are for export from the Pool (or zero if there are no such trades).
- 5.71 Agreed Procedure 2 “Interconnector Unit Capacity Right Calculation and Dispatch Notifications” shall provide that, in the event of a revision to Available Transfer Capacity in accordance with paragraph 5.64, the Modified

Interconnector Unit Nominations for each Interconnector Unit shall be revised to the minimum extent necessary, taking account of any SO Interconnector Trades which are in the opposite direction to the aggregate of the Modified Interconnector Unit Nominations but taking no account of any SO Interconnector Trades which are in the same direction as the aggregate of the Modified Interconnector Unit Nominations.

**Dispatch Quantities**

- 5.72 For each Interconnector Unit  $u$ , the Market Operator shall set the Dispatch Quantity ( $DQuh$ ) to be equal to the Modified Interconnector Unit Nomination for each Trading Period  $h$ .
- 5.73 For each Interconnector Residual Capacity Unit  $u'$  in each Trading Period  $h$ , the Market Operator shall set the Dispatch Quantity ( $DQu'h$ ) to be equal to the sum of SO Interconnector Export Quantity ( $SIEQlh$ ) and the SO Interconnector Import Quantity ( $SIIQlh$ ) for that Interconnector in that Trading Period.
- 5.74 The Market Operator shall set the Dispatch Quantity for the Interconnector Error Unit to be equal to zero.

**Actual Availability and Minimum Output**

***Values for Ex-Ante Indicative MSP Software Runs***

- 5.75 The Market Operator shall procure that, for each Interconnector Unit  $u$  in each Trading Period  $h$ , the Actual Availability ( $AAuh$ ) used as an input to each Ex-Ante Indicative MSP Software Run shall be the lesser of the Active Interconnector Unit Import Capacity Holding and the Maximum Interconnector Unit Import Capacity, or zero if either the Active Interconnector Unit Import Capacity Holding or the Maximum Interconnector Unit Import Capacity is equal to zero.
- 5.76 The Market Operator shall procure that, for each Interconnector Unit  $u$  in each Trading Period  $h$ , the Minimum Output ( $MINOUTuh$ ) used as an input to each Ex-Ante Indicative MSP Software Run shall be the lesser in absolute magnitude of the Active Interconnector Unit Export Capacity Holding and the Maximum Interconnector Unit Export Capacity expressed as a negative number, or zero if either the Active Interconnector Unit Export Capacity Holding or the Maximum Interconnector Unit Export Capacity is equal to zero.

***Values for Ex-Post Indicative MSP Software Runs and Ex-Post Initial MSP Software Runs***

- 5.77 The Market Operator shall procure that, for each Interconnector Unit  $u$  in each Trading Period  $h$ , the Actual Availability ( $AAuh$ ) used as an input to each Ex-Post Indicative MSP Software Run and each Ex-Post Initial MSP Software Run shall be calculated as follows:

$$\begin{aligned} & \text{if } DQuh \geq 0 \text{ then} \\ & \quad AAuh = DQuh \\ & \text{else} \\ & \quad AAuh = 0 \end{aligned}$$

Where

1.  $DQ_{uh}$  is the Dispatch Quantity for Interconnector Unit  $u$  in Trading Period  $h$ .

5.78 The Market Operator shall procure that, for each Interconnector Unit  $u$  in each Trading Period  $h$ , the Minimum Output ( $MINOUT_{uh}$ ) used as an input to each Ex-Post Indicative MSP Software Run and each Ex-Post Initial MSP Software Run shall be calculated as follows:

*if  $DQ_{uh} \geq 0$  then*

$$MINOUT_{uh} = 0$$

*else*

$$MINOUT_{uh} = DQ_{uh}$$

Where

1.  $DQ_{uh}$  is the Dispatch Quantity for Interconnector Unit  $u$  in Trading Period  $h$

#### **Market Schedule Quantities**

5.79 The Market Operator shall procure that each Interconnector Unit  $u$  shall be included in the MSP Software as a Predictable Price Maker Generator Unit.

5.80 The Market Operator shall procure that the Market Schedule Quantity ( $MSQ_{uh}$ ) for each Interconnector Unit  $u$  in Trading Period  $h$  shall be calculated using the MSP Software such that the following conditions are satisfied:

1. the Ramp Rate for each Interconnector Unit that is implied by the Market Schedule Quantities shall not exceed a value of 99999.9 MW/min at any time; and
2. the implied Ramp Rate for the sum of all Interconnector Units on any Interconnector that is implied by their Market Schedule Quantities shall not exceed the Aggregate Interconnector Ramp Rate for that Interconnector at any time.

5.81 Intentionally blank.

5.82 The Market Operator shall calculate the Market Schedule Quantities in each Trading Period such that the aggregate of the Ramp Rates for all Interconnector Units on any Interconnector that is implied by the Interconnector Unit Nominations does not exceed the Aggregate Interconnector Ramp Rate for that Interconnector at any time.

5.83 The Market Operator shall set the Market Schedule Quantity ( $MSQ_{u'h}$ ) for each Interconnector Residual Capacity Unit  $u'$  in Trading Period  $h$  to be equal to zero.

5.84 The Market Operator shall set the Market Schedule Quantity ( $MSQ_{u''h}$ ) for each Interconnector Error Unit  $u''$  in Trading Period  $h$  to be equal to zero.

#### **Metered Quantities**

5.85 The Market Operator shall procure that the Metered Generation ( $MG_{uh}$ ) for each Interconnector Unit  $u$  and for each Interconnector Residual Capacity Unit  $u'$  ( $MG_{u'h}$ ) in each Trading Period  $h$  shall be calculated as follows:

$$MG_{uh} = DQ_{uh} \times TPD$$

$$MG_{u'h} = DQ_{u'h} \times TPD$$

Where

1.  $DQuh$  is the Dispatch Quantity for Interconnector Unit  $u$  in Trading Period  $h$ ;
2.  $DQu'h$  is the Dispatch Quantity for the Interconnector Residual Capacity Unit  $u'$  in Trading Period  $h$ ;
3.  $TPD$  is the Trading Period Duration.

- 5.86 The Market Operator shall procure that the Metered Generation ( $MGu''h$ ) for each Interconnector Error Unit  $u''$  in each Trading Period  $h$  shall be calculated as follows:

$$MGu''h = IMGlh - \left( \sum_{u \text{ in } l} DQuh + DQu'h \right) \times TPD$$

Where

1.  $IMGlh$  is the Interconnector Metered Generation for Interconnector  $l$  in Trading Period  $h$ ;
2.  $\sum_{u \text{ in } l} DQuh$  is the sum of the Dispatch Quantities for each Interconnector Unit  $u$  within each Interconnector  $l$  in Trading Period  $h$ ;
3.  $DQu'h$  is the Dispatch Quantity for the Interconnector Residual Capacity Unit  $u'$  in Trading Period  $h$ ;
4.  $TPD$  is the Trading Period Duration.

#### **Interconnector Capacity Payments**

- 5.87 The Market Operator shall set the Eligible Availability ( $E Au h$ ) used to determine Capacity Payments for each Interconnector Unit  $u$  in each Trading Period  $h$  to be equal to the Dispatch Quantity ( $DQuh$ ).
- 5.88 The Market Operator shall set the Eligible Availability ( $E Au'h$ ) for each Interconnector Residual Capacity Unit  $u'$  in each Trading Period  $h$  to be equal to the Dispatch Quantity ( $DQu'h$ ).
- 5.89 The Market Operator shall calculate the Eligible Availability ( $E Au''h$ ) for the Interconnector Error Unit  $u''$  as follows:

$$E Au''h = \frac{MGu''h}{TPD}$$

Where

1.  $MGu''h$  is Metered Generation for Interconnector Error Unit  $u''$  in Trading Period  $h$ ;
2.  $TPD$  is the Trading Period Duration.

#### **Constraint Payments for Interconnector Residual Capacity Units**

- 5.90 The Market Operator shall calculate the Constraint Payments in respect of each Interconnector Residual Capacity Unit  $u'$  in each Trading Period  $h$  ( $CONPu'h$ ) as follows:

$$CONPu'h = (SIEPlh \times SIEQlh + SIIPlh \times SIIQlh) \times TPD \times TLA Fu'h$$

Where



1. SIEPI<sub>h</sub> is the SO Interconnector Export Price for the relevant Interconnector I for Trading Period h
2. SIEQI<sub>h</sub> is the SO Interconnector Export Quantity for the relevant Interconnector I for Trading Period h
3. SIIPI<sub>h</sub> is the SO Interconnector Import Price for the relevant Interconnector I for Trading Period h
4. SIIQI<sub>h</sub> is the SO Interconnector Import Quantity for the relevant Interconnector I for Trading Period h
5. TPD is the Trading Period Duration
6. TLA Fu'<sub>h</sub> is the Transmission Loss Adjustment Factor for Interconnector Residual Capacity Unit u' in Trading Period h

### **Settlement**

- 5.91 Following calculation of the values for Eligible Availability (EA<sub>uh</sub>), Market Schedule Quantity (MSQ<sub>uh</sub>), Dispatch Quantity (DQ<sub>uh</sub>) and Metered Generation (MG<sub>uh</sub>), and, for Interconnector Residual Capacity Units, Constraint Payments (CONP<sub>uh</sub>) as above, the Market Operator shall procure that Settlement for each Interconnector Unit, Interconnector Residual Capacity Unit and Interconnector Error Unit will otherwise be conducted in accordance with Section 4.

## **ENERGY LIMITED GENERATOR UNITS**

### **General**

- 5.92 Save as provided in paragraph 5.93, the relevant Participant shall ensure that a Generator Unit is not categorised as an Energy Limited Generator Unit, and that the additional Technical Offer Data Records listed in paragraph 5.95 are not submitted in relation to it.
- 5.93 A Hydro-electric Generator Unit shall be categorised as an Energy Limited Generator Unit if it is:
1. subject to a physical Energy Limit; and
  2. a Price Maker Generator Unit.
- 5.94 For the purposes of the Code, an Energy Limit may only apply to a single Generator Unit and Participants shall not submit any data in relation to any Energy Limit that would or may apply to more than a single Generator Unit.

### **Offering and Scheduling**

- 5.95 Participants shall submit additional Data Records for each Energy Limited Generator Unit for each Trading Day, as part of their Technical Offer Data. The Market Operator shall procure that such Data Records shall be used within the MSP Software to calculate the Market Schedule Quantity for the Energy Limited Generator Unit. These parameters are:
1. the Energy Limit;
  2. the Energy Limit Start;
  3. the Energy Limit Stop; and
  4. the Energy Limit Factor.

- 5.96 The relevant Participant shall ensure that, in respect of its Energy Limited Generator, the Energy Limit (in MWh) shall not exceed the total energy that the plant is physically capable of generating during the Energy Limit Period.
- 5.97 In accordance with the relevant Grid Code, a System Operator may accept a revised declaration of the Energy Limit of an Energy Limited Generator Unit from the plant operator for operational purposes. In this event, the relevant System Operator shall submit Energy Limited Generator Unit Technical Characteristics, consisting of the revised Energy Limit for each Energy Limited Generator Unit on each Trading Day to the Market Operator in accordance with Appendix K "Market Data Transactions", and this will replace the Energy Limit submitted by the Participant as part of its Technical Offer Data.
- 5.98 For each Trading Day, the Market Operator shall multiply the Energy Limit Factor by the Energy Limit to give a value which the Market Operator shall use in the MSP Software to limit the total Market Schedule Quantity of the relevant Energy Limited Generator Unit in the set of Trading Periods that fall within the Ending Overlap Optimisation Period.
- 5.99 The relevant Participant shall submit an Energy Limit Factor of 0.25 for each Energy Limited Generator Unit.
- 5.100 The Market Operator shall procure that the Market Schedule Quantity for each Energy Limited Generator Unit shall be as determined by the MSP Software based on the Technical and Commercial Offer Data of the Energy Limited Generator Unit, including the Energy Limit, the Energy Limit Period and the Energy Limit Factor, and shall be Physically Feasible.
- 5.101 Subject to the physical capability of the plant, the Energy Limit used by the Market Operator in the Ex-Post Initial MSP Software Runs, Ex-Post Indicative MSP Software Runs, and in Settlement shall be the greater of:
1. either the Energy Limit for the Energy Limited Generator Unit  $u$  submitted as part of its Technical Offer Data or the re-submitted Energy Limit for the Energy Limited Generator Unit  $u$  submitted by the relevant System Operator in accordance with Appendix K "Market Data Transactions", as appropriate for the relevant MSP Software Run; and
  2. the sum of the Actual Output values (AO $_{uh}$ ) in each Trading Period  $h$  in the Trading Day for the Energy Limited Generator Unit  $u$ ,
- and the derivation of the values of Energy Limit used in Ex-Ante Indicative MSP Software Runs are detailed within Appendix N "Operation of the MSP Software".

### **Capacity Payments**

- 5.102 The Eligible Availability of each Energy Limited Generator Unit in each Trading Period shall be calculated by the Market Operator as set out below.
- 5.103 The Interim Eligible Availability (IEA $_{uh}$ ) for each Energy Limited Generator Unit  $u$  in each Trading Period  $h$  other than those Trading Periods referred to in paragraphs 5.104 and 5105 shall be calculated as follows:
- Given  $\lambda_h$  and  $l_{\phi h}$ , select values of IEA $_{uh}$  to maximise:

$$\sum_{h \text{ in } t} \left[ IEA_{uh} \times \left\{ \left( \frac{VCPWF_h \times CPVSc}{(VCPWF_h \times CPVSc) + (IECPWF_h \times CPESc)} \right) \times (\lambda_h) \right. \right. \\ \left. \left. + \left( \frac{IECPWF_h \times CPESc}{(VCPWF_h \times CPVSc) + (IECPWF_h \times CPESc)} \right) \times (I\phi_h) \right\} \right]$$

subject to the following conditions:

1.  $\sum_{h \text{ in } t} IEA_{uh} \leq \left( \frac{SEL_{ut}}{TPD} \right)$
2.  $\forall h : IEA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$
3.  $\forall h : IEA_{uh} \leq AP_{uh}$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. IECPWF<sub>h</sub> is the Interim Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5. λ<sub>h</sub> is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M “Description of the Function for the Determination of Capacity Payments”;
6. Iφ<sub>h</sub> is the Interim Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M “Description of the Function for the Determination of Capacity Payments”;
7. SEL<sub>ut</sub> is the Accepted Energy Limit for Energy Limited Generator Unit u in Trading Day t expressed in terms of generation, amended in accordance with paragraphs 5.97 or 5.101 as appropriate;
8. TPD is the Trading Period Duration;
9. MSQ<sub>uh</sub> is the Market Schedule Quantity for Energy Limited Generator Unit u in Trading Period h;
10. AP<sub>uh</sub> is the Availability Profile for Energy Limited Generator Unit u in Trading Period h;
11.  $\sum_{h \text{ in } t}$  is a summation over all Trading Periods h in Trading Day t.

5.104 The Interim Eligible Availability (IEA<sub>uh</sub>) for each Energy Limited Generator Unit u in each Trading Period h in the period commencing at the start of the first Trading Period in each Capacity Period c and ending at the end of the

last Trading Period of the first Trading Day  $t$  in each Capacity Period shall be calculated as follows:

Given  $\lambda_h$  and  $I\phi_h$ , select values of  $IEA_{uh}$  to maximise:

$$\sum_{h=a}^{h=b} IEA_{uh} \times \left[ \left( \frac{VCPWF_h \times CPVSc}{(VCPWF_h \times CPVSc) + (IECPWF_h \times CPESc)} \right) \times (\lambda_h) \right. \\ \left. + \left( \frac{IECPWF_h \times CPESc}{(VCPWF_h \times CPVSc) + (IECPWF_h \times CPESc)} \right) \times (I\phi_h) \right]$$

subject to the following conditions:

1.  $\sum_{h=a}^{h=b} IEA_{uh} \leq \left( \frac{SEL_{ut}}{TPD} \right) + \left\{ \left( \frac{SEL_{u(t-1)}}{TPD} \right) \times 0.25 \right\}$
2.  $\forall h : IEA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$
3.  $\forall h : IEA_{uh} \leq AP_{uh}$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period  $h$ ;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period  $c$ ;
3. IECPWF<sub>h</sub> is the Interim Ex-Post Capacity Payments Weighting Factor in Trading Period  $h$ ;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period  $c$ ;
5.  $\lambda_h$  is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period  $h$  and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
6.  $I\phi_h$  is the Interim Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period  $h$  and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
7. SEL<sub>ut</sub> is the Accepted Energy Limit for Energy Limited Generator Unit  $u$  in Trading Day  $t$  expressed in terms of generation, amended in accordance with paragraphs 5.97 or 5.101 as appropriate;
8. SEL<sub>u(t-1)</sub> is the Accepted Energy Limit for Energy Limited Generator Unit  $u$  in Trading Day  $t-1$  expressed in terms of generation, amended in accordance with paragraphs 5.97 or 5.101 as appropriate;
9. TPD is the Trading Period Duration;
10. MSQ<sub>uh</sub> is the Market Schedule Quantity for Energy Limited Generator Unit  $u$  in Trading Period  $h$ ;
11. AP<sub>uh</sub> is the Availability Profile for Energy Limited Generator Unit  $u$  in Trading Period  $h$ ;

12.  $\sum_{h=a}^{h=b}$  is a summation over all Trading Periods h in the range a to b, where a is the first Trading Period in each Capacity Period c and b is the last Trading Period in the first Trading Day t to commence in each Capacity Period.

- 5.105 The Interim Eligible Availability (IEA<sub>uh</sub>) for each Energy Limited Generator Unit u in each Trading Period h in the last Trading Day commencing in each Capacity Period c, where each such Trading Period lies within such Capacity Period c shall be calculated as follows:

Given  $\lambda_h$  and  $I\phi_h$ , select values of IEA<sub>uh</sub> to maximise:

$$\sum_{h=a}^{h=b} IEA_{uh} \times \left[ \left( \frac{VCPWFh \times CPVSc}{(VCPWFh \times CPVSc) + (IECPWFh \times CPESc)} \right) \times (\lambda_h) + \left( \frac{IECPWFh \times CPESc}{(VCPWFh \times CPVSc) + (IECPWFh \times CPESc)} \right) \times (I\phi_h) \right]$$

subject to the following conditions:

1.  $\sum_{h=a}^{h=b} IEA_{uh} \leq \left( \frac{SEL_{ut}}{TPD} \right) \times 0.75$
2.  $\forall h : IEA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$
3.  $\forall h : IEA_{uh} \leq AP_{uh}$

Where:

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. IECPWF<sub>h</sub> is the Interim Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5.  $\lambda_h$  is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
6.  $I\phi_h$  is the Interim Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
7. SEL<sub>ut</sub> is the Accepted Energy Limit for Energy Limited Generator Unit u in Trading Day t expressed in terms of generation, amended in accordance with paragraphs 5.97 or 5.101 as appropriate;
8. TPD is the Trading Period Duration;
9. MSQ<sub>uh</sub> is the Market Schedule Quantity for Energy Limited Generator Unit u in Trading Period h;

10. AP<sub>uh</sub> is the Availability Profile for Energy Limited Generator Unit u in Trading Period h;

11.  $\sum_{h=a}^{h=b}$  is a summation over all Trading Periods h in the range a to b, where a is the first Trading Period in the last Trading Day t to commence in each Capacity Period c and b is the last Trading Period in each Capacity Period c.

5.106 The Eligible Availability (EA<sub>uh</sub>) for each Energy Limited Generator Unit u for each Trading Period h other than those Trading Periods referred to in 5.107 and 5.108 shall be calculated as follows:

Given  $\lambda_h$  and  $\Phi_h$ , select values of EA<sub>uh</sub> to maximise:

$$\sum_{h \text{ in } t} EA_{uh} \times \left[ \left( \frac{VCPWFh \times CPVSc}{(VCPWFh \times CPVSc) + (ECPWFh \times CPESc)} \right) \times (\lambda_h) \right] + \left[ \left( \frac{ECPWFh \times CPESc}{(VCPWFh \times CPVSc) + (ECPWFh \times CPESc)} \right) \times (\phi_h) \right]$$

subject to the following conditions:

1.  $\sum_{h \text{ in } t} EA_{uh} \leq \left( \frac{SEL_{ut}}{TPD} \right)$
2.  $\forall h : EA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$
3.  $\forall h : EA_{uh} \leq AP_{uh}$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. ECPWF<sub>h</sub> is the Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5.  $\lambda_h$  is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
6.  $\Phi_h$  is the Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
7. SEL<sub>ut</sub> is the Accepted Energy Limit for Energy Limited Generator Unit u in Trading Day t expressed in terms of generation, amended in accordance with paragraphs 5.97 or 5.101 as appropriate;
8. TPD is the Trading Period Duration;

9. MSQ<sub>uh</sub> is the Market Schedule Quantity for Energy Limited Generator Unit u in Trading Period h;
10. AP<sub>uh</sub> is the Availability Profile for Energy Limited Generator Unit u in Trading Period h;
11.  $\sum_{h \in t}$  is a summation over all Trading Periods h in Trading Day t.

5.107 The Eligible Availability (EA<sub>uh</sub>) for each Energy Limited Generator Unit u for each Trading Period h in the period commencing at the start of the first Trading Period in each Capacity Period c and ending at the end of the last Trading Period of the first Trading Day t in each Capacity Period shall be calculated as follows:

Given  $\lambda_h$  and  $\phi_h$ , select values of EA<sub>uh</sub> to maximise:

$$\sum_{h=a}^{h=b} EA_{uh} \times \left[ \left( \frac{VCPWF_h \times CPVSc}{(VCPWF_h \times CPVSc) + (ECPWF_h \times CPESc)} \right) \times (\lambda_h) \right] + \left[ \left( \frac{ECPWF_h \times CPESc}{(VCPWF_h \times CPVSc) + (ECPWF_h \times CPESc)} \right) \times (\phi_h) \right]$$

subject to the following conditions:

1.  $\sum_{h=a}^{h=b} EA_{uh} \leq \left( \frac{SEL_{ut}}{TPD} \right) + \left\{ \left( \frac{SEL_{u(t-1)}}{TPD} \right) \times 0.25 \right\}$
2.  $\forall h : EA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$
3.  $\forall h : EA_{uh} \leq AP_{uh}$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. ECPWF<sub>h</sub> is the Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5.  $\lambda_h$  is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
6.  $\phi_h$  is the Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
7. SEL<sub>ut</sub> is the Accepted Energy Limit for Energy Limited Generator Unit u in Trading Day t expressed in terms of generation, amended in accordance with paragraphs 5.97 or 5.101 as appropriate;

8. SEL<sub>u</sub>(t-1) is the Accepted Energy Limit for Energy Limited Generator Unit u in Trading Day t-1 expressed in terms of generation, amended in accordance with paragraphs 5.97 or 5.101 as appropriate;
9. TPD is the Trading Period Duration;
10. MSQ<sub>uh</sub> is the Market Schedule Quantity for Energy Limited Generator Unit u in Trading Period h;
11. AP<sub>uh</sub> is the Availability Profile for Energy Limited Generator Unit u in Trading Period h;
12.  $\sum_{h=a}^{h=b}$  is a summation over all Trading Periods h in the range a to b, where a is the first Trading Period in each Capacity Period c and b is the last Trading Period in the first Trading Day t to commence in each Capacity Period.

5.108 The Eligible Availability (EA<sub>uh</sub>) for each Energy Limited Generator Unit u in each Trading Period h in the last Trading Day commencing in each Capacity Period c, where each such Trading Period lies within such Capacity Period c shall be calculated as follows:

Given λ<sub>h</sub> and φ<sub>h</sub>, select values of EA<sub>uh</sub> to maximise:

$$\sum_{h=a}^{h=b} EA_{uh} \times \left[ \left( \frac{VCPWFh \times CPVSc}{(VCPWFh \times CPVSc) + (ECPWFh \times CPESc)} \right) \times (\lambda_h) \right] + \left[ \left( \frac{ECPWFh \times CPESc}{(VCPWFh \times CPVSc) + (ECPWFh \times CPESc)} \right) \times (\phi_h) \right]$$

subject to the following conditions:

1.  $\sum_{h=a}^{h=b} EA_{uh} \leq \left( \frac{SEL_{ut}}{TPD} \right) \times 0.75$
2.  $\sum_{h=a}^{h=b} EA_{uh} \leq \left( \frac{SEL_{ut}}{TPD} \right) \times 0.75$
3.  $\forall h : EA_{uh} \leq AP_{uh}$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. ECPWF<sub>h</sub> is the Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5. λ<sub>h</sub> is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";



6.  $\phi_h$  is the Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period  $h$  and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
7.  $SEL_{ut}$  is the Accepted Energy Limit for Energy Limited Generator Unit  $u$  in Trading Day  $t$  expressed in terms of generation, amended in accordance with paragraphs 5.97 or 5.101 as appropriate;
8. TPD is the Trading Period Duration;
9.  $E_{Auh}$  is the Eligible Availability for Energy Limited Generator Unit  $u$  in Trading Period  $h$ ;
10.  $AP_{uh}$  is the Availability Profile for Energy Limited Generator Unit  $u$  in Trading Period  $h$ ;
11.  $\sum_{h=a}^{h=b}$  is a summation over all Trading Periods  $h$  in the range  $a$  to  $b$ , where  $a$  is the first Trading Period in the last Trading Day  $t$  to commence in each Capacity Period  $c$  and  $b$  is the last Trading Period in each Capacity Period  $c$ .

## **PUMPED STORAGE**

### **General**

- 5.109 The Market Operator shall procure that each Pumped Storage Unit shall be settled as a Generator Unit irrespective of whether its net Output in any Trading Period is positive or negative.
- 5.110 The relevant Participant shall not register any Pumped Storage Unit as part of any Trading Site.
- 5.111 Each Pumped Storage Unit shall be classified as a Predictable Price Maker Generator Unit.

### **Offering and Scheduling**

- 5.112 Notwithstanding this classification, the relevant Participant shall submit Price Quantity Pairs, Start Up Costs and No Load Costs for Pumped Storage Units, including Default Data, in all cases equal to zero.
- 5.113 Each Participant shall submit additional Data Records in the Commercial Offer Data and Technical Offer Data in respect of each of its Pumped Storage Units. These additional Data Records are:

#### *Commercial Offer Data*

1. Target Reservoir Level at the end of the Trading Day;
2. Pumped Storage Cycle Efficiency (PSCE<sub>ut</sub>), submitted as a single value for each Trading Day to apply to all Trading Periods  $h$  within that Trading Day  $t$ . The value of Pumped Storage Cycle Efficiency shall in all cases be submitted as greater than 0% and less than or equal to 100% (with the specific value calculated as the relevant quantity of Generation divided by the relevant quantity of Demand);

*Technical Offer Data*

3. Target Reservoir Level Percentage;
  4. Maximum Storage Capacity (PSMAXLut) expressed in terms of generation (MWh) for each Pumped Storage Unit u within Trading Day t; and
  5. Minimum Storage Capacity (PSMINLut) expressed in terms of generation (MWh) for each Pumped Storage Unit u within Trading Day t.
- 5.114 The relevant Participant shall ensure that values of the Forecast Minimum Output Profile submitted as part of Technical Offer Data shall be equal to the expected pumping capability for Pumped Storage Unit u in Trading Period h.
- 5.115 The relevant Participant shall ensure that values of the Forecast Availability Profile submitted as part of Technical Offer Data shall be equal to the expected generation availability for Pumped Storage Unit u in Trading Period h.
- 5.116 The Market Operator shall procure that for each run of the MSP Software, the Target Reservoir Level shall be used as a lower limit for the reservoir level at the end of the Trading Day and the MSP Software shall (where feasible in relation to the Technical Capability of the relevant Unit) schedule each Pumped Storage Unit such that the reservoir level at the end of the Trading Day is greater than or equal to the submitted Target Reservoir Level.
- 5.117 The Market Operator shall procure that for each run of the MSP Software, the Target Reservoir Level Percentage shall be multiplied by the Target Reservoir Level to derive a lower limit for the reservoir level at the end of the Optimisation Time Horizon and the MSP Software shall (where feasible in relation to the Technical Capability of the relevant Unit) schedule each Pumped Storage Unit such that the reservoir level at the end of the Optimisation Time Horizon is greater than or equal to the resultant reservoir level.
- 5.118 The relevant Participant shall ensure that the values of the Target Reservoir Level for each Trading Day, submitted by Gate Closure shall be less than or equal to the relevant values of Maximum Storage Capacity.
- 5.119 The relevant Participant shall submit a Target Reservoir Level Percentage of 50% for each Pumped Storage Unit.
- 5.120 The Market Operator shall procure that within the Technical Offer Data or Generator Unit Technical Characteristics for each Pumped Storage Unit, any submitted value for Minimum Stable Generation shall not be used within the MSP Software.
- 5.121 The Market Operator shall procure that within the Technical Offer Data or Generator Unit Technical Characteristics for each Pumped Storage Unit, the submitted values of Ramp Rate shall be applied within the MSP Software only to levels of Output that are positive.
- 5.122 For all Pumped Storage Units which utilise the same reservoir, for any Trading Day, the relevant Participant shall ensure that the values of Maximum Storage Capacity submitted by Gate Closure for that Trading Day shall be equal.
- 5.123 For all Pumped Storage Units which utilise the same reservoir for any Trading Day, the relevant Participant shall ensure that the values of

Minimum Storage Capacity submitted by Gate Closure for that Trading Day shall be equal.

- 5.124 For all Pumped Storage Units which utilise the same reservoir for any Trading Day, the relevant Participant shall ensure that the values of Target Reservoir Level submitted by Gate Closure for that Trading Day shall be equal.
- 5.125 The Market Operator shall procure that for each run of the MSP Software, the reservoir level at the start of the Optimisation Time Horizon will be taken from the results referred to at the same point in time that were produced by the Preceding MSP Run.

#### Energy Settlement

- 5.126 The Market Operator shall procure that the Market Schedule Quantities will be calculated to be positive when the Pumped Storage Unit is scheduled to generate and negative when the Pumped Storage Unit is scheduled to pump.

#### Constraint Payments and Charges

- 5.127 There shall be no Constraint Payments in respect of Pumped Storage Units.
- 5.128 The Market Operator shall procure that each Pumped Storage Unit  $u$  shall be subject to Uninstructed Imbalances, and for these purposes the value of Dispatch Offer Price for each Pumped Storage Unit  $u$  in each Trading Period  $h$  ( $DOP_{uh}$ ) shall be equal to the System Marginal Price ( $SMP_h$ ).

#### Capacity Payments for Pumped Storage Units

- 5.129 The Market Operator shall procure that Capacity Payments for each Pumped Storage Unit shall be based on its Eligible Availability in each Trading Period, adjusted for losses, and determined in accordance with the applicable algebraic formulation set out below and in Section 4.
- 5.130 The Market Operator shall calculate the Interim Eligible Generation Availability ( $IEGA_{uh}$ ) for each Pumped Storage Unit  $u$  in each Trading Period  $h$  other than those Trading Periods referred to in 5.131 and 5.132 as follows:

Given  $\lambda_h$  and  $I\phi_h$ , select values of  $IEGA_{uh}$  to maximise:

$$\sum_{h \text{ in } t} \left[ IEGA_{uh} \times \left\{ \left( \frac{VCPWF_h \times CPVSc}{(VCPWF_h \times CPVSc) + (IECPWF_h \times CPESc)} \right) \times (\lambda_h) \right. \right. \\ \left. \left. + \left( \frac{IECPWF_h \times CPESc}{(VCPWF_h \times CPVSc) + (IECPWF_h \times CPESc)} \right) \times (I\phi_h) \right\} \right]$$

subject to the following conditions:

1.  $\sum_{h \text{ in } t} IEGA_{uh} \leq \text{Max} \left\{ \left( \sum_{h \text{ in } t} (\text{Max} \{MSQ_{uh}, 0\}) \right), \left( \frac{PSMAX_{Lut} - PSMIN_{Lut}}{TPD} \right) \right\}$
2.  $\forall h : IEGA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$

$$3. \quad \forall h : IEGA_{uh} \leq AP_{uh}$$

Where:

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. IECPWF<sub>h</sub> is the Interim Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5. λ<sub>h</sub> is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M “Description of the Function for the Determination of Capacity Payments”;
6. Iφ<sub>h</sub> is the Interim Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M “Description of the Function for the Determination of Capacity Payments”;
7. MSQ<sub>uh</sub> is the Market Schedule Quantity for Pumped Storage Unit u in Trading Period h;
8. PSMAXL<sub>ut</sub> is the Maximum Storage Capacity for Pumped Storage Unit u in Trading Day t;
9. PSMINL<sub>ut</sub> is the Minimum Storage Capacity for Pumped Storage Unit u in Trading Day t;
10. TPD is the Trading Period Duration;
11. AP<sub>uh</sub> is the Availability Profile for Pumped Storage Unit u in Trading Period h;
12.  $\sum_{h \in t}$  is a summation over all Trading Periods h in Trading Day t.

5.131 The Market Operator shall calculate the Interim Eligible Generation Availability (IEGA<sub>uh</sub>) for each Pumped Storage Unit u in each Trading Period h in the period commencing at the start of the first Trading Period in each Capacity Period c and ending at the end of the last Trading Period of the first Trading Day t in each Capacity Period as follows:

Given λ<sub>h</sub> and Iφ<sub>h</sub>, select values of IEGA<sub>uh</sub> to maximise:

$$\sum_{h=a}^{h=b} IEGA_{uh} \times \left[ \left( \frac{VCPWF_h \times CPVSc}{(VCPWF_h \times CPVSc) + (IECPWF_h \times CPESc)} \right) \times (\lambda_h) \right] + \left[ \left( \frac{IECPWF_h \times CPESc}{(VCPWF_h \times CPVSc) + (IECPWF_h \times CPESc)} \right) \times (I\phi_h) \right]$$

subject to the following conditions:

$$1. \quad \sum_{h=a}^{h=b} IEGA_{uh} \leq \text{Max} \left\{ \begin{array}{l} \left( \sum_{h=a}^{h=b} (\text{Max} \{MSQ_{uh}, 0\}) \right), \\ \left( \frac{PSMAXL_{ut} - PSMINL_{ut}}{TPD} \right) \\ + \left( \frac{PSMAXL_{(t-1)} - PSMINL_{(t-1)}}{TPD} \right) \times 0.25 \end{array} \right\}$$

$$2. \quad \forall h : IEGA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$$

$$3. \quad \forall h : IEGA_{uh} \leq AP_{uh}$$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. IECPWF<sub>h</sub> is the Interim Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5. λ<sub>h</sub> is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
6. Iφ<sub>h</sub> is the Interim Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
7. MSQ<sub>uh</sub> is the Market Schedule Quantity for Pumped Storage Unit u in Trading Period h;
8. PSMAXL<sub>ut</sub> is the Maximum Storage Capacity for Pumped Storage Unit u in Trading Day t;
9. PSMINL<sub>ut</sub> is the Minimum Storage Capacity for Pumped Storage Unit u in Trading Day t;
10. PSMAXL<sub>u(t-1)</sub> is the Maximum Storage Capacity for Pumped Storage Unit u in Trading Day t-1;
11. PSMINL<sub>u(t-1)</sub> is the Minimum Storage Capacity for Pumped Storage Unit u in Trading Day t-1;
12. TPD is the Trading Period Duration;
13. AP<sub>uh</sub> is the Availability Profile for Pumped Storage Unit u in Trading Period h;
14.  $\sum_{h=a}^{h=b}$  is a summation over all Trading Periods h in the range a to b, where a is the first Trading Period in each Capacity Period c and b is the last Trading Period in the first Trading Day t to commence in each

Capacity Period.

- 5.132 The Market Operator shall calculate the Interim Eligible Generation Availability (IEGAuh) for each Pumped Storage Unit u in each Trading Period h in the last Trading Day commencing in each Capacity Period c, where each such Trading Period lies within such Capacity Period c as follows:

Given  $\lambda h$  and  $I\phi h$ , select values of IEGAuh to maximise:

$$\sum_{h=a}^{h=b} IEGAuh \times \left[ \left( \frac{VCPWFh \times CPVSc}{(VCPWFh \times CPVSc) + (IECPWFh \times CPESc)} \right) \times (\lambda h) \right. \\ \left. + \left( \frac{IECPWFh \times CPESc}{(VCPWFh \times CPVSc) + (IECPWFh \times CPESc)} \right) \times (I\phi h) \right]$$

subject to the following conditions:

1.  $\sum_{h=a}^{h=b} IEGAuh \leq \text{Max} \left\{ \left( \sum_{h=a}^{h=b} (\text{Max}\{MSQuh, 0\}) \right), \left( \frac{PSMAXLut - PSMINLut}{TPD} \right) \times 0.75 \right\}$
2.  $\forall h : IEGAuh \geq \text{Max}\{MSQuh, 0\}$
3.  $\forall h : IEGAuh \leq APuh$

Where

1. VCPWFh is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. IECPWFh is the Interim Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5.  $\lambda h$  is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
6.  $I\phi h$  is the Interim Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
7. MSQuh is the Market Schedule Quantity for Pumped Storage Unit u in Trading Period h;
8. PSMAXLut is the Maximum Storage Capacity for Pumped Storage Unit u in Trading Day t;
9. PSMINLut is the Minimum Storage Capacity for Pumped Storage Unit u in Trading Day t;

10. TPD is the Trading Period Duration;
11. AP<sub>uh</sub> is the Availability Profile for Pumped Storage Unit u in Trading Period h;
12.  $\sum_{h=a}^{h=b}$  is a summation over all Trading Periods h in the range a to b, where a is the first Trading Period in the last Trading Day t to commence in each Capacity Period c and b is the last Trading Period in each Capacity Period c.

5.133 The Market Operator shall calculate the Interim Eligible Availability (IEA<sub>uh</sub>) for Pumped Storage Unit u in each Trading Period h as follows:

$$\forall h : IEA_{uh} = IEGA_{uh} + \text{Min}\{MSQ_{uh}, 0\}$$

Where

1. MSQ<sub>uh</sub> is the Market Schedule Quantity for Pumped Storage Unit u in Trading Period h;
2. IEGA<sub>uh</sub> is the Interim Eligible Generation Availability for Pumped Storage Unit u in Trading Period h.

5.134 The Market Operator shall calculate the Eligible Generation Availability (EGA<sub>uh</sub>) for each Pumped Storage Unit u in each Trading Period h other than those Trading Periods referred to in paragraphs 5.135 and 5.136 as follows:

Given  $\lambda_h$  and  $\Phi_h$ , select values of EGA<sub>uh</sub> to maximise:

$$\sum_{h \text{ in } t} \left[ EGA_{uh} \times \left\{ \left( \frac{VCPWFh \times CPVSc}{(VCPWFh \times CPVSc) + (ECPWFh \times CPESc)} \right) \times (\lambda_h) \right\} + \left\{ \left( \frac{ECPWFh \times CPESc}{(VCPWFh \times CPVSc) + (ECPWFh \times CPESc)} \right) \times (\phi_h) \right\} \right]$$

subject to the following conditions:

1.  $\sum_{h \text{ in } t} EGA_{uh} \leq \text{Max} \left\{ \left( \sum_{h \text{ in } t} (\text{Max}\{MSQ_{uh}, 0\}) \right), \left( \frac{PSMAXLut - PSMINLut}{TPD} \right) \right\}$
2.  $\forall h : EGA_{uh} \geq \text{Max}\{MSQ_{uh}, 0\}$
3.  $\forall h : EGA_{uh} \leq AP_{uh}$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. ECPWF<sub>h</sub> is the Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5. MSQ<sub>uh</sub> is the Market Schedule Quantity for Pumped Storage Unit u in Trading Period h;

6.  $PSMAXL_{ut}$  is the Maximum Storage Capacity for Pumped Storage Unit  $u$  in Trading Day  $t$ ;
7.  $PSMINL_{ut}$  is the Minimum Storage Capacity for Pumped Storage Unit  $u$  in Trading Day  $t$ ;
8.  $TPD$  is the Trading Period Duration;
9.  $\lambda_h$  is the Loss of Load Probability for Trading Period  $h$  determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments" and is a value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period;
10.  $\phi_h$  is the Ex-Post Loss of Load Probability for Trading Period  $h$  determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments" and is a value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period;
11.  $AP_{uh}$  is the Availability Profile for Pumped Storage Unit  $u$  in Trading Period  $h$ ;
12.  $\sum_{h \in t}$  is a summation over all Trading Periods  $h$  in Trading Day  $t$ .

5.135 The Market Operator shall calculate the Eligible Generation Availability ( $EGA_{uh}$ ) for each Pumped Storage Unit  $u$  in each Trading Period  $h$  in the period commencing at the start of the first Trading Period in each Capacity Period  $c$  and ending at the end of the last Trading Period of the first Trading Day  $t$  in each Capacity Period as follows:

Given  $\lambda_h$  and  $\phi_h$ , select values of  $EGA_{uh}$  to maximise:

$$\sum_{h=a}^{h=b} EGA_{uh} \times \left\{ \left( \frac{VCPWF_h \times CPVSc}{(VCPWF_h \times CPVSc) + (ECPWF_h \times CPESc)} \right) \times (\lambda_h) \right. \\ \left. + \left( \frac{ECPWF_h \times CPESc}{(VCPWF_h \times CPVSc) + (ECPWF_h \times CPESc)} \right) \times (\phi_h) \right\}$$

subject to the following conditions:

1.

$$\sum_{h=a}^{h=b} EGA_{uh} \leq \text{Max} \left\{ \left( \sum_{h=a}^{h=b} (\text{Max} \{MSQ_{uh}, 0\}) \right), \right. \\ \left. \left( \frac{PSMAXL_{ut} - PSMINL_{ut}}{TPD} \right) + \left( \frac{PSMAXL_{u(t-1)} - PSMINL_{u(t-1)}}{TPD} \right) \times 0.25 \right\}$$

2.  $\forall h : IEGA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$

3.  $\forall h : IEGA_{uh} \leq AP_{uh}$

Where

1.  $VCPWF_h$  is the Variable Capacity Payments Weighting Factor in Trading Period  $h$ ;
2.  $CPVSc$  is the Capacity Period Variable Sum in Capacity Period  $c$ ;



3.  $ECPWF_h$  is the Ex-Post Capacity Payments Weighting Factor in Trading Period  $h$ ;
4.  $CPES_c$  is the Capacity Period Ex-Post Sum in Capacity Period  $c$ ;
5.  $\lambda_h$  is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period  $h$  and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
6.  $\phi_h$  is the Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period  $h$  and is determined in accordance with Appendix M "Description of the Function for the Determination of Capacity Payments";
7.  $MSQ_{uh}$  is the Market Schedule Quantity for Pumped Storage Unit  $u$  in Trading Period  $h$ ;
8.  $PSMAXL_{ut}$  is the Maximum Storage Capacity for Pumped Storage Unit  $u$  in Trading Day  $t$ ;
9.  $PSMINL_{ut}$  is the Minimum Storage Capacity for Pumped Storage Unit  $u$  in Trading Day  $t$ ;
10.  $PSMAXL_{u(t-1)}$  is the Maximum Storage Capacity for Pumped Storage Unit  $u$  in Trading Day  $t-1$ ;
11.  $PSMINL_{u(t-1)}$  is the Minimum Storage Capacity for Pumped Storage Unit  $u$  in Trading Day  $t-1$ ;
12.  $TPD$  is the Trading Period Duration;
13.  $AP_{uh}$  is the Availability Profile for Pumped Storage Unit  $u$  in Trading Period  $h$ ;
14.  $\sum_{h=a}^{h=b}$  is a summation over all Trading Periods  $h$  in the range  $a$  to  $b$ , where  $a$  is the first Trading Period in each Capacity Period  $c$  and  $b$  is the last Trading Period in the first Trading Day  $t$  to commence in each Capacity Period.

5.136 The Market Operator shall calculate the Eligible Generation Availability ( $EGA_{uh}$ ) for each Pumped Storage Unit  $u$  in each Trading Period  $h$  in the last Trading Day commencing in each Capacity Period  $c$ , where each such Trading Period lies within such Capacity Period  $c$  as follows:

Given  $\lambda_h$  and  $\phi_h$ , select values of  $EGA_{uh}$  to maximise:

$$\sum_{h=a}^{h=b} EGA_{uh} \times \left\{ \left( \frac{VCPWF_h \times CPVSc}{(VCPWF_h \times CPVSc) + (ECPWF_h \times CPES_c)} \right) \times (\lambda_h) \right. \\ \left. + \left( \frac{ECPWF_h \times CPES_c}{(VCPWF_h \times CPVSc) + (ECPWF_h \times CPES_c)} \right) \times (\phi_h) \right\}$$

subject to the following conditions:

1. 
$$\sum_{h=a}^{h=b} EGA_{uh} \leq \text{Max} \left\{ \left( \sum_{h=a}^{h=b} (\text{Max} \{MSQ_{uh}, 0\}) \right) \left( \frac{PSMAX_{Lut} - PSMIN_{Lut}}{TPD} \right) \times 0.75 \right\}$$
2.  $\forall h : IEGA_{uh} \geq \text{Max} \{MSQ_{uh}, 0\}$
3.  $\forall h : IEGA_{uh} \leq AP_{uh}$

Where

1. VCPWF<sub>h</sub> is the Variable Capacity Payments Weighting Factor in Trading Period h;
2. CPVSc is the Capacity Period Variable Sum in Capacity Period c;
3. ECPWF<sub>h</sub> is the Ex-Post Capacity Payments Weighting Factor in Trading Period h;
4. CPESc is the Capacity Period Ex-Post Sum in Capacity Period c;
5. λ<sub>h</sub> is the Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M “Description of the Function for the Determination of Capacity Payments”;
6. φ<sub>h</sub> is the Ex-Post Loss of Load Probability value determined as part of the Capacity Payment calculations to provide a capacity weighting in each Trading Period h and is determined in accordance with Appendix M “Description of the Function for the Determination of Capacity Payments”;
7. MSQ<sub>uh</sub> is the Market Schedule Quantity for Pumped Storage Unit u in Trading Period h;
8. PSMAX<sub>Lut</sub> is the Maximum Storage Capacity for Pumped Storage Unit u in Trading Day t;
9. PSMIN<sub>Lut</sub> is the Minimum Storage Capacity for Pumped Storage Unit u in Trading Day t;
10. TPD is the Trading Period Duration;
11. AP<sub>uh</sub> is the Availability Profile for Pumped Storage Unit u in Trading Period h;
12.  $\sum_{h=a}^{h=b}$  is a summation over all Trading Periods h in the range a to b, where a is the first Trading Period in the last Trading Day t to commence in each Capacity Period c and b is the last Trading Period in each Capacity Period c.

5.137 The Market Operator shall calculate the Eligible Availability (EA<sub>uh</sub>) for each Pumped Storage Unit u in Trading Period h as follows:

$$\forall h : EA_{uh} = EGA_{uh} + \text{Min} \{MSQ_{uh}, 0\}$$

Where

1. MSQ<sub>uh</sub> is the Market Schedule Quantity for Pumped Storage Unit u in Trading Period h;

2. EGA<sub>uh</sub> is the Eligible Generation Availability for Pumped Storage Unit u in Trading Period h.

5.138 The Market Operator shall calculate the Pumped Storage Unscheduled Capacity Daily Price (PSUCDP<sub>ut</sub>) as follows:

*if PSCE<sub>ut</sub> = 0 then*

$$PSUCDP_{ut} = PCAP$$

*else*

*if MSQ<sub>uh</sub> ≥ 0 ∀ h in Trading Day t then*

$$PSUCDP_{ut} = \text{Min} \left\{ \left( \frac{SMP_h}{PSCE_{ut}} \right) : \forall h \text{ in Trading Day } t \right\}$$

*else*

$$PSUCDP_{ut} = \text{Max} \left\{ \left( \frac{SMP_h}{PSCE_{ut}} \right) : \forall h \text{ in Trading Day } t \text{ where } MSQ_{uh} < 0 \right\}$$

Where

1. PSCE<sub>ut</sub> is the Pumped Storage Cycle Efficiency for Pumped Storage Unit u for the relevant Trading Period h within Trading Day t;
2. PCAP is the Market Price Cap;
3. MSQ<sub>uh</sub> is the Market Schedule Quantity for Pumped Storage Unit u in Trading Period h;
4. SMP<sub>h</sub> is the System Marginal Price in Trading Period h.

5.139 For the purposes of the summation  $\sum_i$  within the equation in paragraph

4.115, i is limited to 1, and therefore only a single value of Unscheduled Capacity Offer Price (UCOP<sub>uhi</sub>) and Unscheduled Capacity Offer Quantity (UCOQ<sub>uhi</sub>) is required within that equation for each Pumped Storage Unit u in each Trading Period h.

5.140 The Market Operator shall calculate the value of the Unscheduled Capacity Offer Price (UCOP<sub>uhi</sub>) (where i = 1) for each Pumped Storage Unit u for each Trading Period h during Trading Day t as follows:

$$UCOP_{uhi} = \text{Max} \{ SMP_h, PSUCDP_{ut} \} \text{ where } i = 1$$

Where

1. SMP<sub>h</sub> is the System Marginal Price in Trading Period h;
2. PSUCDP<sub>ut</sub> is the Pumped Storage Unscheduled Capacity Daily Price for Pumped Storage Unit u in Trading Day t.

5.141 The Market Operator shall calculate value of the Unscheduled Capacity Offer Quantity (UCOQ<sub>uhi</sub>) (where i = 1) for each Pumped Storage Unit u for each Trading Period h during Trading Day t as follows:

$$UCOQ_{uhi} = \text{Max} \{ (EA_{uh} - MSQ_{uh}), 0 \} \text{ where } i = 1$$

Where

1. EA<sub>uh</sub> is the Eligible Availability for Pumped Storage Unit *u* in Trading Period *h*;
2. MSQ<sub>uh</sub> is the Market Schedule Quantity for Pumped Storage Unit *u* in Trading Period *h*.

### **PRIORITY DISPATCH**

- 5.142 The Market Operator shall procure that, in the event of a Tie-Break, Price Maker Generator Units which have Priority Dispatch for their entire capacity shall take precedence in the allocation of Market Schedule Quantities over other Price Maker Generator Units, in accordance with Appendix N "Operation of the MSP Software".

### **AUTOPRODUCERS**

#### **General**

- 5.143 An Autoproducer Site is a Demand Site where Demand is not solely for the purposes of generation, but which contains one or more Generator Units none of which are Demand Side Units.
- 5.144 The Units which form part of an Autoproducer Site are eligible to be registered as a Trading Site in accordance with the provisions set out in paragraphs 2.60 to 2.64.
- 5.145 If all of the Generator Units which form part of an Autoproducer Site are Autonomous Generator Units, those Generator Units may be registered as a single Autonomous Generator Unit as part of a Trading Site with an Associated Supplier Unit.
- 5.146 Save as provided in paragraph 5.145, each Autoproducer Site must have separate metering for its import energy quantity and export energy quantity. A Party must register Generator Units and Supplier Units separately for the purposes of a Trading Site (including a Netting Generator Unit) where applicable.
- 5.147 The relevant Participant must submit Generator Unit Commercial Offer Data and Technical Offer Data net of Unit Load and independent of the related Demand, in respect of Generation at an Autoproducer Site.

### **DEMAND SIDE UNITS**

- 5.148 Subject to paragraph 5.151 below, a Party may register a Demand Side Unit associated with a Demand Site or Demand Sites.
- 5.149 A Party is not obliged to register any Demand Side Unit with any Demand Site.
- 5.150 Subject to the terms of the Grid Code, a single Demand Side Unit may be associated with a number of Demand Sites provided that those Demand Sites comprise one single Supplier Unit and that those Demand Sites are within the same Currency Zone. The combined Demand Side Unit shall for all purposes under the Code be treated as a single Demand Side Unit.
- 5.151 To qualify for registration as a Demand Side Unit, a Demand Site must meet and continue to meet each of the following criteria:
1. the Demand Site shall house a final customer or consumer;

2. the Demand Site shall have the technical and operational capability to deliver Demand Reduction in response to Dispatch Instructions from the System Operator in accordance with the relevant Grid Code or Distribution Code;
  3. the Demand Site shall have appropriate equipment to permit real-time monitoring of delivery by the System Operator; and
  4. the Demand Site shall have a Maximum Import Capacity and shall not have a Maximum Export Capacity.
- 5.152 For each Demand Side Unit, a Party (or Applicant as applicable) shall register as part of a single Trading Site in accordance with the provisions set out in paragraphs 2.60 to 2.64:
1. the Demand Side Unit;
  2. a single Supplier Unit which is a Trading Site Supplier Unit, with which the Demand Reduction is associated;
  3. a Netting Generator Unit; and
  4. no other Unit.
- 5.153 The Netting Generator Unit shall not be associated with any physical meter and shall be classified as an Autonomous Generator Unit in all respects except as set out below.
- 5.154 Each Demand Side Unit shall be classified as a Predictable Price Maker Generator Unit.
- 5.155 Participants shall submit Commercial Offer Data and Technical Offer Data for each of their Demand Side Units in respect of its offered Demand Reduction.
- 5.156 As part of the Technical Offer Data for a Demand Side Unit, the Forecast Availability Profile of each Demand Side Unit at each time shall be set by the relevant Participant to be equal to the offered level of Demand Reduction.
- 5.157 The Market Operator shall set the Transmission Loss Adjustment Factor (TLAF<sub>uh</sub>) for each Demand Side Unit to be equal to 1.

#### **Offering and Scheduling**

- 5.158 Appendix I "Offer Data" lists the required Data Records which must be included in Commercial Offer Data for Demand Side Units. No other Commercial Offer Data Records shall be submitted for these Units.
- 5.159 Participants must not submit Commercial Offer Data for a Demand Side Unit which includes No Load Costs or Start Up Costs.
- 5.160 Participants must submit Commercial Offer Data for each Demand Side Unit which includes a single Shut Down Cost.
- 5.161 For the purposes of calculations under this Code the Market Operator shall calculate each value of Start Up Cost (SUC<sub>uh</sub>) for each Demand Side Unit *u* from the relevant Accepted value of Shut Down Cost for the relevant Trading Period *h* for that Demand Side Unit. The Market Operator shall set all values of No Load Cost (NLC<sub>uh</sub>) for Demand Side Units *u* to be zero for all Trading Periods *h*.

**Technical Offer Data**

- 5.162 Appendix I “Offer Data” lists the required Data Records which must be included within Technical Offer Data for Demand Side Units. No other Technical Offer Data Records shall be submitted for these Units.

**Quantities**

- 5.163 The Market Operator shall calculate the Net Demand (ND<sub>v</sub>h) at the Trading Site Supplier Unit v with which the Demand Reduction is associated in Trading Period h as follows:

$$ND_{vh} = MD_{vh}$$

Where

1. MD<sub>v</sub>h is the Metered Demand for Trading Site Supplier Unit v in Trading Period h.

- 5.164 The Market Operator shall set the Market Schedule Quantity (MSQ<sub>u</sub>h) at the Netting Generator Unit u' for Trading Period h to be equal to the negative of the Dispatch Quantity at the Demand Side Unit u as follows:

$$MSQ_{u'h} = -DQ_{uh}.$$

Where

1. DQ<sub>u</sub>h is the Dispatch Quantity for Demand Side Unit u in Trading Period h.

- 5.165 The Market Operator shall calculate the Dispatch Quantity (DQ<sub>u</sub>'h) and the Metered Generation (MG<sub>u</sub>'h) at the Netting Generator Unit u' for Trading Period h as follows:

$$DQ_{u'h} = MSQ_{u'h}$$

$$MG_{u'h} = MSQ_{u'h} \times TPD$$

Where

1. MSQ<sub>u</sub>'h is the Market Schedule Quantity at Netting Generator Unit u' for Trading Period h;
2. TPD is the Trading Period Duration.

**Compliance with Dispatch Instructions**

- 5.166 The relevant Participant shall deliver Demand Reduction at the Demand Site in accordance with any Dispatch Instruction which is in line with the Outturn Availability and the relevant parts of its Technical Offer Data.

- 5.167 For each Demand Side Unit u in Trading Period h, the Market Operator shall set the Metered Generation (MG<sub>u</sub>h) to equal the Dispatch Quantity:

$$MG_{uh} = DQ_{uh} \times TPD$$

Where

1. DQ<sub>u</sub>h is Dispatch Quantity for Generator Unit u in Trading Period h;
2. TPD is the Trading Period Duration.

## **GENERATOR UNITS UNDER TEST**

- 5.168 The relevant System Operator may grant Generator Units the status of Under Test for a limited period under the terms of the relevant Grid Code.
- 5.169 The Market Operator shall not grant the status of Under Test for the purposes of this Code to Autonomous Generator Units, Pumped Storage Units, Demand Side Units, Interconnector Units or Interconnector Residual Capacity Units.
- 5.170 In order for a Generator Unit to apply for Under Test status under this Code, a Participant shall submit a "Generator Unit Under Test Notice" which shall comprise a Unit Under Test Start Date and a Unit Under Test End Date as specified in Appendix F "Other Communications" and in accordance with Agreed Procedure 4 "Transaction Submission and Validation". The submission of this data shall constitute an application by the Participant for Under Test status.
- 5.171 The Market Operator shall award the Generator Unit Under Test status under this Code for the period between the Unit Under Test Start Date and the Unit Under Test End Date, subject to verification with the relevant System Operator in accordance with Appendix J "Market Operator and System Operator Data Transactions" that the Generator Unit shall be Under Test under the terms of the relevant Grid Code at all times starting on the Unit Under Test Starting Trading Day and ending on the Unit Under Test Ending Trading Day.

### **Commercial Offer Data for Generator Units Under Test**

- 5.172 The relevant Participant shall include a Nomination Profile (as described in paragraphs 5.12 to 5.14) within their Commercial Offer Data for a Generator Unit Under Test. The Nominated Quantities within the Nomination Profile shall reflect the desired pattern of operation.
- 5.173 The relevant Participant shall not include within the Commercial Offer Data for a Generator Unit Under Test, Price Quantity Pairs, Start Up Costs, No Load Costs or Shut Down Costs.
- 5.174 The relevant Participant shall submit, as part of the Commercial Offer Data for each Trading Day, for a Generator Unit  $u$  that is Under Test, a Decremental Price (DECP<sub>uh</sub>) for each Trading Period  $h$ , and each value of Decremental Price so submitted shall be equal to zero.

### **Testing Tariffs**

- 5.175 The relevant System Operator shall make a report to the Regulatory Authorities proposing values for the Testing Tariffs at least four months before the start of the Year to which they shall apply. The System Operator's report must set out the justification for the specific values proposed. Such a report may, and shall if so requested by the Regulatory Authorities, include alternative values from those proposed and must set out the arguments for and against such alternatives.
- 5.176 Each System Operator shall provide to the Market Operator at least two months prior to the start of each Year or within 5 Working Days of approval by the Regulatory Authorities whichever is the later the Testing Tariff Data Transaction, which comprises a complete set of Testing Tariffs that have been approved by the Regulatory Authorities for each Generator Unit (other than Demand Side Units) that is registered within its Currency Zone, for

each Trading Period in the Year, in accordance with Appendix K “Market Data Transactions”.

- 5.177 The Market Operator shall publish the approved value(s) for each parameter within 5 Working Days of receipt of the Regulatory Authorities' determination or two months before the start of the Year to which they shall apply whichever is the later.
- 5.178 The Market Operator may update these tariffs within the Year to which they apply subject to the prior approval of the Regulatory Authorities.
- 5.179 The Market Operator will publish each Year the schedule of Testing Tariffs and the detailed tariff methodology and periodically in the event that the Tariffs are updated within a Year.

#### **Charges for Generator Units Under Test**

- 5.180 The Market Operator shall calculate the Testing Charge applicable to each Generator Unit *u* Under Test for each Trading Period *h* (TCHARGE<sub>*u*h</sub>) as follows:

$$TCHARGE_{uh} = \text{Max}\{MGLF_{uh}, 0\} \times TTARIFF_{uh}$$

Where

1. TTARIFF<sub>*u*h</sub> is the Testing Tariff applicable to Generator Unit Under Test *u* in Trading Period *h*, as set out in the schedule of Testing Tariffs;
2. MGLF<sub>*u*h</sub> is the Loss-Adjusted Metered Generation for the Generator Unit Under Test *u* for Trading Period *h*.

#### **Settlement of Generator Units Under Test**

- 5.181 The Market Operator shall calculate the Market Schedule Quantity for Generator Unit *u* in Trading Period *h* (MSQ<sub>*u*h</sub>) from the Dispatch Quantity as follows:

$$MSQ_{uh} = DQ_{uh}$$

Where

1. DQ<sub>*u*h</sub> is Dispatch Quantity for Generator Unit *u* in Trading Period *h*.

- 5.182 The Market Operator shall calculate the value of Constraint Payments (CONP<sub>*u*h</sub>) for each Generator Unit *u* that is Under Test in a Trading Period *h* to be zero.

- 5.183 For the purposes of Uninstructed Imbalances as set out in paragraph 4.151 for Generator Units Under Test, the Market Operator shall deem the value of Dispatch Offer Price (DOP<sub>*u*h</sub>) to be equal to System Marginal Price (SMP<sub>*h*</sub>).

- 5.184 The Market Operator shall calculate the Eligible Availability (EA<sub>*u*h</sub>) for use in the calculation of Capacity Payments for Generator Units Under Test as follows:

$$EA_{uh} = \text{Min}\left\{\frac{MG_{uh}}{TPD}, DQ_{uh}\right\}$$

Where

1. MG<sub>*u*h</sub> is Metered Generation for Generator Unit *u* for Trading Period *h*;



2. TPD is the Trading Period Duration;
3. DQ<sub>uh</sub> is Dispatch Quantity for Generator Unit  $u$  for Trading Period  $h$ .



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## 6. FINANCIAL AND SETTLEMENT

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### GENERAL

#### Settlement Items

- 6.1 The Market Operator shall carry out or procure settlements in accordance with the Code of the following amounts:
1. Trading Payments due to Participants in respect of their registered Generator Units excluding any Interconnector Residual Capacity Units for each Billing Period;
  2. Trading Charges payable by Participants in respect of their registered Supplier Units for each Billing Period;
  3. Capacity Payments due to Participants in respect of their registered Generator Units for each Capacity Period;
  4. Capacity Charges payable by Participants in respect of their registered Supplier Units for each Capacity Period;
  5. Charges due to or payable by Participants for Currency Cost for the relevant Billing Period;
  6. Charges due to or payable by Participants for Currency Cost for the relevant Capacity Period;
  7. Charges to Participants in respect of their registered Generator Units for Unsecured Bad Energy Debt;
  8. Charges to Participants in respect of their registered Generator Units for Unsecured Bad Capacity Debt;
  9. Settlement Reallocations due to or payable by Participants for each relevant Billing Period;
  10. Settlement Reallocations due to or payable by Participants for each relevant Capacity Period;
  11. Fixed Market Operator Charges payable by Participants in respect of their registered Generator Units and registered Supplier Units for each Year or period to which the Fixed Market Operator Charge relates;
  12. Variable Market Operator Charges payable by Participants in respect of their Supplier Units for each Billing Period; and
  13. Interconnector Residual Capacity Unit Payments due to Participants in respect of their registered Interconnector Residual Capacity Unit for each Capacity Period.
- 6.2 All of the payments and charges set out in paragraph 6.1 shall be calculated in accordance with the Code and, except where otherwise stated, shall exclude VAT.

#### Currency

- 6.3 All Settlement information and cash flows shall be calculated in euro (€).
- 6.4 All Settlements, including Resettlements, will be offered in euro (€) or pounds sterling (£) depending on the Currency Zone of the Participant in respect of its Unit(s).

- 6.5 The Market Operator shall, in relation to each Trading Day, publish a Trading Day Exchange Rate between euro (€) and pounds sterling (£) at 08:00 on the preceding Trading Day.
- 6.6 For each Participant using pounds sterling as the Settlement Currency, all Settlement calculations on a Settlement Day or a Billing Period basis shall be included in Settlement Statements after being converted by the Market Operator to pounds sterling using the relevant Trading Day Exchange Rate.
- 6.7 In relation to the conversion between pounds sterling and euro for any Accession Fee or Participation Fee the Market Operator shall apply the Annual Capacity Exchange Rate.
- 6.8 In relation to the Fixed Market Operator Charge, the Market Operator shall apply the Trading Day Exchange Rate relating to that Trading Day commencing at 06:00 on the day the Invoice.
- 6.9 In relation to the Variable Market Operator Charge, the Market Operator shall apply the Trading Day Exchange Rate relating to the relevant Trading Period.
- 6.10 All data values that are submitted as part of Commercial Offer Data or SO Interconnector Import Price or SO Interconnector Export Price which are expressed in pounds sterling shall be converted by the Market Operator to euro using the relevant Trading Day Exchange Rate, and the resulting euro value shall be used for all calculations within this Code.
- 6.11 For each Participant using pounds sterling as the Settlement Currency, all Settlement calculations on a Capacity Period basis shall be included in Settlement Statements after being converted to pounds sterling using the relevant Annual Capacity Exchange Rate.
- 6.12 The Market Operator shall endeavour to manage the Currency Costs insofar as is practicable within the Pool.
- 6.13 The Currency Costs shall be calculated in the manner described in Agreed Procedure 15 "Invoicing" and shall be due to, or payable by, all Participants in the respective Billing and Capacity Periods in proportion to their gross financial participation in the Pool as set out in paragraph 6.136 and 6.139.

#### **Banking Arrangements**

- 6.14 The Market Operator shall, through its contract with the SEM Bank, administer the banking services required pursuant to the Code for Participants. The Market Operator and each Participant shall, in each case in relation to those banking arrangements that it requires in order to comply with the Code, procure, use, make available and administer such banking arrangements in accordance with Agreed Procedure 17 "Banking and Participant Payments".
- 6.15 The SEM Bank shall be a bank which must:
  1. hold a Banking Licence in Ireland under Section 9 of the Central Bank Act 1971 (Ireland) or be authorised by the Financial Services Authority to take deposits, under the Banking Act 1987 (Northern Ireland) or be otherwise authorised to provide banking services in Ireland or the United Kingdom; and

either:

2. be a Clearing Bank in either Jurisdiction with:

- a. a long term debt rating of not less than A (Standard & Poors) or A2 (Moody's Investors Service Inc.); or
- b. Total Balance Sheet Assets of not less than €1,000 million;

or

3. be an international bank that is approved by the relevant regulatory authority and which has a branch in the relevant location (Dublin and/or Belfast) and complies with paragraph 6.15.2.b.

6.16 The Market Operator shall establish and operate in accordance with the Code:

1. a euro SEM Trading Clearing Account at a branch of the SEM Bank in Ireland; and
2. a pounds sterling SEM Trading Clearing Account at a branch of the SEM Bank in Northern Ireland,

to and from which all Trading Payments calculated in accordance with the Code are to be made.

Each SEM Trading Clearing Account shall be an interest bearing account.

6.17 The Market Operator shall establish and operate in accordance with the Code:

1. a euro SEM Capacity Clearing Account at a branch of the SEM Bank in Ireland; and
2. a pounds sterling SEM Capacity Clearing Account at a branch of the SEM Bank in Northern Ireland,

to and from which all Capacity Payments calculated in accordance with the Code are to be made.

Each SEM Capacity Clearing Account shall be an interest bearing account.

6.18 Any Interest received on the SEM Trading Clearing Accounts and the SEM Capacity Clearing Accounts shall accrue to the Market Operator. The Market Operator shall take such Interest into account in proposing to the Regulatory Authorities any Market Operator Charge or component thereof.

#### **Provision of Cash Collateral**

6.19 A Participant may at any time provide a cash deposit as part of its Required Credit Cover as permitted pursuant to paragraph 6.162. Where a Participant decides to provide such a cash deposit, then the Participant shall establish and maintain a SEM Collateral Reserve Account with the SEM Bank in each Currency Zone in which the Participant has a registered Unit as applicable. Each SEM Collateral Reserve Account shall be an interest bearing account. If a Participant chooses to establish a SEM Collateral Reserve Account as part of its Required Credit Cover, then it must provide to the Market Operator such documents and in such form as the Market Operator may require from time to time.

6.20 The SEM Collateral Reserve Account in relation to each relevant Participant shall contain the cash element of that Participant's Posted Credit Cover on the following terms:

1. the SEM Collateral Reserve Account shall be in the sole name of the Market Operator with the designation "SEM Collateral Reserve Account relating to [Insert Participant Details]";

2. the Participant and the Market Operator shall have irrevocably instructed the SEM Bank to make payment against the sole instruction of the Market Operator in accordance with the Code and the Bank Mandate. The Code shall take precedence over the Bank Mandate; and
  3. to give effect to the provisions of the Code in relation to SEM Collateral Reserve Accounts, with effect from the time of payment into the relevant SEM Collateral Reserve Account, the relevant Participant thereby charges all sums paid into and accruing on that account by way of first fixed charge over cash at the SEM Bank in favour of the Market Operator as agent and trustee for it and the SEM Creditors to secure the relevant Participant's payment obligations under the Code, subject always to the provisions of paragraphs 6.32 to 6.36 inclusive.
- 6.21 Where, at any time, a Participant (or Applicant, as applicable) wishes to establish a SEM Collateral Reserve Account for the purposes of paragraph 6.19 and, where appropriate, having regard to the legal form, jurisdiction of incorporation or registration of the relevant Party and the location of the proposed SEM Collateral Reserve Account, to ensure the enforceability of the charge created under paragraph 6.20.3, the Market Operator shall require the Participant (or Applicant, as applicable) to complete and sign the particulars of charge in respect of such SEM Collateral Reserve Account and SEM Collateral Reserve Assets for registration of the charge with the relevant companies registry or other appropriate body in the appropriate jurisdiction or jurisdictions and the Participant shall do all such things and execute all such documents as necessary to facilitate such registrations (if any) within such timelines as may be specified by the Market Operator, having regard to any applicable time limit for the registration of such a charge. Without prejudice to the foregoing, the Market Operator shall, unless the relevant Participant undertakes otherwise, register the prescribed particulars with regard to the establishment of each SEM Collateral Reserve Account pursuant to Article 402 Companies (Northern Ireland) Order 1986 and/or section 395 of the Companies Act 1985 (United Kingdom) and/or section 99 of the Companies Act 1963 (Ireland), as appropriate, and/or at such other registry or registries as may be appropriate.
- 6.22 The SEM Trading Clearing Accounts and the SEM Capacity Clearing Accounts shall be established and maintained in the name of the Market Operator. The cash in and rights relating to each SEM Trading Clearing Accounts, the SEM Capacity Clearing Accounts and each SEM Collateral Reserve Account opened and any balance in any of the accounts shall be held on trust by the Market Operator without obligation to invest in accordance with the provisions of this section 6. The Market Operator shall not commingle any funds standing to the credit of the SEM Trading Clearing Accounts, the SEM Capacity Clearing Accounts or any SEM Collateral Reserve Account with its own personal or any other funds. This is without prejudice to the Market Operator's rights to transfer funds as between the euro and pounds sterling SEM Trading Clearing Accounts and SEM Capacity Clearing Accounts respectively for the purposes of Settlement and Resettlement.
- 6.23 Notwithstanding paragraph 6.22, the Market Operator shall hold the trusts as provided for in this Section 6 subject to its entitlement to make payments into and out of the SEM Trading Clearing Accounts and the SEM Capacity Clearing Accounts for the purpose of settling any Balancing Costs.

- 6.24 Except as expressly provided for in this Code, no Party or Participant shall enter into any arrangements which assign or charge or purport to assign or charge any interest any Party or Participant may have in any SEM Trading Clearing Account, SEM Capacity Clearing Account or SEM Collateral Reserve Account.
- 6.25 The Market Operator shall procure that an electronic funds transfer (EFT) facility with the SEM Bank is provided to enable it to make all payments to Participants under the Code. Payments shall only be made by the Market Operator and Participants in the Pool through an EFT facility.
- 6.26 The EFT facilities procured by the Market Operator shall be consistent with standard banking practice and the methods and procedures described in Agreed Procedure 17 "Banking and Participant Payments".
- 6.27 In procuring the establishment of the EFT facility, the Market Operator shall use its reasonable endeavours to ensure that the use of the EFT facility does not impose unreasonable restrictions on the Participants' normal banking arrangements.
- 6.28 Each Party (or Applicant, as applicable) shall give to the Market Operator in accordance with the registration requirements set out in Section 2 details of the bank account or bank accounts to which the Market Operator is instructed to make payments pursuant to the Code to such Party's Participant(s), and shall provide to the Market Operator such further information in relation to such bank account or bank accounts as the Market Operator may reasonably request. Each Party shall establish and maintain such a bank account at a bank in each Currency Zone in which its Participant has a registered Unit as applicable. Where a Party or Participant changes the bank account or bank accounts to which payments are made pursuant to the Code, it shall inform the Market Operator and provide details of the new bank account or bank accounts. The Market Operator shall not be responsible for any loss to any Party or Participant where the Market Operator has not been informed by the relevant Party or Participant of any change in bank account details.
- 6.29 The Market Operator shall maintain detailed ledger accounts of all funds held in the SEM Trading Clearing Accounts, SEM Capacity Clearing Accounts, SEM Collateral Reserve Accounts and all other bank accounts held by it at the SEM Bank showing all monies paid in and paid out in respect of each Participant and, where requested by a Participant or its Party, the Market Operator shall provide full details of all such payments and funds in relation to such Participant only and shall keep all information in respect of each Participant confidential. Notwithstanding the foregoing, the Market Operator shall be entitled to disclose any information or data in relation to any SEM Trading Clearing Account, SEM Capacity Clearing Account or SEM Collateral Reserve Account held at the SEM Bank to the Market Auditor or relevant Revenue Authority where required or where otherwise required by law.

#### **Establishment of Trusts**

- 6.30 The Market Operator shall hold all funds in the SEM Trading Clearing Accounts and the SEM Capacity Clearing Accounts and such rights (including, without limitation, all rights of action) as shall from time to time be vested in it with regard to payments due and owing by Participants or with regard to the provision of Credit Cover by each Participant including:

1. all monies from time to time standing to the credit of each SEM Trading Clearing Account and each SEM Capacity Clearing Account relating to any Trading Period;
2. all rights of the Market Operator to call for and enforce payment of amounts owing under the Code (including, for the avoidance of doubt, any Shortfall or Unsecured Bad Debt) or to make a Credit Call;
3. the Letters of Credit and all rights to, and monies representing, any proceeds therefrom up to the amount of any applicable Shortfall; and
4. any interest receivable in respect of any amounts due pursuant to the Code relating to any Trading Period,

on trust for SEM Creditors in accordance with their individual respective proportionate entitlements as they arise in accordance with the Code (or to the extent that any Credit Cover shall relate to any Variable Market Operator Charge, on trust for the Market Operator in accordance with the Code). Upon termination of the said trusts, any residual balance after satisfaction of the entitlement of all SEM Creditors shall be held for all Participants in accordance with their individual respective proportionate entitlements as they arise in accordance with the Code.

6.31 The respective rights of the SEM Creditors to the assets held by the Market Operator on trust in the SEM Trading Clearing Accounts and the SEM Capacity Clearing Accounts as set out in paragraphs 6.16 and 6.17 respectively and as provided for in paragraph 6.30 shall be determined in accordance with the Code and in accordance with the following principles:

1. the extent of each SEM Creditor's individual rights shall be deemed to consist of the aggregate of the claims (to the extent not paid or otherwise settled) of such SEM Creditor in respect of each Trading Period; and
2. the assets referred to in paragraph 6.30 above shall be deemed to consist of a series of funds, each fund representing the rights or monies owed, paid, held or otherwise attributable to each Trading Period in relation to Trading Payments and Capacity Payments.

The Market Operator shall not be obliged to segregate moneys into separate funds.

6.32 The Market Operator shall hold the SEM Collateral Reserve Assets in respect of each Participant that establishes and maintains an SEM Collateral Reserve Account in accordance with the Code on trust as follows:

1. at any time when no amounts owed by any such Participant are overdue, on trust to repay (subject always to and in accordance with paragraphs 6.33 to 6.35 inclusive, 6.50 and 6.51 to 6.68 as appropriate) to that Participant the monies, together with any interest accrued on such monies, held in the relevant SEM Collateral Reserve Account as part of that Participant's Posted Credit Cover; and
2. with automatic effect as soon as any amount owed by a Participant becomes overdue and becomes a Shortfall (excluding any Market Operator Charge), such amount of the monies deposited in the relevant SEM Collateral Reserve Account by such Participant as is equal to the amount of the Shortfall and any applicable Interest (or Default Interest as applicable) in respect of the relevant Participant on trust for the SEM Creditors on the same basis as set out in paragraph

**Deleted:** 6.30 above and the balance (if any) shall be held on trust in respect of that Participant as provided for in paragraph 6.32.1 subject to paragraph 6.32.3 where applicable; and

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3. with automatic effect as soon as any Variable Market Operator Charge owed by a Participant becomes overdue and where there is no Shortfall or Unsecured Bad Debt in respect of that Participant at that time or, if there is such Shortfall or Unsecured Bad Debt only after the SEM Collateral Reserve Assets have been applied to meet the Shortfall or Unsecured Bad Debt in full, such amount of the monies then held in the relevant SEM Collateral Reserve Account as is available up to the amount of the Variable Market Operator Charge outstanding and any applicable Interest on trust for the Market Operator in accordance with the Code and the balance (if any) shall be held on trust as provided for in paragraph 6.32.1
- 6.33 Each Participant which has funds remitted by it for the credit of a relevant SEM Collateral Reserve Account agrees that none of the remittances shall be repayable (or capable of being repaid) to it or its Party, except where provided otherwise in accordance with the provisions of the Code, until Deregistration of the Participant's Unit(s) becomes effective in accordance with the Code and, in particular, subject to paragraph 2.273, and the Participant has paid in full all amounts actually or contingently owed by the relevant Participant to any SEM Creditor or the Market Operator pursuant to the Code.
- 6.34 Each Participant with a SEM Collateral Reserve Account undertakes not to seek withdrawal of any funds to which it may otherwise be entitled in the relevant SEM Collateral Reserve Account except in the circumstances permitted by paragraph 6.35. The Market Operator shall reject any purported notice of withdrawal not complying with this paragraph 6.34, the Code or the Bank Mandate. The Code shall take precedence over the Bank Mandate.
- 6.35 Notwithstanding paragraphs 6.33 and 6.34, if a Participant is not in default in respect of any amount owed to a SEM Creditor, then:
1. the Market Operator shall transfer quarterly to the relevant Participant the interest credited to the relevant SEM Collateral Reserve Account unless the Participant requests otherwise;
  2. the Market Operator shall transfer to such Participant within 2 Working Days after a written request from such Participant (exclusive of the day of request) any amount of the balance which exceeds the amount which such Participant has agreed to maintain in the relevant SEM Collateral Reserve Account from time to time in accordance with this Section 6, the Code and the Bank Mandate, provided that the Participant at all times maintains its Required Credit Cover. The Code shall take precedence over the Bank Mandate;
  3. the Participant shall be entitled to change the composition of its Posted Credit Cover in satisfying the Required Credit Cover provided any reduction in any amount standing to the credit of the relevant SEM Collateral Reserve Account does not result in a breach of the Required Credit Cover.

6.36 Except as expressly provided for in the Code, each Party and Participant waives any right it might otherwise have to set off against any obligation owed to the Market Operator, the SEM Bank or any other Party or

**Deleted:** Participant any claims such Party or Participant may have to or in respect of any monies standing to the credit of the relevant SEM Trading Clearing Account, SEM Capacity Clearing Account or SEM Collateral Reserve Account as applicable.

6.37 The provisions of section 10(2)(c) of the Trustee Act, 1893 shall not apply to any change in the identity of the Market Operator.

6.38 No Party or Participant shall have any claim against the Market Operator for breach of trust or fiduciary duty by the Market Operator under the Code except in the case of reckless or wilful misconduct.

## DESCRIPTION OF TIMELINES

### Settlement Day

6.39 All Settlement of Trading Payments and Trading Charges are based on a Settlement Day.

6.40 The terminology “SD+xWD” means during the Working Day which ends x Working Days after the end of the Settlement Day.

### Billing Period

6.41 All Trading Payments and Trading Charges shall be aggregated on a Billing Period basis which is defined as one Week commencing at 00:00 on Sunday.

6.42 The terminology “BP+xWD” means during the Working Day which ends x Working Days after the end of the Billing Period.

6.43 The terminology “BP+xM” means during the last Month which ends x Months after the end of the Billing Period.

### Capacity Period

6.44 All Capacity Payments and Capacity Charges shall be aggregated on a Capacity Period basis which is defined as one Month commencing at 00:00 on the first day of the Month.

6.45 The terminology “CP+xWD” means during the Working Day which ends x Working Days after the end of the Capacity Period.

6.46 For the purposes of this Section 6, the terminology “CP+xM” means during the Month which ends x Months after the end of the Capacity Period.

### Settlement Calendar

6.47 The Market Operator shall publish, four months prior to the start of each Year, a Settlement Calendar for all days in the coming Year which shall include the following information:

1. details of Non-Working Days;
2. details of:
  - a. when Ex-Post Indicative Settlement Statements are due (for each type of Settlement Statement);

- b. when Initial Settlement Statements are due (for each type of Settlement Statement);
- c. each Invoice issue date (for each type of Invoice);
- d. the Invoice Due Date (for each type of Invoice);
- e. the Self Billing Invoice issue date (for each type of Self Billing Invoice);
- f. the Self Billing Invoice Due Date (for each type of Self Billing Invoice);
- g. the Timetabled M+4 Settlement Reruns for relevant Settlement Periods; and
- h. the Timetabled M+13 Settlement Reruns for relevant Settlement Periods.

**Invoices, Self Billing Invoices and Debit Notes**

- 6.48 The Market Operator shall produce and issue Invoices and Self Billing Invoices for Trading Payments and Trading Charges in accordance with Appendix G “Invoices and Settlement Statements” and the following:
- 1. Ex-Post Indicative Settlement Statements for Trading Payments and Trading Charges shall, in respect of each Settlement Day in a Billing Period, be produced and issued to all Participants in respect of their Units by 17:00 on Settlement Day + 1WD;
  - 2. the Data Verification Period for Trading Payments and Trading Charges commences at the time of issue of the Ex-Post Indicative Settlement Statements and ends at 17:00 on Settlement Day + 4WD;
  - 3. Initial Settlement Statements shall be issued to all Participants in respect of their Units by 12:00 on Settlement Day + 5WD;
  - 4. Invoices and Self Billing Invoices for Trading Payments and Charges shall be issued to all Participants in respect of their Units by 12:00 on BP+5 WD;
  - 5. Make Whole Payments shall be calculated on a Billing Period basis as part of Settlement for the last day of the Billing Period; and
  - 6. Payments and charges in respect of Settlement Reallocations shall be calculated as part of Settlement for the last day of the Billing Period.
- 6.49 The Market Operator shall produce and issue Invoices and Self Billing Invoices for Capacity Payments and Capacity Charges in accordance with Appendix G “Invoices and Settlement Statements” and the following:
- 1. Ex-Post Indicative Settlement Statements for Capacity Payments and Capacity Charges shall, in respect of each Capacity Period, be produced and issued to all Participants in respect of their Units by 17:00 on CP+3WD;
  - 2. The Data Verification Period for Capacity Payments and Capacity Charges commences at the time of issue of the Ex-Post Indicative Settlement Statements and ends at 17:00 on CP+6WD; and
  - 3. Initial Settlement Statements, Invoices and Self Billing Invoices for Capacity Payments and Capacity Charges shall, in respect of each Capacity Period, be produced and issued to all Participants in respect of their Units by 12:00 on CP+5WD.

- 6.50 Payment shall be in accordance with the following:
1. each Ex-Post Indicative Settlement Statement, Initial Settlement Statement, Invoice and Self Billing Invoice shall be based on the data then available to the Market Operator at the time of its production;
  2. each Invoice and Self Billing Invoice shall include the amount of all applicable charges and payments and shall include any applicable VAT charges;
  3. each Debit Note (where applicable) shall include the amount of the Unsecured Bad Debt as set out in paragraph 6.56 and 6.57 as applicable and shall include any applicable VAT charges;
  4. any invoiced Participant shall pay each Invoice in full without deduction, set-off or counterclaim (except as otherwise expressly provided for in the Code) by paying the amount due into the relevant SEM Trading Clearing Account or relevant SEM Capacity Clearing Account as applicable for full value by the Invoice Due Date; the Invoice Due Date is 12:00, 3 Working Days after the date of the Invoice; and
  5. the Market Operator shall, subject to the provisions of the Code, pay each Self Billing Invoice less any applicable Debit Note to any Participant who is a SEM Creditor by paying the amount due from the SEM Trading Clearing Account or SEM Capacity Clearing Account as applicable to the SEM Creditor's designated bank account or bank accounts for full value by the Self Billing Invoice Due Date. The Self Billing Invoice Due Date is 17:00, 4 Working Days after the date of the Self Billing Invoice.
- 6.50A The Market Operator shall issue Invoices and Self Billing Invoices on the date appearing on the relevant Invoice or Self Billing Invoice as appropriate.
- 6.51 If any Invoiced Participant fails to pay an Invoice in full in accordance with paragraph 6.50.4, then the Participant has a Shortfall and the Market Operator shall forthwith make a Credit Call on the Participant's Posted Credit Cover for payment of the Shortfall. The Market Operator shall identify the Settlement Period to which the Shortfall relates in making any Credit Call. Default Interest shall accrue on any Shortfall and Unsecured Bad Debt in accordance with the Code.
- 6.52 If the Market Operator fails to pay pursuant to the Code (except as otherwise provided for in the Code) the full amount owing pursuant to a Self Billing Invoice for full value by the Self Billing Invoice Due Date, then Default Interest shall accrue on the amount outstanding in accordance with the Code.
- 6.53 If any Participant fails to pay its Variable Market Operator Charge in accordance with the Code, the Market Operator shall be entitled to make a Credit Call against the Posted Credit Cover of that Participant for payment of the amount of the overdue Variable Market Operator Charge. The Market Operator shall ensure that any amounts recovered relating to the Variable Market Operator Charge and any Interest thereon are not paid into or commingled or combined in any way with the SEM Trading Clearing Accounts or the SEM Capacity Clearing Accounts and shall deposit the funds recovered as a result of such a Credit Call in the relevant Market Operator Charge Account. Any unpaid Market Operator Charge shall not and shall never be treated as a Shortfall or an Unsecured Bad Debt under

the Code. The Market Operator shall only be entitled to make a Credit Call in relation to overdue Variable Market Operator Charge where there is no Shortfall or Unsecured Bad Debt in respect of that Participant at that time or, if there is such Shortfall or Unsecured Bad Debt, only after the relevant Participant's Posted Credit Cover has been applied to meet the Shortfall or Unsecured Bad Debt in full.

- 6.54 Despite the making of a Credit Call by the Market Operator, if the Participant meets any Shortfall either through its own funds, its Posted Credit Cover, or a combination of the foregoing by 12:00 on the next Working Day after the Invoice Due Date then Settlement shall continue to proceed in accordance with the Code.
- 6.55 If the Shortfall is not paid in full by 12:00 on the next Working Day after the Invoice Due Date, then:
1. the amount of the Shortfall shall become an Unsecured Bad Debt for the purposes of this Code;
  2. the Market Operator shall, where practicable, withhold, deduct or set off payment of any amount due pursuant to the Code to the Defaulting Participant until the amount of the Unsecured Bad Debt and any applicable Default Interest has been recovered in full; and
  3. paragraphs 6.56 to 6.62 shall apply as appropriate.
- 6.56 The Shortfall or the Unsecured Bad Debt as applicable shall be a debt owing by the Defaulting Participant to the Market Operator as trustee and agent for all Participants beneficially interested therein as provided for in the Code and affected thereby pro-rated according to their individual respective proportionate entitlements in the Shortfall or the Unsecured Bad Debt concerned and on the trusts provided for in paragraph 6.30.
- 6.57 Where a Participant has an Unsecured Bad Debt relating to any Trading Period(s) then, without prejudice to the Market Operator's rights or obligations under the Code and notwithstanding any other provisions of the Code, the Market Operator shall procure that each Self Billing Invoice relating to the Trading Period(s) affected by such Unsecured Bad Debt shall be subject to the calculation of an adjustment by a reduction in the amount payable to each affected SEM Creditor pro-rated in accordance with the individual respective proportionate entitlement of each such SEM Creditor (excepting any Defaulting Participant, which would otherwise be a SEM Creditor, and subject to paragraph 6.55.2 until the Unsecured Bad Debt and any applicable Default Interest has been recovered in full and any Self Billing Invoices issued to it whether or not relating to the Trading Periods concerned shall, until such event, be subject to the calculation of an adjustment by such amount or amounts up to the amount of the Unsecured Bad Debt and any applicable Default Interest, and relevant Debit Notes shall be issued to it) for payment of the relevant Unsecured Bad Debt, in accordance with the Code. The Market Operator shall issue the appropriate adjustments to the Self Billing Invoices in the form of a Debit Note to each of the applicable SEM Creditors ("Reduced Participants") and the Defaulting Participant within the timeframe of making the payment. The Market Operator shall make payments to each Participant for the amount of the Self Billing Invoice less the applicable Debit Note in accordance with paragraph 6.50.
- 6.58 In the event that, for any Participant (an "Excess Participant"), the amount of the Debit Note would exceed the amount of the applicable Self Billing

Invoice (a "Debit Note Excess"), the Market Operator will make no payment to the Excess Participant in respect of that Settlement Period. In addition, the Excess Participant shall, within 2 Working Days of the receipt of the relevant Debit Note, make a payment to the relevant SEM Trading Clearing Account or SEM Capacity Clearing Account as applicable for the amount of the Debit Note Excess. The Market Operator shall calculate further reductions in the payments to each SEM Creditor (other than the Excess Participant) by the amount of the Debit Note Excess applied pro-rata to their respective proportionate entitlements. The Market Operator shall issue a Debit Note to each SEM Creditor showing the original reduction resulting from the Unsecured Bad Debt and, in respect of each SEM Creditor other than the Excess Participant, the relevant proportion of the Debit Note Excess. In the event that upon receipt of an Excess Debit Note, a further Participant or Participants become Excess Participants, then the Market Operator shall repeat the process of calculation of reduction, and the resultant Debit Notes shall show the resultant reductions for each relevant SEM Creditor, until the amount due in respect of each Self Billing Invoice net of a Debit Note or Excess Debit Note is positive or zero. Any Debit Note Excess which remains unpaid after the second Working Day shall be treated as a Shortfall in accordance with paragraph 6.55.

- 6.59 All Parties agree that the Market Operator as trustee and agent shall be entitled and irrevocably authorise the Market Operator, subject to paragraph 6.60 to take all necessary action against a Participant (or its Party where legally necessary) with an Unsecured Bad Debt to recover any Unsecured Bad Debt on behalf of SEM Creditors consequently incurring loss and to deal with any recovered monies in accordance with the Code. Any such action of the Market Operator to recover the Unsecured Bad Debt shall not be subject to the Dispute Resolution Process.
- 6.60 The Market Operator shall consult the Modifications Committee in relation to any plans for the pursuit of any Unsecured Bad Debt. The Market Operator shall take into account the views of the Modifications Committee as to the most appropriate action to take against a Party in respect of the Unsecured Bad Debt of any of its Participants.
- 6.61 Where the Market Operator partially or fully recovers any Unsecured Bad Debt, the Market Operator shall procure the payment of any such monies into the relevant SEM Trading Clearing Account or SEM Capacity Clearing Account as applicable. Then the Market Operator shall issue an appropriate Self Billing Invoice to each Reduced Participant for an amount pro-rated to the individual respective proportionate entitlement of each Reduced Participant in the amount of the relevant Unsecured Bad Debt recovered relating to the Trading Periods concerned with the issue of the Self Billing Invoices for the then next immediate Billing Period or Capacity Period (excepting, where the Unsecured Bad Debt and any applicable Default Interest has not been fully recovered, the Defaulting Participant, which would otherwise be a SEM Creditor, subject to paragraph 6.55.2 until the Unsecured Bad Debt and any applicable Default Interest has been recovered in full). The Market Operator shall pay each such Self Billing Invoice in accordance with the Code.
- 6.62 Paragraphs 6.152 to 6.153 shall apply in relation to the recovery of any Unsecured Bad Energy Debt. Paragraphs 6.154 to 6.155 shall apply in relation to the recovery of Unsecured Bad Capacity Debt.

- 6.63 If any payments made by the Market Operator pursuant to any Self Billing Invoice and any Debit Note or otherwise pursuant to the Code to any Participant do not correspond exactly with their respective payment entitlements established in accordance with the Code, then (and the Parties and Participants agree and consent to the actions of the Market Operator as set out as follows):
1. in the case of overpayment by the Market Operator, the Participant receiving any such overpayment shall pay back the difference between the amount of the payment received and the actual amount due to the Market Operator on becoming aware of the overpayment or, in any event, in accordance with the Code on the issue of an Invoice by the Market Operator to the Participant concerned for the relevant amount. Any Participant receiving any overpayment shall be obliged to notify the Market Operator of this on becoming aware of such overpayment detailing, where possible, the amount and date of the overpayment and details of any Self Billing Invoice and any Debit Note pursuant to which it was made. As soon as the Market Operator becomes aware of the overpayment, the Market Operator shall issue an overpayment Invoice for the relevant amount and the Participant shall pay the Invoice in accordance with the Code;
  2. in the case of underpayment to any Participant by the Market Operator not otherwise permitted pursuant to any other provision of the Code, the Market Operator shall, in accordance with the Code, pay the difference between the amount of the payment received and the actual amount due, with Default Interest on that difference, to the Participant concerned on becoming aware of the underpayment or on being notified of the underpayment by the Participant concerned. The Market Operator shall also issue an underpayment Self Billing Invoice to the Participant concerned for the relevant amount with Default Interest from the date of the underpayment until the date of payment of the relevant Self Billing Invoice. Any Participant receiving any underpayment shall notify the Market Operator of this on becoming aware of such detailing, where possible, the amount and date of the underpayment and details of any Self Billing Invoice or Debit Note pursuant to which it was made.
- 6.64 If any payments made by any Participant pursuant to any Invoice or otherwise pursuant to the Code do not correspond exactly with their respective payment obligations established in accordance with the Code, then (and the Parties and Participants agree and consent to the actions of the Market Operator as set out as follows):
1. in the case of overpayment by the relevant Participant, the Market Operator, unless otherwise restricted from doing so pursuant to the Code, shall pay back the difference between the amount of the payment remitted and the actual amount due with Interest on that difference to the relevant Participant on becoming aware of the overpayment or on being notified of the overpayment by the Participant concerned (except where the Participant is a Defaulting Participant and the Market Operator invokes paragraph 6.55.2). The Market Operator shall then issue an overpayment Self Billing Invoice to the Participant concerned for the relevant amount with Interest from the date of the overpayment until the date of payment of the relevant Self Billing Invoice and pay it to the Participant in accordance with the Code. Any Participant making any overpayment shall notify the

Market Operator of this on becoming aware of such overpayment detailing, where possible, the amount and date of the overpayment and details of any Invoice pursuant to which it was made. The Market Operator shall notify any Participant making an overpayment on becoming aware of such detailing, where possible, the amount and date of the overpayment and details of any Invoice pursuant to which it was made and issue an overpayment Self Billing Invoice for the relevant amount with Interest and shall pay the overpayment Self Billing Invoice in accordance with the Code; and

2. in the case of underpayment by any Participant to the Market Operator, paragraphs 6.51 to 6.62 shall apply.
- 6.65 Any Participant making any underpayment or anticipating that it will be making an underpayment in respect of any Invoice shall notify the Market Operator of this on becoming aware that full payment of any Invoice will not be made by the Invoice Due Date detailing, where possible, the amount and date of the underpayment and details of any Invoice to which it relates.
- 6.66 Subject to paragraphs 6.33, 6.55, 6.57, 6.61, 6.63 and 6.64, all payments under this Section 6 shall be made on the basis that a Participant shall only be entitled to claim reimbursement of an overpayment made by it pursuant to the Code if, and then only to the extent that, the aggregate amounts paid by the Participant in respect of the relevant Payment Due Date exceed the total amounts payable by that Participant to SEM Creditors in respect of that Payment Due Date together with all amounts (if any) overdue from that Participant in respect of Settlement Periods prior to the relevant Payment Due Date.
- 6.67 Notwithstanding paragraph 6.30, if:
1. a payment is received by the Market Operator under a Letter of Credit after a sum has been withdrawn from an SEM Collateral Reserve Account (where applicable) to make good (in whole or in part) a Shortfall or Unsecured Bad Debt (or any overdue Variable Market Operator Charge where applicable); and
  2. the aggregate of the amounts paid out of that SEM Collateral Reserve Account and paid under the Letter of Credit in respect of a relevant Participant exceeds the Shortfall or Unsecured Bad Debt (or any overdue Variable Market Operator Charge where applicable),

then any excess paid over the Shortfall or Unsecured Bad Debt (or any overdue Variable Market Operator Charge where applicable) shall be remitted with any applicable Interest by the Market Operator to the relevant Participant's bank account or bank accounts.

- 6.68 Where payments in respect of one or more Settlement Period(s) are fully or partially outstanding, any payments made shall be, and shall be deemed to be, settled according to the following priority:
1. first, in or towards settlement of amounts outstanding under the Code in respect of Timetabled Settlement Reruns (with the longest outstanding Settlement Period to which a Timetabled Settlement Rerun relates being settled first); and
  2. secondly, in or towards settlement of amounts outstanding under the Code for Settlement with the longest outstanding Settlement being settled first.



### **Settlement Reruns**

- 6.69 The objective of all Settlement Reruns is to adjust the financial positions of Participants to reflect any differences between data used for Settlement and any updated data received.
- 6.70 There will be two Timetabled Settlement Reruns for each Billing Period. The first Timetabled Settlement Rerun shall take place in the fourth month after the Billing Period (BP+4M) and the second Timetabled Settlement Rerun shall take place in the 13th month after the Billing Period (BP+13M). The Market Operator shall publish the precise date of these in advance in the Settlement Calendar.
- 6.71 There will be two Timetabled Settlement Reruns for each Capacity Period. The first Timetabled Settlement Rerun shall take place in the fourth month after the Capacity Period (CP+4M) and the second Timetabled Settlement Rerun shall take place in the 13th month after the Capacity Period (CP+13M). The Market Operator shall publish the precise date of these in advance in the Settlement Calendar.
- 6.72 The Market Operator shall issue Settlement Rerun Statements to Participants for each of their registered Units in the event of any Settlement Rerun arising from a Settlement Query, Data Query or Settlement Dispute.
- 6.73 Each Settlement Rerun Statement will be in the same format as the Initial Settlement Statement and must include the data from the previous Settlement Statement relating to the relevant Billing Period or Capacity Period and any revised values for all Trading Periods where these values are different.
- 6.74 The Market Operator shall be entitled to undertake Settlement Reruns as provided for in the Code in addition to the Timetabled Settlement Reruns.
- 6.75 When a Settlement Rerun results in any change to any amount payable under the Code, the Market Operator shall issue adjusted Invoices and Self Billing Invoices and payment shall be made in accordance with paragraph 6.50.
- 6.76 [Intentionally blank]
- 6.77 The Settlement Recalculation Threshold shall be proposed by the Market Operator from time to time and approved by the Regulatory Authorities. The Market Operator shall publish the approved value of the Settlement Recalculation Threshold.

### **QUERIES TO SETTLEMENT DATA**

#### **Data Verification Period**

- 6.78 A Participant may raise a Data Query in respect of any Settlement Item or other elements of data which have an impact on the Settlement Items included in the Ex-Post Indicative Settlement Statement by giving notice to the Market Operator during the Data Verification Period and will use reasonable endeavours to raise any such Data Query as early as possible within the Data Verification Period before the production and issue of the Initial Settlement Statement.
- 6.79 The duration of the Data Verification Period is set out in paragraph 6.48.2 for Trading Payments and Trading Charges and is set out in paragraph 6.49.2 for Capacity Payments and Capacity Charges.

### **Data Queries**

- 6.80 The Market Operator shall use reasonable endeavours to resolve all Data Queries within 3 Working Days of the issue of the Ex-Post Indicative Settlement Statement.
- 6.81 The Market Operator must resolve a Data Query within 10 Working Days after the Data Query is filed (subject to the provisions of paragraph 6.86). Where the Market Operator requests any assistance from any Participant to resolve a Data Query, that Participant shall promptly assist the Market Operator in dealing with the Data Query concerned in order to facilitate the Market Operator in meeting that timetable.
- 6.82 The Market Operator shall procure that (i) SMP and Market Schedule Quantities will be recalculated for the relevant Trading Day(s), and (ii) a Settlement Rerun shall then be undertaken in the event that the Market Operator in resolving a Data Query determines that:
1. Commercial Offer Data or Technical Offer Data has been applied incorrectly; or
  2. Actual Availability or Dispatch Quantity has been calculated incorrectly
- and that the correct application or calculation of any such amount would require it to change by more than the Settlement Recalculation Threshold.
- 6.83 The Market Operator shall procure that (i) SMP and Market Schedule Quantities will be recalculated for the relevant Trading Day(s), and (ii) a Settlement Rerun shall then be undertaken in the event that the Market Operator in resolving a Data Query determines that:
1. Metered Generation has been applied incorrectly; or
  2. Market Schedule Quantity has been calculated incorrectly,
- and that the correct application or calculation of any such amount would require it to change by more than the Settlement Recalculation Threshold.
- 6.84 The Market Operator shall procure that the Ex-Post Loss of Load Probability  $\Phi$  shall be recalculated in the event that the Market Operator in resolving a Data Query determines that Metered Generation has been applied incorrectly, and that the correct application would require it to change by more than the Settlement Recalculation Threshold.
- 6.85 The Market Operator shall procure that Capacity Payments and Capacity Charges shall be recalculated in the event that the Market Operator in resolving a Data Query determines that:
1. Commercial Offer Data or Technical Offer Data has been applied incorrectly; or
  2. any of Eligible Availability, Dispatch Quantity, Market Schedule Quantity, SMP or Ex-Post Loss of Load Probability  $\Phi$  has been calculated incorrectly.
- 6.86 If the Market Operator does not resolve the Data Query within the period set out in paragraph 6.81, then it shall be deemed to give rise to a Settlement Dispute unless the Party concerned agrees to give the Market Operator more time, such period not exceeding 10 Working Days, to resolve the Data Query.

- 6.87 If a Data Query is resolved within the timeframes set out in paragraph 6.81 but not included in the calculation of the Initial Settlement Statements for Capacity Payments or Capacity Charges, the Market Operator shall procure that an additional Settlement Rerun for the relevant Settlement Period shall then be performed.
- 6.88 Any change to Settlement resulting from the resolution by the Market Operator of a Data Query that was not processed prior to the production of the Initial Settlement Statement for Trading Payments or Trading Charges shall fall into one of the two following categories:
1. Change to Settlement Items with Low Materiality;
  2. Change to Settlement Items with High Materiality.
- 6.88A The Market Operator shall calculate the materiality of a change to Settlement Items, or other elements of data which have an impact on the Settlement Items, arising from the resolution of a Data Query or a Settlement Query by reference to a single Energy Settlement Statement, Capacity Settlement Statement or Statement of Market Operator Charges as appropriate.
- 6.89 In the event that there is a change to Settlement Items with Low Materiality, the Market Operator shall procure that the revised corrected input data shall be used for the relevant Settlement Period for which Final Settlement has not occurred, and Settlement shall then take place on the next Timetabled Settlement Rerun.
- 6.90 [Intentionally blank]
- 6.91 In the event that there is a change to Settlement Items with Low Materiality resolved after the final Timetabled Settlement Rerun, the Market Operator shall procure that an additional Settlement Rerun for the relevant Settlement Period shall then be performed.
- 6.92 In the event that there is a change to Settlement Items with High Materiality, the Market Operator shall procure that the revised corrected input data shall be corrected for the relevant Settlement Period and an additional Settlement Rerun for that Settlement Period shall then be performed.

#### **Settlement Queries**

- 6.93 Before raising a Settlement Dispute in respect of any of the matters set out in paragraphs 6.94 and 6.95, a Participant must raise a Settlement Query in respect of those matters.
- 6.94 A Participant may raise a Settlement Query in respect of the application of Metered Generation or the calculation of any of the following amounts:
1. Metered Demand;
  2. Net Demand;
  3. Eligible Availability; or
  4. Actual Availability.
- 6.95 Notwithstanding any other provision of the Code, a Participant may raise a Settlement Query in the event of any difference between a Settlement Item on the Ex-Post Indicative Settlement Statement and the same item on the Initial Settlement Statement, without the Participant having filed a Data Query in relation to that Settlement Item.

- 6.96 Any changes to Settlement resulting from a Settlement Query on an Initial Settlement Statement, on an Invoice or on a Self Billing Invoice, shall be placed into one of the two following categories:
1. Change to Settlement Items with Low Materiality;
  2. Change to Settlement Items with High Materiality.
- 6.97 In the event that there is a change to Settlement Items with Low Materiality, the Market Operator shall procure that the revised corrected data will be used for the relevant Settlement Period for which Final Settlement has not occurred, and Settlement shall then take place on the next Timetabled Settlement Rerun.
- 6.98 The Market Operator shall calculate the materiality of a change to Settlement Items arising from the resolution of a Settlement Query by reference to a single Energy Settlement Statement, Capacity Settlement Statement or statement of Market Operator Charges.
- 6.99 In the event that there is a change to Settlement Items with Low Materiality resolved after the final Timetabled Settlement Rerun, the Market Operator shall procure that an additional Settlement Rerun for the relevant Settlement Period shall then be performed.
- 6.100 In the event that there is a change to Settlement Items with High Materiality, the Market Operator shall procure that the revised corrected data shall be used for the relevant Settlement Period and a Settlement Rerun for that Settlement Day shall then be performed.
- 6.101 A Participant is entitled to file a Settlement Query at any time before 17:00 on the fifth Working Day after the last Timetabled Settlement Rerun.
- 6.102 The Market Operator must resolve a Settlement Query within one month after the Settlement Query is filed with it. If the Market Operator does not resolve the Settlement Query within that period, then it shall be deemed to give rise to a Settlement Dispute unless the Party concerned agrees to give the Market Operator more time (not exceeding 10 Working Days) to resolve the Settlement Query.

#### **Settlement Disputes**

- 6.103 Subject to paragraph 6.93, a Participant may only raise a Settlement Dispute in respect of an Initial Settlement Statement or an Invoice or a Self Billing Invoice insofar as it relates to Trading Payments and Trading Charges after the Initial Settlement Statements for Trading Payments and Trading Charges are issued to relevant Participants.
- 6.104 Subject to paragraph 6.93, a Participant may only raise a Settlement Dispute in respect of capacity, after the Initial Settlement Statements or an Invoice or a Self Billing Invoice for Capacity Payments and Capacity Charges are issued to relevant Participants.
- 6.105 A Settlement Dispute shall also arise where the Market Operator has not resolved a Data Query within the period provided for pursuant to paragraph 6.86 or where the Market Operator has not resolved a Settlement Query within the period provided for pursuant to paragraph 6.102.
- 6.106 The Market Operator shall procure that (i) SMP and Market Schedule Quantities shall be recalculated, and (ii) a Settlement Rerun will then be undertaken in the event that as a result of an Upheld Dispute it is determined that:

1. Commercial Offer Data or Technical Offer Data has been applied incorrectly; or
  2. Actual Availability or Dispatch Quantity has been calculated incorrectly.
- 6.107 The Market Operator shall procure that (i) SMP and Market Schedule Quantities shall be recalculated, and (ii) a Settlement Rerun will then be undertaken in the event that as a result of an Upheld Dispute it is determined that:
1. Metered Generation has been applied incorrectly; or
  2. Market Schedule Quantity has been calculated incorrectly,
- and that the correct application or calculation of any such amount would require it to change by more than the Settlement Recalculation Threshold.
- 6.108 The Market Operator shall procure that Capacity Payments and Capacity Charges shall be recalculated in the event that as a result of an Upheld Dispute it is determined that the Metered Generation has been applied incorrectly, and that the correct application would require it to change by more than the Settlement Recalculation Threshold.
- 6.109 The Market Operator shall procure that Capacity Payments and Capacity Charges shall be recalculated in the event that as a result of an Upheld Dispute it is determined that:
1. Commercial Offer Data or Technical Offer Data has been applied incorrectly; or
  2. any of Eligible Availability, Dispatch Quantity, Market Schedule Quantity, Net Demand, SMP or Ex-Post Loss of Load Probability  $\Phi$  has been calculated incorrectly.
- 6.110 Upheld Disputes shall be placed into one of two categories:
1. Upheld Dispute with Low Materiality; or
  2. Upheld Dispute with High Materiality.
- 6.110A The Market Operator shall calculate the materiality of a change to Settlement Items arising from the resolution of a Settlement Dispute by reference to a single Energy Settlement Statement, Capacity Settlement Statement or statement of Market Operator Charges.
- 6.111 In the event of an Upheld Dispute with Low Materiality, the Market Operator shall procure that the revised corrected data shall be used for the relevant Settlement Period for which Final Settlement has not occurred, and Settlement shall then take place on the next Timetabled Settlement Rerun.
- 6.112 In the event of an Upheld Dispute with Low Materiality after the final Timetabled Settlement Rerun, the Market Operator shall procure that an additional Settlement Rerun for the relevant Settlement Period shall then be performed within the timeframe directed by a Competent Authority (which shall for these purposes include the Dispute Resolution Board) as a result of the Dispute Resolution Process.
- 6.113 In the event of an Upheld Dispute with High Materiality, the Market Operator shall procure that the revised corrected data will be used for the relevant Settlement Day and an additional Settlement Rerun for the relevant Settlement Day shall then be performed within the timeframe directed by a

Competent Authority (which shall for these purposes include the Dispute Resolution Board) as a result of the Dispute Resolution Process.

### **CONSEQUENCES**

- 6.114 Any payment due under the Code by any Party or Participant shall continue to be due and payable in accordance with its terms (including as to timing) notwithstanding (i) any Data Queries, Settlement Queries or Settlement Disputes in respect of such payments or (ii) any Shortfall, Unsecured Bad Debt, Default, Suspension, Deregistration or Termination arising in relation to any such Party or Participant.
- 6.115 Where the resolution of a Data Query, Settlement Query or Settlement Dispute requires a Settlement Rerun, the Market Operator will procure the carrying out of a Settlement Rerun in relation to the Settlement Day(s) that are the subject of the Data Query, Settlement Query or Settlement Dispute.
- 6.116 Where the resolution of a Settlement Query or Settlement Dispute raised by a Participant requires a Settlement Rerun, the Market Operator shall apply the result of that Settlement Rerun to all Participants.

### **DAILY CALCULATION OF PAYMENTS FOR GENERATOR UNITS**

- 6.117 The Market Operator shall calculate the applicable daily payments in respect of Generator Units in accordance with the following paragraphs.

#### ***Payments for Energy***

- 6.118 The Total Energy Payments for Energy (ENPU<sub>ud</sub>) for Generator Unit u for Settlement Day d shall be calculated as follows:

$$ENPU_{ud} = \sum_{h \text{ in } d} ENP_{uh}$$

Where

1. ENP<sub>uh</sub> is the Energy Payment due for Generator Unit u for Trading Period h;
2.  $\sum_{h \text{ in } d}$  is a summation over all Trading Periods h in Settlement Day d.

#### ***Payments for Constraints***

- 6.119 The Constraint Payments (CONPU<sub>ud</sub>) for Generator Unit u for Settlement Day d shall be calculated as follows:

$$CONPU_{ud} = \sum_{h \text{ in } d} CONP_{uh}$$

Where

1. CONP<sub>uh</sub> is the Constraint Payment made for Generator Unit u for Trading Period h;
2.  $\sum_{h \text{ in } d}$  is a summation over all Trading Periods h in Settlement Day d.

**Payments for Uninstructed Imbalances**

- 6.120 The Total Uninstructed Imbalance Payments (UNIMPU<sub>ud</sub>) made for Generator Unit u for Settlement Day d shall be calculated as follows:

$$UNIMPU_{ud} = \sum_{h \text{ in } d} UNIMP_{uh}$$

Where

1. UNIMP<sub>uh</sub> is the Uninstructed Imbalance Payment for Generator Unit u in Trading Period h;
2.  $\sum_{h \text{ in } d}$  is a summation over all Trading Periods h in Settlement Day d.

**Testing Charges**

- 6.121 The Testing Charges (TCHARGE<sub>Uud</sub>) for Generator Unit u for Settlement Day d shall be calculated as follows:

$$TCHARGE_{Uud} = \sum_{h \text{ in } d} TCHARGE_{uh}$$

Where

1. TCHARGE<sub>uh</sub> is the Testing Charge for a Generator Unit u in Trading Period h;
2.  $\sum_{h \text{ in } d}$  is a summation over all Trading Periods h in Settlement Day d.

**Payments for Generator Units on a Daily Basis**

- 6.122 The Total Payments (DAYPU<sub>ud</sub>) made for Generator Unit u for Settlement Day d shall be calculated as follows:

$$DAYPU_{ud} = ENPU_{ud} + CONPU_{ud} + UNIMPU_{ud} - TCHARGE_{Uud}$$

Where

1. ENPU<sub>ud</sub> is the Total Energy Payment made for Generator Unit u for Settlement Day d;
2. CONPU<sub>ud</sub> is the Constraint Payment made for Generator Unit u for Settlement Day d;
3. UNIMPU<sub>ud</sub> is the Total Uninstructed Imbalance Payment made for Generator Unit u for Settlement Day d;
4. TCHARGE<sub>Uud</sub> is the Testing Charge for each Generator Unit u for Settlement Day d.

- 6.123 The Total Payment (DAYPD<sub>d</sub>) made for all Generator Units other than Interconnector Residual Capacity Units for Settlement Day d shall be calculated as follows:

$$DAYPD_d = \sum_{u^*} DAYPU_{ud}$$

Where

1. DAYPU<sub>ud</sub> is the Total Payments made for Generator Unit u for Settlement Day d;

2.  $\sum_{u^*}$  is a summation over all Generator Units excluding any Interconnector Residual Capacity Units.

**Invoice payments for energy in respect of Generator Units**

- 6.124 The Invoice Energy Payments (IEP<sub>pb</sub>) to Participant p for its registered Generator Units except any Interconnector Residual Capacity Units for Billing Period b shall be calculated as follows:

$$IEP_{pb} = \sum_{u^* \text{ in } p} \sum_{d \text{ in } b} DAYPU_{ud} + \sum_{u^* \text{ in } p} MWP_{ub} - \sum_{a \text{ in } p} \sum_{d \text{ in } b} \sum_{h \text{ in } d} SSREA_{aph}$$

Where

1. DAYPU<sub>ud</sub> is the Total Payments excluding Capacity Payments made for Generator Unit u for Settlement Day d;
2. SSREA<sub>aph</sub> is the Settlement Reallocation Energy Amount for Participant p for its registered Generator Units for Trading Period h defined in Settlement Reallocation Agreement a;
3. MWP<sub>ub</sub> is the Make Whole Payment for Generator Unit u in Billing Period b;
4.  $\sum_{u^* \text{ in } p}$  is a summation over all Generator Units u excluding any Interconnector Residual Capacity Units registered to Participant p;
5.  $\sum_{a \text{ in } p}$  is a summation over all Settlement Reallocation Agreements a registered to Participant p in respect of its registered Generator Units;
6.  $\sum_{d \text{ in } b}$  is a summation over Settlement Days d in Billing Period b;
7.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods h in Settlement Day d.

**DAILY CALCULATION OF CHARGES FOR SUPPLIER UNITS**

- 6.125 The Market Operator shall calculate the charges for Supplier Units as set out in the following paragraphs, detailing the component of charges for Supplier Units to be calculated on a daily basis but not including non-daily charges (Capacity Payments).

**Charges for Energy**

- 6.126 The Total Energy Charges for Energy (ENC<sub>Vvd</sub>) for Supplier Unit v for Settlement Day d shall be calculated as follows:

$$ENC_{Vvd} = \sum_{h \text{ in } d} ENC_{vh}$$

Where

1. ENC<sub>vh</sub> is the Energy Charge for Supplier Unit v for Trading Period h;



2.  $\sum_{hind}$  is a summation over all Trading Periods h in Settlement Day d.

**Charges for Imperfections**

- 6.127 The Total Imperfections Charges (IMPCVvd) for Supplier Unit v for Settlement Day d shall be calculated as follows:

$$IMPCVvd = \sum_{hind} IMPCvh$$

Where

1. IMPCvh is the Imperfections Charge for Supplier Unit v for Trading Period h;
2.  $\sum_{hind}$  is a summation over all hours h in Settlement Day d.

**Charges for Supplier Units on a Daily Basis**

- 6.128 The Total Charges (DAYCVvd) for Supplier Unit v for Settlement Day d shall be calculated as follows:

$$DAYCVvd = ENCVvd + IMPCVvd$$

Where

1. ENCVvd is the Total Energy Charge for Supplier Unit v for Settlement Day d;
  2. IMPCVvd is the Total Imperfections Charge for Supplier Unit v for Settlement Day d.
- 6.129 The Total Charge (DAYCDd) made for all Supplier Units for Settlement Day d shall be calculated as follows:

$$DAYCDd = \sum_v DAYCVvd$$

Where

1. DAYCVvd is the Total Charges for Supplier Unit v for Settlement Day d;
2.  $\sum_v$  is a summation over all Supplier Units v.

**Invoice Calculations for Energy in Respect of Supplier Units**

- 6.130 The Invoice Energy Charges (IECpb) to Participant p for its registered Supplier Units in Billing Period b shall be calculated as follows:

$$IECpb = \sum_{vin p} \sum_{d in b} DAYCVvd - \sum_{ain p} \sum_{d in b} \sum_{hind} SSREAaph$$

Where

1. DAYCVvd is the Total Charges excluding Capacity Charges for Supplier Unit v for Settlement Day d;
2. SSREAaph is the Settlement Reallocation Energy Amount for Participant p for its registered Supplier Units for Trading Period h defined in Settlement Reallocation Agreement a;

3.  $\sum_{a \text{ in } p}$  is a summation over all Settlement Reallocation Agreements a registered to Participant p for its registered Supplier Units;
4.  $\sum_{v \text{ in } p}$  is a summation over all Supplier Units v registered to Participant p;
5.  $\sum_{d \text{ in } b}$  is a summation over Settlement Days d in Billing Period b;
6.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods h in Settlement Day d.

#### Invoice Calculations for Capacity in Respect of Generator Units

- 6.131 The Market Operator shall calculate the Invoiced Capacity Payments (ICPpc) to Participant p for its registered Generator Units for Capacity Period c as follows:

$$ICPpc = \sum_{u \text{ in } p} CPPuc - \sum_{a \text{ in } p} \sum_{d \text{ in } c} \sum_{h \text{ in } d} SSRCAaph$$

Where

1. CPPuc is the Capacity Period Payment for a Generator Unit u in Capacity Period c;
2. SSRCAaph is the Settlement Reallocation Capacity Amount for Participant p for its registered Generator Units for Trading Period h defined in Settlement Reallocation Agreement a;
3.  $\sum_{u \text{ in } p}$  is a summation over all Generator Units u registered to Participant p;
4.  $\sum_{a \text{ in } p}$  is a summation over all Settlement Reallocation Agreements a registered to Participant p for its registered Generator Units;
5.  $\sum_{d \text{ in } c}$  is a summation over Settlement Days d in Capacity Period c;
6.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods h in Settlement Day d.

#### Invoice Calculations for Interconnector Residual Capacity Unit

- 6.132 The Market Operator shall calculate the Interconnector Residual Capacity Unit Payments (IRCUPpc) for each relevant Participant p for its registered Interconnector Residual Capacity Units for Capacity Period c as follows:

$$IRCUPpc = \sum_{u' \text{ in } p} \sum_{d \text{ in } c} DAYPUu'd - \sum_{u \text{ in } p} CPPu'c$$

Where

1. DAYPUu'd is the Total Payments excluding Capacity Payments made for Interconnector Residual Capacity Unit u' for Settlement Day d;
2. CPPu'c is the Capacity Period Payment for Interconnector Residual Capacity Unit u' in Capacity Period c;
3.  $\sum_{d \text{ inc}}$  is a summation over Settlement Days d in Capacity Period c;
4.  $\sum_{u' \text{ in } p}$  is a summation over all Interconnector Residual Capacity Units u' registered to Participant p;

**Invoice Calculations for Capacity in Respect of Supplier Units**

- 6.133 The Market Operator shall calculate the Invoiced Capacity Charges (ICCpc) to Participant p for its registered Supplier Units for Capacity Period c as follows:

$$ICCpc = \sum_{v \text{ in } p} CPCvc - \sum_{a \text{ in } p} \sum_{d \text{ inc}} \sum_{h \text{ in } d} SSRCAaph$$

Where

1. CPCvc is the Capacity Charge for a Supplier Unit v in Capacity Period c;
2. SSRCAaph is the Settlement Reallocation Capacity Amount for Participant p for its registered Supplier Units for Trading Period h defined in Settlement Reallocation Agreement a;
3.  $\sum_{v \text{ in } p}$  is a summation over all Supplier Units v registered to Participant p;
4.  $\sum_{a \text{ in } p}$  is a summation over all Settlement Reallocation Agreements a registered to Participant p for its registered Supplier Units;
5.  $\sum_{d \text{ inc}}$  is a summation over Settlement Days d in Capacity Period c;
6.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods h in Settlement Day d.

**RECOVERY OF THE BILLING PERIOD CURRENCY COST**

- 6.134 The Market Operator shall calculate the recovery of the Billing Period Currency Cost (BPCd) according to the provisions set out in the paragraphs below.
- 6.135 The Market Operator shall produce the Initial Settlement Statements applying the Trading Day Exchange Rate for the relevant Trading Day for the Participants trading in pounds sterling.

6.136 The Billing Period Currency Charge (BPCCpb) to Participant p for the relevant Billing Period b shall be calculated as follows:

*if*  $(DAYPDd + DAYCDd) \neq 0$  *then*

$$BPCCpb = \sum_{d \text{ in } b} \left( \frac{BPCd}{(DAYPDd + DAYCDd)} \right) \times \left( \sum_{u^* \text{ in } p} DAYPUud + \sum_{v \text{ in } p} DAYCVvd \right)$$

*else*  $BPCCpb = 0$

Where

1. BPCd is the Billing Period Currency Cost for the relevant Settlement Day d as set out in more detail in Agreed Procedure 15 "Invoicing";
2. DAYPDd is the Total Payment made for all Generator Units for Settlement Day d;
3. DAYCDd is the Total Charge for all Supplier Units for Settlement Day d;
4. DAYPUud is the Total Payments, excluding Capacity Payments, made for Generator Unit u for Settlement Day d;
5. DAYCVvd is the Total Charges for Supplier Unit v for Settlement Day d;
6.  $\sum_{v \text{ in } p}$  is a summation over all Supplier Units v registered to Participant p;
7.  $\sum_{u^* \text{ in } p}$  is a summation over all Generator Units excluding any Interconnector Residual Capacity Units registered to Participant p;
8.  $\sum_{d \text{ in } b}$  is a summation over Settlement Days d in Billing Period b.

#### **RECOVERY OF THE CAPACITY PERIOD CURRENCY COST**

- 6.137 The recovery of the Capacity Period Currency Cost (CAPCc) shall be calculated according to the provisions set out in the paragraphs below.
- 6.138 The Market Operator shall produce the Initial Settlement Statements applying the Annual Capacity Exchange Rate for the relevant Trading Day for the Participants trading in pounds sterling (£).
- 6.139 The Capacity Period Currency Charge (CAPCCpc) to Participant p for the relevant Capacity Period c shall be calculated as follows:

$$\text{if } \sum_p \left( \sum_{u \text{ in } p} CPPuc + \sum_{v \text{ in } p} CPCvc \right) \neq 0 \text{ then}$$

$$CAPCCpc = \sum_{d \text{ in } c} \left( \frac{CAPCc}{\sum_p \left( \sum_{u \text{ in } p} CPPuc + \sum_{v \text{ in } p} CPCvc \right)} \right) \times \left( \sum_{u \text{ in } p} CPPuc + \sum_{v \text{ in } p} CPCvc \right)$$

else  $CAPCCpc = 0$

Where

1. CAPCc is the Capacity Period Currency Cost for the relevant Capacity Period c as set out in more detail in Agreed Procedure 15 “Invoicing”;
2. CPPuc is the Capacity Payment for a Generator Unit u for Capacity Period c;
3. CPCvc is the Capacity Charge for a Supplier Unit v for Capacity Period c;
4.  $\sum_{v \text{ in } p}$  is a summation over all Supplier Units v registered to Participant p;
5.  $\sum_{u \text{ in } p}$  is a summation over all Generator Units u registered to Participant p;
6.  $\sum_{d \text{ in } c}$  is a summation over Settlement Days d for Capacity Period c;
7.  $\sum_p$  is a summation over all Participants p.

### MARKET OPERATOR BALANCING COST

- 6.140 The Market Operator shall balance Energy Payments and Energy Charges and Constraints Payments and Imperfection Charge receipts and VAT receipts and payments for each Billing Period, through the Balancing Cost.
- 6.141 The Balancing Cost (BCb) for each Billing Period b (which can be either positive or negative and if negative becomes a payment to the Market Operator) shall be calculated as follows:

$$BCb = \left( \sum_{d \text{ in } b} (DAYPDd - DAYCDd) + \sum_u MWPub \right) + VATpayments - VATreceipts$$

Where

1. MWPub is the Make Whole Payment for Generator Unit u in Billing Period b;

2. DAYPDd is the Total Payment made to all Generator Units in respect of Settlement Day d;
3. DAYCDd is the Total Charge on all Supplier Units in respect of Settlement Day d;

4.  $\sum_{d \text{ in } b}$  is a summation over Settlement Days d in Billing Period b;

5.  $\sum_u$  is a summation over all Generator Units u;
6. VATpayments is the VAT included in all Self Billing Invoices (less Debit Notes) in respect of the relevant Billing Period paid by the Market Operator.
7. VATreceipts is the VAT included in all Invoices in respect of the relevant Billing Period issued by the Market Operator.

- 6.142 The Balancing Cost (CBCc) for each Capacity Period c (which can be either positive or negative and, if negative becomes a payment to the Market Operator) shall be calculated as follows;

$$CBCc = \sum_{u^*} CPPuc - \sum_v CPCvc + \sum_{u'} \sum_{d \text{ in } c} DAYPUu'd + VATpayments - VATreceipts$$

Where

1. CPPuc is the Capacity Period Payment for Generator Unit u in Capacity Period c;
2. CPCvc is the Capacity Period Charge for Supplier Unit v in Capacity Period c;
3. DAYPUu'd is the Total Payment, excluding Capacity Payments, made to Interconnector Residual Capacity Unit u' in respect of Settlement Day d;
4.  $\sum_{d \text{ in } c}$  is a summation over Settlement Days d in Capacity Period c;
5.  $\sum_{u^*}$  is a summation over all Generator Units u excluding any Interconnector Residual Capacity Units;
6.  $\sum_{u'}$  is a summation over all Interconnector Residual Capacity Units u';
7.  $\sum_v$  is a summation over all Supplier Units v;
8. VATpayments is the VAT included in all Self Billing Invoices (less Debit Notes) in respect of the relevant Capacity Period paid by the Market Operator;
9. VATreceipts is the VAT included in all Invoices in respect of the relevant Capacity Period issued by the Market Operator.

## MARKET OPERATOR CHARGE

- 6.143 The Market Operator Charge shall comprise (i) a Fixed Market Operator Generator Charge, and a Fixed Market Operator Supplier Charge, applicable to Participants as appropriate, and (ii) a Variable Market Operator Charge applicable to all Participants in respect of their Supplier Units as appropriate. The Fixed Market Operator Generator Charge shall be a charge applied in respect of every Generator Unit, which may be different for each Generator Unit and the Fixed Market Operator Supplier Charge shall be a charge applied in respect of every Supplier Unit, which may be different for each Supplier Unit (either “the Fixed Market Operator Charge” as applicable). The Variable Market Operator Charge shall be a charge in respect of each unit of Net Demand at Supplier Units, and is based on a Variable Market Operator Price expressed in euro/MWh.
- 6.144 The Market Operator shall issue the applicable Variable Market Operator Charge Invoice to each Participant in respect of each Billing Period during the Year or the period to which the Variable Market Operator Charge relates or at such other frequency as the Market Operator shall decide.
- 6.145 The Market Operator shall establish and maintain with the SEM Bank within the relevant Jurisdiction a euro bank account at a branch of the SEM Bank in Ireland and a pounds sterling bank account at a branch of the SEM Bank in Northern Ireland in its name and each called “the Market Operator Charge Account”. Participants shall make all payments due pursuant to the issue of the Fixed Market Operator Charge Invoices and Variable Market Operator Charge Invoices to the relevant Market Operator Charge Account according to the Currency Zone of its registered Units. Each Market Operator Charge Account shall be an interest bearing account.
- 6.146 Each Participant shall pay the Fixed Market Operator Charge including any applicable VAT within 7 days of the issue of the Fixed Market Operator Charge Invoice.
- 6.147 Each Participant shall pay the Variable Market Operator Charge including any applicable VAT within 7 days of the issue of the Variable Market Operator Charge Invoice.
- 6.148 Interest shall accrue on any overdue payments in accordance with paragraphs 6.157.

### Fixed Market Operator Charge to All Participants

- 6.149 The Market Operator shall calculate the Invoiced Fixed Market Operator Annual Charge in respect of Supplier Units ( $IMOACV_{py}$ ) and Generator Units ( $IMOACU_{py}$ ) to Participant  $p$  for Year  $y$  in respect of its Units as follows:

$$IMOACV_{py} = \sum_{v \text{ in } p} MOAVC_{vy}$$

$$IMOACU_{py} = \sum_{u \text{ in } p} MOAUC_{uy}$$

Where

1.  $MOAVC_{vy}$  is the Fixed Market Operator Charge (Supplier Unit) for Year  $y$  for a Supplier Unit  $v$ ;

2. MOAUC<sub>y</sub> is the Fixed Market Operator Charge (Generator Unit) for Year y for a Generator Unit u;

3.  $\sum_{v \in p}$  is a summation over all Supplier Units v registered to Participant p;

4.  $\sum_{u \in p}$  is a summation over all Generator Units u registered to Participant p.

6.150 The Market Operator shall issue the applicable Fixed Market Operator Charge Invoice or Invoices to each Participant monthly in arrears for each Year or such other period to which the Fixed Market Operator Charge relates or at such other frequency as the Market Operator shall decide.

#### **Variable Market Operator Charge**

6.151 The Market Operator shall calculate the Variable Market Operator Charge (VMOC<sub>pb</sub>) for Participant p in respect of its Supplier Units in Billing Period b as follows:

$$VMOC_{pb} = VMOP_y \times \text{Max} \left\{ \left[ \sum_{v \in p} \sum_{h \in b} NDLF_{vh} \right], 0 \right\}$$

Where

1. VMOP<sub>y</sub> is the Variable Market Operator Price for Year y;

2. NDLF<sub>vh</sub> is the Loss Adjusted Net Demand from Supplier Unit v for Trading Period h;

3.  $\sum_{h \in b}$  is a summation over Trading Periods h for Billing Period b;

4.  $\sum_{v \in p}$  is a summation over all Supplier Units v registered to Participant p.

#### **RECOVERY OF UNSECURED BAD ENERGY DEBT**

6.152 The Market Operator shall procure that any amount of Unsecured Bad Energy Debt is charged to all Participants (other than that those whose Default has given rise to the relevant Unsecured Bad Debt) as set out below.

6.153 The Unsecured Bad Debt Energy Charge (UBDEC<sub>pb</sub>) to Participant p for Billing Period b for its registered Generator Units shall be calculated as follows:



$$\text{if } \left( \sum_p \left[ \text{Max} \left\{ \sum_{u^* \text{ in } p} \left( \text{MWP}_{\text{Pub}} + \sum_{d \text{ in } b} \text{DAYPU}_{\text{Ud}} \right), 0 \right\} \right] \neq 0 \right) \text{ then}$$

$$\text{UBDEC}_{\text{pb}} = \left( \frac{\text{UBED}_{\text{b}}}{\sum_p \left[ \text{Max} \left\{ \sum_{u^* \text{ in } p} \left( \text{MWP}_{\text{Pub}} + \sum_{d \text{ in } b} \text{DAYPU}_{\text{Ud}} \right), 0 \right\} \right]} \right) \times \text{Max} \left\{ \sum_{u^* \text{ in } p} \left( \text{MWP}_{\text{Pub}} + \sum_{d \text{ in } b} \text{DAYPU}_{\text{Ud}} \right), 0 \right\}$$

else  $\text{UBDEC}_{\text{pb}} = 0$

Where

1.  $\text{UBED}_{\text{b}}$  is the actual amount of Unsecured Bad Energy Debt for a Billing Period b;
2.  $\text{DAYPU}_{\text{Ud}}$  is the Total Payments made to Generator Unit u for Settlement Day d and is zero for any Generator Unit registered to a Defaulting Participant;
3.  $\text{MWP}_{\text{Pub}}$  is the Make Whole Payment in respect of Generator Unit u in Billing Period b and is zero for any Generator Unit registered to a Defaulting Participant;
4.  $\sum_{u^* \text{ in } p}$  is a summation over all Generator Units u excluding any Interconnector Residual Capacity Units registered to Participant p;
5.  $\sum_{d \text{ in } b}$  is a summation over Settlement Days d for Billing Period b;
6.  $\sum_p$  is a summation over all Participants.

## RECOVERY OF UNSECURED BAD CAPACITY DEBT

- 6.154 The Market Operator shall procure that the Unsecured Bad Capacity Debt is charged on Participants (other than those whose Default has given rise to the relevant Unsecured Bad Debt) as set out below.
- 6.155 The Unsecured Bad Debt Capacity Charge ( $\text{UBDCC}_{\text{pc}}$ ) to Participant p in Capacity Period c for its registered Generator Units shall be calculated as follows:

$$\text{if } \left[ \sum_p \left( \text{Max} \left\{ \left( \sum_{u \text{ in } p} \text{CPP}_{\text{uc}} \right), 0 \right\} \right) \neq 0 \right] \text{ then}$$

$$\text{UBDCC}_{\text{pc}} = \left( \frac{\text{UBCD}_{\text{c}}}{\sum_p \left( \text{Max} \left\{ \left( \sum_{u \text{ in } p} \text{CPP}_{\text{uc}} \right), 0 \right\} \right)} \right) \times \text{Max} \left\{ \left( \sum_{u \text{ in } p} \text{CPP}_{\text{uc}} \right), 0 \right\}$$

else  $\text{UBDCC}_{\text{pc}} = 0$

Where

1. UBCD<sub>c</sub> is the actual amount of Unsecured Bad Capacity Debt for a Capacity Period c;
2. CPP<sub>uc</sub> is the Capacity Payment for a Generator Unit u for Capacity Period c and is zero for any Generator Unit registered to a Defaulting Participant;
3.  $\sum_{u \text{ in } p}$  is a summation over all Generator Units u registered to Participant p;
4.  $\sum_p$  is a summation over all Participants p.

### **RECOVERY OF UNPAID MARKET OPERATOR CHARGE**

- 6.156 Save as provided for otherwise in paragraphs 6.32 and 6.53, the Market Operator's claim against any Participant relating to any overdue Market Operator Charge shall rank pari passu with the claims of any other Party for any Shortfall or Unsecured Bad Debt.

### **INTEREST PAYMENT**

- 6.157 Where any payment under the Code is overdue, except for Unsecured Bad Debt as provided for in paragraph 6.158, interest, as set out in Agreed Procedure 15 "Invoicing" shall accrue from the relevant Payment Due Date until the date of actual payment in full of the overdue amount by remittances for full value, such interest to accrue daily and both before and after any judgment.
- 6.158 Where the overdue amount is Unsecured Bad Debt, Default Interest shall accrue from the relevant Payment Due Date until the date of actual payment in full of the Unsecured Bad Debt by remittances for full value, such Default Interest to accrue daily and both before and after any judgment.
- 6.159 Where any Self Billing Invoice or Invoice must be re-issued due to a Settlement Rerun then interest as set out in Agreed Procedure 15, "Invoicing", shall apply on the difference between the amount received or paid pursuant to the relevant prior Settlement and the amount due or payable pursuant to the Settlement Rerun accruing from the Payment Due Date applicable to the relevant prior Settlement up until the date of the issue of the applicable Self Billing Invoice or Invoice. Where any Interest is payable pursuant to paragraphs 6.63.2 or 6.64.1, then the Interest shall apply on the amount as specified therein.

### **CREDIT COVER**

- 6.160 Each Participant shall comply with its obligation to provide the Required Credit Cover calculated in relation to it and notified to it by the Market Operator in accordance with the Code.
- 6.161 The Market Operator shall calculate the Required Credit Cover for each Participant as provided for pursuant to the provisions set out in paragraphs 6.186-6.232 and as provided for pursuant to Agreed Procedure 9 "Management of Credit Cover and Credit Default".

- 6.162 Each Participant must maintain its Credit Cover with a Credit Cover Provider. The acceptable forms of Credit Cover which Participants can post are:
1. an irrevocable standby Letter of Credit which:
    - a. shall be issued by a Credit Cover Provider fulfilling the Bank Eligibility Requirements set out in paragraph 6.163 below;
    - b. shall be in the form attached in Appendix A “Standard Letter of Credit”; and,
    - c. shall be capable of being paid out for Same Day Value following a Credit Call;
- and/or:
2. a cash held deposit in a SEM Collateral Reserve Account as provided for in paragraph 6.19.
- 6.163 A Credit Cover Provider shall be a Bank which must:
1. hold a Banking Licence in Ireland under Section 9 of the Central Bank Act 1971 (Ireland) or be authorised by the Financial Services Authority to take deposits, under the Banking Act 1987 (Northern Ireland) or be otherwise authorised to provide banking services in Ireland or the United Kingdom; and
- either,
2. be a Clearing Bank in either Jurisdiction with:
    - a. a long term debt rating of not less than A (Standard & Poors) or A2 (Moody’s Investors Service Inc.); or
    - b. Total Balance Sheet Assets of not less than €1,000 million,
- or
3. be an international bank that is authorised or approved by the relevant regulatory authority or is otherwise eligible to provide banking services in the Jurisdictions and which has a branch in the relevant location (Dublin and/or Belfast) and complies with paragraph 6.163.2.b.
- 6.164 If a bank is a subsidiary, then its parent company must have a credit rating of not less than A (or AA) (Standard & Poors) or A2 (or AA2) (Moody’s Investors Service Inc.) or Total Balance Sheet Assets of not less than €10,000 million.
- 6.165 If a Participant’s Credit Cover Provider is no longer qualified to issue or hold Credit Cover, the Participant shall re-post its Required Credit Cover with a Bank or a subsidiary of a Bank that satisfies the requirements in paragraph 6.163 within 10 Working Days of the Participant’s Credit Cover Provider ceasing to be qualified. This period shall not form part of the Settlement Risk Period.
- 6.166 Each Participant shall post the Required Credit Cover in its designated Currency.
- 6.167 For each New Participant and Adjusted Participant using pounds sterling as the Settlement Currency, the Market Operator shall convert the Required Credit Cover into pounds sterling using the Trading Day Exchange Rate applicable to the Trading Day that commences at 06:00 on the day on which the calculation of Required Credit Cover is performed.

- 6.168 The Market Operator shall, before accepting a Letter of Credit tendered by a Participant as a part of that Participant's Posted Credit Cover, validate that Letter of Credit in accordance with Agreed Procedure 9 "Management of Credit Cover and Credit Default" to ensure compliance with paragraphs 6.162 to 6.163.
- 6.169 Without prejudice to a Participant's obligation to maintain the Required Credit Cover under paragraph 6.160 in accordance with the conditions set out in paragraphs 6.162 to 6.163, where the Market Operator becomes aware that a Participant's Letter of Credit or Credit Cover Provider fails or ceases to comply with such requirements, the Market Operator shall inform the relevant Participant or Participants as soon as reasonably practicable.
- 6.170 If the Market Operator, following a Credit Call, draws down any amounts from the Participant's Posted Credit Cover, such that the Posted Credit Cover no longer meets the Participant's notified Required Credit Cover, the Participant shall within 2 Working Days fully re-establish the Required Credit Cover and shall notify the Market Operator on doing this.
- 6.171 Credit Cover is subject to the following conditions:
1. a Participant's Posted Credit Cover shall be available for draw down by the Market Operator making a Credit Call on a Participant's Credit Cover Provider as provided for in the Code and shall continue to remain in place until such time as all amounts due in respect of the Participant concerned under the Code have been paid in full;
  2. the Market Operator, but not any Party or Participant, has the right to deduct from or set off against a Participant any outstanding claims and liabilities of that Participant against any amounts owing pursuant to any Invoice under the Code relating to that Participant without the prior consent of any such Participant concerned;
  3. the Participant cannot reduce the amount of the Posted Credit Cover below the Required Credit Cover calculated by the Market Operator and notified to the Participant in accordance with the Code;
  4. a Participant shall notify the Market Operator at least one Working Day in advance of any change to its Posted Credit Cover;
  5. without prejudice to paragraph 6.171.6, in the event of Termination of a Party or a Participant or Suspension or Deregistration of a Participant's Units, the Participant's then applicable Required Credit Cover shall remain in place in accordance with the Code until all amounts due by the Participant concerned under the Code have been paid in full, and further subject to the Fixed Credit Requirement specified in the relevant Termination Order, Voluntary Termination Consent Order or Deregistration Consent Order as applicable;
  6. in the event of the Deregistration of any of a Party's Units, the relevant Participant shall maintain the Fixed Credit Requirement in respect of that Unit for a period of 14 months from the date of Deregistration of each Unit.
- 6.172 The Market Operator shall calculate the level of Required Credit Cover in accordance with the Code to cover a Participant's actual and potential payment liabilities in respect of its Units and participation in the Pool (including, for the avoidance of doubt, the Variable Market Operator Charge) at any time. A Participant's Required Credit Cover shall be calculated to cover:

1. its Actual Exposure (credit exposure resulting from Invoices that have been issued but not yet paid, and from amounts in Settlement Statements for which no Invoice has been issued); and
2. its Undefined Potential Exposure (potential exposure resulting from accrued obligations that have not yet been included in any Settlement Statement and future obligations which would be likely to have been accrued before a Participant could be suspended from trading in the Pool for Default).

6.173 The Market Operator shall determine:

1. the Actual Exposure Period relevant for Billing Period payments and charges (the period from the issuing of the last Invoice for energy to the end of the most recent Trading Period included in any Settlement Statement relating to Billing Period charges);
2. the Actual Exposure Period relevant for Capacity Period payments and charges (the period from the issuing of the last Invoice for Capacity to the end of the most recent Trading Period included in any Settlement Statement relating to Capacity Period charges);
3. the Undefined Exposure Period relevant for Billing Period payments and charges (the period from the end of the most recent Trading Period included in any Settlement Statement relating to Billing Period charges, until the time at which the Participant can be removed from incurring further liability or, where that time is not on a Working Day, the next Working Day thereafter); and
4. the Undefined Exposure Period relevant for Capacity Period payments and charges (the period from the end of the most recent Trading Period included in any Settlement Statement relating to Capacity Period charges, until the time at which the Participant can be removed from incurring further liability or, where that time is not a Working Day, the next Working Day thereafter).

#### **PARAMETERS FOR THE DETERMINATION OF REQUIRED CREDIT COVER**

6.174 The Market Operator shall make a report to the Regulatory Authorities at least 4 months before the start of the Year proposing the following parameters relating to the calculation of the Required Credit Cover, for application in the following Year:

1. the Fixed Credit Requirement;
2. the Historical Assessment Period for the Billing Period;
3. the Historical Assessment Period for the Capacity Period;
4. the Analysis Percentile Parameter;
5. the Credit Cover Adjustment Trigger; and
6. the maximum level of the Warning Limit.

6.175 The Market Operator's report must set out any relevant research or analysis carried out by the Market Operator and the justification for the specific values proposed. Such a report may, and shall if so requested by the Regulatory Authorities, include alternative values from those proposed and must set out the arguments for and against such alternatives.

- 6.176 The Market Operator shall publish the approved value(s) for each parameter within 5 Working Days of receipt of the Regulatory Authorities' determination or two months before the start of the Year to which they shall apply whichever is the later.

#### **MONITORING OF CREDIT COVER**

- 6.177 The Market Operator shall recalculate the Required Credit Cover, as provided for in paragraphs 6.186 to 6.232 and Agreed Procedure 9 "Management of Credit Cover and Credit Default", for each Participant every Working Day and shall send to each Participant its recalculation of that Participant's Required Credit Cover by 17:00 on that Working Day.
- 6.178 The Market Operator shall base the daily calculation of the Required Credit Cover on the available data for the Settlement Risk Period up to the Settlement Day on which the calculations are made.
- 6.179 Where the daily recalculation of Required Credit Cover determines that additional Credit Cover is necessary, the Market Operator shall issue to the relevant Participant by 17:00 on the same Working Day a Credit Cover Increase Notice specifying the amount of additional Credit Cover required to be posted to satisfy its Required Credit Cover. The Participant shall post the additional necessary Credit Cover by 17:00 on the second Working Day thereafter.
- 6.180 If a Participant has been issued with a Credit Cover Increase Notice in accordance with paragraph 6.179, it may meet the terms of the Credit Cover Increase Notice by taking any combination of the following steps:
1. taking steps to increase its Posted Credit Cover; or
  2. paying an outstanding Invoice early; or
  3. entering into an appropriate Settlement Reallocation Agreement.
- 6.181 The Market Operator shall provide the Participant with a Warning Notice on any Working Day when its Warning Limit is reached. Each Participant shall be entitled to specify its own Warning Limit. However the Regulatory Authorities shall set the maximum value for the Warning Limit in writing in advance of each Year to which it shall apply. This shall operate as the default Warning Limit for all Participants. Any Participant may require the Market Operator to set a lower Warning Limit for it.
- 6.182 Where a Participant reasonably expects that, compared with the four most recent Billing Periods, the total metered quantities with respect to its Supplier Units will increase by more than the Credit Cover Adjustment Trigger for any of the next four Billing Periods, then it shall inform the Market Operator as soon as reasonably possible. Such a Participant shall be an Adjusted Participant.
- 6.183 Each Adjusted Participant shall provide such additional information to the Market Operator as provided for pursuant to Agreed Procedure 9 "Management of Credit Cover and Credit Default" to enable the Market Operator to calculate revised values of Required Credit Cover in accordance with this Section 6.

#### **CALCULATIONS FOR REQUIRED CREDIT COVER**

- 6.184 For the purposes of Credit Cover monitoring and calculations:

1. a Participant is a New Participant from the commencement of their participation; and,
  2. a Participant ceases to be a New Participant when the length of time between the commencement of their participation and the last Trading Period covered in the most recent Settlement Statement issued for that Participant is greater than the length of time covered by the Historical Assessment Period.
- 6.185 A Participant is an Adjusted Participant where the Participant notifies the Market Operator of a change in circumstances pursuant to paragraph 6.182. A Participant ceases to be an Adjusted Participant when the length of time between their notification as set out in paragraph 6.182 and the last Trading Period covered in the most recent Settlement Statement issued for that Participant is greater than the length of time covered by the Historical Assessment Period.

**Calculations for the Actual Exposure Period in respect of Supplier Units**

- 6.186 The Market Operator shall calculate the Actual Supplier Exposure (ASE<sub>pf</sub>) for Participant p in respect of its Supplier Units for the Actual Exposure Period f as follows:

$$ASE_{pf} = \left( \sum_{bin f} (IEC_{pb} + VMOC_{pb}) + \sum_{cin f} ICC_{pc} \right) + \left( \sum_{din p} \left( \sum_{vin p} DAYCV_{vd} - \sum_{ain p} \sum_{hind} SSREA_{aph} \right) \right) + \left( \sum_{din q} \left( \sum_{vin p} \sum_{hind} CC_{vh} - \sum_{ain p} \sum_{hind} SSRCA_{aph} \right) \right)$$

Where:

1. IEC<sub>pb</sub> is the Invoice Energy Charge for Participant p for its registered Supplier Units in Billing Period b applicable if the relevant Billing Period Invoice is issued but not paid;
2. VMOC<sub>pb</sub> is the Variable Market Operator Charge for Participant p in Billing Period b for its registered Supplier Units applicable if the relevant Billing Period Invoice is issued but not paid;
3. ICC<sub>pc</sub> is the Invoiced Capacity Charge for Participant p for its registered Supplier Units for Capacity Period c applicable if the relevant Capacity Period Invoice is issued but not paid;
4. DAYCV<sub>vd</sub> is the Total Charges on Supplier Unit v for Settlement Day d;
5. SSREA<sub>aph</sub> is the Settlement Reallocation Energy Amount for Participant p for its registered Supplier Units for Trading Period h defined in Settlement Reallocation Agreement a;
6. CC<sub>vh</sub> is the Capacity Charge for Supplier Unit v in Trading Period h;
7. SSRCA<sub>aph</sub> is the Settlement Reallocation Capacity Amount for Participant p for its registered Supplier Units for Trading Period h defined in Settlement Reallocation Agreement a;
8.  $\sum_{bin f}$  is a summation over all Billing Periods b that are invoiced but not paid in Actual Exposure Period f;

9.  $\sum_{c \text{ in } f}$  is a summation over all Capacity Periods  $c$  that are invoiced but not paid in Actual Exposure Period  $f$ ;
10.  $\sum_{d \text{ in } \pi}$  is a summation over all Settlement Days  $d$  of the un-invoiced Billing Period  $\pi$ ;
11.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods  $h$  in Settlement Day  $d$ ;
12.  $\sum_{a \text{ in } p}$  is a summation over all Settlement Reallocation Agreements registered to Participant  $p$  in respect of its registered Supplier Units;
13.  $\sum_{d \text{ in } q}$  is a summation over all Settlement Days  $d$  of the un-invoiced Capacity Period  $q$ ;
14.  $\sum_{v \text{ in } p}$  is a summation over Supplier Units registered to Participant  $p$ .

**Calculations for the Actual Exposure Period in respect of Generator Units**

- 6.187 The Market Operator shall calculate the Actual Generator Exposure (AGE<sub>pf</sub>) for Participant  $p$  in respect of its Generator Units in the Actual Exposure Period  $f$  as follows:

$$AGE_{pf} = \left( \sum_{b \text{ in } f} (IEP_{pb}) + \sum_{c \text{ in } f} (ICP_{pc}) \right) + \left( \sum_{d \text{ in } \pi} \left( \sum_{u \text{ in } p} DAYPU_{ud} - \sum_{a \text{ in } p} \sum_{h \text{ in } d} SSREA_{aph} \right) \right) + \left( \sum_{d \text{ in } q} \left( \sum_{u \text{ in } p} \sum_{h \text{ in } d} CP_{uh} - \sum_{a \text{ in } p} \sum_{h \text{ in } d} SSRCA_{aph} \right) \right)$$

Where:

1. IEP<sub>pb</sub> is the Invoice Energy Payment for Energy to Participant  $p$  for its registered Generator Units in Billing Period  $b$  applicable if the relevant Billing Period Invoice is issued but not paid;
2. ICP<sub>pc</sub> is the Invoiced Capacity Payment to Participant  $p$  for its registered Generator Units for Capacity Period  $c$  applicable if the relevant Capacity Period Invoice is issued but not paid;
3. DAYPU<sub>ud</sub> is the Total Payments to Generator Unit  $u$  for Settlement Day  $d$ ;
4. SSREA<sub>aph</sub> is the Settlement Reallocation Energy Amount for Participant  $p$  for its registered Generator Units for Trading Period  $h$  defined in Settlement Reallocation Agreement  $a$ ;
5. CP<sub>uh</sub> is the Capacity Payment for Generator Unit  $u$  in Trading Period  $h$ ;



6. SSRCA<sub>aph</sub> is the Settlement Reallocation Capacity Amount for Participant *p* for its registered Supplier Units for Trading Period *h* defined in Settlement Reallocation Agreement *a*;
7.  $\sum_{b \text{ in } f}$  is a summation over all Billing Periods *b* that are invoiced but not paid in Actual Exposure Period *f*;
8.  $\sum_{c \text{ in } f}$  is a summation over all Capacity Periods *c* that are invoiced but not paid in Actual Exposure Period *f*;
9.  $\sum_{d \text{ in } \pi}$  is a summation over all Settlement Days *d* of the un-invoiced Billing Period  $\pi$ ;
10.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods *h* in Settlement Day *d*;
11.  $\sum_{a \text{ in } p}$  is a summation of all Settlement Reallocation Agreements *a* registered to Participant *p* in respect of its registered Generator Units;
12.  $\sum_{d \text{ in } q}$  is a summation over all Settlement Days *d* of the un-invoiced Capacity Period *q*;
13.  $\sum_{u \text{ in } p}$  is a summation over all Generator Units registered to Participant *p*.

**CALCULATIONS OF REQUIRED CREDIT COVER FOR THE UNDEFINED EXPOSURE PERIOD**

- 6.188 The Market Operator shall undertake the following calculations leading to the determination of Participants' Undefined Exposure which calculations are dependent on whether a Participant is a New Participant or an Adjusted Participant or a Standard Participant.
- 6.189 The Undefined Exposure for each New Participant or Adjusted Participant shall be based on the product of its Credit Assessment Volume and the Credit Assessment Price.
- 6.190 The Market Operator shall calculate the Credit Assessment Price as set out in the following paragraphs.

**Calculation of the Estimated Energy Price**

- 6.191 The sum of the System Marginal Prices (USMP<sub>g</sub>) for each Trading Period *h* in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period *g* shall be calculated as follows:

$$USMP_g = \sum_{d \text{ in } \gamma} \sum_{h \text{ in } d} SMP_h$$

Where

1. SMP<sub>h</sub> is the System Marginal Price for Trading Period h;
2.  $\sum_{d \text{ in } \gamma}$  is a summation over all Settlement Days d in Historical Assessment Period for Billing Periods  $\gamma$  relevant to the Working Day of calculation;
3.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods h in Settlement Day d.

6.192 The count of all System Marginal Prices (SMPHAP<sub>g</sub>) in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period g shall be calculated as follows:

$$SMPHAP_g = \text{Count} \left( SMP_h : \forall_{h \text{ in } \gamma} \right)$$

Where

1. SMP<sub>h</sub> is the System Marginal Price for Trading Period h;
2.  $\text{Count} \left( SMP_h : \forall_{h \text{ in } \gamma} \right)$  is the count of all System Marginal Prices in the Historical Assessment Period for Billing Periods  $\gamma$ ;

6.193 The mean value of System Marginal Prices (USMP<sub>g</sub>) in the Historical Assessment Period for Billing Periods to be applied for the Undefined Exposure Period g shall be calculated as follows:

$$USMP_g = \frac{USMP_g}{SMPHAP_g}$$

Where

1. USMP<sub>g</sub> is the sum of all SMP values in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period g;
2. SMPHAP<sub>g</sub> is the count of all System Marginal Prices in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period g.

6.194 The standard deviation of the System Marginal Price (SDSMP<sub>g</sub>) in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period g shall be calculated as follows:

$$SDSMP_g = \sqrt{\frac{SMPHAP_g \sum_{\mu=1}^{\mu=SMPHAP_g} (SMP_{\mu})^2 - \left( \sum_{\mu=1}^{\mu=SMPHAP_g} SMP_{\mu} \right)^2}{SMPHAP_g \times (SMPHAP_g - 1)}}$$

Where

1. SMPHAP<sub>g</sub> is the count of all System Marginal Prices in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period g;
2. SMP <sub>$\mu$</sub>  is the value of SMP within the Historical Assessment Period n;

3.  $\sum_{\mu=1}^{\mu=SMPHAPg}$  is the sum over all the values of System Marginal Price in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period  $g$ ;
4.  $\mu$  is a variable used as a counter over all the Trading Periods  $h$  within the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period  $g$ .

6.195 The Estimated Energy Price (EEP $g$ ) for Undefined Exposure Period  $g$  shall be calculated as follows:

$$EEPg = UMSMPg + AnPP(SDSMPg)$$

Where

1. UMSMP $g$  is the mean value of System Marginal Prices in the Historical Assessment Period for Billing Periods  $\gamma$  applied for the Undefined Exposure Period  $g$ ;
2. AnPP is the Analysis Percentile Parameter function in effect to determine the amount that must be added to the mean value in order that the required percentage of values shall fall below that value. The details of this function are defined in Agreed Procedure 9 "Management of Credit Cover and Credit Default";
3. SDSMP $g$  is the standard deviation of the values of System Marginal Prices in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period  $g$ .

#### Calculations of the Estimated Capacity Price

6.196 The sum of the Capacity Payments Demand Prices (UCPDP $g$ ) in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period  $g$  shall be calculated as follows:

$$UCPDPg = \sum_{d \text{ in } \rho} \sum_{h \text{ in } d} CPDP_h$$

Where

1. CPDP $h$  is the Capacity Payments Demand Price for Trading Period  $h$ ;
2.  $\sum_{d \text{ in } \rho}$  is a summation over all Settlement Days  $d$  in the Historical Assessment Period for Capacity Periods  $\rho$ ;
3.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods  $h$  in Settlement Day  $d$ .

6.197 The count of all Capacity Payments Demand Prices (CPDPHAP $g$ ) in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period  $g$  shall be calculated as follows:

$$CPDPHAPg = Count\left(CPDP_h: \forall_{h \text{ in } \rho}\right)$$

Where

1. CPDP<sub>h</sub> is the Capacity Payments Demand Price for Trading Period h;
2.  $Count\left(CPDP_h: \forall_{h \in \rho}\right)$  is the count of all the Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods  $\rho$ .

6.198 The mean value of the Capacity Payments Demand Prices (UMCPDP<sub>g</sub>) in the Historical Assessment Period for Capacity Periods to be applied for the Undefined Exposure Period g shall be calculated as follows:

$$UMCPDP_g = \frac{UCPDP_g}{CPDPHAP_g}$$

Where

1. CPDPHAP<sub>g</sub> is the count of all Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period g;
2. UCPDP<sub>g</sub> is the sum of all Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period g.

6.199 The standard deviation of the Capacity Payments Demand Prices (SDCPDP<sub>g</sub>) in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period g shall be calculated as follows:

$$SDCPDP_g = \sqrt{\frac{CPDPHAP_g \sum_{\mu=1}^{\mu=CPDPHAP_g} (CPDP_{\mu})^2 - \left( \sum_{\mu=1}^{\mu=CPDPHAP_g} CPDP_{\mu} \right)^2}{CPDPHAP_g \times (CPDPHAP_g - 1)}}$$

Where

1. CPDPHAP<sub>g</sub> is the count of all Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period g;
2. CPDP <sub>$\mu$</sub>  is the value of Capacity Payments Demand Price within the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period g;
3.  $\sum_{\mu=1}^{\mu=CPDPHAP_g}$  is the sum over all the values of System Marginal Price in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period g;
4.  $\mu$  is a variable used as a counter over all the Trading Periods h within the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period g.

6.200 The Estimated Capacity Price (ECP<sub>g</sub>) for the Undefined Exposure Period g shall be calculated as follows:

$$ECP_g = UMCPDP_g + AnPP(SDCPDP_g)$$

Where

1. UMCPDP<sub>g</sub> is the average Capacity Payments Demand Price in the Historical Assessment Period for Capacity Periods  $p$  to be applied for the Undefined Exposure Period  $g$ ;
2. AnPP is the Analysis Percentile Parameter function in effect to determine the amount that must be added to the mean value in order that the required percentage of values shall fall below that value. The details of this function are defined in Agreed Procedure 9 "Management of Credit Cover and Credit Default";
3. SDCPDP<sub>g</sub> is the standard deviation of the values of Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods  $p$  to be applied for the Undefined Exposure Period  $g$ .

6.201 The Credit Assessment Price for Billing Periods (CAPB<sub>g</sub>) for the Undefined Exposure Period  $g$  shall be calculated as follows:

*if the Undefined Exposure Period  $g$  contains two Years*

$$CAPB_g = (EEP_g + \text{Max}\{VMOP(y), VMOP(y-1)\}) + \text{Max}\{IMP(y), IMP(y-1)\})$$

*else*

$$CAPB_g = (EEP_g + VMOP(y) + IMP(y))$$

Where:

1. EEP<sub>g</sub> is the Estimated Energy Price for Undefined Exposure Period for Billing Periods  $g$ ;
2. VMOP<sub>y</sub> is the Variable Market Operator Price for the Year set by the Regulatory Authorities;
3. IMP<sub>y</sub> is the Imperfections Price for the Year  $y$ .

**Calculations for the Undefined Exposure Period for a New or Adjusted Participant in respect of its Supplier Units**

6.202 The Credit Assessment Volume for a New Participant or Adjusted Participant  $p$  (CAVS<sub>ph</sub>) shall be a forecast of Demand in respect of a New or Adjusted Participant's Supplier Units based upon information provided by the Participant in accordance with paragraph 6.183 and used in the calculation of the Participant's Required Credit Cover.

6.203 The Undefined Potential Exposure (UPES<sub>pd</sub>) for each New Participant or Adjusted Participant  $p$  in respect of its Supplier Units for the Undefined Exposure Period for Billing Periods  $g$  and the Undefined Exposure Period for Capacity Periods  $\theta$  calculated for the relevant Settlement Day  $d$  shall be calculated as follows:

$$UPES_{pd} = \left( CAPB_g \times \sum_{h \text{ in } g} CAVS_{ph} \right) + \left( ECP_{\theta} \times \sum_{h \text{ in } \theta} CAVS_{ph} \right)$$

Where

1. CAPB<sub>g</sub> is the Credit Assessment Price for the Undefined Exposure Period  $g$ ;
2. CAVS<sub>ph</sub> is the Credit Assessment Volume for each New Participant or Adjusted Participant for the Trading Period  $h$ ;

3.  $ECP\theta$  is the Estimated Capacity Price for the Undefined Exposure Period for Capacity Periods  $\theta$ ;
4.  $\sum_{h \in g}$  is a summation over Trading Periods  $h$  in Undefined Exposure Period for Billing Periods  $g$ ;
5.  $\sum_{h \in \theta}$  is a summation over Trading Periods  $h$  in Undefined Exposure Period for Capacity Periods  $\theta$ .

**Calculations for the Undefined Exposure Period for a New or Adjusted Participant in respect of its Generator Units**

- 6.204 The Credit Assessment Volume for a New Participant or Adjusted Participant  $p$  ( $CAVGph$ ) shall be a forecast of Output in respect of the Participant's Generator Units based upon information provided by the Participant in accordance with paragraph 6.183 and used in the calculation of the Participant's Required Credit Cover.
- 6.205 The Undefined Exposure ( $UPEGpd$ ) for each New Participant or Adjusted Participant  $p$  in respect of its Generator Units for the Undefined Exposure Period for Billing Periods  $g$  and the Undefined Exposure Period for Capacity Periods  $\theta$  calculated for the relevant Settlement Day  $d$  shall be calculated as follows:

$$UPEGpd = \left( CAPBg \times \sum_{h \in g} CAVGph \right) + \left( ECP\theta \times \sum_{h \in \theta} CAVGph \right)$$

Where

1.  $CAPBg$  is the Credit Assessment Price for the Undefined Exposure Period  $g$ ;
2.  $CAVGph$  is the Credit Assessment Volume for each New Participant or Adjusted Participant for the Trading Period  $h$ ;
3.  $ECP\theta$  is the Estimated Capacity Price for the Undefined Exposure Period for Capacity Periods  $\theta$ ;
4.  $\sum_{h \in g}$  is a summation over Trading Periods  $h$  in Undefined Exposure Period for Billing Periods  $g$ ;
5.  $\sum_{h \in \theta}$  is a summation over Trading Periods  $h$  in Undefined Exposure Period for Capacity Periods  $\theta$ .

**Calculations for the Undefined Exposure Period for a Standard Participant in respect of its Supplier Units**

- 6.206 The Market Operator shall procure that, where the Participant is a Standard Participant, the Participant's Undefined Exposure in respect of its Supplier Units shall be calculated as one calculation for the Billing Period values and one calculation for the Capacity Period values according to the procedures set out in the following paragraphs.

**Calculations of the count of Undefined Exposure Periods in the relevant Historical Assessment Periods**

6.207 The count of Undefined Exposure Periods that is to be used in the summation of the Billing Period payments and charges for the Undefined Exposure Period for Billing Periods  $g$  (BPHAP $_g$ ) in the Historical Assessment Period for Billing Periods  $\gamma$  shall be calculated as follows:

$$BPHAP_g = (\gamma - UEPBD_g) + 1$$

Where

1.  $\gamma$  is the number of days in the Historical Assessment Period for Billing Periods relevant to the Working Day of this calculation;
2. UEPBD $_g$  is the number of days in the Undefined Exposure Period for Billing Periods  $g$  relevant to the Working Day of this calculation.

6.208 The count of Undefined Exposure Periods that is to be used in the summation of Capacity Period payment and charges (CPHAP $_g$ ) in the Undefined Exposure Period for Capacity Periods  $g$  in the Historical Assessment Period for Capacity Periods  $\rho$  shall be calculated as follows:

$$CPHAP_g = (\rho - UEPCD_g) + 1$$

Where

1.  $\rho$  is the number of days in the Historical Assessment Period for Capacity Periods relevant to the Working Day of this calculation;
2. UEPCD $_g$  is the number of days in the Undefined Exposure Period for Capacity Periods relevant to the Working Day of this calculation.

**Calculations in respect of Billing Period Charges**

6.209 The Market Operator shall calculate the Billing Period Settlement Sum (BSVSp $g\omega$ ) for Participant  $p$  in respect of its Supplier Units to be applied for the Undefined Exposure Period  $g$  for each Undefined Exposure Period  $\omega$  in the Historical Assessment Period for Billing Periods as follows:

*for each Undefined Exposure Period  $\omega$  in the Historical Assessment Period defined by BPHAP $_g$*

$$BSVSp_g\omega = \sum_{d \text{ in } \omega} \left( \left( \sum_{v \text{ in } p} DAYCV_{vd} \right) + \left( VMOP_y \times \sum_{v \text{ in } p} \sum_{h \text{ in } d} NDLF_{vh} \right) \right)$$

Where

1. DAYCV $_{vd}$  is the Total Charges on Supplier Unit  $v$  for Settlement Day  $d$ ;
2. VMOP $_y$  is the Variable Market Operator Price for Year  $y$ ;
3. NDLF $_{vh}$  is the Loss Adjusted Net Demand from Supplier Unit  $v$  for Trading Period  $h$ ;
4.  $\sum_{d \text{ in } \omega}$  is a summation over all Settlement Days  $d$  in Undefined Exposure Period  $\omega$ ;

5.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods h in Settlement Day d;

6.  $\sum_{v \text{ in } p}$  is a summation over all Supplier Units registered to Participant p.

6.210 The mean of the Billing Period Settlement Sum (BXS<sub>VS</sub>p<sub>g</sub>) for Participant p in respect of its Supplier Units to be applied for the Undefined Exposure Period g for all Undefined Exposure Periods ω in the Historical Assessment Period for Billing Periods shall be calculated as follows:

$$BXS_{VS}p_g = \frac{\left( \sum_{\omega=1}^{\omega=BPHAP_g} BSVSp_g \omega \right)}{BPHAP_g}$$

Where

1. BPHAP<sub>g</sub> is the count of Undefined Exposure Periods that will be used in the summation of the Billing Period payments and charges in the Historical Assessment Period for Billing Periods for the relevant Undefined Exposure Period g;
2. BSVSp<sub>g</sub>ω is the Billing Period Settlement Sum for Participant p in respect of its Supplier Units for the Undefined Exposure Period g for each Undefined Exposure Period ω in the Historical Assessment Period for Billing Periods.

6.211 The standard deviation of the Billing Period Settlement Sums (BDS<sub>VS</sub>p<sub>g</sub>) for Participant p in respect of its Supplier Units to be applied for Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Billing Periods shall be calculated as follows:

$$BDS_{VS}p_g = \sqrt{\frac{BPHAP_g \sum_{\omega=1}^{\omega=BPHAP_g} (BSVSp_g \omega)^2 - \left( \sum_{\omega=1}^{\omega=BPHAP_g} BSVSp_g \omega \right)^2}{BPHAP_g \times (BPHAP_g - 1)}}$$

Where

1. BPHAP<sub>g</sub> is the count of Undefined Exposure Periods that will be used in the summation of the Billing Period payments and charges in the Historical Assessment Period for Billing Periods for the relevant Undefined Exposure Period g;
2. BSVSp<sub>g</sub>ω is the Billing Period Settlement Sum for Participant p in respect of its Supplier Units for the Undefined Exposure Period g for each Undefined Exposure Period ω in the Historical Assessment Period for Billing Periods;
3.  $\sum_{\omega=1}^{\omega=BPHAP_g}$  is the sum over all the Billing Period Settlement Sums for the Undefined Exposure Periods ω.

6.212 The Billing Period Undefined Potential Exposure (BUPES<sub>p</sub>g) to be applied for Participant p in respect of its Supplier Units for the Undefined Exposure Period g shall be calculated as follows:



$$BUPESpg = (BXSVPg + AnPP(BSDSPg))$$

Where

1. BXSVPg is the mean of the Billing Period Settlement Sums for Participant p in respect of its Supplier Units to be applied for the Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Billing Periods;
2. AnPP is the Analysis Percentile Parameter function in effect to determine the amount that must be added to the mean value in order that the required percentage of values shall fall below that value. The details of this function are defined in Agreed Procedure 9 "Management of Credit Cover and Credit Default";
3. BSDSPg is the standard deviation of the Billing Period Settlement Sums for Participant p in respect of its Supplier Units to be applied for Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Billing Periods.

### Calculations in respect of Capacity Charges

- 6.213 The Market Operator shall procure that the Capacity Period Settlement Sum (CSVSp $\omega$ ) for Participant p in respect of its Supplier Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period  $\omega$  in the Historical Assessment Period for Capacity Periods p shall be calculated as follows:

*for each Undefined Exposure Period  $\omega$  in the Historical Assessment Period defined by CPHAPg*

$$CSVSp\omega = \sum_{d \text{ in } \omega} \left( \sum_{v \text{ in } p} \sum_{h \text{ in } d} CCvh \right)$$

Where

1. CCvh is the Capacity Charge for Supplier Unit v in Trading Period h;
2.  $\sum_{d \text{ in } \omega}$  is a summation over all Settlement Days d in Undefined Exposure Period;
3.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods h in Settlement Day d;
4.  $\sum_{v \text{ in } p}$  is a summation over all Supplier Units registered to Participant p.

- 6.214 The mean of the Capacity Period Settlement Sum (CXSVSp $\omega$ ) for Participant p in respect of its Supplier Units to be applied for the Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods shall be calculated as follows:

$$CXSVSp_g = \frac{\left( \sum_{\omega=1}^{\omega=CPHAP_g} CSVSp_g \omega \right)}{CPHAP_g}$$

Where

1. CPHAP<sub>g</sub> is the count of Undefined Exposure Periods that will be used in the summation of the Capacity Period payment and charges in the Historical Assessment Period for Capacity Periods for the relevant Undefined Exposure Period g;
2. CSVSp<sub>g</sub>ω is the Capacity Period Settlement Sum for Participant p in respect of its Supplier Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period ω in the Historical Assessment Period for Capacity Periods;

$$\omega = CPHAP_g$$

3.  $\sum_{\omega=1}^{\omega=CPHAP_g}$  is the sum across all the Undefined Exposure Periods.

6.215 The Capacity Period standard deviation (CSDSVSp<sub>g</sub>) for Participant p in respect of its Supplier Units to be applied for Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods shall be calculated as follows:

$$CSDSVSp_g = \sqrt{\frac{CPHAP_g \sum_{\omega=1}^{\omega=CPHAP_g} (CSVSp_g \omega)^2 - \left( \sum_{\omega=1}^{\omega=CPHAP_g} CSVSp_g \omega \right)^2}{CPHAP_g \times (CPHAP_g - 1)}}$$

Where

1. CPHAP<sub>g</sub> is the count of Undefined Exposure Periods that will be used in the summation of the Capacity Period payment and charges in the Historical Assessment Period for Capacity Periods for the relevant Undefined Exposure Period g;
2. CSVSp<sub>g</sub>ω is the sum of Capacity charges for Participant p in respect of its Supplier Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period ω in the Historical Assessment Period for Capacity Periods;

$$\omega = CPHAP_g$$

3.  $\sum_{\omega=1}^{\omega=CPHAP_g}$  is the sum over all values of the Capacity Period Settlement Sums for the Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods p.

6.216 The Capacity Period Undefined Potential Exposure (CUPESp<sub>g</sub>) in the Historical Assessment Period for Capacity Periods p to be applied for Participant p in respect of its Supplier Units for the Undefined Exposure Period g shall be calculated as follows:

$$CUPESp_g = (CXSVSp_g + AnPP(CSDSVSp_g))$$

Where

1. CXSVSp<sub>g</sub> is the mean of the Capacity Period Settlement Sums for Participant p in respect of its Supplier Units to be applied for the

Undefined Exposure Period  $g$  for all Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods;

2. AnPP is the Analysis Percentile Parameter function in effect to determine the amount that must be added to the mean value in order that the required percentage of values shall fall below that value. The details of this function are defined in Agreed Procedure 9 "Management of Credit Cover and Credit Default";
3. CSDSVSp $g$  is the standard deviation of the Capacity Period Settlement Sums for Participant  $p$  in respect of its Supplier Units to be applied for Undefined Exposure Period  $g$  for all Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods.

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**Total Undefined Exposure for a Standard Participant in respect of its Supplier Units**

6.218 The Market Operator shall calculate the Undefined Potential Exposure (UPESp $g$ ) in the Historical Assessment Periods to be applied for Undefined Exposure Period  $g$  for Participant  $p$  in respect of its Supplier Units as follows:

$$UPESp_g = BUPESp_g + CUPESp_g$$

Where

1. BUPESp $g$  is the Billing Period Undefined Potential Exposure in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for Undefined Exposure Period  $g$  for Participant  $p$  in respect of its Supplier Units;
2. CUPESp $g$  is the Capacity Period Undefined Potential Exposure in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for Undefined Exposure Period  $g$  for Participant  $p$  in respect of its Supplier Units.

**Calculations for the Undefined Exposure Period for a Standard Participant in respect of its Generator Units**

6.219 The Market Operator shall procure that, where the Participant is a Standard Participant, the Participant's Undefined Exposure in respect of its Generator Units will be calculated according to the procedures set out in the following paragraphs.

**Calculations in respect of Billing Period Payments**

6.220 The Billing Period Settlement Sum (BSVUp $g\omega$ ) for Participant  $p$  in respect of its Generator Units to be applied for the Undefined Exposure Period  $g$  for each Undefined Exposure Period  $\omega$  in the Historical Assessment Period for Billing Periods shall be calculated as follows:

for each Undefined Exposure Period  $\omega$  in the Historical Assessment Period defined by  $BPSHAPg$

$$BSVUpg\omega = \sum_{d \text{ in } \omega} \left( \sum_{u \text{ in } p} DAYPUud \right)$$

Where

1. DAYPUud is the Total Payments on Generator Unit u for Settlement Day d;
2.  $\sum_{d \text{ in } \omega}$  is a summation over all Settlement Days d in Undefined Exposure Period  $\omega$ ;
3.  $\sum_{u \text{ in } p}$  is a summation over all Generator Units registered to Participant p.

- 6.221 The mean of Billing Period Settlement Sum (BXSUpg) for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Billing Periods shall be calculated as follows:

$$BXSUpg = \frac{\left( \sum_{\omega=1}^{\omega=BPHAPg} BSVUpg\omega \right)}{BPHAPg}$$

Where

1. BPHAPg is the count of Undefined Exposure Periods that will be used in the summation of the Billing Period payment and charges in the Historical Assessment Period for Billing Periods for the relevant Undefined Exposure Period g;
2. BSVUpg $\omega$  is the Billing Period Settlement Sum for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period  $\omega$  in the Historical Assessment Period for Billing Periods;
3.  $\sum_{\omega=1}^{\omega=BPHAPg}$  is the sum across all the Undefined Exposure Periods..

- 6.222 The standard deviation of the Billing Period Settlement Sums (BSDSVUpg) for Participant p in respect of its Generator Units to be applied for Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Billing Periods shall be calculated as follows:

$$BSDSVUpg = \sqrt{\frac{BPHAPg \sum_{\omega=1}^{\omega=BPHAPg} (BSVUpg\omega)^2 - \left( \sum_{\omega=1}^{\omega=BPHAPg} BSVUpg\omega \right)^2}{BPHAPg \times (BPHAPg - 1)}}$$

Where

1. BPHAP<sub>g</sub> is the count of Undefined Exposure Periods that will be used in the summation of the Billing Period payments and charges in the Historical Assessment Period for Billing Periods for the relevant Undefined Exposure Period g;
2. BSVUp<sub>gω</sub> is the Billing Period Settlement Sum for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period ω in the Historical Assessment Period for Billing Periods;
3.  $\sum_{\omega=1}^{\omega=BPHAP_g}$  is the sum over all values of the Capacity Period Settlement Sums in for the Undefined Exposure Periods ω.

6.223 The Billing Period Undefined Potential Exposure (BUPEG<sub>pg</sub>) in the Historical Assessment Period for Billing Periods γ to be applied for Undefined Exposure Period g for Participant p in respect of its Generator Units shall be calculated as follows:

$$BUPEG_{pg} = (BXSUV_{pg} + AnPP(BSDSV_{pg}))$$

Where

1. BXSUV<sub>pg</sub> is the mean of the Billing Period Settlement Sums for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Billing Periods;
2. AnPP is the Analysis Percentile Parameter function in effect to determine the amount that must be added to the mean value in order that the required percentage of values shall fall below that value. The details of this function are defined in Agreed Procedure 9 “Management of Credit Cover and Credit Default”;
3. BSDSV<sub>pg</sub> is the standard deviation of the Billing Period Settlement Sums for Participant p in respect of its Supplier Units to be applied for Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Billing Periods.

### Calculations in respect of Capacity Payments

6.224 The Capacity Period Settlement Sum (CSVUp<sub>gω</sub>) for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period ω in the Historical Assessment Period for Capacity Periods ρ shall be calculated as follows:

*for each Undefined Exposure Period ω in the Historical Assessment Period defined by CPHAP<sub>g</sub>*

$$CSVUp_{g\omega} = \sum_{d \text{ in } \omega} \left( \sum_{u \text{ in } p} \sum_{h \text{ in } d} CP_{uh} \right)$$

Where

1. CP<sub>uh</sub> is the Capacity Payment for Generator Unit u in Trading Period h;

2.  $\sum_{d \text{ in } \omega}$  is a summation over all Settlement Days d in Undefined Exposure Period  $\omega$ ;
3.  $\sum_{h \text{ in } d}$  is a summation over Trading Periods h in Settlement Day d;
4.  $\sum_{u \text{ in } p}$  is a summation over all Generator Units registered to Participant p.

6.225 The mean of Capacity Period Settlement Sum (CXSVUp<sub>g</sub>) for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods shall be calculated as follows:

$$CXSVUp_g = \frac{\left( \sum_{\omega=1}^{\omega=CPHAP_g} CSVUp_g \omega \right)}{CPHAP_g}$$

Where

1. CSVUp<sub>g</sub>ω is the Capacity Period Settlement Sum for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period ω in the Historical Assessment Period for Capacity Periods;
2. CPHAP<sub>g</sub> is the count of Undefined Exposure Periods that will be used in the summation of the Capacity Period payment and charges in the Historical Assessment Period for Billing Periods for the relevant Undefined Exposure Period g;  
 $\omega = CPHAP_g$
3.  $\sum_{\omega=1}$  is the sum across all the Undefined Exposure Periods.

6.226 The Capacity Period standard deviation (CSDSVUp<sub>g</sub>) for Participant p in respect of its Generator Units to be applied for Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods shall be calculated as follows:

$$CSDSVUp_g = \sqrt{\frac{CPHAP_g \sum_{\omega=1}^{\omega=CPHAP_g} (CSVUp_g \omega)^2 - \left( \sum_{\omega=1}^{\omega=CPHAP_g} CSVUp_g \omega \right)^2}{CPHAP_g \times (CPHAP_g - 1)}}$$

Where

1. CSVUp<sub>g</sub>ω is the sum of Capacity Charges for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period ω in the Historical Assessment Period for Capacity Periods;
2. CPHAP<sub>g</sub> is the count of Undefined Exposure Periods that will be used in the summation of the Capacity Period payments and charges in the Historical Assessment Period for Capacity Periods for the relevant Undefined Exposure Period g;

3.  $\sum_{\omega=1}^{\omega=CPHAPg}$  is the sum over all values of the Capacity Period Settlement Sums for the Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods  $\rho$ .

6.227 The Capacity Period Undefined Potential Exposure (CUPEGpg) for Participant p in respect of its Generator Units shall be calculated as follows:

$$CUPEGpg = (CXSUVpg + AnPP(CSDSVUpg))$$

Where

1. CXSVUpg is the mean of the Capacity Period Settlement Sums for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods;
2. AnPP is the Analysis Percentile Parameter function in effect to determine the amount that must be added to the mean value in order that the required percentage of values shall fall below that value. The details of this function are defined in Agreed Procedure 9 "Management of Credit Cover and Credit Default";
3. CSDSVUpg is the Capacity standard deviation of the Capacity Period Settlement Sums for Participant p in respect of its Generator Units to be applied for Undefined Exposure Period g for all Undefined Exposure Periods in the Historical Assessment Period for Capacity Periods.

**Total Undefined Exposure for a Standard Participant in respect of its Generator Units**

6.228 The Undefined Potential Exposure (UPEGpg) in the Historical Assessment Periods to be applied for the Undefined Exposure Period g for Participant p in respect of its Generator Units shall be calculated as follows:

$$UPEGpg = BUPEGpg + CUPEGpg$$

Where

1. BUPEGpg is the Billing Period Undefined Potential Exposure in the Historical Assessment Period for Billing Periods  $\gamma$  to be applied for the Undefined Exposure Period g for Participant p in the Billing Period in respect of its Generator Units;
2. CUPEGpg is the Capacity Period Undefined Potential Exposure in the Historical Assessment Period for Capacity Periods  $\rho$  to be applied for the Undefined Exposure Period g for Participant p in respect of its Generator Units.

**CALCULATIONS OF REQUIRED CREDIT COVER FOR PARTICIPANTS**

6.229 The Market Operator shall procure that the Required Credit Cover (RCCSpr) for each Participant p in respect of its Supplier Units in respect of the Settlement Risk Period r shall be calculated as follows:

$$RCCSpr = \max \left\{ 0, ASEpf + UPESpg - \sum_{a \text{ in } p} \sum_{h \text{ in } g} (SSREAaph + SSRCAaph) + VATpr \right\}$$

Where:

1. ASEpf is the Actual Supplier Exposure for Participant p in respect of its Supplier Units for the Actual Exposure Period f;
2. UPESpg is the Undefined Potential Exposure in the Historical Assessment Periods to be applied for the Undefined Exposure Period g for Participant p in respect of its Supplier Units;
3. SSREAaph is the Settlement Reallocation Energy Amount for Participant p for its registered Supplier Units for Trading Period h defined in Settlement Reallocation Agreement a;
4. SSRCAaph is the Settlement Reallocation Capacity Amount for Participant p for its registered Supplier Units for Trading Period h defined in Settlement Reallocation Agreement a;
5. VATpr is the applicable VAT charge for the Participant p in respect of its Supplier Units in Settlement Risk Period r;
6.  $\sum_{a \text{ in } p}$  is a summation of all Settlement Reallocation Agreements a registered to Participant p in respect of its registered Units;
7.  $\sum_{h \text{ in } g}$  is a summation over all Trading Periods h in Undefined Exposure Period g comprising the Undefined Exposure Periods for both Billing Periods and Capacity Periods.

- 6.230 The Market Operator shall procure that the Required Credit Cover (RCCGpr) for each Participant p in respect of its Generator Units in respect of the Settlement Risk Period r shall be calculated as follows:

$$RCCGpr = \max \left\{ 0, \left( \left( AGEpf + UPEGpg - \sum_{a \text{ in } p} \sum_{h \text{ in } g} (SSREAaph + SSRCAaph) \right) \times (-1) \right) \right\} + VATpr$$

Where:

1. AGEpf is the Actual Generator Exposure for Participant p in respect of its Generator Units for the Actual Exposure Period f;
2. UPEGpg is the Undefined Potential Exposure in the Historical Assessment Periods to be applied for the Undefined Exposure Period g for Participant p in respect of its Generator Units;
3. SSREAaph is the Settlement Reallocation Energy Amount for Participant p for its registered Generator Units for Trading Period h defined in Settlement Reallocation Agreement a;
4. SSRCAaph is the Settlement Reallocation Capacity Amount for Participant p for its registered Generator Units for Trading Period h defined in Settlement Reallocation Agreement a;
5. VATpr is the applicable VAT charge for the Participant p in respect of its Generator Units in Settlement Risk Period r;



6.  $\sum_{a \text{ in } p}$  is a summation of all Settlement Reallocation Agreements a registered to Participant p in respect of its registered Units;
7.  $\sum_{h \text{ in } g}$  is a summation over all Trading Periods h in Undefined Exposure Period g comprising the Undefined Exposure Periods for both Billing Periods and Capacity Periods.

- 6.231 A Participant shall always post at a minimum the Fixed Credit Requirement as Required Credit Cover in respect of its Generator Units.
- 6.232 The Market Operator shall calculate the Required Credit Cover (RCCpr) for each Participant p in respect of its Units in respect of the Settlement Risk Period r as follows:

$$RCCpr = RCCSpr + RCCGpr + \sum_{v \text{ in } p} FCRSy + \sum_{u \text{ in } p} FCRGy$$

Where

1. RCCSpr is the Required Credit Cover for each Participant p in respect of its Supplier Units in respect of the Settlement Risk Period r;
2. RCCGpr is the Required Credit Cover for each Participant p in respect of its Generator Units in respect of the Settlement Risk Period r;
3. FCRSy is the Fixed Credit Requirement for Year y for a Participant in respect of each of its Supplier Units;
4. FCRGy is the Fixed Credit Requirement for Year y for a Participant in respect of each of its Generator Units;
5.  $\sum_{v \text{ in } p}$  is a summation over all Supplier Units registered to Participant p;
6.  $\sum_{u \text{ in } p}$  is a summation over all Generator Units registered to Participant p.

#### **CALLING IN CREDIT COVER**

- 6.233 Where the Market Operator exercises its right to make a Credit Call on a Participant's Posted Credit Cover in accordance with the Code, the Market Operator:
1. shall be entitled to draw down on the Letter of Credit or the SEM Collateral Reserve Account (where applicable) in whatever order, proportion or combination it decides;
  2. shall, as soon as reasonably practicable and notwithstanding any other provisions of the Code relating to Notices, notify the Participant in writing, using a rapid means of communication such as email or fax, that it has made the Credit Call on the Participant's Credit Cover Provider or Credit Cover Providers as applicable; and
  3. shall as soon as reasonably practicable after making such a Credit Call and issuing the notice under paragraph 6.233.2, notify the Participant of the amount of Shortfall, the sums called from the

Participant's SEM Collateral Reserve Account (if any) and Letters of Credit (if any) and the Settlement Period(s) concerned.

- 6.234 Where the Market Operator draws down any amounts from the Participant's Posted Credit Cover, the Participant shall, within 2 Working Days, fully re-establish at minimum the Required Credit Cover as calculated and notified to it in accordance with paragraph 6.177 and comply with paragraph 6.179 and 6.180.

#### **SETTLEMENT REALLOCATION**

- 6.235 A Settlement Reallocation Agreement is an agreement between two Participants (which, for the avoidance of doubt, may be the same Participant) and the Market Operator, under which the Market Operator shall credit to the relevant Participant ("the Credited Participant") with positive amounts in respect of one or more Trading Periods within the relevant Settlement Period, in consideration of matching negative amounts which shall be debited against the other relevant Participant ("the Debited Participant") in respect of the same Trading Period(s). Agreed Procedure 10 "Settlement Reallocation" sets out the processes for the requesting of, recording and termination of Settlement Reallocations.
- 6.236 A Settlement Reallocation Agreement only becomes valid where the intended Debited Participant lodges a Settlement Reallocation Request with the Market Operator.
- 6.237 A Debited Participant may lodge a Settlement Reallocation Request in respect of a Credited Participant in a different Currency Zone, but any such request shall specify the amount of the Settlement Reallocation Agreement in the Currency of the Debited Participant's Currency Zone.
- 6.238 A Settlement Reallocation Agreement may be lodged during the period commencing 29 days prior to the relevant Trading Day and ending at 17:00 one Working Day prior to the issue of the invoice on which the Settlement Reallocation is to appear.
- 6.239 Settlement Reallocation Data Transactions shall not be included on the Settlement Statements. The Debited Participant and the Credited Participant will be able to review the relevant Settlement Reallocation Agreements that have been lodged with the Market Operator.
- 6.240 A Participant may lodge a Settlement Reallocation Request in relation to Trading or Capacity Payments.
- 6.241 The amount included in a Settlement Reallocation Agreement for a Trading Payment is:
1. SSREA<sub>ph</sub> which is the Settlement Reallocation Energy Amount for Participant p for its registered Units for Trading Period h defined in Settlement Reallocation Agreement a.
- 6.242 The amount included in a Settlement Reallocation Agreement for a Capacity Payment is:
1. SSRCA<sub>ph</sub> which is the Settlement Reallocation Capacity Amount for Participant p for its registered Generator Units for Trading Period h defined in Settlement Reallocation Agreement a.
- 6.243 Where the two Participants that are parties to a Settlement Reallocation Agreement have different Currency Zones, and the Market Operator is therefore required pursuant to paragraph 6.6 to convert into another

currency any amount that is the subject of such agreement, such conversion will be done using the Trading Day Exchange Rate applicable to the Trading Period to which that amount applies pursuant to paragraph 6.232.

- 6.244 A Participant may not request or enter into a Settlement Reallocation Agreement as a Debited Participant in respect of its registered Generator Units that covers more than the payment, including any appropriate VAT, that it expects to receive under the Code in respect of the relevant Generator Units over the relevant Billing or Capacity Period as set out in Agreed Procedure 10 "Settlement Reallocation".
- 6.245 A Participant may not request or enter into a Settlement Reallocation Agreement as a Debited Participant in respect of its Supplier Units.
- 6.246 The Market Operator shall cancel a Settlement Reallocation Agreement if a cancellation request is lodged with the Market Operator on behalf of both Participants (or the same Participant if it is the one Participant only subject to the Settlement Reallocation Agreement) prior to 17:00 on the second Working Day after the end of the first Billing Period or Capacity Period to which the Settlement Reallocation Agreement relates. No cancellation request shall be effective if:
1. the Credited Participant is, at the time of the proposed cancellation, in default of any payment due under the Code; or
  2. its cancellation would cause the Required Credit Cover of the Credited Participant to exceed its Posted Credit Cover.

## **IMPLEMENTATION OF ADMINISTERED SETTLEMENT**

### **General Principles in the Event of Administered Settlement**

- 6.247 In implementing Administered Settlement, the Market Operator shall, insofar as reasonably practicable, adopt a balance between the following principles:
1. make use of all available data, and limit to the maximum extent practicable the use of estimated values;
  2. operate within the Settlement timescales, and be subject to the Settlement Query and Settlement Dispute provisions as set out in Section 6;
  3. seek results which are as close as possible to those which would have been calculated under the normal Settlement processes;
  4. obtain the prior written approval of the Regulatory Authorities for the detailed calculations and methodology used; and
  5. publish details of the calculations and methodology used as soon as practicable thereafter.

### **Estimation of Data in the Event of Administered Settlement**

- 6.248 To the extent necessary, the Market Operator may estimate any Settlement data in the event of Administered Settlement.

### **Administered Settlement in the Event of MSP Failure**

- 6.249 In the event of MSP Failure for a Trading Day, the Market Operator will calculate an Administered Schedule for all Trading Periods for the Trading Day.

- 6.250 An Administered Schedule comprises Administered Prices for each Trading Period and Administered Quantities for each Generator Unit for each Trading Period.
- 6.251 In creating an Administered Schedule, the objective of the Market Operator shall be to reproduce, to the greatest degree practicable, the results that would have been determined by the MSP Software.
- 6.252 The SMP value for each Trading Period in the Trading Day (SMP<sub>h</sub>) will be set to equal the relevant Administered Price.
- 6.253 The Market Schedule Quantity value for each Generator Unit for each Trading Period for the Trading Day (MSQ<sub>uh</sub>) will be set to equal the relevant Administered Quantity value.
- 6.254 All Settlement calculations will be made using these values for SMP and Administered Quantities.
- 6.255 In the event of Administered Settlement resulting from MSP Failure, then once the MSP Failure is corrected, the Market Operator shall procure that Settlement Reruns shall be undertaken as soon as reasonably possible in respect of the relevant Trading Periods and that revised Settlement Statements, Invoices and Self Billing Invoices in respect of the relevant Billing Period or Periods shall be issued to Participants.

#### **Administered Settlement in the event of Electrical System Collapse**

- 6.256 In the event of Electrical System Collapse, Administered Settlement will be implemented using values calculated as follows:

$$MSQ_{uh} = \frac{MG_{uh}}{TPD} \quad \text{for all Generator Units } u$$

$$DQ_{uh} = MSQ_{uh} \quad \text{for all Generator Units } u$$

$$EA_{uh} = MSQ_{uh} \quad \text{for all Generator Units } u$$

$$ND_{vh} = MD_{vh} \quad \text{for all Supplier Units } v$$

$$\phi_h = 0$$

Where

1. MSQ<sub>uh</sub> is the Market Schedule Quantity for Generator Unit *u* for Trading Period *h*;
2. MG<sub>uh</sub> is the Metered Generation for Generator Unit *u* for Trading Period *h* (MWh);
3. EA<sub>uh</sub> is the Eligible Availability for Generator Unit *u* for Trading Period *h* (MW of average power);
4. DQ<sub>uh</sub> is the Dispatch Quantity for Generator Unit *u* for Trading Period *h* (average MW);
5. DQ<sub>u'h</sub> is the Dispatch Quantity for the Interconnector Residual Capacity Unit *u'* for Trading Period *h* (average MW);
6. MD<sub>vh</sub> is the Metered Demand for Supplier Unit *v* for Trading Period *h*;
7. ND<sub>vh</sub> is the Net Demand for Supplier Unit *v* for Trading Period *h*;
8. Φ<sub>h</sub> is the Ex-Post Loss of Load Probability;

9. TPD is the Trading Period Duration (in hours).

- 6.257 In the event of Electrical System Collapse, prior to completing the calculations set out in paragraph 6.256, relevant values of Metered Generation (MGuh) for Interconnector Units, Interconnector Residual Capacity Units and Interconnector Error Units must first be calculated as specified in paragraphs 5.85 to 5.86.
- 6.258 In the event of Electrical System Collapse, prior to completing the calculations set out in paragraph 6.256, relevant values of Metered Generation (MGuh) for Netting Generator Units must first be set to equal zero.
- 6.259 The Market Operator shall set the System Marginal Price (SMP<sub>h</sub>) to equal the highest Market Offer Price (MOP<sub>uh</sub>) for any Generator Unit for which the Market Schedule Quantity is greater than zero, and shall calculate the Market Offer Price from Commercial Offer Data submitted prior to Electrical System Collapse.

#### **Management of Taxes and VAT**

- 6.260 The following paragraphs deal with the treatment of VAT for the purposes of the Code and are prepared subject to and in accordance with the terms of the joint letter from Her Majesty's Revenue and Customs and the Revenue Commissioners (together referred to as the "Revenue Authorities") entitled "Agreement with regard to VAT and the operation of the All-Island Electricity Market" (the "VAT Agreement").
- 6.261 Notwithstanding the terms of the VAT Agreement all Participants shall indemnify and keep indemnified the Market Operator, its officers, employees and agents against any liability which the Market Operator may incur as a result of the failure of any Participant to pay or account for any VAT due on any Invoice or Self Billing Invoice (or Debit Note where applicable).
- 6.262 If any Participant shall fail properly to pay or account for any amount of VAT payable or receivable by it, that Participant shall indemnify and keep indemnified each non-defaulting Participant (on an after tax basis, but taking account of any tax relief available to the relevant Participant, as the case may be) against any liability which such non-defaulting Participant or Participants shall incur consequently.
- 6.263 All Invoices and Self Billing Invoices (and Debit Notes where applicable) shall include VAT at the appropriate rate for the Participant concerned as more particularly set out below. Pursuant to the VAT Agreement, Participants shall be entitled to make their VAT returns based on the Invoices and Self Billing Invoices (and Debit Notes).
- 6.264 Pursuant to the VAT Agreement, the Market Operator shall prepare Invoices, Self Billing Invoices and, when appropriate Debit Notes including VAT applied at a rate determined in accordance with Agreed Procedure 15 "Invoicing", based upon the Currency Zone of the Generator Units or Supplier Units of the Participant concerned. Such VAT rates shall be as below.
1. For Supplier Units in the Northern Ireland Currency Zone – the relevant Northern Ireland VAT rate;
  2. For Generator Units in the Ireland Currency Zone – the relevant Ireland VAT rate;

3. For Generator Units in the Northern Ireland Currency Zone – an appropriate blended VAT rate calculated as set out in Agreed Procedure 15 “Invoicing”; and
  4. For Supplier Units in the Ireland Currency Zone – a second blended VAT rate calculated as set out in Agreed Procedure 15 “Invoicing”.
- 6.265 The Market Operator shall retain records of all amounts of VAT included in all Self Billing Invoices, Invoices and Debit Notes together with records of all amounts of electricity transferred between Northern Ireland and Ireland which shall be made available to the Revenue Authorities for the purpose of setting the Blended Rate for subsequent years following the initial period provided for in the VAT Agreement. Such information shall also be provided to the Regulatory Authorities and to Parties.
- 6.266 For the avoidance of doubt, Participants receiving Invoices shall pay the invoiced sum, including VAT to the Market Operator by the Invoice Due Date and the Market Operator shall pay to Participants in receipt of Self Billing Invoices, the sum concerned including VAT by the Self Billing Invoice Due Date, subject only to any deduction or off-set as provided for in the Code.
- 6.267 Any difference between the VAT paid by the Market Operator and the VAT received by the Market Operator in any Settlement Period shall be treated as a component of the Balancing Cost.
- 6.268 The Market Operator shall retain records of all amounts of VAT included in all Self Billing Invoices and all Invoices together with records of all amounts of electricity deemed to be subject to a Cross Border Supply and actually subject to a Cross Border Supply and shall, upon request, make such information available to the Revenue Authorities and shall cooperate in any investigation by the either Revenue Authority relating to the settlement of the Pool or any aspect of it.

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## 7. INTERIM ARRANGEMENTS

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### GENERAL

#### Purpose

- 7.1 This Section 7 sets out Interim Provisions, each of which suspends, amends or replaces specified paragraphs or parts of paragraphs, subparagraphs or provisions of other Sections of the Code, or which applies in addition to such paragraphs, subparagraphs or provisions of the Code, for a specified Applicable Interim Period.
- 7.2 Each Party shall comply with each Interim Provision for the relevant Applicable Interim Period, and in relation to any Interim Provision which replaces an Original Provision, shall comply with each such Interim Provision instead of the relevant Original Provision and shall have no liability under the Original Provision for the duration of the Applicable Interim Period.
- 7.3 For each Original Provision and for the duration of the Applicable Interim Period, each reference in the Code to the Original Provision (with the exception of the references to the Original Provision in Section 7 and the Glossary) shall be deemed to be a reference to the relevant Interim Provision.

#### Interim Provisions

- 7.4 Each of the Interim Provisions set out in the following paragraphs shall have effect for the duration of the relevant Applicable Interim Period, and each Interim Provision which replaces an Original Provision shall have effect in place of that Original Provision until the end of the Applicable Interim Period, from which time that Original Provision shall commence and apply:
- 7.5 Until the date that is 12 months after the Market Start Date, the following shall be inserted after paragraph 2.75.15:
- “16. Whether or not the Interconnector is capable of being dispatched at zero and this shall be submitted only through a Type 1 Communication Channel.”
- 7.6 Until the date that is 12 months after the Market Start Date, paragraph 2.89 shall be replaced with:
- “2.89 For each Interconnector, there shall be an Interconnector Error Unit. The Interconnector Owner, through submission of appropriate Interconnector Registration Data, shall procure that the Interconnector Error Unit is registered to the relevant Interconnector Administrator in accordance with the procedure for registration of Units set out in paragraphs 2.30 to 2.52, subject to the requirements in paragraphs 2.90 and 2.94.”
- 7.7 Until the date that is 12 months after the Market Start Date, the following paragraph shall be inserted after paragraph 2.98:
- “2.98A No Participant may register more than one Interconnector Unit on an Interconnector.”
- 7.8 Until the date that is 12 months after the Market Start Date, paragraph 3.26 shall be replaced with:
- “3.26 Intentionally blank.”

7.9 Until the date that is 12 months after the Market Start Date, paragraph 3.35 shall be replaced with:

“3.35 The Market Operator shall in respect of each CMS Data Transaction received by it from Participants prior to the deadlines set out in Appendix I “Offer Data” process the CMS Data Transaction to determine whether it is valid in accordance with Agreed Procedure 4 “Transaction Submission and Validation”. The Market Operator shall validate a Data Transaction if the conditions set out in Agreed Procedure 4 “Transaction Submission and Validation” are satisfied in respect of that Data Transaction and shall reject the Data Transaction if such conditions are not so satisfied.”

7.10 Until the date that is 12 months after the Market Start Date, paragraph 4.40 shall be replaced with:

“4.40 In submitting data relating to any Generator or Supplier Unit that is Distribution Connected, the Distribution System Operator in its role as a Meter Data Provider and all Participants shall provide that all values expressed in MW, MW/min or MWh and that are used in the MSP Software or in Settlement or referred to in Sections 4, 5 or 6 of the Code shall first have been scaled by the appropriate Distribution Loss Adjustment Factor. A System Operator shall not, when submitting any such value that is expressed in this Code to be for submission by a System Operator or Meter Data Provider, scale such value by any Distribution Loss Adjustment Factor.”

7.11 Until the date that is 12 months after the Market Start Date, paragraph 4.55 shall be replaced with:

“4.55 Each System Operator shall submit to the Market Operator, the Dispatch Instructions in respect of each Generator Unit which is Dispatchable, registered within its Currency Zone and may submit an associated Ramp Rate for each Dispatch Instruction. Each System Operator shall submit this information to the Market Operator in accordance with Appendix K “Market Data Transactions”, based on Outturn Data, and the values submitted shall be net of Unit Load.”

7.12 Until the date that is 12 months after the Market Start Date, paragraph 4.91 shall be replaced with:

“4.91 For each Error Supplier Unit  $v'$ , each of which is associated with a Jurisdiction  $e$ , the Loss-Adjusted Net Demand ( $NDLFv'h$ ) shall be calculated as follows:

$$NDLFv'h = \sum_{u \text{ in } e} MGLFuh - \sum_{v \text{ in } e} MDLFvh + NIJeh$$

Where

1.  $\sum_{u \text{ in } e} MGLFuh$  is the total Metered Generation, Loss-Adjusted, of all Generator Units  $u$  within Jurisdiction  $e$  excluding Netting Generator Units;



2.  $\sum_{v \in e} MDLF_{vh}$  is the total Metered Demand, Loss-Adjusted, of all Supplier Units  $v$  within Jurisdiction  $e$  excluding the Error Supplier Unit;
3.  $NIJ_{leh}$  is the Net Inter-Jurisdictional Import to Jurisdiction  $e$  in Trading Period  $h$ , expressed in MWh, without adjustment for Transmission Losses.”

7.13 Until the date that is 12 months after the Market Start Date, paragraph 5.39 shall be replaced with:

“5.39 For each Trading Day for each Interconnector, the relevant System Operator shall for that Trading Day calculate the Available Transfer Capacity (consisting of the Maximum Import Available Transfer Capacity and the Maximum Export Available Transfer Capacity) for each Trading Period in the Optimisation Time Horizon and shall submit the resulting values to the Market Operator via the Interconnector Available Transfer Capacity Data Transaction in accordance with Appendix K “Market Data Transactions”.”

7.14 Until the date that is 12 months after the Market Start Date, paragraph 5.43 shall be replaced with:

“5.43 If, after the submission of Available Transfer Capacity for an Interconnector in accordance with paragraph 5.39, the Available Transfer Capacity for that Interconnector in either direction is changed in any Trading Period within the relevant Optimisation Time Horizon before Gate Closure for the relevant Trading Day, then the Interconnector Administrator shall inform the relevant System Operator of the revised Available Transfer Capacity as soon as practically possible, and the System Operator shall submit revised values of Available Transfer Capacity to the Market Operator by Gate Closure if practically possible.”

7.15 Until the date that is 12 months after the Market Start Date, paragraph 5.58 shall be replaced with:

“5.58 For each Trading Day, the Market Operator shall by 11:00 on the day prior to the start of the Trading Day determine Interconnector Unit Nominations for each Interconnector Unit from the Ex-Ante Indicative MSP Software Run based on the Active Interconnector Unit Capacity Holding and Commercial Offer Data such that the following conditions are satisfied:

1. the Ramp Rate for each Interconnector Unit that is implied by the Interconnector Unit Nominations shall not exceed a value of 99999.9 MW/min; and
2. the implied Ramp Rate for the sum of all Interconnector Units on any Interconnector that is implied by their Interconnector Unit Nominations shall not exceed the Aggregate Interconnector Ramp Rate for that Interconnector at any time,

and the Market Operator shall by 11:00 on the day prior to the start of the Trading Day submit the Interconnector Unit Nominations to the Interconnector Administrator.”

7.16 Until the date that is 12 months after the Market Start Date, paragraph 5.59 shall be replaced with:

- “5.59 Based on the Interconnector Unit Nominations, the Interconnector Administrator shall calculate Modified Interconnector Unit Nominations in accordance with Agreed Procedure 2 “Interconnector Unit Capacity Right Calculation and Dispatch Notifications”. These shall be calculated by the Interconnector Administrator such that the Modified Interconnector Unit Nominations, when considered in aggregate across the relevant Interconnector, are consistent with the Interconnector Technical Data for that Interconnector at all times. The Interconnector Administrator shall by 11:45 on the day prior to the start of the Trading Day submit the Modified Interconnector Unit Nominations to the Market Operator.”
- 7.17 Until the date that is 12 months after the Market Start Date, paragraph 5.63 shall be replaced with:
- “5.63 In the case of the events described in paragraphs 5.61 or 5.62, then the Interconnector Administrator shall recalculate the Modified Interconnector Unit Nominations for each Trading Period in the relevant Optimisation Time Horizon and issue the revised values to each Interconnector User for each of their Interconnector Units as soon as possible, such that the sum of Modified Interconnector Unit Nominations across all relevant Interconnector Units does not exceed in magnitude the revised Available Transfer Capacity in either direction in any Trading Period and such that the value of each Modified Interconnector Unit Nomination must be in the same direction and must not exceed in absolute magnitude the relevant Interconnector Unit Nomination calculated in accordance with paragraph 5.58, for any Interconnector Unit in any Trading Period. The Interconnector Administrator shall inform the relevant System Operator of the revised Available Transfer Capacity as soon as practically possible, and the System Operator shall submit the revised Available Transfer Capacity values to the Market Operator and the Interconnector Administrator shall submit revised Modified Interconnector Unit Nominations to the Market Operator by 12:00 on the day following the Trading Day.”
- 7.18 Until the date that is 12 months after the Market Start Date, paragraph 5.67 shall be replaced with:
- “5.67 Intentionally blank.”
- 7.19 Until the date that is 12 months after the Market Start Date, paragraph 6.73 shall be replaced with:
- “6.73 Each Settlement Rerun Statement will be in the same format as the Initial Settlement Statement. The Settlement Rerun Statement must show the data from the previous Settlement Statement where unchanged and the appropriate updated data otherwise.”
- 7.20 Until the date that is 12 months after the Market Start Date, the following paragraph shall be inserted after paragraph 6.143:
- “6.143A The Fixed Market Operator Charge shall not apply to Interconnector Units or to Interconnector Error Units or to Interconnector Residual Capacity Units.”
- 7.21 Until the date that is 12 months after the Market Start Date, paragraph 6.177 shall be replaced with:

“6.177 The Market Operator shall recalculate the Required Credit Cover, as provided for in paragraphs 6.186 – 6.229 and Agreed Procedure 9 “Management of Credit Cover and Credit Default”, for each Participant every Working Day and shall send to any Participant which reaches its Warning Limit or which is required to provide additional Credit Cover the results of its recalculation of that Participant’s Required Credit Cover by 17:00 on that Working Day. Without prejudice to the foregoing, the Market Operator shall send to each Participant the results of its recalculation of that Participant’s Required Credit Cover by 17:00 on the day of the preparation of the Invoices for each Billing Period.”

7.22 Until the date that is 12 months after the Market Start Date, the following shall be inserted after paragraph 6.201:

“6.201A A Capacity Adjustment Factor (CAF<sub>g</sub>) is applied to the Credit Assessment Price for Billing Periods (CAPB<sub>g</sub>) to take account of the Undefined Exposure in relation to Capacity Period  $\theta$ . The Capacity Adjustment Factor for Undefined Exposure Period for Billing Periods  $g$  is calculated as follows

$$CAF_g = \left( \frac{(CAPB_g \times Count(Days\ in\ g)) + (ECP_\theta \times Count(Days\ in\ \theta))}{CAPB_g \times Count(Days\ in\ g)} \right)$$

Where

1. CAPB<sub>g</sub> is the Credit Assessment Price for the Undefined Exposure Period for Billing Periods  $g$ ;
2. ECP $\theta$  is the Estimated Capacity Price for the Undefined Exposure Period for Capacity Periods  $\theta$ ;
3. Count (Days in  $g$ ) is a count of all the Settlement Days in Undefined Exposure Period for Billing Periods  $g$ ;
4. Count (Days in  $\theta$ ) is a count of all the Settlement Days in Undefined Exposure Period for Capacity Periods  $\theta$ .”

7.23 Until the date that is 12 months after the Market Start Date, paragraph 6.203 shall be replaced with

“6.203 The Undefined Potential Exposure (UPES<sub>pd</sub>) for each New or Adjusted Participant  $p$  in respect of its Supplier Units for the Undefined Exposure Period for Billing Periods  $g$  and the Undefined Exposure Period for Capacity Periods  $\theta$  calculated for the relevant Settlement Day  $d$  is calculated as follows:

$$UPES_{pd} = (CAPB_g \times CAF_g) \times \sum_{h \in g} CAVS_{ph}$$

Where

1. CAPB<sub>g</sub> is the Credit Assessment Price for the Undefined Exposure Period for Billing Periods  $g$ ;
2. CAVS<sub>ph</sub> is the Credit Assessment Volume for the Trading Period  $h$ ;
3. CAF<sub>g</sub> is the Capacity Adjustment Factor applicable for Undefined Exposure Period for Billing Periods  $g$ ;

4.  $\sum_{h \text{ in } g}$  is a summation over Trading Periods h in Undefined Exposure Period for Billing Periods g.”

7.24 Until the date that is 12 months after the Market Start Date, paragraph 6.205 shall be replaced with:

“6.205 The Undefined Exposure (UPEGpd) for each New or Adjusted Participant in respect of its Generator Units for the Undefined Exposure Period for Billing Periods g and the Undefined Exposure Period for Capacity Periods  $\theta$  calculated for the relevant Settlement Day d shall be calculated as follows:

$$UPEGpd = (CAPBg \times CAFg) \times \sum_{h \text{ in } g} CAVGph$$

Where

1. CAPBg is the Credit Assessment Price for the Undefined Exposure Period g;
2. CAVGph is the Credit Assessment Volume for the Trading Period h;
3. CAFg is the Capacity Adjustment Factor applicable for Undefined Exposure Period for Billing Periods g:

4.  $\sum_{h \text{ in } g}$  is a summation over Trading Periods h in Undefined Exposure Period for Billing Periods g”

7.25 Until the date that is 12 months after the Market Start Date, the following paragraph shall be inserted after paragraph 6.245:

“6.245A The Market Operator shall, as a part of the determination of Settlement for each Billing Period and Capacity Period, determine whether any Participant has, in respect of its Generator Units, entered into Settlement Reallocation Agreements that, in total exceed the Trading Payments or Capacity Payments due to that Participant in respect of those Generator Units for that Billing Period or Capacity Period as applicable. For any such Participant, the Market Operator shall cancel a sufficient quantity of Settlement Reallocation Agreements such that the remaining Settlement Reallocation Agreements do not in total exceed the Trading Payments or Capacity Payments due to that Participant in respect of that Participant’s Generator Units for that Billing Period or Capacity Period as applicable. In cancelling any such Settlement Reallocation Agreements, the Market Operator shall consider the Settlement Reallocation Agreements in the order in which the relevant Settlement Reallocation Requests were lodged with the Market Operator. The Market Operator then shall cancel such Settlement Reallocation Agreements in turn until those remaining in total no longer exceed the calculated Trading Payments or Capacity Payments due to that Participant in respect of its Generator Units for that Billing Period or Capacity Period as applicable.”

7.26 Until the date that is 12 months after the Market Start Date, Glossary definitions for Interconnector Technical Data, Minimum Interconnector Import Level and Minimum Interconnector Export Level shall be replaced with:

“Interconnector Technical Data means, for each Interconnector, the subset of Interconnector Registration Data which comprises Aggregate Import Capacity, Aggregate Export Capacity, Aggregate Interconnector Ramp Rate, Minimum Interconnector Import Level, Minimum Interconnector Export Level and whether or not the Interconnector is capable of being dispatched at zero.”;

“Minimum Interconnector Import Level means the level (expressed as a number in MW which is positive, including zero) the value of which relates to the minimum stable level at which that Interconnector may be dispatched to import energy. A value of zero is equated with the case in which no such minimum level applies. A value which is greater than zero means that the Interconnector may not be dispatched at any level strictly between zero and the Minimum Interconnector Import Level. The Interconnector Registration Data separately records whether or not the Interconnector may be dispatched at zero.”;

and

“Minimum Interconnector Export Level means the level (expressed as a number in MW which is negative or zero), the absolute value of which relates to the minimum stable level at which that Interconnector may be dispatched to export energy. A value of zero is equated with the case in which no such minimum level applies. A value which is less than zero means that the Interconnector may not be dispatched at any level strictly between zero and the Minimum Interconnector Export Level. The Interconnector Registration Data separately records whether or not the Interconnector may be dispatched at zero”.

- 7.27 Until the date that is 12 months after the Market Start Date, the following row in Table E.4 in Appendix E “Data Publication” shall be regarded as “Intentionally Blank”:

Table E.4 – Data publication list part 4: Updated Daily in Advance of Gate Closure:

Time	Item / Data Record	Term	Subscript
Before 09:30	Forecast of Ex-Post Loss of Load Probability for each Trading Period in the forthcoming 31 Trading Days	Φ	h

- 7.28 Until the date that is 12 months after the Market Start Date, the following row shall be added to Table E.6 in Appendix E “Data Publication”

Table E.6 – Data publication list part 6: Updated Daily post Trading Day:

Day after Trading Day at 17:00	Capacity Adjustment Factor applicable for Undefined Exposure Period for Billing Periods	CAF	g
--------------------------------	---	-----	---

- 7.29 U  
 Until the date that is 12 months after the Market Start Date, paragraphs G.13.10 and G.16.4 of Appendix G “Invoices and Settlement Statements” shall be replaced with:

“G.16.4 Intentionally blank.”

7.30 Until the date that is 12 months after the Market Start Date, paragraphs J.6, J.7 and J.8 of Appendix J “Market Operator and System Operator Data Transactions” shall be replaced with:

“J.6 Intentionally blank.

J.7 Intentionally blank.

J.8 Intentionally blank.”

7.31 Until the date that is 12 months after the Market Start Date, paragraphs K.2.15, K.5 and K.6 of Appendix K “Market Data Transactions” shall be replaced with:

“K.2.15 Interconnector Available Transfer Capacity, which is a transaction from the relevant System Operator to the Market Operator.

K.5 Intentionally blank.

K.6 Intentionally blank.”

7.32 Until the date that is 12 months after the Market Start Date, the first line of Table K.30 in Appendix K “Market Data Transactions” shall be replaced with:

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Sender	Relevant System Operator
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## **8. TRANSITIONAL ARRANGEMENTS**

### **PURPOSE**

- 8.1 This Section 8 sets out provisions, which:
5. suspend, amend or replace specified paragraphs or parts of paragraphs of other Sections of the Code for specified periods; and
  6. provide for certain additional matters of a transitional nature in relation to the administration of the Code in the period from the Commencement Date to the end of the First Trading Year.
- 8.2 The Registration process for Parties who have registered to participate in the Market Trial is modified by this Section and for the purposes of transition only, to recognise that these Parties will have provided data to the Market Operator in respect of their units in order to participate in the Market Trial. Such Parties will confirm or may amend this data, as necessary, prior to the Market Start Date in accordance with this Section.

### **GENERAL**

- 8.3 Any reference in the Code to anything being required to be done prior to the start of a Year shall, in relation to the First Trading Year only, be deemed to mean prior to the Market Start Date.
- 8.4 Any reference in the Code to a period prior to the start of a Year shall, in relation to the First Trading Year only, be deemed to refer to the relevant period prior to the Market Start Date, or such other period as may be determined by the Regulatory Authorities.
- 8.5 Any reference in the Code to a Year shall, in respect of the First Trading Year, apply only to that part of the year which falls within the First Trading Year.
- 8.6 For the avoidance of doubt, no Trading Day shall commence prior to the Market Start Date.
- 8.7 Notwithstanding the definition of "Trading Day", the first Trading Day shall be deemed to commence at 00:00 on the Market Start Date and will end at the end of the Trading Period commencing at 05:30 on the Market Start Date.
- 8.8 Notwithstanding that no trading shall occur before the Market Start Date, the first Trading Day shall fall within a 30 hour First Optimisation Time Horizon which shall commence at 06:00 on the day prior to the Market Start Date. Participants shall be required to submit data in respect of the first Trading Day and the preceding 18 hours as though the Pool were fully operational. Participants shall be required to submit Offer Data in respect of the 24 hour period from 06:00 on the day prior to the Market Start Date to 06:00 on the Market Start Date and the Market Operator shall conduct an MSP Software run for the First Optimisation Time Horizon. Any calculations required to be made in respect of a Trading Day or a Trading Period, shall for the purposes of the first Trading Day, utilise data submitted in respect of the period 06:00 to 06:00. Notwithstanding this, any Settlement shall use the outputs of the MSP Software in respect of Trading Periods falling within the first Trading Day.
- 8.9 In respect of the first Trading Day, Meter Data Providers shall provide Meter Data for the 2 days immediately prior to Market Start.

- 8.10 For the first Trading Day, any calculations referring to the use of data from Trading Day t-1 shall use data derived from the corresponding time period in the Market Trial.
- 8.11 In respect of the first Trading Day, the Market Operator shall, at 08:00 two Working Days prior to the first Trading Day, publish a Trading Day Exchange Rate between euro (€) and pound sterling (£), which, notwithstanding the definition of “Trading Day Exchange Rate” shall be deemed to be the Trading Day Exchange Rate in relation to the first Trading Day.
- 8.12 In respect of the second Trading Day, the Market Operator shall, at 08:00 on the day that is one Working Day prior to the Trading Day commencing at 06:00 on the Market Start Date, publish a Trading Day Exchange Rate between euro (€) and pound sterling (£), which, notwithstanding the definition of “Trading Day Exchange Rate” shall be deemed to be the Trading Day Exchange Rate in relation to that second Trading Day.
- 8.13 Notwithstanding any other provisions of the Code, for the purposes of the first Trading Day, Gate Closure means 10:00 on the calendar day two days prior to the first Trading Day.
- 8.14 Without prejudice to paragraphs 8.8, 8.55 to 8.56 or 8.68, Participants taking part in the Market Trial shall submit Trial Offer Data for use in runs of the MSP Software in respect of the week leading up to the Market Start Date, as if the Single Electricity Market were fully operational during that period. Technical Offer Data submitted in respect of the week leading up to the Market Start Date shall be in accordance with applicable Grid Code provisions and consistent with the information sent to the System Operators in respect of the current markets.

#### **ACCESSION AND PARTICIPATION FEES**

- 8.15 In advance of the Commencement Date, the Regulatory Authorities shall determine the Accession Fee payable by an Applicant seeking to accede to the Code prior to the Market Start Date.
- 8.16 In advance of the Commencement Date, the Regulatory Authorities shall determine the Participation Fee payable by a Party (or Applicant, as appropriate) to register a Unit prior to the Market Start Date.

#### **ACCESSION AND REGISTRATION OF INITIAL PARTICIPANTS**

- 8.17 The following paragraphs shall apply to Applicants (or Parties, as appropriate) who have registered with the Market Operator for the Market Trial. Persons who have acceded to the Code and have registered for the Market Trial shall be deemed to be Initial Participants in respect of Units Registered in accordance with this Section in advance of the Market Start Date.
- 8.18 For the avoidance of doubt, Initial Participants shall be Participants for the purposes of the Code and all Code provisions shall apply, save as otherwise provided in Section 8.
- 8.19 Parties who have not registered to participate in the Market Trial shall apply to Register Units in accordance with Section 2 and Agreed Procedure 1 “Participant and Unit Registration and Deregistration”.
- 8.20 Notwithstanding paragraphs 2.13 to 2.18 or the corresponding provisions of Agreed Procedure 1 “Participant and Unit Registration and Deregistration”, the following timings shall apply in relation to Initial Participants:

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7. The Market Operator shall issue a Party Registration Form to all Market Trial participants prior to the Commencement Date.
  8. Within 2 Working Days of receipt of the Party Registration Form, the Market Operator will validate the contents of the completed Party Registration Form and will communicate any information to be clarified to, or request any additional information from, the Party.
  9. The Applicant shall respond to the Market Operator with the required information within 5 Working Days of receipt of such a communication.
  10. The Applicant may request additional time to provide any clarification or additional information and the Market Operator shall not unreasonably withhold consent to any such request.
- 8.21 No later than 5 Working Days after the date on which a Party has successfully Acceded to the Code, the Market Operator shall issue a Unit Registration Pack to such Party. The Unit Registration Pack shall contain the following:
11. a list of the requirements, in accordance with the Code, that must be complied with by such Party in order to become an Initial Participant;
  12. a request for confirmation of receipt of digital certificates; and
  13. notification of the requirement to provide an estimate of the Unit's consumption or production of energy for the duration of the longer of the first Historical Assessment Period for Billing Periods or the first Historical Assessment Period for Capacity Periods.
- 8.22 Notwithstanding the provisions of Section 2, the following timings shall apply in relation to Parties applying to be Initial Participants:
14. The Market Operator will, in accordance with Section 2, validate the contents of the completed Unit Registration Pack within 5 Working Days of receipt of the Unit Registration Pack and will communicate any information to be clarified to, or request any additional information from, the Party within 10 Working Days of receipt of the Unit Registration Pack.
  15. The Party must respond to the Market Operator with the required information within 5 Working Days of receipt of any such communication.
  16. A Party may request additional time to provide any clarification or additional information and the Market Operator shall not unreasonably withhold consent to any such request.
- 8.23 Upon completion of the requirements set out in paragraphs 8.21 and 8.22, registration will be deemed complete and the Market Operator will issue a Commencement Notice.
- 8.24 Notwithstanding any other provision of the Code, the registration of Initial Participants is not contingent upon the Required Credit Cover being in place.
- 8.25 During the course of the Market Trial, Initial Participants may make changes to a subset of their Registration Data in accordance with the timings as per paragraphs 8.26 to 8.30.
- 8.26 In respect of the following Data types as detailed in Agreed Procedure 4 "Transaction Submission and Validation", the Market Operator will not accept any updates or amendments from the date the Commencement Notice is issued until the Market Start Date:

17. Resource Type  
Resource Type shall have the meaning as set out in Agreed Procedure 4 “Transaction Submission and Validation”
18. Participant Class  
Participant Class shall have the meaning as set out in Agreed Procedure 4 “Transaction Submission and Validation”
19. Resource Ids  
Resource IDs shall have the meaning as set out in Agreed Procedure 4 “Transaction Submission and Validation”
- 8.27 In respect of Trading Site Configurations as detailed in Agreed Procedure 1 “Participant and Unit Registration and Deregistration”, the Market Operator will not accept any updates or amendments from the date the Commencement Notice is issued until the Market Start Date.
- 8.28 In respect of the following Data types as detailed in Agreed Procedure 4 “Transaction Submission and Validation”, Initial Participants may submit updates or amendments from the date of receipt of a Commencement Notice until 2 Working Days prior to Market Start Date:
20. Application Data  
Application Data shall have the meaning as set out in Agreed Procedure 4 “Transaction Submission and Validation”
21. Users Data  
Users Data shall have the meaning as set out in Agreed Procedure 4 “Transaction Submission and Validation”
22. Load Bid Data  
Load Bid Data shall have the meaning as set out in Agreed Procedure 4 “Transaction Submission and Validation”
- 8.29 In respect of the following Data types as detailed in Agreed Procedure 4 “Transaction Submission and Validation”, Initial Participants may submit updates or amendments from the date of receipt of a Commencement Notice until 3 Working Days prior to Market Start Date:
23. Unit (Resource) Data  
Unit (Resource) Data shall have the meaning as set out in Agreed Procedure 4 “Transaction Submission and Validation”
24. Load Parameters  
Load Parameters shall have the meaning as set out in Agreed Procedure 4 “Transaction Submission and Validation”
- 8.30 Participants may submit updates or amendments to their Bank Data, as defined in Agreed Procedure 4 “Transaction Submission and Validation”, from the date of receipt of a Commencement Notice until 10 Working Days prior to Market Start Date.
- CREDIT COVER**
- 8.31 Each Participant shall provide the Market Operator with an estimate of its forecast demand for the Initial Exposure Period by not later than 11 weeks prior to the Market Start Date.

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- 8.32 The Market Operator will compare the estimate of forecast demand provided by a Participant with the Meter Data provided during the Market Trial. If the difference between the two is greater than the Credit Cover Adjustment Trigger, the Market Operator shall increase the Required Credit Cover accordingly.
- 8.33 The Market Operator shall send each Initial Participant details, by facsimile, of the initial Required Credit Cover no later than 5 Weeks prior to the date on which the Initial Participant is required to post such Credit Cover, provided that (and without prejudice to its right to do so after the Market Start Date in accordance with the Code):
25. if necessary, the Market Operator may by notice to the relevant Initial Participant, revise such Required Credit Cover up to 8 Working Days prior to the Market Start Date;
- and
26. notwithstanding paragraph 6.238, the initial Required Credit Cover shall not take into account any Settlement Reallocation Agreement unless this has been lodged with the Market Operator at least 9 Working Days prior to the Market Start Date.
- 8.34 The Market Operator shall publish an Exchange Rate between euro (€) and pounds sterling (£) at 08:00 on the day preceding the day on which the Market Operator will calculate the initial Credit Cover.
- 8.35 The Market Operator shall publish an Exchange Rate between euro (€) and pounds sterling (£) at 08:00 on the day preceding the day on which the Market Operator will calculate the revised initial Credit Cover, as set out in 8.33.
- 8.36 Notwithstanding any other provision of the Code, the Market Operator shall convert the Required Credit Cover into pounds sterling using the Exchange Rate published in accordance with 8.34 in respect of the Required Credit Cover for Market Start for each Participant using pounds sterling as the Settlement Currency.
- 8.37 Notwithstanding any other provision of the Code, the Market Operator shall convert the Required Credit Cover into pounds sterling using the Exchange Rate published in accordance with 8.35 in respect of the revised Required Credit Cover for Market Start for each Participant using pounds sterling as the Settlement Currency.
- 8.38 No later than 3 Working Days before the Market Start Date, each Participant must put its Required Credit Cover in place.
- 8.39 The Market Operator shall issue a Suspension Order in respect of any Participant who fails to provide the Required Credit Cover 3 Working Days before the Market Start Date.
- 8.40 For the duration of the longer of the first Historical Assessment Period for Billing Periods or for Capacity Periods, estimates provided by each Participant in relation to its consumption or production of energy, pursuant to paragraph 8.31, will be evaluated against the Meter Data received from the relevant Meter Data Provider. If the difference between the Meter Data and the forecast quantities provided exceeds the Credit Cover Adjustment Trigger, the Market Operator shall calculate a revised future consumption or production (as appropriate) forecasts based on a statistical analysis of the known Meter Data to produce a forecast which has only a 5% probability of

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being exceeded. Such forecasts will then be used to recalculate the relevant Participant's Required Credit Cover.

8.41 The Market Operator shall make a report to the Regulatory Authorities at least 90 days before the Market Start Date proposing the Initial Credit Assessment Price and the Estimated Capacity Price relating to the calculation of the Required Credit Cover for the Undefined Exposure Period for New Participants and Adjusted Participants from the Market Start Date.

8.42 The Market Operator's report proposing the Initial Credit Assessment Price and the Estimated Capacity Price must set out any relevant research or analysis carried out by the Market Operator and the justification for the specific values proposed. The Market Operator shall publish the approved value for these prices at least 60 days before the Market Start Date or within 5 Working Days of receipt of the Regulatory Authorities' determination, whichever is the later.

8.43 For the avoidance of doubt for the purposes of Credit Cover monitoring and calculation, all Participants shall be considered New Participants on the Market Start Date.

8.44 Paragraph 6.174 shall not apply to the report to be published by the Market Operator proposing parameters relating to the calculation of the Required Credit Cover in advance of the First Trading Year and for the purpose of the report required in advance of that period only, paragraph 6.174 shall be replaced with:

"6.174 The Market Operator shall make a report to the Regulatory Authorities at least 90 days before the start of the First Trading Year proposing the following parameters relating to the calculation of the Required Credit Cover for application in the First Trading Year:

1. the Fixed Credit Requirement;
2. the Historical Assessment Period for the Billing Period;
3. the Historical Assessment Period for the Capacity Period;
4. the Analysis Percentile Parameter;
5. the Credit Cover Adjustment Trigger; and
6. the maximum level of the Warning Limit."

#### **MARKET OPERATOR WEBSITE**

8.45 The Market Operator shall ensure that the website referred to in paragraph 2.364 shall be operative and be accessible to all members of the public no later than 30 days before the Market Start Date.

#### **MODIFICATIONS**

8.46 The initial Modifications Committee shall be established at a time specified by the Regulatory Authorities. The Regulatory Authorities shall publish the names of the members of the initial Modifications Committee at least 2 weeks before the establishment date it proposes for the initial Modifications Committee.

8.47 The nominees of the Commission, NIAUR, the Market Operator, System Operators and Meter Data Providers shall be automatically appointed to the initial Modifications Committee.

8.48 The Regulatory Authorities shall appoint members and alternate members to the initial Modifications Committee from nominees put forward by the nominating parties.

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8.49 Where requested to do so by the Regulatory Authorities, persons who have not yet acceded to the Code may put forward nominees for the positions of member and alternate member of the initial Modifications Committee and such nominations shall, notwithstanding that the person making the nomination has not yet acceded to the Code, be considered to be a nomination by Nominating Participant for the purposes of the Code.

8.50 Where a person who has put forward nominees for the positions of member and alternate member pursuant to paragraph 8.49, has not acceded to the Code within 5 Working Days of the Commencement Date, such nominations shall cease to be valid and will not be considered by the Regulatory Authorities when appointing members or alternate members of the initial Modifications Committee.

8.51 The members of the Modifications Committee and their alternate members shall each serve for the respective terms as follows:

27. The initial members appointed by, and to represent, the Commission, the Market Operator, the Northern Ireland System Operator and one Meter Data Provider shall each have an initial term of one year. Thereafter, each member appointed by the foregoing shall be appointed for a term of two years.

28. The initial members appointed by, and to represent, the NIAUR, the System Operator for Ireland and the remaining Meter Data Providers shall each have an initial term of two years. Thereafter each member appointed by the foregoing shall be appointed for a term of two years.

29. Every second initial member appointed following nomination by the Nominating Participants shall have an initial term of one year. All other remaining initial members appointed following nomination by the Nominating Participants shall have an initial term of two years.

8.52 Notwithstanding any paragraph of the Code to the contrary, from the Commencement Date until the Market Start Date, no person shall submit a Modification Proposal save for a Modification Proposal submitted in accordance with paragraph 2.206 of the Code.

8.53 From the Commencement Date until the Market Start Date, paragraph 2.208 shall be replaced with:

“2. 208 A Modification Proposal shall be determined to be Urgent by the Regulatory Authorities where, if not made, it can be reasonably anticipated that the event or circumstance with which the Modification Proposal is concerned would:

1. threaten the ability to deliver a properly functioning market for the Market Start Date; or
2. result in one or more of the Parties being in breach of this Code on or after the Market Start Date due to systems limitations, or
3. correct an obviously material error or material inconsistency in the Code.”

### **DISPUTE RESOLUTION BOARD**

8.54 The Market Operator will establish a Panel for Dispute Resolution within 30 Working Days of the Commencement Date. Any Dispute arising prior to the establishment of the Dispute Resolution Board shall be referred to the Regulatory Authorities.

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## **MSP SOFTWARE**

8.55 Paragraph 4.70 shall not apply to the calculation of Uplift for the First Trading Year and for the purpose of the calculation required for this period only, paragraph 4.70 shall be replaced with:

“4.70 The following three input parameters that are to be used in the calculation of Uplift in each Year shall be determined by the Regulatory Authorities at least 60 days in advance of the Market Start Date:

1. The Uplift Alpha value  $\alpha$ , which governs the importance of the Uplift Cost Objective, such that  $0 \leq \alpha \leq 1$ ;
2. The Uplift Beta value  $\beta$ , which governs the importance of the Uplift Profile Objective, such that  $0 \leq \beta \leq 1$ ; and
3. The Uplift Delta value  $\delta$ , to constrain the overall impact on revenue in each Trading Day  $t$ , arising from the Uplift calculation, such that  $\delta \geq 0$ .”

8.56 Notwithstanding any other provision of the Code for the first Trading Day, where the operation of the MSP Software requires initial conditions from a Preceding MSP Software Run as set out in paragraphs N.50 to N.52, then the Market Operator shall use data from the last applicable MSP Software run or runs of the MSP Software undertaken during the Market Trial for the relevant periods preceding the first Trading Day. Paragraphs 5.125 and N.53 shall not apply to the first Trading Day.

8.57 The Market Operator shall use reasonable endeavours to procure that for each run of the MSP Software relating to the first Trading Day, the reservoir level for each Pumped Storage Unit at the start of the Optimisation Time Horizon will be set equal to a value that best reflects its understanding of the actual reservoir level at that time.

## **UNINSTRUCTED IMBALANCE**

8.58 Paragraph 4.142 shall not apply to the calculation of Uninstructed Imbalances for the First Trading Year and for the purpose of the calculation required for this period only, paragraph 4.142 shall be replaced with:

“4.142 The System Operator shall make a report to the Regulatory Authorities at least 90 days before the First Trading Year proposing values for the following parameters used in the calculation of Uninstructed Imbalances for that year:

1. Engineering Tolerance ENG<sub>TOL</sub> (where  $0 \leq \text{ENG}_{\text{TOL}} \leq 1$ );
2. MW Tolerance MW<sub>TOLt</sub> (where  $0 \leq \text{MW}_{\text{TOL}t}$ ) for each Trading Day  $t$ ;
3. System per Unit Regulation parameter (UREG);
4. the Discount for Over Generation (DOG<sub>uh</sub>) for each Generator Unit  $u$  in each Trading Period  $h$ , such that  $0 \leq \text{DOG}_{uh} \leq 1$ ; and
5. the Premium for Under Generation (PUG<sub>uh</sub>) for each Generator Unit  $u$  in each Trading Period  $h$ , such that  $0 \leq \text{PUG}_{uh} \leq 1$ .”

## **TESTING TARIFFS**

8.59 Paragraph 5.175 shall not apply in relation to the making of a report to the Regulatory Authorities proposing values for the Testing Tariffs in advance of

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the First Trading Year and for the purpose of the report required in advance of that period only, paragraph 5.175 shall be replaced with:

“5.175 The relevant System Operator shall make a report to the Regulatory Authorities at least 60 days before the start of the First Trading Year proposing values for the Testing Tariffs which shall apply for the First Trading Year. The System Operator’s report must set out the justification for the specific values proposed. Such a report may, and shall if so requested by the Regulatory Authorities, include alternative values from those proposed and must set out the arguments for and against such alternatives.”

**SETTLEMENT CALENDAR**

8.60 Paragraph 6.47 shall not apply to the publication of a Settlement Calendar for all days in the First Trading Year and for the purposes of the publication of a Settlement Calendar for that period only, paragraph 6.47 shall be replaced with:

“6.47 The Market Operator shall publish, at least 60 days prior to the start of the First Trading Year, a Settlement Calendar for all days in the First Trading Year which shall include the following information:

1. details of Non-Working Days;
2. details of:
  - a. when Ex-Post Indicative Settlement Statements are due (for each type of Settlement Statement);
  - b. when Initial Settlement Statements are due (for each type of Settlement Statement);
  - c. each Invoice issue date (for each type of Invoice);
  - d. the Invoice Due Date (for each type of Invoice);
  - e. the Self-Billing Invoice issue date (for each type of Self-Billing Invoice);
  - f. the Self-Billing Invoice Due Date (for each type of Self-Billing Invoice);
  - g. the Timetable M+4 Settlement Reruns for relevant Settlement Period; and
  - h. the Timetable M+13 Settlement Reruns for relevant Settlement Period.”

**ANNUAL MAINTENANCE SCHEDULE DATA**

8.61 In Table E.2 the publication by the Market Operator of the Annual Maintenance Schedule – Generator Outages Schedule shall not apply in advance of the First Trading Year and for the purpose of the publication required in advance of the First Trading Year only, the publication in Table E.2 shall be replaced with:

<u>Time</u>	<u>Item / Data Record</u>	<u>Term</u>	<u>Subscript</u>
<u>At least one Month before start of Year</u>	<u>Annual Maintenance Schedule - Generator Outages Schedule (Appendix F)</u>		

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8.62 Paragraph F.9 shall not apply to the transaction to be submitted to the System Operator by the Market Operator in respect of the annual Maintenance Schedule Data Transaction in advance of the First Trading Year and for the purpose of the transaction required in advance of the First Trading Year only, paragraph F.9 shall be replaced with:

“F.9 Each System Operator shall submit an annual Maintenance Schedule Data Transaction to the Market Operator at least one month before the start of each Year, and whenever it is updated. The following shall also apply: \_\_\_\_\_

1. The annual Maintenance Schedule Data Transaction shall contain the Maintenance Schedule for each Generator connected to the Transmission System in the relevant Jurisdiction over that Year.
2. The Market Operator shall only provide for Type 1 Communication Channel for the communication of such annual Maintenance Schedule Data Transaction from the System Operator during normal operation of the Market Operator's Isolated Market System and the Type 1 Communication Channel.”

### **FLATTENING POWER FACTOR**

8.63 Paragraph M30 shall not apply to the report to be submitted to the Regulatory Authorities by the Market Operator in respect of the Loss of Load Probability Table in advance of the First Trading Year and for the purpose of the report required in advance of that period only, paragraph M.30 shall be replaced with:

“M.30 With respect to the Loss of Load Probability Table, the System Operators shall make a report to the Regulatory Authorities at least 90 days before the start of the First Trading Year proposing a value for the Flattening Power Factor (FPF<sub>y</sub>) for Year y which shall be in the range  $0 < \text{FPF}_y \leq 1$ . The Market Operator shall publish the approved value of this parameter within 5 Working Days of receipt of the Regulatory Authorities' determination. The System Operators may propose revisions to the value of the Flattening Power Factor (FPF<sub>y</sub>) during the Year and, subject to the approval of the Regulatory Authorities, the Market Operator shall publish such revised value not less than thirty 30 days prior to the first Capacity Period for which such revised value is to be applied.”

### **DATA PUBLICATION BY THE MARKET OPERATOR**

8.64 The Market Operator shall publish all relevant parameters or reports within 3 Working Days of receiving the Regulatory Authorities' determination.

### **DATA PROVISION BY THE SYSTEM OPERATORS**

8.65 Notwithstanding any other provision of the Code, for the first Trading Day, each System Operator shall submit to the Market Operator the Generator Unit Technical Characteristics, consisting of Outturn Minimum Stable Generation, Outturn Availability and Outturn Minimum Output, in respect of each Generator Unit, which is Dispatchable, registered within its Currency Zone, 2 days prior to Market Start.

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### **BILLING PERIOD**

- 8.66 Notwithstanding the definition of Billing Period in paragraph 6.41, for the purposes of paragraph 6.41, the first Billing Period shall be defined as the period from 00:00 on the Market Start Date to the end of the Trading Period beginning at 23:30 on the Saturday which either follows or coincides with the Market Start Date.

### **CAPACITY PERIOD**

- 8.67 Notwithstanding the definition of Capacity Period in paragraph 6.44 the first Capacity Period shall be defined as the period from 00:00 on the Market Start Date to the end of the Trading Period beginning on 23:30 on the last day of the calendar month during which the Market Start Date occurs.

### **MARKET SCHEDULE WARMTH STATE**

- 8.68 For the first Trading Day, and with respect to each relevant Generator Unit, the reference to "preceding Trading Periods" in the definition of Market Schedule Warmth State shall refer to a period of equivalent duration immediately preceding the Market Start Date.

### **INTERCONNECTOR TRADES**

- 8.69 Notwithstanding any other provision of the Code, the Market Operator shall publish Available Transfer Capacity values for the first Trading Day by 10:00 two days prior to Gate Closure for the first Trading Day.

- 8.70 Notwithstanding any other provision of the Code, the Market Operator shall by 10:30 two days prior to the first Trading Day notify each Interconnector User of the Active Interconnector Unit Capacity Holding for its Interconnector Unit.

- 8.71 Notwithstanding any other provision of the Code, for the first Trading Day, the Market Operator shall by 11:00 two days prior to the start of the first Trading Day determine Interconnector Unit Nominations for each Interconnector Unit from the Ex-Ante Indicative MSP Software Run based on the Active Interconnector Unit Capacity Holding and Commercial Offer Data such that the following conditions are satisfied:

1. the Ramp Rate for each Interconnector Unit that is implied by the Interconnector Unit Nominations shall not exceed a value of 99999.9 MW/min; and
2. the implied Ramp Rate for the sum of all Interconnector Units on any Interconnector that is implied by their Interconnector Unit Nominations shall not exceed the Aggregate Interconnector Ramp Rate for that Interconnector at any time.

and the Market Operator shall by 11:00, 2 days prior to the first Trading Day submit the Interconnector Unit Nominations to the Interconnector Administrator.

- 8.72 Notwithstanding any other provision of the Code, the Interconnector Administrator shall by 11:45, 2 days prior to the start of the first Trading Day submit the Modified Interconnector Unit Nominations to the Market Operator.

- 8.73 Notwithstanding any other provision of the Code, for the first Trading Day, the Market Operator shall by 12:00 two days prior to the start of the first Trading Day submit to each Interconnector User the Modified Interconnector

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Unit Nominations in respect of its Interconnector Units, via the Modified Interconnector Unit Nominations Data Transaction in accordance with Appendix K “Market Data Transactions”.

8.74

Notwithstanding any other provision of the Code, for the first Trading Day, the Market Operator shall calculate Aggregate Modified Interconnector Unit Nominations for each Interconnector for each Trading Period, and by 12:00 two days prior to the start of the first Trading Day shall submit the Aggregate Modified Interconnector Unit Nomination Data Transaction to the relevant System Operator in accordance with Appendix J “Market Operator and System Operator Data Transactions”.

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## APPENDIX A: STANDARD LETTER OF CREDIT

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A.1 This Appendix A contains a standard template for a Letter of Credit.

### **MARKET OPERATOR EURO/STERLING IRREVOCABLE STANDBY LETTER OF CREDIT TEMPLATE**

Applicant: .....

Issuing Bank: .....

Advising Bank/SEM Bank: .....

Beneficiary: The Market Operator under the SEM Trading and Settlement Code being a joint venture between EirGrid plc and SONI Limited and trading as AIME (the "Beneficiary")

Dear Sirs,

We, the Issuing Bank, hereby issue our irrevocable Standby Letter of Credit No..... by order of ..... (applicant), for a maximum total amount of EUR/Sterling..... (in words.....) which expires at the counters of the Advising Bank on [insert date] subject to extension as described below.

In this Letter of Credit and in the Beneficiary Statement (except where the context otherwise requires or there is an express provision to the contrary) the following expressions shall have the following meanings:

"Beneficiary Statement" means a statement in the form of the Appendix attached hereto;

"Same Day Value" means that the relevant funds shall be available to the Beneficiary on the same day as the funds transfer has been authorised by us without any loss of value arising between such authorisation and the funds being available for use by the Beneficiary;

"SEM" means the wholesale Single Electricity Market for the island of Ireland;

"SWIFT" means the worldwide financial messaging network of The Society for Worldwide Interbank Financial Telecommunication;

"Trading and Settlement Code" means the trading arrangements for the SEM established in Northern Ireland pursuant to section 23 of the Northern Ireland (Miscellaneous Provisions) Act 2006 and the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007 and in Ireland pursuant to section 9BA(1) of the Electricity Regulation Act 1999 and as designated pursuant to regulations made under section 9BA(2)(a) of the Electricity Regulation Act 1999 (Ireland);

This irrevocable Standby Letter of Credit is available by payment at sight against presentation to the Advising Bank of a Beneficiary Statement.

Conditions:

1. Partial drawings are allowed.
2. The expiry date of this Standby Letter of Credit will automatically be extended for a period of one calendar year from its current or any

future expiry date unless we serve notice by SWIFT to the Advising Bank not less than one calendar month before the current or any future expiry date that this Standby Letter of Credit will not automatically be extended and will expire on its then current expiry date. The date of transmission of any such SWIFT notice will be deemed to be the date that notice is served.

3. The Beneficiary Statement must be made on original letterhead paper of the Beneficiary and signed on its behalf.
4. Upon receipt of a signed Beneficiary Statement in compliance with the above conditions the Advising Bank is required promptly to notify us by SWIFT of receipt of such Beneficiary Statement and inform us of the relevant details of such Beneficiary Statement. Provided such notification is received by us no later than 14:00 hrs on any weekday on which banks are open for business in Dublin or Belfast, we shall make payment under this Standby Letter of Credit for Same Day Value on that day or if received after 14.00hrs on the next such weekday in accordance with such notification and shall confirm payment by notifying the Advising Bank by SWIFT.
5. Where we, the Issuing Bank are also the Advising Bank, we may revise the above notification requirements as appropriate provided that this shall in no way affect the obligation on us to make payment under this Standby Letter of Credit.
6. All opening bank charges are for the account of the Applicant.
7. All advising/paying bank charges are for the account of the Applicant.

Except where otherwise expressly stated, this Letter of Credit is subject to the Uniform Customs and Practice for Documentary Credits latest version on the date of the issuance of this Letter of Credit [MOST RECENT VERSION TO BE INSERTED WITH EACH LETTER OF CREDIT].

We the Issuing Bank hereby waive any right to set off or counterclaim whatsoever against any amounts payable under this Standby Letter of Credit in respect of any claims we may have against the Beneficiary and such amounts shall be paid free and clear of all deductions or withholdings whatsoever.

This Letter of Credit shall be governed by and construed in accordance with the laws of Northern Ireland and the parties submit to the exclusive jurisdiction of the Courts of Ireland and the Courts of Northern Ireland for all disputes arising under, out of, or in relation to this Letter of Credit.

Yours faithfully

[Issuing Bank]

| by (Authorised

Signatory)

In this Section:

**“Effective Date”**

means the Trading Day from which the registration of a Unit or Units to an Initial Participant shall be effective, as specified in a Commencement Notice issued by the Market Operator, or as deferred in accordance with paragraph 2.48. Effective Dates are aligned to Trading Day timescales and all references to Effective Date shall apply from the start of the relevant Trading Day. For the first Trading Day, the Market Operator will use any relevant data from registered Units with an Effective Date equal to the Market Start date in any calculations required to be made in respect of a Trading Day or a Trading Period.

**“Estimated Capacity Price”**

means the price (ECP) to be used for the calculation of Required Credit Cover for Initial Participants, New Participants and Adjusted Participants until the end of the relevant first Historical Assessment Period.

**“First Trading Year”**

means the period commencing at 00:00 on the Market Start Date and concluding at the end of the Trading Period commencing at 23:30 on 31 December 2007.

**“Initial Credit Assessment Price”**

means the price (CAP) to be used for the calculation of Required Credit Cover for Initial Participants, New Participants and Adjusted Participants until the end of the relevant first Historical Assessment Period.

**“Initial Participant”**

means a Participant who has registered with the Market Operator for the Market Trial as set out in paragraph **Error! Reference source not found.**

**“Market Trial”**

means the full-scale 'as-live' operational exercising of market systems and processes, conducted by the Market Operator and Market Trial participants, and the preparation therefor, which is to take place prior to the Market Start Date in preparation for the commencement of trading in the Pool.

**“Initial Party Registration Form”**

means an application form issued by the Market Operator to Applicants who have registered for the Market Trial, which sets out all the items of data and other information that must be provided by Parties seeking to become Initial Participants.

**“Trial Offer Data”**

means commercial and technical offer data in respect of a generator unit submitted to the Market Operator during the Market Trial.

## APPENDIX

[Market Operator letterhead]

We, the Market Operator under the Trading and Settlement Code (the “Beneficiary”) hereby state that [insert applicant’s name] is in default of its obligation to pay pursuant to the Trading and Settlement Code (to which the applicant is a party) under paragraph [ insert details]

and as a result we hereby demand .....[insert amount being claimed] under Standby Letter of Credit number..... issued by .....[insert name of Issuing Bank]. Payment in respect of this Beneficiary Statement shall be effected immediately to [insert relevant account details]. We confirm that the signatory(ies) to this Beneficiary Statement are empowered to sign and make this Beneficiary Statement on behalf of the Beneficiary.

Terms defined in the Standby Letter of Credit referred to above have the same meaning when used in this Beneficiary Statement.

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## APPENDIX B: DISPUTE RESOLUTION AGREEMENT

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### FORM OF DISPUTE RESOLUTION AGREEMENT

#### GENERAL CONDITIONS OF DISPUTE RESOLUTION AGREEMENT FOR A DISPUTE RESOLUTION BOARD

Words in square brackets should be deleted as appropriate depending on whether there is a one member DRB or a three member DRB.

BETWEEN:-

1 THE DISPUTING PARTIES, REFERRED TO IN ANNEX 1

AND

2 EACH MEMBER OF THE DISPUTE RESOLUTION BOARD, REFERRED TO IN ANNEX 2 ("MEMBER" OR "THE MEMBERS" AS APPLICABLE)

RECITALS

- A. The Disputing Parties are, directly or via the Accession Deed, adhering parties to the Framework Agreement dated xxx, by which they agree to be bound by the terms of the Trading and Settlement Code ("Code", as further defined below) for trading in electricity in the wholesale market in the Single Electricity Market.
- B. The Disputing Parties are parties to a Dispute within the meaning of the Code.
- C. The Dispute has, in accordance with paragraph 2.288 of the Code, been referred to a [single member / three member] Dispute Resolution Board ("DRB") for resolution.
- D. In order to facilitate the resolution of the Dispute by the DRB, the Disputing Parties wish to enter into this Agreement with each of the Members, setting out the terms and conditions upon which each Member is engaged to hear and determine the Dispute.

## **1. Definitions and Interpretation**

- 1.1 In this Dispute Resolution Agreement, “Code” means the trading arrangements for the SEM established in Northern Ireland pursuant to section 23 of the Northern Ireland (Miscellaneous Provisions) Act 2006 and the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007 and in Ireland pursuant to section 9BA(1) of the Electricity Regulation Act 1999 and as designated pursuant to regulations made under section 9BA(2)(a) of the Electricity Regulation Act 1999 (Ireland).
- 1.2 Unless the context requires otherwise, words and expressions which are not otherwise defined in this Dispute Resolution Agreement (including the Recitals) shall have the meanings assigned to them in the Code.
- 1.3 Where the DRB is comprised of a single member, references to “the Members” shall be construed as references to “the Member” and references to “each Member” shall be construed as references to “the Member”.

## **2. General Provisions**

- 2.1 Each Disputing Party engages each Member to constitute a Dispute Resolution Board to hear and determine the Dispute.
- 2.2 Each Member accepts that engagement.
- 2.3 Each Member agrees to hear and determine the Dispute:
1. in accordance with the Code, the Framework Agreement and Applicable Laws; and
  2. on the terms and conditions set out in this Agreement.
- 2.4 This Agreement shall take effect when signed by all parties to this Agreement, on the last date of signature by a party.
- 2.5 The appointment of the Members pursuant to this Agreement is a personal appointment. At any time, the Members may give not less than 14 days’ notice of resignation to the Disputing Parties and to the Market Operator, and, where the Market Operator is a Disputing Party, to the Regulatory Authorities, and the Dispute Resolution Agreement shall terminate upon the expiry of this period.
- 2.6 No assignment or subcontracting of the Dispute Resolution Agreement is permitted without the prior written agreement of all the Disputing Parties to it and of the Members.
- 2.7 When appointing each Member, the Disputing Parties shall request of the relevant Member and shall be entitled to rely upon the Member’s representations that he/she:
1. is experienced in and familiar with alternative dispute resolution procedures; or
  2. has appropriate experience of the electricity industry, or the particular matters the subject of the dispute; and
  3. is familiar with, or shall, prior to the commencement of the hearing of the Dispute, be familiar with, the provisions of the Code.

## **3. Warranties**

- 3.1 The Members warrant and agree that they are and shall be impartial and independent of the Market Operator and the Disputing Parties. Each Member shall promptly disclose, to each Disputing Party and to the other



Members, any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

**4. Objectives of the Dispute Resolution Procedure**

4.1 It is intended that procedures effected under this Dispute Resolution Agreement should to the extent possible:

1. be simple, quick and inexpensive;
2. preserve or enhance the relationship between the Disputing Parties;
3. without prejudice to the obligations of each of the Disputing Parties pursuant to the Code and in particular 2.304 thereof, preserve and allow for the continuing and proper operation of the Code and Single Electricity Market;
4. resolve disputes on an equitable basis in accordance with the provisions of the Code; and
5. encourage resolution of disputes without formal legal representation or reliance on legal procedures.

**5. General Obligations of the Members**

5.1 Each Member shall:

1. have no interest financial or otherwise in the Disputing Parties, nor any financial interest in the Code except for payment under the Dispute Resolution Agreement;
2. not previously have been employed as a consultant or otherwise by any of the Disputing Parties, except in such circumstances as were disclosed in writing to all of the Disputing Parties before they signed the Dispute Resolution Agreement;
3. have disclosed in writing to the Disputing Parties and the other Members, before entering into the Dispute Resolution Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Disputing Parties, and any previous involvement in the SEM;
4. not, for the duration of the Dispute Resolution Agreement, be employed as a consultant or otherwise by any of the Disputing Parties, except as may be agreed in advance in writing by the Disputing Parties and the other Members;
5. comply with the paragraphs 2.291 to 2.311 inclusive of the Code;
6. not, while a Member, enter into discussions or make any agreement with any of the Disputing Parties regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Resolution Agreement;
7. ensure his/her availability for all site visits and hearings as are necessary;
8. be knowledgeable of the Code and all elements of the Dispute by studying all documents received prior to commencement of the hearing of the Dispute; and
9. treat the details of the DRB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Disputing Parties and the Other Members.

## **6. General Obligations of the Disputing Parties**

- 6.1 The Disputing Parties and the Disputing Parties' employees, officers, servants or agents shall not request advice from or consult with the Members regarding the Code, otherwise than in accordance with the procedures determined by the DRB under the Code and the Dispute Resolution Agreement, and except to the extent that prior agreement is given by all other Disputing Parties and the other Members. The Disputing Parties shall be responsible for compliance with this provision by the Disputing Parties' employees, officers, servants or agents.
- 6.2 The Disputing Parties undertake to each other and to the Members that the Members shall not, except as otherwise agreed in writing by the Disputing Parties and the Members, be liable for any claims for anything done or omitted in the discharge or purported discharge of the Members' functions, unless the act or omission is shown to be in bad faith.
- 6.3 The Disputing Parties hereby jointly and severally indemnify and hold each Member harmless from and against claims from which he/she is relieved from liability under the preceding paragraph 6.2.

## **7. Breach of this Agreement**

- 7.1 The parties acknowledge that the failure by a Disputing Party to comply with a requirement or determination of the Dispute Resolution Board:
1. does not constitute a breach of this Agreement; but
  2. is a breach of the Code that may be referred to the Market Operator as an alleged breach of the Code, to be dealt with in accordance with the terms of the Code.

## **8. Payment**

- 8.1 The Members' basis for charging shall be [insert basis for charging].
- 8.2 The Disputing Parties hereby agree to share equally the costs of the Members amongst them, subject to the terms of the Code and, in particular, any decision of the Dispute Resolution Board including as to costs.

## **9. Termination**

- 9.1 At any time: (i) the Disputing Parties may jointly terminate the Dispute Resolution Agreement by giving 21 days' notice to the Members; or (ii) the Members may resign as provided for in Clause 2.
- 9.2 If any of the Members fails to comply with the Dispute Resolution Agreement, the Disputing Parties may, without prejudice to their other rights, jointly terminate it by notice to the Members. The notice shall take effect when received by the Members.
- 9.3 Any such notice, resignation and termination shall be final and binding on the Disputing Parties and the Members. However, a notice for the purposes of paragraph 9.1(i) or 9.2 by a Disputing Party, but not by all, shall be of no effect.
- 9.4 Termination of this Agreement shall be without prejudice to the rights and obligations of the parties having accrued prior to the date of termination.

## **10. Default of the Members**

- 10.1 If a Member fails to comply with any obligation under Clause 5, he/she shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Disputing Parties for

any fees and expenses received by the Member and the Other Members, for proceedings or decisions (if any) of the DRB which are rendered void or ineffective.

**11. Severability**

11.1 If any part of this Agreement becomes invalid, illegal or unenforceable the parties shall in such an event negotiate in good faith in order to agree the terms of a mutually satisfactory provision to be substituted for the invalid, illegal or unenforceable provision which as nearly as possible gives effect to their intentions as expressed in this Agreement. Failure to agree on such a provision within one month of commencement of those negotiations shall result in automatic termination of this Agreement. The obligations of the parties under any invalid, illegal or unenforceable provision of the Agreement shall be suspended during such a negotiation.

**12. Waiver**

12.1 The failure of a party to exercise or enforce any right under this Agreement shall not be deemed to be a waiver of that right nor operate to bar the exercise or enforcement of it at any time or times thereafter.

**13. Entire Agreement**

13.1 This Agreement and the Code, constitute the entire, complete and exclusive agreement between the parties in relation to the subject matter hereof, being the terms of engagement of the Members by the Disputing Parties.

**14. Governing Law and Jurisdiction**

14.1 Any dispute or claim arising out of or in connection with this Dispute Resolution Agreement shall be governed by the laws of Northern Ireland and the parties hereby submit to the exclusive jurisdiction of any of the Courts of Ireland and the Courts of Northern Ireland for all disputes arising out of, under or in relation to this Dispute Resolution Agreement, in accordance with the terms of the Code.

EXECUTED THIS     DAY OF

BY

.....

DISPUTING PARTY

.....

DISPUTING PARTY

...

.....

DRB MEMBER

.....

DRB MEMBER

.....

DRB MEMBER

---

## APPENDIX C: FORM OF AUTHORITY

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### FORM OF AUTHORITY FOR APPOINTMENT OF AN INTERMEDIARY

THIS FORM OF AUTHORITY dated the [] day of [] [20\_\_] is made between:

(I) [Insert name of generator (if a company, please give full corporate name)]:

("Licensed Generator")

having its place of business at [Insert address of Licensed Generator]

being a [registered company/partnership/sole trader etc] registered under the laws of [insert country of registration if a company] and whose company registration number is [insert if a company];

and

(II) [Insert name of proposed intermediary (if a company, please give full corporate name)]

("Intermediary")

having its place of business at [Insert address of Licensed Generator]

being a [registered company/partnership/sole trader etc] registered under the laws of [insert country of registration if a company] and whose company registration number is [insert if a company].

In respect of

[Insert description of generator unit or units to which this Form of Authority applies]

(“Units”)

Whereas

1. The Licensed Generator legally controls the Units and is the subject of a [licence/authorisation/exemption] issued by the CER to use the Units for the purpose of generation of electricity in Ireland and/or a [licence/authorisation/exemption] issued by the NIAUR to use the Units for the purpose of generation of electricity in Northern Ireland];
2. The Licensed Generator and the Intermediary are parties to a contract (“the Contract”) which satisfies all of the criteria for appointment of an Intermediary pursuant to Regulatory Authorities’ Decision Paper AIP/SEM/07/029;
3. The Licensed Generator wishes to appoint the Intermediary to act as the Participant in respect of the Units under the Code for the purposes of their participation in the gross mandatory pool (“Pool”) for the trade in electricity in the all-island wholesale single electricity market (“SEM”) and the Intermediary wishes to accept such appointment, in accordance with the following terms.

## **1. Interpretation**

- 1.1 In this Form of Authority, “Trading and Settlement Code” or “Code” means the trading arrangements for the SEM established in Northern Ireland pursuant to section 23 of the Northern Ireland (Miscellaneous Provisions) Act 2006 and the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007 and in Ireland pursuant to section 9BA(1) of the Electricity Regulation Act 1999 and as designated pursuant to regulations made under section 9BA(2)(a) of the Electricity Regulation Act 1999 (Ireland).
- 1.2 Capitalised terms which are not defined in this Form of Authority shall have the meanings ascribed thereto in the Trading and Settlement Code.

## **2. Authorisation**

- 2.1 The Licensed Generator hereby appoints and authorises the Intermediary to register the Units as Generator Units for the purposes of participation in the Pool under the Trading and Settlement Code and the Intermediary accepts such appointment.
- 2.2 The Licensed Generator authorises the Intermediary, subject to the Intermediary becoming a party to the Code and successfully registering the Units under the Code, to undertake all of the obligations, covenants, undertakings, duties and liabilities of a Participant in respect of the Units under the Code [during the first 12 months from the Market Start Date]/[for the duration of the Contract] and the Intermediary agrees to such.

2.3 The Licensed Generator authorises the Intermediary, subject to the Intermediary becoming a Party to the Code and successfully registering the Units under the Code, to benefit from all of the rights of a Participant under the Code, including the right to receive payments under the Code, in respect of the Units [during the first 12 months from the Market Start Date]/[for the duration of the Contract] and the intermediary agrees to such.

**3. Governing Law and Jurisdiction**

- 3.1 The governing law of this Form of Authority shall be the law of Northern Ireland.
- 3.2 The parties hereby submit to the exclusive jurisdiction of the Courts of Ireland and the Courts of Northern Ireland for all disputes arising out of, under or in relation to this Form of Authority.

[To be executed as a Deed and (where appropriate to the legal form of the Licensed Generator) under seal]

[To be executed as a Deed and (where appropriate to the legal form of the Intermediary) under seal]

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## APPENDIX D: LIST OF AGREED PROCEDURES

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- D.1 This Appendix D describes, and sets out the scope of, each Agreed Procedure.
- D.2 Agreed Procedure 1 "Participant and Unit Registration and Deregistration" sets out the detailed obligations of the Market Operator, Parties and (where applicable) Applicants in relation to:
1. the operation of the process set out in Appendix H;
  2. the operation of the registration process set out in paragraphs 2.13 - 2.19, 2.28, 2.30, 2.33, 2.35, 2.36, 2.38, 2.39, 2.40, 2.41, 2.42, 2.43, 2.44, 2.45, 2.47, 2.48, 2.58, 2.59, 2.60, 2.61, 2.71, 2.74, 2.76, 2.85, 2.86, 2.89, 2.97, 2.102, 2.103, 2.104, 2.109, 2.110, 2.111, 2.112, 2.113, 2.114, 2.115, 2.116, 3.2, 3.13, 3.77 and 3.82,;
  3. the operation of the data validation process set out in paragraphs 2.33, 2.40, 2.43, 2.46, 2.53, 2.54, 2.55, 2.60, 2.61, 2.62, 2.63, 2.64, 2.65, 2.66, 2.67, 2.68, 2.69, 2.70, 2.72, 2.75, 2.88, 2.94, 2.99, 2.104, 2.108, 2.110, 2.115.1 and 2.115.2, and
  4. the Data Transaction (timelines and format) under which the Market Operator shall inform a Participant of the Required Credit Cover for a Unit prior to the registration of that Unit.
- D.3 Agreed Procedure 2 "Interconnector Unit Capacity Right Calculation and Dispatch Notification" sets out the detailed obligations of the Market Operator and the relevant Parties in relation to those of the Data Transactions listed in Appendix K that relate to the operation of the Interconnector, in order that the procedures for the treatment of Interconnector Units as set out in general terms in Section 5 can be carried out.
- D.4 Agreed Procedure 3 "Communication Channel Qualification" sets out the detailed obligations of the Participants in relation to the obtaining and maintenance of a functioning Type 2 Channel or Type 3 Channel, and the security required for these Communication Channels, and also sets out the manner in which Participants and (in the case of suspension of Communication Channel Qualification) the Market Operator shall perform the following functions in order that Participants may "issue", "submit", "send" or "receive" Data Transactions and to maintain a secure IT system:
1. Registering Type 2 Channel and Type 3 Channel communications;
  2. Testing Participant qualification in respect of Type 2 Channel and Type 3 Channel communications;
  3. Accessing the Market Operator's Isolated Market System;
  4. Maintaining Communication Channel Qualification status in respect of both Type 2 Channel and Type 3 Channel; and
  5. Suspension of Communication Channel Qualification status in respect of Type 2 Channel and Type 3 Channel.
- D.5 Agreed Procedure 4 "Transaction Submission and Validation" sets out the detailed obligations of the Parties in relation to the submission of:
1. Offer Data (other than the elements listed in paragraphs I.23 and I.24 of Appendix I);



2. Settlement Reallocation Requests; and
  3. Generator Unit Under Test Notices,
- including the data groupings and technical IT interface requirements with which each such Data Transaction must comply in order that the Market Operator is obliged to accept it, and shall be subject to the requirements set out in paragraph I.22 of Appendix I and paragraph F.7 of Appendix F.
- D.6 Agreed Procedure 5 "Data Storage and IT Security" sets out the detailed obligations of the Market Operator and Parties in relation to:
1. the technical security, data storage and data access specifications and standards with which the Isolated Market System of the Market Operator and of each Participant must comply;
  2. the technical security specifications and standards that must be maintained in order to gain access to the Market Operator's Isolated Market System;
  3. the security standards for data communications that must be complied with in respect of Type 2 Channel and Type 3 Channel communications;
  4. computational machine precision and methods of rounding; and
  5. the matters set out in paragraphs 3.15, 3.16, 3.17, 3.90 and 3.91.
- D.7 Agreed Procedure 6 "Data Publication and Data Reporting" sets out the detailed obligations of the Market Operator and Parties in relation to:
1. the method of publication of data, and the updating of published data;
  2. the data listed in Appendix E that must be provided by the Market Operator in response to a request made by a Participant, and the method of such response;
  3. the data that must be provided by the Market Operator to certain Participants only (or all of them), and the method by which the Market Operator must make such data available
  4. the matters set out in paragraphs 1.7.15, 1.7.17, 2.229, 2.343, 2.344, 2.364, 3.17, 3.48, 3.83, 3.84, 3.85, 3.88, 3.89.
- D.8 Agreed Procedure 7 "Emergency Communications" sets out the detailed obligations of the Market Operator and Parties that arise in the event of and for the duration of a General Communication Failure, a General System Failure or a Limited Communication Failure in relation to:
1. the processes for communication of data required for market settlement;
  2. the process to be followed by the Market Operator in notifying the market that a General Communication Failure or a General System Failure is in effect;
  3. general responsibilities of Parties;
  4. updates to be issued by the Market Operator;
  5. estimation to be carried out by the Market Operator as to how long the emergency situation will remain in effect; and
  6. the matters set out in paragraphs 3.33, 3.38, 3.44, 3.50, 3.52, 3.53, 3.54, 3.55, 3.58, 3.59, 3.62, 3.69, 3.70.

- D.9 Agreed Procedure 9 “Management of Credit Cover and Credit Default” sets out the detailed obligations of the Market Operator and Participants in relation to:
1. the processes for managing the Credit Cover that is required to be maintained by Participants;
  2. the process that is to be invoked in the event of a Default by a Participant in relation to Credit Cover; and
  3. the matters set out in paragraphs 6.183, 6.200, 6.212, 6.216, 6.223, 6.227.
- D.10 Agreed Procedure 10 “Settlement Reallocation” sets out the detailed obligations of the Market Operator and Participants in relation to the submission, content, Currency and treatment of Settlement Reallocation Requests, the status and cancellation of any resulting Settlement Reallocation Agreement, and the matters set out in paragraphs 6.235, 6.236, 6.237, 6.238, 6.239, 6.240, 6.243, 6.244, 6.245, 6.246.
- D.11 Agreed Procedure 11 “Market System Operation, Testing, Upgrading and Support” sets out the detailed obligations of the Market Operator in relation to the:
1. provision of advice to Parties in relation to the operation of the Market Operator’s Isolated Market System and Communication Channels;
  2. provision to Parties of a facility for the reporting of incidents;
  3. implementation and coordination of the Market Operator’s Isolated Market System and its interfaces to Communication Channels;
  4. scheduled testing and down-time of the Market Operator’s Isolated Market System or its interfaces to Communication Channels;
  5. commissioning of an externally-audited report in the event of a General Communication Failure, General System Failure or MSP Failure;
  6. restoration of the Market Operator’s Isolated Market System in the event of a General System Failure; and
  7. the matters set out in paragraphs 3.14, 3.18, 3.20, 3.65 and 3.68.
- D.12 Agreed Procedure 12 "Modifications Committee Operation" sets out the detailed obligations of the Market Operator and Parties in relation to the rules and proceedings of the Modifications Committee, and the matters set out in paragraphs 2.147 to 2.149 inclusive, paragraph 2.159 and paragraphs 2.183 to 2.236 inclusive.
- D.13 Agreed Procedure 13 "Query Generation" sets out the detailed obligations of the Market Operator and Parties in relation to the raising, consideration and resolution of, and response to, Data Queries and Settlement Queries, and the matters set out in paragraphs 6.76, 6.78, 6.81, 6.82, 6.84, 6.92, 6.94, 6.96, 6.102, 6.115, 6.116.
- D.14 Agreed Procedure 14 "Disputes" sets out the detailed obligations of the Market Operator and Parties in relation to the procedures governing Disputes, and the matters set out in paragraphs 2.276 to 2.315 inclusive.
- D.15 Agreed Procedure 15 “Invoicing” sets out the detailed obligations of the Market Operator in relation to the issuing of Settlement Statements, Invoices, Self-Billing Invoices and Debit Notes in accordance with Appendix

G, and the matters set out in paragraphs 2.281, 3.2, 6.1, 6.4, 6.6, 6.11, 6.47, 6.48, 6.49, 6.50, 6.52, 6.53, 6.54, 6.55, 6.57, 6.61, 6.63, 6.64, 6.65, 6.69, 6.70, 6.71, 6.73, 6.75, 6.135, 6.138, 6.144, 6.147, 6.159.

- D.16 Agreed Procedure 16 “Provision of Metered Data” sets out the detailed obligations of the Meter Data Providers in relation to the grouping of Meter Data for provision to the Market Operator, and the timing of such provision.
- D.17 Agreed Procedure 17 “Banking and Participant Payments” sets out the detailed obligations of the Participants and the Market Operator in relation to the banking arrangements required under the Code for the financial settlement of the Pool, including the manner in which Participants are required to make payments to the Market Operator, and the manner in which the Market Operator is required to make payments to Participants. Agreed Procedure 17 “Banking and Participant Payments” also sets out the detailed obligations of the Parties in relation to the management of Collateral Reserve Accounts.

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## APPENDIX E: DATA PUBLICATION

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- E.1 A list of data items that the Market Operator shall be required to publish, and the timing with which the Market Operator shall be required to publish them, is contained in the tables in this Appendix E. Procedures for the updating of publications and the method of publication are contained in Agreed Procedure 6 “Data Publication”.
- E.2 All data received by the Market Operator over a Type 2 or Type 3 Communication Channel, or calculated by the Market Operator, shall be published by 17:00 on the first Working Day following their receipt or calculation.
- E.3 Agreed Procedure 6 sets out the manner in which the Market Operator shall be required to comply with requests by Participant for reports with any data detailed in paragraph E.2 above to be made available for communication over Type 2 or Type 3 Communication Channels. Subject to data confidentiality, and the timelines set out in this Appendix, all such reports will be published on the Market Operator’s website.
- E.4 Agreed Procedure 6 will follow the following principles set out in the following paragraphs of the Code: 1.7.15, 1.7.16, 2.229, 2.343, 2.344, 2.364, 3.17, 3.48, 3.83, 3.84, 3.85, 3.88, 3.89.

**Table E.1 – Data publication list part 1: updated periodically as required**

Time	Item / Data Record	Term	Subscript
<b>Periodically as required</b>			
Within two Working Days of Modification	The Code		
As soon as practical but no later than two Working Days after receipt of Modification Proposal	Proposal Notice		
As soon as practical but no later than two Working Days after publication of the Proposal Notice	Consultation on Proposal Notice		
As soon as practical but no later than two Working Days after receipt of responses to consultation	Responses to consultation on Proposal Notice		
As soon as practical but no later than two Working Days after receipt of further information	Further information on Proposal Notice		
As soon as practical but no later than two Working Days after receipt of Final Recommendation Report	Final Recommendation Report		
As soon as practical but no later than two Working Days after receipt of Regulatory Authority decision on Final Modification Recommendation	Regulatory Authority decision on Final Modification Recommendation		
As updated and at least within two Working Days of a successful application or unsuccessful application	List of Parties, Participants and each of their Generator Units and Supplier Units		
As issued and at least within two Working Days of issue	Making or lifting of a Suspension Order		
As issued and at least within two	Termination Order		

Time	Item / Data Record	Term	Subscript
Working Days of issue			
As received and at least within two Working Days of issue	Generator Unit Under Test Notice		
As updated	Proposed Market Operator Isolated Market System Testing Schedule		
As updated and at least within two Working Days of update	Details of the Accession Fees and Participation Fees		
As updated and at least two Weeks in advance of the Meeting	Date of the next meeting of the Modifications Committee		
Within one Working Day of receipt from the Regulatory Authorities	Supplier Suspension Delay Period		
As updated and at least within two Working Days of update	Members and chairperson of the Modification Committee		
As soon a possible after calculation	Calculations and methodology used by the Market Operator during Administered Settlement		
Annually	Variable Market Operator Price	VMOP	y
Annually	System per Unit Regulation	UREG	None
Updated as required	Registered Capacity	RC	u
Updated as required	Forecast Demand	FD	h

**Table E.2 – Data publication list part 2: updated annually and as required**

Time	Item / Data Record	Term	Subscript
<b>Annual</b>			
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Annual Capacity Exchange Rate	ACER	y
At least four Months before start of Year	Annual Load Forecast		
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Annual Capacity Payment Sum	ACPS	y
At least four Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Market Price Cap	PCAP	y
At least four Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Market Price Floor	PFLOOR	y
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Value of Lost Load	VOLL	Y
At least one Month before start of Year	Fixed Market Operator Charge (Supplier Unit)	MOAVC	vy
At least one Month before start of Year	Fixed Market Operator Charge (Generator Unit)	MOAUC	uy

<b>Time</b>	<b>Item / Data Record</b>	<b>Term</b>	<b>Subscript</b>
At least one Month before start of Year	Variable Market Operator Charge	VMOC	y
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Capacity Period Payment Sum	CPPS	c
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Fixed Capacity Payment Proportion	FCPP	y
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Ex-Post Capacity Payment Proportion	ECPP	y
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Engineering Tolerance	ENGTOL	
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	MW Tolerance	MWTOL	t
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	System per Unit Regulation parameter	UREG	
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Discount for Over Generation	DOG	uh
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Premium for Under Generation	PUG	uh
At least one Week before start of Year	Fixed Capacity Payments Weighting Factor for each Trading Period in the relevant Year	FCPWF	h
Four Weeks before start of Audit, or within one Working Day of its receipt from the Regulatory Authorities, whichever later	Terms of Reference for Market Operator Audit		
Within five Working Days after delivery of Audit Report in its final form to the Regulatory Authorities, or within one Working Day of its receipt from the Regulatory Authorities, whichever later	Audit Report		
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Transmission Loss Adjustment Factors	TLAF	uh
At least two Months before start of Year, or within five Working Days of its receipt from the	Imperfections Price	IMP	y

Time	Item / Data Record	Term	Subscript
Regulatory Authorities, whichever later			
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Imperfections Charge Factor	IMPF	h
Four Months before start of Year	Testing Tariff		uh
Four Months before start of Year	Settlement Calendar		
Four Months before start of Year, and as updated	Schedule of Testing Tariffs	TTARIFF	uh
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Fixed Credit Requirement	FCRS FCRG	y y
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Historical Assessment Period for the Billing Period		
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Historical Assessment Period for the Capacity Period		
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Analysis Percentile Parameter	AnPP	
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Credit Cover Adjustment Trigger		
At least two Months before start of Year, or within five Working Days of its receipt from the Regulatory Authorities, whichever later	Maximum level of the Warning Limit		
In April of each Year	Annual Maintenance Schedule - Transmission Line Outages (Appendix F)		
At least two Months before start of Year	Annual Maintenance Schedule - Generator Outages Schedule (Appendix F)		
At least two Months before start of Year	Flattening Power Factor	FPF	y

**Table E.3 – Data publication list part 3: updated Monthly**

Time	Item / Data Record	Term	Subscript
<b>Monthly</b>			
Within five Working Days of its creation	Market Operator report (paragraph 2.144)		
By 10:00, at least one Working Day before start of Month	Monthly Maintenance Schedule Generator Unit outages (Appendix F)	--	--
By 10:00, at least one Working Day before start of Month	Monthly Maintenance Schedule Transmission System line outages (Appendix F)	--	
By 10:00, at least one Working Day before start of Month	Monthly Load Forecast (Appendix K)	--	--
By 10:00, at least five Working Days before start of Month	Margin	M	h
By 10:00, at least five Working Days before start of Month	Loss of Load Probability for each Trading Period in the relevant Month	$\lambda$	h
By 10:00, at least five Working Days before start of Month	Variable Capacity Payments Weighting Factor for each Trading Period in the relevant Month (paragraph 4.106)	VCPWF	h
At least once every four Months	Reports on progress and status of Modification Proposals (paragraph 2.231)		

**Table E.4 – Data publication list part 4: updated daily in advance of Gate Closure**

Time	Item / Data Record	Term	Subscript
<b>Daily, in advance of Gate Closure</b>			
By 10:00 on the day prior to Gate Closure	Available Transfer Capacity (paragraph 5.40)		
Before 09:30	Four Day Load Forecast (Appendix K)	--	--
Before 09:30	Any important updates to Maintenance Schedule Data Transaction (Appendix F)	--	--
As Available, every six hours	Two Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction	--	--
Before 09:30	Forecast of Ex-Post Loss of Load Probability for each Trading Period in the forthcoming 31 Trading Days	$\Phi$	h



**Table E.5 – Data publication list part 5: updated daily post Gate Closure**

Time	Item / Data Record	Term	Subscript
<b>Daily, post gate closure and before Trading Day</b>			
13:00	Ex-Ante Indicative System Marginal Prices	--	

**Table E.6 – Data publication list part 6: updated daily post Trading Day**

Time	Item	Term	Subscript
<b>Daily, post Trading Day</b>			
Day after Trading Day, by 14:00	Technical Offer Data (Appendix I)		
Day after Trading Day, by 14:00	Commercial Offer Data (Appendix I)		
Day after Trading Day, by 14:00	Demand Control Data Transaction (Appendix K)		
Day after Trading Day, by 14:00	System Characteristics Data Transaction (Appendix K)		
Day after Trading Day, by 15:00	Interconnector Available Transfer Capacities	ATC	lh
Day after Trading Day, by 15:00	Active Interconnector Export Capacity Holding	Unit CHEA	uh
Day after Trading Day, by 15:00	Active Interconnector Unit Import Capacity Holding	Unit CHIA	uh
Day after Trading Day, by 15:00	Modified Interconnector Nominations	Unit	
Day after Trading Day, by 15:00	Ex-Ante Indicative Market Schedule		
Day after Trading Day, by 16:00	Ex-Ante Indicative Operations Schedule		
Day after Trading Day, by 16:00	Generator Unit Technical Characteristics Data Transaction (See Appendix K)		
Day after Trading Day, by 16:00	Energy Limited Generator Unit Technical Characteristics Data Transaction (See Appendix K)		
Day after Trading Day, by 16:00	Dispatch Instruction and SO Interconnector Trades Data Transaction (See Appendix K)		
Day after Trading Day, by 15:00, and as updated	All Price-affecting Metered Data, excluding Trading Site Supplier Units for Trading Sites with non-firm access for all available Trading Periods		
One Working Day after Trading Day, by 15:00, and as updated	Net Inter Jurisdictional Import for all available Trading Periods	NIJI	eh
Two Working Days after Trading Day, by 17:00, and as updated	Tolerance for Over Generation	TOLOGLF	uh
Two Working Days after Trading Day, by 17:00, and as updated	Tolerance for Under Generation	TOLUGLF	uh
Two Working Days after Trading Day, by 17:00, and as updated	Dispatch Offer Price	DOP	uh
Day after Trading Day, by 17:00	Ex-Post Indicative Market Schedule Quantity	MSQ	uh
Four Days after Trading Day, by 17:00	Ex-Post Initial Market Schedule	MSQ	uh

Time	Item	Term	Subscript
	Quantity		
Two Working Days after Capacity Period, by 16:00	Ex-Post Indicative values of Eligible Availability	EA	uh
Five Working Days after Capacity Period, by 16:00	Ex-Post Initial values of Eligible Availability	EA	uh
Day after Trading Day, by 16:00	Ex-Post Indicative SMPs	SMP	h
Four Days after Trading Day, by 17:00	Initial SMPs	SMP	h
One Working Day after Trading Day, by 17:00	Nominal System Frequency	NORFRQ	h
One Working Day after Trading Day, by 17:00	Average System Frequency	AVGFRQ	h
Two Working Days after Trading Day, by 09:00	Indicative Energy Payments to Generator Units	CONP ENP	uh
Five Working Days after end of Billing Period, by 14:00, and as updated at 17:00 the day of recalculation	Ex-Post Initial Energy Payments to Generator Units	CONP ENP	uh
Day after Trading Day, by 17:00	Credit Assessment Price for the Undefined Exposure Period for Billing Periods	CAPB	g
Day after Trading Day, by 17:00	Estimated Capacity Price for the Undefined Exposure Period for Capacity Periods	ECP	θ
One Working Day after Trading Day, by 17:00	Metered Generation	MG	uh

**Table E.7 – Data publication list part 7: updated on a Capacity Period basis, post end of Capacity Period**

Time	Item	Term	Subscript
<b>Each Capacity Period, post end of Capacity Period</b>			
Three Working Days after end of Capacity Period, by 17:00	Ex-Post Indicative Capacity Payments to each Generator Unit	CP	uh
Five Working Days after end of Capacity Period, by 12:00	Initial Capacity Payments to each Generator Unit	CP	uh
Two Working Days after end of Capacity Period, by 16:00	Indicative Ex-Post Capacity Payments Weighting Factor	ECPWF	h
Five Working Days after end of Capacity Period, by 16:00	Initial Ex-Post Capacity Payments Weighting Factor	ECPWF	h
Five Working Days after end of Capacity Period, by 16:00	Initial Variable Capacity Payments Weighting Factor	VCPWF	h
Five Working Days after end of Capacity Period, by 16:00	Initial Ex-Post Margin	EM	h
Five Working Days after end of Capacity Period, by 16:00	Initial Ex-Post Loss of Load Probability	Φ	h

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## APPENDIX F: OTHER COMMUNICATIONS

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### Introduction

- F.1 This Appendix F outlines the detailed Data Record requirements for miscellaneous Data Transactions under the Code not related to Notices of Dispute, Suspension or Termination, or operation of the Modifications Committee.
- F.2 Agreed Procedure 13 "Query Generation" sets out the detail of Notices related to the Dispute process.
- F.3 Agreed Procedure 7 "Emergency Communications" and Agreed Procedure 11 "Market System Operation, Testing, Upgrading, and Support" set out the detail of Notices related to Limited Communication Failures, General Communication Failures, General System Failures, and MSP Failures.
- F.4 Agreed Procedure 12 "Modifications Committee Operation" sets out the detail of all Notices related to the process of raising Modification Proposals, impact assessing Modification Proposals, seeking consultation on Modification Proposals, publishing the Modifications Committee's Final Modification Recommendation and the decision of the Regulatory Authorities.
- F.5 Section 2 of the Code sets out the treatment of Suspension Orders and Termination Orders.

### Generator Unit Under Test Notice

- F.6 Agreed Procedure 4 "Transaction Submission and Validation" sets out the detail of all Generator Unit Under Test Notices, following the principles in paragraph F.7 below.
- F.7 Participants shall submit a Generator Unit Under Test Notice to the Market Operator at least five Working Days in advance of the Unit Under Test Start Date and, when submitting a notice to terminate a test period at least two Working Days in advance of the Unit Under Test End Date. The Generator Unit Under Test Notice will specify in all cases the Test Start Date and the Test End Date, and the Generator Unit Under Test. The following shall also apply:
  - 1. The Market Operator shall verify with the relevant System Operator that the Generator Unit proposed for Under Test status has been granted such a status in accordance with the relevant Grid Code; and
  - 2. The Market Operator will ensure that Generator Unit Under Test Notices can be submitted by Participants through Type 2 or 3 Communications Channels.

### Maintenance Schedules Data Transactions

- F.8 Each System Operator shall submit an annual Maintenance Schedule Data Transaction to the Market Operator in April each Year, and whenever it is updated. The following shall also apply:
  - 1. The annual Maintenance Schedule Data Transaction shall contain the Outage Schedule for each line in the Transmission System in the relevant Jurisdiction over the year commencing at the submission of the original version of that Data Transaction.

2. The Market Operator shall only provide for Type 1 Communication Channel for the communication of such annual Maintenance Schedule Data Transaction from the System Operator during normal operation of the Market Operator's Isolated Market System and the Type 1 Communication Channel.
- F.9 Each System Operator shall submit an annual Maintenance Schedule Data Transaction to the Market Operator at least two months before the start of each Year, and whenever it is updated. The following shall also apply:
1. The annual Maintenance Schedule Data Transaction shall contain the Maintenance Schedule for each Generator connected to the Transmission System in the relevant Jurisdiction over that Year.
  2. The Market Operator shall only provide for Type 1 Communication Channel for the communication of such annual Maintenance Schedule Data Transaction from the System Operator during normal operation of the Market Operator's Isolated Market System and the Type 1 Communication Channel.
- F.10 Each System Operator shall submit a monthly Maintenance Schedule Data Transaction to the Market Operator at least one Working Day before the start of each Month, and whenever it is updated. The following shall also apply:
1. The monthly Maintenance Schedule Data Transaction shall contain the Maintenance Schedule of each Generator connected to the Transmission System in the relevant Jurisdiction over the next two Months, and the Maintenance Schedule of each line on the Transmission System in the relevant Jurisdiction over the next two Months.
  2. The Market Operator shall only provide for Type 1 Communication Channel for the communication of monthly Maintenance Schedule Data Transactions from the System Operator during normal operation of the Market Operator's Isolated Market System and the Type 1 Communication Channel.

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## APPENDIX G: INVOICES AND SETTLEMENT STATEMENTS

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- G.1 This Appendix G sets out the detailed Data Record requirements for the Settlement Data Transactions (as defined in paragraph G.2), and the relevant Submission Protocols for the Market Operator to follow in respect of such Data Transactions.
- G.2 The Settlement Data Transactions comprise the Data Records that the Market Operator shall be obliged to include in the following Settlement Statements, Invoices, Self Billing Invoices and Notices:
1. Generator Unit Energy Settlement Statements excluding Interconnector Residual Capacity Units
  2. Supplier Unit Energy Settlement Statements
  3. Generator Unit Capacity Settlement Statements
  4. Supplier Unit Capacity Settlement Statements
  5. Market Operator Charge Invoices
  6. Participant Invoices, Participant Self Billing Invoices and Debit Notes
- G.3 The Fixed Market Operator Charge will be part of the weekly Market Operator Charge Invoice, the amounts of the Fixed Market Operator Charge in relation to the periods of time described under paragraph 6.150.
- G.4 The Market Operator shall denominate each Data Record in this Appendix which contains Currency amounts in the designated Currency of the relevant Participant.
- G.5 The Market Operator shall include the following identifying Data Records in each Settlement Statement and Invoice, along with sufficient information for a Participant to reasonably determine the market rules under which the Settlement Statement or Invoice was created, and to uniquely identify the Settlement Statement or Invoice during correspondence with the Market Operator:
1. Settlement Day (if applicable)
  2. Trading Period (if applicable)
  3. Billing Period/Capacity Period
  4. Participant ID
  5. Unit ID(s) (if applicable)
  6. Settlement amount for the given product
  7. A flag indicating if Meter Data is considered estimated by the Meter Data Provider that submitted the Meter Data
- G.6 The Market Operator shall, in relation to each Billing Period and Capacity Period, issue at least four Settlement Statements to Participants for each of their registered Units excluding Interconnector Residual Capacity Units: one Ex-Post Indicative Settlement Statement, one Initial Settlement Statement, one Settlement Statement arising from the first Timetabled Settlement Rerun and one Settlement Statement arising from the second Timetabled Settlement Rerun.

- G.7 The Market Operator shall issue Settlement Rerun Statements to Participants for each of their registered Units excluding Interconnector Residual Capacity Units in the event of any ad hoc Settlement Rerun arising from a Settlement Query, Data Query or Settlement Dispute.
- G.8 The Market Operator shall, in relation to each Billing Period and Capacity Period, issue to Participants one Invoice and/or Self Billing Invoice based on the Initial Settlement Statements for that Billing Period or Capacity Period.
- G.9 The Market Operator shall issue to a Participant a further Invoice or further Self-Billing Invoice based on the Settlement Statements arising from Settlement Reruns, if there is a change to any amount payable or receivable as compared with the corresponding amount on the previous Invoice or previous Self Billing Invoice for that Billing Period or Capacity Period.
- G.10 In relation to Settlement Statements arising from Settlement Reruns, the Market Operator shall issue Invoices containing zero amount payable or zero amount receivable in the event that there is no change to the corresponding amounts payable or amounts receivable on the previous Invoice or previous Self Billing Invoice for that Billing Period or Capacity Period.
- G.11 Participants may contest the content of the Settlement Statements through Data Queries, Settlement Queries or Settlement Disputes processes.
- G.12 The timings under which the Market Operator shall be obliged to issue all Settlement Statements, Invoices, and Self-Billing Invoices are set out in paragraphs 6.48, 6.49, 6.70, 6.71, 6.144, 6.150 or as appropriate depending on the outcomes of a Data Query, Settlement Query, or Settlement Dispute.
- G.13 The Market Operator shall issue Settlement Statements for Energy Payments for Generator Units excluding Interconnector Residual Capacity Units, and shall ensure that each such Settlement Statement shall provide to Participants, when considered in conjunction with other supplementary reports made available to the Participant under the same timeframes and over the same Communication Channels, inter alia, for the relevant Generator Unit  $u$  in each Trading Period  $h$  for the relevant Settlement Day in Billing Period  $b$ , values of:
1. Total Payments for the Participant (Settlement Day value)
  2. Energy Payments for the Generator Unit
  3. Constraint Payments for the Generator Unit
  4. Uninstructed Imbalance Payments for the Generator Unit
  5. Metered Generation
  6. Actual Availability
  7. Market Schedule Quantity
  8. Dispatch Quantity
  9. System Marginal Price
  10. Make Whole Payment (where calculable over the Billing Period and included in the last Settlement Day of the Billing Period)
  11. Settlement Statement version will be indicated

- G.14 The Market Operator shall issue a Settlement Statement for Energy Payments for each Interconnector Residual Capacity Unit, and shall ensure that each such Settlement Statement shall provide to Participants, when considered in conjunction with other supplementary reports made available to the Participant under the same timeframes and over the same Communication Channels, inter alia, for each relevant Interconnector Residual Capacity Unit  $u$  in each Trading Period  $h$  for the relevant Settlement Day in Billing Period  $b$ , values of:
1. Total Payments for the Interconnector Residual Capacity Unit
  2. Energy Payments for the Interconnector Residual Capacity Unit
  3. Constraint Payments for the Interconnector Residual Capacity Unit
  4. Uninstructed Imbalance Payments for the Interconnector Residual Capacity Unit
  5. SO Interconnector Export Price
  6. SO Interconnector Export Quantity
  7. SO Interconnector Import Price
  8. SO Interconnector Import Quantity
  9. Transmission Loss Adjustment Factor
  10. Capacity Payment for Capacity Period
- G.15 The Market Operator shall issue Settlement Statements for Energy Charges for Supplier Units, and shall ensure that each such Settlement Statement shall provide to Participants, when considered in conjunction with other supplementary reports made available to the Participant under the same timeframes and over the same Communication Channels, inter alia, for the relevant Supplier Unit  $v$  in each Trading Period  $h$  for the relevant Settlement Day in Billing Period  $b$ , values of
1. Total Charges for the Participant (Settlement Day value)
  2. Energy Charges for Supplier Unit
  3. Imperfections Charge for Supplier Unit
  4. Metered Demand
  5. Net Demand
  6. System Marginal Price
  7. Settlement Statement version will be indicated
- G.16 The Market Operator shall issue Settlement Statements for Capacity Payments for Generator Units, and shall ensure that each such Settlement Statement shall provide to Participants, when considered in conjunction with other supplementary reports made available to the Participant under the same timeframes and over the same Communication Channels, inter alia, for the relevant Generator Unit  $u$  in each Trading Period  $h$  in the Capacity Period  $c$ , values of:
1. Total Capacity Payment for the Participant (Settlement Day value)
  2. Capacity Payment for the Generator Unit
  3. Eligible Availability
  4. Settlement Statement version will be indicated

- G.17 The Market Operator shall issue Settlement Statements for Capacity Charges for Supplier Units, and shall ensure that each such Settlement Statement shall provide to Participants, when considered in conjunction with other supplementary reports made available to the Participant under the same timeframes and over the same Communication Channels, inter alia, for each Supplier Unit  $v$  in each Trading Period  $h$  in the Capacity Period  $c$ , values of:
1. Capacity Charge for the Supplier Unit;
  2. Loss-Adjusted Net Demand (NDLF $_{vh}$ ).
  3. Settlement Statement version will be indicated
- G.18 The Market Operator shall issue Market Operator Charge Invoices over the Billing Period for Participants, and shall ensure that each such Invoice shall contain, inter alia, for each Billing Period  $b$ , values of:
1. Variable Market Operator Charge
  2. Fixed Market Operator Charge
  3. Amount from the previous run where the Invoice is in respect of a Settlement Rerun.
  4. Invoice version will be indicated
  5. Any applicable interest
  6. Applicable VAT applied in the Invoice and applicable VAT owing/owed by/to Revenue Authorities
- G.19 The Market Operator shall issue Debit Notes in respect of any Unsecured Bad Energy Debt over the Billing Period for Participants identifying that the Debit Note is in respect of a particular Unsecured Bad Energy Debt event, and shall ensure that each such Debit Note shall contain, inter alia, for each Billing Period  $b$ , values of:
1. Unsecured Bad Energy Debt Charge
  2. Invoice version will be indicated
  3. Any applicable interest
  4. Applicable VAT applied in the Invoice and applicable VAT owing/owed by/to Revenue Authorities
- G.20 The Market Operator shall issue Debit Notes in respect of any Unsecured Bad Capacity Debt over the Capacity Period for Participants identifying that the Debit Note is in respect of a particular Unsecured Bad Capacity Debt event, and shall ensure that each such Debit Note shall contain, inter alia, for each Capacity Period  $c$ , values of:
1. Unsecured Bad Capacity Debt Charge
  2. Invoice version will be indicated
  3. Any applicable interest
  4. Applicable VAT applied in the Invoice and applicable VAT owing/owed by/to Revenue Authorities
- G.21 The Market Operator shall ensure that Invoices, Self Billing Invoices or Debit Notes issued by it to Participants in respect of their Units excluding Interconnector Residual Capacity Units shall contain, inter alia:



1. Billing Period or Capacity Period
  2. Payment amount for the relevant Generator Units for relevant Billing Period or Capacity Period
  3. Invoice amount for the relevant Supplier Units for relevant Billing Period or Capacity Period
  4. Billing Period Currency Cost or Capacity Period Currency Cost for the relevant Participant
  5. Sum of Settlement Reallocation Amounts in respect of that period
  6. Any applicable interest
  7. Total payment amount
  8. Applicable VAT applied in the Invoice and applicable VAT owing/owed by/to Revenue Authorities
- G.22 The Market Operator shall ensure that Invoices, Self Billing Invoices or Debit Notes issued by it to Participants in respect of Interconnector Residual Capacity Units shall contain, inter alia:
1. Capacity Period
  2. Payment amount for the relevant Interconnector Residual Capacity Unit for relevant Capacity Period
  3. Any applicable interest
  4. Total payment amount
  5. Applicable VAT applied in the Invoice and applicable VAT owing/owed by/to Revenue Authorities
- G.23 Agreed Procedure 15 "Invoicing" sets out more detail as to the obligations of the Market Operator set out in this Appendix G in relation to the process of issuing Settlement Statements, Invoices, Self Billing Invoices and Debit Notes, but nothing in that Agreed Procedure shall preclude the issue of any such item over any particular Communication Channel.

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## APPENDIX H: PARTICIPANT AND UNIT REGISTRATION AND DEREGISTRATION

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### Introduction

- H.1 This Appendix H sets out the data requirements for the registration and deregistration of Participants and of Units. It should be noted that a Party becomes a Participant upon the registration of the first Unit to that Party as set out in paragraph 2.32.

### Participation Notice

- H.2 In completing a Participation Notice as set out in paragraph 2.33, a Party (or an Applicant as applicable) shall include the additional Registration Data pursuant to paragraph 2.33.17 as set out in Table H.1 below.

**Table H.1 – Data, required from Party registering the Unit**

Name	Term	Relevant Units
Firm Access Quantity (Site) (MW)	FAQSst	All Generator Units except Interconnector Units, Interconnector Error Units and Interconnector Residual Capacity Units
Fixed Unit Load (MW)	FULu	All Generator Units except Interconnector Units, Interconnector Error Units and Interconnector Residual Capacity Units
Unit Load Scalar	ULSu	All Generator Units except Interconnector Units, Interconnector Error Units and Interconnector Residual Capacity Units
Registered Capacity (MW)	RCu	All Generator Units except Interconnector Units, Interconnector Error Units and Interconnector Residual Capacity Units
Meter Point Registration Number (in respect of the Generator demand)		All Generator Units except Interconnector Units, Interconnector Error Units and Interconnector Residual Capacity Units
Generic Settlement Class		All Generator Units
Priority Dispatch		All Generator Units except Interconnector Units, Interconnector Error Units and Interconnector Residual Capacity Units
Associated Interconnector		Only Interconnector Units, Interconnector Error Units and Interconnector Residual Capacity Units
Dispatchable Quantity		Demand Side Units only

### **Agreed Procedure**

- H.3 Agreed Procedure 1 "Participant and Unit Registration and Deregistration" sets out the detail of the registration process and must include all requirements set out in this Appendix H.
- H.4 Agreed Procedure 1 "Participant and Unit Registration and Deregistration" shall set out the detail of the process of data flow between the Market Operator and the Party (or Applicant as appropriate) to register new Units as described at a high level under the following paragraphs: 2.28, 2.30, 2.33, 2.35, 2.36, 2.38, 2.39, 2.40, 2.41, 2.42, 2.43, 2.44, 2.45, 2.47, 2.48, 2.58, 2.59, 2.60, 2.61, 2.71, 2.74, 2.76, 2.85, 2.86, 2.89, 2.97, 2.102, 2.103, 2.104, 2.109, 2.110, 2.111, 2.112, 2.113, 2.114, 2.115, 2.116, 3.2, 3.13, 3.77 and 3.82.
- H.5 Agreed Procedure 1 "Participant and Unit Registration and Deregistration" shall provide for the validation of the data flows set out in paragraph H.4, as described under the following paragraphs: 2.33.1, 2.33.2, 2.33.3, 2.33.4, 2.33.5, 2.33.6, 2.33.7, 2.33.8, 2.33.9, 2.33.10, 2.33.11, 2.33.12, 2.33.13, 2.33.14, 2.33.15, 2.33.16, 2.33.17, 2.40, 2.43.1, 2.43.2, 2.43.3, 2.43.4, 2.46, 2.47.1, 2.47.2, 2.47.3, 2.53, 2.54, 2.54.1, 2.54.2, 2.55, 2.60, 2.61, 2.62, 2.63, 2.64, 2.65, 2.66, 2.67, 2.68, 2.69, 2.70, 2.72, 2.75, 2.75.1, 2.75.2, 2.75.3, 2.75.4, 2.75.5, 2.75.6, 2.88, 2.94, 2.99, 2.104, 2.108, 2.110, 2.115.1 and 2.115.2.

### **Currency**

- H.6 All data comprising currency amounts submitted as part of registration shall be submitted by the relevant Party to the Market Operator in the Currency of the designated Currency Zone of the Unit.

### **Missing Data**

- H.7 The Market Operator shall not apply any default rules in the event that any Registration Data is missing or incomplete. The Party (or Applicant as applicable) shall be obliged to provide such data before the registration of the Unit can become effective.

### **Communications Channels**

- H.8 For Parties that have completed Communication Channel Qualification, the Market Operator will facilitate receipt of data for the purposes of registration of new Units over Type 2 and Type 3 Communication Channels. The Market Operator will facilitate a Type 1 Communication Channel for other Parties. The Market Operator will similarly facilitate receipt any clarification or additional information required pursuant to paragraph 2.41.

### **Registration Withdrawal**

- H.9 Where a Unit Registration is deemed withdrawn under paragraphs 2.42, 2.44, or 2.48, the Market Operator shall send a Notice to the relevant Party or Applicant as appropriate. The Notice shall include sufficient information to identify the Unit concerned, and shall provide a reason for the Unit Registration withdrawal.

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## APPENDIX I: OFFER DATA

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### INTRODUCTION

- I.1 This Appendix I sets out the components of Commercial Offer Data and Technical Offer Data in respect of each relevant category of Generator Unit and refers to the Code obligations relating to such data. In addition, this Appendix I sets out the requirements to be met by Agreed Procedure 4 "Transaction Submission and Validation".

### COMMERCIAL OFFER DATA

- I.2 Each Participant shall submit Commercial Offer Data to the Market Operator in respect of each of its Generator Units in accordance with the following provisions, subject to paragraphs I.3 to I.11 inclusive:
1. Commercial Offer Data shall be submitted before Gate Closure for the Trading Day to which the data relates, as set out in paragraph 4.4, and no more than 28 days before Gate Closure;
  2. Price Quantity Pairs shall be submitted as set out in paragraph 4.10, 4.11 and 4.13;
  3. No Load Costs shall be submitted as set out in paragraph 4.17;
  4. Start Up Costs shall be submitted as set out in paragraphs 4.18, 4.19 and 4.21 to 4.24;
  5. Where more than one value of Start Up Costs is submitted, the Participant concerned must specify to which type of start (Cold Start, Warm Start or Hot Start) it applies;
  6. Data shall be submitted net of Unit Load as set out in paragraph 4.9; and
  7. Values of Currency shall be submitted as set out in paragraph 4.8.

### Predictable Price Taker Generator Unit Rules

- I.3 In respect of each Predictable Price Taker Generator Unit which is not Under Test, the relevant Participant shall submit Commercial Offer Data as set out in paragraph I.2 with the following exceptions:
1. A Nomination Profile shall be submitted in accordance with paragraphs 5.10 and 5.12 to 5.14; and
  2. A Decremental Price shall be submitted in accordance with paragraph 5.11.

### Variable Price Taker Generator Unit Rules

- I.4 In respect of each Variable Price Taker Generator Unit which is not Under Test, the relevant Participant shall submit Commercial Offer Data as set out in paragraph I.2 with the following exceptions:
1. Only a Nomination Profile in accordance with paragraph 5.15 and a Decremental Price in accordance with paragraph 5.16 shall be submitted.

### **Autonomous Generator Unit Rules**

- I.5 In respect of each Autonomous Generator Unit, the relevant Participant shall not submit Commercial Offer Data as set out in paragraph 5.17.

### **Interconnector Unit Rules**

- I.6 In respect of each Interconnector Unit, the relevant Participant shall submit Commercial Offer Data as set out below:
1. For the Trading Day to which the data relates, as set out in paragraph 4.4;
  2. Price Quantity Pairs shall be submitted as set out in paragraphs 4.11, 4.13, 5.52.1 and 5.56;
  3. Maximum Interconnector Unit Import Capacity shall be submitted as set out in paragraph 5.52.2 and in accordance with paragraph 5.54; and
  4. Maximum Interconnector Unit Export Capacity shall be submitted as set out in paragraph 5.52.3 and in accordance with paragraph 5.55.

### **Interconnector Residual Capacity Unit Rules**

- I.7 In respect of each Interconnector Residual Capacity Unit, the relevant Participant shall not submit Commercial Offer Data as set out in paragraph 5.33.

### **Energy Limited Generator Unit Rules**

- I.8 In respect of each Energy Limited Generator Unit which is not Under Test, the relevant Participant shall submit Commercial Offer Data as set out in paragraph I.2 with no exceptions.

### **Pumped Storage Unit Rules**

- I.9 In respect of each Pumped Storage Unit, the relevant Participant shall submit Commercial Offer Data as set out in paragraph I.2 with the following exceptions:
1. Data shall be submitted in accordance with paragraph 5.112; and
  2. Target Reservoir Level and Pumped Storage Cycle Efficiency shall be submitted in accordance with paragraph 5.113.

### **Demand Side Unit Rules**

- I.10 In respect of each Demand Side Unit, the relevant Participant shall submit Commercial Offer Data as set out in paragraph I.2 with the following exceptions:
1. Neither No Load Costs nor Start Up Costs shall be submitted as set out in paragraph 5.159; and
  2. A Shut Down Cost shall be submitted in accordance with paragraph 5.160.

### **Generator Units Under Test Rules**

- I.11 In respect of each Generator Unit Under Test, the relevant Participant shall submit Commercial Offer Data as set out in paragraph I.2 with the following exceptions:

1. A Nomination Profile shall be submitted in accordance with paragraph 5.172;
2. No Price Quantity Pairs, Start Up Costs, Shut Down Costs or No Load Costs shall be submitted as set out in paragraph 5.173; and
3. A Decremental Price of zero shall be submitted in accordance with paragraph 5.174.

#### **TECHNICAL OFFER DATA**

I.12 Each Participant shall submit Technical Offer Data to the Market Operator in respect of each of its Generator Units in accordance with the following provisions, subject to the exceptions outlined in paragraphs I.13 to I.18 inclusive:

1. Technical Offer Data shall be submitted before Gate Closure for the Trading Day to which the data relates, as set out in paragraph 4.4 and no more that 28 days before Gate Closure;
2. Data shall be submitted to reflect the real capabilities of the relevant Generator Unit net of Unit Load as set out in paragraph 4.26;
3. Data shall be submitted in respect of a Generator Unit such that it is consistent with data submitted for that Unit under the applicable Grid Code, scaled, where appropriate, by the appropriate Distribution Loss Adjustment Factor as set out in paragraph 4.27;
4. A Forecast Availability Profile shall be submitted in accordance with paragraph 4.28;
5. A Forecast Minimum Output Profile shall be submitted in accordance with paragraph 4.29;
6. A Forecast Minimum Stable Generation Profile shall be submitted in accordance with paragraph 4.30;
7. A Short-Term Maximisation Capability, a Minimum Generation (which shall not be used under the Code) and a Maximum Generation shall be submitted. The Maximum Generation shall be submitted equal to the Registered Capacity of the Generator Unit; and
8. In addition, for Generator Units, the relevant Participant shall submit the following data items :
  - a. Minimum On Time,
  - b. Minimum Off Time,
  - c. Maximum On Time,
  - d. Synchronous Start Up Time Hot,
  - e. Synchronous Start Up Time Warm,
  - f. Synchronous Start Up Time Cold,
  - g. Block Load Cold,
  - h. Block Load Hot,
  - i. Block Load Warm,
  - j. Deload Break Point,
  - k. Deloading Rate 1,

- l. Deloading Rate 2,
- m. Dwell Time 1,
- n. Dwell Time 2,
- o. Dwell Time 3,
- p. Dwell Time Trigger Point 1,
- q. Dwell Time Trigger Point 2,
- r. Dwell Time Trigger Point 3,
- s. End Point of Start Up Period,
- t. Load Up Break Point Cold (1),
- u. Load Up Break Point Cold (2),
- v. Load Up Break Point Hot (1),
- w. Load Up Break Point Hot (2),
- x. Load Up Break Point Warm (1),
- y. Load Up Break Point Warm (2),
- z. Loading Rate Cold (1),
- aa. Loading Rate Cold (2),
- bb. Loading Rate Cold (3),
- cc. Loading Rate Hot (1),
- dd. Loading Rate Hot (2),
- ee. Loading Rate Hot (3),
- ff. Loading Rate Warm (1),
- gg. Loading Rate Warm (2),
- hh. Loading Rate Warm (3),
- ii. Ramp Down Break Point 1,
- jj. Ramp Down Break Point 2,
- kk. Ramp Down Break Point 3,
- ll. Ramp Down Break Point 4,
- mm. Ramp Down Rate 1,
- nn. Ramp Down Rate 2,
- oo. Ramp Down Rate 3,
- pp. Ramp Down Rate 4,
- qq. Ramp Down Rate 5,
- rr. Ramp Up Break Point 1,
- ss. Ramp Up Break Point 2,
- tt. Ramp Up Break Point 3,
- uu. Ramp Up Break Point 4,
- vv. Ramp Up Rate 1,

- ww. Ramp Up Rate 2,
- xx. Ramp Up Rate 3,
- yy. Ramp Up Rate 4,
- zz. Ramp Up Rate 5,
- aaa. Soak Time Cold (1),
- bbb. Soak Time Cold (2),
- ccc. Soak Time Trigger Point Cold (1),
- ddd. Soak Time Trigger Point Cold (2),
- eee. Soak Time Hot (1),
- fff. Soak Time Hot (2),
- ggg. Soak Time Trigger Point Hot (1),
- hhh. Soak Time Trigger Point Hot (2),
- iii. Soak Time Warm (1),
- jjj. Soak Time Warm (2),
- kkk. Soak Time Trigger Point Warm (1),
- lll. Soak Time Trigger Point Warm (2),
- mmm. Start of Restricted Range 1,
- nnn. End of Restricted Range 1,
- ooo. Start of Restricted Range 2, and
- ppp. End of Restricted Range 2.

9. Each Participant shall not submit individual Ramp Up Rates that will result in a Single Ramp Up Rate less than or equal to zero in the MSP Software and each Participant shall not submit individual Ramp Down Rates that will result in a Single Ramp Down Rate less than or equal to zero in the MSP Software.

**Autonomous Generator Unit Rules**

- I.13 In respect of each Autonomous Generator Unit, as set out in paragraph 5.17, the relevant Participant shall not submit Technical Offer Data.

**Interconnector Unit Rules**

- I.14 In respect of each Interconnector Unit, as set out in paragraph 5.53, the relevant Participant shall not submit Technical Offer Data.

**Interconnector Residual Capacity Unit Rules**

- I.15 In respect of each Interconnector Residual Capacity Unit, the relevant Participant shall not submit Technical Offer Data as set out in paragraph 5.33.

**Energy Limited Generator Unit Rules**

- I.16 In respect of each Energy Limited Generator Unit, the relevant Participant shall submit Technical Offer Data as set out in paragraph I.12 with the following exceptions:



1. An Energy Limit, Energy Limit Start, Energy Limit Stop and Energy Limit Factor shall be submitted in accordance with paragraph 5.95; and
2. Values for the Energy Limit Start and Energy Limit Stop parameters shall be submitted for the Trading Period starting at 06:00 on the Trading Day and the end of the Trading Period starting at 05:30 on the Trading Day respectively.

#### **Pumped Storage Unit Rules**

- I.17 In respect of each Pumped Storage Unit, the relevant Participant shall submit Technical Offer Data as set out in paragraph I.12 with the following exceptions:
1. A Target Reservoir Level Percentage, Maximum Storage Capacity and Minimum Storage Capacity shall be submitted in accordance with paragraph 5.113;
  2. A Forecast Minimum Output Profile and a Forecast Availability Profile shall be submitted as set out in paragraphs 5.114 and 5.115 respectively; and
  3. A Pumping Capacity.

#### **Demand Side Unit Rules**

- I.18 In respect of each Demand Side Unit, the relevant Participant shall submit Technical Offer Data comprising only:
1. Forecast Availability Profile;
  2. Forecast Minimum Output Profile;
  3. Forecast Minimum Stable Generation Profile;
  4. Maximum Ramp Down Rate, which must be a number greater than zero;
  5. Maximum Ramp Up Rate, which must be a number greater than zero;
  6. Minimum Down Time; and
  7. Maximum Down Time.

#### **DEFAULT DATA**

- I.19 Each Participant shall where appropriate review and update default values for Commercial Offer Data and Technical Offer Data in respect of each of its Generator Units in accordance with paragraph 3.43.

#### **AGREED PROCEDURE 4**

- I.20 Agreed Procedure 4 "Transaction Submission and Validation" describes the business processes by which Participants shall submit Commercial Offer Data and Technical Offer Data in accordance with the Code, and refers to any relevant technical documentation.
- I.21 The business process in Agreed Procedure 4 "Transaction Submission and Validation" details the groupings of the data required in a Data Transaction, and the technical IT interface required for a submitted Commercial Offer Data and Technical Offer Data Transaction to be Accepted by the Market Operator.

- I.22 Agreed Procedure 4 "Transaction Submission and Validation" provides that Offer Data can be submitted at least 28 days in advance of the Trading Day to which it applies, and can be submitted an unlimited number of times in advance of Gate Closure, and will be facilitated generally by both Type 2 and Type 3 Communication Channels, except where Agreed Procedure 7 "Emergency Communications" applies.
- I.23 Obligations in respect of Commercial Offer Data that do not need to be reflected in Agreed Procedure 4 "Transaction Submission and Validation" are:
1. in respect of all Generator Units as set out in paragraphs 4.8, 4.9, 4.11, 4.13, 4.40 and 5.92;
  2. in respect of Predictable Price Taker Generator Units as set out in paragraphs 5.11 and 5.13;
  3. in respect of Variable Price Taker Generator Units as set out in paragraphs 5.15 and 5.16;
  4. in respect of Interconnector Units as set out in paragraphs 5.35, 5.36, 5.54, 5.55;
  5. in respect of Pumped Storage Units as set out in paragraphs 5.112 and 5.124; and
  6. in respect of Demand Side Units as set out in paragraph 5.155.
- I.24 Obligations in respect of Technical Offer Data that do not need to be reflected in Agreed Procedure 4 "Transaction Submission and Validation" are:
1. in respect of all Generator Units as set out in paragraphs 4.26, 4.27, 4.28, 4.29, 4.30, 4.33, 4.40 and 5.92;
  2. in respect of Variable Price Taker Generator Units as set out in paragraph 5.15 and 5.16;
  3. in respect of Energy Limited Generator Units as set out in paragraphs 5.95 and 5.96;
  4. in respect of Pumped Storage Units as set out in paragraphs 5.114, 5.115, 5.118, 5.119, 5.122, 5.123, 5.124; and
  5. in respect of Demand Side Units as set out in paragraphs 5.155 and 5.156.

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## APPENDIX J: MARKET OPERATOR AND SYSTEM OPERATOR DATA TRANSACTIONS

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- J.1 This Appendix J sets out the data that the Market Operator is required to send to the System Operators, and the rules relating to the sending of such data, as well as certain validation obligations of the System Operators.
- J.2 Agreed Procedure 4 "Transaction Submission and Validation" sets out further detail in relation to the data transfer obligations set out in this Appendix J.
- J.3 The Market Operator shall submit to the System Operators within two Working Days of receipt from a Participant, but no later than 13:00 one Working Day before the Trading Day on which it is to become effective, any update to the Registration Data of any of that Participant's Units. Similarly, the Market Operator shall submit to the System Operators within two Working Days of receipt from the Interconnector Owner or the Interconnector Administrator as appropriate, but no later than 13:00 one Working Day before the Trading Day on which it is to become effective, any update to the Interconnector Registration Data of the relevant Interconnector.
- J.4 The full set of registration details are set out in Appendix H.
- J.5 The System Operator for the Currency Zone in which the Participant is registered shall validate the registration details and confirm to the Market Operator whether the registration information is accurate with respect to the data that such System Operator holds under the applicable Grid Code.
- J.6 The Market Operator shall submit to the System Operators within two Working Days of receipt from a Participant, but no later than 13:00 one Working Day before the Trading Day on which it is to become effective, all Generator Unit Under Test Notices.
- J.7 The form of Generator Unit Under Test Notice is set out in Appendix F.
- J.8 The System Operator for the Currency Zone in which the Participant is registered shall validate the Generator Unit Under Test Notice and confirm to the Market Operator whether the Generator Unit is Under Test in accordance with paragraph 5.171.
- J.9 The Market Operator shall submit to the System Operators, no later than 30 minutes after Gate Closure for a Trading Day, the full set of Accepted Technical Offer Data and Accepted Commercial Offer Data for all Generator Units for all Trading Periods for that Trading Day.
- J.10 The Data Transactions associated with Technical Offer Data and Commercial Offer Data, and the rules for the submission of such data by Participants to the Market Operator, are set out in Appendix I.
- J.11 The System Operators shall not be required to validate any Commercial Offer Data or Technical Offer Data.
- J.12 The Market Operator shall submit to the System Operators a copy of any Suspension Order, any notice of the lifting of a Suspension Order, or any Termination Order at the same time as such Suspension Order, notice of the lifting of a Suspension Order or Termination Order is submitted to the relevant Participant as described under paragraphs 2.247, 2.256, and 2.261.

- J.13 The System Operators shall not be required to validate any Termination Order or Suspension Order.
- J.14 The Market Operator shall submit to the System Operators the aggregate of all Modified Interconnector User Nominations ("Aggregate Modified Interconnector Unit Nomination") to produce a net import or export on each Interconnector for each Trading Period in the Trading Day, no later than two hours after Gate Closure in accordance with paragraph 5.60, or as available after its recalculation in the Trading Day in accordance with paragraph 5.67.
- J.15 The System Operators shall not be required to validate any Aggregate Modified Interconnector Unit Nomination.
- J.16 The Market Operator shall submit all currency values to the System Operators in the Participant's designated Currency.
- J.17 During normal operation of the Market Operator's Isolated Market System, the Market Operator shall only utilise a Type 3 Communication Channel for the communication of the data in this Appendix to the System Operators, with the exception of Suspension Orders, notice of the lifting of Suspension Orders, and Termination Orders, for which the Market Operator shall utilise a Type 1 Communication Channel. If the Type 3 Communication Channel is unavailable for communication of any data to a System Operator as required by this Appendix, the Market Operator shall utilise a Type 1 Communication Channel for the communication of such data.

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## APPENDIX K: MARKET DATA TRANSACTIONS

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- K.1 This Appendix K outlines the detailed Data Record requirements for the other Data Transactions sent by the System Operator to Market Operator, by the Interconnector Administrator to the Market Operator and by the Market Operator to the Interconnector Users, which are not defined in other Appendices, and the associated high-level Data Transaction Submission Protocols.
- K.2 The Data Transactions in this Appendix include:
- Data Transactions from System Operator to Market Operator**
1. System Parameters
  2. Generator Unit Technical Characteristics
  3. Demand Control
  4. System Characteristics
  5. Energy Limited Generator Unit Technical Characteristics
  6. Loss of Load Probability for the Capacity Period
  7. Ex-Post Loss of Load Probability Table
  8. Dispatch Instruction and SO Interconnector Trades
  9. Annual Load Forecast
  10. Monthly Load Forecast
  11. Four Day Load Forecast
  12. Wind Power Unit Forecast
  13. Uninstructed Imbalance Parameters
  14. Testing Tariffs
- Data Transactions from Interconnector Administrator to Market Operator**
15. Interconnector Available Transfer Capacity
  16. Active Interconnector Unit Capacity Holding
- Data Transactions from Market Operator to Interconnector User**
17. Modified Interconnector Unit Nominations
- K.3 Each Data Record in this Appendix which contains Currency amounts will be denominated in the Participant's designated Currency.
- K.4 There are no default rules for these Market Data Transactions. System Operators and Interconnector Administrators must confirm receipt of these Data Transactions in accordance with paragraphs 3.33 and 3.38.
- K.5 Agreed Procedure 4 "Transaction Submission and Validation" will describe the detail of the Data Transactions listed within this Appendix K which do not relate to the operation of Interconnectors, noting the requirements for the appropriate scaling of submitted data outlined in paragraphs 4.33, 4.38, and 4.40.

- K.6 Agreed Procedure 2 “Interconnector Unit Capacity Right Calculation and Dispatch Notifications” will describe the detail of the Data Transactions within this Appendix K which relate to the operation of Interconnectors, noting the requirements for the submitted data in paragraphs 5.46 and 5.71.

**DATA TRANSACTION AND ITS DATA RECORDS**

**System Parameters Data Transaction**

- K.7 The Data Records for the System Parameters Data Transaction are described in Table K.1, and the Submission Protocol in Table K.2.

**Table K.1 – System Parameters Data Transaction Data Records**

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Transmission Loss Adjustment Factors, TLA<sub>Fuh</sub>

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**Table K.2 – System Parameters Data Transaction Submission Protocol**

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Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Unlimited
First Submission time	As available
Last Submission time	At least two months prior to the start of each Year, or prior to the registration of a new Generator Unit
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

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**Generator Unit Technical Characteristics Data Transaction**

K.8 The Data Records for the Generator Unit Technical Characteristics Data Transaction are described in Table K.3 and the Submission Protocol in Table K.4.

**Table K.3 – Generator Unit Technical Characteristics Data Transaction Data Records**

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Trading Day (all variables below are for all Trading Periods in this Trading Day)

Outturn Availability, spot values, by Unit ID

Outturn Minimum Stable Generation, spot values, by Unit ID

Outturn Minimum Output, spot values, by Unit ID

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**Table K.4 – Generator Unit Technical Characteristics Data Transaction Submission Protocol**

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Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Each Generator Unit, each Trading Day
First Submission time	After end of Trading Day
Last Submission time	By 14:00 on the next day following the relevant Trading Day As required to resolve a Data Query where the Data Records in the Transaction are discovered to be in error
Permitted frequency of resubmission	In accordance with the Settlement Calendar
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

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### **Demand Control Data Transaction**

K.9 The Data Records for the Demand Control Data Transaction are described in Table K.5 and the Submission Protocol in Table K.6.

**Table K.5 – Demand Control Data Transaction Data Records**

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Trading Day (all variables below are for all Trading Periods in the Optimisation Time Horizon starting on the relevant Trading Day)

Estimate of any reduction in demand as a consequence of Demand Control, i.e. load shedding

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**Table K 6 – Demand Control Data Transaction Submission Protocol**

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Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Each Generator Unit, each Trading Day when non-zero
First Submission time	After end of Trading Day
Last Submission time	By 14:00 on the next day following the relevant Trading Day
	As required to resolve a Data Query where the Data Records in the Transaction are discovered to be in error
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 1 (manual)
Process for data validation	None

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### **System Characteristics Data Transaction**

K.10 The Data Records for the System Technical Characteristics Data Transaction are described in Table K.7 and the Submission Protocol in Table K.8.

**Table K.7 – System Characteristics Data Transaction Data Records**

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Average System Frequency in Trading Period h, AVGFRQh

Nominal System Frequency in Trading Period h, NORFRQh

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**Table K.8 – System Characteristics Data Transaction Submission Protocol**

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Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Each Trading Period, each Trading Day
First Submission time	After end of Trading Day
Last Submission time	By 14:00 on the next Working Day following the relevant Trading Day
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

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**Energy Limited Generator Unit Technical Characteristics Data Transaction**

K.11 The Data Records for the Energy Limited Generator Unit Technical Characteristics Data Transaction are described in Table K.9 and the Submission Protocol in Table K.10.

**Table K.9 – Energy Limited Generator Unit Technical Characteristics Data Transaction Data Records**

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Re-declared value of Energy Limit, SELut

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**Table K.10 – Energy Limited Generator Unit Technical Characteristics Data Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Each Energy Limited Generator Unit, each Trading Day
First Submission time	After end of Trading Day
Last Submission time	By 14:00 on the day following the end of the relevant Trading Day
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

---

**Loss of Load Probability for the Capacity Period Data Transaction**

K.12 The Data Records for the Loss of Load Probability for the Capacity Period Data Transaction are described in Table K.11 and the Submission Protocol in Table K.12.

**Table K.11 – Loss of Load Probability for the Capacity Period Data Transaction Data Records**

---

Trading Periods in the Capacity Period

Loss of Load Probability for each Trading Period in the Capacity Period ( $\lambda h$ )

---

**Table K.12 – Loss of Load Probability Table for the Capacity Period Data Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	One per Year, and as updated under Appendix M
First Submission time	As available
Last Submission time	At least 20 Working Days before the start of the Year
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 1 (manual)
Process for data validation	None

---

### **Ex-Post Loss of Load Probability Table Data Transaction**

K.13 The Data Records for the Ex-Post Loss of Load Probability Table Data Transaction are described in Table K.13 and the Submission Protocol in Table K.14.

#### **Table K.13 – Ex-Post Loss of Load Probability Table Transaction Data Records**

---

Input Margin (IM) MW values, from 0MW to Total Conventional Capacity (TCCy)

Output Loss of Load Probability (OLOLP<sub>IM</sub>) for all MW values from 0MW to Total Conventional Capacity (TCCy)

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#### **Table K.14 – Ex-Post Loss of Load Probability Table Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	One per Year, subject to Appendix M
First Submission time	As available
Last Submission time	20 Working Days before the start of the Year
Permitted frequency of resubmission	Once, subject to Appendix M
Valid Communication Channels	Type 1 (manual)
Process for data validation	None

---

- Dispatch Instruction and SO Interconnector Trades Data Transaction**
- K.14 The Data Records for the Dispatch Instruction and SO Interconnector Trades Data Transaction are described in Table K.15 and the Submission Protocol in Table K.16.

**Table K.15 – Dispatch Instruction and SO Interconnector Trades Data Transaction Data Records**

---

Participant ID (Not submitted for SO Interconnector Trades)
Unit ID
Trading Day
Trading Period
Dispatch Instruction and Ramp Rate associated with that Dispatch Instruction data per Unit ID
Time and Occurrence of any Maximisation Instructions, by Unit
SO Interconnector Import Price (SIIPh)
SO Interconnector Export Price (SIEPh)
SO Interconnector Import Quantity (SIQh)
SO Interconnector Export Quantity (SEQh)

---

**Table K.16 – Dispatch Instruction and SO Interconnector Trades Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	By Trading Day and Trading Period
First Submission time	After end of Trading Day
Last Submission time	By 14:00 on the day on which the relevant Trading Day ends
	As required to resolve a Data Query where the Data Records in the Transaction are discovered to be in error
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

---

### **Annual Load Forecast Data Transaction**

K.15 The Data Records for the Annual Load Forecast Data Transaction are described in Table K.17 and the Submission Protocol in Table K.18.

**Table K.17 – Annual Load Forecast Data Transaction Data Records**

---

Year
Annual Load Forecast values for each Trading Period in the relevant Year
Jurisdiction

---

**Table K.18 – Annual Load Forecast Data Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Annually
First Submission time	As available
Last Submission time	Four Months before start of Year
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

---

### Monthly Load Forecast Data Transaction

K.16 The Data Records for the Monthly Load Forecast Data Transaction are described in Table K.19 and the Submission Protocol in Table K.20.

**Table K.19 – Monthly Load Forecast Data Transaction Data Records**

---

Monthly Load Forecast values for each Trading Period in the relevant Month

Jurisdiction

---

**Table K.20 – Monthly Load Forecast Data Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Monthly
First Submission time	Four days before the start of Month
Last Submission time	One day before the start of Month
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

---

### **Four Day Load Forecast Data Transaction**

K.17 The Data Records for the Four Day Load Forecast Data Transaction are described in Table K.21 and the Submission Protocol in Table K.22.

**Table K.21 – Four Day Load Forecast Data Transaction Data Records**

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#### **Four Day Load Forecast Data Records**

Four Day Load Forecast values for each Trading Period in the relevant four day period

Jurisdiction

---

**Table K.22 – Four Day Load Forecast Data Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Daily
First Submission time	As available
Last Submission time	Before 09:30, D-1
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

---



### Wind Power Unit Forecast Data Transaction

K.18 The Data Records for the Wind Power Unit Forecast Data Transaction are described in Table K.23 and the Submission Protocol in Table K.24.

**Table K.23 – Wind Power Unit Forecast Data Transaction Data Records**

---

Dates and Trading Periods
Jurisdiction
Wind Power Unit
Output Forecast for each Wind Power Unit that is connected in the relevant Jurisdiction for each Trading Period over the following two Trading Days,

---

**Table K.24 – Wind Power Unit Forecast Data Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	As available
First Submission time	As updated
Last Submission time	As updated
Permitted frequency of resubmission	Updated every 6 hours
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

---

### Uninstructed Imbalance Parameter Data Transaction

K.19 The Data Records for the Uninstructed Imbalance Parameter Data Transaction are described in Table K.25 and the Submission Protocol in Table K.26.

**Table K.25 – Uninstructed Imbalance Parameter Transaction Data Records**

---

Engineering Tolerance (ENGTOL)
MW Tolerance (MWTOLt) for each Trading Day t
System per Unit Regulation parameter (UREG)
Discount for Over Generation (DOGuh) for each Generator Unit u in each Trading Period h
Premium for Under Generation (PUGuh) for each Generator Unit u in each Trading Period h

---

**Table K.26 – Uninstructed Imbalance Parameter Data Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Once per Year, and within Year with the approval of the Regulatory Authorities
First Submission time	As available
Last Submission time	On receipt of the Regulatory Authorities' determination on the values of the Uninstructed Imbalance Parameters and no later than two months before the start of the Year or within 5 Working Days of receipt whichever is the later
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 1 (manual)
Process for data validation	None

---

### Testing Tariffs Data Transaction

K.20 The Data Records for the Testing Tariffs Data Transaction are described in Table K.27 and the Submission Protocol in Table K.28.

**Table K.27 – Testing Tariffs Transaction Data Records**

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Testing Tariff (TTARIFFuh) applicable to Generator Unit Under Test u in Trading Period h, for all Generator Units within the Currency Zone of the System Operator

---

**Table K.28 – Testing Tariffs Transaction Submission Protocol**

---

Sender	System Operators
Recipient	Market Operator
Number of Data Transactions	Once per Year, and within Year with the approval of the Regulatory Authorities
First Submission time	As available
Last Submission time	On receipt of the Regulatory Authorities' determination on the values of the Testing Tariffs and no later than two months before the start of the Year or within 5 Working Days of receipt whichever is the later
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 1 (manual)
Process for data validation	None

---

### Interconnector Available Transfer Capacity Data Transaction

K.21 The Data Records for the Interconnector Available Transfer Capacity Data Transaction are described in Table K.29 and the Submission Protocol in Table K.30.

**Table K.29 – Interconnector Available Transfer Capacity Data Transaction Data Records**

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Maximum Import Available Transfer Capacity for each Trading Period in Optimisation Time Horizon z
Maximum Export Available Transfer Capacity for each Trading Period in Optimisation Time Horizon z

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**Table K.30 – Interconnector Available Transfer Capacity Data Transaction Submission Protocol**

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Sender	Interconnector Administrator
Recipient	Market Operator
Number of Data Transactions	Unlimited
Submission time	On the day prior to Gate Closure for that Trading Day, before 09:30.  In the event of a change in the magnitude of Available Transfer Capacity in either direction, resubmission is possible until 12:00 on the day on which the relevant Trading Day ends, and should be made by Gate Closure for the relevant Trading Day if practically possible
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

---

### **Active Interconnector Unit Capacity Holding Data Transaction**

K.22 The Data Records for the Active Interconnector Unit Capacity Holding Data Transaction are described in Table K.31 and the Submission Protocol in Table K.32.

**Table K.31 – Active Interconnector Unit Capacity Holding Data Transaction Data Records**

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Trading Day and Trading Periods

Interconnector

Interconnector Unit

Held capacity (Active Interconnector Unit Import Capacity Holding and the Active Interconnector Unit Export Capacity Holding) on the Interconnector for each Trading Period for each Interconnector Unit in the Optimisation Time Horizon beginning at the start of the relevant Trading Day

---

**Table K.32 – Active Interconnector Unit Capacity Holding Data Transaction Submission Protocol**

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Sender	Interconnector Administrator
Recipient	Market Operator
Number of Data Transactions	One per Interconnector Unit
First Submission time	After completion of all appropriate Active Interconnector Unit Capacity Holding allocations
Last Submission time	Before Gate Closure for the relevant Trading Day
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

---

### **Modified Interconnector Unit Nominations Data Transaction**

K.23 The Data Records for the Modified Interconnector Unit Nominations Data Transaction are described in Table K.33 and the Submission Protocol in Table K.34.

**Table K.33 – Modified Interconnector Unit Nominations Transaction Data Records**

---

Participant
Interconnector
Interconnector Unit
Trading Period

Modified Interconnector Unit Nominations for all Interconnector Units registered to that Participant for all Trading Periods in the Optimisation Time Horizon starting on the relevant Trading Day

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**Table K.34 – Modified Interconnector Unit Nominations Data Transaction Submission Protocol**

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Sender	Market Operator
Recipient	Each Interconnector User in respect of its Interconnector Unit(s)
Number of Data Transactions	One per Trading Day, updated as required under paragraph 5.65
First Submission time	As available
Last Submission time	Before 12:00 on the day prior to the relevant Trading Day, and as available when updated under paragraph 5.65
Permitted frequency of resubmission	Unlimited
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

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## APPENDIX L: METER DATA TRANSACTIONS

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- L.1 Agreed Procedure 16 "Provision of Metered Data" describes how Meter Data Providers shall be required to group Meter Data into Data Transactions for receipt by the Market Operator, in accordance with the requirements set out in this Appendix L.
- L.2 The timing of these Meter Data Transactions is described in Agreed Procedure 16 "Provision of Metered Data", in accordance with the requirements set out in this Appendix L.
- L.3 The Meter Data required for the Ex-Post Indicative MSP Software Run and the Ex-Post Initial MSP Software Run are the Metered Generation of all Predictable Price Maker Generator Units, Variable Price Maker Generator Units, Predictable Price Taker Generator Units, and Variable Price Taker Generator Units, and the Metered Demand of Trading Site Supplier Units in Trading Sites with Non-Firm Access.
- L.4 The Meter Data required for the creation of Settlement Statements are the data required for MSP Software Runs described in paragraph L.3, the Metered Generation of Autonomous Generator Units, the Net Inter-Jurisdictional Import, the Interconnector Metered Generation, and all other Supplier Units, including Associated Supplier Units for Trading Sites with Firm Access and Non-Firm Access, and Trading Site Supplier Units for Trading Sites with Firm Access.
- L.5 Each System Operator in its role as a Meter Data Providers shall provide to the Market Operator all Meter Data required for Ex-Post Indicative MSP Software Runs and Ex-Post Initial MSP Software Runs, Meter Data for Transmission Connected Autonomous Generator Units, and Interconnector Metered Generation for Units or Interconnectors as appropriate in its Jurisdiction. The System Operators shall agree a process with the Market Operator to determine which one System Operator is responsible for the provision of the Net Inter-Jurisdictional Import Meter Data to the Market Operator.
- L.6 The System Operator in Ireland shall have responsibility for the installation, commissioning and maintenance of metering systems to such standards as are applicable under and set out in the Grid Code or Metering Code for all Transmission Connected Generation Sites in the Jurisdiction of Ireland.
- L.7 The Distribution System Operator responsible for the installation, commissioning and maintenance of metering systems at a Unit's site, shall provide reasonable access to that site and to data polled at that site to the relevant System Operator with responsibility for the provision of that Unit's Meter Data to the Market Operator.
- L.8 Each Distribution System Operator in its role as Meter Data Provider shall provide to the Market Operator all Meter Data required for the creation of Settlement Statements excluding those required for the Ex-Post Initial MSP Software Runs, the Meter Data for Transmission Connected Autonomous Generator Units, the Net Inter-Jurisdictional Import and the Interconnector Metered Generation.
- L.9 Subject to paragraph L.6, in respect of all Units under the Code, the Distribution System Operators shall be responsible for the installation, commissioning and maintenance of metering systems within their

Jurisdiction to such standards as are applicable in and set out under in the Grid Code or Metering Code.

- L.10 Where a Distribution System Operator is responsible for the provision of a Unit's Meter Data to the Market Operator and a System Operator is responsible for the installation, commissioning and maintenance of metering systems at those Unit's sites, the relevant System Operator shall provide reasonable access to that site or polled data to the relevant Distribution System Operator.
- L.11 Meter Data Providers shall provide the Meter Data listed in paragraph L.3 for the Settlement Day to the Market Operator by 14:00 on the day following that Settlement Day, as described in Agreed Procedure 16 "Provision of Metered Data".
- L.12 Meter Data Providers shall provide the Meter Data listed in paragraph L.3 for the Settlement Day to the Market Operator by 14:00 on the day which is three days after that Settlement Day, as described in Agreed Procedure 16 "Provision of Metered Data".
- L.13 Meter Data Providers shall provide the Meter Data listed in paragraph L.4 to the Market Operator required for each Settlement Day by 14:00 on the first Working Day after the Settlement Day as described in Agreed Procedure 16 "Provision of Metered Data".
- L.14 Meter Data Providers shall provide the Meter Data listed in paragraph L.4 to the Market Operator required for each Settlement Day by 17:00 on the fourth Working Day after the Settlement Day as described in Agreed Procedure 16 "Provision of Metered Data".
- L.15 Meter Data Providers shall provide to the Market Operator the Meter Data listed in L.4 excluding Meter Data for Transmission Connected Autonomous Generator Units, Interconnector Metered Generation for each Settlement Day in sufficient time to permit the Timetabled M+4 Settlement Reruns and Timetabled M+13 Settlement Reruns to be performed by the Market Operator in accordance with the Settlement Calendar.
- L.16 If a Meter Data Provider has provided data for a Unit as described in paragraph L.11, this fulfils that Meter Data Provider's requirement to send that data again as described in paragraph L.13.
- L.17 If a Meter Data Provider has provided data for a Unit as described in paragraph L.12, this fulfils that Meter Data Provider's requirement to send that data again as described in paragraph L.14.
- L.18 If a System Operator in its role as Meter Data Provider has provided data for a Unit as described in paragraph L.14, this fulfils that System Operator's requirement to send that data again as described in paragraph L.15, unless there are known corrections required to the data arising from the resolution of Data Queries, Settlement Queries, Settlement Disputes or discovered errors.
- L.19 In the event of a Settlement Query or Data Query in respect of Meter Data and where the Meter Data is discovered to be in material error, the Meter Data Provider shall resend the updated Meter Data for the Units, Interconnector, or Net Inter-Jurisdictional Import as appropriate for the Settlement Day or Settlement Days to which the Settlement Query or Data Query relates as described in Agreed Procedure 16 "Provision of Meter Data".



- L.20 In the event of a Dispute in respect of Meter Data and where the Meter Data is discovered to be in material error, the Meter Data Provider shall resend the updated Meter Data for the Units, Interconnector, or Net Inter-Jurisdictional Import as appropriate in a manner and form determined by the Dispute Resolution Board.

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## **APPENDIX M: DESCRIPTION OF THE FUNCTION FOR THE DETERMINATION OF CAPACITY PAYMENTS**

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- M.1 This Appendix M of the Code contains a description of the Function for the Determination of Capacity Payments. Appendix M addresses the methodology for forecasting Demand, the determination of the Margin (Mh), the determination of the Interim Ex-Post Margin (IEMh), the determination of the Ex-Post Margin (EMh) and the methodology for the determination of the Loss of Load Probability ( $\lambda$ h) and the Ex-Post Loss of Load Probability ( $\Phi$ h).

### **DETERMINATION OF LOAD FORECAST DATA**

- M.2 The System Operators shall produce an Annual Peak Demand Forecast for the coming year based on a linear regression analysis of the peaks from previous Years. A number of historic years will be examined and the choice of which historic years to use will be flexible in order to reduce errors and maximise forecast accuracy.
- M.3 The System Operators will net forecast Output from non-Participants from the Demand forecasts in a consistent manner.
- M.4 The System Operators shall break the Annual Peak Demand Forecast down into Weekly Peak Demand Forecasts by examining the ratio of each Outturn Weekly Peak Demand to that of the Outturn Annual Peak Demand from previous Years.
- M.5 Each Settlement Day of the Year shall be classified by the System Operators as one of several standard day types. These standard day types will consist of a normalized Trading Period level profile along with a scalar multiplier which facilitates the determination of the peak of that Settlement Day as the product of the scalar multiplier and the corresponding weekly peak.
- M.6 The System Operators shall determine these standard daily profiles along with their associated multiplier by analysing historical Demand data. Standard daily profiles shall be representative of Demand patterns for a particular time of year, day of the week, weekends and for special holidays.
- M.7 The System Operators shall perform a yearly review of the performance of the previous Year's Annual Peak Demand Forecast in order to determine possible improvements to the methodology for the production of the Annual Peak Demand Forecast for the subsequent year. This review will involve analysis of the accuracy of the previous Year's Annual Peak Demand Forecast and the Weekly Peak Demand Forecasts against the Outturn data. The System Operators shall examine as part of these reviews whether temperature correction of Annual Peak Demand Forecast and Weekly Peak Demand Forecast yields any benefit in terms of accuracy.
- M.8 No additional processing in addition to that described in paragraphs M.1 to M.7 inclusive shall be carried out by the System Operators to derive the Annual Peak Demand Forecast and Weekly Peak Demand Forecast. If the System Operators determine that a change to the forecast methodology is warranted as a result of a process review carried out in accordance with paragraph M.7 which would result in a demonstrable material and significant improvement in the forecasts' overall accuracy, the System Operators shall raise a Modification to change the forecast process.

## DETERMINATION OF CAPACITY MARGINS

### Determination of Forced Outage Rates

- M.9 In respect of each Year, the Unit Total Unavailability (UTU<sub>uy</sub>) of each Generator Unit u other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units shall be determined by the System Operator for the Jurisdiction in which the Units are Connected as follows:

$$UTU_{uy} = \sum_{hiny} \text{Max}\{((RCu \times TCFuh) - APuh), 0\} \times TPD$$

Where

1. RC<sub>u</sub> is the Registered Capacity of Generator Unit u;
2. TCF<sub>uh</sub> is the Temperature Correction Factor for Generator Unit u in Trading Period h;
3. AP<sub>uh</sub> is the Availability Profile of Generator Unit u in Trading Period h; and
4. TPD is the Trading Period Duration.

- M.10 The Unit Forced Unavailability (UFU<sub>uy</sub>) for each Generator Unit u other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units shall be determined by the System Operators as follows:

$$UFU_{uy} = UTU_{uy} - \left( \sum_{hiny} \text{Max}\{((RCu \times TCFuh) - APuh), 0\} \times TPD \times \text{Max}\{USOI_{uh}, UTI_{uh}\} \right)$$

Where

1. UTU<sub>uy</sub> is the Unit Total Unavailability of Generator Unit u in Year y;
2. RC<sub>u</sub> is the Registered Capacity of Generator Unit u;
3. TCF<sub>uh</sub> is the Temperature Correction Factor for Generator Unit u in Trading Period h;
4. AP<sub>uh</sub> is the Availability Profile of Generator Unit u in Trading Period h;
5. USOI<sub>uh</sub> is the Unit Scheduled Outage Indicator for Generator Unit u in Trading Period h;
6. UTI<sub>uh</sub> is the Unit Test Indicator for Generating Unit u in Trading Period h; and
7. TPD is the Trading Period Duration.

- M.11 The Unit Forced Outage Rate (UFOR<sub>uy</sub>) of each Generator Unit u other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units shall be determined by the System Operators as follows:

if  $\sum_{hiny} (RCu \times TCFuh \times (1 - USOIuh) \times (1 - UTIuh) \times TPD) \neq 0$  then

$$UFORuy = \frac{UFUuy}{\sum_{hiny} (RCu \times TCFuh \times (1 - USOIuh) \times (1 - UTIuh) \times TPD)}$$

else

$$UFORuy = 0$$

Where

1. UFUuy is the Unit Forced Unavailability of Generator Unit u in Year y;
2. RCu is the Registered Capacity of Generator Unit u;
3. TCFuh is the Temperature Correction Factor for Generator Unit u in Trading Period h. The values of TCFuh for this equation will be determined by the System Operators by reference to the historic relationship between Generator Unit availability and temperature;
4. USOIuh is the Unit Scheduled Outage Indicator for Generator Unit u in Trading Period h. The values of USOIuh for this equation will be determined by the System Operators by reference to the historic outage plan;
5. UTIuh is the Unit Test Indicator for Generator Unit u in Trading Period h; and
6. TPD is the Trading Period Duration.

M.12 The Unit Historic Forced Outage Factor (UHFOFuy) for each Generator Unit u other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units for each Year shall be determined 5 Working Days prior to the start of each Year by the System Operators as follows:

$$UHFOFuy = \overline{\overline{UFORuy}}_{y=-5}^{y=-1}$$

Where

1.  $\overline{\overline{UFORuy}}_{y=-5}^{y=-1}$  is the mean value over the 5 years immediately preceding Year y or, where such data is not available, the System Operators shall utilise mean values for the associated Generator Unit technology, and
2. UFORuy is the Unit Forced Outage Rate for Generator Unit u in Year y, save that in relation to the year immediately preceding Year y, the value of Forced Outage Rate shall be determined by reference to the available data for such immediately preceding Year y at the time the determination is made.

M.13 For the purposes of establishing values of the Unit Historic Forced Outage Factor (UHFOFuy) to apply to each Generator Unit u other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units from the Market Start Date, the System Operators shall use best available data in relation to each such Generator Unit to establish values of UFORuy for the year containing the Market Start Date and the preceding 4 Years or, where

such data is not available, shall utilise mean values for the associated Generator Unit technology.

- M.14 In respect of each Trading Period,  $h$ , the Interconnector Forced Unavailability (IFU $h$ ) shall be determined for each Interconnector  $l$  by the relevant System Operator as follows:

*if*  $MIATClh < AAIClh$  and  $ISOIlh \neq 1$  then

$$IFUlh = AIClh - MIATClh$$

*else*

$$IFUlh = 0$$

Where

1. MIATClh is the Maximum Import Available Transfer Capacity of Interconnector  $l$  in Trading Period  $h$ ;
2. ISOIlh is the Interconnector Scheduled Outage Indicator for Interconnector  $l$  in Trading Period  $h$ ;
3. AIClh is the Aggregate Import Capacity of Interconnector  $l$  in Trading Period  $h$ ; and
4. AAIClh is the Adjusted Aggregate Import Capacity of Interconnector  $l$  in Trading Period  $h$ .

- M.15 In respect of each Year  $y$ , the Interconnector Annual Forced Unavailability (IAFU $y$ ) shall be determined for each Interconnector  $l$  as follows:

$$IAFUiy = \sum_{hiny} (IFUlh \times TPD)$$

Where

1. IFU $h$  is the Interconnector Forced Unavailability of Interconnector  $l$  in Trading Period  $h$ , and
2. TPD is the Trading Period Duration.

- M.16 The Interconnector Forced Outage Rate (IFOR $y$ ) of each Interconnector  $l$  shall be determined by the relevant System Operator as follows:

*if*  $\sum_{hiny} (AIClh \times (1 - ISOIlh) \times TPD) \neq 0$  then

$$IFORly = \frac{IAFUly}{\sum_{hiny} (AIClh \times (1 - ISOIlh) \times TPD)}$$

*else*

$$IFORly = 0$$

Where:

1. IAFU $y$  is the Interconnector Annual Forced Unavailability of Interconnector  $l$  in Year  $y$ ;
2. AIClh is the Aggregate Import Capacity of Interconnector  $l$  in Trading Period  $h$ ;
3. ISOIlh is the Interconnector Scheduled Outage Indicator for Interconnector  $l$  in Trading Period  $h$ . The values of ISO $l$ h for this

equation will be determined by the System Operators by reference to the historic outage plan; and

4. TPD is the Trading Period Duration.

M.17 The Interconnector Historic Forced Outage Factor (IHFOFly) for each Interconnector I shall be determined by the relevant System Operator 5 Working Days prior to the start of each Year y as follows:

$$IHFOFly = \frac{y=-5}{y=-1} \left( \overline{IFORly} \right)$$

Where

1.  $\frac{y=-5}{y=-1} \left( \overline{\quad} \right)$  is the mean value over the 5 years immediately preceding Year y or, where such data is not available, the System Operator shall utilise mean values for the associated technology; and
2. IFORly is the Interconnector Forced Outage Rate for Interconnector I in Year y, save that in relation to the year immediately preceding Year y, the value of Interconnector Forced Outage Rate shall be determined by reference to the available data for such immediately preceding Year y at the time the determination is made.

M.18 For the purposes of establishing values of IHFOFly to apply to each Interconnector from the Market Start Date, the relevant System Operator shall, subject to M.20 below use best available data in relation to each Interconnector to establish values of IFORly for the Year containing the Market Start Date and the preceding 4 Years or, where such data is not available, the System Operator shall utilise mean values for the associated technology.

**Determination of the Wind Capacity Credit**

M.19 For the purposes of establishing values of the Wind Capacity Credit (WCCh) for each Wind Power Unit for each Trading Period in Year y, the System Operators shall, prior to the start of each such Year, derive a plot of capacity credit versus wind capacity on an all-island basis for the relevant Year, employing the methodology utilised in the most recent production of the Generation Adequacy Report.

**Determination of the Margin**

M.20 The System Operators shall determine the Margin (Mh) in each Trading Period h in each Capacity Period 5 Working Days prior to each Capacity Period. The values of Registered Capacity (RCu) and Aggregate Import Capacity (AIClh) determined by the System Operators shall be based upon the values applicable at the time of the calculation of the values of the Margin (Mh). The values of the Unit Scheduled Outage Indicator (USOIuh) and Interconnector Scheduled Outage Indicator (ISOIlh) determined by the System Operators shall be based upon the outage plan, developed under the relevant Grid Code, applicable at the time to the relevant Capacity Period. The values of the Temperature Correction Factor (TCFuh) will be determined by the System Operators by reference to the historic relationship between Generator Unit availability and temperature. The determination of whether a Generator Unit has been granted status of Under Test under the terms of the relevant Grid Code in any Trading Period in the relevant Capacity Period shall, for the purposes of determining the Margin, also take the values as determined by the System Operators at the time of the

calculation of the values of Margin (Mh) for the relevant Capacity Period. For the purposes of determining the Margin (Mh) the System Operators shall determine the values of the Monthly Load Forecast (MFDh) for each Trading Period in the relevant Capacity Period. These values shall be the sum of the Monthly Load Forecast for each Jurisdiction and shall be determined at the time of the calculation of the values of the Margin (Mh) of the relevant Capacity Period.

- M.21 For each Trading Period within the relevant Capacity Period, the Forecast Unit Availability (FUAuh) for each Generator Unit u other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units shall be determined by the System Operators as follows:

$$FUAuh = RCu \times TCFuh \times (1 - UTIuh) \times (1 - USOIuh) \times (1 - UHFOFuy)$$

Where:

1. RCu is the forecast of Registered Capacity for Generator Unit u;
2. TCFuh is the forecast of Temperature Correction Factor for Generator Unit u in Trading Period h;
3. UTIuh is the forecast of Unit Test Indicator for Generator Unit u in Trading Period h;
4. USOIuh is the forecast of Unit Scheduled Outage Indicator for Generator Unit u in Trading Period h; and
5. UHFOFuy is the Unit Historic Forced Outage Factor for Generator Unit u for Year y.

- M.22 For each Trading Period h within the relevant Capacity Period, the Forecast Interconnector Availability (FIAIh) for each Interconnector I shall be determined by the relevant System Operator as follows:

$$FIAIh = AIClh \times (1 - ISOIh) \times (1 - IHFOFly)$$

Where:

1. AIClh is the forecast of Aggregate Import Capacity for Interconnector I in Trading Period h;
2. ISOIh is the forecast of Interconnector Scheduled Outage Indicator for Interconnector I in Trading Period h; and
3. IHFOFly is the Interconnector Historic Forced Outage Factor for Interconnector I for Year y.

- M.23 For each Trading Period h within the relevant Capacity Period, the Forecast Wind Contribution (FWCh) shall be determined by the System Operators as follows:

$$FCWh = WCCh$$

Where:

1. WCCh is the Wind Capacity Credit determined for all Wind Power Units in Trading Period h by the System Operators.

- M.24 For each Trading Period h within the relevant Capacity Period, the Interim Margin (IMNh) shall be determined as follows:

$$IMNh = \left( \sum_u (FUAuh) + \sum_l (FIAlh) + FCWh \right) - MFDh$$

Where

1. FUAuh is the Forecast Unit Availability of Generator Unit u in Trading Period h;
2. FIAlh is the Forecast Interconnector Availability of Interconnector l in Trading Period h;
3. FCWh is the Forecast Wind Contribution in Trading Period h;
4. MFDh is the Monthly Forecast Demand value in Trading Period h;
5.  $\sum_u$  is the summation over all Generator Units u other than Autonomous Generator Units, Energy Limited Generator Units, Pumped Storage Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units; and
6.  $\sum_l$  is the summation over all Interconnectors l.

M.25 For each Trading Period within the relevant Capacity Period, the System Operators shall determine the Margin (Mh) by adjusting the Interim Margin (IMNh) to account for the forecast availability of Energy Limited Generator Units and Pumped Storage Units by first estimating the energy available from each Generation Site, G, for each day.

M.26 For each Trading Period within the relevant Capacity Period, the Forecast Generation Site Availability (FGSAGh) for each Generation Site G containing Energy Limited Generator Units or Pumped Storage Units shall be determined by the System Operators as follows:

$$FGSA_{Gh} = \sum_u FUAuh$$

Where:

1. FUAuh is the Forecast Unit Availability of Generator Unit u in Trading Period h; and
2.  $\sum_u$  is the summation over all Energy Limited Generator Units or Pumped Storage Units at Generation Site G.



M.27 The System Operators shall then determine the Margin (Mh) as follows:

***Loop for each Day***

Continue while there is remaining energy in any Generation Site containing Energy Limited Generator Units or Pumped Storage Units.

Find the Trading Period(s) of Minimum Interim Margin and the number of Trading Periods of Minimum Interim Margin

***Loop for each Generation Site containing Energy Limited Generator Units or Pumped Storage Units***

Increase the Optimised Output from current Generation Site for each Trading Period of Minimum Interim Margin by 1MW divided by the number of Trading Periods of Minimum Interim Margin, except if there is not sufficient remaining energy for this Generation Site to do this, in which case, increase the Optimised Output from that Generation Site by the remaining energy divided by the number of Trading Periods of Minimum Interim Margin.

If increasing the Output for a Generation Site for any Trading Period in the step above would result in a violation of the Unit's Technical Capability, only increase the Output in those Trading Periods by an amount that would not exceed the Forecast Generation Site Availability (FGSAGu) for that Generation Site. If the Output for the Generation Site is already equal to FGSAGu in previous step, do not update Output.

Update remaining energy for Generation Site bearing in mind that for each MW of Output allocated to a Generation Site in a Trading Period, 0.5MWh is deducted from the energy remaining for that Unit.

Update Interim Margin in all Trading Periods.

Find the Trading Period(s) of Minimum Interim Margin and the number of Trading Periods of Minimum Interim Margin.

***Loop to next Generation Site***

***Loop to next Day***

### Determination of the Ex-Post Margin

M.28 For each Trading Period within the relevant Capacity Period, the Interim Ex-Post Margin (IEMh) used in determining the Interim Ex-Post Loss of Load Probability (IΦh) shall be determined by the System Operators as follows:

$$IEMh = \left( \sum_{\alpha} (EAuh) + \sum_{\beta} (MSQuh) \right) - \sum_u \left( \frac{MGuh}{TPD} \right)$$

Where:

1. IEMh is the Interim Ex-Post Margin for Trading Period h;
2. EAuh is the Eligible Availability for Generator Unit u in Trading Period h;
3. MSQuh is the Market Schedule Quantity for Generator Unit u in Trading Period h;
4. MGuh is the Metered Generation for Generator Unit u in Trading Period h;
5. TPD is the Trading Period Duration;
6.  $\sum_{\alpha}$  is the summation over all Generator Units eligible to receive Capacity Payments, other than Pumped Storage Units and Energy Limited Generator Units;
7.  $\sum_{\beta}$  is the summation over all Pumped Storage Units and Energy Limited Generator Units eligible to receive Capacity Payments; and
8.  $\sum_u$  is the summation over all Generator Units u eligible to receive Capacity Payments.

M.29 For each Trading Period h within the relevant Capacity Period, the Ex-Post Margin used in determining the Ex-Post Loss of Load Probability (Φh) shall be determined by the System Operators as follows:

$$EMh = \left( \sum_{\alpha} (EAuh) + \sum_{\beta} (IEAuh) \right) - \sum_u \left( \frac{MGuh}{TPD} \right)$$

Where:

1. EMh is the Ex-Post Margin for Trading Period h;
2. EAuh is the Eligible Availability for Generator Unit u in Trading Period h;
3. IEAuh is the Interim Eligible Availability for Generator Unit u in Trading Period h;
4. MGuh is the Metered Generation for Generator Unit u in Trading Period h;
5. TPD is the Trading Period Duration;

6.  $\sum_{\alpha}$  is the summation over all Generator Units eligible to receive Capacity Payments, other than Pumped Storage Units and Energy Limited Generator Units;
7.  $\sum_{\beta}$  is the summation over all Pumped Storage Units and Energy Limited Generator Units eligible to receive Capacity Payments; and
8.  $\sum_u$  is the summation over all Generator Units u eligible to receive Capacity Payments.

### **DETERMINATION OF THE LOSS OF LOAD PROBABILITY TABLE**

- M.30 With respect to the Loss of Load Probability Table, the System Operators shall make a report to the Regulatory Authorities at least four months before the start of the Year proposing a value for the Flattening Power Factor (FPFy) for Year y which shall be in the range  $0 < \text{FPFy} \leq 1$ . The Market Operator shall publish the approved value of this parameter within 5 Working Days of receipt of the Regulatory Authorities' determination or two months prior to the first Capacity Period of the Year, whichever is the later. The System Operators may propose revisions to the value of the Flattening Power Factor (FPFy) during the Year and, subject to the approval of the Regulatory Authorities, the Market Operator shall publish such revised value not less than thirty 30 days prior to the first Capacity Period for which such revised value is to be applied.
- M.31 The Loss of Load Probability Table for Year y shall be determined by the System Operators and published by the Market Operator at least 5 Working Days prior to the first Capacity Period in each Year and shall relate Input Margin (IM) to Output Loss Of Load Probability (OLOLP).
- M.32 Subject to M.33, if during the course of a Year y any of the following conditions arise:
1. a Generator Unit with Registered Capacity (RCu) greater than 50MW is newly registered; or
  2. a Generator Unit with Registered Capacity (RCu) greater than 50MW is deregistered,
- the System Operators shall recalculate the Loss of Load Probability Table and the Market Operator shall publish such revised table at least 5 Working Days prior to the Capacity Period in which either such registration or deregistration becomes effective, and such table shall apply until the earlier of the end of the Year or another occurrence of one of the above conditions.
- M.33 If the conditions in M.32 arise as a result of the same Generator Unit being deregistered and then registered with the same effective day, the Loss of Load Probability Table shall not be recalculated.
- M.34 To determine the Loss of Load Probability Table, the System Operators shall first determine the Total Conventional Capacity (TCCy) for the Year y as follows:

$$TCC_y = \sum_u \text{round}(RC_u) + \sum_l \text{round}(AIC_l)$$

Where:

1.  $RC_u$  is the Registered Capacity of Generator Unit  $u$  other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units;
2.  $AIC_l$  is the Aggregate Import Capacity of Interconnector  $l$ ; and
3.  $\text{round}(x)$  is a function which rounds  $x$  to the nearest integer.

M.35 The values of Input Margin (IM) in the Loss of Load Probability Table shall take all values in the domain  $IM \in \text{Integers}$  for all  $0 \leq IM \leq TCC_y$

Where:

1.  $TCC_y$  is the Total Conventional Capacity for Year  $y$

M.36 In relation to each value of Input Margin (IM) in the Loss of Load Probability Table, the corresponding value of First Temporary Output Loss of Load Probability for the first Generator Unit ( $FTMPOLOLP_{1,IM}$ ), other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units, shall be calculated by the System Operators as follows:

$$FTMPOLOLP_{1,TCC-\Omega} = UHFOF_{1y} \quad \forall 0 \leq \Omega < \text{round}(RC_1)$$

$$FTMPOLOLP_{1,TCC-\Omega} = 1 \quad \forall \text{round}(RC_1) \leq \Omega \leq TCC_y$$

Where

1.  $TCC_y$  is the Total Conventional Capacity for Year  $y$ ;
2.  $UHFOF_{1y}$  is the Unit Historic Forced Outage Factor for the first Generator Unit in Year  $y$ ;
3.  $RC_1$  is the Registered Capacity of the first Generator Unit; and
4.  $\text{round}(x)$  is a function that rounds  $x$  to the nearest integer.

M.37 In relation to each value of Input Margin in the Loss of Load Probability Table, the corresponding values of First Temporary Output Loss of Load Probability ( $FTMPOLOLP_{u,IM}$ ) determined in M.36 shall be amended by reference to the remaining Generator Units  $u$  other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units, using the following recursive function:

$$FTMPOLOLP_{u,(TCC_y-\Omega)} = \{FTMPOLOLP_{(u-1),(TCC_y-\Omega)} \times UHFOF_{uy} + FTMPOLOLP_{(u-1),(TCC_y-\Omega+round(RC_u))} \times (1 - UHFOF_{uy})\}$$

$$\forall \begin{cases} 2 \leq u \leq NU_y, u \in I \\ 0 \leq \Omega \leq TCC_y, \Omega \in I \\ round(RC_u) \leq \Omega \\ TCC_y - \Omega + round(RC_u) \geq 0 \end{cases}$$

Where:

1.  $NU_y$  is the total number of Generator Units  $u$  other than Wind Power Units, Interconnector Units, Interconnector Residual Capacity Units and Interconnector Error Units in Year  $y$ ;
2.  $TCC_y$  is the Total Conventional Capacity for Year  $y$ ;
3.  $FTMPOLOLP_{z,x}$  is the First Temporary Output Loss of Load Probability associated with the value of IM corresponding to  $x$  and the collection of units corresponding to  $z$ ;
4.  $UHFOF_{uy}$  is the Unit Historic Forced Outage Factor for Generator Unit  $u$  in Year  $y$ ;
5.  $RC_u$  is the Registered Capacity of Generator Unit  $u$ ; and
6.  $round(x)$  is a function which rounds  $x$  to the nearest integer.

M.38 The Second Temporary Output Loss of Load Probability ( $STMPOLOLP_{0,IM}$ ) shall be initialised by being set to the final recursive value of the First Temporary Output Loss of Load Probability ( $FTMPOLOLP_{NU,IM}$ ) as calculated in M.37:

$$STMPOLOLP_{0,IM} = FTMPOLOLP_{NU,IM} \quad \forall 0 \leq IM \leq TCC_y$$

M.39 In relation to each value of Input Margin in the Loss of Load Probability Table, the corresponding values of Second Temporary Output Loss of Load Probability ( $STMPOLOLP_{I,IM}$ ) determined in M.38 shall be appended by reference to the Interconnectors  $I$  as follows:

$$STMPOLOLP_{l,(TCC_y-\Omega)} = \{STMPOLOLP_{(l-1),(TCC_y-\Omega)} \times IHFOF_{ly} + STMPOLOLP_{(l-1),(TCC_y-\Omega+\text{round}(AAIC_l)} \times (1 - IHFOF_{ly})\}$$

$$\forall \begin{cases} 1 \leq l \leq NI_y, l \in I \\ 0 \leq \Omega \leq TCC_y, \Omega \in I \\ \text{round}(AAIC_l) \leq \Omega \\ TCC_y - \Omega + \text{round}(AAIC_l) \geq 0 \end{cases}$$

Where

1.  $NI_y$  is the total number of Interconnectors in Year  $y$ ;
2.  $TCC_y$  is the Total Conventional Capacity for Year  $y$ ;
3.  $STMPOLOLP_{v,x}$  is the Second Temporary Output Loss of Load Probability associated with the value of IM corresponding to  $x$  and the collection of Interconnectors and Generating Units corresponding to  $v$ ;
4.  $IHFOF_{ly}$  is the Unit Historic Forced Outage Factor for Interconnector  $l$  in Year  $y$ ;
5.  $AAIC_l$  is the Adjusted Aggregate Import Capacity of Interconnector  $l$ ;
6. IM is the Input Margin in the Loss of Load Probability Table; and
7.  $\text{round}(x)$  is a function which rounds  $x$  to the nearest integer.

M.40 The Third Temporary Output Loss of Load Probability ( $TTMPOLOLP_{IM}$ ) shall be set to the final recursive value of the Secondary Temporary Output Loss of Load Probability ( $STMPOLOLP_{NI,IM}$ ) as calculated in M.39:

$$TTMPOLOLP_{IM} = STMPOLOLP_{NI,IM} \quad \forall 0 \leq IM \leq TCC_y$$

M.41 In relation to each value of Input Margin in the Loss of Load Probability Table, the corresponding values of Output Loss of Load Probability ( $OLOLP_{IM}$ ) shall be calculated by the System Operators by reference to the Third Temporary Output Loss of Load Probability ( $TTMPOLOLP_{IM}$ ) and Flattening Power Factor ( $FPF_y$ ) as follows:

$$OLOLP_{IM} = (TTMPOLOLP_{IM})^{FPF_y} \quad \forall 0 \leq IM \leq TCC_y$$

Where:

1.  $TTMPOLOLP_{IM}$  is the Third Temporary Output Loss of Load Probability corresponding to the Input Margin IM in the Loss of Load Probability Table;
2.  $OLOLP_{IM}$  is the Output Loss of Load Probability corresponding to the Input Margin IM in the Loss of Load Probability Table;
3.  $FPF_y$  is the Flattening Power Factor for Year  $y$ ;
4.  $TCC_y$  is the Total Conventional Capacity in Year  $y$ ; and

5.  $(x)^{\text{FPF}_y}$  is a function which raises the value of  $x$  to the power of the Flattening Power Factor.

M.42 The Loss of Load Probability ( $\lambda_h$ ) in each Trading Period  $h$  shall be determined by the System Operators as follows:

*if  $M_h < 0$  then*

$$\lambda_h = 1$$

*elseif  $M_h > TCC_y$  then*

$$\lambda_h = 0$$

*else*

$$\lambda_h = \text{OLOLP}_{\text{round}(M_h)}$$

Where:

1.  $M_h$  is the Margin for Trading Period  $h$ ;
2.  $TCC_y$  is the Total Conventional Capacity in Year  $y$ ;
3.  $\text{OLOLP}_x$  is the Output Loss of Load Probability in the Loss of Load Probability Table associated with the value of Input Margin corresponding to  $x$ ; and
4.  $\text{round}(x)$  is a function that rounds  $x$  to the nearest integer.

M.43 The Ex-Post Loss of Load Probability ( $\phi_h$ ) in each Trading Period  $h$  shall be determined by the Market Operator as follows:

*if  $EM_h < 0$  then*

$$\phi_h = 1$$

*elseif  $EM_h > TCC_y$  then*

$$\phi_h = 0$$

*else*

$$\phi_h = \text{OLOLP}_{\text{round}(EM_h)}$$

Where:

1.  $EM_h$  is the Ex-Post Margin for Trading Period  $h$ ;
2.  $TCC_y$  is the Total Conventional Capacity in Year  $y$ ;
3.  $\text{OLOLP}_x$  is the Output Loss of Load Probability in the Loss of Load Probability Table associated with the value of Input Margin corresponding to  $x$ ; and
4.  $\text{round}(x)$  is a function that rounds  $x$  to the nearest integer.

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## APPENDIX N: OPERATION OF THE MSP SOFTWARE

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### OVERVIEW OF APPENDIX N

- N.1 This Appendix N of the Code sets out detailed provisions in relation to:
1. the high-level objectives and algorithms used within the MSP Software;
  2. the high-level processes associated with the operation of the MSP Software;
  3. the pre-processing of data inputs for each run of the MSP Software;
  4. the source of data values used as inputs either to the MSP Software, the Ex-Ante Indicative Market Schedule, the Ex-Post Indicative Market Schedule or in Settlement, where these are not defined elsewhere within the Code; and
  5. the methodology for calculation of Uplift.

### HIGH-LEVEL OBJECTIVES AND ALGORITHMS USED WITHIN THE MSP SOFTWARE

#### Outputs from the MSP Software

- N.2 The Market Operator shall use the MSP Software to calculate the following values:
1. the System Marginal Price (SMP<sub>h</sub>) for each Trading Period *h*;
  2. the Market Schedule Quantity (MSQ<sub>uh</sub>) for each Price Maker Generator Unit *u* that is not Under Test, in each Trading Period *h*;
- N.3 For each Interconnector Unit in each Trading Period, the value of the Interconnector Unit Nomination is set to equal the Market Schedule Quantity for that Interconnector Unit as calculated in the Ex-Ante Indicative MSP Software Run for that Trading Day.
- N.4 Market Schedule Quantities for Generator Units that are Under Test or that are Predictable Price Taker Generator Units, Variable Price Taker Generator Units or Autonomous Generator Units are determined in accordance with Section 5.

#### Principles underlying the operation of the MSP Software

- N.5 Paragraph 1.7.19 defines the relationships between each run of the MSP Software, Optimisation Time Horizon and Trading Day.
- N.6 No Autonomous Generator Unit or Interconnector Residual Capacity Unit shall be individually represented within the MSP Software, and no values of Availability, Commercial Offer Data, Technical Offer Data, Registration Data or Generator Unit Technical Characteristics shall be used or required by the MSP Software in relation to these Units.
- N.7 No Predictable Price Taker Generator Units, Predictable Price Maker Generator Units that are Under Test, Variable Price Taker Generator Units, or Variable Price Maker Generator Units that are Under Test, shall be individually represented within the MSP Software.
- N.8 No Supplier Units shall be represented individually within the MSP Software.



- N.9 The System Marginal Price shall be calculated in each Trading Period so as to be the marginal cost of meeting the last unit of Schedule Demand (as defined within this Appendix N), plus Uplift, taking account of all constraints and limitations used within the relevant run of the MSP Software and bounded by the Market Price Cap (PCAP) and the Market Price Floor (PFLOOR), as further set out in paragraph N.16.
- N.10 All values of System Marginal Price and Market Schedule Quantity that are calculated for the Trading Periods in the Ending Overlap Optimisation Period shall be subsequently replaced by the relevant MSP Software Run for the following Trading Day.

## **HIGH-LEVEL PROCESSES ASSOCIATED WITH OPERATION OF THE MSP SOFTWARE**

### **MSP Software Run Types**

- N.11 There shall be three MSP Software Run Types:
1. Ex-Ante Indicative MSP Software Runs;
  2. Ex-Post Indicative MSP Software Runs; and
  3. Ex-Post Initial MSP Software Runs (including subsequent Settlement Reruns).
- N.12 Ex-Ante Indicative MSP Software Runs shall be performed in relation to each Trading Day by the Market Operator, after Gate Closure and before the start of the relevant Trading Day as set out in paragraph 4.62, in order to determine, on the basis of the requirements set out elsewhere in this Appendix N in relation to Ex-Ante Indicative MSP Software Runs:
1. indicative values of System Marginal Price;
  2. indicative values of Market Schedule Quantity for each Price Maker Generator Unit that is not Under Test, in order to determine the Ex-Ante Indicative Market Schedule; and
  3. Interconnector Unit Nominations for each Interconnector Unit.
- N.13 Ex-Post Indicative MSP Software Runs shall be performed in relation to each Trading Day by the Market Operator, after the end of the relevant Trading Day as set out in paragraph 4.63, in order to determine, on the basis of the requirements set out elsewhere in this Appendix N in relation to Ex-Post Indicative MSP Software Runs, the following values used in Ex-Post Indicative Settlement:
1. indicative values of System Marginal Price; and
  2. indicative values of Market Schedule Quantity for each Price Maker Generator Unit that is not Under Test.
- N.14 Ex-Post Initial MSP Software Runs shall be performed in relation to each Trading Day by the Market Operator, in accordance with the Settlement Calendar and paragraphs 4.64 and 4.65, in order to determine, on the basis of the requirements set out elsewhere in this Appendix N in relation to Ex-

Post Initial MSP Software Runs, the following values used in Initial Settlement and in subsequent Settlement Reruns;

1. System Marginal Price; and
2. values of Market Schedule Quantity for each Price Maker Generator Unit that is not Under Test.

N.15 The Market Operator will not be obliged to rerun the MSP Software for any particular Trading Day solely as a consequence of a rerun of the MSP Software for the preceding Trading Day.

#### **Operation of the MSP Software**

N.16 For each Trading Period  $h$  of the Trading Day, the MSP Software shall be used to calculate System Marginal Price (SMP $h$ ), and the Market Schedule Quantity (MSQ $uh$ ) for each Price Maker Generator Unit  $u$  that is not Under Test, as follows:

##### Step 1

Determine the Unit Commitment Schedule for each Price Maker Generator Unit that is not Under Test, including for each Pumped Storage Unit whether or not it is scheduled to pump or generate, in each Trading Period in the Optimisation Time Horizon;

##### Step 2

Taking the Unit Commitment Schedule as an input and therefore treating Start Up Costs, Shut Down Costs and No Load Costs as invariant, determine the Shadow Price (SPh) values and the Market Schedule Quantity (MSQ $uh$ ) values for each Price Maker Generator Unit  $u$  that is not Under Test, for each Trading Period  $h$  in the Optimisation Time Horizon;

##### Step 3

Calculate the Uplift (UPLIFTh) element of System Marginal Price for each Trading Period  $h$  in the Trading Day of the Optimisation Time Horizon, as set out in paragraphs N.64 to N.77 below; and

##### Step 4

Calculate System Marginal Price (SMP $h$ ) for each Trading Period  $h$  in the Trading Day of the Optimisation Time Horizon as follows:

$$SMP_h = \text{Max}\{\text{PFLOOR}, \text{Min}\{\text{PCAP}, SPh + \text{UPLIFTh}\}\}$$

Where

1. SPh is the Shadow Price for Trading Period  $h$
2. UPLIFTh is the Uplift for Trading Period  $h$
3. PFLOOR is the Market Price Floor
4. PCAP is the Market Price Cap
5. Max{a,b} means the greater of the values of  $a$  and  $b$
6. Min{a,b} means the lesser of the values of  $a$  and  $b$

N.17 The Unit Commitment Schedule shall have the following features:

1. It shall be formulated, along with an energy schedule for each Price Maker Generator Unit that is not Under Test, so as to minimise the mathematical function comprising the sum of:
  - a. the sum of the MSP Production Costs incurred in each Trading Period in the Optimisation Time Horizon by each Price Maker Generator Unit that is not Under Test; and
  - b. the cost of violating any constraint where no feasible solution would otherwise exist, as described in paragraph N.17.4.
2. Constraints shall be imposed upon the Unit Commitment Schedule based on applicable Technical Capabilities, so that, in relation to each Generator Unit and subject to paragraphs N.17.4 and N.17.5:
  - a. the duration of each Contiguous Operation Period shall be less than or equal to the Maximum On Time for that Generator Unit (for Interconnector Units this limit is set to a value which will impose no restrictions on the Market Schedule Quantity of the Generator Unit);
  - b. the duration of each Contiguous Operation Period shall be greater than or equal to the Minimum On Time for that Generator Unit (for Interconnector Units this limit is set to a value which will impose no restrictions on the Market Schedule Quantity of the Generator Unit);
  - c. whenever that Generator is scheduled to stop producing Active Power, any applicable Minimum Off Time is observed relative to the Trading Period in which it was last scheduled to stop producing Active Power (which Trading Period can be in a prior Trading Day as determined by the Preceding MSP Run or Preceding MSP Runs) (for Interconnector Units this limit is set to a value which will impose no restrictions on the Market Schedule Quantity of the Generator Unit);
  - d. in the case of Pumped Storage Units, the Generator Unit shall be scheduled to be committed in either pumping mode or generating mode and all committed Pumped Storage Units linked to the same reservoir shall, while committed, be committed in the same mode – a Pumped Storage Unit must have a scheduled level of Output of not more than 0 MW when in pumping mode and a scheduled level of Output of not less than 0 MW when in generating mode, and for the avoidance of doubt, a Pumped Storage Unit can simultaneously be committed, have a scheduled level of Output of 0 MW, and be in either, but not both, of pumping mode or generating mode;
  - e. when a Generator Unit other than a Pumped Storage Unit is operating its average scheduled Output over each Trading Period is at a level not less than its Minimum Stable Generation and not greater than its Availability;
  - f. in any Trading Period where a Generator Unit is scheduled to perform a Market Schedule Start, its Output level shall be not more than the greater of its Minimum Stable Generation and the sum of the Block Load corresponding to its Market Schedule Warmth State and half the Single Ramp Up Rate (a Block Load

- value of zero is to be used for Generator Units that are Pumped Storage Units or Interconnector Units);
- g. when a Generator Unit is scheduled to stop operating, having been operating, its Output level in the last Trading Period prior to it stopping shall be not more than its Minimum Stable Generation plus half the Single Ramp Down Rate; and
  - h. in implementing the above conditions the relevant data for the Market Schedule Warmth State of the Generator Unit shall be used.
3. Constraints shall be imposed on the scheduling of energy so that, subject to paragraphs N.17.4 and N.17.5:
- a. in each Trading Period, the total Output of all Price Maker Generator Units that are not Under Test shall be scheduled so as to equal Schedule Demand in that Trading Period;
  - b. limits, determined by the Single Ramp Up Rate and the Single Ramp Down Rate, on the maximum amount by which each Generator Unit's Output can change between Trading Periods shall be observed (including relative to the Generator Unit's Output from the last Trading Period of the previous Trading Day as determined by the Preceding MSP Run);
  - c. limits determined by the Aggregate Interconnector Ramp Rate, on the maximum amount by which total flow on an Interconnector can increase or decrease between Trading Periods shall be observed (including relative to the total flow scheduled on that Interconnector from the last Trading Period of the previous Trading Day as determined by the Preceding MSP Run);
  - d. the energy scheduled from any Energy Limited Generator Unit on both the Trading Day and (separately) in the Ending Overlap Optimisation Period shall not exceed the relevant Energy Limit over the relevant period;
  - e. the energy (in MWh) maintained within each Pumped Storage Unit reservoir shall be not less than its Minimum Storage Capacity (PSMINLut) and not more than its Maximum Storage Capacity (PSMAXLut);
  - f. the energy (in MWh) maintained within each Pumped Storage Unit reservoir shall meet the Target Reservoir Level in the final Trading Period of the Trading Day, and the level calculated in accordance with paragraph 5.117 in the final Trading Period of the Optimisation Time Horizon; and
  - g. a relationship is observed whereby the generation of each 1 MWh from a Pumped Storage Unit in generating mode lowers its associated reservoir by 1 MWh while the pumping of each 1 MWh by a Pumped Storage Unit in pumping mode raises the associated reservoir by a number of MWh equal to the Pumped Storage Cycle Efficiency for that Pumped Storage Unit.
4. The MSP Software shall include the following variables, which allow such constraint limits to be violated at a high cost if no feasible solution would otherwise exist:

- a. the Over-Generation MSP Constraint Cost, which shall apply in any Trading Period in which total scheduled Output as calculated by the MSP Software, for Price Maker Generator Units which are not Under Test, exceeds Schedule Demand, and these circumstances comprise an Excessive Generation Event for the relevant Trading Period;
  - b. the Under-Generation MSP Constraint Cost, which applies in any Trading Period in which total scheduled Output as calculated by the MSP Software, for Price Maker Generator Units which are not Under Test, is less than Schedule Demand, and these circumstances comprise an Insufficient Capacity Event for the relevant Trading Period;
  - c. the Aggregate Interconnector Ramp Rate MSP Constraint Cost, which applies to an Interconnector in any Trading Period in which the Aggregate Interconnector Ramp Rate for that Interconnector is breached; and
  - d. the Energy Limit MSP Constraint Cost, which applies to each relevant Generator Unit in any Trading Period in which the Energy Limit for an Energy Limited Generator Unit or any of the reservoir target levels or reservoir capacities for a Pumped Storage Unit is breached.
5. The MSP Software shall modify conflicting input data to resolve the conflict in accordance with paragraph N.29.
  6. No Transmission Loss Adjustment Factors (TLAFs) shall be considered or applied in determining the Unit Commitment Schedule.

N.18 The Economic Dispatch shall have the following features:

1. It shall be formulated to determine the Shadow Price (SPh) value, and the Market Schedule Quantity (MSQuh expressed in MW) for each Price Maker Generator Unit that is not Under Test, for each Trading Period, so as to minimise the mathematical function comprising the sum of:
  - a. the total MSP Production Cost incurred by all Price Maker Generator Units that are not Under Test in all Trading Periods in the Optimisation Time Horizon; and
  - b. the cost of violating any constraint where no feasible solution would otherwise exist, as described in paragraph N.18.4.
2. Constraints shall be imposed on Market Schedule Quantities determined as part of Economic Dispatch and based on the Unit Commitment Schedule so that, subject to paragraphs N.18.4 and N.18.5 :
  - a. a Generator Unit shall have a Market Schedule Quantity of 0 MW in any Trading Period in which the Generator Unit is not scheduled to operate;
  - b. a Pumped Storage Unit that is scheduled to operate shall have an Output not less than 0 MW if the Pumped Storage Unit is committed and in generating mode;
  - c. a Pumped Storage Unit that is scheduled to operate shall have an Output not more than 0 MW if the Pumped Storage Unit is committed and in pumping mode;

- d. when a Generator Unit is scheduled to operate, its Output is at a level not less than its Minimum Stable Generation and not greater than its Availability;
  - e. in a Trading Period where a Generator Unit is scheduled to start operating, its Output shall not be greater than the maximum Output level allowed for that Trading Period in the Unit Commitment Schedule; and
  - f. in a Trading Period where a Generator Unit is scheduled to stop operating, its Output shall not be greater than the maximum Output level allowed for that Trading Period in the Unit Commitment Schedule.
3. Constraints shall be imposed on the Market Schedule Quantities determined as part of Economic Dispatch so that subject to paragraphs N.18.4 and N.18.5:
- a. in each Trading Period, the total Output of Price Maker Generator Units that are not Under Test (calculated as the sum of their Market Schedule Quantities) shall equal Schedule Demand in that Trading Period;
  - b. limits, determined by the Single Ramp Up Rate and the Single Ramp Down Rate, on the maximum amount by which each Generator Unit's Output can change between Trading Periods shall be observed (including relative to the Generator Unit's scheduled Output from the last Trading Period of the previous Trading Day as determined by the Preceding MSP Run);
  - c. limits, determined by the Aggregate Interconnector Ramp Rate, on the maximum amount by which total flow on an Interconnector can increase or decrease between Trading Periods shall be observed (including relative to the total flow on that Interconnector from the last Trading Period of the previous Trading Day as determined by the Preceding MSP Run);
  - d. the energy scheduled from any Energy Limited Generator Unit on both the Trading Day and (separately) in the Ending Overlap Optimisation Period shall not exceed the Energy Limit over the relevant period;
  - e. the energy (in MWh) maintained within each Pumped Storage Unit reservoir shall be not less than its Minimum Storage Capacity (PSMINLut) and not more than its Maximum Storage Capacity (PSMAXLut);
  - f. the energy (in MWh) maintained within each Pumped Storage Unit reservoir shall meet the Target Reservoir Level in the final Trading Period of the Trading Day, and the level calculated in accordance with paragraph 5.117 in the final Trading Period of the Optimisation Time Horizon;
  - g. a relationship is observed whereby the generation of each 1 MWh from a Pumped Storage Unit in generating mode lowers its associated reservoir by 1 MWh while the pumping of each 1 MWh by a Pumped Storage Unit in pumping mode raises the associated reservoir by a number of MWh equal to the Pumped Storage Cycle Efficiency for that Pumped Storage Unit.

4. The MSP Software shall include a set of variables as set out in paragraph N.17.4, which allow such constraint limits to be violated at a high cost if no feasible solution would otherwise exist.
5. The MSP Software shall modify conflicting input data to resolve the conflict in accordance with paragraph N.29.
6. The MSP Software shall determine a Shadow Price (SPh) for each Trading Period in the Optimisation Time Horizon that:
  - a. does not exceed the lesser of the Market Price Cap (PCAP) and the €/MWh rate of increase in the minimum value of the mathematical function defined in paragraph N.18.1 that would occur were Schedule Demand in that Trading Period increased by an infinitesimally small amount and the constraints set out in paragraphs N.18.2 and N.18.3 continued to apply to the Market Schedule Quantities;
  - b. is not less than the greater of the Market Price Floor (PFLOOR) and the €/MWh rate of decrease in the minimum value of the mathematical function defined in paragraph N.18.1 that would occur were Schedule Demand in that Trading Period decreased by an infinitesimally small amount and the constraints set out in paragraphs N.18.2 and N.18.3 continued to apply to the Market Schedule Quantities;
7. No Transmission Loss Adjustment Factors (TLAFs) shall be considered or applied in determining the Economic Dispatch.

**Calculation of MSP Production Cost for use within the MSP Software**

N.19 Within the MSP Software, for each Price Maker Generator Unit *u* that is not Under Test (other than Pumped Storage Units) the MSP Production Cost in Trading Period *h* that is associated with a level of Output equal to any Market Schedule Quantity (denoted  $MSPC(MSQ)_{uh}$ ) shall be calculated as follows (noting that within the MSP Software, Transmission Losses are not taken into consideration):

$$MSPC(MSQ)_{uh} = ((MSQ_{uh} \times MOP_{uh}) + MNLC_{uh} + MSQCC_{uh}) \times TPD + MSUC_{uh}$$

Where

1.  $MSQ_{uh}$  is the Market Schedule Quantity for Generator Unit *u* in Trading Period *h*
2.  $MOP_{uh}$  is the Market Offer Price of Generator Unit *u* in Trading Period *h*
3.  $MNLC_{uh}$  is the Market No Load Cost for Generator Unit *u* in Trading Period *h*
4.  $MSQCC_{uh}$  is the Market Schedule Quantity Cost Correction for Generator Unit *u* in Trading Period *h*
5.  $TPD$  is the Trading Period Duration
6.  $MSUC_{uh}$  is the Market Start Up Cost for Generator Unit *u* in Trading Period *h*

N.20 For the purposes of the MSP Software, the MSP Production Cost for each Pumped Storage Unit in each Trading Period h is zero.

**Core data inputs to MSP Software**

N.21 The core data inputs for each run of the MSP Software include a number of derived values and these data inputs may differ in source or derivation method for each of the MSP Software Run Types, as set out below.

N.22 Derived data inputs comprise the following:

1. Schedule Demand for each Trading Period in the Optimisation Time Horizon;
2. the following elements of Technical Capabilities for each Price Maker Generator Unit that is not Under Test, covering each Trading Period in the Optimisation Time Horizon:
  - a. Single Ramp Up Rate;
  - b. Single Ramp Down Rate;
  - c. Availability;
  - d. Minimum Stable Generation;
  - e. (for Energy Limited Generator Units only) Energy Limit; and
  - f. Price Quantity Pairs;
3. the following initial conditions at the start of the Optimisation Time Horizon for each Price Maker Generator Unit that is not Under Test:
  - a. initial Market Schedule Quantity;
  - b. Unit Commitment Schedule for the preceding Trading Periods; and
  - c. (for Pumped Storage Units only) the initial reservoir level (expressed in MWh of generation capability)

N.23 Additional data inputs that are used within the MSP Software, either directly or in the calculation of the derived data inputs set out in paragraph N.22, include the following:

1. the Market Price Cap (PCAP) and the Market Price Floor (PFLOOR);
2. the following elements of Technical Capabilities for each Price Maker Generator Unit that is not Under Test, covering each Trading Period in the Optimisation Time Horizon:
  - a. Ramp Up Rate and Ramp Up Break Points;
  - b. Ramp Down Rate and Ramp Down Break Points;
  - c. Dwell Times and Dwell Time Trigger Points;
  - d. Block Load for each Warmth State;
  - e. Maximum On Time;
  - f. Minimum On Time;
  - g. Minimum Off Time;



3. Commercial Offer Data for each Price Maker Generator Unit that is not Under Test, covering each Trading Period in the Optimisation Time Horizon:
  - a. Start Up Cost for each Warmth State;
  - b. No Load Cost;
4. Additional data values for certain Special Units as specified within Section 5 and Appendix I:
  - a. Aggregate Interconnector Ramp Rate, except that if a value for Aggregate Interconnector Ramp Rate that is greater than zero is not Accepted then the value that is used within the MSP Software will be set by the Market Operator to a value which will impose no restrictions on the Market Schedule Quantity of the relevant Interconnector Units;
  - b. Active Interconnector Unit Import Capacity Holding;
  - c. Active Interconnector Unit Export Capacity Holding;
  - d. Maximum Interconnector Unit Import Capacity;
  - e. Maximum Interconnector Unit Export Capacity;
  - f. Energy Limit Period;
  - g. Energy Limit Factor;
  - h. Pumped Storage Cycle Efficiency;
  - i. Maximum Storage Capacity;
  - j. Minimum Storage Capacity;
  - k. Target Reservoir Level; and
  - l. Target Reservoir Level Percentage.

N.24 The method of derivation and the source of inputs for each of the MSP Software Run Types and Settlement runs differs, and the derivation and sources of inputs to each are set out below where not otherwise stated within the Code.

N.25 The Market Operator shall make a report to the Regulatory Authorities at least four months before the start of each Year, proposing values for each of the following parameters to be used in the MSP Software for that Year:

1. the Over-Generation MSP Constraint Cost;
2. the Under-Generation MSP Constraint Cost;
3. the Aggregate Interconnector Ramp Rate MSP Constraint Cost;
4. the Energy Limit MSP Constraint Cost; and
5. the Tie-Breaking Adder.

N.26 The Market Operator's report shall set out any relevant research or analysis carried out by the Market Operator and any justification for the specific values proposed.

N.27 The Market Operator shall publish the approved value for the parameters identified in N.25 within 5 Working Days of the receipt of the Regulatory Authorities' determination as to the approved value of each such parameter,

or two months before the start of the Year to which they shall apply whichever is the later.

- N.28 The Market Operator may revise these values within the Year of their use subject to the prior approval of the Regulatory Authorities. The Market Operator shall publish such revised values with 5 Working Days of receipt of the Regulatory Authorities' approval.

## **PRE-PROCESSING OF DATA INPUTS FOR THE MSP SOFTWARE**

### **Inconsistent Technical Capabilities**

- N.29 If Technical Capabilities applying to a Generator Unit within a run of the MSP Software are internally inconsistent so as to allow no solution for that Generator Unit within its Technical Capabilities, then the MSP Software shall disregard one or more Technical Capability limits as required to allow a solution to be found for that Generator Unit, subject to the limits that:
1. the Generator Unit shall not be scheduled to operate at a level in excess of the greatest Availability implied by any of the inconsistent Technical Capability limits, or zero where no such limit can be inferred;
  2. the Generator Unit shall not be scheduled to operate at a level less than the lowest level implied by the lowest allowable level implied by any of the inconsistent Technical Capability limits, or zero where no such limit can be inferred;
  3. the Generator Unit shall not be scheduled to operate for a period of time beyond the greatest operating time limit implied by any of the inconsistent Technical Capability limits; and
  4. if Availability of a Generator Unit is greater than zero and less than the relevant Minimum Stable Generation then its Availability shall be reset to equal Minimum Stable Generation.

### **Derivation of Schedule Demand**

- N.30 For each Ex-Ante Indicative MSP Software Run, Schedule Demand in each Trading Period shall be calculated by the Market Operator as follows:
1. Forecast Demand (based on the latest Four Day Load Forecast Data that includes forecasts for the entire Optimisation Time Horizon) in respect of the demand at the boundary of the Transmission System for each Trading Period in the Optimisation Time Horizon, which will be net of expected Generation for each Autonomous Generator Unit that is not a Wind Power Unit;
  2. less the minimum of Nominated Quantity (NQ<sub>uh</sub>) and Forecast Availability in respect of each Predictable Price Taker Generator Unit u that is not a Wind Power Unit and each Variable Price Taker Generator Unit u that is not a Wind Power Unit and each Predictable Price Maker Generator Unit u that is Under Test and that is not a Wind Power Unit and each Variable Price Maker Generator Unit u that is Under Test and that is not a Wind Power Unit, in accordance with their Accepted Nomination Profiles and Accepted Forecast Availability;
  3. less the minimum of forecast Output (based on the Wind Power Unit Forecast) and Accepted Forecast Availability in respect of each Variable Price Taker Generator Unit u that is a Wind Power Unit and

each Variable Price Maker Generator Unit  $u$  that is a Wind Power Unit and that is Under Test;

4. less forecast Output (based on the Wind Power Unit Forecast) for each Autonomous Generator Unit  $u$  that is a Wind Power Unit.

N.31 For each Ex-Post Indicative MSP Software Run, Schedule Demand in each Trading Period shall be calculated by the Market Operator as follows:

1. For the first 18 hours of the Optimisation Time Horizon for the relevant Trading Day, Schedule Demand to be met by Price Maker Generator Units that are not Under Test is calculated in accordance with paragraph N.32.1-5 below.
2. For the remaining hours of the Optimisation Time Horizon, Schedule Demand to be met by Price Maker Generator Units that are not Under Test is calculated in accordance with paragraph N.30 above.

N.32 For each Ex-Post Initial MSP Software Run, Schedule Demand in each Trading Period  $h$  shall be calculated by the Market Operator as follows:

1. the Actual Output (AO $_{uh}$ ) for all Price Maker Generator Units  $u$  that are not Under Test;
2. less the summation of all reductions in Output of any Predictable Price Taker Generator Unit, and any Predictable Price Maker Generator Unit that is Under Test, calculated as the difference between:
  - a. the minimum of Nominated Quantity (NQ $_{uh}$ ) and the Availability Profile (AP $_{uh}$ ) of the relevant Generator Unit for Trading Period  $h$ ; and
  - b. the Actual Output (AO $_{uh}$ ) of the relevant Generator Unit  $u$  for Trading Period  $h$ ,with increases in Output having the opposite sign;
3. less the summation of all reductions in Output of any Variable Price Taker Generator Unit and any Variable Price Maker Generator Unit that is Under Test, calculated as the difference between:
  - a. the Availability Profile (AP $_{uh}$ ) of the relevant Generator Unit  $u$  for Trading Period  $h$ ; and
  - b. the Actual Output (AO $_{uh}$ ) of the relevant Generator Unit  $u$  for Trading Period  $h$ ,with increases in Output having the opposite sign;
4. plus an estimate of any reduction in demand in Trading Period  $h$  as a consequence of Demand Control as set out in the relevant Grid Code;
5. plus the Dispatch Quantity (DQ $_{u'h}$ ) of each Interconnector Residual Capacity Unit  $u'$  in Trading Period  $h$ .

#### **Derivation of Single Ramp Up Rate**

N.33 Each Price Maker Generator Unit that is not Under Test shall be represented in the MSP Software as having a Single Ramp Up Rate for the Optimisation Time Horizon that limits the rate at which its average MW Output can be scheduled to increase from one Trading Period to the next, to a value determined by the Market Operator as follows:

1. For each Price Maker Generator Unit that is not Under Test and is not a Demand Side Unit, Pumped Storage Unit or Interconnector Unit, the Single Ramp Up Rate, expressed in MW per Trading Period shall be calculated as follows:

*if RampUpTime + DwellTime ≠ 0*

$$SingleRampUpRate = \left( \frac{OutputRange}{RampUpTime + DwellTime} \right) \times 60 \times TPD$$

*else*

*SingleRampUpRate* will be set to a non - limiting value

Where

- a. Output Range, expressed in MW, is the maximum value of Availability (derived in accordance with paragraphs N.37 to N.39 below) that occurs in any Trading Period in the Optimisation Time Horizon less the minimum value of Minimum Stable Generation (derived in accordance with paragraphs N.40 to N.42) that occurs in any Trading Period in the Optimisation Time Horizon;
- b. Ramp Up Time, expressed in minutes, is the minimum time it would take that Generator Unit to increase its instantaneous Output from its Minimum Stable Generation to its Availability calculated using Ramp Up Rate 1 to Ramp Up Rate 5 (to the extent that such values have been provided) and Ramp Up Break Point 1 to Ramp Up Break Point 4 (to the extent that such values have been provided). In determining Ramp Up Time, Ramp Up Rate *i* applies between a MW Output of Ramp Up Break Point *i*-1 and a MW Output of Ramp Up Break Point *i*, where if there is no defined Ramp Up Break Point *i*-1 then Ramp Up Rate *i* applies for all MW Output levels below Ramp Up Break Point *i* while if there is no defined Ramp Up Break Point *i* then Ramp Up Rate *i* applies for all MW Output levels above Ramp Up Break Point *i*-1, with the exception that if that the largest Ramp Up Break Point *j* value is less than the Maximum Availability of the unit over the day then Ramp Up Rate *j* applies between Ramp Up Break Point *j*-1 and the Maximum Availability of the Unit. If there are no Ramp Up Break Point values provided then Ramp Up Rate 1 applies for all levels of MW Output. For the avoidance of doubt, if Ramp Up Break Point *j* is the last valid Ramp Up Break Point provided (for *j* increasing from *j*=1), then no Ramp Up Rate *n*>*j*+1 or Ramp Up Break Point *n*>*j* is to be considered in the calculation of Ramp Up Time.
- c. Dwell Time, expressed in minutes, is the sum of all Dwell Times corresponding to Dwell Time Triggers, between and including the Unit's Minimum Stable Generation and its Availability for that Optimisation Time Horizon; and
- d. TPD is the Trading Period Duration.

2. For Generator Units that are Pumped Storage Units, the value of Single Ramp Up Rate, expressed in MW per Trading Period, shall be calculated as follows

*if RampUpTime + DwellTime ≠ 0 then*

$$SingleRampUpRate = \left( \frac{Availability}{RampUpTime + DwellTime} \right) \times 60 \times TPD$$

*else*

*SingleRampUpRate* will be set to a non - limiting value

Where

- a. Availability of the Generator Unit is derived in accordance with paragraphs N.37 to N.39 below;
  - b. Ramp Up Time, expressed in minutes, is the minimum time it would take that Generator Unit to increase its instantaneous Output from 0 MW to its Availability calculated using Ramp Up Rate 1 to Ramp Up Rate 5 (to the extent that such values have been provided) and Ramp Up Break Point 1 to Ramp Up Break Point 4 (to the extent that such values have been provided) and in accordance with the methodology in paragraph N.33.1.b.
  - c. Dwell Time, expressed in minutes, is the sum of all Dwell Times corresponding to Dwell Time Triggers, between and including an Output of 0 MW and the Generator Unit's Availability; and
  - d. TPD is the Trading Period Duration.
3. For Demand Side Units the Single Ramp Up Rate, expressed in MW per Trading Period, shall be the Accepted value of Maximum Ramp Up Rate multiplied by 60 x TPD, except that if a value for Maximum Ramp Up Rate that is greater than zero is not Accepted then the value for the Single Ramp Up Rate that is used within the MSP Software will be set by the Market Operator to a value which will impose no restrictions on the Market Schedule Quantity of the Demand Side Unit.
4. For Interconnector Units the Single Ramp Up Rate shall be set by the Market Operator to a value which will impose no restrictions on the Market Schedule Quantity of the Interconnector Unit.

Where the values of Availability for the relevant MSP Software Run Type are derived in accordance with paragraphs N.37 to N.39, and the values of Minimum Stable Generation for the relevant MSP Software Run Type are as defined in paragraphs N.40 to N.42.

- N.34 For any Generator Unit, if the calculations of Single Ramp Up Rate set out above result in a value of zero then the Single Ramp Up Rate shall be set to a value which will impose no restrictions on the Market Schedule Quantity of the Generator Unit.

**Derivation of Single Ramp Down Rate**

- N.35 Each Price Maker Generator Unit that is not Under Test shall be represented in the MSP Software as having a Single Ramp Down Rate for the Optimisation Time Horizon that limits the rate at which Generator Unit

average MW Output can decrease from one Trading Period to the next with a value determined by the Market Operator as follows:

1. For each Price Maker Generator Unit that is not Under Test and is not a Demand Side Unit, Pumped Storage Unit, or Interconnector Unit, the Single Ramp Down Rate value for each Trading Period  $h$  in the Optimisation Time Horizon, expressed in MW per Trading Period, equals

*if RampDownTime + DwellTime  $\neq$  0 then*

$$SingleRampDownRate = \left( \frac{OutputRange}{RampDownTime + DwellTime} \right) \times 60 \times TPD$$

*else*

*SingleRampDownRate* will be set to a non - limiting value

Where

- a. Output Range, expressed in MW, is the maximum value of Availability (derived in accordance with paragraphs N.37 to N.39 below) that occurs in any Trading Period over the Optimisation Time Horizon less the minimum value of Minimum Stable Generation (derived in accordance with paragraphs N.40 to N.42 below) that occurs in any Trading Period over the Optimisation Time Horizon;
- b. Ramp Down Time, expressed in minutes, is the minimum time it would take that Generator Unit to decrease its instantaneous Output from its Availability to its Minimum Stable Generation calculated using Ramp Down Rate 1 to Ramp Down Rate 5 (to the extent that such values have been provided) and Ramp Down Breakpoint 1 to Ramp Down Break Point 4 (to the extent that such values have been provided). In determining Ramp Down Time, Ramp Down Rate  $i$  applies between a MW Output of Ramp Down Break Point  $i-1$  and a MW Output of Ramp Down Break Point  $i$ , where if there is no defined Ramp Down Break Point  $i-1$  then Ramp Down Rate  $i$  applies for all MW Output levels below Ramp Down Break Point  $i$  while if there is no defined Ramp Down Break Point  $i$  then Ramp Down Rate  $i$  applies for all MW Output levels above Ramp Down Break Point  $i-1$ , with the exception that if that the largest Ramp Down Break Point  $j$  value is less than the Maximum Availability of the unit over the day then Ramp Up Rate  $j$  applies between Ramp Up Break Point  $j$  and the Maximum Availability of the Unit. If there are no Ramp Down Break Point values provided then Ramp Down Rate 1 applies for all levels of MW Output. For the avoidance of doubt, if Ramp Down Break Point  $j$  is the last valid Ramp Down Break Point provided (for  $j$  increasing from  $j=1$ ), then no Ramp Down Rate  $n>j+1$  or Ramp Down Break Point  $n>j$  is to be considered in the calculation of Ramp Down Time.
- c. Dwell Time, expressed in minutes, is the sum of all Dwell Times corresponding to Dwell Time Triggers, between and including the Unit's Minimum Stable Generation and its Availability; and

- d. TPD is the Trading Period Duration.
- 2. For Generator Units that are Pumped Storage Units, the Single Ramp Down Rate, expressed in MW per Trading Period, shall be calculated as follows

*if RampDownTime + DwellTime ≠ 0 then*

$$SingleRampDownRate = \left( \frac{Availability}{RampDownTime + DwellTime} \right) \times 60 \times TPD$$

*else*

*SingleRampDownRate* will be set to a non - limiting value

Where

- a. Availability of the Generator Unit is derived in accordance with paragraphs N.37 to N.39 below;
  - b. Ramp Down Time, expressed in minutes, is the minimum time it would take that Generator Unit to decrease its instantaneous Output from its Availability to 0 MW calculated using Ramp Down Rate 1 to Ramp Down Rate 5 (to the extent that such values have been provided) and Ramp Down Break Point 1 to Ramp Down Break Point 4 (to the extent that such values have been provided) and in accordance with the methodology in paragraph N.35.1.b.
  - c. Dwell Time, expressed in minutes, is the sum of all Dwell Times corresponding to Dwell Time Triggers, between and including an Output of 0 MW and the Generator Unit's Availability; and
  - d. TPD is the Trading Period Duration.
- 3. For Demand Side Units, the Single Ramp Down Rate, expressed in MW per Trading Period, shall be the Accepted value of Maximum Ramp Down Rate multiplied by 60 x TPD, except that if a value for Maximum Ramp Down Rate that is greater than zero is not Accepted then the value for the Single Ramp Down Rate that is used within the MSP Software will be set by the Market Operator to a value which will impose no restrictions on the Market Schedule Quantity of the Demand Side Unit.
  - 4. For Interconnector Units the Single Ramp Down Rate shall be set to a value which will impose no restrictions on the Market Schedule Quantity of the Interconnector Unit.
- N.36 For any Generator Unit, if the calculations of Single Ramp Down Rate set out above result in a value of zero, then the Single Ramp Down Rate shall be set by the Market Operator to a value which will impose no restrictions on the Market Schedule Quantity of the Generator Unit.

**Derivation of Availability**

- N.37 For the purposes of each Ex-Ante Indicative MSP Software Run, the values of Availability for each Trading Period h in the Optimisation Time Horizon for all Price Maker Generator Units u that are not Under Test shall be set by the

Market Operator to equal the Accepted Forecast Availability Profile values which are submitted as part of Technical Offer Data, except that:

1. for Interconnector Units, the Availability in Trading Period h shall be set to be equal to the lesser of the Maximum Interconnector Unit Import Capacity and the Active Interconnector Unit Import Capacity Holding. If no Active Interconnector Unit Import Capacity Holding is available then a value of zero shall be used in its place;
2. for Wind Power Units, the Availability in Trading Period h shall be set to equal the lesser of the accepted Forecast Availability Profile value and the forecast Output (based on the Wind Power Unit Forecast).

N.38 For the purposes of each Ex-Post Indicative MSP Software Run, the values of Availability for each Trading Period in the Optimisation Time Horizon for each Price Maker Generator Unit u that is not Under Test shall be set by the Market Operator as follows:

1. for each Trading Period h within the first 18 hours of the Optimisation Time Horizon, these values shall be set to be equal to the Actual Availability (AAuh) values as calculated by the Market Operator in accordance with paragraphs 4.52 to 4.53 or within Section 5 as appropriate;
2. for each of the remaining Trading Periods h in the Optimisation Time Horizon, these values shall be set to be equal to the value of Availability as determined in paragraph N.38.1 for the last Trading Period h' that is within the first 18 hours of that Optimisation Time Horizon.

N.39 For the purposes of each Ex-Post Initial MSP Software Run, the value for Availability in each trading Period h for each Price Maker Generator Unit u that is not Under Test shall be set by the Market Operator to equal the value of Actual Availability (AAuh) as calculated under paragraphs 4.52 to 4.53 or within Section 5 as appropriate.

#### **Derivation of Minimum Stable Generation**

N.40 For the purposes of each Ex-Ante Indicative MSP Software Run, the values of Minimum Stable Generation for each Trading Period h in the Optimisation Time Horizon for all Price Maker Generator Units u that are not Under Test shall be set by the Market Operator to equal the Accepted Forecast Minimum Stable Generation Profile values which are submitted as part of Technical Offer Data, except that:

1. for Pumped Storage Units the Minimum Stable Generation in Trading Period h shall be set to be equal to the Accepted Forecast Minimum Output Profile value submitted as part of Technical Offer Data;
2. for Interconnector Units the Minimum Stable Generation in Trading Period h shall be set to be equal to whichever is the smaller in absolute magnitude of the Maximum Interconnector Unit Export Capacity and the Active Interconnector Unit Export Capacity Holding. If no Active Interconnector Unit Export Capacity Holding is available then a value of zero shall be used in its place.

N.41 For the purposes of each Ex-Post Indicative MSP Software Run, the values of Minimum Stable Generation for each Trading Period in the Optimisation Time Horizon for each Price Maker Generator Unit u that is not Under Test shall be set by the Market Operator as follows:



1. for each Trading Period  $h$  within the first 18 hours of the Optimisation Time Horizon, these values shall be set to be equal to the Minimum Stable Generation (MINGEN $u_h$ ) values as calculated by the Market Operator in accordance with paragraph 4.49 or Section 5 as appropriate except that:
    - a. for each Pumped Storage Unit the Minimum Stable Generation in Trading Period  $h$  shall be set to be equal to the Minimum Output (MINOUT $u_h$ ) as calculated by the Market Operator in accordance with paragraph 4.49;
    - b. For each Interconnector Unit the Minimum Stable Generation in Trading Period  $h$  shall be set to be equal to the lesser of zero and the Interconnector Unit's Modified Interconnector Unit Nomination.
  2. for each of the remaining Trading Periods  $h$  in the Optimisation Time Horizon, these values shall be set to be equal to the value of Minimum Stable Generation as determined in paragraph N.41.1 for the last Trading Period  $h'$  that is within the first 18 hours of that Optimisation Time Horizon.
- N.42 For the purposes of each Ex-Post Initial MSP Software Run the values of Minimum Stable Generation for each Trading Period in the Optimisation Time Horizon for each Price Maker Generator Unit  $u$  that is not Under Test shall be set by the Market Operator to be equal to the Minimum Stable Generation (MINGEN $u_h$ ) values as calculated by the Market Operator in accordance with paragraph 4.49 except that:
1. for Pumped Storage Units the Minimum Stable Generation in Trading Period  $h$  shall be set to be equal to the Minimum Output (MINOUT $u_h$ ) as calculated by the Market Operator in accordance with paragraph 4.49; and
  2. for each Interconnector Unit the Minimum Stable Generation in Trading Period  $h$  shall be set to be equal to the lesser of zero and the Interconnector Unit's Modified Interconnector Unit Nomination.

#### **Derivation of Energy Limit**

- N.43 For each Ex-Ante Indicative MSP Software Run the value of the Energy Limit of an Energy Limited Generator Unit which applies for the Energy Limit Period will be the Accepted value of the Energy Limit, submitted as part of its Technical Offer Data.
- N.44 For each Ex-Post Indicative MSP Software Run, the value of the Energy Limit of an Energy Limited Generator Unit  $u$  which applies for each Trading Period  $h$  in the Energy Limit Period, expressed in units of MWh, shall be calculated by the Market Operator in accordance with paragraph 5.101. For the purposes of that calculation, the relevant value for Actual Output (AO $u_h$ ) which is derived from Metered Generation (MG $u_h$ ) which is determined in accordance with paragraph N.57.
- N.45 For each Ex-Post Initial MSP Software Run, the value of the Energy Limit of an Energy Limited Generator Unit which applies for the Energy Limit Period, expressed in units of MWh, shall be as set out in paragraph 5.101.
- N.46 The value of the Energy Limit of an Energy Limited Generator Unit for the Ending Overlap Optimisation Period in all MSP Software Run Types shall be calculated in accordance with paragraph 5.98.

### **Derivation of Price Quantity Pairs**

N.47 Subject to paragraph N.48, the Price Quantity Pairs to be used in each MSP Software Run shall be as follows:

1. For an Interconnector Unit the relevant Price Quantity Pairs for each Trading Period in the Optimisation Time Horizon shall apply only over the range from the Minimum Stable Generation to the Availability in Trading Period h, where for each Trading Period h in the Optimisation Time Horizon:
  - a. the Price of the first Price Quantity Pair to have a Quantity exceeding the Minimum Stable Generation shall apply between the Minimum Stable Generation and that Quantity;
  - b. the Price of the last Price Quantity Pair to have a Quantity less than the Availability shall apply between that Quantity and the Availability,

where the relevant Price Quantity Pairs for Trading Period h within the first Trading Day of the Optimisation Time Horizon are the Accepted Price Quantity Pairs submitted in Commercial Offer Data for that Interconnector Unit and Trading Period, as modified in accordance with paragraph N.48, while the Price Quantity Pairs used for each Trading Period h in the Ending Overlap Optimisation Period are the Price Quantity Pairs for that same Interconnector Unit and the corresponding Trading Period h in the Trading Day associated with the Optimisation Time Horizon.

2. For Price Maker Generator Units that are not Under Test, other than Interconnector Units and Pumped Storage Units, the relevant Price Quantity Pairs for each Trading Period in the Optimisation Time Horizon shall apply only over the range from the Minimum Output to the Availability in Trading Period h, where for each Trading Period h in the Optimisation Time Horizon:
  - a. the Price of the first Price Quantity Pair to have a Quantity exceeding zero is to apply between zero and that Quantity;
  - b. the Price of the last Price Quantity Pair to have a Quantity less than the Availability is to apply between that Quantity and the Availability,

where the relevant Price Quantity Pairs for each Trading Period h in the Optimisation Time Horizon are to be the Price Quantity Pairs in Commercial Offer Data for that Generator Unit for the Trading Day, as modified in accordance with paragraph N.48.

Where for the avoidance of doubt, the values of Availability and Minimum Stable Generation for each MSP Software Run Type shall be as defined in paragraphs N.37 to N.39 and N.40 to N.42 as applicable.

N.48 For the purpose of determining Market Schedule Quantities, Shadow Prices and System Marginal Price, if two or more Price Quantity Pairs in Commercial Offer Data for the Trading Day (for Generator Units other than Interconnector Units) or for a Trading Period (for Generator Units that are Interconnector Units) have the same Price, then the Price for each of those Price Quantity Pairs shall be modified as follows:

1. the Price submitted by a Generator Unit with Priority Dispatch shall be reduced by a random value between zero and one multiplied by the Tie-Breaking Adder;
2. the Price submitted by a Generator Unit without Priority Dispatch (including Interconnector Units) shall be increased by a random value between zero and one multiplied by the Tie-Breaking Adder.

N.49 For Pumped Storage Units, there are no submitted Prices and consequently the scheduling of Pumped Storage Units shall be performed by the MSP Software to minimise the total MSP Production Cost over all scheduled Generator Units across a given Optimisation Time Horizon. In cases where the same total Schedule Production Cost occurs for alternate schedules for a group of Generator Units which includes at least one Pumped Storage Unit, the MSP Software will schedule the Pumped Storage Unit or Units randomly, without affecting any Tie-Break between Generator Units that are not Pumped Storage Units.

**Derivation of initial conditions**

N.50 Each MSP Software Run in respect of a Trading Day shall take initial conditions from the results of the Preceding MSP Run, as set out in paragraphs N.51 to N.52.

N.51 The value of Market Schedule Quantity for the Trading Period immediately preceding the first Trading Period in the Optimisation Time Horizon shall be set by the Market Operator to equal the value for that Trading Period produced by the Preceding MSP Run.

N.52 The Unit Commitment Schedule for each Generator Unit for Trading Periods prior to the first Trading Period in the Optimisation Time Horizon (used within the MSP Software to calculate Market Schedule Warmth State and to ensure that Minimum On Time, Maximum On Time and Minimum Off Time are not breached) shall be set by the Market Operator to equal the values for those Trading Periods produced by the Preceding MSP Run or Preceding MSP Runs.

N.53 In accordance with paragraph 5.125, the reservoir level for each Pumped Storage Unit at the start of the Optimisation Time Horizon shall be taken from the results produced by the Preceding MSP Run relating to the same point in time.

**SOURCE OF OTHER DATA VALUES**

N.54 For the purposes of Settlement, the value of Minimum Output in each Trading Period for each Price Maker Generator Unit that is not Under Test and that is not a Pumped Storage Unit and or an Interconnector Unit shall be calculated by the Market Operator to equal zero.

**Data values used in Ex-Ante Indicative Market Schedule**

N.55 For the purposes of each Ex-Ante Indicative Market Schedule relating to a Trading Day, for each Trading Period h:

1. for each Generator Unit u that is a Wind Power Unit and that is either a Variable Price Maker Generator Unit Under Test or a Variable Price Taker Generator Unit, the indicative Ex-Ante Market Schedule Quantity (MSQuh) shall be set by the Market Operator to equal the

minimum of the Accepted Forecast Availability and the forecast Output (based on the Wind Power Unit Forecast); and

2. for each Generator Unit  $u$  that not a Wind Power Unit and that is either a Predictable Price Maker Generator Unit Under Test, a Predictable Price Taker Generator Unit, or a Variable Price Taker Generator Unit, the indicative Ex-Ante Market Schedule Quantity ( $MSQu_h$ ) shall be set by the Market Operator to equal the minimum of the Nominated Quantity and the Forecast Availability.

#### **Data values used in Ex-Post Indicative Market Schedule**

N.56 For the purposes of each Ex Post Indicative Market Schedule relating to a Trading Day, for each Trading Period  $h$  commencing at or after 00:00:

1. for each Generator Unit  $u$  that is a Wind Power Unit and that is either a Variable Price Maker Generator Unit Under Test or a Variable Price Taker Generator Unit, the indicative Ex-Post Market Schedule Quantity ( $MSQu_h$ ) shall be set by the Market Operator to equal the minimum of the Accepted Forecast Availability and the forecast Output (based on the Wind Power Unit Forecast); and
2. for each Generator Unit  $u$  that is not a Wind Power Unit and that is either a Predictable Price Maker Generator Unit Under Test, a Predictable Price Taker Generator Unit or a Variable Price Taker Generator Unit, the indicative Ex-Post Market Schedule Quantity ( $MSQu_h$ ) shall be set by the Market Operator to equal the minimum of the Nominated Quantity and the Forecast Availability,

and for each other Trading Period the Market Schedule Quantity for each relevant Generator Unit shall be set in accordance with this Appendix N and Sections 4 and 5.

#### **Data values used in Ex-Post Indicative MSP Software Runs and Ex-Post Indicative Settlement**

N.57 The Settlement Day to which each Ex-Post Indicative Settlement run applies is formed from two partial Trading Days. Each such Trading Day is associated with a separate Optimisation Time Horizon and a separate Ex-Post Indicative MSP Software Run. Where required for the purposes of Ex-Post Indicative Settlement, for each of the Trading Periods which relates to the earlier of these Trading Days, values for the following variables, are based on interim calculations as set out elsewhere within this Appendix N:

1. System Marginal Price ( $SMP_h$ );
2. Market Schedule Quantity ( $MSQu_h$ );
3. Minimum Output ( $MINOUT_uh$ );
4. Dispatch Quantity ( $DQu_h$ ); and
5. Availability Profile ( $AP_uh$ ).

N.58 Where required for the purposes of each Ex-Post Indicative MSP Software Run and Ex-Post Indicative Settlement, the values of Metered Generation shall be determined as follows:

1. for each Trading Period within the first 18 hours of the Optimisation Time Horizon, these values shall be the Metered Generation values ( $MG_uh$ ); and

2. for each of the remaining Trading Periods in the Optimisation Time Horizon, these values shall be set to be equal to the relevant Metered Generation (MGuh') for the last Trading Period h' that is within the first 18 hours of that Optimisation Time Horizon.

N.59 As part of the pre-processing prior to each Ex-Post Indicative MSP Software Run, for use within Ex-Post Indicative Settlement, the values of Dispatch Quantity are set by the Market Operator as follows:

1. for each Price Maker Generator Unit u that is not Under Test and is not an Interconnector Unit,
  - a. for each Trading Period h within the first 18 hours of the Optimisation Time Horizon, the Dispatch Quantity (DQuh) is calculated by the Market Operator in accordance with paragraph 4.49;
  - b. for each of the remaining Trading Periods h in the Optimisation Time Horizon, the value of Dispatch Quantity (DQuh) is set to be equal to the value of Dispatch Quantity as determined in point 1 of this paragraph for the last Trading Period h' that is within the first 18 hours of that Optimisation Time Horizon;
2. for each Interconnector Unit, for each Trading Period h within the Optimisation Time Horizon, the value of Dispatch Quantity (DQuh) is set in accordance with paragraph 5.72;
3. for each Interconnector Residual Capacity Unit, for each Trading Period h within the Optimisation Time Horizon, the value of Dispatch Quantity (DQuh) is set in accordance with paragraph 5.73;

and for all other Generator Units, any value of Dispatch Quantity that is calculated as part of the pre-processing prior to the Ex-Post Indicative MSP Software Run is not used within the MSP Software or within Ex-Post Indicative Settlement.

N.60 As part of the pre-processing prior to each Ex-Post Indicative MSP Software Run, for use within Ex-Post Indicative Settlement, the values of Availability Profile (APuh) for each Trading Period h in the Optimisation Time Horizon for each Price Maker Generator Unit u that is not Under Test are set by the Market Operator to be equal to the value of Availability as determined in paragraph N.38, and for all other Generator Units, any value of Availability Profile that is calculated as part of the pre-processing prior to the Ex-Post Indicative MSP Software Run is not used within the MSP Software or within Ex-Post Indicative Settlement.

N.61 As part of the pre-processing prior to each Ex-Post Indicative MSP Software Run, the values of Minimum Output for each Trading Period for each Pumped Storage Unit or Interconnector Unit are set by the Market Operator as follows:

1. for each Pumped Storage Unit:
  - a. for each Trading Period h within the first 18 hours of the Optimisation Time Horizon, the Minimum Output is set to be equal to the Minimum Output (MINOUTuh) as calculated by the Market Operator in accordance with paragraph 4.49;
  - b. for each of the remaining Trading Periods h in the Optimisation Time Horizon, the value of Minimum Output is set to be equal to the value of Minimum Output as determined in point 1 of this

paragraph for the last Trading Period h' that is within the first 18 hours of that Optimisation Time Horizon; and

2. for each Interconnector Unit the Minimum Output in each Trading Period h in the Optimisation Time Horizon is set in accordance with paragraph 5.78.

#### **Use of Commercial Offer Data and Technical Offer Data in MSP Software**

N.62 The following items of Commercial Offer Data and Technical Offer Data apply to the entirety of an Optimisation Time Horizon and to any part thereof, for each MSP Software Run Type, and the value Accepted at Gate Closure for a Trading Day shall be used for the relevant Optimisation Time Horizon within each run of the MSP Software:

1. Target Reservoir Level for Pumped Storage Units;
2. Target Reservoir Level Percentage for Pumped Storage Units;
3. Energy Limit Start and Energy Limit Stop for Energy Limited Generator Units; and
4. Energy Limit Factor for Energy Limited Generator Units.

N.63 The following Commercial Offer Data and Technical Offer Data values shall be used within the MSP Software such that the value Accepted at Gate Closure for a Trading Day shall be applied equally to all Trading Periods in the Optimisation Time Horizon, for each MSP Software Run Type:

1. Block Load Cold;
2. Block Load Warm;
3. Block Load Hot;
4. Dwell Time 1-3;
5. Dwell Time Trigger Point 1-3;
6. Ramp Up Rate 1-5;
7. Ramp Up Break Point 1-4;
8. Ramp Down Rate 1-5;
9. Ramp Down Break Point 1-4;
10. Minimum On Time;
11. Minimum Off Time;
12. Maximum On Time;
13. Maximum Storage Capacity for Pumped Storage Units;
14. Minimum Storage Capacity for Pumped Storage Units;
15. Pumped Storage Cycle Efficiency for Pumped Storage Units;
16. Start Up Cost for each Warmth State;
17. Synchronous Start Up Time Hot;
18. Synchronous Start Up Time Warm;
19. Synchronous Start Up Time Cold;
20. Shut Down Cost for Demand Side Units; and

21. No Load Cost.

### **CALCULATION OF UPLIFT**

- N.64 The calculation of Uplift in this Appendix in paragraphs N.65 to N.77 shall be based only on data associated with relevant Generator Units, which shall for this purpose include only Price Maker Generator Units (excluding Pumped Storage Units, Interconnector Units and Generator Units Under Test). Throughout paragraphs N.65 to N.77, wherever there is a summation over Generator Units  $u^*$  it shall apply only to this subset of Generator Units.
- N.65 Within this Appendix N and not elsewhere, the following terms and subscripts shall apply:
1. subscript  $k$  denotes a Contiguous Operation Period;
  2.  $TPCOUNT_t$  is the number of Trading Periods that are within the Trading Day  $t$  of the Optimisation Time Horizon;
  3.  $UKSTART_{uk}$  is the sequential number of the Trading Period (where 1 is the first Trading Period in the Optimisation Time Horizon) in which Contiguous Operation Period  $k$  for Generator Unit  $u$  commences, provided that such Contiguous Operation Period starts within the Trading Day of the Optimisation Time Horizon, such that  $1 \leq UKSTART_{uk} \leq TPCOUNT_t$ ; if such Contiguous Operation Period does not commence within the Trading Day  $t$  of the Optimisation Time Horizon under consideration then  $UKSTART_{uk}$  is neither defined nor required;
  4.  $UKSTOP_{uk}$  is the sequential number of the Trading Period (where 1 is the first Trading Period in the Optimisation Time Horizon) in which Contiguous Operation Period  $k$  for Generator Unit  $u$  ends, or the sequential number of the last Trading Period within the Optimisation Time Horizon if such Contiguous Operation Period starts in the Trading Day in the Optimisation Time Horizon and continues to the end of the Optimisation Time Horizon, such that  $UKSTOP_{uk} \geq UKSTART_{uk}$ ; if the Contiguous Operation Period does not commence within the Trading Day  $t$  of the Optimisation Time Horizon under consideration then  $UKSTOP_{uk}$  is neither defined nor required;
  5.  $STC_{ukt}$  is the Start Cost for Contiguous Operation Period  $k$  for Generator Unit  $u$  which is attributed to that part of Contiguous Operation Period  $k$  that falls within the Trading Day  $t$  of the relevant Optimisation Time Horizon;
  6.  $CFCR_{ukt}$  is the Carried Forward Cost Recovery for Generator Unit  $u$  in Contiguous Operation Period  $k$ , being that cost recovery element that is carried forward from the Trading Day  $t$  of the Optimisation Time Horizon to the next Trading Day pursuant to paragraphs N.69 - N.70;
  7.  $CR_{ukt}$  is the Cost of Running for each relevant Generator Unit  $u$  in that part of Contiguous Operation Period  $k$  which falls in the Trading Day  $t$  of the relevant Optimisation Time Horizon as calculated in paragraph N.75;
  8.  $OINUPL_h$  is the Optimised Initial Uplift value for Trading Period  $h$  as calculated in paragraph N.76;

9. REVMINT is the minimum value of energy payments to relevant Generator Units in Trading Day t that satisfies the relevant constraints, as calculated in paragraph N.76;
10. MSCuk is the Market Start Up Cost for Generator Unit u applicable to Contiguous Operation Period k, and is equal to the Market Start Up Cost (MSUCuh) for Generator Unit u in the first Trading Period h of Contiguous Operation Period k

**Procedure to calculate Cost Recovery values**

- N.66 The procedure to calculate the Cost of Running to be used as the basis for cost recovery is set out below. Each of these calculations shall be made independently for each Optimisation Time Horizon.
- N.67 Paragraphs N.69 to N.75 apply exclusively to relevant Generator Units as defined in paragraph N.65
- N.68 For each Generator Unit u which is a Pumped Storage Unit or an Interconnector Unit or a Generator Unit Under Test or which is not a Price Maker Generator Unit, values of the Cost of Running (CRukt), Carried Forward Cost Recovery (CFCRukt) and Start Cost (STCukt) for these other Generator Units are neither calculated nor required.

***Calculating start costs to be carried forward***

*Unit starts and stops within the first Trading Day or started in the previous Trading Day*

- N.69 All values of Carried Forward Cost Recovery (CFCRukt) for Generator Units u in Contiguous Operation Period k other than those which start within the Trading Day of an Optimisation Time Horizon and then continue beyond to the next Trading Day shall be set to equal zero.

*Unit starts in the first Trading Day and continues into the Second Trading Day*

- N.70 When a Contiguous Operation Period for a relevant Generator Unit u starts within the Trading Day of an Optimisation Time Horizon and continues to the next Trading Day, a portion of the Start Up Costs shall be allocated to the Trading Day in which the Contiguous Operation Period began and the remainder will be allocated to the next Trading Day, as follows. For each such Generator Unit u, for each Contiguous Operation Period k that starts within the first such Trading Day and continues to the second such Trading Day, the values of Carried Forward Cost Recovery (CFCRukt) from the first Trading Day t to the following Trading Day shall be as follows:

$$CFCRukt = MSCuk \times \left( \frac{UKSTOPuk - TPCOUNTt}{1 + UKSTOPuk - UKSTARTuk} \right)$$

Where:

1. MSCuk is the Market Start Cost for Generator Unit u in Contiguous Operation Period k as defined in paragraph N.65 above
2. TPCOUNTt, UKSTARTuk and UKSTOPuk are as defined in paragraph N.65 above



**Calculating start costs to be recovered within each Trading Day**

*Unit starts and stops in the first Trading Day*

- N.71 For each Price Maker Generator Unit u for each Contiguous Operation Period k that both starts and ends within the Trading Day t of the relevant Optimisation Time Horizon, values of Start Cost (STC<sub>ukt</sub>) shall be calculated as follows:

$$STC_{ukt} = MSC_{uk}$$

Where:

1. MSC<sub>uk</sub> is the Market Start Cost for Generator Unit u in Contiguous Operation Period k

*Unit starts in the first Trading Day and continues to the second Trading Day*

- N.72 For each Price Maker Generator Unit u, for each Contiguous Operation Period k that starts within the Trading Day t of the relevant Optimisation Time Horizon and continues to the next Trading Day, values of Start Cost (STC<sub>ukt</sub>) to be recovered within that part of Contiguous Operation Period k in Trading Day t shall be calculated as follows:

$$STC_{ukt} = MSC_{uk} - CFCR_{ukt}$$

Where:

1. MSC<sub>uk</sub> is the Market Start Cost for Generator Unit u in Contiguous Operation Period k, as set out in paragraph N.65
2. CFCR<sub>ukt</sub> is the Carried Forward Cost Recovery for Generator Unit u from the first Trading Day t of Contiguous Operation Period k

*Unit started in the previous Trading Day*

- N.73 For each Price Maker Generator Unit u, for each Contiguous Operation Period k that starts in the Trading Day (t-1) immediately preceding the Trading Day t of the present Optimisation Time Horizon and continues to the Trading Day t of that Optimisation Time Horizon, values of Start Cost (STC<sub>ukt</sub>) to be recovered within that part of Contiguous Operation Period k which falls within Trading Day t shall be calculated as follows:

$$STC_{ukt} = CFCR_{uk}(t-1)$$

Where:

1. CFCR<sub>uk</sub>(t-1) is the Carried Forward Cost Recovery for Generator Unit u from the preceding Trading Day (t-1) to the Trading Day t of the present Optimisation Time Horizon as calculated in accordance with paragraph N.70.

**Unit started before the previous Trading Day**

- N.74 For an Optimisation Time Horizon, all values of Start Cost (STC<sub>ukt</sub>) for Generator Unit u in Contiguous Operation Periods k that start earlier than one Trading Day before the start of the relevant Optimisation Time Horizon shall be set equal to zero.

**Cost of running**

- N.75 The Cost of Running (CR<sub>ukt</sub>) for each Price Maker Generator Unit u in that part of Contiguous Operation Period k which falls in the first Trading Day t of the relevant Optimisation Time Horizon shall be calculated as follows:

$$CR_{ukt} = \left[ \sum_{h \in k \cap h_{int}} ((MSQ_{uh} \times MOP_{uh}) + MNLC_{uh} + MSQCC_{uh}) \times TPD \right] + STC_{ukt}$$

Where:

1. MOP<sub>uh</sub> is the Market Offer Price of Generator Unit u in Trading Period h
2. MSQ<sub>uh</sub> is the Market Schedule Quantity for Generator Unit u in Trading Period h
3. MNLC<sub>uh</sub> is the Market No Load Cost for Generator Unit u in Trading Period h
4. MSQCC<sub>uh</sub> is the Market Schedule Quantity Cost Correction for Generator Unit u in Trading Period h
5. TPD is the Trading Period Duration
6. STC<sub>ukt</sub> is the Start Cost to be recovered within that part of Contiguous Operation Period k which falls within Trading Day t
7.  $\sum_{h \in k \cap h_{int}}$  is a summation over all Trading Periods h which are both within Contiguous Operation Period k and within the Trading Day t in the relevant Optimisation Time Horizon

**Procedure to calculate Minimum Revenue value**

- N.76 The Minimum Revenue (REVMINT) for the Trading Day shall be used to define a constraint on the derivation of Uplift values (UPLIFTh), and shall be calculated as follows. For each Optimisation Time Horizon, the procedure to calculate the Minimum Revenue (REVMINT) for the Trading Day t in that Optimisation Time Horizon is set out below where, within this procedure, the following meanings apply:

1. REVMINT is the Minimum Revenue in Trading Day t that satisfies the relevant constraints, calculated in accordance with this paragraph
2. OINUPL<sub>h</sub> is the Optimised Initial Uplift value for each Trading Period h, calculated in accordance with this paragraph
3. SP<sub>h</sub> is the Shadow Price for Trading Period h
4. MSQ<sub>uh</sub> is the Market Schedule Quantity for Generator Unit u in Trading Period h

5. TPD is the Trading Period Duration
6.  $CR_{ukt}$  is the Cost of Running for Generator Unit  $u$  in that part of Contiguous Operation Period  $k$  which falls in the Trading Day  $t$  of the relevant Optimisation Time Horizon, calculated as set out in paragraph N.75
7.  $\sum_{u^*}$  is a summation over all Price Maker Generator Units  $u$ , (excluding Pumped Storage Units, Interconnector Units and Generator Units Under Test)
8.  $\sum_{h \cap t}$  is a summation over each Trading Period  $h$  in Trading Day  $t$
9.  $\sum_{h \cap k \cap t}$  is a summation over each Trading Period  $h$  that is both within Contiguous Operation Period  $k$  and within Trading Day  $t$

The procedure is as follows:

**Step 1**

**Select a set of values of Optimised Initial Uplift (OINUPLh) for each Trading Period h in Trading Day t which give the minimum value of**

$$\sum_{u^*} \sum_{h \cap t} ((OINUPLh + SP_h) \times MSQ_{uh} \times TPD)$$

**subject to that set of values of OINUPLh satisfying the following constraints:**

1.  $\sum_{h \cap k \cap t} ((OINUPLh + SP_h) \times MSQ_{uh} \times TPD) - CR_{ukt} \geq 0$  for each Price Maker Generator Unit  $u$  (excluding Pumped Storage Units, Interconnector Units and Generator Units Under Test); and
2.  $OINUPLh \geq 0$  for all Trading Periods  $h$  in Trading Day  $t$ .

**Step 2**

Using the set of Optimised Initial Uplift values (OINUPLh) from Step 1 above, the minimum value of energy payments (REVMINT) to relevant Generator Units  $u$  in Trading Day  $t$  is calculated as follows:

$$REVMINT_t = \sum_{u^*} \sum_{h \cap t} ((OINUPLh + SP_h) \times MSQ_{uh} \times TPD)$$

**Procedure to calculate final Uplift values**

N.77 For each Optimisation Time Horizon, the final part of the procedure to calculate the Uplift values (UPLIFTh) for the Trading Day  $t$  in that Optimisation Time Horizon is set out below where, within this procedure, the following meanings apply:

1. UPLIFTh is the value of Uplift for Trading Period  $h$
2. REVMINT is the Minimum Revenue in Trading Day  $t$ , calculated in accordance with Step 2 of paragraph N.76
3. SP<sub>h</sub> is the Shadow Price for Trading Period  $h$

4. MSQuh is the Market Schedule Quantity for Generator Unit u in Trading Period h
5. TPD is the Trading Period Duration
6. CRukt is the Cost of Running for Generator Unit u in that part of Contiguous Operation Period k which falls in the Trading Day t of the relevant Optimisation Time Horizon, calculated as set out in paragraph N.75
7.  $\alpha$  is the Uplift Alpha value used in the determination of Uplift to determine the importance of the Uplift Cost Objective referenced in paragraph 4.68;
8.  $\beta$  is the Uplift Beta value used in the determination of Uplift to determine the importance the Uplift Profile Objective referenced in paragraph 4.68;
9.  $\delta$  is the Uplift Delta value used in the determination of Uplift to restrict the overall increase in market revenue due to Uplift over the Trading Day t
10.  $\sum_{u^*}$  is a summation over all relevant Price Maker Generator Units u, (excluding Pumped Storage Units, Interconnector Units and Generator Units Under Test)
11.  $\sum_{h \in t}$  is a summation over each Trading Period h in Trading Day t
12.  $\sum_{h \in k \cap t}$  is a summation over each Trading Period h that is both within Contiguous Operation Period k and within Trading Period t

The procedure is as follows:

**Select a set of values of Uplift (UPLIFTh) for each Trading Period h in Trading Day t which give the minimum value of**

$$\alpha \times \left[ \sum_{h \in t} \left( (UPLIFTh + SP_h) \times \sum_{u^*} (MSQuh \times TPD) \right) \right] + \beta \times \left[ \sum_{h \in t} (UPLIFTh)^2 \right]$$

**subject to that set of values of UPLIFTh satisfying the following constraints:**

1.  $\sum_{h \in k \cap t} [(UPLIFTh + SP_h) \times MSQuh \times TPD] \geq CRukt$  for each Price Maker Generator Unit u (excluding Pumped Storage Units, Interconnector Units and Generator Units Under Test)
2.  $UPLIFTh \geq 0$  for all Trading Periods h in Trading Day t; and
3.  $\sum_{u^*} \sum_{h \in t} ((UPLIFTh + SP_h) \times MSQuh \times TPD) \leq (1 + \delta) \times REVMINt$

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## APPENDIX O: INSTRUCTION PROFILING CALCULATIONS

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- O.1 This Appendix O of the Code sets out detailed provisions in relation to the Instruction Profiling that shall be used by the Market Operator to determine the values for each Trading Period of the Dispatch Quantity for each Generator Unit, subject to paragraph O.5, that shall be included within Ex-Post Indicative MSP Software Runs and Ex-Post Initial MSP Software Runs.
- O.2 Instruction Profiling shall, for each Ex-Post Indicative MSP Software Run, be performed after 14:00 on the day after the start of the relevant Trading Day.
- O.3 Instruction Profiling shall, for each Ex-Post Initial MSP Software Run that is used in the Initial Settlement, be performed after 14:00 four days after the start of the relevant Trading Day
- O.4 Instruction Profiling shall be performed prior to any additional Ex-Post Initial MSP Software Runs performed by the Market Operator as required for Settlement purposes in accordance with the Code.
- O.5 Instruction Profiling shall not be performed for Autonomous Generator Units, Interconnector Units or Interconnector Residual Capacity Units, and the values of Dispatch Quantity for these Generator Units shall be calculated as set out within Section 5 of the Code.

### **CAPTURE INPUT DATA**

- O.6 The following Registration Data and Technical Offer Data, provided in accordance with Appendix H: "Participant and Unit Registration and Deregistration" and Appendix I: "Offer Data" respectively, shall be used by the Market Operator to create Instruction Profiles for each Generator Unit for each Trading Day:
1. Registered Capacity / Maximum Generation;
  2. Hot Cooling Boundary;
  3. Warm Cooling Boundary;
  4. Block Load Flag;
  5. Block Load Cold, Block Load Warm and Block Load Hot;
  6. Loading Rate Hot 1, 2 & 3;
  7. Loading Rate Warm 1, 2 & 3;
  8. Loading Rate Cold 1, 2 & 3;
  9. Load Up Break Point Hot 1 & 2;
  10. Load Up Break Point Warm 1 & 2;
  11. Load Up Break Point Cold 1 & 2;
  12. Soak Time Hot 1 & 2;
  13. Soak Time Warm 1 & 2;
  14. Soak Time Cold 1 & 2;
  15. Soak Time Trigger Point Hot 1 & 2;
  16. Soak Time Trigger Point Warm 1 & 2;

17. Soak Time Trigger Point Cold 1 & 2;
  18. Ramp Up Rate 1, 2, 3, 4 & 5;
  19. Ramp Up Break Point 1, 2, 3 & 4;
  20. Dwell Time 1, 2 & 3;
  21. Dwell Time Trigger Point 1, 2 & 3;
  22. Ramp Down Rate 1, 2, 3, 4 & 5;
  23. Ramp Down Break Point 1, 2, 3 & 4;
  24. Deloading Rate 1 & 2;
  25. Deload Break Point;
  26. Maximum Ramp Up Rate (applicable to Demand Side Units);
  27. Maximum Ramp Down Rate (applicable to Demand Side Units);
  28. Dispatchable Quantity (Maximum Generation applicable to Demand Side Units);
  29. Start of Restricted Range 1;
  30. End of Restricted Range 1;
  31. Start of Restricted Range 2; and
  32. End of Restricted Range 2.
- O.7 The following Outturn Data for each Generator Unit for the Trading Day, as provided by the relevant System Operator to the Market Operator in accordance with Appendix K: "Market Data Transactions", shall be used by the Market Operator to create Instruction Profiles for each Generator Unit for each Trading Day:
1. Outturn Minimum Stable Generation;
  2. Outturn Minimum Output;
  3. Outturn Availability; and
  4. Last Status Change Time.
- O.8 The following Dispatch Instructions provided by the relevant System Operator to the Market Operator in accordance with Appendix K: "Market Data Transactions" shall be used by the Market Operator to create Instruction Profiles for each Generator Unit for the Trading Day :
1. Instruction Issue Time;
  2. Instruction Effective Time;
  3. Target Instruction Level;
  4. Instruction Code;
  5. Instruction Combination Code;
  6. Dispatch Ramp Up Rate; and
  7. Dispatch Ramp Down Rate.
- O.9 The Instruction Codes and Instruction Combination Codes that are used by the System Operators are listed in Table O.1.

**Table O.1 – Instruction Codes and Instruction Combination Codes**

<b>Instruction Code</b>	<b>Instruction Combination Code</b>	<b>Description</b>
SYNC	n/a	Synchronise the Generator Unit at the specified Instruction Effective Time.
MWOF	n/a	Adjust the Generator Unit Output to the specified Target Instruction Level.
DESY	n/a	Desynchronise the Generator Unit at the specified Instruction Effective Time.
GOOP	PGEN	Instruct positive Output from a Pumped Storage Unit at the specified Instruction Effective Time.
GOOP	PUMP	Instruct negative Output from a Pumped Storage Unit at the specified Instruction Effective Time.
GOOP	SCT	Instruct Synchronisation in generating mode and 0MW Output for a Pumped Storage Unit at the specified Instruction Effective Time.
GOOP	SCP	Instruct Synchronisation in pumping mode and 0MW Output from a Pumped Storage Unit at the specified Instruction Effective Time.
TRIP	n/a	Retrospectively issued Dispatch Instruction to indicate that a Generator Unit Desynchronised unexpectedly.
WIND	LOCL	Instruction for a Wind Power Unit to reduce Output due to a Local Network Constraint at the specified Instruction Effective Time.
WIND	LCLO	Instruction for a Wind Power Unit to cease the reduction of Output due to a Local Network Constraint at the specified Instruction Effective Time.
WIND	CURL	Instruction for a Wind Power Unit to reduce Output due to an All-Island Curtailment at the specified Instruction Effective Time.
WIND	CRLO	Instruction for a Wind Power Unit to cease the reduction of Output due to an All-Island Curtailment at the specified Instruction Effective Time.
MXON	n/a	Instruction to a Generator Unit to adjust its Output to the registered Short Term Maximisation Capability at the specified Instruction Effective Time.
MXOF	n/a	Instruction to de-activate a Maximisation Instruction at the specified Instruction Effective Time.
FAIL	n/a	Retrospectively-issued Dispatch Instruction to indicate that a Generator Unit failed to Synchronise as instructed.

**DISPATCH INSTRUCTION VALIDATION**

- O.10 Dispatch Instructions for a Trading Day shall be sorted by Generator Unit, Instruction Effective Time and Instruction Issue Time.
- O.11 If multiple Dispatch Instructions with the same Instruction Effective Time but different Instruction Issue Times are issued for a Generator Unit, then the Dispatch Instruction with the latest Instruction Issue Time shall be used. For Dispatch Instructions having the same Instruction Issue Time and Instruction Effective Time, the Dispatch Instruction shall be ordered based on the following sequence of Instruction Codes:

1. TRIP;
  2. MWOFF;
  3. MXON;
  4. SYNC;
  5. GOOP;
  6. WIND;
  7. MXOF; and
  8. DESY.
- O.12 For Dispatch Instructions having a MWOFF Instruction Code and equal Instruction Effective Times, the Dispatch Instruction with the largest Target Instruction Level shall be used.
- O.13 For two Dispatch Instructions having the same Instruction Effective Time, where the first Dispatch Instruction is defined as Dispatch Instruction A and the second Dispatch Instruction is defined as Dispatch Instruction B, the Instruction Code and Instruction Combination Code that shall be used for the resultant Dispatch Instruction are shown in Table O.2. For the avoidance of doubt, MWOFF(x) is defined as Dispatch Instruction having an Instruction Code of MWOFF and a Target Instruction Level of x MW. SYNC(x) is defined as Dispatch Instruction having an Instruction Code of SYNC and a Target Instruction Level of x MW. DESY(x) is defined as Dispatch Instruction having an Instruction Code of DESY and a Target Instruction Level of x MW. PGEN(x) is defined as a Dispatch Instruction having an Instruction Code of GOOP, an Instruction Combination Code of PGEN and a Target Instruction Level of x MW.

**Table O.2 – Validation Rules for two Dispatch Instructions having the same Effective Time**

Instruction Code A	Instruction Combination Code A	Instruction Code B	Instruction Combination Code B	Resultant Instruction Code	Resultant Instruction Combination Code
MWOFF(x)	n/a	SYNC	n/a	SYNC (x)	n/a
SYNC	n/a	MWOFF(x)	n/a	SYNC (x)	n/a
MWOFF(x)	n/a	DESY	n/a	DESY (x)	n/a
DESY	n/a	MWOFF(x)	n/a	DESY (x)	n/a
MWOFF(x)	n/a	GOOP	PGEN	GOOP	PGEN (x)
GOOP	PGEN	MWOFF(x)	n/a	GOOP	PGEN (x)

- O.14 The sorted Dispatch Instructions for each Generator Unit shall be validated by the Market Operator using the rules in Table O.3, Table O.4 and Table O.5.



**Table O.3 – Validation Rules for Dispatch Instructions**

Preceding Instruction Code	Current Instruction Code	Action
SYNC	SYNC	Ignore Dispatch Instruction linked to current Instruction Code.
DESY	DESY	Ignore Dispatch Instruction linked to current Instruction Code.
TRIP	TRIP	Ignore Dispatch Instruction linked to current Instruction Code.
SYNC	FAIL	If Instruction Effective Time for Dispatch Instruction having FAIL Instruction Code is up to and including 1 hour after the Instruction Effective Time for a Dispatch Instruction having SYNC Instruction Code, the Dispatch Instruction having the preceding SYNC Instruction Code shall be ignored. Dispatch Instructions having Instruction Effective Times between the Instruction Effective Times for the Dispatch Instructions having the FAIL and the preceding SYNC Instruction Codes shall be ignored.
SYNC	FAIL	If Instruction Effective Time for Dispatch Instruction having FAIL Instruction Code is over 1 hour after the Instruction Effective Time for the Dispatch Instruction having SYNC Instruction Code, profile the Dispatch Instruction having SYNC Instruction Code as normal and discard the Dispatch Instruction having FAIL Instruction Code.
FAIL	SYNC	Ignore Dispatch Instructions having FAIL Instruction Code, if this Dispatch Instruction is not matched with previous Dispatch Instruction having a SYNC Instruction Code. Profile Dispatch Instruction having SYNC Instruction Code as per normal.

**Table O.4 – Validation Rules for Dispatch Instructions for all Generator Units**

Instruction Code	MWOF(x)	Action
MWOF	x > Registered Capacity	Set x to > Registered Capacity
MWOF	x in Restricted Range	Profile MWOF(x)
SYNC <sup>1</sup>	x > Registered Capacity	Set x to Registered Capacity
SYNC	x in Restricted Range	Profile MWOF(x)
MWOF	0 < x < Outturn Minimum Stable Generation	Profile MWOF(x)
SYNC	x = NULL	Set x = Outturn Minimum Stable Generation
DESY <sup>2</sup>	x = NULL	Set x = 0

<sup>1</sup> A Dispatch Instruction with a SYNC Instruction Code is accompanied by a Dispatch Instruction having a MWOF Instruction Code and an Instructed Quantity greater than or equal to Outturn Minimum Stable Generation.

<sup>2</sup> A Dispatch Instruction with a DESY Instruction Code is accompanied by a Dispatch Instruction having a MWOF Instruction Code and an Instructed Quantity of 0MW

**Table O.5 – Validation Rules for Maximisation Instructions**

Instructed Quantity	Instruction Code	MWOF(x)	Action
Any	MXON	x = NULL	Set Maximisation Flag for the equivalent Trading Period in Settlement. Profile to Short Term Maximisation Capability.
NULL	MWOF (after MXON)	x = ANY	Maximisation ends. Profile to Target Instruction Level associated with new MWOF Instruction Code.
NULL	MXOF	x = NULL	Set Maximisation Flag for all Trading Periods covered. Profile back to Target Instruction Level associated with last MWOF Instruction Code at the latest Ramp Down Rate.

- O.15 A Dispatch Instruction having a MWOF or DESY Instruction Code which follows a Dispatch Instruction having an Instruction Code MXOF shall be taken to de-activate the Maximisation Instruction.
- O.16 A Dispatch Instruction having a GOOP Instruction Code and having a SCP Instruction Combination Code must precede a Dispatch Instruction having a GOOP Instruction Code and a PUMP Instruction Combination Code.

**PROFILE OPERATING MODES**

- O.17 The normal operating modes for a Synchronised Generator Unit are load up mode, ramp up mode, ramp down mode and deload mode. Each operating mode of a Generator Unit is described by a piecewise linear Operating Trajectory that describes the theoretical Output of a Generator Unit over time.
- O.18 The load up trajectory of a Generator Unit is a piecewise linear curve that describes the theoretical Output of a Generator Unit over time from Start Up to the End Point of Start Up Period.
1. The load up trajectory is determined by:
    - a. Block Load Cold, Block Load Warm and Block Load Hot;
    - b. Loading Rate Hot 1, 2 & 3;
    - c. Loading Rate Warm 1, 2 & 3;
    - d. Loading Rate Cold 1, 2 & 3;
    - e. Load Up Break Point Hot 1 & 2;
    - f. Load Up Break Point Warm 1 & 2;
    - g. Load Up Break Point Cold 1 & 2;
    - h. Soak Time Hot 1 & 2;
    - i. Soak Time Warm 1 & 2;
    - j. Soak Time Cold 1 & 2;
    - k. Soak Time Trigger Point Hot 1 & 2;
    - l. Soak Time Trigger Point Warm 1 & 2; and
    - m. Soak Time Trigger Point Cold 1 & 2.

2. Each segment of the piecewise linear load up trajectory for the Generator Unit is identified by start MW, end MW, rate in MW/min and the time from start MW to end MW.
- O.19 The ramp up trajectory of a Generator Unit is a piecewise linear curve that describes the theoretical Output of a Generator Unit over time from Outturn Minimum Stable Generation to the Registered Capacity of the Generator Unit.
1. The ramp up trajectory is determined by:
    - a. Registered Capacity
    - b. Outturn Minimum Stable Generation
    - c. Ramp Up Rates 1, 2, 3, 4 & 5
    - d. Ramp Up Break Point 1, 2, 3 & 4
    - e. Dwell Time 1, 2 & 3
    - f. Dwell Time Trigger Point 1, 2 & 3
  2. Each segment of the piecewise linear ramp up trajectory for the Generator Unit is identified by start MW, end MW, rate in MW/min and the time from start MW to end MW.
- O.20 The ramp down trajectory of a Generator Unit is a piecewise linear curve that describes the theoretical Output of a Generator Unit over time from the Registered Capacity of the Generator Unit to Outturn Minimum Stable Generation.
1. The ramp down trajectory is determined by:
    - a. Registered Capacity
    - b. Outturn Minimum Stable Generation
    - c. Ramp Down Rate 1, 2, 3, 4 & 5
    - d. Ramp Down Break Point 1, 2, 3 & 4
    - e. Dwell Time 1, 2 & 3
    - f. Dwell Time Trigger Point 1, 2 & 3
  2. Each segment of the piecewise linear ramp down trajectory for the Generator Unit is identified by start MW, end MW, rate in MW/min and the time from start MW to end MW.
- O.21 The deloading trajectory of a Generator Unit is a piecewise linear curve that describes the theoretical Output of a Generator Unit over time from Outturn Minimum Stable Generation to 0MW.
1. The deloading trajectory is determined by:
    - a. Outturn Minimum Stable Generation
    - b. 0MW
    - c. Deloading Rate 1 & 2
    - d. Deload Break Point
  2. Each segment of the piecewise linear deloading trajectory for the Generator Unit is identified by start MW, end MW, rate in MW/min and the time from start MW to end MW.

## CREATE INSTRUCTION PROFILE

- O.22 Each section of the piecewise linear Instruction Profile for a Generator Unit shall be produced in sequence by stepping through the Dispatch Instructions for the Generator Unit as follows.
1. The MW/Time Co-ordinates from the previous segment of the Instruction Profile shall be retrieved. For the initial segment of the Instruction Profile the MW/Time Co-ordinate is the end MW/Time Co-ordinate from the end segment of the Instruction Profile calculated for the previous Trading Day.
  2. Where an initial MW/Time Co-ordinate is not available for the Generator Unit from the previous Instruction Profiling run, the Target Instruction Level for the latest Dispatch Instruction for the Generator Unit prior to 06:00 on the Trading Day shall be used as the initial Instructed Quantity for the Generator Unit.
  3. The active Dispatch Instruction shall be identified using the MW/Time Co-ordinates from the previous segment of the Instruction Profile and the Instruction Effective Time that corresponds to that Dispatch Instruction.
  4. The active Dispatch Instruction shall be validated by the Market Operator using the MW/Time Co-ordinates from the previous segment of the Instruction Profile, the Target Instruction Level, the Instruction Code and Instruction Combination Code using the rules specified in Tables O.6 and O.7.

**Table O.6 – Instruction Profiling Validation Rules for Generator Units that are not Pumped Storage Units**

Instructed Quantity from previous segment of Instruction Profile	Instruction Code for active Dispatch Instruction	Target Instruction Level	Action
ANY	SYNC	Null	Set Target Instruction Level of accompanying Dispatch Instruction having Instruction Code MWOFF to Outturn Minimum Stable Generation.
0	SYNC	< Outturn Minimum Stable Generation	Set Target Instruction Level of accompanying Dispatch Instruction having Instruction Code MWOFF to Outturn Minimum Stable Generation.
0	MWOFF	0	Ignore Dispatch Instruction.
0	MWOFF	> 0	Use Cold Start Up Operating Characteristics.
0	DESY		Ignore Dispatch Instruction.
>0	SYNC		Ignore Dispatch Instruction.
>0	MWOFF	0	Profile to zero.
>0	DESY	>0	Profile to MWOFF(0).
0	TRIP		Ignore Dispatch Instruction.

**Table O.7 – Instruction Profiling Validation Rules for Pumped Storage Units**

Instructed Quantity from segment of Instruction Profile	Quantity previous of Dispatch Instruction	Instruction Code for active Dispatch Instruction	Instruction Combination Code	Action.
0		SYNC	n/a	Ignore Dispatch Instruction.
0		MWOF(0)	n/a	Ignore Dispatch Instruction.
0		DESY	n/a	Ignore Dispatch Instruction.
0		GOOP	SCP	Ignore Dispatch Instruction.
0		GOOP	SCT	Ignore Dispatch Instruction.
0		GOOP	PUMP	Profile to MWOF(Pumping Capacity).
> 0		SYNC	n/a	Ignore Dispatch Instruction.
> 0		MWOF(0)	n/a	Profile to zero.
> 0		GOOP	PGEN	Ignore Dispatch Instruction.
> 0		GOOP	PUMP	Profile to MWOF(Pumping Capacity).
< 0		SYNC	n/a	Ignore Dispatch Instruction.
< 0		MWOF(0)	n/a	Profile to zero.
< 0		GOOP	PUMP	Ignore Dispatch Instruction.
< 0		MWOF(> 0)	n/a	Profile to zero, then profile to Target Instruction Level associated with MWOF Instruction Code.
0		MWOF(> 0)	n/a	Profile to Target Instruction Level associated with MWOF Instruction Code.
< 0		GOOP MWOF (0)	PGEN	Set Target Instruction Level associated with MWOF Instruction Code to Outturn Minimum Stable Generation.
< 0		GOOP MWOF(NULL)	PGEN	Set Target Instruction Level associated with MWOF Instruction Code to Outturn Minimum Stable Generation.
< 0		GOOP MWOF(NOT=(0 OR NULL))	PGEN	Profile to zero, then profile to Target Instruction Level associated with MWOF Instruction Code.
0		TRIP	n/a	Ignore Dispatch Instruction.

- O.23 The Warm Cooling Boundary, Hot Cooling Boundary, the Instructed Quantity from the previous segment of the piecewise linear Instruction Profile and the Target Instruction Level for the current Dispatch Instruction shall be used to determine the appropriate operating mode of the Generator Unit. (The normal operating modes for a synchronised Generator Unit are load up mode, ramp up mode, ramp down mode and deload mode).
- O.24 The appropriate segment from the piecewise linear Operating Trajectory shall be selected.
- O.25 Where a Dispatch Ramp Up Rate accompanies a Dispatch Instruction, the Dispatch Ramp Up Rate shall be used in place of the Ramp Up Rates

submitted as part of Technical Offer Data in the Ramp Up Operating Trajectory for the Generator Unit.

- O.26 Where a Dispatch Ramp Down Rate accompanies a Dispatch Instruction the Dispatch Ramp Down Rate shall be used in place of the Ramp Down Rates submitted as part of Technical Offer Data in the Ramp Down Operating Trajectory for the Generator Unit.
- O.27 The MW/Time Co-ordinates for the current segment of the piecewise linear Instruction Profile shall be calculated based on the MW/Time Co-ordinates from the previous segment of the Instruction Profile, the Instruction Code, the Instruction Combination Code, the Target Instruction Level, and the appropriate segment from the piecewise linear Operating Trajectory and the Trading Period Boundaries subject to the following rules:
1. In the case of a Dispatch Instruction having a GOOP Instruction Code and PUMP Instruction Combination Code, the Instructed Quantity for a Pumped Storage Unit will remain at the specified Target Instruction Level until a DESY Instruction Code is issued at which time the Instructed Quantity will go instantaneously to 0MW.
  2. The MW/Time Co-ordinates for a Dispatch Instruction having a GOOP Instruction Code and SCT Instruction Combination Code will be determined in the same manner as if a Dispatch Instruction having a MWOFF Instruction Code and a very low positive Target Instruction Level were issued.
  3. A Dispatch Instruction having a GOOP Instruction Code and a SCP Instruction Combination Code shall have no actual effect on the Instruction Profile of the Generator Unit except that a PUMP Instruction Code may follow.
  4. The Instructed Quantity at the Instruction Effective Time specified with the Dispatch Instruction having a TRIP Instruction Code will be zero. Ramp Rates, Deloading Rates and Dwell Times will be ignored in the calculation of the Instruction Profile.
  5. The default Instructed Quantity for a Wind Power Unit shall be set to its Output based on its Meter Data. The Instructed Quantity for a Wind Power Unit having a WIND Instruction Code and a LOCL or CURL Instruction Combination Code shall be set to the minimum of the Outturn Availability of the Wind Power Unit and the Target Instruction Level of the Wind Power Unit.
  6. The Target Instruction Level for a Generator Unit with a Dispatch Instruction having a MXON Instruction Code shall be the registered Short Term Maximisation Capability. The Instruction Profile shall be calculated from the last Ramp Up Rate specified for the Generator Unit.
  7. The Target Instruction Level for a Generator Unit with a Dispatch Instruction having a MXOF Instruction Code shall be the Target Instruction Level associated with the last Dispatch Instruction having a MWOFF Instruction Code. The Instruction Profile shall be calculated from Ramp Down Rate 1 for the Generator Unit.
- O.28 A Lag Time shall be applied when defining the MW/Time Co-ordinates for all Dispatch Instructions except Dispatch Instructions having SYNC, TRIP or FAIL Instruction Codes. The Lag Time shall be included in the Instruction Profile to account for the time required for a Generator Unit to make the

control adjustments necessary to implement a Dispatch Instruction. The Lag Time shall be two minutes.

**CALCULATE INSTRUCTED QUANTITY**

- O.29 A time weighted MW value for the Generator Unit for each Trading Period shall be set to be equal to double the calculated area per Trading Period between the piecewise linear Instruction Profile for the Generator Unit and 0 MW. Areas calculated between the piecewise linear Instruction Profile with negative MW values are negative.

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## GLOSSARY

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### DEFINITIONS

<b>Accepted</b>	means, in relation to data submitted by a Participant, that data which the Market Operator is required to use under Section 3 of the Code either because (i) it is the most recently received Validated Data Transaction and is consistent with the appropriate Gate Closure or (ii) the Market Operator is required to use Default Data in accordance with Section 3.
<b>Accession Deed</b>	means the agreement pursuant to which an Applicant becomes a party to the Framework Agreement and, consequently, becomes bound by the Code.
<b>Accession Fee</b>	means a fee to be paid to the Market Operator by each Applicant for Accession to the Code.
<b>Accession Process</b>	means the Accession Process set out at paragraphs 2.13 to 2.19.
<b>Active Interconnector Unit Capacity Holding</b>	means for each Interconnector Unit, the Active Interconnector Unit Import Capacity Holding and the Active Interconnector Unit Export Capacity Holding for each Trading Period during the Optimisation Time Horizon, with values in aggregate for import being consistent with the Maximum Import Available Transfer Capacity for import and with values in aggregate for export being consistent with the Maximum Export Available Transfer Capacity for export.
<b>Active Interconnector Unit Capacity Holding Data</b>	means data outlining the Active Interconnector Unit Capacity Holding for each Interconnector Unit.
<b>Active Interconnector Unit Capacity Holding Data Transaction</b>	is a Data Transaction in relation to Active Interconnector Unit Capacity Holdings detailed in Appendix K: "Market Data Transactions".
<b>Active Interconnector Unit Export Capacity Holding</b>	means the capacity holding of an Interconnector Unit on an Interconnector for export out of the Pool, with the aggregate value across all Interconnector Units on an Interconnector for export being consistent with the Maximum Export Available Transfer Capacity.
<b>Active Interconnector Unit Import Capacity Holding</b>	means the capacity holding of an Interconnector Unit on an Interconnector for import into the Pool, with the aggregate value across all Interconnector Units on an Interconnector for import being consistent with the Maximum Import Available Transfer Capacity.
<b>Active Power</b>	means the product of voltage and the in-phase component of alternating current measured in units of Watts and standard multiples thereof.
<b>Actual Exposure</b>	means the credit exposure resulting from Invoices that have been issued but not yet paid, and from amounts in Settlement Statements for which no Invoice has yet been issued.



<b>Actual Exposure Period</b>	means, for a Billing Period, the period as set out in paragraph 6.173 1 and, for a Capacity Period, the period as set out in paragraph 6.173 2.
<b>Adjusted Participant</b>	means, in relation to the calculation of Required Credit Cover, a Participant as described in paragraph 6.182.
<b>Administered Price</b>	means the System Marginal Price for a Trading Period under circumstances of Administered Settlement.
<b>Administered Quantity</b>	means the Market Schedule Quantity for a Generator Unit for a Trading Period under circumstances of Administered Settlement.
<b>Administered Schedule</b>	means a schedule which sets out Administered Prices for each Trading Period and Administered Quantities for each Generator Unit in each Trading Period in the event of Administered Settlement.
<b>Administered Settlement</b>	means the process of setting an Administered Price or an Administered Schedule as set out in Section 6 of the Code.
<b>Affected Party</b>	means a Party, other than the Market Operator, affected by Force Majeure as more particularly set out in paragraph 2.328.
<b>Aggregate Export Capacity</b>	means the declared total ability of an Interconnector to export power from the Pool, submitted as part of Interconnector Registration Data. Under optimum conditions, the sum of export values for the Active Transfer Capacity of the Interconnector will be equal to the Aggregate Export Capacity.
<b>Aggregate Import Capacity</b>	means the declared total ability of an Interconnector to import power into the Pool, submitted as part of Interconnector Registration Data. Under optimum conditions, the sum of import values for the Active Transfer Capacity of the Interconnector will be equal to the Aggregate Import Capacity.
<b>Aggregate Interconnector Ramp Rate</b>	means the maximum Ramp Up Rate or Ramp Down Rate as appropriate for an Interconnector determined as the lesser of the maximum Ramp Rate which can be accommodated by the Interconnector itself or the maximum Ramp Rate associated with that Interconnector which can be accommodated by the Transmission System or Distribution System to which that Interconnector is Connected.
<b>Aggregate Interconnector Ramp Rate MSP Constraint Cost</b>	means a value that is used within the MSP Software as set out within Appendix N: "Operation of the MSP Software".
<b>Aggregate Modified Interconnector Unit Nomination</b>	means, for each Interconnector in each Trading Period, a pair of values expressed in MW for each of import and export, which are calculated for import as the sum of the Modified Interconnector Unit Nominations which are positive for each Interconnector Unit on that Interconnector, and for export as the sum of the Modified Interconnector Unit Nominations which are negative for each Interconnector Unit on that Interconnector.

<b>Aggregate Modified Interconnector Unit Nomination Data Transaction</b>	is a Data Transaction comprising Aggregate Modified Interconnector Unit Nominations for a single Interconnector for each Trading Period in an Optimisation Time Horizon, as detailed in Appendix J: “Market Operator and System Operator Data Transactions”.
<b>Agreed Procedure Modification Proposal</b>	means any Modification Proposal which relates solely to the modification of an Agreed Procedure and not to any other part of the Code.
<b>Agreed Procedure(s)</b>	means the detailed procedures to be followed by Parties in performing their obligations and functions under the Code as listed in Appendix D “List of Agreed Procedures”.
<b>All-Island Curtailment</b>	means a constraint due to system-wide conditions for the purpose of Appendix O: “Instruction Profiling Calculations” only.
<b>Analysis Percentile Parameter</b>	means the percentage degree of statistical confidence that Actual Exposures, once determined for each Participant, will fall below the estimate of Undefined Potential Exposure.
<b>Annual Capacity Exchange Rate</b>	means the exchange rate between pounds sterling and euro to be applied for a Year.
<b>Annual Capacity Payment Sum</b>	means the sum in euro that shall form the basis for the calculation of Capacity Payments and Capacity Charges in each Capacity Period during a Year determined in accordance with paragraph 4.98.
<b>Annual Load Forecast</b>	means the forecast of Demand to be met by Generator Units (other than Autonomous Generator Units that are not Wind Power Units) at the point where the Units are Connected (i.e. prior to the application of Transmission Loss Adjustment Factors), but net of Unit Load for Generator Units, for each Trading Period in a Year.
<b>Annual Load Forecast Data Transaction</b>	is a Data Transaction in relation to Annual Load Forecasts detailed in Appendix K: “Market Data Transactions”.
<b>Annual Peak Demand Forecast</b>	means the forecast prepared by the System Operators in accordance with Appendix M: “Description of the Function for the Determination of Capacity Payments”.
<b>Appendix</b>	means an Appendix to the Code and the term “Appendices” shall be interpreted accordingly.
<b>Applicable Interim Period</b>	means, in respect of each of the Interim Provisions, the period commencing at the Commencement Date and ending at the date specified in the paragraph of Section 7 in which that Interim Provision is set out.
<b>Applicable Laws</b>	means any directive, legislation, statutory instrument, regulation, or order as is applicable to a Party.
<b>Applicant</b>	means a person whose application to accede to the Code has been submitted and is being processed by the Market Operator as provided for and set out in paragraphs 2.13 to 2.19.

<b>Associated Supplier Unit</b>	means a Supplier Unit which is both recorded to a Trading Site and which has its Demand settled on a gross basis with the Generator Unit(s) on that Trading Site under the rules specified in the Code.
<b>Audit Report</b>	means a report prepared by the Market Auditor in accordance with paragraph 2.138.
<b>Autonomous Generator Unit</b>	means a Generator Unit that is not Dispatchable or subject to Active Power control by the relevant System Operator and which shall be registered as a Price Taker Generator Unit in accordance with paragraph 2.55. For the purposes of the Code, Interconnector Error Units and Netting Generator Units shall be classified as Autonomous Generator Units under the Code.
<b>Autoproducer Site</b>	means a Demand Site where the Demand is not solely for the purpose of Generation (i.e. Demand is not just associated with Unit Load) which contains one or more Generator Units which are not Demand Side Units.
<b>Autoproducer Unit</b>	means a Generator Unit within an Autoproducer Site, as described in paragraphs 5.143 to 5.147.
<b>Availability</b>	means a Generator Unit's capability in MW to deliver Active Power or a Demand Side Unit's capability of reducing the Active Power consumed on the Trading Site.
<b>Availability Profile</b>	means the time weighted average Availability for each Trading Period within the Trading Day for a Generator Unit, calculated as described in paragraph 4.49 or within Section 5.
<b>Available Transfer Capacity</b>	means the available transfer capacity (consisting of the Maximum Export Available Transfer Capacity and the Maximum Import Available Transfer Capacity) for each Interconnector.
<b>Average System Frequency</b>	means the average system frequency for each Trading Period which is submitted in accordance with paragraph 4.146.
<b>Balancing Cost</b>	means the balancing cost described in paragraph 6.140 and calculated in accordance with paragraph 6.141.
<b>Bank</b>	means a holder of a relevant Banking Licence.
<b>Bank Eligibility Requirements</b>	means as defined in paragraph 6.163.
<b>Bank Mandate</b>	means the instructions form relating to the terms on which the cash in a SEM Collateral Reserve Account will be held.
<b>Banking Licence</b>	means a licence issued by the Irish Financial Regulator under Section 9 of the Central Bank Act 1971 (Ireland), or a licence or authorisation to take deposits issued by the Financial Services Authority in the United Kingdom under the Financial Services and Markets Act 2000 (United Kingdom) or any equivalent licence or authorisation granted by an equivalent regulatory body in any Member State of the European Union.

<b>Billing Period Currency Cost</b>	means the cost or the benefit to the Single Electricity Market that is based on the difference in Currency rates between Gate Closure and the actual payment of Invoices and Self Billing Invoices. This cost or benefit is distributed across all Participants in accordance with paragraph 6.136.
<b>Billing Period Invoice</b>	means an Invoice for a particular Billing Period.
<b>Billing Period or BP</b>	means as defined in paragraph 6.41.
<b>Black Start</b>	means as set out in the relevant Grid Code.
<b>Blended Rate</b>	means as defined in the VAT Agreement.
<b>Block Load</b>	means the level of Output that a Generator Unit immediately produces following Synchronisation. For the avoidance of doubt, Block Load can equal 0 MW.
<b>Block Load Cold</b>	means the Block Load during a Cold Start.
<b>Block Load Flag</b>	means a flag to indicate that a Generator Unit has block loading characteristics for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Block Load Hot</b>	means the Block Load during a Hot Start.
<b>Block Load Warm</b>	means the Block Load during a Warm Start.
<b>Capacity Charge</b>	means the charge in respect of Supplier Units in each Capacity Period on the basis of their Loss-Adjusted Net Demand. This charge provides the monies for the funding of Capacity Payments.
<b>Capacity Payment</b>	means the payment in respect of Generator Units in each Capacity Period on the basis of their Eligible Availability.
<b>Capacity Period or CP</b>	means as defined in paragraph 6.44.
<b>Capacity Period Currency Cost</b>	means the cost or the benefit to the Single Electricity Market that is based on the difference in Currency rates between the annual determination of capacity costs in respect of Capacity Payments and Capacity Charges and the actual payment of Invoices and Self Billing Invoices. This cost or benefit is distributed across all Participants in accordance with paragraph 6.139.
<b>Capacity Period Invoice</b>	means an Invoice for a particular Capacity Period.
<b>Capacity Period Payment Sum</b>	means, in relation to any Capacity Period, that part of the Annual Capacity Payment sum for a particular Year that shall apply in the specified Capacity Period in that Year determined in accordance with paragraph 4.98.

<b>Central Market System or CMS</b>	means the IT systems within the control of the Market Operator used to meet its obligations under the Code (including without limitation bid/offer acceptance, MSP Software, Settlement, invoicing, funds transfer and credit assessment).
<b>Classification</b>	means the process of classification of Units into one of the categories defined in Section 5: Special Units.
<b>Clearing Bank</b>	means a Bank that uses a central clearing house in all its dealings with other Banks.
<b>CMS Data Transaction</b>	is a Data Transaction submitted by a Party or Participant in accordance with Appendices I, K and L.
<b>Code</b>	means this Trading and Settlement Code established as set out in paragraph 1.1, including the Appendices and Agreed Procedures as amended from time to time or otherwise modified in accordance with the Code.
<b>Code Objectives</b>	means the objectives of the Code as set out in paragraph 1.3.
<b>Cold</b>	means a cold Warmth State.
<b>Cold Start</b>	means any Synchronisation of a Generator Unit that has previously not been Synchronised for a period of time equal to or longer than its Accepted Warm Cooling Boundary. This data is provided within the submission of Technical Offer Data as described in Appendix I: "Offer Data".
<b>Cold Start Up Cost</b>	means Start Up Costs associated with a Cold Start.
<b>Commencement Date</b>	means the commencement date of the Code as determined by the Regulatory Authorities.
<b>Commencement Notice</b>	means the Notice issued by the Market Operator as set out in paragraph 2.47.
<b>Commercial Offer Data</b>	means commercial offer data in respect of a Generator Unit as set out in Appendix I: "Offer Data".
<b>Commission or Commission for Energy Regulation or CER</b>	means the Commission for Energy Regulation as established pursuant to the Electricity Regulation Act, 1999 or any successor body.
<b>Communication Channel</b>	means one of three methods of transferring data contained in Data Transactions as set out in paragraph 3.7.
<b>Communication Channel Qualification</b>	means the requirements for qualification of a Communication Channel provided for pursuant to paragraph 3.3 and as set out in Agreed Procedure 3 "Communication Channel Qualification"..
<b>Communication Channel Type</b>	means a specific Communication Channel as detailed in paragraph 3.7 and as more specifically set out in Agreed Procedure 3 "Communication Channel Qualification".

<b>Competent Authority</b>	means the Irish Government and Her Majesty's Government, the Cabinet of the Northern Ireland Assembly (where not prorogued), the Department for Communications, Marine and Natural Resources, Her Majesty's Department for Trade and Industry, the Department of Enterprise, Trade and Industry Northern Ireland (DETINI), the Commission, NIAUR, the Irish Competition Authority, the Office for Fair Trading of the United Kingdom, the Competition Commission of the United Kingdom, the Competition Appeals Tribunal of the United Kingdom or any national or supra-national authority, department, minister, court, tribunal or public or statutory person being of a public nature of Ireland, the United Kingdom or of the European Union (including the European Commission, the European Parliament and the European Courts of First Instance and of Justice) and any international or supranational body, with power and competence to make binding decisions, awards, rulings, judgments or decisions.
<b>Confidential Information</b>	has the meaning set out in paragraph 2.344.
<b>Confirmation Notice</b>	means a communication from the Market Operator issued on receipt of a CMS Data Transaction in accordance with paragraph 3.32.
<b>Connected</b>	means where a Generator Unit or a constituent of a Supplier Unit as applicable is connected to a Transmission System or Distribution System respectively and "Connection" shall be construed accordingly.
<b>Connection Agreement</b>	means in either Jurisdiction, an agreement between a Party and a System Operator or Distribution System Operator as appropriate specifying terms and conditions for Connection to the Transmission System or Distribution System and physical and technical parameters for that Connection.
<b>Constraint Payments</b>	means a payment in respect of a Generator Unit based upon the difference between its Dispatch Production Cost and its Schedule Production Cost calculated in accordance with paragraph 4.136 or as otherwise specified in Section 5.
<b>Contiguous Operation Period</b>	means a consecutive set of Trading Periods in which a Price Maker Generator Unit has a Market Schedule Quantity constantly greater than zero within the period spanned by the Optimisation Time Horizon and the most recent Valid MSP Solution for the preceding Trading Day or Trading Days.
<b>Contiguous Site</b>	means one or more buildings or structures occupied or used by one person for production or consumption of electricity where each building or structure is adjacent to or contiguous with the other building or structure and containing adequate metering to define the complete electrical export or import of that contiguous site.
<b>Credit Assessment Price</b>	means a price used in the calculation of Required Credit Cover for a Party under the Code determined in accordance with paragraph 6.201.

<b>Credit Assessment Volume</b>	means a forecast of Output or Demand in respect of a New or Adjusted Participant's Supplier Units or Generator Units based upon information provided by the Participant and used in the calculation of the Participant's Required Credit Cover.
<b>Credit Call</b>	means the call by the Market Operator on a Participant's Credit Cover Provider to draw down all or part of a Participant's Posted Credit Cover.
<b>Credit Cover</b>	means the credit cover required of and provided by a Participant in a form which meets the requirements set out in Section 6.
<b>Credit Cover Adjustment Trigger</b>	means the parameter, determined in accordance with paragraph 6.176, used by a Participant to determine when it should report to the Market Operator expected future changes in the total metered quantities of its Supplier Units such that it should be designated an Adjusted Participant.
<b>Credit Cover Increase Notice</b>	means a Notice from the Market Operator to a Participant specifying the required minimum increase in Credit Cover issued in accordance with the provisions in the Code.
<b>Credit Cover Provider</b>	means the provider of a Participant's Letter of Credit, or the SEM Bank as provider of the Participant's SEM Collateral Reserve Account, or each or both of them as appropriate.
<b>Credited Participant</b>	means the Participant who, as part of a Settlement Reallocation Agreement, is receiving a transfer of funds from the Debited Participant.
<b>Cross Border Supply</b>	means any electricity generated in one Jurisdiction and consumed in the other Jurisdiction.
<b>Currency</b>	means euro in Ireland and pounds sterling in Northern Ireland and "Currencies" shall be construed accordingly.
<b>Currency Cost</b>	means the Billing Period Currency Cost or the Capacity Period Currency Cost or both, as the context requires.
<b>Currency Zone</b>	means the Jurisdiction in which a Unit is Connected.
<b>Data Processing Entity</b>	means a person that submits Data Transactions on a Participant's behalf as provided for in Section 3 of the Code.
<b>Data Protection Legislation</b>	means the Data Protection Acts 1988 and 2003 (Ireland) and the Data Protection Act 1998 (United Kingdom) and, in each case, all regulations, statutes and instruments made thereunder as may be amended from time to time and any other applicable legislation which implements Directive 95/46/EC and any amendment or replacement thereto.
<b>Data Query</b>	means a query which may be required by a Participant in relation to one or more Settlement Items in an Ex-Post Indicative Settlement Statement in accordance with paragraph 6.76.
<b>Data Record</b>	means a set of data fields containing the field-level information within a Data Transaction complying to field-level rules.

<b>Data Transaction</b>	means a set of data included in a communication by a Party to the Market Operator, or by the Market Operator to a Party, which is of a type set out in any of Appendices F-L, and which is required to be made in accordance with the provisions of Appendices F-L and Agreed Procedure 4 “Transaction Submission and Validation”.
<b>Data Verification Period</b>	means the period when Participants have the opportunity to query any data included on the Ex-Post Indicative Settlement Statement in accordance with paragraphs 6.48 and 6.49.
<b>De Minimis Threshold</b>	has the meaning set out in paragraph 2.20.
<b>Debit Note</b>	means a debit note issued to a SEM Creditor following and relating to an Unsecured Bad Debt. The Debit Note will identify the amount by which the payment to the SEM Creditor shall be reduced from that set out in the previously submitted Self Billing Invoice.
<b>Debit Note Excess</b>	means, for a Participant, the amount by which a Debit Note exceeds the amount of the applicable Self Billing Invoice to which it relates.
<b>Debited Participant</b>	means the Participant who has money transferred from it to the Credited Participant as part of a Settlement Reallocation Agreement.
<b>Default</b>	means any material breach by a Party of the Code or the Framework Agreement.
<b>Default Data</b>	means the standing Commercial Offer Data and Technical Offer Data provided by a Participant on registration of each of its Units, but not Interconnector Units, as updated from time to time in accordance with the Code.
<b>Default Interest</b>	means a rate of interest being two percent (2%) above LIBOR.
<b>Default Notice</b>	means a Notice issued by the Market Operator specifying a Default by a Party to the Code.
<b>Defaulting Participant</b>	means a Participant which has not paid an Invoice by the Invoice Due Date and in respect of which a Credit Call has produced a sum which does not cover the Shortfall. The term “Non-Defaulting Participant” shall be construed accordingly.
<b>Defaulting Party</b>	means a Party that is in Default.
<b>Deload Break Point</b>	means the break point which defines the shared MW boundary between the two Deloading Rates. The first Deloading Rate applies from Minimum Stable Generation to the Deload Break Point, the second Loading Rate Hot applies from the Deload Break Point to 0 MW.
<b>Deloading Rate</b>	means the rate at which a Generator Unit decreases Output below Minimum Stable Generation.
<b>Demand</b>	means the consumption of Active Power.
<b>Demand Control</b>	has the meaning set out in the relevant Grid Code.



<b>Demand Control Data Transaction</b>	is a Data Transaction in relation to Demand Control detailed in Appendix K: "Market Data Transactions".
<b>Demand Reduction</b>	means a controlled reduction in net consumption at a Demand Site by a Demand Side Unit in accordance with an instruction from the relevant System Operator.
<b>Demand Side Unit</b>	means one or more Demand Sites which comply individually or collectively as appropriate with the criteria set out in paragraph 5.151 and is so registered by a Participant. A Demand Side Unit is classified as a Generator Unit under the Code.
<b>Demand Site</b>	means a single premises of a final customer connected to the Transmission System or Distribution System.
<b>Deregistration</b>	means the process whereby a Unit, or, in the case of Deregistration of all of its Units, a Participant, or an Interconnector, ceases to be registered for the purposes of participation in the Pool, and "Deregistered" and "Deregister" shall be construed accordingly.
<b>Deregistration Consent Order</b>	means an order issued by the Market Operator to a Party under paragraph 2.114.
<b>Disclosing Party</b>	has the meaning set out in paragraph 2.345.
<b>Discount for Over Generation</b>	means a factor by which prices applied in respect of a Generator Unit which over generates by more than the relevant Tolerance Band shall be reduced, and which is used in the calculation of Uninstructed Imbalances.
<b>Dispatch Instruction</b>	means an instruction given by the System Operator in relation to a Generator Unit which is Dispatchable which relates to the required level of Output of Active Power or mode of operation.
<b>Dispatch Instruction and SO Interconnector Trades Data Transaction</b>	is a Data Transaction in relation to Dispatch Instructions and SO Interconnector Trades detailed in Appendix K: "Market Data Transactions".
<b>Dispatch Production Cost</b>	means the implied cost incurred by a Generator Unit, as determined from the Accepted Price Quantity Pairs, No Load Costs and Start Up Costs and any other relevant Commercial Offer Data and Technical Offer Data, of Output in accordance with Dispatch Instructions or Dispatch Quantities, as applicable.
<b>Dispatch Quantity</b>	means the average level of Active Power production for a Generator Unit in a Trading Period, expressed in MW, calculated as set out in Appendix O: "Instruction Profiling Calculations".
<b>Dispatch Ramp Down Rate</b>	means the Generator Unit Ramp Down Rate specified in a Dispatch Instruction, for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Dispatch Ramp Up Rate</b>	means the Generator Unit Ramp Up Rate specified in a Dispatch Instruction, for the purpose of Appendix O: "Instruction Profiling Calculations" only.

<b>Dispatch Start</b>	means, in any Trading Period where the Dispatch Instructions for a Generator Unit require it to change its level of Output from a value less than or equal to zero MW of Active Power to a value greater than zero MW, the Generator Unit has a Dispatch Start in that Trading Period. Otherwise the Generator Unit has no Dispatch Start in the Trading Period. A Generator Unit may have only one Dispatch Start within a Trading Period.
<b>Dispatch Warmth State</b>	means the calculated Warmth State (being Cold, Warm or Hot) of a Generator Unit at any point in time consistent with the Dispatch Instructions for that Generator Unit at preceding times and the definitions of Cold Start, Warm Start and Hot Start.
<b>Dispatchable</b>	means, in relation to a Generator Unit, the ability of the Generator Unit to receive and act upon an instruction given by the System Operator to the Participant's approved contact person or location to change the Output or manner of operation of the Generator Unit in accordance with the relevant Grid Code. The terms "Dispatch" and "Dispatched" shall be interpreted accordingly.
<b>Dispatchable Quantity</b>	means Maximum Generation for Demand Side Units for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Dispute</b>	means a dispute as set out in paragraph 2.276.
<b>Dispute Resolution Agreement</b>	means the agreement to be signed by the Disputing Party and the DRB in a Dispute in accordance with paragraph 2.299 in the form set out in Appendix B: "Dispute Resolution Agreement".
<b>Dispute Resolution Board or DRB</b>	means the dispute resolution board established pursuant to paragraphs 2.287 to 2.298.
<b>Dispute Resolution Process</b>	means the process of resolving Disputes as set out in paragraphs 2.276 to 2.314.
<b>Disputed Event</b>	means an event, circumstance, claim, difference, Default, assertion of right or entitlement, or denial of right or entitlement in relation to which a Party seeks to raise a Dispute and in the case of a Dispute relating to a series of such events, shall mean the earliest disputed event.
<b>Disputing Party</b>	means any Party to a Dispute.
<b>Distribution Code</b>	means, in respect of Ireland, the distribution code as defined in Section 2(1) of the Electricity Regulation Act 1999 (Ireland); and  means, in respect of Northern Ireland, the code of that title required to be prepared by the Transmission Owner, in its capacity as the owner or operator of the Distribution System, in accordance with its Transmission Owner Licence.
<b>Distribution Connected</b>	means where a Generator Unit or a constituent of a Supplier Unit is connected to a Distribution System.
<b>Distribution Loss Adjustment Factor</b>	means the factor for each Unit in each Trading Period to adjust for the effect of Distribution Losses to be applied in accordance with paragraph 4.40.

<b>Distribution Losses</b>	means losses that are incurred (or avoided) on the Distribution System as electricity is transported to (or from) the relevant boundary of the Transmission System and the Distribution System from (or to) the relevant point of Connection to the Distribution System for the Generator Unit or Supplier Unit.
<b>Distribution System</b>	<p>means, in respect of Ireland, all electric lines and any other electric plant which the Distribution System Operator may, with the approval of the Commission specify as being part of the DSO's distribution system, and includes any electric plant, transformers and switchgear which is used for conveying electricity to final customers; and</p> <p>means, in respect of Northern Ireland, all electric lines of the Distribution System Operator and any other electric lines which the NIAUR may specify as forming part of the distribution system, and includes any electrical plant and meters of the Distribution System Operator which are used in connection with electricity distribution by it.</p>
<b>Distribution System Operator</b>	<p>means, in respect of Ireland, the legal entity being the operator for the time being of the Distribution System for Ireland, as specified in the Distribution Code, as amended or replaced from time to time, in its capacity as operator of the Irish Distribution System; and</p> <p>means in respect of Northern Ireland, the legal entity being the operator for the time being of the Distribution System for Northern Ireland in its capacity as the operator of the Northern Ireland Distribution System. References to the "Distribution System Operators" shall be construed accordingly.</p>
<b>Dwell Time</b>	means the duration for which the Generator Unit must remain at that Dwell Time Trigger Point during a change in its MW Output while ramping up or down between Minimum Generation and Maximum Generation.
<b>Dwell Time Trigger Point</b>	means a constant MW level at which a Generator Unit must remain while ramping up or down between Minimum Stable Generation and Maximum Generation.
<b>Economic Dispatch</b>	means the process of determining optimised Market Schedule Quantities for an Optimisation Time Horizon for Price Maker Generator Units that are not Under Test, given a Unit Commitment Schedule for those Units as defined in Appendix N: "Operation of the MSP Software".
<b>Effective Date</b>	means the Trading Day from which the registration of a Unit or Units to a Participant shall be effective, as specified in a Commencement Notice issued by the Market Operator, or as deferred in accordance with paragraph 2.48. Effective Dates are aligned to Trading Day timescales and all references to Effective Date shall apply from the start of the relevant Trading Day at 06:00.
<b>Electrical System Collapse</b>	means the situation existing when all Generation has ceased in part of the Transmission System and there is no electricity supply such that Black Start procedures as set out in the Grid Code are initiated.

<b>Eligible Availability</b>	means the level of Availability of a Generator Unit that is used for the determination of Capacity Payments in respect of the Unit.
<b>Emergency Meeting</b>	means an emergency Meeting of the Modifications Committee in accordance with paragraph 2.209.
<b>End of Restricted Range 1</b>	means the end-point in MW of the first restricted range of operation of a Generator Unit for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>End of Restricted Range 2</b>	means the end-point in MW of the second restricted range of operation of a Generator Unit for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>End Point of Start Up Period</b>	means the Minimum Stable Generation level of a Generator Unit.
<b>Ending Overlap Optimisation Period</b>	means, for any given Optimisation Time Horizon and the associated run of the MSP Software, that part of the Optimisation Time Horizon which falls after the relevant Trading Day.
<b>Energy Charge</b>	means the charge to be made to a Participant in respect of energy purchased during a Billing Period calculated as the product of SMP and the relevant quantity.
<b>Energy Limit</b>	means an upper limit on the amount of energy that can be generated by an Energy Limited Generator Unit for a Trading Day.
<b>Energy Limit Factor</b>	means a factor between zero and one, which is multiplied by the Energy Limit to set a limit on the amount of energy that can be generated by an Energy Limited Generator Unit for the period between the end of the Trading Day and the end of the Optimisation Time Horizon for use within the MSP Software.
<b>Energy Limit MSP Constraint Cost</b>	means a value that is used within the MSP Software as set out within Appendix N: "Operation of the MSP Software".
<b>Energy Limit Period</b>	means the time period between the Energy Limit Start and the Energy Limit Stop.
<b>Energy Limit Start</b>	means 06:00 on the Trading Day, and shall be submitted as such.
<b>Energy Limit Stop</b>	means the end of the Trading Period commencing at 05:30 on the Trading Day, and shall be submitted as such.
<b>Energy Limited Generator Unit</b>	means a Generator Unit which complies with the criteria set out in paragraph 5.93 and is so registered by a Participant.
<b>Energy Limited Generator Unit Technical Characteristics</b>	means data submitted after the Trading Day by the System Operators identifying the redeclared Energy Limit for Energy Limited Generator Units.

<b>Energy Limited Generator Unit Technical Characteristics Data Transaction</b>	is a Data Transaction in relation to Energy Limited Generator Unit Technical Characteristics detailed in Appendix K: "Market Data Transactions".
<b>Energy Payment</b>	means the payment to be made to a Participant in respect of a Billing Period for energy sold by that Participant in the relevant Billing Period calculated as the product of SMP and the relevant quantity.
<b>Engineering Tolerance</b>	means the percentage tolerance between the Dispatch Quantity under a Dispatch Instruction and Actual Output of a Generator Unit, without accounting for frequency deviations, within which the Generator Unit is deemed to be operating in accordance with its Dispatch Instruction, and which is used in the calculation of Uninstructed Imbalances.
<b>Error Supplier Unit</b>	means a Supplier Unit for a Jurisdiction for which Loss-Adjusted Net Demand in that Jurisdiction (allowing for net transfers between Jurisdictions) is calculated in accordance with paragraph 4.91.
<b>euro</b>	means the currency in Ireland.
<b>Ex-Ante Indicative Market Schedule</b>	means for a Trading Day the Market Schedule Quantities (MSQuh) for each Trading Period in the Trading Day for each Generator Unit u (excluding Autonomous Generator Units in accordance with paragraph 5.22 and Interconnector Residual Capacity Units in accordance with paragraph 5.83), produced by the Ex-Ante Indicative MSP Software Run as set out in paragraph 4.62.
<b>Ex-Ante Indicative MSP Software Run</b>	means as defined within Appendix N: "Operation of the MSP Software".
<b>Ex-Ante Indicative Operations Schedule</b>	means the schedule as determined day-ahead by the System Operators taking system constraints and reserve requirements into account to give indicative MW outputs for the Trading Day, including Interconnector flows and Pumped Storage Unit operation.
<b>Ex-Ante Loss of Load Probability</b>	means the Loss of Load Probability $\lambda$ determined as part of the Capacity Payments calculation as set out in Appendix M: "Description of the Function for the Determination of Capacity Payments".
<b>Excessive Generation Event</b>	has the meaning set out in paragraph 4.74.
<b>Export Point</b>	means the nominal commercial point of entry to the Transmission System of the Active Power generated at a Transmission Connected or Distribution Connected site.
<b>Ex-Post Capacity Payments Proportion</b>	means the proportion, determined in accordance with paragraph 4.98, of the Annual Capacity Payment Sum that will be distributed into Trading Periods in the relevant Year based on the Ex-Post Loss of Load Probability ( $\phi$ ) for each Trading Period, determined at the end of the relevant Capacity Period.

<b>Ex-Post Indicative Market Schedule</b>	means for a Trading Day the Market Schedule Quantities (MSQuh) for each Trading Period in the Trading Day for each Generator Unit u (excluding Autonomous Generator Units for which the Ex-Post Indicative Market Schedule only includes Market Schedule Quantities for Trading Periods up until midnight on the Trading Day in accordance with paragraph 5.23, Interconnector Residual Capacity Units in accordance with paragraph 5.83 and Interconnector Error Units in accordance with paragraph 5.84) , produced by the Ex-Post Indicative MSP Software Run as set out in paragraph 4.63.
<b>Ex-Post Indicative MSP Software Run</b>	means as defined within Appendix N: "Operation of the MSP Software".
<b>Ex-Post Indicative Settlement</b>	means the Settlement processes from which Ex-Post Indicative Settlement Statements are derived.
<b>Ex-Post Indicative Settlement Statement</b>	means the Settlement Statement sent to the Participants before the Initial Settlement Statements are calculated.
<b>Ex-Post Initial Market Schedule</b>	means for a Trading Day the Market Schedule Quantities (MSQuh) for each Trading Period in the Trading Day for each Generator Unit u (excluding Interconnector Residual Capacity Units in accordance with paragraph 5.83 and Interconnector Error Units in accordance with paragraph 5.84), produced by the Ex-Post Initial MSP Software Run as set out in paragraph 4.64.
<b>Ex-Post Initial MSP Software Run</b>	means as defined within Appendix N: "Operation of the MSP Software".
<b>Ex-Post Loss of Load Probability</b>	means the Loss of Load Probability $\phi$ determined as part of the Capacity Payments calculation as set out in Appendix M: "Description of the Function for the Determination of Capacity Payments".
<b>Ex-Post Loss of Load Probability Table</b>	means a table of data relating to Input Margin and Output Loss of Load Probability used in the derivation of Ex-Post Loss of Load Probability.
<b>Ex-Post Loss of Load Probability Table Data Transaction</b>	is a Data Transaction in relation to the Ex-Post Loss of Load Probability Table detailed in Appendix K: "Market Data Transactions".
<b>Final Modification Recommendation</b>	means a recommendation by the Modifications Committee in relation to a Modification Proposal which is submitted to the Regulatory Authorities for approval as part of a Modification Recommendation Report.
<b>Final Settlement</b>	means the last Timetabled Settlement Rerun for a Trading Day.
<b>Firm Access Quantity</b>	means the quantity of Output that a Generator Unit has firm rights under a Connection Agreement to be able to export onto the system at the point of Connection.

<b>First Participation Information Notice</b>	means a notice to be submitted by a Party (or Applicant, as applicable) with or prior to that Party's first Participation Notice for its first registration of a Unit or Units, in the form set out in Agreed Procedure 1 "Participant and Unit Registration and Deregistration".
<b>Fixed Capacity Payments Proportion</b>	means the proportion, set for the relevant Year in accordance with paragraphs 4.95 to 4.98, of the Capacity Period Payment Sum to be distributed into each Trading Period in the relevant Year.
<b>Fixed Credit Requirement</b>	means the minimum Credit Cover requirement for any Participant in respect of each of its Generator Units and separately in respect of each of its Supplier Units.
<b>Fixed Market Operator Charge</b>	means the Fixed Market Operator Generator Charge or the Fixed Market Operator Supplier Charge or both as appropriate.
<b>Fixed Market Operator Generator Charge</b>	means the charges proposed annually by the Market Operator to be applied in respect of each Generator Unit and approved by the Regulatory Authorities. Such charges may be different for each Generator Unit.
<b>Fixed Market Operator Supplier Charge</b>	means the charges proposed annually by the Market Operator to be applied in respect of each Supplier Unit and approved by the Regulatory Authorities. Such charges may be different for each Supplier Unit.
<b>Force Majeure</b>	means circumstance of force majeure for the purposes of the Code as set out in paragraph 2.328.
<b>Forecast Availability</b>	means the Availability for a Generator Unit included in a Forecast Availability Profile.
<b>Forecast Availability Profile</b>	means a projection of Availability for a Generator Unit calculated in accordance with paragraph 4.28.
<b>Forecast Demand</b>	means a projection of Demand based on the Annual Load Forecast Data.
<b>Forecast Minimum Output Profile</b>	means a projection of Minimum Output for a Generator Unit calculated in accordance with paragraph 4.29.
<b>Forecast Minimum Stable Generation Profile</b>	means a projection of Minimum Stable Generation for a Generator Unit calculated in accordance with paragraph 4.30.
<b>Form of Authority</b>	means a form of authority for the appointment of an Intermediary in the form set out in Appendix C: "Form of Authority".
<b>Four Day Load Forecast</b>	means the forecast of Demand to be met by Generator Units (other than Autonomous Generator Units that are not Wind Power Units) at the point where the Units are Connected (i.e. prior to the application of Transmission Loss Adjustment Factors), but net of Unit Load for Generator Units, for each Trading Period in the next four Trading Days.

<b>Four Day Load Forecast Data Transaction</b>	is a Data Transaction in relation to Four Day Load Forecasts detailed in Appendix K: "Market Data Transactions".
<b>Framework Agreement</b>	means the agreement (including any Accession Deed) under which a person becomes bound by the Code.
<b>Freedom of Information Acts</b>	means the Freedom of Information Acts 1997 and 2003 (Ireland) and the Freedom of Information Act 2000 (United Kingdom).
<b>Function for the Determination of Capacity Payments</b>	means the methodology by which the basis for the fixed, variable and ex-post elements of Capacity Payments are calculated, as set out in Appendix M: "Description of the Function for the Determination of Capacity Payments".
<b>Gate Closure</b>	means, for a Trading Day, 10:00 on the last full calendar day prior to that Trading Day.
<b>General Communication Failure</b>	means a period during which the Market Operator's Isolated Market System is operational but the normal communication interfaces between each other Party (other than the System Operators or the Meter Data Providers) and the Market Operator are unavailable, leading to a failure of all such Parties to comply with the data submission requirements.
<b>General System Failure</b>	means a period during which the Market Operator's Isolated Market System is unable, under normal operation, to process data as required under the Code and such inability has caused or will cause the Market Operator to fail to meet any applicable deadline under the Code for (i) calculation or publication of the System Marginal Price or any component thereof for any Trading Period, or (ii) Settlement of any Unit for any Billing Period, or (iii) calculation, or publication of Capacity Payments, or the issuance of a Settlement Statement for Capacity Payments and Capacity Charges for any Capacity Period.
<b>Generation</b>	means the production of Active Power.
<b>Generation Adequacy Report</b>	means a report prepared by the System Operators outlining their assessment of the ability of all the Generator Units Connected to the system to meet the total demand on the system including Transmission Losses and Distribution Losses.
<b>Generation Participant</b>	means Participants who have registered Generator Units other than Interconnector Error Units, Interconnector Residual Capacity Units or Demand Side Units.
<b>Generation Site</b>	means a site containing one or more Generators defined under a single Connection Agreement, or in the event that no Connection Agreement exists, a Contiguous Site containing one or more Generators.
<b>Generator</b>	means a power plant or any similar apparatus that generates electricity (including all related equipment essential to its functioning as a single entity) with capabilities for delivering energy to the Transmission System or Distribution System and which is Connected to the Transmission System or Distribution System.



<b>Generator Suspension Delay Period</b>	means the period of time commencing at the time of issue of any Suspension Order suspending a Generator Unit and represents the minimum period before such an Order may take effect in respect of any Generator Unit specified in the Suspension Order. The duration of the Generator Suspension Delay Period shall as be determined by the Regulatory Authorities from time to time in accordance with paragraph 2.249.
<b>Generator Unit</b>	means a Generator, and/or other item of Dispatchable plant, registered by a Participant, or which is the subject of an application for registration, under the Code. For the purposes of the Code a Generator Unit may be any one of the following types, without limitation: Autonomous Generator Unit, Demand Side Unit, Energy Limited Generator Unit, Hydro-electric Generator Unit, Interconnector Unit, Interconnector Error Unit, Interconnector Residual Capacity Unit, Netting Generator Unit, Pumped Storage Unit, Run-of-River Hydro Unit or Wind Power Unit.
<b>Generator Unit Capacity Settlement Statement</b>	means a Settlement Statement in relation to Capacity Payments for a Generator Unit.
<b>Generator Unit Capacity Settlement Data Transaction</b>	is a Data Transaction in relation to Generator Unit Capacity Settlement Statements detailed in Appendix G: "Invoices and Settlement Statements".
<b>Generator Unit Energy Settlement Statement</b>	means a Settlement Statement in relation Energy Payments for a Generator Unit.
<b>Generator Unit Energy Settlement Statement Data Transaction</b>	is a Data Transaction in relation to Generator Unit Energy Settlement Statements detailed in Appendix G: "Invoices and Settlement Statements".
<b>Generator Unit Technical Characteristics</b>	means data submitted after the Trading Day by the System Operators identifying the technical characteristics of a Generator Unit including Outturn Availability, Outturn Minimum Stable Generation and Outturn Minimum Output.
<b>Generator Unit Technical Characteristics Data Transaction</b>	is a Data Transaction in relation to Generator Unit Technical Characteristics detailed in Appendix K: "Market Data Transactions".
<b>Generator Unit Under Test</b>	means the status of a Generator Unit which has Under Test status in accordance with paragraphs 5.170 and 5.171.
<b>Generator Unit Under Test Notice</b>	is a Data Transaction in relation to Generator Unit Under Test status detailed in Appendix F: "Other Communications".
<b>Generic Settlement Class</b>	means the Settlement categories specified in accordance with paragraph 5.7.

<b>Glossary</b>	means this Glossary, including the List of Variables and the List of Subscripts.
<b>Grid Code</b>	means the Ireland Grid Code, Northern Ireland Grid Code or both, as the context requires.
<b>Gross Output</b>	means the Output of a Generator Unit including Unit Load prior to the application of the Net Output Function.
<b>High Materiality</b>	means an amount equal to or over 50,000 euro in respect of a single Participant.
<b>Historical Assessment Period</b>	means a number of days prior to the day of the issue of the latest relevant Settlement Statement over which a statistical analysis of a Participant's incurred liabilities, separately in respect of its Generator Units and Supplier Units, shall be undertaken in order to support the forecasting of undefined liabilities for that Participant. A Historical Assessment Period shall apply for a Year, and for each Year there shall be one Historical Assessment Period applicable to Trading Payments, Trading Charges and Billing Periods, and one Historical Assessment Period applicable to Capacity Payments, Capacity Charges and Capacity Periods.
<b>Hot</b>	means a hot Warmth State.
<b>Hot Cooling Boundary</b>	means the period of time, which must be less than that defined by the Warm Cooling Boundary, post Desynchronisation of a Generator Unit after which the Generator Unit's Warmth State transfers from being Hot to being Warm.
<b>Hot Start</b>	means any Synchronisation of a Generator Unit that has previously not been Synchronised for a period of time shorter than its Accepted Hot Cooling Boundary. This data is provided within the submission of Technical Offer Data as described in Appendix I: "Offer Data".
<b>Hot Start Up Cost</b>	means Start Up Costs associated with a Hot Start.
<b>Hydro-electric Generator Unit</b>	means a Generator Unit connected to a hydro turbine which is driven either by the controlled flow of water from a reservoir or by the flow of a river.
<b>Imperfections Charge</b>	means a charge applied in respect of each Supplier Unit in each Trading Period based upon the Loss-Adjusted Net Demand at that Supplier Unit and the Imperfections Price. The Imperfections Charge is intended to recover the payments in respect of Constraints, Uninstructed Imbalances (less Testing Charges for Generator Units) over each Billing Period and any net differences between Energy Payments and Energy Charges.
<b>Imperfections Price</b>	means the price, set in accordance with paragraph 4.154, applied during a Year to the Loss-Adjusted Net Demand in respect of each Supplier Unit to determine the Imperfections Charge.
<b>Indemnifying Party</b>	has the meaning set out in paragraph 2.352.

<b>Initial Settlement</b>	means the Settlement processes from which Initial Settlement Statements are derived.
<b>Initial Settlement Statement</b>	means the Settlement Statements that are issued for invoicing.
<b>Instructed Quantity</b>	means MW Quantity of a MW/Time Co-ordinate in a Dispatch Instruction for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Instruction Code</b>	means a code issued with a Dispatch Instruction indicating the action to be taken by the Generator Unit, for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Instruction Combination Code</b>	means a code issued with a Dispatch Instruction for Pumped Storage Units and Wind Power Units only indicating the mode of operation of the relevant Generator Unit, for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Instruction Effective Time</b>	means the time from which a Dispatch Instruction is effective, for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Instruction Issue Time</b>	means the time of issue of a Dispatch Instruction, for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Instruction Profile</b>	means a piecewise linear curve of expected Generator Unit MW Output vs. time over a Trading Day in response to issued Dispatch Instructions, for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Instruction Profiling</b>	means the process used to convert Dispatch Instructions into Dispatch Quantities as set out in Appendix O: "Instruction Profiling Calculations".
<b>Insufficient Capacity Event</b>	has the meaning set out in paragraph 4.73.
<b>Intellectual Property Rights</b>	means copyright (present and future), patents, inventions, design rights, database rights, trade secrets, know-how, any applications for registration of any of the foregoing, and any other intellectual or industrial property rights of whatsoever nature, whether similar to those described above or otherwise, whether registerable or not, existing now or in the future created throughout the world.
<b>Interconnector</b>	means electric lines and electric plant used solely for conveying electricity from outside both Jurisdictions directly to or from a substation in either Jurisdiction.
<b>Interconnector Administrator</b>	means the Participant, in accordance with paragraph 2.72, nominated under paragraph 2.75 or identified in accordance with paragraph 2.83 as appropriate.
<b>Interconnector Administrator Grace Period</b>	means the period specified in paragraph 2.83.

<b>Interconnector Administrator Market Data Transactions</b>	are Data Transactions detailed in Appendix K: “Market Data Transactions”.
<b>Interconnector Available Transfer Capacity Data Transaction</b>	is a Data Transaction in relation to Available Transfer Capacity on an Interconnector detailed in Appendix K: “Market Data Transactions”.
<b>Interconnector Error Unit</b>	means, in relation to an Interconnector, a registered Generator Unit to which Uninstructed Imbalances relating to that Interconnector shall be allocated for Settlement purposes.
<b>Interconnector Error Unit Grace Period</b>	means the period specified in paragraph 2.95.
<b>Interconnector Owner</b>	means any person who owns or legally controls under contract or at law an Interconnector and registers it in accordance with paragraph 2.71.
<b>Interconnector Registration Data</b>	means a set of data related to the registration of an Interconnector, including the identity of the person nominated to register as Interconnector Administrator and the identity of the person nominated to register as Participant in respect of the Interconnector Error Unit, specified in paragraph 2.75 and maintained in accordance with paragraph 2.76.
<b>Interconnector Residual Capacity Unit</b>	means, in relation to an Interconnector, a registered Generator Unit which is used for Settlement or for the utilisation of residual or unused capacity in accordance with paragraph 2.86.
<b>Interconnector Residual Capacity Unit Payments</b>	means the value equal to the Total Payments to a Participant for its registered Interconnector Residual Capacity Units less its Capacity Period Payments, calculated over each Capacity Period, in accordance with paragraph 6.132.
<b>Interconnector Technical Data</b>	means, for each Interconnector, the subset of Interconnector Registration Data which comprises Aggregate Import Capacity, Aggregate Export Capacity, Aggregate Interconnector Ramp Rate, Minimum Interconnector Import Level and Minimum Interconnector Export Level.
<b>Interconnector Unit</b>	means a Unit registered by an Interconnector User associated with the relevant Interconnector.
<b>Interconnector Unit Nominations</b>	means a quantity nominated for import or export for an Interconnector Unit as calculated within the Ex-Ante Indicative Market Schedule.
<b>Interconnector User</b>	means, in relation to an Interconnector, a Participant (or Applicant as the case may be) who has entered into arrangements with the relevant Interconnector Owner enabling the Participant (or Applicant) to acquire Active Interconnector Unit Capacity Holdings from time to time.

<b>Interest</b>	means interest paid on the deposits in the SEM Trading Clearing Accounts, SEM Capacity Clearing Accounts and SEM Collateral Reserve Accounts and on Shortfalls as appropriate.
<b>Interim Provisions</b>	means the provisions referred to in paragraphs 7.5 to 7.32, each of which shall apply, in accordance with paragraph 7.4, for the Applicable Interim Period.
<b>Intermediary</b>	means the person appointed by a Unit Owner under a Form of Authority set out in Appendix C: "Form of Authority", for the purposes of registration of, and participation in the Pool in respect of, any of the Unit Owner's Units in accordance with paragraphs 2.102 to 2.112.
<b>Interval Metering</b>	means a particular metering equipment specification as set out in the relevant Metering Code.
<b>Invoice</b>	means the statement of the payments required to be made to the relevant account in the SEM Bank by a Participant in respect of the activities of that Participant in the Pool.
<b>Invoice Due Date</b>	means the date and time by which the payment specified in an Invoice must be made.
<b>Ireland Grid Code</b>	means the Grid Code as defined in section 2(1) of the Electricity Regulation Act 1999 as amended, that applies to the Transmission System in Ireland.
<b>Isolated Market System</b>	means the IT systems (including without limitation the hardware, software and internal communication network) used for the purpose of a Party's participation in the Pool and which are within the total control of that Party or that Party's Data Processing Entity.
<b>Isolated Market System Testing Schedule</b>	means the schedule for testing the Isolated Market System.
<b>Jurisdiction</b>	means Ireland or Northern Ireland or both as appropriate.
<b>Lag Time</b>	means the parameterised response time required for a Generator Unit to make the control adjustments necessary to implement a Dispatch Instruction for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Legal Requirement</b>	means any requirement under Applicable Laws, any applicable Licence, any applicable Distribution Code, Grid Code or Metering Code or any requirement, direction, determination, decision, instruction or rule of any Competent Authority.
<b>Letter of Credit</b>	means an unconditional and irrevocable standby letter of credit, demand guarantee or charge bond in the form set out in Appendix A: "Standard Letter of Credit".

<b>LIBOR</b>	means the rate published in the London Financial Times as the London Interbank Offered Rate (for the previous banking day) on the banking day immediately following the due date for the payment of a sum due under the Code for overnight deposits in the Currency of such sum.
<b>Licence</b>	means an electricity generation licence or an electricity supply licence, transmission system operation licence, distribution system operator licence, transmission system owner licence, market operator licence or any other relevant licence as the context may require, granted by the Regulatory Authorities pursuant to Section 14 of the Electricity Regulation Act 1999 (Ireland) or Section 10 of the Electricity (Northern Ireland) Order 1992 and "Licensee" shall be construed accordingly.
<b>Limited Communication Failure</b>	means a period during which one or more Parties or Participants, but not all Parties or Participants and not the Market Operator, a System Operator or Meter Data Provider, fail to comply with the data submission requirements because of a technical, communication or IT systems error outside the Market Operator's Isolated Market System.
<b>Load Forecasts</b>	means either the Annual Load Forecast, the Monthly Load Forecast or the Four Day Load Forecast or all of them as appropriate.
<b>Load Up Break Point Cold</b>	means the break point which defines the shared MW boundary between the 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 and the third Loading Rate Cold applies from the second Load Up Break Point Cold to Minimum Generation.
<b>Load Up Break Point Hot</b>	means 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 and the third Loading Rate Hot applies from the second Load Up Break Point Hot to Minimum Generation.
<b>Load Up Break Point Warm</b>	means the break point which defines the shared MW boundary between the Loading Rates Warm. The first Loading Rate Warm applies from Block Load to the first Load Up Break Point Warm, the second Loading Rate Warm applies from the first Load Up Break Point Warm to the second Load Up Break Point Warm and the third Loading Rate Warm applies from the second Load Up Break Point Warm to Minimum Generation.
<b>Loading Rate Cold</b>	means the rate at which a Generator Unit increases Output from Block Load to Minimum Stable Generation when it is instructed to Cold Start.
<b>Loading Rate Hot</b>	means the rate at which a Generator Unit increases Output from Block Load to Minimum Stable Generation when it is instructed to Hot Start.

<b>Loading Rate Warm</b>	means the rate at which a Generator Unit increases Output from Block Load to Minimum Stable Generation when it is instructed to Warm Start.
<b>Local Network Constraint</b>	means a constraint due to local network conditions for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Loss-Adjusted</b>	means, when applied to any variable, or the inclusion of letters 'LF' at the end of any variable term, that a value is to be calculated at the Trading Boundary, through the application of the relevant Transmission Loss Adjustment Factors in accordance with this Code.
<b>Loss of Load Probability for the Capacity Period Data Transaction</b>	is a Data Transaction in relation to the Loss of Load Probability for the relevant Capacity Period detailed in Appendix K: "Market Data Transactions".
<b>Loss of Load Probability or LOLP</b>	means the probability that there will be insufficient Generation to meet the Demand in the Pool. Two varieties of Loss of Load Probability are determined as part of the Capacity Payments calculation: $\lambda$ determined ex-ante and $\varphi$ determined ex-post, both calculated as set out in Appendix M: "Description of the Function for the Determination of Capacity Payments".
<b>Loss of Load Probability Table</b>	means a table of data relating to Input Margin and Output Loss of Load Probability used in the derivation of Loss of Load Probability.
<b>Low Materiality</b>	means an amount below €50,000 in respect of a single Participant.
<b>Maintenance Schedule</b>	means the combined planned outage schedule for Generator Units and for items of plant on the Transmission System.
<b>Maintenance Schedule Data Transaction</b>	is a Data Transaction in relation to Maintenance Schedules detailed in Appendix F: "Other Communications".
<b>Make Whole Payment</b>	means a payment in respect of each Generator Unit, designed to make up any difference between the total Energy Payments to the Generator Unit in a Billing Period and the Schedule Production Cost for that Generator Unit for each Trading Period within the Billing Period (where the difference is arithmetically positive calculated over the Billing Period) as set out in paragraph 4.140 or as otherwise specified in Section 5.
<b>Market Auditor</b>	means the person at any time appointed to perform the audit of the market in accordance with paragraph 2.131.
<b>Market Data Transactions</b>	are Data Transactions detailed in Appendix K: "Market Data Transactions".
<b>Market Operator</b>	means EirGrid plc and SONI Limited solely in their respective roles as the undertakings authorised by the Regulatory Authorities to perform the Market Operator function pursuant to the Market Operator Licences and any relevant exemption, with their rights, powers, functions, obligations and liabilities under this Code in that role alone being joint and several.

<b>Market Operator and System Operator Data Transactions</b>	are Data Transactions detailed in Appendix J: “Market Operator and System Operator Data Transactions”.
<b>Market Operator Charge</b>	means a charge levied on Participants intended to recover costs and expenses of the Market Operator which shall be calculated pursuant to paragraphs 6.143 to 6.151.
<b>Market Operator Charge Account</b>	means either or both, as the context may require, of the accounts set up in the SEM Bank to receive payments by Participants in respect of the Market Operator Charge.
<b>Market Operator Charge Invoice Data Transaction</b>	is a Data Transaction in relation to Invoices for Market Operator Charges detailed in Appendix G: “Invoices and Settlement Statements”.
<b>Market Operator Licence</b>	means the Licence(s) issued to the person or persons acting as Market Operator from time to time.
<b>Market Price Cap</b>	means the maximum permitted value for the System Marginal Price (SMP) determined by the MSP Software for any Trading Period, determined in accordance with paragraph 4.12.
<b>Market Price Floor</b>	means the minimum permitted value for the System Marginal Price (SMP) determined by the MSP Software for any Trading Period, determined in accordance with paragraph 4.12.
<b>Market Schedule Quantity</b>	means the quantity of Output for each Generator Unit in each Trading Period, prior to adjustment for Transmission Losses, as calculated by the MSP Software or otherwise in accordance with Section 4, Section 5 and Appendix N: “Operation of the MSP Software”, and which is the basis for its Energy Payments as set out in paragraph 4.93.
<b>Market Schedule Start</b>	means that for any Trading Period h in which a Generator Unit has a Market Schedule Quantity greater than zero MW and in the preceding Trading Period (h-1) that Unit has a Market Schedule Quantity equal to zero MW, the Generator Unit is scheduled to perform a Market Schedule Start in Trading Period h. Otherwise the Generator Unit has no Market Schedule Start in the Trading Period.
<b>Market Schedule Warmth State</b>	means the calculated Warmth State (being Cold, Warm or Hot) of a Generator Unit at the start of a Trading Period consistent with the Market Schedule Quantities for that Generator Unit in preceding Trading Periods and the definitions of Cold Start, Warm Start and Hot Start.
<b>Market Start Date</b>	means the date of SEM go-live, as determined by the Regulatory Authorities or other Competent Authority as appropriate.
<b>Maximisation</b>	a Generator Unit is treated as being subject to Maximisation in a Trading Period as set out in Appendix O: “Instruction Profiling Calculations”.



<b>Maximisation Flag</b>	means a flag to indicate the Trading Periods for which a Generator Unit is operating in accordance with a Maximisation Instruction for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Maximisation Instruction</b>	means an instruction of that name issued by a System Operator in accordance with the applicable Grid Code.
<b>Maximum Down Time</b>	means the maximum period of time during which Demand Reduction at a Demand Side Unit can be Dispatched.
<b>Maximum Export Available Transfer Capacity</b>	means the maximum Available Transfer Capacity for export out of the Pool for the relevant Interconnector, as set out in paragraph 5.42.
<b>Maximum Export Capacity</b>	means the maximum export capacity of a site in MW as defined under the site's Connection Agreement or equivalent.
<b>Maximum Generation</b>	means the maximum Output for a Generator Unit.
<b>Maximum Import Available Transfer Capacity</b>	means the maximum Available Transfer Capacity for import into the Pool for the relevant Interconnector, as set out in paragraph 5.41.
<b>Maximum Import Capacity</b>	means the maximum import capacity of a site in MW as defined under the site's Connection Agreement or equivalent.
<b>Maximum Interconnector Unit Export Capacity</b>	means the upper limit of export an Interconnector Unit is declaring as part of its Commercial Offer Data.
<b>Maximum Interconnector Unit Import Capacity</b>	means the upper limit of import an Interconnector Unit is declaring as part of its Commercial Offer Data.
<b>Maximum On Time</b>	means the maximum time for which a Generator Unit can run following Start Up.
<b>Maximum Ramp Down Rate</b>	means the maximum Ramp Down Rate of a Demand Side Unit.
<b>Maximum Ramp Up Rate</b>	means the maximum Ramp Up Rate of a Demand Side Unit.
<b>Maximum Storage Capacity</b>	is part of the Technical Offer Data for a Pumped Storage Unit and means the maximum quantity of Generation that can be produced by the reservoir for a Trading Day submitted in accordance with 5.113.
<b>Meeting</b>	means a meeting of the Modifications Committee and shall include, where the context so permits or requires, an Emergency Meeting.
<b>Meter Data</b>	means data obtained from a metering system, including the processed data or substituted data, that is used for settlement and for network purposes.

<b>Meter Data Provider</b>	means any System Operator and Distribution System Operator that is obliged under Appendix L “Meter Data Transactions” to submit Meter Data to the Market Operator.
<b>Meter Data Transactions</b>	are Data Transactions detailed in Appendix L: “Meter Data Transactions”.
<b>Meter Point Registration Number</b>	means the Meter Point Reference Number as defined in the applicable Metering Code.
<b>Metered Generation</b>	means the Active Power produced by a Generator Unit at the Export Point.
<b>Metering Code</b>	<p>means, for Ireland, the code of that name prepared by the Distribution System Operator(s) and approved by the Commission, as from time to time revised, amended, supplemented or replaced with the approval of or at the instance of the Regulatory Authorities; and</p> <p>means, for Northern Ireland, the subset of the Northern Ireland Grid Code pertaining to meter reading, Meter Data processing and Meter Data communications;</p> <p>or for Ireland the “Retail Market Design” and for Northern Ireland the “Market Registration Code” as appropriate.</p>
<b>Minimum Down Time</b>	means the minimum period of time during which Demand Reduction at a Demand Side Unit can be Dispatched.
<b>Minimum Generation</b>	means the minimum level of Generation for a Generator Unit, which will be set equal to Minimum Stable Generation for that Generator Unit.
<b>Minimum Interconnector Export Level</b>	means the level (expressed as a number in MW which is negative or zero), the absolute value of which relates to the minimum stable level at which that Interconnector may be dispatched to export energy. A value of zero is equated with the case in which no such minimum level applies. A value which is less than zero means that the Interconnector may not be Dispatched at any level strictly between zero and the Minimum Interconnector Export Level.
<b>Minimum Interconnector Import Level</b>	means the level (expressed as a number in MW which is positive, including zero) the value of which relates to the minimum stable level at which that Interconnector may be dispatched to import energy. A value of zero is equated with the case in which no such minimum level applies. A value which is greater than zero means that the Interconnector may not be Dispatched at any level strictly between zero and the Minimum Interconnector Import Level.
<b>Minimum Interim Margin</b>	means the lowest Interim Margin quantity, for the purposes of Appendix M: “Description of the Function for the Determination of Capacity Payments” only.
<b>Minimum Off Time</b>	means the minimum time that a Generator Unit must remain producing no Active Power commencing at the time when it first stops producing Active Power.

<b>Minimum On Time</b>	means the minimum time that must elapse from the time a Generator Unit is instructed to Start Up before it can be instructed to shut down.
<b>Minimum Output</b>	means the minimum level of Output at which a Generator Unit may operate, which is zero except as otherwise specified in the Code.
<b>Minimum Stable Generation</b>	means the level of minimum sustainable Output in accordance with the Grid Code which a Generator Unit is capable of producing.
<b>Maximum Storage Capacity</b>	is part of the Technical Offer Data for a Pumped Storage Unit and means the minimum quantity of Generation that can be produced by the reservoir for a Trading Day submitted in accordance with 5.113.
<b>Modification</b>	means a modification, revision, amendment, supplementation, extension, consolidation or replacement to the provisions of the Code which is accepted and implemented in accordance with paragraphs 2.188 to 2.236 and which shall, for the avoidance of doubt, include a modification of or addition to the Agreed Procedures.
<b>Modification Proposal</b>	means any proposal to modify the Code which is submitted to the Modifications Committee in accordance with the Modifications Process.
<b>Modification Recommendation Report</b>	means a report created by the Modifications Committee and sent to the Regulatory Authorities containing the Final Modification Recommendation on a Modification Proposal and all supporting detail to aid the Regulatory Authorities' decision on the Modification Proposal developed by the Modifications Committee.
<b>Modifications Committee</b>	means the committee established from time to time for the purpose of processing Modification Proposals in accordance with paragraphs 2.150 to 2.182.
<b>Modifications Process</b>	means the process of submitting, assessing and accepting or rejecting Modification Proposals in accordance with paragraphs 2.188 to 2.236.
<b>Modifications Website</b>	means the website referred to in paragraph 2.229.
<b>Modified Interconnector Unit Nominations</b>	means for each Interconnector Unit in each Trading Period, a value expressed in MW which is calculated in accordance with paragraph 5.59.
<b>Modified Interconnector Unit Nominations Data Transaction</b>	is a Data Transaction in relation to Modified Interconnector Unit Nominations detailed in Appendix K: "Market Data Transactions".
<b>Month</b>	means one calendar month, starting at midnight on the first calendar day of such month.

<b>Monthly Load Forecast</b>	means the forecast of Demand to be met by Generator Units (other than Autonomous Generator Units that are not Wind Power Units) at the point where the Units are Connected (i.e. prior to the application of Transmission Loss Adjustment Factors), but net of Unit Load for Generator Units, for each Trading Period in the next Month.
<b>Monthly Load Forecast Data Transaction</b>	is a Data Transaction in relation to Monthly Load Forecasts detailed in Appendix K: "Market Data Transactions".
<b>Moody's Investor Services Inc.</b>	means the credit rating agency of that name.
<b>MSP Failure</b>	means the failure of the MSP Software to produce a Valid MSP Solution.
<b>MSP Production Cost</b>	means the production cost in a Trading Period of a Price Maker Generator Unit that is not Under Test, at a given level of Output, for the purposes of the MSP Software, and is calculated in accordance with Appendix N: "Operation of the MSP Software".
<b>MSP Software</b>	means the "Market Scheduling and Pricing" software used by the Market Operator to determine Market Schedule Quantities for each Price Maker Generator Unit and to determine the System Marginal Price for each Trading Period.
<b>MSP Software Run Type</b>	means one of the following types of run of the MSP Software: Ex-Ante Indicative MSP Software Run, Ex-Post Indicative MSP Software Run or Ex-Post Initial MSP Software Run which are defined within Appendix N: "Operation of the MSP Software".
<b>MW Tolerance</b>	means the tolerance value in MW within which a Generator Unit is deemed to be complying with its Dispatch Instruction, before consideration of frequency response, which is used in the calculation of Uninstructed Imbalances.
<b>MW/Time Co-ordinate</b>	means a co-ordinate representing a combination of MW Instructed Quantity and time on the Instruction Profile, for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Net Inter-Jurisdictional Import</b>	means the total MWh per Trading Period flow between each Currency Zone summated across each cross-jurisdiction transmission line. The associated Data Transaction is detailed in Appendix L: "Meter Data Transactions".
<b>Net Output</b>	means the Output of a Generator Unit excluding Unit Load after to the application of the Net Output Function.
<b>Net Output Function</b>	has the meaning set out in paragraphs 4.34 and 4.35.
<b>Netting Generator Unit</b>	means a notional Generator Unit registered by a Participant under the Code to facilitate Settlement of a Trading Site. This does not physically exist and has no meter associated with it and shall be treated under the Code as an Autonomous Generator Unit save as otherwise stated.

<b>New Participant</b>	means in relation to the calculation of Required Credit Cover, a Participant as described in paragraph 6.184.
<b>No Load Cost</b>	means the element of operating cost for a Generator Unit, submitted as part of Commercial Offer Data, that is invariant with the level of Output and is incurred at all times when the level of Output is greater than zero.
<b>Nominal System Frequency</b>	means the nominal average system frequency for each Trading Period which is submitted in accordance with paragraph 4.146 and used in the calculation of Uninstructed Imbalances.
<b>Nominated Quantity</b>	means the Output intended for a Generator Unit in accordance with paragraph 5.13.
<b>Nominating Participant</b>	means, for the purposes of paragraphs 2.150 to 2.182 in relation to the Modifications Committee, a Party which is a Participant excluding the System Operators and is allowed to nominate Participant nominees to the Modifications Committee.
<b>Nominating Participant Election</b>	means the election process for the appointment of Nominating Participant members to the Modifications Committee, as outlined in paragraph 2.170.
<b>Nomination Profile</b>	has the meaning set out in paragraph 5.12.
<b>Non-Firm Access</b>	has the meaning set out in paragraph 2.69.
<b>Northern Ireland Authority for Utility Regulation or NIAUR</b>	means the Northern Ireland Authority for Utility Regulation or more commonly known as the Office for the Regulation of Electricity and Gas of Northern Ireland established under Article 3 Part II of the Energy (Northern Ireland) Order 2003 as amended by Article 3 of the Water and Sewerage Services (Northern Ireland) Order 2006 or any successor body.
<b>Northern Ireland Grid Code</b>	means the Grid Code at any time existing as required to be prepared by the entity licensed to operate the Northern Ireland Transmission System under its Licence as may be amended from time to time.
<b>Notice</b>	means any communication required to be given by a Party or to the Regulatory Authorities under the Code or the Framework Agreement but shall not include Data Transactions to the extent that specific rules for communication of Data Transactions are set out in Section 3 and Appendices F-L. Any reference to a “notification” to be given under the Code shall be deemed to be a “Notice”.
<b>Notice of Dispute</b>	means a Notice specifying what is disputed, when the Dispute commences, and the Parties of the Dispute.
<b>Notice of Dissatisfaction</b>	means a Notice issued in accordance with paragraphs 2.309 and 2.310.
<b>Offer Data</b>	means Commercial Offer Data and/or Technical Offer Data as appropriate.

<b>Offer Data Transaction</b>	means a Data Transaction in relation to Offer Data detailed in Appendix I: "Offer Data".
<b>Operating Characteristics</b>	means the technical characteristics of a Generator Unit, for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Operating Trajectory</b>	means the theoretical Output of the Generator Unit over time. The Operating Trajectory of a Generator Unit depends on the operating mode of the Generator Unit (for the purposes of Appendix O: "Instruction Profiling Calculations", the normal operating modes for a Synchronised Generator Unit are load up mode, ramp up mode, ramp down mode and deload mode, as defined in Appendix O: "Instruction Profiling Calculations"), and "Ramp Up Operating Trajectory" and "Ramp Down Operating Trajectory" shall be interpreted accordingly.
<b>Optimisation Time Horizon</b>	means the time period from and including 06:00 on the relevant Trading Day up to but not including 12:00 on the subsequent Trading Day over which each run of the MSP Software applies.
<b>Optimised Output</b>	means the optimum Output quantity, for the purposes of Appendix M: "Description of the Function for the Determination of Capacity Payments" only.
<b>Original Provision</b>	means a provision referred to in any of the paragraphs 7.5 to 7.32 as being replaced, in accordance with paragraph 7.4 for the duration of the Applicable Interim Period, by an Interim Provision.
<b>Output</b>	means Active Power produced by a Generator Unit.
<b>Outturn Annual Peak Demand</b>	means as defined in Appendix M: "Description of the Function for the Determination of Capacity Payments".
<b>Outturn Availability</b>	means the set of Availability data for a Generator Unit provided for a previous Trading Day submitted in accordance with paragraph 4.48.
<b>Outturn Data</b>	means actual data relating to the operation of a Generator Unit on a previous Trading Day and the term "Outturn" shall be construed accordingly.
<b>Outturn Minimum Output</b>	means the set of Minimum Output data for a Generator Unit provided for a previous Trading Day submitted in accordance with paragraph 4.48.
<b>Outturn Minimum Stable Generation</b>	means the set of Minimum Stable Generation data for a Generator Unit provided for a previous Trading Day in submitted accordance with paragraph 4.48.
<b>Outturn Weekly Peak Demand</b>	means as defined in Appendix M: "Description of the Function for the Determination of Capacity Payments".
<b>Over-Generation MSP Constraint Cost</b>	means a value that is used within the MSP Software as set out within Appendix N: "Operation of the MSP Software".
<b>Panel</b>	means the panel for dispute resolution selected in accordance with paragraphs 2.291 to 2.298.

<b>Participant</b>	means a Party or business division of a Party which at the relevant time has been designated as, or deemed to be, the “Participant” in relation to any Units which have been registered accordance with the Code.
<b>Participation Fee</b>	means a fee to be paid to the Market Operator in respect of a registration application for a Unit or Units. The Participation Fee shall be set annually by the Regulatory Authorities.
<b>Participation Notice</b>	means the notice referred to in paragraph 2.33 and detailed in Appendix H: “Participant and Unit Registration and Deregistration” which a Party or Applicant must issue to apply to register a Unit in the name of a Participant.
<b>Party</b>	means any person who is a party to the Framework Agreement and is thereby bound by the Code, and shall include its successors and permitted assigns.
<b>Payment Due Date</b>	means the date and time before which any sum due for payment under the Code must, pursuant to its terms or the direction of any Competent Authority, be paid.
<b>Personal Data</b>	has the meaning set out in the Data Protection Legislation.
<b>Physically Feasible</b>	means levels of Output which are physically feasible for a Generator Unit based on its Technical Capabilities, including intertemporal constraints.
<b>Pool</b>	means a gross mandatory pool for the sale and purchase of wholesale electricity on the island of Ireland in accordance with the terms of this Code.
<b>Posted Credit Cover</b>	means at any time the total amount of Credit Cover provided by a Participant posted in their designated Currency and in the form of Letters of Credit and/or a deposit in a SEM Collateral Reserve Account.
<b>Pounds sterling</b>	means the Currency of Northern Ireland.
<b>Preceding MSP Run</b>	means, for any given Optimisation Time Horizon and the associated run of the MSP Software, the most recent Valid MSP Solution which relates to the Optimisation Time Horizon starting one Trading Day earlier and which is of the same MSP Software Run Type.
<b>Predictable Generator Unit</b>	means a Generator Unit with predictable Availability which is Dispatchable, and can include all types of Generator Unit, except Wind Power Units and Run-of River Hydro Units that are considered as being Variable Generator Units.
<b>Predictable Price Maker Generator Unit</b>	means a Predictable Generator Unit which is a Price Maker Generator Unit.
<b>Predictable Price Taker Generator Unit</b>	means a Predictable Generator Unit which is a Price Taker Generator Unit.

<b>Premium for Under Generation</b>	means a factor by which prices applied in respect of a Generator Unit which under generates by more than the relevant Tolerance Band shall be reduced, and which is used in the calculation of Uninstructed Imbalances.
<b>Price</b>	means the price associated with a specified Quantity within a Price Quantity Pair.
<b>Price Maker Generator Unit</b>	means a Generator Unit that is Dispatchable and may be a Variable Price Maker Generator Unit or a Predictable Price Maker Generator Unit as set out in paragraphs 2.53 to 2.56.
<b>Price Quantity Pair(s)</b>	means Prices and Quantities for Generator Units as part of Commercial Offer Data.
<b>Price Taker Generator Unit</b>	means a Generator Unit that may be a Variable Price Taker or a Predictable Price Taker Generator Unit or an Autonomous Generator Unit as set out in paragraphs 2.53 to 2.56.
<b>Priority Dispatch</b>	means priority dispatch according to the factors set out in the Licence granted to each System Operator pursuant to applicable governing legislation and applied by the Grid Code.
<b>Processing</b>	means as defined in applicable Data Protection Legislation and “Processes” shall be construed accordingly.
<b>Proposal Notice</b>	means the notice of a Modification Proposal to be published in accordance with paragraph 2.193.
<b>Prudent Electric Utility Practice</b>	means those standards, practices, methods and procedures conforming to safety standards and Legal Requirements which are attained by exercising that degree of skill, care, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced operator in Europe engaged in the same type of undertaking under the same or similar circumstances.
<b>Prudent Industry Operator</b>	means an operator engaged in the electric utility industry which performs in accordance with Prudent Electric Utility Practice.
<b>Pumped Storage Cycle Efficiency</b>	Means, for a Pumped Storage Unit, the percentage between the level of Demand required to pump a given quantity of water from the lower reservoir to the upper reservoir and the level of Generation provided by the release of that quantity of water from the upper reservoir to the lower reservoir through the Pumped Storage Unit turbine(s).
<b>Pumped Storage Unit</b>	means a Generator Unit within a pumped storage plant where a fluid is pumped to a storage container when in pumping mode and the fluid’s flow back is used to drive a turbine which powers a generator when in generating mode.
<b>Pumping Capacity</b>	means the maximum amount of Active Power in MW consumed by a Pumped Storage Unit when in pumping mode.
<b>Quantity</b>	means the quantity of Output specified within a Price Quantity Pair.
<b>Queried Data</b>	means as set out in paragraph 3.45.



<b>Quorum</b>	means a quorum of the Modifications Committee, as set out in paragraph 2.159.
<b>Ramp Down Break Point</b>	means the break point up to which the corresponding Ramp Down Rate applies. Above the break point, the next Ramp Down Rate applies.
<b>Ramp Down Rate</b>	means the Ramp Rate associated with a decrease in Active Power production by a Generator Unit.
<b>Ramp Rate</b>	means the rate of increase or the rate of decrease in Active Power produced by a Generator Unit (excluding Interconnector Units (for which an assumed Ramp Rate applies in accordance with paragraph 5.58), Interconnector Error Units and Interconnector Residual Capacity Units).
<b>Ramp Up Break Point</b>	means the break point up to which the corresponding Ramp Up Rate applies. Above the break point, the next Ramp Up Rate applies.
<b>Ramp Up Rate</b>	means the Ramp Rate associated with an increase in Active Power production by a Generator Unit.
<b>Receiving Party</b>	means the initial intended recipient of a Data Transaction from another Party.
<b>Recipient Party</b>	means as set out in paragraph 2.345.
<b>Reduced Participant</b>	means a Participant as described in paragraph 6.57.
<b>Referral Notice</b>	means a Notice from a Party to the Dispute Resolution Board as set out in paragraph 2.288.
<b>Registered Capacity</b>	means the maximum Active Power in MW that a Generator Unit can deliver on a sustained basis at the Export Point submitted for the Generator Unit in accordance with Appendix H: "Participant and Unit Registration and Deregistration".
<b>Registration Data</b>	means registration data as set out in Appendix H: "Participant and Unit Registration and Deregistration" except where otherwise specified in the Code.
<b>Regulatory Authorities</b>	means the NIAUR and the Commission and the term "Regulatory Authority" shall be construed accordingly to mean any one of them as the context admits or requires.
<b>Rejection Notice</b>	means a Notice sent by the Market Operator to a Sending Party specifying that the Data Transaction concerned is invalid and has been rejected by the Market Operator.
<b>Required Credit Cover</b>	means the required Credit Cover calculated by the Market Operator on each Working Day covering the Participant's actual and potential payment liabilities in respect of its Units and participation in the Pool at any time.

<b>Resettlement</b>	means the same as Settlement Rerun. As an adjective it refers to any financial quantity or data input required for Resettlement.
<b>Revenue Authorities</b>	means H. M. Revenue and Customs (United Kingdom) and the Office of Revenue Commissioners (Ireland) and the term “Revenue Authority” shall mean either one of them.
<b>Run-of-River Hydro Unit</b>	means a Generator Unit that uses the flow of the river to drive its hydro turbine and produce electricity.
<b>Same Day Value</b>	means as defined in Appendix A: “Standard Letter of Credit”.
<b>Schedule Demand</b>	means the level of Demand to be met by Price Maker Generator Units, as set out in Appendix N: “Operation of the MSP Software”, for the purpose of each run of the MSP Software.
<b>Schedule Production Cost</b>	means the implied cost incurred by a Generator Unit, as determined from the Accepted Price Quantity Pairs, No Load Costs and Start Up Costs and other relevant Commercial Offer Data and Technical Offer Data, of Output in accordance with the Market Schedule Quantity.
<b>Secretariat</b>	means the full time secretariat provided to support the Modifications Committee, in accordance with paragraph 2.157.
<b>Section</b>	means a Section of the Code.
<b>Self Billing Invoice</b>	means an Invoice prepared by the Market Operator on behalf of a Participant in respect of amounts payable from the relevant account in the SEM Bank to that Participant under the Code including, inter alia, Trading Payments or Capacity Payments due to that Participant.
<b>Self Billing Invoice Data Transaction</b>	is a Data Transaction in relation to Self Billing Invoices detailed in Appendix G: “Invoices and Settlement Statements”.
<b>Self Billing Invoice Due Date</b>	means the date and time by which the payment specified in a Self Billing Invoice must be paid.
<b>SEM Bank</b>	means the Bank with which from time to time the Market Operator has contracted for the provision of banking services required pursuant to the Code for the purposes of the proper operation of the SEM.
<b>SEM Capacity Clearing Account</b>	means the account or accounts in the name of the Market Operator (holding as trustee on the trusts set out in Section 6) with the SEM Bank to and from which all Capacity Payments and Capacity Charges are made.
<b>SEM Collateral Reserve Account</b>	means an account established with the SEM Bank by a Participant and the Market Operator in the name of the Market Operator pursuant to Section 6 for the purpose of comprising part or all of and held as the trusts set out in a Participant’s Posted Credit Cover.

<b>SEM Collateral Reserve Assets</b>	means the aggregate of: (1) amounts from time to time credited to the SEM Collateral Reserve Account(s); (2) amounts which any Participant, where applicable, is from time to time obliged to pay to the credit of their respective SEM Collateral Reserve Accounts; and (3) Interest receivable on the SEM Collateral Reserve Account(s).
<b>SEM Creditor</b>	means a Participant to which payments are due under the Code.
<b>SEM Trading Clearing Account</b>	means the account or accounts in the name of the Market Operator (holding as trustee on the trusts set out in Section 6) with the SEM Bank to and from which all Trading Payments and Trading Charges are made.
<b>Sending Party</b>	means the Party that initially sends a Data Transaction.
<b>Settlement</b>	means financial settlement of the Pool, through determination of trading-related payments, charges, fees and costs, detailed in Self Billing Invoices and Invoices issued by the Market Operator to Participants.
<b>Settlement Calendar</b>	means a calendar for Settlement published as set out in paragraph 6.47.
<b>Settlement Day</b>	means a period starting from 00:00 and ending at 24:00 each day.
<b>Settlement Dispute</b>	means a Dispute arising under paragraph 2.282 or paragraph 2.284.
<b>Settlement Item</b>	means any payment, charge, cost, fee or line listed in a Settlement Statement.
<b>Settlement Period</b>	means Billing Period or Capacity Period or both of them as the context may require.
<b>Settlement Query</b>	means a query raised by a Party in accordance with paragraph 6.93.
<b>Settlement Reallocation</b>	means an instrument that can be used by Participants (which may be Participants of the same Party) to reduce the amount of Required Credit Cover by entering into a Settlement Reallocation Agreement.
<b>Settlement Reallocation Agreement</b>	has the meaning set out in paragraph 6.232.
<b>Settlement Reallocation Request</b>	means a request by the Debited Participant to the Market Operator to put in place a Settlement Reallocation Agreement between itself and the Credited Participant.
<b>Settlement Recalculation Threshold</b>	means a percentage of change in Metered Generation or Market Schedule Quantity or $\lambda$ or $\phi$ in a Trading Day that results from an Upheld Dispute or the resolution of a Data Query or a Settlement Query which will result in the Market Operator re-running the MSP Software or re-calculating the Ex-Post Loss of Load Probability, as appropriate.

<b>Settlement Rerun</b>	means a rerun of Settlement for a given Settlement Period in accordance with paragraph 6.70 to paragraph 6.74.
<b>Settlement Rerun Statement</b>	means a Settlement Statement in respect of a Settlement Rerun.
<b>Settlement Risk Period</b>	means the total period covered by the Actual Exposure Period and the Undefined Potential Exposure.
<b>Settlement Statement</b>	means a report based on a defined data set that incorporates a set of variables used to calculate all payments and charges to a Participant in respect of its Supplier Units and Generator Units for a given Billing Period or Capacity Period, as further described in Appendix G: "Invoices and Settlement Statements".
<b>Shadow Price</b>	means a component of the System Marginal Price for each Trading Period, calculated by the MSP Software in accordance with Appendix N: "Operation of the MSP Software".
<b>Shortfall</b>	means, where any Participant fails to make any payment due under the Code (including, for the avoidance of doubt, any payment required to be made as a result of a decision of the DRB) by the Payment Due Date, the amount outstanding together with any applicable Interest and as more particularly provided for in paragraph 6.55.
<b>Short-Term Maximisation Capability</b>	means that part of Technical Offer Data for certain Generator Units which relates to an expectation of the level of Output that could be achieved, on a reasonable endeavours basis, under a Maximisation Instruction (and which may exceed the Availability declared under the relevant Grid Code).
<b>Shut Down</b>	means the process of shutting down a Demand Side Unit in respect of Demand Reduction.
<b>Shut Down Cost</b>	means the costs associated with Shut Down of a Demand Side Unit.
<b>Single Electricity Market or SEM</b>	means the wholesale all-island single electricity market established as described in paragraph 1.1.
<b>Single Ramp Down Rate</b>	means the limit applied within the MSP Software to decreases in the Market Schedule Quantity of individual Generator Units between successive Trading Periods, calculated in accordance with Appendix N: "Operation of the MSP Software".
<b>Single Ramp Up Rate</b>	means the limit applied within the MSP Software to increases in the Market Schedule Quantity of individual Generator Units between successive Trading Periods, calculated in accordance with Appendix N: "Operation of the MSP Software".
<b>SO Interconnector Trade</b>	means a trade conducted across an Interconnector by the relevant System Operator, after the calculation of Modified Interconnector Unit Nominations, using the Interconnector Residual Capacity Unit for that Interconnector.

<b>Soak Time Cold</b>	means the time which the Generator Unit must remain at that Soak Time Trigger Point Cold during a Cold Start.
<b>Soak Time Hot</b>	means the time which the Generator Unit must remain at that Soak Time Trigger Point Hot during a Hot Start.
<b>Soak Time Trigger Point Cold</b>	means a constant MW level at which a Generator Unit must remain while loading up between zero MW and Minimum Stable Generation after a Cold Start.
<b>Soak Time Trigger Point Hot</b>	means a constant MW level at which a Generator Unit must remain while loading up between zero MW and Minimum Stable Generation after a Hot Start.
<b>Soak Time Trigger Point Warm</b>	means constant MW level at which a Generator Unit must remain while loading up between zero MW and Minimum Stable Generation after a Warm Start.
<b>Soak Time Warm</b>	means the time which the Generator Unit must remain at that Soak Time Trigger Point Warm during a Warm Start.
<b>Special Unit</b>	means a Generator Unit or Supplier Unit that is subject to special treatment in accordance with the rules for Special Units set out in Section 5. The Units concerned are Interconnector Units, Energy Limited Generator Units, Pumped Storage Units, Autoproducer Units, Generator Units Under Test and Demand Side Units.
<b>Standard &amp; Poors</b>	means the credit rating agency known by that name, a division of McGraw-Hill Companies Inc.
<b>Standard Participant</b>	means in relation to the calculation of Required Credit Cover, a Participant that is neither a New Participant nor an Adjusted Participant.
<b>Start of Restricted Range 1</b>	means the start point in MW of the first restricted range of operation of a Generator Unit for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Start of Restricted Range 2</b>	means the start point in MW of the second restricted range of operation of a Generator Unit for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Start Up</b>	means the process of bringing a Generator Unit to a Synchronised state, from a Cold, Warm or Hot (Desynchronised) state.
<b>Start Up Costs</b>	means the costs associated with Start Up.
<b>Starting Optimisation Overlap Period</b>	means, for any given Optimisation Time Horizon and the associated run of the MSP Software, that part of the Optimisation Time Horizon that was included in the Optimisation Time Horizon of the Preceding MSP Run.
<b>Submission Protocol</b>	means the protocol for submitting Data Transactions, as set out in the Appendices.

<b>Supplier</b>	means a Participant licensed to supply electricity under Section 14(1)(b), (c) or (d) or Section 14(2) of the Electricity Regulation Act 1999 (Ireland) or section 10 of the Electricity (Northern Ireland) Order 1992.
<b>Supplier of Last Resort</b>	means, in relation to Ireland, the person designated as supplier of last resort under the European Communities (Internal Market In Electricity) Regulations, 2005 (S.I. 60/2005) (Ireland); and  in relation to Northern Ireland, a supplier that is directed by the NIAUR pursuant to its supply licence to supply electricity to premises in connection with the revocation of the supply licence of another supplier.
<b>Supplier Suspension Delay Period</b>	means the period commencing at the time of issue of any Suspension Order in respect of a Supplier Unit and represents the minimum period before such an Order may take effect in respect of any Supplier Unit specified in the Suspension Order. The duration of the Supplier Suspension Delay Period shall be as determined by the Regulatory Authorities from time to time in accordance with paragraph 2.249.
<b>Supplier Unit</b>	means the Unit comprising of one or more Generators or Demand Sites which are not Generator Units (for which metered consumption may be positive or negative where such aggregated metered consumption is available). For the avoidance of doubt all Associated Supplier Units, Trading Site Supplier Units and Error Supplier Units shall be Supplier Units as well as other Supplier Units that do not fall into those classes.
<b>Supplier Unit Capacity Settlement Statement</b>	means a Settlement Statement in relation Capacity Charges for a Supplier Unit.
<b>Supplier Unit Capacity Settlement Statement Data Transaction</b>	is a Data Transaction in relation to Supplier Unit Capacity Settlement Statements detailed in Appendix G: "Invoices and Settlement Statements".
<b>Supplier Unit Energy Settlement Statement</b>	means a Settlement Statement in relation Energy Charges for a Supplier Unit.
<b>Supplier Unit Energy Settlement Statement Data Transaction</b>	is a Data Transaction in relation to Supplier Unit Energy Settlement Statements detailed in Appendix G: "Invoices and Settlement Statements".
<b>Supply Participant</b>	means a Participant who has registered Supplier Units except Error Supplier Units.

<b>Suspension</b>	means the process whereby the Market Operator suspends a Party from trading in the Pool in respect of some or all of its registered Units in accordance with a Suspension Order issued under paragraphs 2.243 to 2.246 or the process whereby the Market Operator suspends an Interconnector from importing energy to the Pool and from exporting energy from the Pool in accordance with paragraph 2.84 or paragraph 2.96. “Suspend” and “Suspended” shall be construed accordingly.
<b>Suspension Order</b>	means an order from the Market Operator to a Party in accordance with paragraphs 2.243 or 2.246 stating that its participation in respect of any or all of its Units will be suspended in accordance with the terms of the Suspension Order or an order from the Market Operator stating that an Interconnector will be suspended in accordance with paragraph 2.84 or paragraph 2.96.
<b>Synchronisation</b>	means the process where a Generator Unit or Interconnector is preparing to connect and produce energy on the system to which it is Connected in accordance with a Dispatch Instruction or its Market Schedule Quantity as appropriate, so that the frequencies, voltage levels and phase relationships of that Generator Unit or Interconnector, as the case may be and the system to which it is Connected are aligned. “Desynchronisation”, “Synchronised” and “Desynchronised” will be interpreted accordingly.
<b>Synchronous Start Up Time Cold</b>	means the time taken to bring a Generator Unit to a Synchronised state from a Cold (Desynchronised) state.
<b>Synchronous Start Up Time Hot</b>	means the time taken to bring a Generator Unit to a Synchronised state from a Hot (Desynchronised) state.
<b>Synchronous Start Up Time Warm</b>	means the time taken to bring a Generator Unit to a Synchronised state from a Warm (Desynchronised) state.
<b>System Characteristics Data</b>	means data submitted after the Trading Day by the System Operators identifying the Average System Frequency and the Nominal System Frequency.
<b>System Characteristics Data Transaction</b>	is a Data Transaction in relation to System Characteristics detailed in Appendix K: “Market Data Transactions”.
<b>System Marginal Price or SMP</b>	means the price at which one MWh of electricity is sold under the Code in any given Trading Period, as calculated in accordance with Sections 4, 5 and 6.
<b>System Operator</b>	means, in respect of Northern Ireland, the holder of a licence to participate in transmission granted under Article 10(1)(b) of the Electricity (Northern Ireland) Order 1992 as may be amended or replaced from time to time, and which requires the licensee to co-ordinate, and direct, the flow of electricity onto and over the Northern Ireland Transmission System; and in respect of Ireland, the holder, for the time being, of a licence granted under Section 14(1)(e) of the Electricity Regulation Act 1999 (Ireland) as may be amended or replaced from time to time, in its capacity as the holder of that licence. References to the “System Operators” shall be construed accordingly.

<b>System Operator Market Data Transactions</b>	are Data Transactions detailed in Appendix K: “Market Data Transactions”.
<b>System Parameters Data</b>	means data consisting of Transmission Loss Adjustment Factors for each Generator Unit in each Trading Period.
<b>System Parameters Data Transaction</b>	is a Data Transaction in relation to System Parameters detailed in Appendix K: “Market Data Transactions”.
<b>System per Unit Regulation</b>	means a parameter which is used in the calculation of the Tolerance for Over Generation and the Tolerance for Under Generation used in the determination of Uninstructed Imbalance Payments.
<b>Target Instruction Level</b>	means the intended MW Output level for the Generator Unit to achieve which accompanies a Dispatch Instruction, for the purpose of Appendix O: “Instruction Profiling Calculations” only.
<b>Target Reservoir Level</b>	is part of the Commercial Offer Data for a Pumped Storage Unit and means the target reservoir level at the end of the Trading Day submitted in accordance with 5.113.
<b>Target Reservoir Level Percentage</b>	is part of the Technical Offer Data for a Pumped Storage Unit and means a percentage of 50% submitted in accordance with paragraph 5.119, which is multiplied by the Target Reservoir Level to derive a value of that target for the end of the Optimisation Time Horizon for use in the MSP Software.
<b>Technical Capability</b>	means the technical capabilities of a Generator Unit based on, as appropriate, either (1) Technical Offer Data submitted in accordance with Appendix I: “Offer Data” or (2) Generator Unit Technical Characteristics Data (and, where appropriate, Energy Limited Generator Unit Technical Characteristics Data) submitted in accordance with Appendix K: “Market Data Transactions”.
<b>Technical Offer Data</b>	means technical offer data in respect of a Generator Unit as set out in Appendix I: “Offer Data”.
<b>Termination</b>	means the termination of a person’s status as a Party in accordance with paragraphs 2.258 or 2.266, and “Terminate” and “Terminated Party” shall be construed accordingly.
<b>Termination Date</b>	means the date upon which a Termination takes effect in accordance with paragraph 2.260.
<b>Termination Order</b>	means an order from the Market Operator to a Party pursuant to paragraph 2.260 stating that the Party will be Terminated, or that any or all of its Units will be Deregistered.
<b>Testing Charge</b>	means a charge in respect of a Generator Unit Under Test in accordance with the Testing Tariff.
<b>Testing Tariff</b>	means the tariff applicable to Generator Units Under Test determined in accordance with paragraph 5.177.



<b>Testing Tariff Data Transaction</b>	is a Data Transaction in relation to Testing Tariffs detailed in Appendix K: "Market Data Transactions".
<b>Tie-Break</b>	means the situation which arises when the MSP Software cannot differentiate between one or more Generator Units on the grounds of Schedule Production Cost. The MSP Software will resolve the order in which Generator Units are scheduled in accordance with paragraph 4.76.
<b>Tie-Breaking Adder</b>	means a value which is used to adjust Prices for individual Generator Units in the event of a Tie-Break, determined in accordance with Appendix N: "Operation of the MSP Software".
<b>Timetabled Settlement Rerun</b>	means a Settlement Rerun carried out in accordance with the timeline specified in Section 6.
<b>Tolerance Band</b>	means an interval in MW around the Dispatch Quantity for that Generator Unit in that Trading Period within which a Generator Unit is charged for (or paid for, as appropriate) Uninstructed Imbalances at SMP when Metered Generation is within that Tolerance Band.
<b>Total Balance Sheet Assets</b>	means the sum of current and long-term assets set out in the published accounts of the company.
<b>Total Conventional Capacity</b>	means the summed capacity, rounded to the nearest whole MW, of Interconnectors and Generator Units other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Units and Interconnector Residual Capacity Units.
<b>Trading Boundary</b>	means a notional boundary between all points on the Transmission System and all points on the Distribution System. The Trading Boundary is the notional balancing point for generation and supply and is the point of sale for trading in the SEM at which the title for all products and services settled through the trading arrangements set out in the Code transfers. All volumes traded or settled at the Trading Boundary are adjusted to reflect Transmission Losses and (where applicable) Distribution Losses. For the avoidance of doubt, for all Supplier Units or Generator Units that are Distribution Connected, the Trading Boundary is not the specific boundary between the Transmission System and Distribution System for that Unit and so appropriate Transmission Loss Adjustment Factors also apply to volumes associated with these Units in order to ensure that they are appropriately adjusted for Transmission Losses incurred as electricity is transported to (or from) the Trading Boundary from (or to) the relevant boundary of the Transmission System and the Distribution System for that Unit.
<b>Trading Charges</b>	means all charges required to be made in respect of a Supplier Unit during a Trading Period and comprises Energy Charges and Imperfections Charges.
<b>Trading Day</b>	means the period commencing at 06:00 each day and ending at 06:00 the next day.
<b>Trading Day Exchange Rate</b>	means the exchange rate between pounds sterling and euro for the next Trading Day set at 08:00 the day before the Trading Day.

<b>Trading Payments</b>	means payments to Participants in respect of their Generator Units over a Billing Period. Such payments will comprise Energy Payments, Constraint Payments, Uninstructed Imbalance Payments and Make Whole Payments less any Testing Charges.
<b>Trading Period</b>	means a thirty minute period beginning on each hour or half-hour.
<b>Trading Period Boundaries</b>	means the boundaries between adjacent Trading Periods for the purpose of Appendix O: "Instruction Profiling Calculations" only.
<b>Trading Site</b>	means one or more Generator Units and at most one Trading Site Supplier Unit of which all Generator Units are covered by a single Connection Agreement, or in the event that no Connection Agreement exists, all such Units are located on a Contiguous Site, or as described in paragraphs 2.62 to 2.68.
<b>Trading Site Supplier Unit</b>	means a Supplier Unit that contains only the Demand within a Trading Site, and is settled on a net basis against the Generator Units on that Trading Site under the rules specified in the Code.
<b>Transmission Asset Owner</b>	means, in respect of Ireland, the Transmission System owner for the time being licensed under section 14(1)(f) of the Electricity Regulation Act, 1999 (Ireland) and, in respect of Northern Ireland, means the Transmission Owner licensed for the time being under Article 10(1)(b) of the Electricity (Northern Ireland) Order 1992 and references to the "Transmission Asset Owners" shall be construed accordingly.
<b>Transmission Connected</b>	means directly connected electrically to Transmission System.
<b>Transmission Loss Adjustment Factor or TLAF</b>	means the factor for each Unit in each Trading Period to adjust the Output or Demand of that Unit for the effect of Transmission Losses and as otherwise provided for in the Code, determined in accordance with paragraph 4.42.
<b>Transmission Losses</b>	means losses that are incurred (or avoided) on the Transmission System as electricity is transported to (or from) the Trading Boundary from (or to) the relevant point of Connection to the Transmission System for the Generator Unit or Supplier Unit.
<b>Transmission Network</b>	means the network as specified in the Grid Code.

<b>Transmission System</b>	<p>means, in respect of Ireland, a system which consists wholly or mainly of high voltage lines and electric plant and which is used for conveying electricity from a generating station to a substation, from one generating station to another, from one substation to another or to or from any Interconnector or to final customers, but shall not include any such lines which may from time to time, with the approval of the Commission, be specified as being part of the Distribution System and shall not include any Interconnector; and</p> <p>means, in respect of Northern Ireland, the system of electric lines owned by the Transmission Asset Owner and comprising high voltage lines and electrical plant and meters used for conveying electricity from a generating station to a substation, from one generating station to another, and from one substation to another within the Transmission Asset Owner’s authorised transmission area and any other and any other electric lines which the NIAUR may specify as forming part of the transmission system, but shall not include any such lines specified as being part of the Distribution System and shall not include any Interconnector.</p> <p>“Transmission System for Ireland” and “Transmission System for Northern Ireland” shall be construed accordingly.</p>
<b>Type 1 Channel</b>	means the type of Communication Channel defined in paragraph 3.7 as a Type 1 Channel and more particularly described in Agreed Procedure 4 “Transaction Submission and Validation”.
<b>Type 2 Channel</b>	means the type of Communication Channel defined in paragraph 3.7 as a Type 2 Channel and more particularly described in Agreed Procedure 4 “Transaction Submission and Validation”.
<b>Type 3 Channel</b>	means the type of Communication Channel defined in paragraph 3.7 as a Type 3 Channel and as more particularly described in Agreed Procedure 4 “Transaction Submission and Validation”.
<b>Undefined Exposure</b>	means as defined in paragraph 6.189.
<b>Undefined Exposure Period</b>	means, for any Working Day, the period from the latest Trading Day for which results have been published in a Settlement Statement, in the case of Trading Charges exposure and from the last Trading Day in the latest Invoice for Capacity Charges in the case of Capacity Charges, in each case to the point in time when, following payment default, a Participant’s Units could be suspended. Such periods are published in the Settlement Calendar.
<b>Undefined Potential Exposure</b>	means the potential credit exposure resulting from accrued obligations that have not yet been included in any Settlement Statements and from undefined obligations which would be likely to have accrued before a Participant’s Units could be Suspended from trading in the Pool for payment default.
<b>Under Test</b>	means the under test status accorded to certain Generator Units by the relevant System Operator subject to the requirements that the Market Operator has verified the status with the relevant System Operator and that the relevant Unit is so permitted as set out in paragraph 5.169.

<b>Under-Generation MSP Constraint Cost</b>	means a value that is used within the MSP Software as set out within Appendix N: "Operation of the MSP Software".
<b>Uninvoiced Billing Period</b>	means a Billing Period for which an Invoice has not been issued.
<b>Uninstructed Imbalance</b>	means the difference between the Dispatch Quantity and the Actual Output of a Generator Unit.
<b>Uninstructed Imbalance Parameter Data Transaction</b>	is a Data Transaction in relation to Uninstructed Imbalance Parameters detailed in Appendix K: "Market Data Transactions".
<b>Uninstructed Imbalance Parameter</b>	means the parameters defined in paragraph 4.145 used in the calculation of Uninstructed Imbalances, consisting of Engineering Tolerance, MW Tolerance, System per Unit Regulation parameter, Discount for Over Generation for each Generator Unit in each Trading Period and Premium for Under Generation for each Generator Unit in each Trading Period.
<b>Uninstructed Imbalance Payment</b>	means a payment in respect of a Generator Unit when its Actual Output differs from its Dispatch Quantity by an amount greater than its Tolerance Band. Such payments may be positive or negative.
<b>Unit</b>	means a Generator Unit or Supplier Unit or any or all of them, as the case may be.
<b>Unit Commitment Schedule</b>	means a schedule determined by each run of the MSP Software prior to the calculation of Market Schedule Quantities, and denoting, for each Price Maker Generator Unit that is not Under Test, whether or not it will be scheduled to run, and additionally for each Pumped Storage Unit, whether it will be pumping or generating if scheduled to run, in each Trading Period in the Optimisation Time Horizon.
<b>Unit Load</b>	means the difference between the Gross Output and Net Output of a Generator Unit, which reflects the load associated with the Generator Unit.
<b>Unit Owner</b>	means, in respect of any Generator or Generator Unit (as the context permits), the person who owns or legally controls that Generator or Generator Unit.
<b>Unit Registration</b>	means registration of a Unit in accordance with Section 2.
<b>Unit Under Test End Date</b>	means the date specified in a Generator Unit Under Test Notice as the end date for Under Test status for a Generator Unit.
<b>Unit Under Test Ending Trading Day</b>	means the Trading Day on which Under Test status ceases to apply for a Generator Unit.
<b>Unit Under Test Start Date</b>	means the date specified in a Generator Unit Under Test Notice as the start date for Under Test status for a Generator Unit.

<b>Unit Under Test Starting Trading Day</b>	means the Trading Day on which Under Test status begins to apply for a Generator Unit.
<b>Unsecured Bad Capacity Debt</b>	means an Unsecured Bad Debt that has arisen based on a Shortfall arising from non-payment of Capacity Charges.
<b>Unsecured Bad Debt</b>	means a debt which arises as a result of the events set out in paragraph 6.55 and including Unsecured Bad Energy Debt and Unsecured Bad Capacity Debt. For the avoidance of doubt, this definition applies only for the purposes of the Code, and is not intended to imply that any particular sum is a “bad debt” within the meaning of this expression in any financial or accounting definition, standard or practice.
<b>Unsecured Bad Energy Debt</b>	means Unsecured Bad Debt that has arisen based on a Shortfall arising from non-payment of Energy Charges.
<b>Upheld Dispute</b>	means a Dispute becomes an Upheld Dispute when the Dispute Resolution Board or other Competent Authority has resolved the Dispute in accordance with the Dispute Resolution Process and has determined that Settlement Items have changed as a result of the Dispute.
<b>Uplift</b>	means a component of the System Marginal Price for each Trading Period which is calculated, in accordance with Appendix N “Operation of the MSP Software”, to reflect the Start Up Cost and No Load Cost elements of Schedule Production Cost for relevant Generator Units.
<b>Uplift Alpha (<math>\alpha</math>)</b>	means a parameter used in the calculation of Uplift to determine the importance of the Uplift Cost Objective. The value of Uplift Alpha lies between 0 and 1 (inclusive), determined in accordance with paragraph 4.70.
<b>Uplift Beta (<math>\beta</math>)</b>	means a parameter used in the calculation of Uplift to determine the importance of the Uplift Profile Objective. The value of Uplift Beta lies between 0 and 1 (inclusive) and $\alpha + \beta = 1$ , determined in accordance with paragraph 4.70.
<b>Uplift Cost Objective</b>	means that part of the Uplift algorithm as set out in paragraph 4.68.
<b>Uplift Delta (<math>\delta</math>)</b>	means a parameter used in the calculation of Uplift to cap the overall impact on Energy Payments arising from Uplift in each Trading Day compared with the minimum level. The value of Uplift Delta lies between 0 and 1 (inclusive), determined in accordance with paragraph 4.70.
<b>Uplift Profile Objective</b>	means that part of the Uplift algorithm as set out in paragraph 4.68.
<b>Urgent</b>	has the meaning set out in paragraph 2.208 in relation to a Modification Proposal.

<b>Use of System Agreements</b>	means a form of agreement between a Participant and either the Distribution System Operator or the Transmission System Operator, as appropriate, for the use of the relevant Distribution System or relevant Transmission System respectively in respect of any or all of the Participant's Units.
<b>Utilities Directive</b>	means Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors as may be amended or replaced from time to time.
<b>Valid MSP Solution</b>	has the meaning set out in paragraph 4.75.
<b>Validated</b>	means, in relation to a CMS Data Transaction, that the Data Transaction has been determined by the Market Operator to be valid, in accordance with paragraph 3.35.
<b>Validation Notice</b>	means a notice sent by the Market Operator to the Sending Party specifying that the Data Transaction concerned is valid and has been accepted by the Market Operator.
<b>Value Added Tax or VAT</b>	means, in respect of Ireland, the value added tax chargeable under the provisions of the Irish Value Added Tax Act, 1972 (as amended) or any substitute or replacement tax on the supply of goods or services; and  means, in respect of Northern Ireland, the Value Added Tax Act 1994.
<b>Value of Lost Load or VOLL</b>	means the value which represents the end customer's willingness to lose supply determined in accordance with paragraph 4.98. The Value of Lost Load is used in the determination of Capacity Payments.
<b>Variable Generator Unit</b>	means a Wind Power Unit or a Run-of-River Hydro Unit that is Dispatchable, where the short-term availability of the Generator Unit is unpredictable as a result of its fuel source.
<b>Variable Market Operator Charge</b>	means a charge in respect of each unit of Net Demand at Supplier Units, calculated in accordance with paragraph 6.151.
<b>Variable Market Operator Price</b>	means the unit price at which the Market Operator Charge is levied on Participants. The Variable Market Operator Price is proposed annually by the Market Operator and approved by the Regulatory Authorities.
<b>Variable Price Maker Generator Unit</b>	means a Variable Generator Unit which is a Price Maker Generator Unit.
<b>Variable Price Taker Generator Unit</b>	means a Variable Generator Unit which is a Price Taker Generator Unit.
<b>VAT Agreement</b>	means as defined in paragraph 6.260.

<b>Voluntary Termination</b>	means the voluntary Termination of a Party at its own request and in accordance with paragraphs 2.262 to 2.267.
<b>Voluntary Termination Consent Order</b>	means an order issued by the Market Operator to a Party pursuant to paragraph 2.265.
<b>Voluntary Termination Date</b>	means the Trading Day specified in a Voluntary Termination Consent Order in accordance with paragraph 2.266.
<b>Warm</b>	means a warm Warmth State.
<b>Warm Cooling Boundary</b>	means the period of time, which must be greater than that defined by the Hot Cooling Boundary, post Desynchronisation of a Generator Unit after which the Generator Unit's Warmth State transfers from being Warm to Cold.
<b>Warm Start</b>	means any Synchronisation of a Generator Unit that has previously not been Synchronised for a period of time equal to or longer than its Accepted Hot Cooling Boundary but shorter than its Accepted Warm Cooling Boundary.
<b>Warm Start Up Cost</b>	means Start Up Costs associated with a Warm Start.
<b>Warmth State</b>	means either cold, warm, or hot, dependent upon the period of time which has elapsed post Desynchronisation of a Generator Unit relative to its Hot Cooling Boundary and its Warm Cooling Boundary. Up until the Hot Cooling Boundary, the Generator Unit is hot. At and below the Hot Cooling Boundary and up until the Warm Cooling Boundary, the Generator Unit is warm. At and below the Warm Cooling Boundary, the Generator Unit is cold.
<b>Warning Limit</b>	means a Participant's Required Credit Cover as a percentage of its Posted Credit Cover which it has specified to the Market Operator. The maximum level of this Warning Limit is determined in accordance with paragraph 6.176.
<b>Warning Notice</b>	means a Notice sent by the Market Operator in accordance with paragraph 6.181.
<b>Week</b>	means a period of seven consecutive days.
<b>Weekly Peak Demand Forecast</b>	means as defined in Appendix M: "Description of the Function for the Determination of Capacity Payments".
<b>Wind Power Unit</b>	means a Generator Unit generating electricity from wind energy.
<b>Wind Power Unit Forecast</b>	means a forecast of the Output that will be produced by Wind Power Units, excluding Autonomous Generator Units, for each Trading Period in the following two Trading Days, as carried out in relation to each such Wind Power Unit by the relevant System Operator.
<b>Wind Power Unit Forecast Data Transaction</b>	is a Data Transaction in relation to Wind Power Unit Forecasts detailed in Appendix K: "Market Data Transactions".

**Working Day or  
WD**

means a weekday which is not a public holiday or bank holiday in Ireland or Northern Ireland. The term “Non-Working Day” shall be construed accordingly.

**Year**

means a period commencing at 00:00h on 1 January and ending at 24:00h on the next occurring 31 December.



## LIST OF SUBSCRIPTS

In the Code the names of defined variables (which are shown in capitals) are (where necessary) followed by lower case “subscripts” which show the entity or entities to which the variable relates. The meaning of those “subscripts” is shown below. Where there is more than one “subscript”, the variable concerned has more than one dimension; that is, it relates to more than one entity. For example the “subscript” uh would show that the variable concerned represented the value that applies to a Generator Unit u in a Trading Period h. Similarly, the variable MWP in the table below, has the subscripts u and b showing that it represents the value of the Make Whole Payment for Generator Unit u in Billing Period b.

<b>Subscript</b>	<b>Meaning</b>
<b>a</b>	Settlement Reallocation Agreement
<b>b</b>	Billing Period
<b>c</b>	Capacity Period
<b>d</b>	Settlement Day
<b>e</b>	Currency Zone
<b>f</b>	Actual Exposure Period
<b>G</b>	Generation Site (only in Appendix M: “Description of the Function for the Determination of Capacity Payments”)
<b>g</b>	The Working Day of the calculation for the Undefined Exposure Period
<b>h</b>	Trading Period
<b>i</b>	Number of a Price Quantity Pair
<b>j</b>	Not used
<b>k</b>	Temporary use for the Bid/Offer pair under consideration for cost calculations
<b>l</b>	Interconnector
<b>m</b>	Not used
<b>n</b>	Used to denote an integer value – not used as a subscript
<b>o</b>	Not used
<b>p</b>	Participant
<b>q</b>	Uninvoiced Capacity Period
<b>r</b>	Settlement Risk Period
<b>s</b>	Trading Site

<b>Subscript</b>	<b>Meaning</b>
<b>t</b>	Trading Day
<b>u</b>	Generator Unit
<b>v</b>	Supplier Unit
<b>w</b>	Warmth State (Hot/Warm/Cold)
<b>x</b>	Temporary subscript in relation to Constraint Payments in Section 4
<b>y</b>	Year
<b>z</b>	Optimisation Time Horizon
<b>γ</b>	Historical Assessment Period for Billing Periods
<b>η</b>	Counter variable for all Settlement Days within the Historical Assessment Period
<b>μ</b>	Counter variable for all Trading Periods within the Historical Assessment Period.
<b>P</b>	Historical Assessment Period for Capacity Periods
<b>θ</b>	Undefined Exposure Period for Capacity Periods
<b>ω</b>	Undefined Exposure Period
<b>π</b>	Uninvoiced Billing Period

## LIST OF VARIABLES, APPLICABLE SUBSCRIPTS AND UNITS

In this List of Variables, applicable subscripts and units, the description of the variables applies except where expressly provided otherwise in the Code.

Where variables do not have a time subscript they shall be treated as applying for every Trading Day between a recorded start date and end date.

Name	Term	Subscripts	Units	Description
<b>Actual Availability</b>	AA	uh	MW	Actual Availability from Generator Unit u in Trading Period h
<b>Adjusted Aggregate Import Capacity</b>	AAIC	lh	MW	Is equal to the Aggregate Import Capacity; except where any further limitations apply which reduce the maximum capability of the Interconnector to deliver energy to the Transmission System and which are placed by any relevant agreement or the provisions of any Licence in respect of the Interconnector and which are not due to any expected transmission constraints or other aspects of the operation of the Transmission System, in which case the value shall be as determined by the Regulatory Authorities from time to time
<b>Annual Capacity Exchange Rate</b>	ACER	y		Annual Capacity Exchange Rate for Year y
<b>Annual Capacity Payment Sum</b>	ACPS	y	€	Annual Capacity Payment Sum payable to Generator Units and recovered from Supplier Units for Year y
<b>Aggregate Export Capacity</b>	AEC	lh	MW	Aggregate Export Capacity for Interconnector l in Trading Period h.
<b>Actual Generator Exposure</b>	AGE	pf	€	Actual exposure for Participant p in Actual Exposure Period f in respect of their Generator Units
<b>Aggregate Import Capacity</b>	AIC	lh	MW	Aggregate Import Capacity for Interconnector l in Trading Period h

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Analysis Percentile Parameter</b>	AnPP	None	%	AnPP is the parameter to determine the percentage of credit risk that should be covered by the Required Credit Cover in relation to the Undefined Exposure Period
<b>Actual Output</b>	AO	uh	MW	Actual Output from Generator Unit u in Trading Period h, expressed as average MW over the Trading Period
<b>Availability Profile</b>	AP	uh	MW	Availability Profile of Generator Unit u in Trading Period h
<b>Access Quantity</b>	AQ	uh	MW	Access Quantity for Generator Unit u in Trading Period h
<b>Actual Supplier Exposure</b>	ASE	pf	€	Actual exposure for Participant p in Actual Exposure Period f in respect of their Supplier Units
<b>Average System Frequency</b>	AVGFRQ	h	hz	Average System Frequency in Trading Period h
<b>Balancing Cost for Billing Period</b>	BC	b	€	Balancing Cost in respect of Billing Period b
<b>Billing Period Currency Cost</b>	BPC	d	€	Billing Period Currency Cost on Settlement Day d
<b>Billing Period Currency Charge</b>	BPCC	pb	€	Billing Period Currency Charge to Participant p for Billing Period b
<b>Count of Undefined Exposure Periods in Billing Period</b>	BPHAP	g	Number	The count of Undefined Exposed Periods that will be used in the summation of the Billing Period payment and charges in the Historical Assessment Period for Billing Periods for the relevant Undefined Exposure Period g
<b>Standard Deviation of Billing Period Settlement Sum (Supplier Unit)</b>	BSDSVS	pg	€	The standard deviation of the Billing Period Settlement Sum in the Historical Assessment Period for Billing Periods $\gamma$ to be applied for Undefined Exposure Period g for Participant p in respect of its Supplier Units

Name	Term	Subscripts	Units	Description
<b>Standard Deviation of Billing Period Settlement Sum (Generator Unit)</b>	BSDSVU	pg	€	The standard deviation of the Billing Period Settlement Sum in the Historical Assessment Period for Billing Periods $\gamma$ to be applied for Undefined Exposure Period $g$ for Participant $p$ in respect of its Generator Units
<b>Billing Period Settlement Sum (Supplier Unit)</b>	BSVS	pg $\omega$	€	The Billing Period Settlement Sum for Participant $p$ in respect of its Supplier Units to be applied for the Undefined Exposure Period $g$ for each Undefined Exposure Period $\omega$ in the Historical Assessment Period for Billing Periods $\gamma$
<b>Billing Period Settlement Sum (Generator Unit)</b>	BSVU	pg $\omega$	€	The Billing Period Settlement Sum for Participant $p$ in respect of its Generator Units to be applied for the Undefined Exposure Period $g$ for each Undefined Exposure Period $\omega$ in the Historical Assessment Period for Billing Periods $\gamma$
<b>Billing Period Undefined Potential Exposure (Generator Unit)</b>	BUPEG	pg	€	The Billing Period Undefined Potential Exposure in the Historical Assessment Period for Billing Periods $\gamma$ to be applied for Participant $p$ in respect of its Generator Units for the Undefined Exposure Period $g$
<b>Billing Period Undefined Potential Exposure (Supplier Unit)</b>	BUPES	pg	€	The Billing Period Undefined Potential Exposure in the Historical Assessment Period for Billing Periods $\gamma$ to be applied for Participant $p$ in respect of its Supplier Units for the Undefined Exposure Period $g$
<b>Mean of Billing Period Settlement Sum (Generator Unit)</b>	BXSVU	pg	€	The mean of Billing Period Settlement Sum in the Historical Assessment Period for Billing Periods $\gamma$ to be applied for the Undefined Exposure Period $g$ for a Participant $p$ in respect of its Generator Units
<b>Credit Assessment Price</b>	CAP	g	€/MWh	The Credit Assessment Price for the Undefined Exposure Period $g$

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Capacity Period Currency Cost</b>	CAPC	c	€	Capacity Period Currency Cost in respect of Capacity Period c
<b>Capacity Period Currency Charge</b>	CAPCC	pc	€	Capacity Period Currency Charge to Participant p for Capacity Period c
<b>Credit Assessment Volume (Generator Unit)</b>	CAVG	ph	MWh	Credit Assessment Volume for each Trading Period h in respect of the Generator Units of a New or Adjusted Participant p
<b>Credit Assessment Volume (Supplier Unit)</b>	CAVS	ph	MWh	Credit Assessment Volume for each Trading Period h in respect of the Supplier Units of a New or Adjusted Participant p
<b>Balancing Cost for Capacity Period</b>	CBC	c	€	Balancing Cost in respect of Capacity Period c
<b>Capacity Charge</b>	CC	vh	€	Capacity Charge for Supplier Unit v in Trading Period h
<b>Constraint Payment</b>	CONP	uh	€	Constraint Payment due to Generator Unit u in respect of Trading Period h
<b>Constraint Payment (Generator Unit)</b>	CONPU	ud	€	Total Constraint Payment made to a Participant in respect of a Generator Unit u in respect of Settlement Day d
<b>Capacity Payment</b>	CP	uh	€	Capacity Payment for Generator Unit u in Trading Period h
<b>Capacity Period Charge (Supplier Unit)</b>	CPC	vc	€	Capacity Period Charge for Supplier Unit v in Capacity Period c
<b>Capacity Payments Demand Price</b>	CPDP	h	€/MWh	Capacity Payments Demand Price in Trading Periods h
<b>The count of all Capacity Payments Demand Prices</b>	CPDPHAP	g	Number	Count of all Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods p to be applied for the Undefined Exposure Period g

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Capacity Period Demand Scaling Price</b>	CPDSP	c	€/MWh	Capacity Period Demand Scaling Price for each Capacity Period c
<b>Loss-Adjusted Capacity Payments Eligible Availability</b>	CPEALF	uh	MWh	Loss-Adjusted Capacity Payments Eligible Availability of a Generator Unit u in Trading Period h
<b>Capacity Period Ex-Post Generation Scaling Price</b>	CPEGSP	c	€/MWh	Capacity Period Ex-Post Generation Scaling Price in Capacity Period c
<b>Capacity Period Ex-Post Sum</b>	CPES	c	€	Capacity Period Ex-Post Sum in each Capacity Period c
<b>Capacity Period Fixed Generation Scaling Price</b>	CPFGSP	c	€/MWh	Capacity Period Fixed Generation Scaling Price in Capacity Period c
<b>Capacity Period Fixed Sum</b>	CPFS	c	€	Capacity Period Fixed Sum in each Capacity Period c
<b>Capacity Payments Generation Price</b>	CPGP	h	€/MWh	Capacity Payments Generation Price in Trading Periods h
<b>Capacity Payments Generation Price Factor</b>	CPGPF	uh	Factor	Capacity Payments Generation Price Factor for Generator Unit u in Trading Period h
<b>Count of Undefined Exposure Periods in Capacity Period</b>	CPHAP	g	Number	Count of Undefined Exposed Periods that will be used in the summation of the Capacity Period payment and charges in the Historical Assessment Period for Capacity Periods for the relevant Undefined Exposure Period g
<b>Capacity Period Payment (Generator Unit)</b>	CPP	uc	€	Capacity Period Payment for Generator Unit u in Capacity Period c

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Capacity Payments Price Factor</b>	CPPF	h	Factor	Capacity Payments Price Factor for Trading Period h in the Capacity Period c
<b>Capacity Period Payment Sum</b>	CPPS	c	€	Capacity Period Payment Sum payable to Generator Units and recovered from Supplier Units in each Capacity Period c
<b>Capacity Period Variable Generation Scaling Price</b>	CPVGSP	c	€	Capacity Period Variable Generation Scaling Price in Capacity Period c
<b>Capacity Period Variable Sum</b>	CPVS	c	€	Capacity Period Variable Sum in Capacity Period c
<b>Capacity Period Standard Deviation of Settlement Sums (Supplier Unit)</b>	CSDSVS	pg	€	The Capacity Period standard deviation in the Historical Assessment Period for Capacity Periods p to be applied for the Undefined Exposure Period g for a Participant p respect of its Supplier Units
<b>Capacity Period Standard Deviation of Settlement Sums (Generator Unit)</b>	CSDSVU	pg	€	The Capacity Period standard deviation in the Historical Assessment Period for Capacity Periods p to be applied for the Undefined Exposure Period g for a Participant p respect of its Generator Units
<b>Capacity Period Settlement Sum (Supplier Unit)</b>	CSVs	pgw	€	The Capacity Period Settlement Sum for Participant p in respect of its Supplier Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period $\omega$ in the Historical Assessment Period for Capacity Periods p



<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Capacity Period Settlement Sum (Generator Unit)</b>	CSVU	pg $\omega$	€	The Capacity Period Settlement Sum for Participant p in respect of its Generator Units to be applied for the Undefined Exposure Period g for each Undefined Exposure Period $\omega$ in the Historical Assessment Period for Capacity Periods $\rho$ The Capacity Period Settlement Sum in the Historical Assessment Period for Capacity Periods $\rho$ for the Undefined Exposure Period g for Participant p in respect of its Generator Units
<b>Capacity Period Undefined Potential Exposure (Generator Unit)</b>	CUPEG	pg	€	Undefined potential exposure for a Participant p in respect of Capacity Charges in relation to its Generator Units in the Undefined Exposure Period g
<b>Capacity Period Undefined Potential Exposure (Supplier Unit)</b>	CUPES	pg	€	Undefined potential exposure for a Participant p in respect of Capacity Charges in relation to its Supplier Units in the Undefined Exposure Period g
<b>Mean of the Capacity Period Settlement Sum (Supplier Unit)</b>	CXSVS	pg	€	Mean of the Capacity Period Settlement Sum in the Historical Assessment Period for Capacity Periods $\rho$ to be applied for the Undefined Exposure Period g for Participant p in respect of its Supplier Units
<b>Mean of the Capacity Period Settlement Sum (Generator Unit)</b>	CXSVU	pg	€	Mean of the Capacity Period Settlement Sum in the Historical Assessment Period for Capacity Periods $\rho$ to be applied for the Undefined Exposure Period g for Participant p in respect of its Generator Units
<b>Total Charge (Daily)</b>	DAYCD	d	€	Total Charge in respect of all Supplier Units for Settlement Day d
<b>Total Charges (Supplier Unit)</b>	DAYCV	vd	€	Total Charges in respect of Supplier Unit v for Settlement Day d
<b>Total Payment (Daily)</b>	DAYPD	d	€	Total Payment in respect of all Generator Units for Settlement Day d

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Total Payments (Generator Unit)</b>	DAYPU	ud	€	Total Payments in respect of Generator Unit u for Settlement Day d
<b>Decremental Price</b>	DECP	uh	€/MWh	Decremental Price for Predictable Price Taker Generator Unit u, Variable Price Taker Generator Unit u or Generator Unit Under Test u in Trading Period h
<b>Dispatch No Load Cost</b>	DNLC	uh	€/hour	Dispatch No Load Cost for Generator Unit u in Trading Period h
<b>Discount for Over Generation</b>	DOG	uh	Proportion	Discount for Over Generation for Generator Unit u in Trading Period h, where $0 \leq DOG_{uh} \leq 1$
<b>Dispatch Offer Price</b>	DOP	uh	€/MWh	Dispatch Offer Price of Generator Unit u in Trading Period h, equal to last Puhi corresponding to Dispatch Quantity
<b>Dispatch Quantity</b>	DQ	uh	MW	Dispatch Quantity for Generator Unit u in Trading Period h (average power)
<b>Dispatch Quantity (revised)</b>	DQ'	uh	MW	Revised Dispatch Quantity for Generator Unit u in Trading Period h (average power) applicable when a Maximisation Instruction is issued by the SO
<b>Dispatch Quantity Cost Correction</b>	DQCC	uh	€/hour	Dispatch Quantity Cost Correction for Generator u in Trading Period h used in the calculation of Constraint Payments
<b>Dispatch Start Up Cost</b>	DSUC	uh	€	Dispatch Start Up Cost for Generator Unit u in Trading Period h
<b>Eligible Availability</b>	EA	uh	MW	Eligible Availability for Capacity Payments, expressed in average MW, for Generator Unit u in Trading Period h
<b>Ex-Post Capacity Payments Generation Price</b>	ECGP	h	€/MWh	Ex-Post Capacity Payments Generation Price in Trading Period h

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Estimated Capacity Price</b>	ECP	g	€/MWh	Estimated Capacity Price for the Undefined Exposure Period g
<b>Ex-Post Capacity Payments Proportion</b>	ECPP	y	Proportion	Ex-Post Capacity Payments Proportion for Year y
<b>Ex-Post Capacity Payments Weighting Factor</b>	ECPWF	h	Factor	Ex-Post Capacity Payments Weighting Factor in Trading Period h
<b>Estimated Energy Price</b>	EEP	g	€/MWh	Estimated Energy Price for the Undefined Exposure Period g
<b>Eligible Generation Availability</b>	EGA	uh	MW	Eligible availability for generation mode of Pumped Storage Units u in Trading Period h
<b>Ex-Post Margin</b>	EM	h	MWh	Ex-Post Margin in Trading Period h
<b>Energy Charges</b>	ENC	vh	€/MWh	Energy Charge recoverable in respect of Supplier Unit v in Trading Period h
<b>Energy Charge (Supplier Unit)</b>	ENCV	vd	€	Total Energy Charge on Supplier Unit v in respect of Settlement Day d
<b>Engineering Limit</b>	ENGLIM	uh	MW	Engineering Limit for Generator Unit u for Trading Period h
<b>Engineering Tolerance</b>	ENGTOL	None	Scalar %	Engineering Tolerance used in calculation of Uninstructed Imbalances
<b>Energy Payments</b>	ENP	uh	€/MWh	Energy Payment payable to Generator Unit u in Trading Period h
<b>Energy Payment (Generator Unit)</b>	ENPU	ud	€	Total Energy Payment made to Generator Unit u in respect of Settlement Day d
<b>Eligible Netting Quantity</b>	ENQ	sh	MW	Eligible Netting Quantity at a Trading Site s in Trading Period h

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Firm Access Quantity (Generator Unit)</b>	FAQ	uh	MW	Firm Access Quantity for Generator Unit u in Trading Period h
<b>Firm Access Quantity (Site)</b>	FAQS	st	MW	Firm Access Quantity for Site s in Trading Day t
<b>Fixed Capacity Payments Generation Price</b>	FCGP	h	€/MWh	Fixed Capacity Payments Generation Price in each Trading Period h in Capacity Period c
<b>Fixed Capacity Payments Proportion</b>	FCPP	y	Proportion	Fixed Capacity Payments Proportion for Year y
<b>Fixed Capacity Payments Weighting Factor</b>	FCPWF	h	Factor	Fixed Capacity Payments Weighting Factor for each Trading Period h in Capacity Period c
<b>Fixed Credit Requirement (Generator Unit)</b>	FCRG	y	€	The fixed portion of the Required Credit Cover for Participants for their Generator Units set annually ex ante for Year y
<b>Fixed Credit Requirement (Supplier Unit)</b>	FCRS	y	€	The fixed portion of the Required Credit Cover for Participants for their Supplier Units set annually ex ante for Year y
<b>Forecast Wind Contribution</b>	FCW	h	MW	The forecast of the aggregate available capacity of all Wind Power Units for each Trading Period h in the Capacity Period immediately following that Capacity Period in which the forecast is determined
<b>Forecast Demand</b>	FD	h	MW	Forecast of Demand in Trading Period h based on the Annual Load Forecast Data
<b>Forecast Generation Site Availability</b>	FGSA	Gh	MW	The forecast of the available capacity at a Generation Site in relation to Energy Limited Generator Units or Pumped Storage Units at such site

Name	Term	Subscripts	Units	Description
<b>Forecast Interconnector Availability</b>	FIA	lh	MW	The forecast of the available capacity of each Interconnector l for each Trading Period h in the Capacity Period immediately following that Capacity Period in which the forecast is determined
<b>Flattening Power Factor</b>	FPF	y		The power factor used to flatten the distribution of LOLP values in the Loss of Load Probability Table and which takes a value between 0 and 1
<b>First Temporary Loss Of Load Probability Table</b>	FTMPLO LP			A temporary data-holding variable used to calculate to the Loss of Load Probability Table
<b>Forecast Unit Availability</b>	FUA	uh	MW	The forecast of the available capacity of each Generator Unit u for each Trading Period h in the Capacity Period immediately following that Capacity Period in which the forecast is determined
<b>Fixed Unit Load</b>	FUL	u	MW	Fixed Unit Load for Generator Unit u such that $FUL_u \geq 0$
<b>Interconnector Annual Forced Unavailability</b>	IAFU	ly	MWh	The energy an Interconnector l was not able to deliver in a Year y due to the Available Transfer Capacity being less than the Interconnector Capacity for reasons other than maintenance
<b>Invoiced Capacity Charge</b>	ICC	pc	€	Invoiced Capacity Charge to a Participant p in respect of its registered Supplier Units for Capacity Period c
<b>Invoiced Capacity Payment</b>	ICP	pc	€	Invoiced Capacity Payment to a Participant p in respect of its registered Generator Units for Capacity Period c
<b>Interim Eligible Availability</b>	IEA	uh	MW	Eligible availability for Capacity Payments, expressed in average MW, for Generator Unit u in Trading Period h
<b>Invoice Energy Charge</b>	IEC	pb	€	Charge to each Participant p in respect of its Supplier Units for Energy and for a Billing Period b

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Interim Ex-Post Capacity Payments Weighting Factor</b>	IECPWF	h	Factor	Interim Ex-Post Capacity Payments Weighting Factor in Trading Period h
<b>Interim Eligible Generation Availability</b>	IEGA	h	MW	Interim Eligible Generation Availability for Pumped Storage Unit u in Trading Period h
<b>Interim Ex-Post Margin</b>	IEM	h	MWh	Interim Ex-Post Margin in Trading Period h
<b>Invoice Energy Payment</b>	IEP	pb	€	Payment to each Participant p in respect of its Generator Units for Energy and for a Billing Period b
<b>Interconnector Forced Outage Rate</b>	IFOR	ly	Decimal value	The percentage of time (expressed as a decimal value) an Interconnector I was not available at the Interconnector Capacity other than for reasons of maintenance in a Year y
<b>Interconnector Forced Unavailability</b>	IFU	lh	MW	The capacity which was not available from an Interconnector I in a Trading Period h due to the Available Transfer Capacity being less than the Interconnector Capacity for reasons other than maintenance
<b>Interconnector Historic Forced Outage Factor</b>	IHFOF	ly	Decimal value	The average of the Interconnector Forced Outage Rate for an Interconnector I in each Year y over a 5 year period
<b>Input Margin</b>	IM		MW	The variable that is recorded in the left-hand column of the Loss Of Load Probability Table (LOLPT)
<b>Interim Margin</b>	IMN	h	MW	Interim Margin in Trading Period h
<b>Interconnector Metered Generation</b>	IMG	lh	MWh	Interconnector Metered Generation (import positive, export negative) for Interconnector I in Trading Period h
<b>Invoiced Fixed Market Operator Annual Charges (Generator Unit)</b>	IMOACU	py	€	Invoiced Fixed Market Operator Annual Charges for Participant p for Year y, in respect of its Generator Units

Name	Term	Subscripts	Units	Description
<b>Invoiced Fixed Market Operator Annual Charges (Supplier Unit)</b>	IMOACV	py	€	Invoiced Fixed Market Operator Annual Charges for Participant p for Year y, in respect of its Supplier Units
<b>Imperfections Price</b>	IMP	y	€/MWh	Imperfections Price for Year y
<b>Imperfections Charge</b>	IMPC	vh	€	Imperfections Charge on Supplier Unit v in respect of Trading Period h
<b>Total Imperfections Charges (Supplier Unit)</b>	IMPCV	vd	€	Total Imperfections Charge on Supplier Unit v in respect of Settlement Day d
<b>Imperfections Charge Factor</b>	IMPF	h	Factor	Imperfections Charge Factor for Trading Period h
<b>Interconnector Residual Capacity Unit Payments</b>	IRCUP	pc	€	Payment to Participant in respect of Interconnector Residual Capacity Unit, net of Capacity Payment, in respect of Capacity Period c
<b>Interconnector Scheduled Outage Indicator</b>	ISOI	lh		Indicator used in the determination of the Interconnector Forced Outage Rate for each Interconnector I in Trading Period h in Appendix M: "Description of the Function for the Determination of Capacity Payments". It takes the value of 1 if the Interconnector is on maintenance and takes the value of 0 if the Interconnector is not on scheduled maintenance, the determination of such values being by reference to the agreed Outage Programme as determined in accordance with the relevant Grid Code
<b>Interconnector Total Unavailability</b>	ITU	ly	MWh	The energy an Interconnector I was not able to deliver in a Year y due to the Available Transfer Capacity being less than the Interconnector Capacity
<b>Interim Ex-Post Loss of Load Probability</b>	l $\phi$	h	Probability	Loss of Load Probability in Trading Period h calculated ex-post in accordance with Appendix M: "Description of the Function for the Determination of Capacity Payments"

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Loss Of Load Probability Table</b>	LOLPT			The 2-column table that relates Input Margin (IM) to Output Loss of Load Probability (OLOLP)
<b>Margin</b>	M	h	MWh	Ex-ante forecast of Margin in Trading Period h
<b>Metered Demand</b>	MD	vh	MWh	Metered Demand in Trading Period h for Supplier Unit v after adjustment for Distribution Losses
<b>Metered Generation</b>	MG	uh	MWh	Metered Generation for Generator Unit u in Trading Period h
<b>Minimum Stable Generation</b>	MINGEN	uh	MW	Minimum Stable Generation for Generator Unit u for Trading Period h
<b>Minimum Off Time</b>	MINoff	ut	Hours	Minimum Off Time for Generator Unit u for Trading Day t
<b>Minimum On Time</b>	MINon	ut	Hours	Minimum On Time for Generator Unit u for Trading Day t
<b>Minimum Output</b>	MINOUT	uh	MW	Minimum Output of Generator Unit u in Trading Period h, net of Unit Demand
<b>Monthly Forecast Demand</b>	MFD	h	MW	Monthly Forecast Demand in Trading Period h
<b>Market No Load Cost</b>	MNLC	uh	€/hour	Market No Load Cost for Generator Unit u in Trading Period h
<b>Fixed Market Operator Charge (Generator Unit)</b>	MOAUC	uy	€	The fixed annual fee for Market Operator operating cost for Year y for Generator Units u
<b>Fixed Market Operator Charge (Supplier Unit)</b>	MOAVC	vy	€	The fixed annual fee for Market Operator operating cost for Year y for Supplier Units v
<b>Market Offer Price</b>	MOP	uh	€/MWh	Market Offer Price of Generator Unit u in Trading Period h, equal to last Puhi in schedule



<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>MSP Production Cost</b>	MSPC(MSQ)	uh	€	MSP Production Cost for Generator Unit u operating at a level of Output MSQ in Trading Period h, calculated in accordance with Appendix N: "Operation of the MSP Software"
<b>Market Schedule Quantity</b>	MSQ	uh	MW	Market Schedule Quantity for Generator Unit u in Trading Period h (average power level during Trading Period)
<b>Market Schedule Quantity Cost Correction</b>	MSQCC	uh	€/hour	Market Schedule Cost Correction for Generator Unit u in Trading Period h
<b>Market Start Up Cost</b>	MSUC	uh	€	Market Start Up Cost for Generator Unit u in Trading Period h
<b>Make Whole Payment</b>	MWP	ub	€	Make Whole Payment made in each Billing Period b to Generator Unit u
<b>MW Tolerance</b>	MWTOL	t	MW	MW Tolerance for Trading Day t
<b>Net Demand</b>	ND	vh	MWh	Net Demand in Trading Period h of Supplier Unit v
<b>Number of Interconnectors</b>	NI			The number of interconnectors
<b>Net Inter-Jurisdictional Import</b>	NIJI	eh	MWh	Total net import to Jurisdiction e from the other Jurisdiction e in the SEM across all relevant points of connection in Trading Period h
<b>No Load Cost</b>	NLC	uh	€/hour	No Load Cost for Generator Unit u in Trading Period h
<b>Nominal System Frequency</b>	NORFRQ	h	hz	Nominal System Frequency in Trading Period h.
<b>Nominated Quantity</b>	NQ	uh	MW	Nominated Quantity of Output for a Predictable Price Taker Generator Unit u, Variable Price Taker Generator Unit u or Generator Unit Under Test u in Trading Period h
<b>Number of Units</b>	NU			The number of conventional units

Name	Term	Subscripts	Units	Description
<b>Output Loss of Load Probability</b>	OLOP		Probability	The values contained in the Loss Of Load Probability Table relating to the Input Margin and which are used to determine the values of the Loss of Load Probability and the Ex-Post Loss of Load Probability
<b>Price</b>	P	uhi	€/MWh	ith price Accepted for Generator Unit u in respect of Trading Period h
<b>Market Price Cap</b>	PCAP	None	€/MWh	Market Price Cap
<b>Market Price Floor</b>	PFLOOR	None	€/MWh	Market Price Floor
<b>Pumped Storage Cycle Efficiency</b>	PSCE	ut	Percentage	Pumped Storage Cycle Efficiency for Pumped Storage Unit u in Trading Day t.
<b>Maximum Storage Capacity</b>	PSMAXL	ut	MWh	Maximum Storage Capacity for Pumped Storage Unit u in Trading Day t, expressed in terms of generation capability
<b>Minimum Storage Capacity</b>	PSMINL	ut	MWh	Minimum Storage Capacity for Pumped Storage Unit u in Trading Day t, expressed in terms of generation capability
<b>Target Reservoir Level</b>	PSTRL	ut	MWh	Target Reservoir Level at the end of the Trading Day for Pumped Storage Unit u for Trading Day t
<b>Pumped Storage Unscheduled Capacity Daily Price</b>	PSUCDP	ut	€/MWh	Pumped Storage Unscheduled Capacity Daily Price for Pumped Storage Unit u in Trading Day t, used to determine capacity payments for Pumped Storage Units for any unused generation capacity
<b>Premium for Under Generation</b>	PUG	uh	Proportion	Premium for Under Generation for Generator Unit u in Trading Period h, where $0 \leq PUG_{uh} \leq 1$
<b>Quantity</b>	Q	uhi	MW	ith Quantity Accepted for Generator Unit u in respect of Trading Period h
<b>Registered Capacity</b>	RC	u	MW	Registered Capacity of Generator Unit u

Name	Term	Subscripts	Units	Description
<b>Required Credit Cover</b>	RCC	pr	€	Required Credit Cover for each Participant p in respect of all its Units in the Settlement Risk Period r
<b>Required Credit Cover (Generator Unit)</b>	RCCG	pr	€	Required Credit Cover in respect of the Settlement Risk Period r for each Participant p in respect of its Registered Generator Units
<b>Required Credit Cover (Supplier Unit)</b>	RCCS	pr	€	Required Credit Cover in respect of the Settlement Risk Period r for each Participant p in respect of its Registered Supplier Units
<b>Ramp Down Rate</b>	RDR	uw	MW/min	Ramp Down Rate for Warmth State w for Generator Unit u
<b>Ramp Up Rate</b>	RUR	uw	MW/min	Ramp Up Rate for Warmth State w for Generator Unit u
<b>Site Access Quantity</b>	SAQ	sh	MW	Site Access Quantity for Trading Site s in Trading Period h
<b>Standard deviation of the aggregated Capacity Payments Demand Prices</b>	SDCPDP	g	€/MWh	Standard deviation of the aggregated Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods p to be applied for the Undefined Exposure Period g
<b>The standard deviation of the System Marginal Price</b>	SDSMP	g	€/MWh	Standard deviation of the System Marginal Price in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g
<b>Energy Limit</b>	SEL	ut	MWh	Energy Limit for Energy Limited Generator Unit u in Trading Day t
<b>SO Interconnector Export Price</b>	SIEP	lh	€/MWh	Volume-weighted average price, for each Trading Period h, of SO Interconnector Trades which are for export from the SEM, for each Interconnector l
<b>SO Interconnector Export Quantity</b>	SIEQ	lh	MW	Time-weighted average quantity for each Trading Period h (expressed as a negative number in MW) of SO Interconnector Trades which are for export from the SEM, for each Interconnector l

Name	Term	Subscripts	Units	Description
<b>SO Interconnector Import Price</b>	SIIP	lh	€/MWh	Volume-weighted average price, for each Trading Period, of SO Interconnector Trades which are for import to the SEM, for each Interconnector
<b>SO Interconnector Import Quantity</b>	SIIQ	lh	MW	Time-weighted average quantity for each Trading Period h (expressed as a positive number in MW) of SO Interconnector Trades which are for import to the SEM, for each Interconnector l
<b>System Marginal Price</b>	SMP	h	€/MWh	System Marginal Price in Trading Period h
<b>The count of all System Marginal Prices in the Historical Assessment Period for Billing Periods</b>	SMPHAP	g	Number	Count of all SMPs in the Historical Assessment Period for Billing Periods $\gamma$ to be applied for the Undefined Exposure Period g
<b>Shadow Price</b>	SP	h	€/MWh	Shadow Price component of SMP for Trading Period h, calculated in accordance with Appendix N: "Operation of the MSP Software"
<b>Settlement Reallocation Capacity Amount</b>	SSRCA	aph	€	Settlement Reallocation Capacity Amount for a Participant p in respect of its registered Generator Units for a given Trading Period h defined in Settlement Reallocation Agreement a
<b>Settlement Reallocation Energy Amount</b>	SSREA	aph	€	Settlement Reallocation Energy Amount for a Participant p in respect of its registered Generator Units for a given Trading Period h defined in Settlement Reallocation Agreement a
<b>Short-term Maximisation Capability</b>	STMC	ut	MW	Maximum Output capability of Generator Unit u in Trading Day t; this may be greater than the Registered Capacity
<b>Second Temporary Loss Of Load Probability Table</b>	STMPLO LP			A temporary data-holding variable used to calculate to the Loss of Load Probability Table.

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Start Up Cost</b>	SUC	uh	€	Start Up Cost for Demand Side Unit u for Trading Period h
<b>Total Conventional Capacity</b>	TCC		MW	The summed capacity of Generator Units other than Autonomous Generator Units, Demand Side Units, Wind Power Units, Interconnector Residual Capacity Units, each rounded to their nearest whole MW
<b>Temperature Correction Factor</b>	TCF	uh	Factor	The factor determined annually by the Market Operator to account for variations in the capacity of a Generator Unit caused by changes in ambient temperature
<b>Testing Charge</b>	TCHARGE	uh	€/MWh	Testing Charge applicable to Generator Unit u in each Trading Period h
<b>Testing Charge (Generator Unit)</b>	TCHARGEU	ud	€	Testing Charge applicable to Generator Unit u for each Settlement Day d
<b>Transmission Loss Adjustment Factor</b>	TLAF	uh, vh	Factor	Transmission Loss Adjustment Factor applicable to Generator Unit u or Supplier Unit v as appropriate in Trading Period h
<b>Tolerance for Over Generation</b>	TOLOG	uh	MW	Tolerance for Over Generation for Generator Unit u in Trading Period h
<b>Tolerance for Under Generation</b>	TOLUG	uh	MW	Tolerance for Under Generation for Generator Unit u, in Trading Period h
<b>Trading Period Duration</b>	TPD	None	Hours	Trading period duration in hours (equal to 0.5 which defines a half hour Trading Period)
<b>Testing Tariff</b>	TTARIFF	uh	€/MWh	Testing Tariff applicable to each Generator Unit Under Test u in Trading Period h
<b>Third Temporary Loss Of Load Probability Table</b>	TTMPLOLP			A temporary data-holding variable used to calculate to the Loss of Load Probability Table.

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Unsecured Bad Capacity Debt</b>	UBCD	c	€	Unsecured Bad Capacity Debt in a Capacity Period c
<b>Unsecured Bad Debt Capacity Charge</b>	UBDCC	pc	€	Unsecured Bad Debt Capacity Charge to a Participant p in respect of its registered Generator Units in the relevant Capacity Period c
<b>Unsecured Bad Debt Energy Charge</b>	UBDEC	pb	€	Unsecured Bad Debt Energy Charge to Participant p in respect of its registered Generator Units in the relevant Billing Period b
<b>Unsecured Bad Energy Debt</b>	UBED	b	€	Unsecured Bad Energy Debt in a Billing Period b
<b>Unscheduled Capacity Offer Price</b>	UCOP	uhi	€/MWh	Unscheduled Capacity Offer Price for Pumped Storage Unit u for Price Quantity Pair I which is applicable in Trading Period h
<b>Unscheduled Capacity Offer Quantity</b>	UCOQ	uhi	MW	Unscheduled Capacity Offer Quantity for Pumped Storage Unit u for Price Quantity Pair I which is applicable in Trading Period h
<b>The sum of the Capacity Payments Demand Prices</b>	UCPDP	g	€/MWh	The sum of the Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods p to be applied for the for the Undefined Exposure Period g
<b>Number of days in the Undefined Exposure Period for Billing Periods</b>	UEPBD	g	Number	Number of days in the Undefined Exposure Period for Billing Periods g relevant to the Working Day of the calculation of the Required Credit Cover
<b>Number of days in the Undefined Exposure Period for Capacity Periods</b>	UEPCD	g	Number	Number of days in the Undefined Exposure Period for Capacity Periods g relevant to the Working Day of the calculation of the Required Credit Cover
<b>Unit Forced Outage Rate</b>	UFOR	uy	Decimal value	The percentage of time (expressed as a decimal value) a Generator Unit u was not available at its Unit Capacity other than for reasons of maintenance in a Year y

Name	Term	Subscripts	Units	Description
<b>Unit Forced Unavailability</b>	UFU	uy	MWh	The energy a Generator Unit u was not able to deliver in a Year y due to the Eligible Availability being less than the Unit Capacity for reasons other than maintenance
<b>Unit Historic Forced Outage Factor</b>	UHFOF	uy	Decimal value	The average of the Unit Forced Outage Rate for a Generator Unit u in Year y over a 5 year period
<b>Unit Load Scalar</b>	ULS	u	Proportion	Unit Load Scalar for Generator Unit u such that $0 \leq ULS_u \leq 1$
<b>Mean Value of Capacity Payments Demand Prices</b>	UMCPD P	g	€/MWh	Mean value of the Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods p to be applied for the Undefined Exposure Period g
<b>The mean value of aggregated SMP</b>	UMSMP	g	€/MWh	Mean value of aggregated SMP in the Historical Assessment Period for Billing Periods $\gamma$ to be applied for the Undefined Exposure Period g
<b>Uninstructed Imbalance Payment</b>	UNIMP	uh	€	Uninstructed Imbalance Payment in respect of Generator Unit u in Trading Period h
<b>Total Uninstructed Imbalance Payment (Generator Unit)</b>	UNIMPU	ud	€	Total Uninstructed Imbalance Payment for Generator Unit u in respect of Settlement Day d
<b>Undefined Potential Exposure (Generator Unit)</b>	UPEG	pg	€	Undefined Generator Exposure for each New or Adjusted Participant p in respect of its Generator Units for the Undefined Exposure Period g
<b>Undefined Potential Exposure (Supplier Unit)</b>	UPES	pg	€	Undefined Potential Supplier Exposure for each New or Adjusted Participant p in respect of its Supplier Units for the Undefined Exposure Period g
<b>Uplift</b>	UPLIFT	h	€/MWh	Uplift component of SMP for Trading Period h, determined by the MSP Software
<b>System per Unit Regulation</b>	UREG	None	Factor	System per Unit Regulation parameter

<b>Name</b>	<b>Term</b>	<b>Subscripts</b>	<b>Units</b>	<b>Description</b>
<b>Sum of SMP</b>	USMP	g	€/MWh	Sum of the SMPs for each Trading Period h in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g
<b>Unit Scheduled Outage Indicator</b>	USOI	uh		An indicator used in Appendix M: "Description of the Function for the Determination of Capacity Payments" in the determination of the Unit Forced Outage Rate for each Generator Unit u in each Trading Period h. It takes the value of 1 if the Generator Unit is on scheduled maintenance and takes the value of 0 if the Generator Unit is not on scheduled maintenance, the determination of such values being by reference to the agreed Outage Programme as determined in accordance with relevant Grid Code
<b>Unit Test Indicator</b>	UTI	uh		An indicator used to identify a Generator Unit u which is determined as being Under Test (in accordance with the relevant Grid Code) or is in its commissioning phase (in accordance with its Connection Agreement) and which takes the value of 1 if the Generator Unit is Under Test or commissioning and takes the value of 0 if the Generator Unit is not Under Test or is not commissioning, such values being determined by reference to the relevant Grid Code or Connection Agreement
<b>Unit Total Unavailability</b>	UTU	uy	MWh	The energy a Generator Unit u was not able to deliver in a Year y due to the Eligible Availability being less than the Unit Capacity
<b>VAT</b>	VAT	pr	€	The applicable VAT charge for Participant p in Settlement Risk Period r
<b>VAT payments</b>	VATpayments		€	The VAT included in all Self Billing Invoices (less Debit Notes) paid by the Market Operator
<b>VAT receipts</b>	VATreceipts		€	The VAT included in all Invoices issued by the Market Operator



Name	Term	Subscripts	Units	Description
<b>Variable Capacity Payments Generation Price</b>	VCGP	h	€/MWh	Variable Capacity Generation Price for each Trading Period h in Capacity Period c
<b>Variable Capacity Payments Weighting Factor</b>	VCPWF	h	Factor	Capacity Payments Weighting Factor for each Trading Period h in Capacity Period c
<b>Variable Market Operator Charge</b>	VMOC	pb	€	Variable Market Operator Charge for a Participant p in the relevant Billing Period b in respect of its registered Supplier Units
<b>Variable Market Operator Price</b>	VMOP	y	€	Variable Market Operator Price for Year y
<b>Value of Lost Load</b>	VOLL	None	€/MWh	Estimate for the value that consumers would place on a unit of non-delivered electricity
<b>Wind Capacity Credit</b>	WCC	h	Decimal value	The factor derived by reference to the Capacity Credit graph in the Generation Adequacy Report and which reflects the impact of Wind Power Units on the System in terms of conventional plant equivalent
<b>Loss Factor Adjustment</b>	XXXLF	N/A	N/A	These letters, appended to any variable name XXX, indicate that the variable has been adjusted for ex ante Transmission Losses, so that the quantity is measured at the Trading Boundary
<b>Uplift <math>\alpha</math></b>	$\alpha$	None	Factor	Uplift Alpha parameter value used in the calculation of Uplift
<b>Uplift <math>\beta</math></b>	$\beta$	None	Factor	Uplift Beta parameter value used in the calculation of Uplift
<b>Uplift <math>\delta</math></b>	$\delta$	None	Factor	Uplift Delta parameter value used in the calculation of Uplift
<b>Loss of Load Probability</b>	$\lambda$	h	Probability	Loss of Load Probability in Trading Period h calculated ex-ante in accordance with Appendix M: "Description of the Function for the Determination of Capacity Payments"

Name	Term	Subscripts	Units	Description
<b>Ex-Post Loss of Load Probability</b>	$\varphi$	h	Probability	Loss of Load Probability in Trading Period h calculated ex-post data in accordance with Appendix M: "Description of the Function for the Determination of Capacity Payments"