Dated ~~2016~~2018

SONI Limited **(1)**

and

[SERVICE PROVIDER] **(2)**

DS3 SYSTEM SERVICES ~~FRAMEWORK~~ AGREEMENT

Contents

THIS AGREEMENT is made the day of 2018~~6~~

BETWEEN:

(1) **SONI Limited,** a limited liability company incorporated under the laws of Northern Ireland with registered Number NI 038715 and having its registered office at Castlereagh House, 12 Manse Road, Belfast BT6 9RT (hereinafter called the "**Company**"); and

(2) **Name and registered address of Service Provider** ~~—~~ with registered Number xxxxxx (hereinafter called the "**Service Provider**")

WHEREAS:

(A) The Company has responsibility amongst other duties for the operation of the Transmission System under the TSO Licence ~~and the Company wishes to establish a multi-provider Framework Agreement for the provision and drawdown of distinct DS3 System Services as are necessary to ensure the proper working of the electricity grid in Northern Ireland~~.

(B) The Company's duties include the procurement of DS3 System Services.

~~(C) In reliance on the Service Provider's expertise, statements, representations and warranties in its Tender, the Company wishes to appoint the Service Provider to the Framework Agreement ("the Agreement") in respect of particular DS3 System Services.~~

~~(D)~~(C) The Service Provider is now entering into this Agreement in order to provide the Company with the Relevant DS3 System Services from the Providing Unit with effect from the date of DS3 System Services Regulated Arrangements Go-Live.

IT IS HEREBY AGREED as follows:

1 Definitions and Interpretation

1.1 In this Agreement (including the recitals hereto) except where the context otherwise requires the words and expressions set out in Schedule 1 shall have the meanings ascribed to them therein.

1.2 In this Agreement, unless the context requires otherwise, any reference to:

1.2.1 the singular shall include the plural and vice versa;

1.2.2 any gender reference shall be deemed to include references to the masculine, feminine and neuter genders;

1.2.3 this "Agreement" shall mean this Agreement and its Schedules;

1.2.4 "writing" or "written" shall include all methods of reproducing words in a legible and non-transitory form;

1.2.5 any words importing persons or parties shall include individuals, firms and corporations, joint ventures, trusts, unincorporated associations and organisations, partnerships and any other entity, in each case whether or not having a separate legal personality and any references to persons shall include their legal successors and permitted assignees;

1.2.6 legislation, regulations, Directives, orders, instruments, codes or other enactments shall include any amendments, modifications extensions, replacements or re-enactments thereof then in force;

1.3 Unless otherwise specified:

1.3.1 any reference in this Agreement to a "Clause" is a reference to a Clause contained in this Agreement;

1.3.2 any reference to a "Schedule" is a reference to a Schedule to this Agreement;

1.3.3 any reference to a "Section" is a reference to a Section of a Schedule to this Agreement;

1.3.4 any reference to another agreement or document, or any deed or other instrument (including but not limited to Statute, Statutory Instrument, the Grid Code, the Northern Ireland Fuel Security Code, the Metering Code, the Network Codes the Distribution Code or the Trading and Settlement Code) shall be construed as a reference to that other agreement, or document, deed or other instrument as the same may have been, or may from time to time be, amended, varied, supplemented, substituted or novated;

1.3.5 any reference to a month or year shall be construed as reference to a calendar month or year, as the case may be;

1.3.6 the table of contents and Clause headings are inserted for ease of reference only and shall be ignored for the purpose of the construction of this Agreement;

1.3.7 all terms which have been defined in this Agreement shall have their initial letters in capital typescript whenever and wherever they appear in this Agreement; and

1.3.8 any reference to “including” shall be construed without limitation.

1.4 In the event of inconsistency between the provisions of this Agreement and the Grid Code, the Distribution Code, , the Network Codes or the Metering Code (as the case may be), the provisions of the Grid Code, the Network Codes the Distribution Code or the Metering Code (as the case may be) shall prevail to the extent of such inconsistency unless the contrary intention is explicit. For the avoidance of doubt, the Providing Unit must be both capable of operating in accordance with the Grid Code, the Distribution Code, the Network Codes or the Metering Code (as the case may be) and capable of operating in accordance with the provisions of this Agreement, but may be instructed to operate in either of these modes by the Company.

~~1.5~~ Where a provision of this Agreement conflicts with the Northern Ireland Fuel Security Code, the provisions of the Northern Ireland Fuel Security Code shall prevail to the extent of the inconsistency or conflict.

~~1.6~~1.5

1.6 To the extent that the Service Provider is a party to the Trading and Settlement Code, if either Party reasonably believes that a conflict exists between any provision of this Agreement and the provisions of the Trading and Settlement Code, it shall notify the other Party of that belief and the Parties shall meet and discuss in good faith whether such a conflict exists, and if so whether amendments should be made to this Agreement to resolve the conflict (and if appropriate the nature of those amendments). If the Parties are in dispute as to whether a conflict exists, whether amendments should be made to this Agreement to resolve the conflict and/or the nature of those amendments, either Party shall be entitled to refer the dispute to the Regulatory Authority for determination (which determination shall be binding on the Parties). For the avoidance of doubt the Parties agree that any amendment to this Agreement to resolve a conflict with the Trading and Settlement Code shall require the prior written approval of the Regulatory Authority.

2 Commencement and Duration of Agreement and Appointment to Framework

2.1 Term of Agreement

2.1.1 Subject to Clause 2.3.1, this Agreement shall commence on the date of DS3 System Services Regulated Arrangements Go-Live and continue in full force and effect until the 30th of April 2023 unless terminated in accordance with Clause 8 (Termination).~~This Framework Agreement commences and takes legal effect, on and from DS3 System Services Go-Live and continues in full force and effect for~~

~~a period of not less than 12 months from DS3 System Services Go Live and shall end at the expiry of that 12 month period unless terminated or otherwise agreed between the Parties in accordance with this Agreement.~~

2.1.2 If the commencement or completion of a procurement process in respect of a ~~framework or~~ contract which the Company intends to use as a partial or total replacement for this ~~the Framework~~ Agreement ~~or any DS3 System Services Framework Agreement~~ is delayed due to a legal challenge (or threat of a legal challenge) or for any other reason whatever, the Company may, subject to approval of the Regulatory Authority, subject to the written consent of the Service Provider and subject to as may otherwise be provided in this Agreement extend the Agreement for two additional time periods of up to eighteen (18) months each.~~extend the term in respect of the Framework Agreement by a period of up to eighteen (18) months by notice in writing to all the Framework Members appointed to the Framework Agreements~~Service Provider.~~

2.2 Survival of Rights on Termination

2.2.1 Termination of this Agreement shall not affect:

(i) rights or obligations which may have accrued prior to such termination; or

(ii) continuing obligations of each of the Parties under this Agreement which are expressed to continue after termination of this Agreement.

2.3 Conditions Precedent

2.3.1 The Parties' rights and obligations under this Agreement (save for those set out in Clauses 2.3.2 and 2.3.3) shall in all respects be conditional on the fulfilment by the Service Provider of its obligations under Clauses 2.3.2 and 2.3.3 by not later than the date falling thirty (30) days after the date of this Agreement.

2.3.2 To the extent that the Service Provider participates in the Single Electricity Market, the Service Provider shall be a party to the TSC and the Service Provider, to the extent that is required, shall be registered as the Participant (as defined in the TSC) for the Providing Unit under the TSC.

2.3.3 The Service Provider shall be a party to a Connection Agreement or Interface Agreement for the Providing Unit.

2.4 ~~Appointment~~Provision of Services

~~2.4.1 The Company hereby appoints the Service Provider to, and the Service Provider accepts its appointment to, the Framework Agreement in respect of which it is identified as a Framework Member as shall be published on the Company's website, and from DS3 System Services Go Live for the term of the Framework Agreement subject to, and in accordance with, the Framework Agreement.~~

2.4.1~~2~~ The Service Provider hereby acknowledges and agrees that, despite ~~its appointment to the Framework~~entering into this Agreement or the provision by it of any DS3 System Services under this ~~Framework~~ Agreement:-:

a) it does not have any exclusive right to make available and/or provide any works, services, supplies or deliverables to the Company;

~~b)~~ there is no guarantee of any volume, frequency or availability of works, services or supplies.

b)

2.4~~.~~ ~~3~~2 ~~–~~ A ~~Framework Member, including the~~ Service Provider, is only eligible to make available and/or to provide services to the Company in respect of ~~a particular~~Rrelevant DS3 System Service~~s if it has been appointed to the Framework Agreeement for that specific DS3 System Service~~.

2.5 Availability of Services

~~Appointment of the Service Provider to t~~This ~~Framework~~ Agreement shall entitle the Service Provider to payment for making available Relevant DS3 System Services, as set out in Schedule 9 Part 3, in accordance with the terms, conditions and specifications of this Agreement where the following conditions exist:

~~a)~~ Where the Providing Unit can provide Relevant DS3 System Services in accordance with Schedule~~s~~ 2, and/or Schedule 3 and/or Schedule 4, and;

a)

~~–~~Where the Service Provider ~~provides availability to~~makes ~~the Company of~~ the Relevant DS3 System Services available to the Company.~~.~~

b)

2.6 Implementation of Services

2.6.1 If the Company, during the term of the ~~Framework~~ Agreement, has a requirement for the provision of ~~particular~~ Relevant DS3 System Services (the specifications of which services are set out in Schedule 2, Schedule 3 and Schedule 4), and where a Service Provider has made such services available in accordance with this ~~Framework~~ Agreement, the Company may require the immediate implementation of any or all Relevant DS3 System Services made available by a Service Provider and require a Service Provider to provide those services.

2.6.2 The provision of such implemented services shall be in accordance with the applicable parameters, terms and conditions as are set out in this ~~Framework~~ Agreement, in particular Schedule 2, Schedule 3, Schedule 4 and Schedule 9 and/or as may otherwise be issued by the Company under this ~~Framework~~ Agreement.

~~2.6.3 The Company, at its sole discretion, may require the implementation and provision of any Relevant DS3 System Services from any one, more or all of the Framework Members who have made DS3 System Services available under this Framework Agreement.~~

~~2.7 Contract~~

~~The provision of availability of Relevant DS3 System Services and/or the provision of any DS3 System Services required to be implemented by the Company shall be deemed a contract concluded and made in accordance with the terms, conditions and specifications of this Framework Agreement.~~

3 Provision and Purchase of DS3 System Services

3.1 Duty to provide DS3 System Services in accordance with the applicable Operating Parameters

3.1.1 In consideration of the Company's agreement to pay the DS3 System Services Payments to the Service Provider on the terms and subject to the conditions of this Agreement, the Service Provider shall at all times during the term of, and subject to, this Agreement maintain, repair, fuel and operate the Providing Unit as

required by Good Industry Practice and any legal requirements in order to provide the Relevant DS3 System Services in accordance with the applicable Operating Parameters.

3.1.2 The Service Provider shall reasonably endeavour not to issue or allow to remain outstanding an Availability Notice, a Technical Parameters Notice or an Additional Grid Code Characteristics Notice which declares the Availability, applicable Technical Parameters or additional technical data (respectively) of a Providing Unit at levels or values inferior to those that the Providing Unit could achieve at that time except:

(i) during periods of Scheduled Outage or forced outage or otherwise with the consent of the Company;

(ii) where necessary to avoid an imminent risk of injury to persons or material damage to property (including the Providing Unit);

(iii) where it is not lawful for the Service Provider to operate the Providing Unit;

(iv) to the extent that the Service Provider is affected by Force Majeure; or

(v) in the event of a test of the Providing Unit under OC11 of the Grid Code or a System Test under OC10 of the Grid Code,

provided that this Clause 3.1.2 shall not require the Service Provider to declare levels or values better than those specified in Schedule 9.

3.2 Compliance with the Grid Code, Distribution Code, Network Codes and Protocol

3.2.1 The Service Provider shall, during the term of this Agreement, comply with the Grid Code, Distribution Code, the Network Codes and the Protocol as appropriate as it relates to the provision of the DS3 System Services, (including declaring to the Company any inability to comply with the applicable Operating Parameters), subject to any derogations granted to the Service Provider by the Regulatory Authority.

3.3 Dispatch Instructions

3.3.1 The Service Provider shall, subject to Clause 3.4, comply with the terms of all Dispatch Instructions relating to the DS3 System Services.

3.4 TSC

3.4.1 To the extent that the Service Provider is a party to the TSC, nothing in this Agreement shall prevent the Service Provider from operating the Providing Unit in such a manner so as to comply with its obligations under the TSC.

3.4.2 The Service Provider shall provide Technical Offer Data to the Company in accordance with the TSC. For the avoidance of doubt this clause 3.4.2 shall apply regardless of whether or not the Service Provider is a party to the TSC. Such Technical Offer Data will be subject to validation by the Company.

3.5 Planned Maintenance

3.5.1 The Service Provider shall, without limitation to its obligations under Clause 3.2, plan its maintenance requirements including outage plans for the Providing Unit in accordance with Good Industry Practice.

4 Payment

4.1 Payment Rates for DS3 System Services

4.1.1 The rates for calculating DS3 System Services Payments Rates are as set out in the Charging Statement.

4.1.2 Subject to industry consultation and approval from the Regulatory Authority, and subject to as may otherwise be provided in this Agreement, the TSO may review and adjust the Payment Rates in the Charging Statement and may review and/or adjust the Temporal Scarcity Scalar values in the Protocol Document, in circumstances including, but not limited to;

where;

(i) the TSO expects the Expenditure Cap to be breached;

(ii) the volume of DS3 System Services which is procured exceeds that which the TSO requires to operate the system at 75% SNSP;

(iii) the TSO has not procured the volume of DS3 System Services necessary to maintain stability of the system at 75% SNSP;

(iv) unintended consequences of tariff design emerge post DS3 System Services Regulated Arrangements Go-Live.

4.2 Payments

4.2.1 In consideration of the provision of the DS3 System Service(s) pursuant to this Agreement the Company shall pay the Service Provider the payments ("**DS3 System Service Payments**") as calculated in accordance with the Schedule(s) relating to the Relevant DS3 System Service(s) provided always that the Service Provider has passed all Compliance ~~Requirements~~ Tests a~~s set out in the Protocol.~~nd is compliant with the Operational Requirements.

4.2.2 All amounts payable by the Company under this Agreement are exclusive of any applicable Value Added Tax, sales tax or other lawful taxes or levies applicable by reason of the performance of the Agreement and the Parties agree that an amount equal to any applicable Value Added Tax, sales tax or other lawful taxes or levies lawfully chargeable in respect of the performance of the Agreement shall be payable or repayable, as the case may be, in addition to, at the same time and in the same manner as the amounts to which it relates.

4.2.3 The Company shall have no right to settle amounts due to the Service Provider under this Agreement net of amounts due to the Company by the Service Provider under other agreements.

4.2.4

In accordance with SEM Committee Decision Paper SEM-14-108 (DS3 System Services Procurement Design and Emerging Thinking), a Providing Unit's Available Volume for a Relevant DS3 System Service will be calculated taking into account the Providing Unit's market position and its physical dispatch position. This may include consideration of the payment rules for constrained on Providing Units. In accordance with SEM Committee Decision Paper SEM-17-080 (DS3 System Services Tariffs and Scalars), the payment rules implementing this SEM Committee Decision will come into effect on 1 June 2018. The Company may subsequently adjust these payment rules subject to SEM Committee approval.

4.2.4.1 Until such payment rules are developed and approved by the SEM Committee and subsequently implemented in the TSOs' settlement systems, all payments for Relevant DS3 System Services will be calculated in accordance with the Available Volume definitions, in Schedules 2, 3 and 4 as applicable.

4.2.4.2 Following implementation of the new SEM Committee-approved payment rules in the TSOs' settlement systems, all payments made for Relevant DS3 System Services to Providing Units from 1 June 2018 will be recalculated and, where applicable, further payments made to Service Providers.

4.2.4.3 This process shall not result in any reduction of the original payments calculated prior to the implementation of the new SEM Committee payment rules for the period from 1 June 2018 to the date of implementation of the new SEM Committee-approved payment rules.

4.3 Billing and Payment Plan

4.3.1 The provisions of Schedule 5 shall apply in relation to the billing and payment of DS3 System Services Payments.

5 Monitoring and Metering

5.1 The Company may use or install Metering Equipment and Monitoring Equipment and/or require the Service Provider to install Monitoring Equipment to ensure that the Service Provider is complying with its obligations to provide the Relevant DS3 System Services from the Providing Unit both in accordance with the Grid Code or Distribution Code or the Protocol where applicable and in accordance with the terms of this Agreement.

5.2 The relationship between the Parties with respect to Metering Equipment shall be regulated in accordance with the Metering Code.

5.3 Without purporting to exhaustively specify the circumstances in which no payments will be made under this Agreement, no payments will be made under this Agreement in respect of a Relevant DS3 System Service to be provided from a Providing Unit in relation to any period when the Providing Unit or the Service Provider's Installation at

any Connection Site used by that Providing Unit, is prevented from providing that Relevant DS3 System Service by reason of a circumstance of a Force Majeure or, the Providing Unit being De-energised, Decommissioned or Disconnected for any reason pursuant to the relevant Connection Agreement, Interface Agreement or Use of System Agreement (as applicable) or in accordance with the provisions set out in Schedules 2, 3 or 4.

5.4 Where the Service Provider serves notice to Decommission or Disconnect the Service Provider's Installation at a Connection Site under the Connection Agreement or Interface Agreement, the Parties shall discuss in good faith the possibility of terms being offered for the continued provision following the date when Decommissioning or Disconnection would otherwise have occurred of any DS3 System Service which was being provided by the Service Provider at that Connection Site immediately before service of the notice to Decommission or Disconnect and for which the Company is unable to find a reasonable alternative.

5.5 The Service Provider will accept the data provided by the Metering Equipment and/or Monitoring Equipment applicable to the Providing Unit and the Company's monitoring system including meters and SCADA or State Estimators unless it has reasonable grounds for believing that such Metering Equipment or Monitoring Equipment is defective, in which case the Service Provider shall notify the Company and the Parties will make every effort to resolve the issue and reconcile the payments. Any dispute under this Clause 5.5 shall be referable to the Expert.

6 Assignment

6.1 The Service Provider shall not assign, novate or otherwise transfer nor purport to assign novate or otherwise transfer the benefit or burden of this Agreement save in the following circumstances:-

(a) the Service Provider may assign or charge its benefit under this Agreement in whole or in part by way of security;

(b) the Service Provider may transfer its rights and obligations under this Agreement, upon the disposal of the whole of the Service Provider's business or undertaking, to the purchaser thereof, provided that the Company or the Distribution Network Owner (as the case may be) has consented to the transfer of the Service Provider's rights and obligations under the Connection Agreement or Interface Agreement as applicable; or

(c) upon disposal of part of the Service Provider's business or undertaking comprising the Service Provider's Installation at one or more Connection Sites the Service Provider may transfer such of its rights and obligations under this Agreement as relate to the Providing Unit and the Relevant DS3 System Services concerned to the purchaser thereof, provided that the Company or the Distribution Network Owner (as the case may be) has consented to the transfer of the Service Provider's rights and obligations under the Connection Agreement relevant to the part of the business or undertaking to be transferred.

6.2 The Company may at any time assign, novate or otherwise transfer all of its rights and obligations under this Agreement to an Affiliate or to another person who by statute becomes legal successor to the Company or, in the event that the Company ceases to be the transmission system operator in Northern Ireland to its successor Transmission System Operator in Northern Ireland.

6.3 No assignment, novation or other transfer pursuant to Clause 6.1 or 6.2 shall be effective unless and until the assignor has procured the proposed assignee to covenant directly with the other Party to observe and perform all the terms and conditions of this Agreement (so far as they apply to the assignee), has provided to the other Party a certified copy of the assignment (omitting the consideration and any other commercial terms) and has procured that any guarantee in respect of the assignor's obligations is extended to the proposed assignee or replaced by another providing the other Party with equivalent security.

7 Variations

7.1 This Agreement may not be varied without the prior written approval of the Regulatory Authority provided that the approval of the Regulatory Authority shall not be required in relation to variation of the Operating Parameters set out in Schedule 9. Subject to Regulatory Authority approval being obtained, this Agreement may be varied if made in writing and signed by both Parties (but not otherwise).

7.2 Either Party may at any time give written notice to the other proposing that this Agreement be varied.

7.3 If, after execution of this Agreement, there shall be enacted and brought into force legislation and/or any Directive, rule, regulation, direction, statutory instrument or order of

any Competent Authority arising there from, or change in the Grid Code, Distribution Code, Network Codes, Metering Code or Trading and Settlement Code providing for:

7.3.1 the further reorganisation of all or part of the electricity industry in either Northern Ireland or Ireland, or

7.3.2 the facilitation of the introduction of third party interests to the affairs of such electricity industry or any part of it, or

7.3.3 the amendment or variation of any policy of the Company or the manner in which the Transmission System or Distribution System and any agreements or codes related thereto are organised, or

7.3.4 the imposition of a public service obligation on the Company.

which necessitates a variation to this Agreement, the Parties shall, subject always to Clause 7.1, effect such changes to this Agreement as are reasonably necessary so as to ensure that the operations contemplated by this Agreement shall be conducted in a manner which is consistent with the effect of the new legislation, Directive, rule, regulation, direction, statutory instrument or order, or change in the Grid Code, Distribution Code, Network Codes, Metering Code or Trading and Settlement Code and most closely reflect the intentions of the same with effect from the date thereof provided that any such amendment:

(i) will be of no greater extent than is required by reason of the new legislation, Directive, rule, regulation, direction, statutory instrument or order, or change in the Grid Code, Metering Code, Network Codes, the Distribution Code or Trading and Settlement Code; but

(ii) shall not deal with the cost implications under this Agreement of any such new legislation, Directive, rule, regulation, direction, statutory instrument or order, or change in the Grid Code, Metering Code, Network Codes, the Distribution Code or Trading and Settlement Code, which, if any, shall fall to be considered in accordance with the provisions of clause 13 of this Agreement.

7.4 Notwithstanding clauses 7.1 to 7.3 above, the Company shall be entitled to carry out such testing as it deems appropriate for the purpose of confirming all of the Operating Parameters values set out in Schedule 9 and by notice in writing to the Service Provider to revise such values in accordance with the results of such testing. The service provider

shall provide all reasonable assistance to the Company in carrying out this testing and shall be responsible for the reasonable costs of the same.

7.5 If any variation proposed under Clause 7.3, has not been agreed by the Parties within one (1) month of its being proposed, then either Party may refer to the Regulatory Authority for determination and the Parties agree to abide by and to effect the Regulatory Authority's determination, if necessary by entering into an agreement supplemental to this Agreement.

8 Termination

8.1 The Company shall be entitled:

8.1.1 without prejudice to the remaining rights and obligations of the Parties under this Agreement, by ~~three~~ twelve (~~3~~12) months' notice in writing to the Service Provider to terminate the Parties' respective obligations relating to the provision of any one or more of the Relevant DS3 System Services and/or relating to the Providing Unit;or

8.1.2 by ~~three~~ twelve (~~3~~12) months' notice in writing to the Service Provider, to terminate this Agreement.

8.2 The Company may in respect of any of the events of default set out in sub-clauses 8.2 (i) to (x) by notice in writing to the Service Provider terminate this Agreement in its entirety or, solely in relation to the Relevant DS3 System Service(s) to which the notice of the event of default relates, forthwith upon:

(i) the Service Provider ceasing to be a signatory to the Trading and Settlement Code to the extent that the Service Provider is a party to the Trading and Settlement Code, otherwise than due to the Trading and Settlement Code being terminated; or

(ii) termination of the Trading and Settlement Code save where the same is replaced with alternative electricity trading arrangements; or

(iii) the Connection Agreement or Interface Agreement (as applicable) being properly terminated in accordance with its terms provided always that, where this Agreement relates to the provision of the Relevant DS3 System Services from more than one of the Service Provider's Installations the right for the Company to terminate this Agreement shall be limited to termination of the Parties' respective obligations relating to the Relevant DS3 System Services to be provided from the

Service Provider's Installation for which the relevant Connection Agreement or Interface Agreement (as applicable) has terminated; or

(iv) the Use of System Agreement being properly terminated in accordance with its terms to the extent that the Providing Unit is connected to the Transmission System; or

(v) revocation or withdrawal of the TSO Licence or any replacement thereof granted to the Company by a Competent Authority; or

(vi) revocation or withdrawal of the Generation Licence and/or Supply Licence (as applicable) or any replacement thereof granted to the Service Provider by a Competent Authority; or

(vii) the Service Provider failing to comply with or failing to operate in conformity with any provisions of this Agreement or the Grid Code where such failure is a material breach of this Agreement or the Grid Code, as the case may be (being one which materially affects the Service Provider's ability to perform its obligations under the Agreement), and, if such failure is capable of remedy but remains unremedied for a reasonable period provided for in this Agreement or, if none is provided for, then twenty (20) Business Days following the date on which the Service Provider is given notice of the default by the Company; or

(viii) in relation to the Service Provider:

(a) an order of the High Court being made or an effective resolution passed for its insolvent winding up or dissolution; or

(b) a receiver (which expression shall if applicable include an examiner within the meaning of Section 1 of the Companies Amendment Act, 1990) administrative receiver or administrator of the whole or any material part of its assets or undertaking being appointed; or

(c) any scheme of arrangement being entered into (other than for the purpose of a solvent reconstruction or amalgamation upon terms and within such period as may previously have been approved in writing by the Company); or

(d) inability to pay its debts within the meaning of the Relevant Legislation; or

(ix) the Service Provider failing to pay (other than by inadvertent error in transfer of funds which is discovered by the Company, notified to the Service Provider and corrected within two (2) Business Days thereafter) any amount properly due or owing from it pursuant to this Agreement according to its terms and such failure to pay continues unremedied (and not disputed in good faith and upon reasonable grounds) at the expiry of fifteen (15) Business Days following receipt of written notice from the Company of such failure,

(x) the Providing Unit being destroyed or damaged (including by Force Majeure) to such an extent as to be incapable of providing DS3 System Services, and it is agreed between the Parties or, determined by an Expert that the Providing Unit is unlikely to be restored to at least seventy-five per cent (75%) of the Registered ~~Capactiy~~Capacity within [24] months after the date on which the destruction or damage occurred,

and in any such case in Clause 8.2(viii) within twenty-eight (28) days of appointment of the liquidator, receiver, administrative receiver, administrator nominee or other similar officer, such person has not provided to the Company a guarantee of future performance by the Service Provider of the Agreement in such form and amount as the Company may reasonably require.

~~(xi) [It is the TSOs' intention to provide for contract termination in the case of consistently poor performance in this clause. Details still to be developed].~~

8.3 The Service Provider may by notice in writing to the Company terminate this Agreement forthwith upon:

(i) the Company failing to pay (other than by inadvertent error in funds transmission which is discovered by the Service Provider, notified to the Company and corrected within two (2) Business Days thereafter) any material amount properly due or owing from it pursuant to this Agreement according to its terms and such failure to pay continues unremedied (and not disputed in good faith and upon reasonable grounds) at the expiry of fifteen (15) Business Days following receipt of written notice from the Service Provider of such failure; or

(ii) the revocation or withdrawal of the TSO Licence or any replacement thereof granted to the Company by a Competent Authority.

8.4 Without prejudice to any other remedy to which either Party may be entitled for breach of this Agreement, this Clause 8 states the only circumstances in which either Party may unilaterally terminate this Agreement.

9 Effect of Termination

9.1 The relevant provisions of this Agreement shall survive expiry or termination of this Agreement to the extent necessary to provide for final billings, adjustments and payments of any payments, charges or other monies due and owing pursuant to this Agreement.

9.2 Termination of this Agreement as a whole or in relation to any individual Relevant DS3 System Service under Clause 8 (*Termination*) shall not affect any rights or obligations of the Parties which have accrued at the time of such termination or, where applicable, the continuing obligations of the Parties under this Agreement.

10. Force Majeure

10.1 If during any Trading Period, the Providing Unit cannot make available ~~provide~~ the Relevant DS3 System Service(s) owing to Force Majeure, the Service Provider shall not be entitled to DS3 System Services Payments for that Trading Period and no change will be made to the Performance Scalar(s) by the Company.

10.2 As soon as reasonably practicable following the occurrence of Force Majeure:

(a) either Party (the "Notifying Party") shall notify the other Party of the Force Majeure, identifying the nature of the event and the duration of its effect which the Notifying Party believes to be reasonably likely;

(b) the Notifying Party shall afford the other Party reasonable facilities for obtaining further information about the event including facilities for site inspection; and

(c) the Notifying Party shall take, at its own cost, all steps reasonably required to remedy the effects of the Force Majeure.

10.3 Subject to the other provisions of this Clause 10, the Notifying Party shall not be in breach of its obligations under this Agreement for so long as and to the extent that the performance of such obligations continues to be prevented by the relevant event of Force Majeure.

11 Limitation of Liability

11.1 Neither Party nor any of their respective officers, employees or agents shall be liable to the other Party for any losses, damages, claims, liabilities, costs or expenses arising from any breach of this Agreement other than for losses, damages, claims, liabilities, costs or expenses directly resulting from a breach which at the date of this Agreement was reasonably foreseeable as likely to occur in the ordinary course of events from such breach in respect of:

(a) physical damage being occasioned to the property of the other Party, its officers, employees or agents; or

(b) the liability of the other Party to any other person for loss in respect of physical damage caused directly to the property of such other person as a result of such breach (a claim by a third party in respect of that liability hereafter in Clause 11.5 being referred to as a "legal claim"); or

(c) (in the case of breach by the Service Provider) purchasing or obtaining services where reasonably and necessarily required to replace the Relevant DS3 System Services which, at the date of this Agreement, the Parties agree and acknowledge is reasonably foreseeable as likely to occur in the ordinary course of events from such breaches,

provided that the liability of either Party in respect of all such losses, damages, claims, liabilities, costs or expenses shall not exceed the Liability Cap.

11.2 Subject to Clause 11.3 and any provision of this Agreement which provides for payment obligations or an indemnity, neither Party nor any of their respective officers, directors, employees or agents shall in any circumstances whatsoever be liable to the other Party for:

(a) loss of profit, loss of revenue, loss of use, loss of contract (other than this Agreement) or loss of goodwill; or

(b) indirect or consequential loss, incidental or special damages (including punitive damages); or

(c) loss resulting from the liability of the other Party to any other person howsoever and whensoever arising save as provided in Clauses 11.1 and 11.3.

11.3 Nothing in this Agreement shall exclude or limit the liability of one Party "the Party Liable" for death or personal injury to an officer, employee or agent of the other Party, "the Party Not Liable", resulting directly from the negligence of the Party Liable or any of its officers, employees and agents and, the Party Liable shall indemnify and keep indemnified the Party Not Liable, its officers, employees and agents from and against any losses, damages, claims, liabilities, costs or expenses which the Party Not Liable may suffer or incur by reason of any claim on account of death or personal injury resulting from the negligence of the Party Liable or the negligence of any of its officers, employees or agents (such claim hereafter in Clause 11.6 being referred to as an "injury claim").

11.4 The rights and remedies provided by this Agreement to the Parties are exclusive and not cumulative and exclude and are in place of all substantive (but not procedural) rights or remedies expressed or implied and provided by common law or statute in respect of the subject matter of this Agreement, including without limitation any rights either Party may possess in tort which shall include without limitation actions brought in negligence and/or nuisance. Accordingly, each of the Parties hereby waives to the fullest extent possible all such rights and remedies provided by common law or statute, and releases the other Party, its officers, employees and agents to the same extent from all duties, liabilities, responsibilities or obligations provided by common law or statute in respect of the matters dealt with in this Agreement and undertakes not to enforce any of the same except as expressly provided herein.

11.5 In the event of any legal claim being made by a third party against the Party Not Liable, the Party Liable shall be promptly notified by the Party Not Liable of the legal claim and, the Party Liable may, at its own expense, conduct all negotiations for the settlement of the claim and any litigation that may arise from the claim. The Party Not Liable shall not, unless and until the Party Liable has failed to unconditionally agree in writing to take over the conduct of the negotiations or litigation in respect of the legal claim within ten (10) Business Days of receiving notice from the Party Not Liable requesting it to do so, make any admission which might be prejudicial to the claim. The conduct by the Party Liable of such negotiations or litigation shall be conditional upon the Party Liable having first given to the Party Not Liable such reasonable security as the Party Not Liable shall from time to time notify the Party Liable that it requires to cover the amount ascertained or agreed or estimated, as the case may be, of any losses, damages, claims, liabilities or costs for which the Party Not Liable may become liable in respect of the legal claim. The Party Not Liable shall, at the request of the Party Liable, afford all available assistance for the purpose of contesting the legal claim and shall be paid by the Party Liable (within ten

(10) Business Days of the date of its invoice therefor) all reasonable expenses incurred in so doing.

11.6 In the event of any injury claim being made by a third party against the Party Not Liable, the Party Liable shall be promptly notified by the Party Not Liable of the injury claim and, the Party Liable may at its own expense, conduct all negotiations for the settlement of the claim and any litigation that may arise from the claim. The Party Not Liable shall not, unless and until the Party Liable has failed to unconditionally agree in writing to take over the conduct of the negotiations or litigation in respect of the injury claim within ten (10) Business Days of receiving notice from the Party Not Liable requesting it to do so, make any admission which might be prejudicial to the claim. The conduct by the Party Liable of such negotiations or litigation shall be conditional upon the Party Liable having first given to the Party Not Liable such reasonable security as the Party Not Liable shall from time to time notify the Party Liable that it requires to cover the amount ascertained or agreed or estimated, as the case may be of any losses, damages, claims, liabilities, costs or expenses for which the Party Not Liable may become liable in respect of the injury claim. The Party Not Liable shall, at the request of the Party Liable, afford all available assistance for the purpose of contesting the injury claim and shall be paid by the Party Liable (within ten (10) Business Days of the date of its invoice therefor) all reasonable expenses incurred in so doing.

11.7 Each of the provisions of this Clause 11 shall:

11.7.1 be construed as a separate and severable contract term, and if one or more of such provisions is held to be invalid, unlawful or otherwise unenforceable the other or others of such provisions shall remain in full force and effect and shall continue to bind the Parties; and

11.7.2 survive termination of this Agreement.

11.8 Each of the Parties agrees that the other Party holds the benefit of Clauses 11.1, 11.2 and 11.3 for itself and as trustee and agent for its officers, directors, employees and agents.

11.9 For the avoidance of doubt nothing in this Clause 11 shall prevent or restrict either Party enforcing any obligation (including suing for a debt) owed to it under or pursuant to this Agreement.

11.10 Nothing in this Clause 11 shall exclude or restrict or otherwise prejudice or affect any:

(a) rights and obligations of either Party which are conferred or created by the Act, the TSO Licence or the Service Provider's Generation Licence or Supply Licence (as the case may be), or statutory regulations; or

(b) rights, powers, duties and obligations of the Regulatory Authority or any other Competent Authority under the Order, any licence granted under the Order or otherwise howsoever.

11.11 Subject to Clause 11.10 and unless expressly provided otherwise in this Agreement, this Clause 11 insofar as it excludes or limits liability shall override any other provisions of this Agreement.

11.12 Each Party hereby acknowledges and agrees that the provisions of this Clause 11 are fair and reasonable having regard to the circumstances as at the date of this Agreement.

12 Confidentiality

12.1 Each Party shall treat any and all information and data disclosed to it by the other Party in connection with this Agreement in any form whatsoever~~, and this Agreement itself,~~ (the "Confidential Information") as confidential and proprietary, shall preserve the secrecy of the Confidential Information and shall not use the Confidential Information for any purpose other than solely in connection with this Agreement.

12.2 For the purposes of this Clause 12, the term "Confidential Information" shall not include information which:

12.2.1 at the time of disclosure or at any time thereafter is in, or becomes part of, the public domain other than through a breach of the provisions of this Clause 12;

12.2.2 the Party receiving the information can prove that the information was already known to it or was independently acquired or developed by it without being in breach of its obligations under this Clause 12;

12.2.3 became available to the Party receiving the information from another source in a non-confidential manner otherwise than in breach of an obligation of confidentiality; or

12.2.4 is published by or the publication of which is required by a Competent Authority.

12.3 Notwithstanding the provisions of Clause 12.1, Confidential Information may be disclosed by a Party:

12.3.1 to proposed and actual~~those of the~~ shareholders, owners, directors, officers, employees, agents, consultants, contractors, advisers, investors, ~~proposed~~ assignees, insurers, lenders or bona fide prospective purchasers of all or substantially all of the shares of such Party or its Affiliates who need to know the Confidential Information provided that:

(a) the recipient agrees to keep the Confidential Information confidential on terms no less onerous than contained in this Clause 12; and

(b) the disclosing Party shall be responsible for ensuring that the recipient observes and complies with such obligation to keep the Confidential Information confidential and shall accordingly be responsible for any failure of the recipient to do so;

12.3.2 as may be ordered or required by any applicable law or a Competent Authority;

12.3.3 as may be required by the regulations of any recognised stock exchange upon which the share capital of the Party (or any parent undertaking of the Party) is or is proposed to be from time to time listed or dealt in, and the Party making the disclosure shall, if reasonably practicable prior to making the disclosure, and in any event as soon as reasonably practicable thereafter, supply the other 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 other Party may give comments on that disclosure or statement to the Party proposing to make it. The Party proposing to make the disclosure shall, if reasonably practicable in the time available, consult with the other Party as to any such comments and consider whether the disclosure is to be amended to take into account the comments;

12.3.4 as may be permitted by or required to comply with the requirements of the Grid Code, Distribution Code, Network Codes, Metering Code or the Trading and Settlement Code;

12.3.5 by either Party as may be necessary to comply with any obligation under any licence (or any document referred to therein) granted to it under the Order;

12.3.6 (by the Company) to the Other TSO and otherwise as may be necessary to enable the Company to operate the Transmission System and carry out its obligations in relation thereto in accordance with Good Industry Practice

(including in relation to the application by any person for connection to the Transmission System), provided that:

(a) only Confidential Information which is necessary for such purpose is disclosed by the Company; and

(b) the Company notifies the recipient in advance of such disclosure that the information is confidential and should not be disclosed by the recipient to third parties;

12.3.7 as may be required by a Court, arbitrator or administrative tribunal or an expert in the course of proceedings before it to which the disclosing Party is a party; or

12.3.8 as may be agreed in writing by the Parties prior to disclosure by the Party disclosing such Confidential Information.

12.3.9 (for the avoidance of doubt) in compliance with the requirements of Article 38 of the Order or the provisions of the Northern Ireland Fuel Security Code.

12.4 All information supplied by or on behalf of a Party shall remain the sole and exclusive property of such Party and this Agreement shall not operate to transfer ownership or any interest whatsoever therein, and the other Party shall, if requested by the Party disclosing the information following termination of this Agreement, promptly return to such Party all documents and any copies, extracts, notes or similar materials containing or based in whole on such information.

12.5 With effect from the date of this Agreement both Parties shall adopt procedures within their organisations for ensuring the confidentiality of all information which they are obliged to preserve as confidential under Clause 12.1. Those procedures shall be as follows:

12.5.1 the Confidential Information will be disseminated only to persons who need such information for the purpose of carrying out those functions which they are employed to carry out;

12.5.2 the Confidential Information shall not be used by either Party for the purpose of obtaining for itself or any of its Affiliates or for any other person any contract or arrangement for the supply of electricity to any person without the prior consent of the Party disclosing such Confidential Information;

12.5.3 employees, directors, Affiliates, agents, proposed assignees, bona fide prospective purchasers of all or substantially all of the shares of a Party, consultants and professional advisers of both Parties in receipt of Confidential Information will be made fully aware of the Party's obligations of confidence in relation thereto and the Party will be responsible for any failure by such persons to comply with such obligations as if they were parties to this Agreement; and

12.5.4 any copies of the Confidential Information will, insofar as is reasonably practicable, whether in hard copy or computerised form, clearly identify the Confidential Information as confidential.

12.6 The provisions of this Clause 12 shall continue to bind a Party after termination of this Agreement, in whole or in part, for five (5) years.

12.7 Subject to Clause 12.3, no public announcement or statement regarding the signature, performance or termination of, or otherwise in relation to, the Agreement shall be issued or made by a Party unless the other Party shall have first been furnished with a written copy of the proposed announcement or statement and shall have approved it (such approval not to be unreasonably withheld or delayed).

13 Additional Costs

13.1 Save where expressly provided for otherwise in this Agreement, if:-

(a) the Service Provider is of the opinion that in order to comply with any change in or amendment to the Grid Code Network Codes, or Distribution Code (for the avoidance of doubt excluding the withdrawal of or reduction in the scope of a derogation) or any statutory or regulatory obligation coming into force after the date hereof the Service Provider is obliged to incur additional costs and expenses ("**Costs**") for the purpose of carrying out modifications to the Providing Unit or otherwise for the purposes of changing the manner of operation of the Providing Unit in relation to the provision of any Relevant DS3 System Service; or

(b) the Company is of the opinion that by reason of any change in or amendment to the Grid Code, Network Codes or Distribution Code or any statutory or regulatory obligation coming into force after the date hereof the Service Provider is able to make savings in the cost and expense ("**Savings**") of providing any Relevant DS3 System Service from the Providing Unit,

then either the Service Provider or the Company (as the case may be) may, by notice in writing notify the other Party, require it to meet in order to discuss the Costs or Savings

(as the case may be) and the Company shall give due consideration to those Costs and Savings in setting the Payment Rates in the next revision of the Charging Statement to be approved by the Regulatory Authority and published in accordance with Condition 30 of the TSO Licence.

14 Dispute Resolution

14.1 If any dispute or difference arises between the Parties in connection with this Agreement, it shall, subject to any express provision to the contrary, be resolved in accordance with the provisions set out in Schedule 6.

15 Miscellaneous

15.1 Counterparts

This Agreement may be executed in any number of counterparts and by each Party on a separate counterpart, each of which when executed and delivered shall be an original, but all the counterparts together shall constitute one and the same document.

15.2 Entire Agreement

This Agreement contains and expressly refers to the entire agreement between the Parties with respect to its subject matter and expressly excludes any warranty, condition or other undertaking implied at law or by custom and with effect from DS3 System Services Regulated Arrangements Go-Live supersedes all previous agreements and understandings between the Parties (other than as provided for in this Agreement) with respect to its subject matter and each of the Parties acknowledges and confirms that it does not enter into this Agreement in reliance on any representation, warranty or other undertaking by the other Party not fully reflected in this Agreement

15.3 Severability

If any provision of this Agreement is or becomes invalid, unenforceable or illegal by a judgement or decision of any court of competent jurisdiction or any Competent Authority to which it is subject or by order of the relevant body of the European Union, the same shall be deemed severable and the remainder of this Agreement shall remain in full force and effect. In any such case, the Parties will negotiate in good faith with a view to agreeing one or more provisions which may be substituted for such invalid or unenforceable provision in order to give effect, so far as practicable, to the spirit of this Agreement.

15.4 Waivers

No delay or forbearance by either Party in exercising any right, power, privilege or remedy under this Agreement shall operate to impair or be construed as a waiver of the right, power, privilege or remedy. For the avoidance of doubt any waiver by either Party of the obligations of the other Party shall be evidenced by an agreement in writing signed by both Parties. A single or partial exercise of any such right, power, privilege or remedy shall not preclude any further exercise thereof or the exercise of any other right, power, privilege or remedy.

15.5 Notices

Except for notices to be given pursuant to the Grid Code (as to which, for the avoidance of doubt, the provisions of the Grid Code shall apply) or the Distribution Code (as to which, for the avoidance of doubt, the procedures provided for in the Distribution Code shall apply), any notice given by one Party to the other under this Agreement shall be in writing unless emergency conditions exist reasonably preventing such notice from being given and shall be sent or delivered to the address, and marked for the attention of the person specified in Schedule 7. Either Party may, by notice to the other, given in compliance with this Clause 15.5, change the address or the person to which such notices are to be sent or delivered.

All such written notices shall either be personally delivered or be sent by pre-paid registered post (airmail if overseas) or facsimile transfer. Communication by facsimile shall be confirmed by forwarding a copy of same by pre-paid registered post.

Any notice so delivered, posted or transferred shall be deemed to have been given:

(a) in the case of personal delivery, when delivered;

(b) in the case of pre-paid registered post, on the second day following the date of posting (or, if airmailed to or from overseas, on the fifth day following the date of posting); and

(c) in the case of facsimile transfer on the date of dispatch provided:

(i) such date is a Business Day; and

(ii) time of dispatch is within the hours of 0900 hours and 1730 hours at the place of receipt,

otherwise on the next following Business Day.

15.6 Compliance with the Law

The Parties agree that, in performing their respective obligations pursuant to this Agreement, the Company and the Service Provider shall be required to comply with relevant statutes, statutory instruments and the general law. Neither Party shall be liable for any failure to perform its obligations in accordance with this Agreement where to do so would put it in breach of any such statute, statutory instrument or general provision of law.

15.7 Survival

The cancellation, expiry or termination of this Agreement shall not affect any rights or obligations which may have accrued prior to such expiry or termination and shall not affect any continuing obligations of either of the Parties under this Agreement including obligations that, by their nature should survive such termination, cancellation or expiry or any other terms of this Agreement by which rights or obligations are expressed to continue after expiry or termination of this Agreement.

15.8 Independent Contractors

The relationship between the Company and the Service Provider shall be that of two independent contracting parties. Each Party shall be solely liable for the payment of all wages, taxes and other costs related to the employment by that Party of persons to meet its obligations under this Agreement.

15.9 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, or partnership between the Service Provider and the Company. Neither the Service Provider nor the Company shall have any 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 to otherwise bind, the other Party.

15.10 No Third Party Beneficiaries

This Agreement is intended solely for the benefit of the Parties to it. Other than as specifically provided in this Agreement, nothing in this Agreement shall be construed to create any duty to, or standard of care with reference to, or any liability to, any person or entity not a party to this Agreement.

15.11 Language

Each notification, notice, submission, demand, consent, request or other communication given by one Party to the other under this Agreement shall be in the English language.

16 Governing Law and Jurisdictions

16.1 This Agreement shall be interpreted, construed and governed by the laws of the Jurisdiction.

16.2. Subject to the terms of the Dispute Resolution Procedure, resolution of any dispute shall unless the Parties otherwise agree be subject to the non-exclusive jurisdiction of the Courts of the Jurisdiction.

16.3 Each Party further agrees that a lawful finding or conclusion of the Regulatory Authority under this Agreement shall be conclusive and binding upon such Party and may be enforced in the courts of any jurisdiction.

16.4 Each Party irrevocably waives any objection which it may have now or hereafter to the laying of the venue of any proceedings in any court as is referred to in this clause and any claim that any proceedings have been brought in an inconvenient forum and further irrevocably agrees that a judgment in any proceedings brought in the courts of the Jurisdiction shall be conclusive and binding upon each Party and may be enforced in the courts of any other jurisdiction.

IN WITNESS WHEREOF this Agreement has been executed on the day and year first above written.

Signed for and on behalf of:-
SONI Limited

Signed for and on behalf of:-
[Service Provider]

Schedule 1

DEFINITIONS

"Active Power" has the meaning given to it in the Grid Code;

"Affiliate" means, in relation to either Party, any holding company or subsidiary or any subsidiary of a holding company of the relevant Party, in each case within the meaning of Section 1159 of the Companies Act 2006;

"Aggregated Generating Unit" has the meaning given to it in the Grid Code;

"All Island Transmission Network" means the Transmission System and the Ireland transmission system taken together;

"Apparatus" has the meaning given to it in the Grid Code;

"Automatic Voltage Regulation" means the automatic maintenance of a Providing Unit's terminal voltage or the automatic maintenance of a Providing Unit's Voltage setpoint, Reactive Power setpoint or Power Factor setpoint at its Connection Point, as appropriate;

"Automatic Voltage Regulator Status" or "AVR Status" means the status of the AVR of a Providing Unit, as further defined in Section 3.2 of Schedule 3;

"Available Volume" means, in relation to any of the DS3 System Services, the capability of the Providing Unit to provide such DS3 System Services to the Power System as calculated in accordance with the provisions of Schedule 2, Schedule 3 and Schedule 4;

"Availability" has the meaning given to it in the Grid Code;

"Availability Notice" has the meaning given to it in the Grid Code;

"Business Day" means a weekday which is not a public holiday or bank holiday in the Jurisdiction;

"Capacity" means the rated continuous load-carrying ability, expressed in megawatts (MW) or megavolt-amperes (MVA) of generation, transmission, or other electrical equipment;

"Central Dispatch" has the meaning given to it in the Grid Code;

"Centrally Dispatched" means subject to Central Dispatch;

"Charging Period" means a period of one calendar month;

"Charging Statement" means the Company's DS3 System Services Statement of Payments published on the Company's website;

"Cold" means a cold Warmth State;

"Company" means SONI Limited and any legal successors in title under any restructuring of SONI Limited;

"Competent Authority" means the Regulatory Authority or any local, national or supra-national agency, authority, department, inspectorate, minister, official, Court, tribunal or public or statutory person (whether autonomous or not) of the United Kingdom (or the government thereof) or the European Union which has jurisdiction over a Party on the subject matter of the Agreement;

"Compliance Tests" has the meaning given to it in the Protocol;

~~**"Compliance Requirements"** has the meaning given to it in the Protocol;~~

"Confidential Information" has the meaning set out in Clause 12;

"Connection Agreement" means in relation to a Service Provider's Installation the agreement between the Company or the Distribution Network Owner and the Service Provider which provides the right for that Service Provider's Installation to be and remain connected to the Transmission System or the Distribution System;

"Connection Point" means the physical point where the Providing Unit is joined to the Power System. For Interconnectors, in relation to SSRP, DRR and FPFAPR it means the physical point where the Interconnector is joined to the Power System. For Interconnectors, in relation to all other DS3 System Services it means the physical point where the Interconnector is joined to the power system of Great Britain;

"Connection Site" has the meaning given to it in the Grid Code;

"Contracted" means, in relation to POR, SOR, TOR1, TOR2, RR or FFR and in relation to a Trading Period, the maximum value for the response of the Providing Unit determined from the POR Reserve Characteristic, SOR Reserve Characteristic, TOR1 Reserve Characteristic, TOR2 Reserve Characteristic, RR Reserve Characteristic or FFR Characteristic respectively by reference to the MW Output of the Providing Unit for that Trading Period and in relation to Kinetic Energy means the value stated in Schedule 9 Operating Parameters;

"Controllable WFPS" has the meaning given to it in the Grid Code;

"Declared" means, in relation to any DS3 System Service and in relation to a Trading Period, the Time-Weighted Average value, unless specified otherwise as the lowest value, for the

capability of the Providing Unit to provide such DS3 System Service during that Trading Period as notified by the Service Provider in accordance with the Grid Code or as stipulated by the Company as appropriate. The **"Declared"** value must accurately reflect the true capability of the Providing Unit to provide such DS3 System Service.;

"Declared Automatic Voltage Regulator Status" means the AVR Status for the Trading Period as notified by the Service Provider to the Company;

"Declared MinGen" means the Time-Weighted Average of Minimum Generation in a Trading Period as notified by the Service Provider in accordance with the Grid Code or in such other manner as stipulated by the Company as appropriate;

"Decommission" means cessation of use by the Service Provider of the Service Provider's Installation at any given Connection Site for a continuous period exceeding 12 months and "**Decommissioned**" shall be construed accordingly;

"De-Energise" means to disconnect from the Transmission System utilising circuit switches etc to isolate the Plant and/or Apparatus, and "Deenergised" and "De-energising" shall be construed accordingly.~~has the meaning given to it in the EirGrid Grid Code;~~

"Demand" has the meaning given to it in the Grid Code;

"De-synchronised" – has the meaning given to it in the Grid Code;

"Demand Side Unit" has the meaning given to it in the Grid Code;

"Directive" means any present or future legislation, statutory instrument, directive, requirement, instruction, order, direction or rule of any Competent Authority binding on either or both of the Company and the Service Provider (but only, if not having the force of law, if compliance with the Directive is in accordance with the general practice of persons to whom the Directive is addressed) and includes any modification, extension or replacement thereof then in force;

"Disconnection" has the meaning set out in the Grid Code and "**Disconnected**" and **"Disconnect"** shall be construed accordingly;

"Dispatch" means the issue by the Company of instructions to a Service Provider in respect of the Providing Unit and the term **"Dispatched"** shall be construed accordingly;

"Dispatchable" means a Providing Unit that is capable of being Dispatched;

"Dispatchable WFPS" has the meaning given to it in the Grid Code;

"Dispatch Instruction" means an instruction given by the Company to the Service Provider in respect of the Providing Unit to change the output, fuel or manner of operation of the Providing Unit and "Instruct" and "Instructed" shall be construed accordingly;

"Dispute Resolution Procedure" means the procedure set out in Schedule 6;

"Distribution Code" has the meaning given to it in the Grid Code;

"Distribution System" has the meaning given to it in the Grid Code;

"Distribution Network Owner" has the meaning given to it in the Grid Code;

"DS3 System Services" for the purposes of this Agreement means the following services:

- the provision of POR, SOR, TOR1, TOR2, RR;
- the provision of SSRP; and
- the provision of SIR, FFR, FPFAPR, RM1, RM3, RM8 and DRR;

"DS3 System Services Regulated Arrangements Go-Live" means 00:00 hours on 1st ~~October~~ May 2018~~2016~~;

"DS3 System Services Payments" has the meaning given to it in Clause 4.2.1;

"DSUSOIA" means an agreement between the Service Provider and the Company which provides the right for the Providing Unit to be and remain connected to the Transmission System or the Distribution System to the extent that the Providing Unit is a Demand Side Unit;

"Dynamic Reactive Response" or **"DRR"** has the meaning given to it in Section 1 of Part E of Schedule 4;

"Dynamic Response" means a response provided by the Providing Unit by increases in MW Output or MW Reduction in a continuously controlled manner proportional to the Power System Frequency;

"EAA" means the Electricity Arbitration Association;

"Energy Storage Providing Unit" means a Providing Unit which uses storage devices to generate and consume electricity;

"Euro" or **"€"** means the single currency of participating Member States of the European Union;

"Event" means an unscheduled or unplanned (although it may have been anticipated) occurrence on the Power System or on the Other Transmission System including, without limiting that general description, faults, incidents and breakdowns;

"Event Recorders" means event recorders as specified in the Metering Code or where not so specified such other metering equipment as may be used to monitor the Frequency of the Power System;

"Expenditure Cap" means the upper level of expenditure set by the SEM Committee for DS3 System Services for the relevant Tariff Year;

"Expert" means the person appointed to determine a dispute under this Agreement in accordance with the Dispute Resolution Procedure;

"External System" means in relation to an External System Operator, the transmission or distribution system which it operates which is located outside the island of Ireland and any Apparatus or Plant which connects that system to the External Interconnection and which is owned or operated by such External System Operator.

"External System Operator" means a person who operates an External System which is connected to the Transmission System or the Other Transmission System by an External Interconnection.

"Fail" has the meaning given to it in the Protocol;

"Fast Frequency Response" or **"FFR"** has the meaning given to it in Section1 of Part B of Schedule 4;

"Fast Post-Fault Active Power Recovery" or **"FPFAPR"** has the meaning given to it in Section1 of Part C of Schedule 4;

"Fault Disturbance" means any type of fault including, but not limited to, single line to ground,line to line and three-phase short-circuits, in any single item of Plant anywhere in the Transmission System where the operation of the TSO protection will not disconnect the Plant from the existing or planned Transmission System under normal or Scheduled Outages conditions. For the avoidance of doubt this Fault Disturbance can include bus zone protection.~~has the meaning given to it in the EirGrid Grid Code;~~

"FFR Continuous Scalar" means a multiplicative factor which adjusts the payment for the FFR DS3 System Service to reflect a Providing Unit's availability to provide FFR, POR, SOR and TOR1 during the relevant Trading Period;

"FFR Fast Response Scalar" means- a multiplicative factor which adjusts the payment for the FFR DS3 System Service to reflect a Providing Unit's FFR Response Time capability;

"FFR Response Time" means the length of time in seconds from the start of an Event that it takes a Providing Unit to provide the FFR DS3 System Service;~~.~~

"FFR Trajectory" means the magnitude of the change in Frequency from the Reserve Trigger, measured in Hz, by which the Providing Unit shall deliver 100% of its contracted FFR volume, and is set by the Company;

"FFR Trajectory Capability" means the magnitude of the smallest change in Frequency from the Reserve Trigger, measured in Hz, by which the Providing Unit is capable of delivering 100% of its contracted FFR volume;

"FFR Hysteresis Control" means the capability of a Providing Unit to deliver a response at a particular Reserve Trigger as the frequency falls and not to retract its initial provided response as the frequency recovers through the Reserve Trigger;

"Force Majeure" means any event or circumstance or number of events or circumstances or combination thereof which is beyond the reasonable control of a Party and which could not have been avoided through the use of Good Industry Practice and which results in or causes the failure of the Party to perform any of its obligations under the Agreement and includes but is not limited to the following events:

(a) acts of terrorists;

(b) war (whether declared or undeclared), threat of war, act of public enemy, blockade, revolution, riot, insurrection, public demonstration, civil commotion, invasion or armed conflict;

(c) sabotage or acts of vandalism, criminal damage or the threat of such acts;

(d) extreme weather or environmental conditions including lightning, earthquake, flood, wind, drought, storm, fire, landslip, accumulation of snow or ice, natural disasters and phenomena including 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;

(e) any change of legislation, governmental order, restraint or Directive without justifiable cause by any relevant governmental authority having the effect of shutting down or reducing the supply of electricity to the Service Provider's Installation or which prohibits (by rendering unlawful) the operation of the Service Provider's Installation and such operation cannot be made lawful by a modification to the Service Provider's Installation or a change in operating practice;

(f) any strike which is part of a labour dispute of a national character occurring in Northern Ireland or which is part of a national electrical industry strike within Northern Ireland;

(g) (in the event that the Providing Unit is not a Demand Side Unit) the inability at any time or from time to time of the Transmission System or Distribution System to be capable of lawfully or safely importing electricity from the Service Provider's Installation; or

~~(h) failure or disruption of the systems for transferring funds between banks in the United Kingdom;~~

(h)

"Frequency" has the meaning given to it in the Grid Code;

"Frequency Control" has the meaning given to it in the Grid Code;

~~**"Framework Agreement"** means this Agreement including all applicable Schedules, and Appendices as may be amended and/or supplemented by agreement of the Parties;~~

~~**"Framework Member"** means a Service Provider who has been validly appointed to the Framework Agreement;~~

"GASOA" means an agreement between the Service Provider and the Company which provides a right for the Providing Unit to be and remain connected to the Transmission System or Distribution System to the extent that the Providing Unit is an Aggregated Generating Unit;

"Generation Unit" has the meaning given to the term "Generating Unit" in the Grid Code;

"Generation Licence" means a licence to generate electricity granted pursuant to the Order;

"Good Industry Practice" means the exercise of that degree of skill, diligence, prudence and foresight which would be reasonably and ordinarily expected from a skilled and experienced operator engaged in the same type of undertaking under the same or similar circumstances;

"Governor Droop" has the meaning given to it in the Grid Code;

"Grid Code" means the code for Northern Ireland prepared by the Company pursuant to the TSO licence and approved by the Regulatory Authority, as from time to time revised, amended, supplemented or replaced with the approval of or at the instance of the Regulatory Authority;

"Hot" means a hot Warmth State;

"Hot Cooling Boundary" means the period of time, which must be less than that defined by the Warm Cooling Boundary, post Desynchronisation of a Providing Unit after which the Providing Unit's Warmth State transfers from being Hot to being Warm;

"Hydro-electric Providing Unit" means a Providing 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;

"Hz" means Hhertz;

"Interconnector" has the meaning given to it in the Grid Code;

"Interconnector Frequency Droop" means In relation to an Interconnector transferring power into the Transmission System, it is the percentage drop in the Frequency that would, under the action of the Interconnector Frequency Control system, cause a change in the Interconnector's output from zero to its full Interconnector Registered Import Capacity. In relation to an Interconnector transferring power to an External System, it is the percentage drop in the Frequency that would, under the action of the Interconnector Frequency Control system, cause a change in the Interconnector's output from its full Interconnector Registered Export Capacity to zero. In both cases, it is assumed that the Frequency Control system is regulating the Frequency in the Transmission System.has the meaning given to it in the EirGrid Grid Code;

"Interconnector Registered Export Capacity" means the maximum Capacity, expressed in whole MW that an Interconnector may export (transfer energy from the Power System to a remote network) on a sustained basis, without accelerated loss of equipment life, as registered with the TSO.

"Interconnector Registered Import Capacity" means the maximum Capacity, expressed in whole MW that an Interconnector may import (transfer energy from a remote network into the Power System) on a sustained basis, without accelerated loss of equipment life, as registered with the TSO.

"Interface Agreement" means a DSUSOIA or GASOA;

"Jurisdiction" means Northern Ireland;

"Kinetic Energy" means the energy that a Synchronous Providing Unit possesses due to its rotation;

"kVA" means kilovoltamperes;

"kW" means kilowatts;

"Liability Cap" for the purposes of Clause 11.1, means £100,000 per occurrence and an overall annual cap of £1,000,000 in any period of twelve consecutive calendar months during the term of this Agreement;

"Locational Scalar" means a multiplicative factor which adjusts the payment for a given DS3 System Service to reflect a Providing Unit's- geographical location;

"Metering Code" means the subset of the Grid Code pertaining to meter reading, meter data processing and meter data communications;

"Metering Equipment" has the meaning given to it in the Metering Code;

"Meters" has the meaning set out in the Metering Code;

"Minimum Generation" has the meaning given to it in the Grid Code;

"Monitoring Equipment" means equipment used to assess the performance of a Providing Unit in providing a DS3 System Service and shall include but not be limited to meters, SCADA, State Estimators and high-speed recorders and their associated data storage and data communications equipment;

"ms" means milliseconds;

"MW Output" has the meaning given to it in the Grid Code;

"MW Reduction" means a reduction in Demand;

"Nadir Frequency" means the minimum Frequency during the POR Period;

"Network Codes" means present and future directly effective EU Regulations which set the minimum standard for all users of the Distribution System and Transmission System including Commission Regulation (EU) 2017/2196, Commission Regulation (EU) 2017/2195, Commission Regulation (EU) 2016/1388, Commission Regulation (EU) 2016/631, Commission Regulation (EU) 2016/1447 and Commission Regulation (EU) 2017/1485;

"Nominal Voltage" means the reference value of the Voltage by which any section of the Power System is designated and identified by the Company;

"Northern Ireland Fuel Security Code" means the Northern Ireland Fuel Security Code designated by the Department of Enterprise, Trade and Industry as a condition of licences granted under Article 10 of the Order;

"Notifying Party" means, as the context requires, a Party who gives notification of a Force Majeure event to the other Party

"Operating Parameters" means the performance and operating specifications of each Providing Unit (certain of which are referred to in the Grid Code as Technical Parameters) for which values are specified, as are more fully set out in Part 2 of Schedule 9 as may be amended from time to time in accordance with this Agreement;

"Operational Requirements" has the meaning given to it in the Protocol;

"Operating Security Standard" has the meaning given to it in the Grid Code;

"Order" means The Electricity (Northern Ireland) Order 1992 as may be amended;

"Other Transmission System" has the meaning given to it in the Grid Code;

"Other TSO" means **EirGrid plc.,** a limited liability company incorporated under the laws of Ireland with registered number 338522 and having its registered office at The Oval, 160 Shelbourne Road, Dublin 4, or any of its legal successors or assigns in its role as the transmission system operator in Ireland;

"Party" means, as the context requires, the Company or the Service Provider; and the term "Parties" shall be construed accordingly;

"Pass" has the meaning given to it in the Protocol;

"Payment Rate" means the rate (expressed in £/MWh, £/Mvarh or £/MWs^{2}h as appropriate) for the calculation of payments for DS3 System Services as specified in the Charging Statement;

"Performance Assessment" has the meaning given to it in the Protocol;

"Performance Scalar" means a multiplicative factor which adjusts the payment for a given DS3 System Service to reflect a Providing Unit's delivery of a given DS3 System Service as determined in accordance with the provisions of the Protocol;

"Period" means, in relation to POR, SOR, TOR1, TOR2 or RR the period in which POR, SOR, TOR1, TOR2 or RR is required to be provided as further defined in Sections 3.3, 4.3, 5.3 and 6.3 respectively of Schedule 2;

"Plant" has the meaning given to it in the Grid Code;

"Potential Ramping Margin" has the meaning given to it in Section 3 of Part D of Schedule 4;

"Pound" or **"£"** means £GBP the official currency of the United Kingdom of Great Britain and Northern Ireland;

"Power Park Module" has the meaning given to it in the Grid Code;

"Power System" means the Transmission System or Distribution System;

"Primary Operating Reserve" or **"POR"** has the meaning given to it in the Grid Code;

"Product Scalar" means a multiplicative factor which adjusts the payment for a given DS3 System Service to reflect a Providing Unit providing a given DS3 System Service with an

enhanced performance that is of value to the Power System or a reduced performance that is of less value to the Power System;

"Protocol" means the document entitled "DS3 System Services Protocol" as published on the Company's website (soni.ltd.uk~~www.eirgridgroup.com~~);

"Providing Unit" means the unit described in Part 1 of Schedule 9;

"Pumping Mode" means the state of a Pumped Storage Providing Unit when pumping;

"Pumped Storage Providing Unit" means a Providing 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;

"Ramping Margin" has the meaning given to it in Section 1 of Part D of Schedule 4;

"Ramping Margin 1 or **RM1"** has the meaning given to it in Section 1 of Part D of Schedule 4;

"Ramping Margin 3 or **RM3"** has the meaning given to it in Section 1 of Part D of Schedule 4;

"Ramping Margin 8 or **RM8"** has the meaning given to it in Section 1 of Part D of Schedule 4;

"Ramping Margin Limitation" means an upper limit on the amount of energy that can be generated by a Hydro-electric Providing Unit, a Pumped Storage Providing Unit or an Energy Storage Providing Unit while providing Ramping Margin;

"Reactive Current" means in the phasor representation of alternating current, the component of the current perpendicular to the voltage;

"Reactive Power" or **"Mvar"** means the product of voltage and current and the sine of the phase angle between them measured in units of volt-amperes reactive and standard multiples thereof;

"Reactive Power Control" means the control of the production and absorption of Reactive Power by the Providing Unit as detailed in Section 2 of Schedule 3**;**

"Reactive Power (Lagging)" means the production of Reactive Power by a Providing Unit;

"Reactive Power (Leading)" means the absorption of Reactive Power by a Providing Unit;

"Registered Capacity" for Generation Units has the meaning defined in the Grid Code and for all other Providing Units means the maximum Capacity, expressed in whole MW, that a Providing Unit can deliver on a sustained basis, without accelerated loss of equipment life, at the Connection Point;

"Regulatory Authority" means the Northern Ireland Authority for Utility Regulation ;

"Relevant DS3 System Services" means the DS3 System Services to be provided by the Providing Unit as outlined in Part 3 of Schedule 9;

"Relevant Legislation" means Article 103 of the Insolvency (Northern Ireland) Order 1989 (and the Service Provider shall not be deemed to be unable to pay its debts if any demand for payment is being contested in good faith by the Service Provider with recourse to all appropriate measures and procedures). For the purpose of this definition, Article 103 of the Insolvency (Northern Ireland) Order 1989 shall have effect as if for "£750" there was substituted "£50,000" or such higher figure as the Company may from time to time notify in writing to the Service Provider;

"Replacement Reserve" or **"RR"** is the additional MW output (and/or reduction in Demand) required compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 20 minutes to 1 hour following an Event;

"Reserve Characteristic" means in relation to POR, SOR, TOR1, TOR2, RR and FFR, the diagrams set out in Part 2 of Schedule 9;

"Reserve Droop" means:

- the Governor Droop if the Providing Unit is a Generation Unit or a Controllable WFPS;
- Interconnector Frequency Droop if the Providing Unit is an Interconnector; or
- in the event that the Providing Unit is not a Generation Unit, a Controllable WFPS or an Interconnector, the percentage drop in the Frequency that would cause the Providing Unit to change its POR,SOR,TOR1 and/or FFR from zero to its Contracted POR,SOR,TOR1 and/or FFR and is set by the Company at a value between 0.2% and 2%;

"Reserve Step Sizes" means, in the event that the Providing Unit provides POR, SOR, TOR1 and/or FFR in discrete increases in MW Output or MW Reduction, the size of each discrete change in MW Output or MW Reduction and is set by the Company;

"Reserve Step Triggers" means, in the event that the Providing Unit provides, POR,SOR,TOR1 and/or FFR in discrete steps, the Frequency below which the Providing Unit shall provide the corresponding Reserve Step Size and is set by the Company;

"Reserve Trigger" means, in the event that the Providing Unit provides POR,SOR,TOR1 and/or FRR, the Frequency below which the Providing Unit shall provide POR,SOR,TOR1 and/or FRR as appropriate and is~~as~~ set by the Company;

"Reserve Trigger Capability" means, in the event that the Providing Unit provides POR, SOR, TOR1 and/or FRR, the Frequency below which the Providing Unit is capable of providing POR, SOR, TOR1 and/or FRR as appropriate;

"Reserve Trigger Scalar" has the meaning set out in Sections 3.2, 4.2 and 5.2 of Schedule 2 and Section 3.2 of Schedule 4 Part B;

"Rise Time" means, in relation to Reactive Current response from a Providing Unit, the length of time from Voltage Dip inception for Reactive Current to reach 90% of its steady-state value;

"RR (De-synchronised)" means Replacement Reserve provided by the Providing Unit when

(i) not Synchronised to the Power System in the case of a Synchronous Providing Unit, or

(ii) when connected to the Power System and operating at a level less or equal to 0 MW in the case of an Energy Storage Providing Unit or

(iii) when connected to the Power System in the case of a Demand Side Unit. ~~whilst it is De-synchronised and disconnected from the Power System;~~

"RR (Synchronised)" means Replacement Reserve provided by the Providing Unit when

(i) Synchronised to the Power System in the case of a Synchronous Providing Unit, or

(ii) when connected to the Power System and operating at a level greater than 0 MW in the case of an Energy Storage Providing Unit or Power Park Module~~whilst it is Synchronised or connected to the Power System~~;

"SCADA" or **"Supervisory Control and Data Acquisition"** means the metering data collection system used by the TSO for the storage, display and processing of metering data by the TSO (currently comprising a communication system and computer system) or such other data collection system as the TSO may reasonably specify to be used for such purpose with the prior agreement of the Regulatory Authority and after consultation;

"Scaling Factor" means, in relation to a DS3 System Service, the scaling factor used in the calculation of payments for that DS3 System Service, as described in Schedules 2, 3 and 4 of this Agreement;

"Scheduled Outage" has the meaning given to it in the Grid Code;

"Secondary Operating Reserve" or **"SOR"** has the meaning given to it in the Grid Code;

"Service Provider's Installation" means any structures, equipment, lines, appliances or devices used or to be used by any Service Provider and connected or to be connected directly or indirectly to the Transmission System or to the Distribution System;

"Settling Time" means in relation to Reactive Current response from a Providing Unit, the length of time from Voltage Dip inception for Reactive Current to settle within +/-10% of its steady-state value;

"Significant– Incident" has the meaning given to it in the Grid Code;

"Single Electricity Market" has the meaning given to it in the TSC and shall include any replacement wholesale all-island electricity market for Ireland and Northern Ireland;

"SIR Factor" or "SIRF" means the ratio of the Kinetic Energy (at a Frequency of 50Hz) to the Minimum Generation;

"SNSP" or "System Non-Synchronous Penetration" means a value calculated by the Company which specifies the percentage of generation provided by non-Synchronous sources, including HVDC Interconnector imports, relative to the total all-island generation, where total all-island generation includes HVDC Interconnector exports;

"SSRP MinGen" means the Time-Weighted Average of the minimum MW Output a Providing Unit can maintain on a continuous basis whilst providing Reactive Power Control during that Trading Period as notified by the Service Provider to the Company in accordance with a process specified by the Company;

"SSRP Wattless Scalar" means a multiplicative factor which adjusts the payment for a given DS3 System Service in the event that the Providing Unit has been instructed by the Company to provide Reactive Power Control at a zero MW output level;

"State Estimator" means a system for estimating the value of a parameter;

"Static Response" means a response provided by the Providing Unit in discrete step increases in MW Output or discrete steps in MW Reduction;

"Static Steps Capability" means, in the event that the Providing Unit provides FFR in discrete increases in MW Output or MW Reduction, the maximum number of such discrete changes in MW Output or MW Reduction that the Providing Unit is capable of;

"Steady-State Reactive Power" or **"SSRP"** means Reactive Power Capability (Leading) and Reactive Power Capability (Lagging);

"Steady-State Reactive Power Range" has the meaning given to it in Section 3.1 of Schedule 3;

"Supply Licence" means a licence to supply electricity granted under the Order to Northern Ireland Electricity ~~plc~~plc. and transferred to NII Energy Limited on 1 November 2007 pursuant to a scheme made pursuant to the Electricity Regulations (Northern Ireland) 2007;

"Synchronised" (and like terms) has the meaning given to it in the Grid Code;

"Synchronous Compensator" means a rotating Synchronous Providing Unit which does not generate Active Power and is used for the provision of SSRP, SIR or DRR;

"Synchronous Motor" means a motor which is Synchronised to the Power System;

"Synchronous Inertial Response" or **"SIR"** has the meaning given to it in Section 1 of Part A of Schedule 4;

"**Synchronous Providing Unit"** means a Providing Unit which is connected and Synchronised to the Transmission System or Distribution System;

"Synchronous Start-Up Time Cold" has the meaning given to it in the Grid Code;

"Synchronous Start-Up Time Hot" has the meaning given to it in the Grid Code;

"Synchronous Start-Up Time Warm" has the meaning given to it in the Grid Code;

"Tariff Year" means from 00:00 hours on 1st October until 23:59 hours on the 30th September of each year of the Agreement commencing 2017;

~~"~~"**Technical Offer Data"** has the meaning given to it in the Trading and Settlement Code;

"Technical Parameters" has the meaning given to it in the Grid Code;

"Technical Parameters Notice" has the meaning given to it in the Grid Code;

"Temporal Scarcity Scalar means a multiplicative factor which adjusts the payment to a Providing Unit for a given DS3 System Service during Trading Periods in which SNSP reaches a specified level;

"Tender" means collectively the information, documentation and submissions provided by the Service Provider to the Company as part of the DS3 System Services procurement process;

"Tertiary Operating Reserve 1" or **"TOR1"** has the meaning given to it in the Grid Code;

"Tertiary Operating Reserve 2" or **"TOR2"** has the meaning given to it in the Grid Code;

"Time Weighted Average" means, in relation to a parameter (P) which has more than one value for a Trading Period, the time weighted average value of that parameter ("Parameter Value (Trading Period)"), calculated by the application of the following formula:

Parameter Value (Trading Period) = $\sum_{Pv=1,N} \{(P_{V1} \times T_1)/TPD\}$

Where:

$\sum_{Pv=1,N}$ is the summation for the N values of P during the Trading Period and where Pv=1 denotes the first value of P during the Trading Period;

T_1 is the period (expressed in minutes) for which the value of P was equal to P_{v1} during the Trading Period; and

TPD is the Trading Period Duration;

"Trading and Settlement Code" or **"TSC"** means the Single Electricity Market Trading and Settlement Code or any replacement thereof which sets out the rules for trading in electricity and settling energy imbalances and the responsibilities of parties to the code;

"Transmission Owner" or **"TO"** means Northern Ireland Electricity ~~plc~~plc. in its capacity as owner of the Transmission System and the Distribution System;

"Trading Period" has the meaning set out in the TSC;

"Trading Period Duration" means a period equal to the duration of a Trading Period under the Trading and Settlement Code (as at the date of this Agreement it is 0.5 hours);

"Trading Period Payment" means, in relation a DS3 System Service and in relation to a Trading Period, the payment to which a Service Provider is entitled for providing the Relevant DS3 System Service(s) from the Providing Unit in that Trading Period as calculated under the relevant Sections of Schedule 2, Schedule 3 and Schedule 4;

"Transmission System" has the meaning given to it in the Grid Code;

"Transmission System Operator" or **"TSO"** has the meaning given to it in the Grid Code;

"TSO Licence" means the licence to operate the Transmission System granted pursuant to Article 1-(1)(b) of the Order;

"Use of System Agreement" means the agreement between the Company and the Service Provider which provides the right for the use of the All-Island Transmission Network;

"Value Added Tax" or **"VAT"** means the value added tax or any tax on the supply of goods and or services which may hereafter replace or supplement value added tax;

"Voltage" means the voltage of the relevant section of the Power System;

"Voltage Dip" means a short-duration reduction in Voltage on any or all phases due to a Fault Disturbance or other Significant Incident, resulting in Transmission System Voltages outside the ranges as specified in the Operating Security Standard, and more generally, bus Voltages or terminal Voltages of less than 90% of nominal voltage on any or all phases. Percentage Voltage Dip shall be calculated with respect to nominal voltage.~~has the meaning given to it in the EirGrid Grid Code;~~

"Warm" means a warm Warmth State;

"Warm Cooling Boundary" means the period of time, which must be greater than that defined by the Hot Cooling Boundary, post Desynchronisation of a Providing Unit after which the Providing Unit's Warmth State transfers from being Warm to Cold;

"Warmth State" means either cold, warm~~,~~ or hot, dependent upon the period of time which has elapsed post Desynchronisation of a Providing Unit relative to its Hot Cooling Boundary and its Warm Cooling Boundary. Up until the Hot Cooling Boundary, the Providing Unit is hot.~~—~~ At and below the Hot Cooling Boundary and up until the Warm Cooling Boundary, the Providing Unit is warm. At and below the Warm Cooling Boundary, the Providing Unit is cold;

Schedule 2

Operating Reserves

1 Operating Reserve Services

The following DS3 System Services are covered by this Schedule 2:

Primary Operating Reserve, Secondary Operating Reserve, Tertiary Operating Reserve 1, Tertiary Operating Reserve 2 and Replacement Reserve.

2 Minimum Technical Requirements

The Service Provider must provide reserve, with the exception of Replacement Reserve, in accordance with the technical requirements of the Grid Code and the relevant Operating Parameters of the Providing Unit.

Replacement Reserve is the additional MW output (and/or reduction in Demand) required compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 20 minutes to 1 hour following an Event.

Unless stated otherwise, all quantities used in reserve calculations are referenced at the Connection Point and conversion factors will be used to convert values that are not so provided where necessary.

The Company shall specify the Reserve Trigger, Reserve Droop, Reserve Step Sizes and Reserve Step Triggers as appropriate for reserve. Enabling and disabling POR, SOR and TOR1 and alterations to the Reserve Trigger, Reserve Droop, Reserve Step Sizes, Reserve Step

Triggers may be requested in real-time by the Company and unless otherwise agreed by the Company, shall be implemented by the Providing Unit within 60 seconds of such request.

3 Primary Operating Reserve (POR) - Available Volume, Payment and Performance Assessment

The basis for payments for Primary Operating Reserve (POR) is the calculation of the POR Available Volume of the Providing Unit over a Trading Period. The MW Output or MW Reduction and Availability of the Providing Unit for the Trading Period form the basis for calculating POR Available Volume. The POR Available Volume is the lesser of:

(i) the value of the reserve obtained from the POR Reserve Characteristic adjusted by the average Availability of the Providing Unit; and

(ii) the Declared POR of the Providing Unit for the Trading Period.

The POR Available Volume for the Trading Period is multiplied by the POR Payment Rate to determine the payment to be made to the Service Provider for the Trading Period as set out in Section 3.1 of this Schedule 2. The payment for the Trading Period shall be adjusted by the POR Scaling Factor.

3.1 POR Available Volume

The Available Volume of the Providing Unit to provide POR in a Trading Period will be determined from the lesser of:

(a) the value of the reserve obtained from the POR Reserve Characteristic for the Time Weighted Average MW Output or MW Reduction, where the POR Reserve Characteristic has been adjusted to reflect the Time Weighted Average Availability of the Providing Unit (expressed in MW) in the manner described in the example set out in Part 2 of Schedule 9. The relevant value on the POR Reserve Characteristic will be determined from the average MW Output or the average MW Reduction (expressed in MW) over the Trading Period; and

(b) the Declared POR of the Providing Unit.

3.2 POR Payments

The Service Provider will receive a payment for each MW of POR Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with

the following provisions of this Section 3.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for POR Available Volume of the Providing Unit in a Trading Period is determined as:

POR Trading Period Payment = POR Available Volume × POR Payment Rate x POR Scaling Factor × Trading Period Duration

Where:

a) POR Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of POR and is calculated in accordance with Section 3.1;

b) POR Payment Rate is the Payment Rate (expressed in £/MWh) applicable to POR;

c) POR Scaling Factor = POR Performance Scalar x POR Product Scalar x POR Locational Scalar x POR Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 3.2(c) above, the POR Product Scalar is an amount equal to:

(Reserve Type Scalar + Reserve Trigger Scalar) ÷ 2

Where:

(i) Reserve Type Scalar is an amount equal to:

- 1 in the event that Dynamic Response is provided by the Providing Unit and Reserve Trigger Capability is ≥> 49.3 Hz; or
- 0.5 in the event that Static Response is provided by the Providing Unit and Reserve Trigger Capability is ≥> 49.3 Hz; or
- zero in the event that Reserve Trigger Capability ≤≦ 49.3 Hz; and

(ii) Reserve Trigger Scalar is an amount equal to:

- 1 – ((49.98550 – absolute value of Reserve Trigger Capability) x (5 ÷ 76.85)), if the value of the Reserve Trigger Capability is ≥> 49.3 Hz;

  or
- zero if the value of the Reserve Trigger Capability is <≤ 49.3 Hz.

For the purposes of Section 3.2(c) above, the value of the POR Locational Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 3.2(c) above, the POR Temporal Scarcity Scalar is an amount equal to:

- PORTSS1 in the event that SNSP ≤60%;

  or
- PORTSS2 in the event that SNSP >60% and ≤70%;

  or
- PORTSS3 in the event that SNSP >70%;

Where:

The values of PORTSS1, PORTSS2 and PORTSS3 are as defined in the Protocol document.

3.3 Assessment of POR Performance

In order to assess the quality of delivery of POR when required by the Power System, the Providing Unit will be monitored and assessed during an Event by the Company. The assessment of POR performance is carried out at the time of the Nadir Frequency during the POR time range of T+5 seconds to T+15 seconds (the “POR Period”). The value of the POR Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

4 Secondary Operating Reserve (SOR) - Available Volume, Payment and Performance Assessment

The basis for payments for Secondary Operating Reserve (SOR) is the calculation of the SOR Available Volume of the Providing Unit over a Trading Period. The average MW Output or average MW Reduction and Availability of the Providing Unit for the Trading Period form the basis for calculating SOR Available Volume. The SOR Available Volume is the lesser of:

(i) the value of the reserve obtained from the SOR Reserve Characteristic adjusted by the average Availability of the Providing Unit; and

(ii) the Declared SOR of the Providing Unit for the Trading Period.

The SOR Available Volume of the Providing Unit (as calculated in accordance with Section 4.1) for the Trading Period is multiplied by the SOR Payment Rate to determine the payment to be made to the Service Provider for the Trading Period. The payment for the Trading Period shall be adjusted by the SOR Scaling Factor.

4.1 SOR Available Volume

The Available Volume of the Providing Unit to provide SOR in a Trading Period will be determined from the lesser of:

(a) the value of the reserve obtained from the SOR Reserve Characteristic for the Time Weighted Average MW Output or MW Reduction, where the SOR Reserve Characteristic has been adjusted to reflect the Time Weighted Average Availability of the Providing Unit (expressed in MW) in the manner described in the example set out in Schedule 9 Part 2. The relevant value on the SOR Reserve Characteristic will be determined from the average MW Output or the average MW Reduction (expressed in MW) over the Trading Period; and

(b) the Declared SOR of the Providing Unit.

4.2 SOR Payments

The Service Provider will receive a payment for each MW of SOR Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 4.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for SOR Available Volume of the Providing Unit in a Trading Period is determined as:

SOR Trading Period Payment = SOR Available Volume × SOR Payment Rate × SOR Scaling Factor × Trading Period Duration

Where:

a) SOR Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of SOR and is calculated in accordance with Section 4.1;

b) SOR Payment Rate is the Payment Rate (expressed in £/MWh) applicable to SOR;

c) SOR Scaling Factor = SOR Performance Scalar x SOR Product Scalar x SOR Locational– Scalar x SOR Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 4.2(c) above, the SOR Product Scalar is an amount equal to:

(Reserve Type Scalar + Reserve Trigger Scalar) ÷ 2

Where:

(i) Reserve Type Scalar is an amount equal to:

- 1 in the event that Dynamic Response is provided by the Providing Unit and Reserve Trigger Capability is ≥~~>~~ 49.3 Hz; or
- 0.5 in the event that~~—~~ Static Response is provided by the Providing Unit and Reserve Trigger Capability is ≥~~>~~ 49.3 Hz; or
- zero in the event that Reserve Trigger Capability ≤~~≤~~ 49.3 Hz; and

(ii) Reserve Trigger Scalar is an amount equal to:

- 1 – ((~~50 –~~49.985 – absolute value of Reserve Trigger Capability) x (5 ÷ ~~7~~6.85)), if the value of the Reserve Trigger Capability is ≥~~>~~ 49.3 Hz;
  or
- zero if the value of the Reserve Trigger Capability is ≤~~≤~~ 49.3 Hz.

For the purposes of Section 4.2(c) above, the value of the SOR Locational -Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 4.2(c) above, the SOR Temporal Scarcity Scalar is an amount equal to:

- SORTSS1 in the event that SNSP ≤60%;
  or
- SORTSS2 in the event that SNSP >60% and ≤70%;
  or
- SORTSS3 in the event that SNSP >70%;

Where:

The values of SORTSS1, SORTSS2 and SORTSS3 are as defined in the Protocol document.

4.3 Assessment of SOR Performance

In order to assess the quality of delivery of SOR when required by the Power System, the Providing Unit will be monitored and assessed during an Event by the Company. The assessment of SOR performance is carried out during the entire SOR time range of T+15 seconds to T+90 seconds (the "SOR Period"). The value of the SOR Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

5 Tertiary 1 Operating Reserve (TOR1) - Available Volume, Payment and Performance Assessment

The basis for payments for Tertiary Operating Reserve 1 (TOR1) is the calculation of the TOR1 Available Volume of the Providing Unit over a Trading Period. The average MW Output or average MW Reduction and Availability of the Providing Unit for the Trading Period form the basis for calculating TOR1 Available Volume. The TOR1 Available Volume is the lesser of:

(i) the value of the reserve obtained from the TOR1 Reserve Characteristic adjusted by the average Availability of the Providing Unit and

(ii) the Declared TOR1 of the Providing Unit for the Trading Period.

The TOR1 Available Volume (as calculated in accordance with Section 5.1) for the Trading Period is multiplied by the TOR1 Payment Rate to determine the payment to be made to the Service Provider for the Trading Period. The payment for the Trading Period shall be adjusted by the TOR1 Scaling Factor.

5.1 TOR1 Available Volume

The Available Volume of the Providing Unit to provide TOR1 in a Trading Period will be determined from the lesser of:

(a) the value of the reserve obtained from the TOR1 Reserve Characteristic for the Time Weighted Average MW Output or MW Reduction, where the TOR1 Reserve Characteristic has been adjusted to reflect the Time Weighted Average Availability of the Providing Unit (expressed in MW) in the manner described in the example set out in Part 2 of Schedule 9. The relevant value on the TOR1 Reserve Characteristic will be determined from the average MW Output or the average MW Reduction (expressed in MW) over the Trading Period; and

(b) the Declared TOR1 of the Providing Unit.

5.2 TOR1 Payments

The Service Provider will receive a payment for each MW of TOR1 Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 5.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for TOR1 Available Volume of the Providing Unit in a Trading Period is determined as:

TOR1 Trading Period Payment = TOR1 Available Volume × TOR1 Payment Rate × TOR1 Scaling Factor × Trading Period Duration

Where:

a) TOR1 Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of TOR1 and is calculated in accordance with Section 5.1;

b) TOR1 Payment Rate is the Payment Rate for TOR1 (expressed in £/MWh); and

c) TOR1 Scaling Factor = TOR1 Performance Scalar x TOR1 Product Scalar x TOR1 Locational -Scalar x TOR1 Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 5.2(c) above, the TOR1 Product Scalar is an amount equal to:

(Reserve Type Scalar + Reserve Trigger Scalar) ÷ 2

(i) Reserve Type Scalar is an amount equal to:

- 1 in the event that Dynamic Response is provided by the Providing Unit and Reserve Trigger Capability is ≥> 49.3 Hz; or
- 0.5 in the event that— Static Response is provided by the Providing Unit and Reserve Trigger Capability is ≥> 49.3 Hz; or
- zero in the event that Reserve Trigger Capability <≤ 49.3 Hz; and

(ii) Reserve Trigger Scalar is an amount equal to:

- 1 – ((~~50 –~~ 49.985 – absolute value of Reserve Trigger Capability) x (5 ÷ ~~7~~6.85)), if the value of the Reserve Trigger Capability is ≥> ~~-~~49.3 Hz;

  or
- zero if the value of the Reserve Trigger Capability is <≤ 49.3 Hz.

For the purposes of Section 5.2(c) above, the value of the TOR1 Locational- Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 5.2(c) above, the TOR1 Temporal Scarcity Scalar is an amount equal to:

- TOR1TSS1 in the event that SNSP ≤60%;
  or
- TOR1TSS2 in the event that SNSP >60% and ≤70%;
  or
- TOR1TSS3 in the event that SNSP >70%;

Where:

The values of TOR1TSS1, TOR1TSS2 and TOR1TSS3 are as defined in the Protocol document.

5.3 Assessment of TOR1 Performance

In order to assess the quality of delivery of TOR1 when required by the Power System, the Providing Unit will be monitored and assessed during an Event by the Company. The assessment of TOR1 performance is carried out during the entire TOR1 time range of T+90 seconds to T+300 seconds (the "TOR1 Period"). The value of the TOR1 Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

6 Tertiary 2 Operating Reserve (TOR2) - Available Volume, Payment and Performance Assessment

The basis for payments for Tertiary Operating Reserve 2 (TOR2) is the calculation of the TOR2 Available Volume of the Providing Unit over a Trading Period. The average MW Output or average MW Reduction and Availability of the Providing Unit for the Trading Period form the basis for calculating TOR2 Available Volume. The TOR2 Available Volume is the lesser of;

(i) the value of the reserve obtained from the TOR2 Reserve Characteristic adjusted by the average Availability of the Providing Unit; and

(ii) the Declared TOR2 of the Providing Unit for the Trading Period.

The TOR2 Available Volume (as calculated in accordance with Section 6.1) for the Trading Period is multiplied by the TOR2 Payment Rate to determine the payment to be made to the Service Provider for the Trading Period. The payment for the Trading Period shall be adjusted by the TOR2 Scaling Factor.

6.1 TOR2- Available Volume

The Available Volume of the Providing Unit to provide TOR2 in a Trading Period will be determined from the lesser of:

(a) the value of the reserve obtained from the– TOR2 Reserve Characteristic for the Time Weighted Average MW Output or MW Reduction, where the TOR2 Reserve Characteristic has been adjusted to reflect the Time Weighted Average Availability of the Providing Unit (expressed in MW) in the manner described in the example set out in Schedule 9 Part 2. The relevant value on the TOR2 Reserve Characteristic will be determined from the average MW Output or the average MW Reduction (expressed in MW) over the Trading Period; and

(b) the Declared TOR2 of the Providing Unit.

6.2 TOR2 Payments

The Service Provider will receive a payment for each MW of TOR2 Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 6.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for TOR2 Available Volume of the Providing Unit in a Trading Period is determined as:

TOR2 Trading Period Payment = TOR2 Available Volume × TOR2 Payment Rate × TOR2 Scaling Factor × Trading Period Duration

Where:

a) TOR2 Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of TOR2 and is calculated in accordance with Section 6.1;

b) TOR2 Payment Rate is the Payment Rate for TOR2 (expressed in £/MWh) applicable to TOR2;

c) TOR2 Scaling Factor = TOR2 Performance Scalar ~~– Scalar –~~ x TOR2 Locational Scalar x TOR2 Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 6.2(c) above, the value of the TOR2 Locational – Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 6.2(c) above, the TOR2 Temporal Scarcity Scalar is an amount equal to:

- TOR2TSS1 in the event that SNSP ≤60%;
  or
- TOR2TSS2 in the event that SNSP >60% and ≤70%;
  or
- TOR2TSS3 in the event that SNSP >70%;

Where:

The values of TOR2TSS1, TOR2TSS2 and TOR2TSS3 are as defined in the Protocol document.

6.3 – Assessment of TOR2 Performance

In order to assess the quality of delivery of TOR2 when required by the Power System, the Providing Unit will be monitored and assessed during an Event by the Company. The assessment of TOR2 performance is carried out for the entire TOR2 time range of T+5 minutes to T+20 minutes (the "TOR2 Period"). The value of the TOR2 Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

7. Replacement Reserve - Available Volume, Payment and Performance Assessment

The basis for payments for Replacement Reserve (RR) is the calculation of the RR Available Volume of the Providing Unit over a Trading Period. The average MW Output or average MW Reduction, average Availability and the RR Reserve Characteristic of the Providing Unit for the Trading Period form the basis for calculating RR Available Volume. The RR Available Volume is the lesser of:

(i) the value of the reserve obtained from the RR Reserve Characteristic adjusted by the average Availability of the Providing Unit; and

(ii) the Declared RR of the Providing Unit for the Trading Period.

The RR Available Volume (as calculated in accordance with Section 7.1) for the Trading Period is multiplied by the RR Synchronised Payment Rate to determine the payment to be made to the Service Provider for the Trading Period when

(i) Synchronised to the Power System in the case of a Synchronous Providing Unit,
or

(ii) when connected to the Power System and operating at a level greater than 0MW in the case of an Energy Storage Providing Unit or Power Park Module ~~in the case of a non-Synchronous Providing Unit.~~

The payment for the Trading Period shall be adjusted by the RR Scaling Factor.

The RR Available Volume (as calculated in accordance with Section 7.1) for the Trading Period is multiplied by the RR De-Synchronised Payment Rate to determine the payment to be made to the Service Provider for the Trading Period when

(i) not Synchronised to the Power System in the case of a Synchronous Providing Unit~~;~~,
or

(ii) when ~~dis~~connected ~~from~~ to the Power System and operating at a level less or equal to 0MW in the c~~d~~ase of an Energy Storage Providing Unit;
or

(iii) when connected to the Power System in the case of a Demand Side Unit~~non-Synchronous Providing Unit;~~.

t~~T~~he payment for the Trading Period shall be adjusted by the RR Scaling Factor.

7.1 RR Available Volume

The Available Volume of the Providing Unit to provide RR in a Trading Period ~~in which it is Synchronised or connected to the Power System~~ will be determined from the lesser of:

(a) the value of the reserve obtained from the RR Reserve Characteristic for the Time Weighted Average MW Output or MW Reduction, where the RR Reserve Characteristic has been adjusted to reflect the Time Weighted Average Availability of the Providing Unit (expressed in MW) in the manner described in the example set out in Part 2 of Schedule 9. The relevant value on the RR Reserve Characteristic will be determined from the average MW Output or the average MW Reduction (expressed in MW) over the Trading Period; and

(b) the Declared RR of the Providing Unit.

7.2 RR Payments

The Service Provider will receive a payment for each MW of RR Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 7.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

7.2.1 RR (Synchronised) Payments

The payment to the Service Provider for RR Available Volume of the Providing Unit in a Trading Period ~~in which it is Synchronised or connected to the Power System~~ is determined as:

RR (Synchronised) Trading Period Payment = RR Available Volume × RR (Synchronised) Payment Rate × RR Scaling Factor × duration of Trading Period ~~where the Providing Unit is Synchronised or connected to the Power System~~

Where:

a) RR Available Volume (expressed in MW) is calculated in accordance with Section 7 and 7.1;

b) RR (Synchronised) Payment Rate is the Payment Rate for RR (Synchronised) (expressed in £/MWh);

c) RR Scaling Factor = RR (Synchronised) Performance Scalar x RRS Locational Scalar x RRS Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 7.2.1(c) above, the value of the RRS Locational– Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 7.2.1(c) above, the RRS Temporal Scarcity Scalar is an amount equal to:

- RRSTSS1 in the event that SNSP ≤60%;

or

- RRSTSS2 in the event that SNSP >60% and ≤70%;

or

- RRSTSS3 in the event that SNSP >70%;

Where:

The values of RRSTSS1, RRSTSS2 and RRSTSS3 are as defined in the Protocol document.

7.2.2 RR (De-Synchronised) Payments

The payment to the Service Provider for RR Available Volume of the Providing Unit in a Trading Period ~~in which it is neither Synchronised nor connected to the Power System~~ is determined as:

RR (De-Synchronised) Trading Period Payment = RR Available Volume × RR (De-Synchronised) Payment Rate × RR Scaling Factor × duration of Trading Period. ~~where the Providing Unit is neither Synchronised nor connected to the Power System~~

Where:

a) RR Available Volume (expressed in MW) is calculated in accordance with Section~~paragraph~~ 7 and 7.1;

b) RR (De-Synchronised) Payment Rate is the Payment Rate for RR (De-Synchronised) (expressed in £/MWh); and

c) RR Scaling Factor = RR (De-Synchronised) Performance Scalar x RRD Locational Scalar x RRD Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 7.2.2(c) above, the value of the RRD Locational Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 7.2.2(c) above, the RRD Temporal Scarcity Scalar is an amount equal to:

- RRDTSS1 in the event that SNSP ≤60%;

or

- RRDTSS2 in the event that SNSP >60% and ≤70%;

  or
- RRDTSS3 in the event that SNSP >70%;

Where:

The values of RRSTSS1, RRSTSS2 and RRSTSS3 are as defined in the Protocol document.

7.3 Assessment of RR Performance

In order to assess the quality of delivery of RR when required by the Power System, the Providing Unit will be monitored and assessed during an Event by the Company. The assessment of RR performance is carried out over the RR time range of T+20 minutes to T+1 hour ("RR Time Period"). The value of the RR(Synchronised) Performance Scalar and/or RR(De-Synchronised) Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

Schedule 3

Steady-State Reactive Power (SSRP)

1. Provision of Service

To the extent that Steady-State Reactive Power is a Relevant DS3 System Service, the Company shall have the right (but shall not be under any obligation) at any time to instruct the Service Provider, by the issue of a Dispatch Instruction, to provide Reactive Power (Leading) or Reactive Power (Lagging) from the Providing Unit.

2. Minimum Technical Requirements

The Service Provider must provide Steady-State Reactive Power in accordance with the technical requirements of the Grid Code where applicable and the relevant Operating Parameters for the Providing Unit. Where not specified in the Grid Code, the Providing Unit shall provide Steady-State Reactive Power in accordance with the standards set out in the Grid Code for Dispatchable WFPS.

All quantities used in Steady-State Reactive Power calculations are referenced at the Generation Unit terminals for conventional Generation Units and otherwise are referenced at the Connection Point unless stated otherwise in the Grid Code.

3. Steady-State Reactive Power – Available Volume, Payment and Performance Assessment

The basis for payments for Steady-State Reactive Power (SSRP) is the calculation of the SSRP Available Volume of the Providing Unit over a Trading Period.

The Declared Reactive Power (Leading), Declared Reactive Power (Lagging), Registered Capacity and SSRP MinGen of the Providing Unit form the basis for calculating SSRP Available Volume when the Providing Unit is Synchronised or connected to the Power System and capable of providing Reactive Power Control. The payment for the Trading Period shall be adjusted by the SSRP Scaling Factor.

3.1 Reactive Power Available Volume

The Available Volume of the Providing Unit to provide SSRP in a Trading Period is equal to:

Steady-State Reactive Power Range x RP Factor x the percentage of the Trading Period during which the Providing Unit is Synchronised or connected to the Power System and capable of providing Reactive Power Control.

Where:

a) Steady-State Reactive Power Range is equal to the sum of the Declared Reactive Power (Leading) and Declared Reactive Power (Lagging) for any Trading Period;

b) RP Factor shall be calculated as follows:

(i) where the Providing Unit is operating as a Generation Unit:

RP Factor = (Registered Capacity – SSRP MinGen) / Registered Capacity

where SSRP MinGen is equal to the Time-Weighted Average of the Minimum MW Output a Providing Unit can maintain on a continuous basis whilst providing Reactive Power Control during that Trading Period as notified by the Service Provider to the Company in accordance with a process specified by the Company

(ii) where the Providing Unit is not operating as a Generation Unit:

RP Factor = 1;

3.2 Steady-State Reactive Power Payment

The Service Provider will receive a payment for each Mvar of SSRP Available Volume it provides from the Providing Unit in each Trading Period where Synchronised or connected to the Power System determined in accordance with the following provisions of this Section 3.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time-Weighted Average for a Trading Period.

The payment to the Service Provider for SSRP Available Volume of the Providing Unit in a Trading Period is determined as:

SSRP Trading Period Payment = SSRP Available Volume x SSRP Payment Rate x SSRP Scaling Factor x Trading Period Duration

Where:

~~a)~~ SSRP Available Volume (expressed in Mvar) is the Available Volume of the Service Provider in respect to SSRP and is calculated in accordance with Section 3.1 of this Schedule 3;

~~b)~~a) SSRP Payment~~—~~ Rate is the Payment Rate (expressed in £/Mvarh) applicable to SSRP;

~~c)~~b) SSRP Scaling Factor = SSRP Performance Scalar x SSRP Product Scalar x SSRP Wattless Scalar x SSRP Locational– Scalar x SSRP Temporal Scarcity Scalar; and

~~d)~~c) the Trading Period Duration (expressed in hours).

For the purposes of Section 3.2(c) of this Schedule 3, the SSRP Product Scalar, calculated on a Time-Weighted Average basis, is an amount equal to:

- ~~2~~2 ~~-~~where the Providing Unit has declared that it is capable of providing Automatic Voltage Regulation during the Trading Period;
  ~~-~~and
- 1 where the Providing Unit has declared that it is not capable of providing Automatic Voltage Regulation during the Trading Period, as notified by the Service Provider to the Company in accordance with a process specified by the Company;

– For the purposes of Section 3.2(c) above, the SSRP Wattless Scalar is an amount equal to:

- 2– in the event that the Providing Unit has been instructed by the Company to provide Reactive Power Control at a zero MW output level;
- or
- 1 otherwise;

For the purposes of Section 3.2(c) above, the value of the SSRP Locational– Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 3.2(c) above, the SSRP Temporal Scarcity Scalar is an amount equal to:

- SSRPTSS1 in the event that SNSP ≤60%;

  or
- SSRPTSS2 in the event that SNSP >60% and ≤70%;

  or
- SSRPTSS3 in the event that SNSP >70%;

Where:

The values of SSRPTSS1, SSRPTSS2 and SSRPTSS3 are as defined in the Protocol document.

3.3 Assessment of SSRP Performance

In order to assess the quality of delivery of SSRP, the Providing Unit will be monitored and assessed by the Company. The value of the SSRP Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

Schedule 4

Other Services

Part A Synchronous Inertial Response (SIR)

1 Definition of Service

Synchronous Inertial Response (SIR) is the Kinetic Energy (at a Frequency of 50Hz) of a Centrally Dispatched Synchronous Providing Unit multiplied by the SIR Factor (SIRF).

The SIRF must have a minimum value of 15 seconds and a maximum value of 45 seconds for a Synchronous Providing Unit operating as a Generation Unit and will be based on the capability of the Providing Unit as determined through the ~~Compliance~~ Operational Requirements.

The SIRF for a Synchronous Providing Unit operating as a Synchronous Compensator that can provide Reactive Power Control or as a Synchronous Motor that can provide Reactive Power Control is set at 45 seconds.

2 Minimum Technical Requirements

The Service Provider must provide Synchronous Inertial Response in accordance with the technical requirements of this Schedule 4 Part A and the relevant Operating Parameters for each Providing Unit.

3 Synchronous Inertial Response - Available Volume and Payment

The basis for payments for Synchronous Inertial Response (SIR) is the calculation of the SIR Available Volume of the Providing Unit over a Trading Period. The Kinetic Energy and Minimum Generation of the Providing Unit form the basis for calculating SIR Available Volume when Synchronised to the Power System.

3.1 SIR Available Volume

The Available Volume of the Providing Unit to provide SIR in a Trading Period = Kinetic Energy x (SIRF – 15) x the percentage of the Trading Period where the Providing Unit is Synchronised to the Power System

Where:

a) Kinetic Energy is the Contracted Kinetic Energy of the Providing Unit for that Trading Period; and

b) SIRF is either:

(i) the ratio of Kinetic Energy to the Declared MinGen for that Trading Period (in the case of a Synchronised Providing Unit operating as a Generation Unit); or

(ii) 45 seconds (in the case of Synchronised Providing Unit operating as a Synchronous Compensator or Synchronous Motor);

3.2 SIR Payments

The Service Provider will receive a payment for each MWs^2 of SIR Available Volume for the Providing Unit in each Trading Period where Synchronised, determined in accordance with the following provisions of this Section 3.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for SIR Available Volume of the Providing Unit in a Trading Period is determined as:

SIR Trading Period Payment = SIR Available Volume × SIR Payment Rate × Trading Period Duration

Where:

a) SIR Available Volume (expressed in MWs^2) is the Available Volume of the Providing Unit in respect of SIR and is calculated in accordance with Section 3.1 of this Part A of Schedule 4;

b) SIR Payment Rate is the Payment Rate for SIR (expressed in £/MWs^2h) applicable to SIR;

~~b)~~c) SIR Scaling Factor = SIR Locational– Scalar x SIR Temporal Scarcity Scalar; and ~~and~~

~~c)~~d) the Trading Period Duration (expressed in hours)

For the purposes of Section 3.2(c) above, the value of the SIR Locational– Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 3.2(c) above, the SIR Temporal Scarcity Scalar is an amount equal to:

- SIRTSS1 in the event that SNSP ≤60%;
  or
- SIRTSS2 in the event that SNSP >60% and ≤70%;
  or
- SIRTSS3 in the event that SNSP >70%;

Where:

The values of SIRTSS1 SIRTSS2 and SIRTSS3 are as defined in the Protocol document.

Part B Fast Frequency Response (FFR)

1 Definition of Service

Fast Frequency Response (FFR) is the additional MW Output or MW Reduction required compared to the pre-incident MW Output or MW Reduction, which is fully available from a Providing Unit within 2 seconds after the start of an Event and sustainable up to 10 seconds after the start of the Event. The extra energy provided in the 2 to 10 second timeframe must be greater than any loss of energy in the 10 to 20 second timeframe due to a reduction in MW Output or MW Reduction below the pre-incident MW Output or MW Reduction.

2 Minimum Technical Requirements

The Service Provider must provide Fast Frequency Response in accordance with the technical requirements of Part B of this Schedule 4 and the relevant Operating Parameters for the Providing Unit.

The Company shall specify the Reserve Trigger, FFR Trajectory~~Reserve Droop~~, Reserve Step Sizes and Reserve Step Triggers as appropriate. Enabling and disabling FFR and alterations to the Reserve Trigger, FFR Trajectory, ~~Reserve Droop,~~ Reserve Step Sizes and Reserve Step Triggers may be requested in real-time by the Company and unless otherwise agreed by the Company, shall be implemented by the Providing Unit within 60 seconds.

Unless stated otherwise, all quantities used in FFR calculations are referenced at the Connection Point and conversion factors will be used to convert values that are not so provided where necessary.

3 Fast Frequency Response - Available Volume, Payment and Performance Assessment

The basis for payments for Fast Frequency Response (FFR) is the calculation of the FFR Available Volume of the Providing Unit over a Trading Period. The MW Output or MW Reduction and Availability of the Providing Unit for the Trading Period form the basis for calculating FFR Available Volume. The payment for the Trading Period shall be adjusted by the FFR Scaling Factor of the Providing Unit.

3.1 FFR Available Volume

The Available Volume of the Providing Unit to provide FFR in a Trading Period will be determined from the lesser of:

a) the value of the reserve obtained from the FFR Reserve Characteristic for the Time Weighted Average MW Output or MW Reduction, where the FFR Reserve Characteristic has been adjusted to reflect the Time Weighted Average Availability of the Providing Unit (expressed in MW) in the manner described in the example set out in Schedule 9 Part 2. The relevant value on the FFR Reserve Characteristic will be determined from the average MW Output or the average MW Reduction (expressed in MW) over the Trading Period; and

b) the Declared FFR of the Providing Unit

3.2 FFR Payments

The Service Provider will receive a payment for each MW of FFR Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 3.2 of Part B of Schedule 4. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for FFR Available Volume of the Providing Unit in a Trading Period is determined as:

FFR Trading Period Payment = FFR Available Volume x FFR Payment Rate x FFR Scaling Factor x Trading Period Duration

Where:

a) FFR Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of FFR and is calculated in accordance with Section 3.1 of this Part B of Schedule 4;

b) FFR Payment Rate is the Payment Rate (expressed in £/MWh) applicable to FFR;

c) FFR Scaling Factor = FFR Performance Scalar x FFR Product Scalar x FFR Continuous Scalar x FFR Fast Response Scalar x FFR Locational Scalar x FFR Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

3.2.1 FFR Product Scalar

(a) Where FFR Dynamic Response is provided by the Providing Unit, for the purposes of Section 3.2(c) of this Part B of Schedule 4, the FFR Product Scalar is an amount equal to:

((Dynamic Trigger Scalar x 0.4) + (Dynamic Trajectory Scalar x 0.6))

(i) Dynamic Trigger Scalar is an amount equal to:

- 1 – ((49.985 – absolute value of Reserve Trigger Capability) x (3 ÷ 1.85)), if the value of Reserve Trigger Capability is ≥ 49.8 Hz;

or

- zero if the value of Reserve Trigger Capability is < 49.8 Hz.

(ii) Dynamic Trajectory Scalar is an amount equal to:

- 1 – ((absolute value of FFR Trajectory Capability – 0.05) x (0.5 ÷ 0.65)), if the value of FFR Trajectory Capability ≤ 0.7 Hz;

or

- 0.2 if the value of the FFR Trajectory Capability is > 0.7 Hz;

(b) Where FFR Static Response is provided by the Providing Unit, for the purposes of Section 3.2(c) of this Part B of Schedule 4, the FFR Product Scalar is an amount equal to:

((Static Trigger Scalar x 0.4) + (Static Hysteresis Scalar x 0.4) + (Static Steps Scalar x 0.2))

(i) Static Trigger Scalar is an amount equal to:

- 0.5 – ((49.8 – absolute value of Reserve Trigger Capability) x (4 ÷ 5)), if the value of Reserve Trigger Capability is ≥ 49.3 Hz;

or

- zero if the value of Reserve Trigger Capability is < 49.3 Hz.

(ii) Static Hysteresis Scalar is an amount equal to;

- 1 if the Providing Unit can provide FFR Hysteresis Control for every discrete step;

or

- 0.5 if the Providing Unit cannot provide FFR Hysteresis Control for every discrete step.

(iii) Static Steps Scalar is an amount equal to:

- 1 – ((9 – absolute value of Static Steps Capability) x (0.9/8)), if the value of Static Steps Capability is ≥ 1 and ≤ 9;

or

- 1 if the Static Steps Capability of the Providing Unit is greater than 9;

~~For the purposes of Section 3.2(c) of this Part B of Schedule 4, the FFR Product Scalar is an amount equal to:~~

~~(Reserve Type Scalar + Reserve Trigger Scalar) ÷ 2~~

~~Where:~~

~~(i) Reserve Type Scalar is an amount equal to:~~

- ~~1 in the event that Dynamic Response is provided by the Providing Unit and Reserve Trigger Capability is > 49.3 Hz; or~~
- ~~0.5 in the event that Static Response is provided by the Providing Unit and Reserve Trigger Capability is > 49.3 Hz; or~~
- ~~zero in the event that Reserve Trigger Capability ≤ 49.3 Hz; and~~

~~(ii) Reserve Trigger Scalar is an amount equal to:~~

- ~~1 ((50 absolute value of Reserve Trigger Capability) x (5 ÷ 7)), if the value of the Reserve Trigger Capability is > 49.3 Hz;~~

~~or~~

- ~~zero if the value of the Reserve Trigger Capability is ≤ 49.3 Hz.~~

3.2.2 FFR Continuous Scalar

For the purposes of Section 3.2(c) of this Part B of Schedule 4, the FFR Continuous Scalar is an amount equal to:

- 1.5 in the event that the Providing Unit is available to provide an agreed MW output response for all of FFR, POR, SOR and TOR1 during the Trading Period;

or

- 1 otherwise;

3.2.3 FFR Fast Response

For the purposes of Section 3.2(c) of this Part B of Schedule 4, the FFR Fast Response Scalar is an amount equal to:

- 3 in the event that the FFR Response Time— is ≤ 0.15 seconds;

or

- ((0.5 - FFR Response Time)/(0.35)) +2 in the event that 0.15 < FFR Response Time <0.5 seconds;

or

- ((2 - FFR Response Time)/(1.5)) +1 in the event that 0.5 seconds < FFR Response Time <2 seconds;

3.2.4 FFR Locational Scalar

For the purposes of Section 3.2(c) above, the value of the FFR Locational— Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

3.2.5 FFR Temporal Scarcity Scalar

For the purposes of Section 3.2(c) above, the FFR Temporal Scarcity Scalar is an amount equal to:

- FFRTSS1 in the event that SNSP ≤50%;

or

- FFRTSS2 in the event that 50% > SNSP ≤ 60%

or

- FFRTSS3 in the event that 60% > SNSP ≤70%;

or

- FFRTSS4 in the event that SNSP >70%;

Where:

The values of FFRTSS1, FFRTSS2, FFRTSS3 and FFRTSS4 are as defined in the Protocol document.

3.3 Assessment of FFR Performance

In order to assess the quality of delivery of FFR when required by the Power System, the Providing Unit will be monitored and assessed during an Event by the Company. The value of the FFR Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

Part C Fast Post-Fault Active Power Recovery (FPFAPR)

1 Definition of Service

Fast Post-Fault Active Power Recovery is the recovery of a Providing Unit's MW Output to at least 90% of its pre-Fault Disturbance MW Output within 250ms of the voltage at the Providing Unit's Connection Point recovering to at least 90% of its pre-Fault Disturbance value for any Fault Disturbance that is cleared within 900ms. The Providing Unit must be exporting Active Power to the Power System and must remain connected to the Power System for at least 15 minutes following the Fault Disturbance.

2 Minimum Technical Requirements

The Service Provider must provide Fast Post-Fault Active Power Recovery in accordance with the technical requirements of this Schedule 4 Part C and the relevant Operating Parameters for the Providing Unit.

Unless stated otherwise, all quantities used in FPFAPR calculations are referenced at the Connection Point and conversion factors will be used to convert values that are not so provided where necessary.

3 Fast Post-Fault Active Power Recovery - Available Volume, Payment and Performance Assessment

The basis for payments for Fast Post-Fault Active Power Recovery (FPFAPR) is the calculation of the FPFAPR Available Volume of the Providing Unit over a Trading Period. The FPFAPR Available Volume is the average MW Output exported by the Providing Unit for the Trading Period when Synchronised or connected to the Power System and capable of providing the service. The FPFAPR Available Volume of the Providing Unit (as calculated in accordance with Section 3.1 of this Part C of Schedule 4) for the Trading Period is multiplied by the FPFAPR Payment Rate to determine the payment to be made to the Service Provider for the Trading Period. The payment for the Trading Period is adjusted by the FPFAPR Scaling Factor.

3.1 FPFAPR Available Volume

The Available Volume of the Providing Unit to provide FPFAPR in a Trading Period is the product of the average MW Output exported by the Providing Unit for the Trading Period and the average Declared Availability to provide FPFAPR for the Trading Period.

3.2 FPFAPR Payments

The Service Provider will receive a payment for each MW of FPFAPR Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 3.2 of Part C of Schedule 4. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for FPFAPR Available Volume of the Providing Unit in a Trading Period is determined as:

FPFAPR Trading Period Payment = FPFAPR Available Volume × FPFAPR Payment Rate × FPFAPR Scaling Factor x Trading Period Duration

Where:

a) FPFAPR Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of FPFAPR and is calculated in accordance with Section 3.1 of Part C of Schedule 4;

b) FPFAPR Payment Rate is the Payment Rate for FPFAPR (expressed in £/MWh) applicable to FPFAPR;

c) FPFAPR Scaling Factor = FPFAPR Performance Scalar x FPFAPR Locational Scalar x FPFAPR Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 3.2(c) above, the value of the FPFAPR Locational Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 3.2(c) above, the FPFAPR Temporal Scarcity Scalar is an amount equal to:

- FPFAPRTSS1 in the event that SNSP ≤ 70%;

  or
- FPFAPRTSS2 in the event that SNSP >70%;

Where:

The values of FPFAPRTSS1 and FPFAPRTSS2 are as defined in the Protocol document.

3.3 Assessment of FPFAPR Performance

In order to assess the quality of delivery of FPFAPR when required by the Power System, the Providing Unit will be monitored and assessed during a Fault Disturbance by the Company. The value of the FPFAPR Performance Scalar will be determined based on- whether the result of the Performance Assessment is a Pass or Fail.

Part D Ramping Margin (RM)

1 Definition of Service

Ramping Margin means the following services: Ramping Margin 1, Ramping Margin 3 and Ramping Margin 8. Each of these services is covered in turn below:

Ramping Margin 1

Ramping Margin 1 is the increased MW Output and/or MW Reduction that a Providing Unit can provide to the Company within one hour of the Company issuing a Dispatch Instruction to a Service Provider and that the Providing Unit can maintain for a further two hours after the one hour period has elapsed. It is limited by the lowest Availability in that three hour period.

Ramping Margin 3

Ramping Margin 3 is the increased MW Output and/or MW Reduction that a Providing Unit can provide to the Company within three hours of the Company issuing a Dispatch Instruction to a Service Provider and that the Providing Unit can maintain for a further five hours after the three hour period has elapsed. It is limited by the lowest Availability in that eight hour period.

Ramping Margin 8

Ramping Margin 8 is the increased MW Output and/or MW Reduction that a Providing Unit can provide to the Company within eight hours of the Company issuing a Dispatch Instruction to a Service Provider and that the Providing Unit can maintain for a further eight hours after the eight hour period has elapsed. It is limited by the lowest Availability in that sixteen hour period.

2 Minimum Technical Requirements

The Service Provider must provide Ramping Margin in accordance with the technical requirements of this Part D of Schedule 4 and the relevant Operating Parameters for each Providing Unit.

Unless stated otherwise, all quantities used in Ramping Margin calculations are referenced at the Connection Point and conversion factors will be used to convert values that are not so provided where necessary.

3 Ramping Margin 1 (RM1) – Available Volume, Payment and Performance Assessment

The basis for payments for Ramping Margin 1 (RM1) is the calculation of the RM1 Available Volume of the Providing Unit over a Trading Period. The Technical Offer Data, Minimum Generation and average MW Output or average MW Reduction of the Providing Unit for that Trading Period and the minimum of the Availability of the Providing Unit from the start of that Trading Period until three hours later form the basis for calculating RM1 Available Volume. The payment for the Trading Period shall be adjusted by the RM1 Scaling Factor.

3.1 RM1 Available Volume

The Available Volume of the Providing Unit to provide RM1 in a Trading Period is equal to the lesser of:

a) the Potential Ramping Margin of the Providing Unit for one hour;

b) the difference between the minimum of the Availability from the start of the Trading Period until three hours later and the average MW Output or average MW Reduction; and

c) the lowest value of Declared RM1 for the Trading Period.

Where:

Potential Ramping Margin means the increased MW Output and/or MW Reduction that a Providing Unit can provide based on its Technical Offer Data as determined by its Warmth State or Ramping Margin Limitation as appropriate.

For the avoidance of doubt, the parameters used in the calculation of Potential Ramping Margin will include but not be limited to the following: Synchronous Start-Up Time Cold; Synchronous Start-Up Time Warm and Synchronous Start-Up Time Hot.

3.2 RM1 Payments

The Service Provider will receive a payment for each MW of RM1 Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 3.2 of Part D of Schedule 4. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for RM1 Available Volume of the Providing Unit in a Trading Period is determined as:
RM1 Trading Period Payment = RM1 Available Volume x RM1 Payment Rate x RM1 Scaling Factor x Trading Period Duration

Where:

a) RM1 Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of RM1 and is calculated in accordance with Section 3.1;

b) RM1 Payment Rate is the Payment Rate (expressed in £/MWh) applicable to RM1;

c) RM1 Scaling Factor = RM1 Performance Scalar x RM1 Locational— Scalar x RM1 Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 3.2(c) above, the value of the RM1 Locational— Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 3.2(c) above, the RM1 Temporal Scarcity Scalar is an amount equal to:

- RM1TSS1 in the event that SNSP ≤60%;

or

- RM1TSS2 in the event that SNSP >60% and ≤70%;

or

- RM1TSS3 in the event that SNSP >70%;

Where:

The values of RM1TSS1, RM1TSS2 and RM1TSS3 are as defined in the Protocol document.

3.3 Assessment of RM1 Performance

In order to assess the quality of delivery of RM1 when required by the Power System, the Providing Unit will be monitored and assessed following the issue of a Dispatch Instruction by the Company. The value of the RM1 Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

4 Ramping Margin 3 (RM3) – Available Volume, Payment and Performance Assessment

The basis for payments for Ramping Margin 3 (RM3) is the calculation of the RM3 Available Volume of the Providing Unit over a Trading Period. The Technical Offer Data, Minimum Generation and average MW Output or average MW Reduction of the Providing Unit for that Trading Period and the minimum of the Availability of the Providing Unit from the start of that Trading Period until eight hours later form the basis for calculating RM3 Available Volume. The payment for the Trading Period is adjusted by the RM3 Scaling Factor.

4.1 RM3 Available Volume

The Available Volume of the Providing Unit to provide RM3 in a Trading Period is equal to the lesser of:

a) the Potential Ramping Margin of the Providing Unit for three hours;

b) the difference between the minimum of the Availability from the start of the Trading Period until eight hours later and the average MW Output or average MW Reduction; and

c) the lowest value of Declared RM3 for the Trading Period.

Where:

Potential Ramping Margin means the increased MW Output and/or MW Reduction that a Providing Unit can provide based on its Technical Offer Data as determined by its Warmth State or Ramping Margin Limitation as appropriate.

For the avoidance of doubt, the parameters used in the calculation of Potential Ramping Margin will include but not be limited to the following: Synchronous Start-Up Time Cold; Synchronous Start-Up Time Warm and Synchronous Start-Up Time Hot.

4.2 RM3 Payments

The Service Provider will receive a payment for each MW of RM3 Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 4.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for RM3 Available Volume of the Providing Unit in a Trading Period is determined as:

RM3 Trading Period Payment = RM3 Available Volume x RM3 Payment Rate x RM3 Scaling Factor x Trading Period Duration

Where:

a) RM3 Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of RM3 and is calculated in accordance with Section 4.1;

b) RM3 Payment Rate is the Payment Rate (expressed in £/MWh) applicable to RM3;

c) RM3 Scaling Factor = RM3 Performance Scalar x RM3 Locational— Scalar x RM3 Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 4.2(c) above, the value of the RM3 Locational— Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 4.2(c) above, the RM3 Temporal Scarcity Scalar is an amount equal to:

- RM3TSS1 in the event that SNSP ≤60%;
  or
- RM3TSS2 in the event that SNSP >60% and ≤70%;
  or
- RM3TSS3 in the event that SNSP >70%;

Where:
The values of RM3TSS1, RM3TSS2 and RM3TSS3 are as defined in the Protocol document.

4.3 Assessment of RM3 Performance

In order to assess the quality of delivery of RM3 when required by the Power System, the Providing Unit will be monitored and assessed following the issue of a Dispatch Instruction by the Company. The value of the RM3 Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

5 Ramping Margin 8 (RM8) - Available Volume, Payment and Performance Assessment

The basis for payments for Ramping Margin 8 (RM8) is the calculation of the RM8 Available Volume of the Providing Unit over a Trading Period. The Technical Offer Data, Minimum Generation and average MW Output or average MW Reduction of the Providing Unit for that Trading Period and the minimum of the Availability of the Providing Unit from the start of that Trading Period until sixteen hours later form the basis for calculating RM8 Available Volume. The payment for the Trading Period is adjusted by the RM8 Scaling Factor.

5.1 RM8 Available Volume

The Available Volume of the Providing Unit to provide RM8 in a Trading Period is equal to the lesser of:

a) the Potential Ramping Margin of the Providing Unit for eight hours;

b) the difference between the minimum of the Availability from the start of the Trading Period until sixteen hours later and the average MW Output or average MW Reduction; and

c) the lowest value of Declared RM8 for the Trading Period.

Where:

Potential Ramping Margin means the increased MW Output and/or MW Reduction that a Providing Unit can provide based on its Technical Offer Data as determined by its Warmth State or Ramping Margin Limitation as appropriate.

For the avoidance of doubt, the parameters used in the calculation of Potential Ramping Margin will include but not be limited to the following: Synchronous Start-Up Time Cold; Synchronous Start-Up Time Warm and Synchronous Start-Up Time Hot.

5.2 RM8 Payments

The Service Provider will receive a payment for each MW of RM8 Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 5.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for RM8 Available Volume of the Providing Unit in a Trading Period is determined as:

RM8 Trading Period Payment = RM8 Available Volume x RM8 Payment Rate x RM8 Scaling Factor x Trading Period Duration

Where:

a) RM8 Available Volume (expressed in MW) is the Available Volume of the Providing Unit in respect of RM8 and is calculated in accordance with Section 5.1;

b) RM8 Payment Rate is the Payment Rate (expressed in £/MWh) applicable to RM8;

c) RM8 Scaling Factor = RM8 Performance Scalar x RM8 Locational Scalar x RM8 Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 5.2(c) above, the value of the RM8 Locational— Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 5.2(c) above, the RM8 Temporal Scarcity Scalar is an amount equal to:

- RM8TSS1 in the event that SNSP ≤60%;
  or
- RM8TSS2 in the event that SNSP >60% and ≤70%;
  or
- RM8TSS3 in the event that SNSP >70%;

Where:

The values of RM8TSS1, RM8TSS2 and RM8TSS3 are as defined in the Protocol document.

5.3– Assessment of RM8 Performance

In order to assess the quality of delivery of RM8 when required by the Power System, the Providing Unit will be monitored and assessed following the issue of a Dispatch Instruction by the Company. The value of the RM8 Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

Part E Dynamic Reactive Response (DRR)

1 Definition of Service

Dynamic Reactive Response (DRR) is the ability of a Providing Unit connected to the Power System to deliver Reactive Current for Voltage Dips in excess of 30% of the Nominal Voltage at the Connection Point. The volume of Reactive Current required is that which would achieve at least a Reactive Power in Mvar at Nominal Voltage at the Connection Point equivalent in magnitude to 31% of the Registered Capacity of the Providing Unit. The Reactive Current shall be supplied with a Rise Time no greater than 40 ms and a Settling Time no greater than 300 ms.

2 Minimum Technical Requirements

The Service Provider must provide DRR in accordance with the technical requirements of this Part E of Schedule 4 and the relevant Operating Parameters for each Providing Unit.

Unless stated otherwise, all quantities used in DRR calculations are referenced at the Connection Point and conversion factors will be used to convert values that are not so provided where necessary.

3 Dynamic Reactive Response (DRR) - Available Volume, Payment and Performance Assessment

The basis for payments for Dynamic Reactive Response (DRR) is the calculation of the DRR Available Volume of the Providing Unit over a Trading Period. The Registered Capacity of the Providing Unit for the Trading Period forms the basis for calculating DRR Available Volume. The DRR Available Volume is the Registered Capacity of the Providing Unit for the Trading Period when Synchronised or connected to the Power System and capable of providing the service. The DRR Available Volume of the Providing Unit (as calculated in accordance with Section 3.1 of this Part E of Schedule 4) for the Trading Period is multiplied by the DRR Payment Rate to determine the payment to be made to the Service Provider for the Trading Period.

3.1 DRR Available Volume

The Available Volume of the Providing Unit to provide DRR in a Trading Period is the product of the Registered Capacity of the Providing Unit for the Trading Period and the Time-Weighted Average Declared DRR of the Providing Unit for the Trading Period for the percentage of the Trading Period where the Providing Unit is Synchronised or connected to the Power System and capable of providing DRR.

3.2 DRR Payments

The Service Provider will receive a payment for each MW of DRR Available Volume it provides from the Providing Unit in each Trading Period determined in accordance with the following provisions of this Section 3.2. Unless stated otherwise, all parameters used in the calculation of such payments are the Time Weighted Average for a Trading Period.

The payment to the Service Provider for DRR Available Volume of the Service Provider in a Trading Period is determined as:

DRR Trading Period Payment = DRR Available Volume × DRR Payment Rate × DRR Scaling Factor x Trading Period Duration

Where:

a) DRR Available Volume (expressed in MW) is the Available Volume of the Service Provider in respect of DRR and is calculated in accordance with Section 3.1. of Part E of Schedule 4;

b) DRR Payment Rate is the Payment Rate for DRR (expressed in £/MWh) applicable to DRR;

c) DRR Scaling Factor = DRR Performance Scalar x DRR Locational— Scalar x DRR Temporal Scarcity Scalar; and

d) the Trading Period Duration (expressed in hours).

For the purposes of Section 3.2(c) above, the value of the DRR Locational– Scalar is as defined in Schedule 9 and shall have a minimum value equal to 1;

For the purposes of Section 3.2(c) above, the DRR Temporal Scarcity Scalar is an amount equal to:

- DRRTSS1 in the event that SNSP ≤ 70%;

  or
- DRRTSS2 in the event that SNSP >70%;

Where:

The values of DRRTSS1 and DRRTSS2 are as defined in the Protocol document.

3.3 Assessment of DRR Performance

In order to assess the quality of delivery of DRR when required by the Power System, the Providing Unit will be monitored and assessed during a Fault Disturbance by the Company. The value of the DRR Performance Scalar will be determined based on whether the result of the Performance Assessment is a Pass or Fail.

Schedule 5

Billing and Payment Plan

1. Statement of Account and Invoicing

1.1 Within twenty five (25) Business Days after the end of each Charging Period, the Company shall submit to the Service Provider a statement of account (the "**Statement**") specifying:

(i) the ~~quantity~~ Volume of ~~–~~ Relevant DS3 System Service(s) provided and (ii) the DS3 System Services Payments due in respect of that Charging Period.

The Company shall use its reasonable endeavours to provide to the Service Provider such reasonable information as may be required to enable the Service Provider to verify the Relevant DS3 System Services provided for that Charging Period. ~~–~~ Such information shall be based on data from meters and other systems the Company may use. If, following a Charging Period, the Company is unable to obtain all or part of the information necessary to prepare a Statement, in respect of that Charging Period, then the Company shall make such estimates as are necessary to prepare a Statement for the Charging Period and provide the Service Provider with the basis for such estimates.

1.2 Following confirmation by the Company of the actual Relevant DS3 System Services provided and calculation of the correct payments due, then the Statement for the subsequent Charging Period will be revised up or down accordingly.

1.3 Within ten (10) Business Days after the date on which the Company submits to the Service Provider a Statement, the Service Provider shall either:

(a) where the Service Provider agrees with the Statement's accuracy, submit to the Company an invoice for the same aggregate amount as is specified in the Statement (the "**Invoice**") together with a written notice confirming the accuracy of the Statement; or

(b) where the Service Provider disputes the Statement's accuracy, submit to the Company an Invoice for such sum as the Service Provider, acting in good faith, believes is due together with a written notice (the "**Claim**") specifying the sum disputed and the grounds of such dispute. ~~–~~ Service Provider is only permitted to

issue an Invoice for the aggregate amount specified in the Statement. This does not prejudice the Service Provider's claim for resettlement of disputed amounts. ~~For the avoidance of doubt, the Service Provider shall not be entitled to issue an Invoice for an amount greater than the aggregate amount specified in the Statement.~~ Any claim under this Section ~~—~~ 1.3 shall be subject to the dispute resolution mechanism set out in Section 3 below.

1.4 The Service Provider shall be deemed to have agreed with the accuracy of the Statement if it fails to submit the Claim to the Company in accordance with Section 1.3.

1.5 Nothing in Sections 1.3 or 1.4 above shall prevent either Party from disputing information contained in or referred to in a Statement or an Invoice at any time where it is reasonable in all circumstances to do so, which includes in the case of fraud or manifest error. No dispute in respect of a Statement and/or invoice shall be raised after the first anniversary of the date of such Statement or Invoice.

2. Invoice Payment Date

2.1 Subject to Clause 4.2.3, within ten (10) Business Days after the Company's receipt of the Invoice, the Company shall pay to the Service Provider the sum due in respect of the Invoice by electronic transfer of funds to such bank account as may be specified in Schedule 8 or otherwise communicated in writing to the Company, quoting the invoice number against which payment is made.

2.2 Subject to Section 3, if any amount included in the Invoice remains unpaid after the time period stated in Section 2.1, then the Service Provider shall be entitled to charge interest on the amount unpaid, including interest on any Value Added Tax unpaid, in accordance with the Late Payments of Commercial Debts (Interest) Act 1998.

3. Billing and Payment Reconciliation and Dispute Resolution Mechanism

3.1 Where the Service Provider pursuant to Section 1.3 (b) disputes the Statement or the Invoice and submits a Claim to the Company:

~~(a)~~ the Parties shall use reasonable endeavours to resolve the dispute in good faith; or

(a)

(b) where the dispute remains unresolved forty (40) Business Days after the Company's receipt of the Claim, either Party may refer the dispute for resolution by the Expert in accordance with the Dispute Resolution Procedure; and

(c) following resolution of the dispute, any amount agreed or determined to be payable shall be paid within ten (10) Business Days after such agreement or determination and interest shall accrue on such amounts plus Valued Added Tax (if any) from the date such amount was originally due until the date of payment in accordance with the Late Payments of Commercial Debts (Interest) Act 1998.

Schedule 6

Dispute Resolution Procedure

1. Internal Discussion

1.1 Either Party may notify the other Party following the occurrence or discovery of any item or event which the notifying Party acting in good faith considers to be a dispute under the Agreement.

1.2 Within twenty (20) Business Days of the notice in Paragraph 1.1, either Party ("first Party") may, if considered appropriate and by further notice to the other Party ("second Party"), appoint a senior company official with expertise in the area of dispute to represent it. The second Party shall then also appoint a senior company official with expertise in the area of dispute to represent it and shall notify the first Party accordingly within a further ten (10) Business Days. The Parties shall procure that their respective representatives meet within ten (10) Business Days after the date of the second Party's notice and attempt in good faith to satisfactorily resolve the dispute.

2. Referral to Arbitration

If the dispute shall fail to be resolved pursuant to Paragraph 1.2 within thirty five (35) Business Days of the meeting referred to then, save where expressly stated to the contrary in this Agreement or where this Agreement provides that a dispute shall be referred to the Expert or the Regulatory Authority for resolution and subject to any contrary provision of the Order or a Licence or the rights, powers, duties and obligations of the Regulatory Authority or the Secretary of State under the Order, any Licence or otherwise, either Party may refer such dispute to arbitration pursuant to the rules of the Electricity Arbitration Association in force from time to time.

3. Expert

If a dispute shall fail to be resolved pursuant to Paragraph 1.2 within thirty five (35) Business Days of the meeting referred to then, where any provision of this Agreement provides for any matter to be referred to or resolved by the Expert, any dispute or difference arising in connection with any such provision between the parties shall be and is hereby referred to the Expert. The following provisions shall apply between the Parties with respect to any matter, difference or dispute under this Agreement which is to be referred to an Expert:

(a) The Expert shall be appointed by the Parties, or in default of agreement upon such appointment within seven (7) days of a Party notifying the other Party of its decision to refer the matter to an Expert, the Expert shall be appointed by the President for the time being of the EAA.

(b) The Expert will resolve or settle such matter or dispute in such manner as he shall in his absolute discretion see fit and shall act as expert and not as arbitrator. The Expert shall be requested to reach his decision within thirty (30) days of the matter being referred to him. Any decision of the Expert shall, subject to any provision to the contrary in this Agreement, be final and binding on the Parties.

(c) Unless otherwise determined by the Expert, the costs of the Expert in settling or determining such matter or dispute shall be borne equally by the Parties.

4. Proper Law

Whatever the nationality, residence or domicile of either Party and wherever the dispute or difference or any part thereof arose the law of Northern Ireland shall be the proper law of any reference to arbitration hereunder and in particular (but not so as to derogate from the generality of the foregoing) the provisions of the Arbitration Act 1996 shall apply to any such arbitration wherever the same or any part of it shall be conducted and the place of the arbitration shall be in England and Wales.

5. Third Party Claims (I)

Subject always to paragraph 8, if any third party (being a person who is not a party to this Agreement) brings any legal proceedings in any court against either Party to this Agreement (the "Defendant Contracting Party"), and the Defendant Contracting Party wishes to make a Third Party Claim (as defined in paragraph 7) against the other Party (a "Contracting Party") which would but for this paragraph 5 have been a dispute or difference referred to arbitration by virtue of paragraph 2 then, notwithstanding the provisions of paragraph 2 which shall not apply and in lieu of arbitration, the court in which the legal proceedings have been commenced shall hear and completely determine and adjudicate upon the legal proceedings and the Third Party Claim not only between the third party and the Defendant Contracting Party but also between either or both of them and the other Contracting Party whether by way of third party proceedings or otherwise as may be ordered by the court.

6. Third Party Claims (2)

Where a Defendant Contracting Party makes a Third Party Claim against the other Contracting Party and such Contracting Party wishes to make a Third Party Claim against the other Contracting Party the provisions of paragraph 5 shall apply mutatis mutandis as if such Contracting Party had been the Defendant Contracting Party and similarly in relation to any such further Contracting Party.

7. Third Party Claims (3)

For the purposes of this Schedule 6 "Third Party Claim" shall mean:

7.1 any claim by a Defendant Contracting Party against a Contracting Party (whether or riot already a party to the legal proceedings) for any contribution or indemnity;

7.2 any claim by a Defendant Contracting Party against such a Contracting Party for any relief or remedy relating to or connected with the subject matter of the legal proceedings and substantially,

the same as some relief or remedy claimed by the third party; or

7.3 any requirement by a Defendant Contracting Party that any question or issue relating to or connected with the subject matter of the legal proceedings should be determined not only as between the third party and the Defendant Contracting Party but also as between either or both of them and a Contracting Party (whether or not already a party to the legal proceedings).

8 Limitation

Paragraph 5 shall apply only if at the time the legal proceedings are commenced no arbitration has been commenced between the Defendant Contracting Party and the other Contracting Party raising or involving the same or substantially the same issues as would be raised by or involved in the Third Party Claim. The tribunal in any arbitration which has been commenced prior to the commencement of legal proceedings shall determine the question, in the event of dispute, whether the issues raised or involved are the same or substantially the same.

Schedule 7

Address Details, Billing Address of SONI and Address Details of The Service Provider

1. SONI Limited

a) Registered Address

SONI Limited
12 Manse Road
Belfast BT6 9RT

For the attention of Commercial Department

b) Billing Address

Accounts Payable
SONI Limited
12 Manse Road
Belfast BT6 9RT

For the attention of Commercial Department

2. SERVICE PROVIDER

[*insert address*]

For the attention of [*insert name*]

Schedule 8

Banking Details of The Service Provider

SERVICE PROVIDER

Bank Name

Address

Account Name

Sort Code

Account Number

Schedule 9

Part 1 – Providing Unit

Part 2 - Operating Parameters

1. Reserve Characteristics

The Reserve Characteristic is a generic characteristic that is applied to POR, SOR, TOR1, TOR2, RR and FFR for the purpose of calculating payments and incorporating the Operating Parameters in this Schedule 9.

Figure 1 below illustrates the generic Reserve Characteristic of the Providing Unit.
(Note: The characteristic utilises the maximum number of break points. In practice the majority of units will have a less complex structure.)

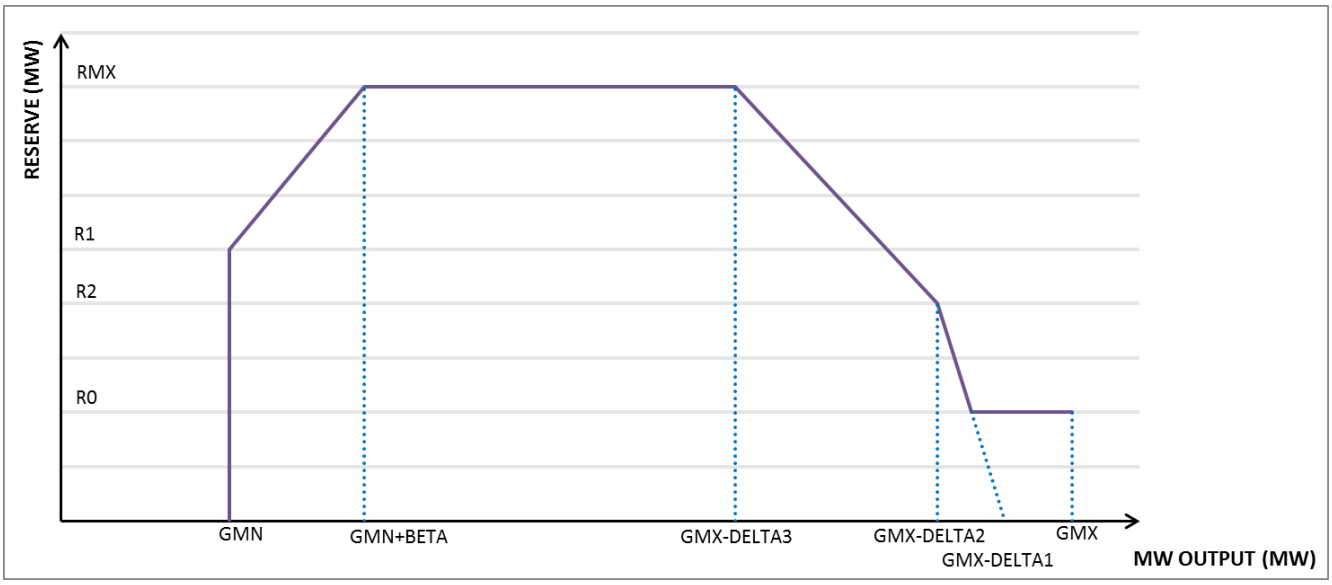


Figure 1 Reserve Characteristic

Parameters

The parameters used in this figure are:

- RMX = the maximum reserve from the Providing Unit.
- GMN = Providing Unit's minimum output for providing reserve.
- GMX = Providing Unit's average declared MW availability of the active fuel
- R1 = reserve that can be provided when MW Output is equal to GMN
- R0 = reserve that can be provided when MW Output is equal to GMX

BETA, DELTA1, DELTA2, DELTA3, and R2 define curve break points.

Points to note

- The active fuel at the start of the trading period will determine which characteristic is used for the entire trading period.
- The average declared MW availability of the active fuel will be used in the calculations.
- ~~Controllable WFPS or Dispatchable WFPS which can provide FFR and certain other Operating Reserve services both when curtailed by the TSO below their Available Active Power level and through other means will have two sets of Reserve Characteristic Parameters.~~
-

e.g. (for illustration purpose only)

TIME	MDMW	MDMW
00:00 – 00:15	GAS 200 (ACTIVE)	DIST– 150
00:15 – 00:30	GAS– 200	DIST– 100 (ACTIVE)
For the TP 00:00-00:30 time-weighted average is used	(200*15 + 100*15)/30 4500/30 = 150 MW	CALCULATIONS BASED ON 150MW USING GAS RESERVE CURVE

- A Controllable WFPS or Dispatchable WFPS which can provide FFR and certain other Operating Reserve services both when curtailed by the TSO below their Available Active Power level and through other means will have two sets of Reserve Characteristic Parameters.

Reserve Characteristic Parameters

Table 1 refers to the primary fuel of the unit and Table 2 to the secondary fuel of the unit where it exists. Table 3 should be filled in where a unit is capable of using a mixed fuel e.g. coal and oil. Tables 4 and 5 should be filled in where the unit operates in open cycle mode on either primary or secondary fuel respectively.

RESERVE CHARACTERISTIC PARAMETERS ON PRIMARY FUEL					
	POR	SOR	TOR1	TOR2	RR
RMX					
GMN					
R0					
R1					
R2					
DELTA1					
DELTA2					
DELTA3					
BETA					
PRIMARY FUEL					

Table 1: RESERVE CHARACTERISTIC PARAMETERS ON PRIMARY FUEL

RESERVE CHARACTERISTIC PARAMETERS ON SECONDARY FUEL					
	POR	SOR	TOR1	TOR2	RR
RMX					
GMN					
R0					
R1					

R2					
DELTA1					
DELTA2					
DELTA3					
BETA					
SECONDARY FUEL					

Table 2: RESERVE CHARACTERISTIC PARAMETERS ON SECONDARY FUEL

RESERVE CHARACTERISTIC PARAMETERS ON MIXED FUEL					
	POR	SOR	TOR1	TOR2	RR
RMX					
GMN					
R0					
R1					
R2					
DELTA1					
DELTA2					
DELTA3					
BETA					
MIXED FUEL					

Table 3: RESERVE CHARACTERISTIC PARAMETERS ON MIXED FUEL

RESERVE CHARACTERISTIC PARAMETERS ON PRIMARY FUEL IN OPEN CYCLE MODE					
	POR	SOR	TOR1	TOR2	RR
RMX					
GMN					
R0					
R1					
R2					
DELTA1					
DELTA2					
DELTA3					

BETA					
PRIMARY FUEL					

Table 4: RESERVE CHARACTERISTIC PARAMETERS ON PRIMARY FUEL IN OPEN CYCLE MODE

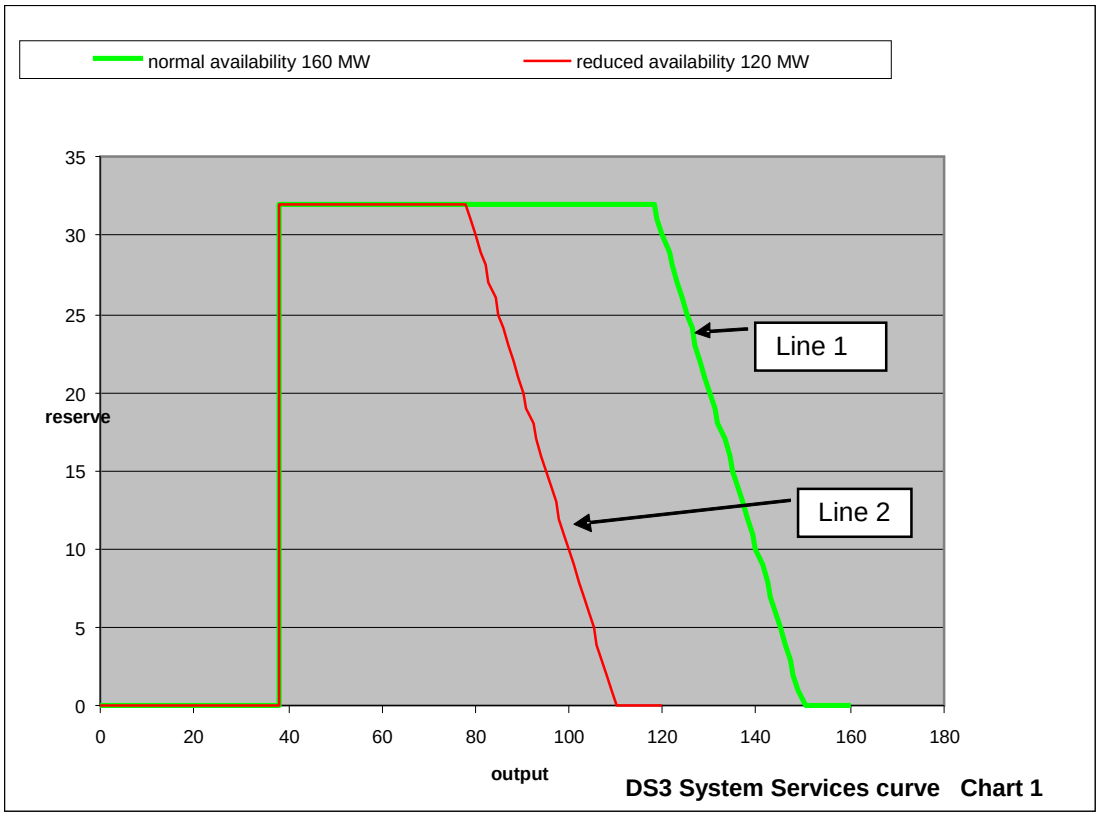
RESERVE CHARACTERISTIC PARAMETERS ON SECONDARY FUEL IN OPEN CYCLE MODE					
	POR	SOR	TOR1	TOR2	RR
RMX					
GMN					
R0					
R1					
R2					
DELTA1					
DELTA2					
DELTA3					
BETA					
SECONDARY FUEL					

Table 5: RESERVE CHARACTERISTIC PARAMETERS ON SECONDARY FUEL IN OPEN CYCLE MODE

1. Example of Reserve Characteristics and Providing Unit Availability adjustment

Note: The following is an example for illustration purposes only.

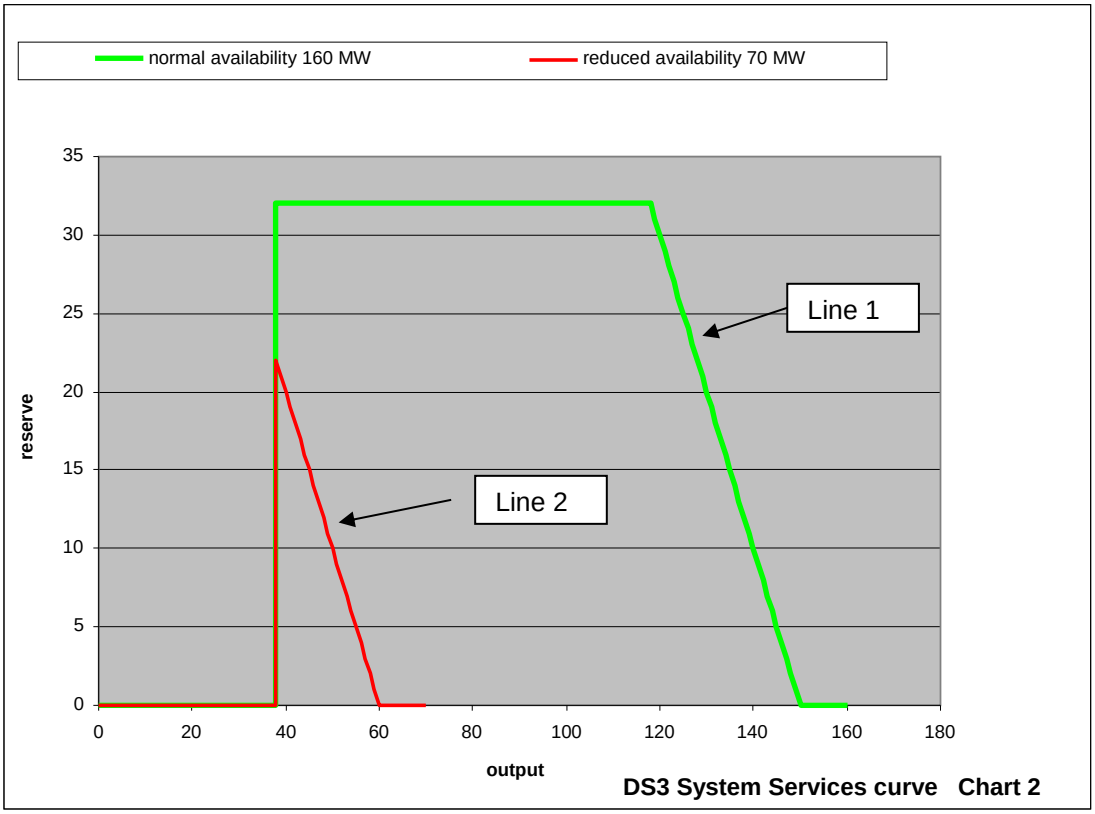
Reserve Characteristics are adjusted by the **Availability** of the **Providing Unit** in the following manner in order to determine reserve values for a given Output for different Availability values.



DS3 System Services curve Chart 1

The example in Chart 1 above uses a 160 MW generating unit.
Line 1 (green) indicates the reserve available for a given Output when the machine has Availability of 160 MW.
Line2 (red) indicates the reserve available for a given Output when the machine has Availability of 120 MW
If the generating unit Availability is reduced the original curve moves to reflect the reduction in Availability on the X axis towards zero.

For an Output of 100 MW with Availability of 160 MW the reserve available is 32 MW.
For an Output of 100 MW with Availability of 120 MW the reserve available is 10 MW



The example in chart 2 above uses a 160 MW generating unit.

Line 1 (green) indicates the reserve available for a given Output when the machine has Availability of 160 MW.

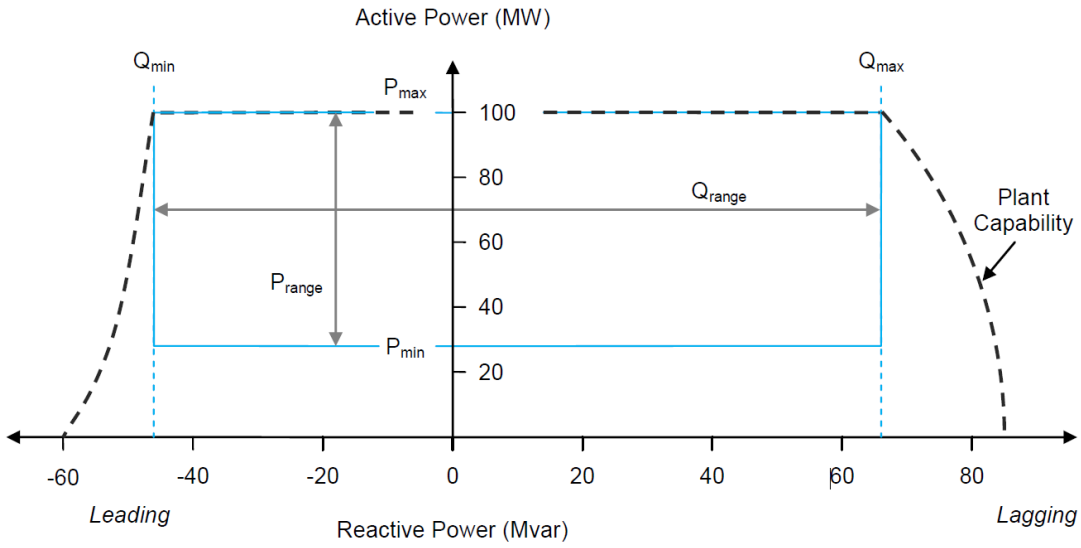
Line2 (red) indicates the reserve available for a given Output when the machine has Availability of 70 MW.

For an Output of 50 MW with Availability of 160 MW the reserve available is 32 MW.

For an Output of 50 MW with Availability of 70 MW the reserve available is 10 MW.

2. Reactive Power PQ diagram

Service Provider to provide PQ diagram for Providing Unit in format below illustrating Reactive power range across Active Power range at Nominal Voltage.



Service Provider to provide PQ capability for Providing Unit in table below illustrating Reactive power range across Active Power range at Nominal Voltage:

TABLE 6 - PQ Capability			
Registered Capacity			
% RCAP	**P**	**Q Lead**	**Q Lag**
0.00 of RCAP	0.0		
0.05 of RCAP	0.0		
0.10 of RCAP	0.0		
0.12 of RCAP	0.0		
0.15 of RCAP	0.0		
0.20 of RCAP	0.0		
0.25 of RCAP	0.0		
0.30 of RCAP	0.0		
0.35 of RCAP	0.0		
0.40 of RCAP	0.0		
0.45 of RCAP	0.0		
0.50 of RCAP	0.0		
0.55 of RCAP	0.0		
0.60 of RCAP	0.0		
0.65 of RCAP	0.0		
0.70 of RCAP	0.0		
0.75 of RCAP	0.0		
0.80 of RCAP	0.0		
0.85 of RCAP	0.0		
0.90 of RCAP	0.0		
0.95 of RCAP	0.0		
1.00 of RCAP	0.0		

Dual-shaft or three-shaft Providing Unit which is part of a CCGT installation			
TABLE 7 - PQ Capability (GAS TURBINE)			
Registered Capacity (GAS TURBINE)			
% RCAP	**P**	**Q Lead**	**Q Lag**
0.00 of RCAP	0.0		
0.05 of RCAP	0.0		
0.10 of RCAP	0.0		
0.12 of RCAP	0.0		
0.15 of RCAP	0.0		
0.20 of RCAP	0.0		
0.25 of RCAP	0.0		
0.30 of RCAP	0.0		
0.35 of RCAP	0.0		
0.40 of RCAP	0.0		
0.45 of RCAP	0.0		
0.50 of RCAP	0.0		
0.55 of RCAP	0.0		
0.60 of RCAP	0.0		
0.65 of RCAP	0.0		
0.70 of RCAP	0.0		
0.75 of RCAP	0.0		
0.80 of RCAP	0.0		
0.85 of RCAP	0.0		
0.90 of RCAP	0.0		
0.95 of RCAP	0.0		
1.00 of RCAP	0.0		

Dual-shaft or three-shaft Providing Unit which is part of a CCGT installation			
TABLE 8 - PQ Capability (STEAM TURBINE)			
Registered Capacity (STEAM TURBINE)			
% RCAP	**P**	**Q Lead**	**Q Lag**
0.00 of RCAP	0.0		
0.05 of RCAP	0.0		
0.10 of RCAP	0.0		
0.12 of RCAP	0.0		
0.15 of RCAP	0.0		
0.20 of RCAP	0.0		
0.25 of RCAP	0.0		
0.30 of RCAP	0.0		
0.35 of RCAP	0.0		
0.40 of RCAP	0.0		
0.45 of RCAP	0.0		
0.50 of RCAP	0.0		
0.55 of RCAP	0.0		
0.60 of RCAP	0.0		
0.65 of RCAP	0.0		
0.70 of RCAP	0.0		
0.75 of RCAP	0.0		
0.80 of RCAP	0.0		
0.85 of RCAP	0.0		
0.90 of RCAP	0.0		
0.95 of RCAP	0.0		
1.00 of RCAP	0.0		

Non-synchronous Providing Unit with negative Active Power range			
TABLE 9 - PQ Capability (Non-Synchronous with negative Active Power range)			
Registered Capacity			
% RCAP	**P**	**Q Lead**	**Q Lag**
-1.00 of RCAP	0.0		
-0.95 of RCAP	0.0		
-0.90 of RCAP	0.0		
-0.85 of RCAP	0.0		
-0.80 of RCAP	0.0		
-0.75 of RCAP	0.0		
-0.70 of RCAP	0.0		
-0.65 of RCAP	0.0		
-0.60 of RCAP	0.0		
-0.55 of RCAP	0.0		
-0.50 of RCAP	0.0		
-0.45 of RCAP	0.0		
-0.40 of RCAP	0.0		
-0.35 of RCAP	0.0		
-0.30 of RCAP	0.0		
-0.25 of RCAP	0.0		
-0.20 of RCAP	0.0		
-0.15 of RCAP	0.0		
-0.10 of RCAP	0.0		
-0.05 of RCAP	0.0		
0.00 of RCAP	0.0		
0.05 of RCAP	0.0		
0.10 of RCAP	0.0		
0.12 of RCAP	0.0		
0.15 of RCAP	0.0		
0.20 of RCAP	0.0		
0.25 of RCAP	0.0		
0.30 of RCAP	0.0		
0.35 of RCAP	0.0		
0.40 of RCAP	0.0		
0.45 of RCAP	0.0		
0.50 of RCAP	0.0		
0.55 of RCAP	0.0		
0.60 of RCAP	0.0		

0.65 of RCAP	0.0		
0.70 of RCAP	0.0		
0.75 of RCAP	0.0		
0.80 of RCAP	0.0		
0.85 of RCAP	0.0		
0.90 of RCAP	0.0		
0.95 of RCAP	0.0		
1.00 of RCAP	0.0		

3. Additional Operating Parameters

Name	Description	Units	Value
Declaration Flag for MDMW (Declared Generation Available)~~Declaration Flag for MDMW (Declared Generation Available)~~	Flags whether the Providing Unit sends declarations for MDMW through EDIL~~Flags whether the Providing Unit sends declarations for MDMW through EDIL~~	N/A	-
Declaration Flag for MNMW (Minimum Generation Available)~~Declaration Flag for MNMW (Minimum Generation Available)~~	Flags whether the Providing Unit sends declarations for MNMW through EDIL~~Flags whether the Providing Unit sends declarations for MNMW through EDIL~~	N/A	-
Declaration Flag for FUEL (Current Fuel Being Used)~~Declaration Flag for FUEL (Current Fuel Being Used)~~	Flags whether the Providing Unit sends declarations for FUEL through EDIL~~Flags whether the Providing Unit sends declarations for FUEL through EDIL~~	N/A	-
Declaration Flag for DRR (Ability to provide DRR)~~Declaration Flag for POR (Primary Operating Reserve Availability)~~	Flags whether the Providing Unit sends declarations for DRR through EDIL~~Flags whether the Providing Unit sends declarations for POR through EDIL~~	N/A	-
Declaration Flag for FPFAPR (Ability to provide FPFAPR)~~Declaration Flag for SOR (Secondary Operating Reserve Availability)~~	Flags whether the Providing Unit sends declarations for FPFAPR through EDIL~~Flags whether the Providing Unit sends declarations for SOR through EDIL~~	N/A	-
Declaration Flag for FFR (Fast Frequency Response Availability)~~Declaration Flag for TOR1 (Tertiary 1 Operating Reserve Availability)~~	Flags whether the Providing Unit sends declarations for FFR through EDIL~~Flags whether the Providing Unit sends declarations for TOR1 through EDIL~~	N/A	-
Declaration Flag for POR (Primary Operating Reserve Availability)~~Declaration Flag for TOR2 (Tertiary 2 Operating Reserve Availability)~~	Flags whether the Providing Unit sends declarations for POR through EDIL~~Flags whether the Providing Unit sends declarations for TOR2 through EDIL~~	N/A	-
Declaration Flag for SOR (Secondary Operating Reserve Availability)~~Declaration Flag for RRA (Replacement Reserve Availability)~~	Flags whether the Providing Unit sends declarations for SOR through EDIL ~~Flags whether the Providing Unit sends declarations for RRA through EDIL~~	N/A	-

Name	Description	Units	Value
Declaration Flag for TOR1 (Tertiary 1 Operating Reserve Availability)~~Declaration Flag for MDLD (Maximum MVAR Leading)~~	Flags whether the Providing Unit sends declarations for TOR1 through EDIL~~Flags whether the Providing Unit sends declarations for MDLD through EDIL~~	N/A	-
Declaration Flag for TOR2 (Tertiary 2 Operating Reserve Availability)~~Declaration Flag for MDLG (Maximum MVAR Lagging)~~	Flags whether the Providing Unit sends declarations for TOR2 through EDIL ~~Flags whether the Providing Unit sends declarations for MDLG through EDIL~~	N/A	-
Declaration Flag for RRA (Replacement Reserve Availability)~~Declaration Flag for AVR (Ability to act under AVR)~~	Flags whether the Providing Unit sends declarations for RRA through EDIL~~Flags whether the Providing Unit sends declarations for AVR through EDIL~~	N/A	-
Declaration Flag for MDLD (Maximum MVAR Leading)~~Declaration Flag for RM1 (Ramping Margin 1-3 hours)~~	Flags whether the Providing Unit sends declarations for MDLD through EDIL~~Flags whether the Providing Unit sends declarations for RM1 through EDIL~~	N/A	-
Declaration Flag for MDLG (Maximum MVAR Lagging)~~Declaration Flag for RM3 (Ramping Margin 3-8 hours)~~	Flags whether the Providing Unit sends declarations for MDLG through EDIL~~Flags whether the Providing Unit sends declarations for RM3 through EDIL~~	N/A	-
Declaration Flag for AVR (Ability to act under AVR)~~Declaration Flag for RM8 (Ramping Margin 8-16 hours)~~	Flags whether the Providing Unit sends declarations for AVR through EDIL~~Flags whether the Providing Unit sends declarations for RM8 through EDIL~~	N/A	-
Declaration Flag for RM1 (Ramping Margin 1-3 hours)~~Product Scalar for POR~~	Flags whether the Providing Unit sends declarations for RM1 through EDIL ~~Value of the Product Scalar for POR payments.~~	N/A	-
Declaration Flag for RM3 (Ramping Margin 3-8 hours)~~Initial Performance Scalar for POR~~	Flags whether the Providing Unit sends declarations for RM3 through EDIL ~~Value of the Initial Performance Scalar for POR payments.~~	N/A	-
Declaration Flag for RM8 (Ramping Margin 8-16 hours)~~Product Scalar for multi-POR Providing Units~~	Flags whether the Providing Unit sends declarations for RM8 through EDIL~~Value of the Product Scalar for Static POR payments, for Providing Units which can provide both dynamic and static reserve types which should be remunerated at different rates.~~	N/A	-

Name	Description	Units	Value
Declaration Flag for Emulated Inertia Availability Signal~~Product Scalar for SOR~~	Flags whether a WFPS unit has a real-time Emulated Inertia availability volume signal in place. ~~Value of the Product Scalar for SOR payments.~~	N/A	-
Declaration Flag for DSM FFR Availability Signal~~Initial Performance Scalar for SOR~~	Flags whether a DSM unit has a real-time FFR availability volume signal in place ~~Value of the Initial Performance Scalar for SOR payments.~~	N/A	-
Declaration Flag for DSM POR Availability Signal~~Product Scalar for multi-SOR Providing Units~~	Flags whether a DSM unit has a real-time POR availability volume signal in place~~Value of the Product Scalar for Static SOR payments, for Providing Units which can provide both dynamic and static reserve types which should be remunerated at different rates.~~	N/A	-
Declaration Flag for DSM SOR Availability Signal~~Product Scalar for TOR1~~	Flags whether a DSM unit has a real-time SOR availability volume signal in place ~~Value of the Product Scalar for TOR1 payments.~~	N/A	-
Declaration Flag for DSM TOR1 Availability Signal~~Initial Performance Scalar for TOR1~~	Flags whether a DSM unit has a real-time TOR1 availability volume signal in place ~~Value of the Initial Performance Scalar for TOR1 payments.~~	N/A	-
Declaration Flag for DSM TOR2 Availability Signal~~Product Scalar for multi-TOR1 Providing Units~~	Flags whether a DSM unit has a real-time TOR2 availability volume signal in place~~Value of the Product Scalar for Static TOR1 payments, for Providing Units which can provide both dynamic and static reserve types which should be remunerated at different rates.~~	N/A	-
Declaration Flag for DSM RR Availability Signal~~Initial Performance Scalar for TOR2~~	Flags whether a DSM unit has a real-time RR availability volume signal in place ~~Value of the Initial Performance Scalar for TOR2 payments.~~	N/A	-
Declaration Flag for DSM RM1 Availability Signal~~Initial Performance Scalar for RRS~~	Flags whether a DSM unit has a real-time RM1 availability volume signal in place ~~Value of the Initial Performance Scalar for RRS payments.~~	N/A	-
Declaration Flag for DSM RM3 Availability Signal~~Initial Performance Scalar for RRD~~	Flags whether a DSM unit has a real-time RM3 availability volume signal in place~~Value of the Initial Performance Scalar for RRD payments.~~	N/A	-
Declaration Flag for DSM RM8 Availability Signal~~Initial Performance Scalar for RM1~~	Flags whether a DSM unit has a real-time RM8 availability volume signal in place~~Value of the Initial Performance Scalar for RM1 payments.~~	N/A	-
Initial Performance Scalar for DRR~~Initial Performance Scalar for RM3~~	Value of the Initial Performance Scalar for DRR payments.~~Value of the Initial Performance Scalar for RM3 payments.~~	N/A	-

Name	Description	Units	Value
Locational Scarcity Scalar for DRRInitial Performance Scalar for RM8	Value of the Locational Scarcity Scalar for DRR payments.Value of the Initial Performance Scalar for RM8 payments.	N/A	-
Initial Performance Scalar for FPFAPRProviding Unit Type	Value of the Initial Performance Scalar for FPFAPR payments.Defines the Providing Unit type as one of the following categories: 0 = CDGU (including AGU) 3 = CDGU with sync comp 10 = Pumped Storage 20 = Interconnector 30 = DSU 40 = Wind Farm Power Station/Power Park Module 60 = Battery	N/A	-
Locational Scarcity Scalar for FPFAPRFlag for combined cycle	Value of the Locational Scarcity Scalar for FPFAPR payments.This parameter indicates whether a synchronous Providing Unit is a: 0 = single-shaft 1 = dual-shaft 2 = three-combined cycle	N/A	-
Product Scalar for the Faster Response of FFRFlag for split voltage declarations	Value of the Product Scalar for the Fast Response of FFR applicable to FFR payments.This parameter indicates whether a synchronous dual-shaft/three-shaft Providing Unit sends voltage related declarations as a combined cycle Providing Unit (= 0) or separately for the GT and ST (=1).	N/A	-
Product Scalar for the Enhanced Delivery of FFRFlag for Available Active Power signal	Value of the Product Scalar for the Enhanced Delivery of FFR applicable to FFR payments.This parameter indicates whether a non-synchronous Providing Unit sends an Available Active Power signal through EMS, primarily a signal sent by WFPS (Wind Farm Power Station) and PPM (Power Park Module).	N/A	-
Product Scalar for Continuous Provision of FFRFlag for Energy Storage Unit	Value of the Product Scalar for the Continuous Provision of FFR applicable to FFR payments.This parameter indicates whether a non-synchronous Providing Unit is limited by Energy Storage and sends a Percentage Energy Stored signal through EMS, (primarily a signal sent by a battery).	N/A	-
Payment Flag for FFR Emulated InertiaFlag for Remaining MWh	Indicator to control whether a WFPS unit is to be paid for the provision of FFR through Emulated Inertia.This parameter indicates whether a Providing Unit is Energy Limited and sends a Remaining MWh signal through EMS, (primarily a signal sent by hydro and pumped storage	N/A	

Name	Description	Units	Value
	~~generators).~~		
Product Scalar for FFR via Emulated Inertia 1~~Flag for Default RM1~~	Value of the Product Scalar 1 for the Provision of FFR through Emulated Inertia.~~This parameter indicates whether a Providing Unit can quick-start from a desynchronised state within 1 hour.~~	N/A	
Product Scalar for FFR via Emulated Inertia 2~~Flag for Default RM3~~	Value of the Product Scalar 2 for the Provision of FFR through Emulated Inertia.~~This parameter indicates whether a Providing Unit can quick-start from a desynchronised state within 3 hours~~	N/A	
Product Scalar for FFR via Emulated Inertia 3~~Flag for Default RM8~~	Value of the Product Scalar 3 for the Provision of FFR through Emulated Inertia.~~This parameter indicates whether a Providing Unit can quick-start from a desynchronised state within 8 hours~~	N/A	
Product Scalar for FFR via Emulated Inertia 4~~Kinetic Energy~~	Value of the Product Scalar 4 for the Provision of FFR through Emulated Inertia.~~The product of Base MVA and Inertial constant~~	N/A~~MWs~~	
Product Scalar for FFR via Emulated Inertia 5~~Base MVA used for Kinetic Energy calculation~~	Value of the Product Scalar 5 for the Provision of FFR through Emulated Inertia.~~For single-shaft Providing Units, sets the kinetic energy of the Providing Unit.~~	N/A~~MVA~~	-
Product Scalar for FFR via Emulated Inertia 6~~Inertial Constant~~	Value of the Product Scalar 6 for the Provision of FFR through Emulated Inertia.~~For single-shaft Providing Units, sets the kinetic energy of the Providing Unit.~~	N/A~~s~~	-
Initial Performance Scalar for FFR~~Kinetic Energy for GT~~	Value of the Initial Performance Scalar for POR payments.~~The product of Base MVA and Inertial constant of the GT~~	N/A~~MWs~~	-
Locational Scarcity Scalar for FFR~~Base MVA used for Kinetic Energy calculation for GT~~	Value of the Locational Scarcity Scalar for FFR payments.~~For dual-shaft and three-shaft combined cycle Providing Units, sets the kinetic energy of the GT of Providing Unit.~~	N/A~~MVA~~	-
Contracted Response Time for the Provision of FFR~~Inertial Constant for GT~~	Contracted value of the fastest response time that a Providing Unit is capable of in response to the frequency falling through the Reserve Trigger. ~~For dual-shaft and three-shaft combined cycle Providing Units, sets the kinetic energy of the GT of Providing Unit.~~	N/A~~s~~	-
Flag for Dynamic or Static Capability in Provision of FFR~~Kinetic Energy for ST~~	Defines the Providing Unit's capability in the provision of the FFR Service: D = Dynamic S = Static~~The product of Base MVA and Inertial constant of the ST~~	N/A~~MWs~~	-
Contracted Reserve Trigger Capability for FFR~~Base MVA~~	Contracted value of the frequency set point that represents the maximum capability of the Providing	HZ~~MVA~~	-

Name	Description	Units	Value
~~used for Kinetic Energy calculation for ST~~	Unit with either dynamic or static capability in providing FFR in response to a Reserve Trigger.~~For dual-shaft and three-shaft combined cycle Providing Units, sets the kinetic energy of the ST of Providing Unit.~~		
Contracted Reserve Trigger Capability for FFR Through Emulated Inertia~~Inertial Constant for ST~~	Contracted value of the frequency set point that represents the maximum capability of the Providing Unit in providing FFR through Emulated Inertia in response to a Reserve Trigger.~~For dual-shaft and three-shaft combined cycle Providing Units, sets the kinetic energy of the ST of Providing Unit.~~	HZ~~s~~	-
Contracted Maximum Response Trajectory in Provision of Dynamic FFR~~Minimum MW for full synchronisation~~	Contracted value of the most sensitive response trajectory that a providing unit with dynamic capability is capable of in providing FFR in response to a Reserve Trigger.~~For synchronous Providing Units the MW threshold value, for which full synchronisation is assumed for that Providing Unit, when its Average MW Output is greater than or equal to this value.~~	HZ~~MW~~	-
Contracted Minimum Response Trajectory in Provision of Dynamic FFR~~Minimum MW for partial synchronisation~~	Contracted value of the least sensitive response trajectory that a providing unit with dynamic capability is capable of in providing FFR in response to a Reserve Trigger.~~For synchronous Providing Units the MW threshold value, for which partial synchronisation is assumed for that Providing Unit, when its Average MW Output is greater than or equal to this value.~~	HZ~~MW~~	-
Contracted Maximum Number of Discrete Steps in Provision of Static FFR~~Minimum MW for SC Mode~~	Contracted value of the maximum number of discrete steps that a Providing Unit with static capability is capable of in providing FFR in response to a Reserve Trigger.~~For synchronous Providing Units capable of operating in synchronous compensation mode the (negative) MW threshold value, for which full synchronisation in SC mode is assumed for that Providing Unit when its Average MW Output is less than or equal to this value.~~	N/A~~MW~~	-
Contracted Maximum Number of Discrete Steps in Provision of FFR Through Emulated Inertia ~~Minimum MW for partial SC Mode~~	Contracted value of the maximum number of discrete steps that a Providing Unit is capable of in providing FFR through Emulated Inertia in response to a Reserve Trigger.~~For synchronous Providing Units capable of operating in synchronous compensation mode the (negative) MW threshold value, for which partial synchronisation in SC mode is assumed for that Providing Unit, when its Average MW Output is less than or equal to this value.~~	N/A~~MW~~	-

Name	Description	Units	Value
Contracted Maximum Discrete Step Value in Provision of Static FFR~~Minimum Pump Capacity~~	Contracted value of the largest discrete step that a Providing Unit with static capability is capable of in providing FFR in response to a Reserve Trigger.~~For synchronous Providing Units capable of operating in synchronous demand load, the (negative) MW threshold value for which synchronisation as pump is assumed for that Providing Unit, when their Average MW Output is less than or equal to this value.~~	MW	
Contracted Maximum Discrete Step Value in Provision of FFR Through Emulated Inertia~~Minimum partial Pump~~	Contracted value of the largest discrete step that a Providing Unit is capable of in providing FFR through Emulated Inertia in response to a Reserve Trigger.~~For synchronous Providing Units capable of operating in synchronous demand load, the (negative) MW threshold value, for which partial synchronisation as pump is assumed for that Providing Unit, when their Average MW Output is less than or equal to this value.~~	MW	
Flag for Hysteresis Capability in Provision of Static FFR~~Registered Capacity~~	Defines the ability of a Providing Unit with static capability to utilise hysteresis in the provision of the FFR Service: Y = Hysteresis Capability N = No Hysteresis Capability~~The Registered Capacity for single-shaft synchronous Providing Units and for non-synchronous Providing Units.~~	N/A~~MW~~	-
Flag for Delayed Energy Recovery ~~Registered Capacity on alternative fuel~~	Defines the Providing Unit's capability to delay its energy recovery: Y = Delayed Recovery Capability N = No Delayed Recovery Capability~~The Registered Capacity on alternative fuel for Providing Units~~	N/A~~MW~~	-
Product Scalar for Enhanced Delivery of POR~~Registered Capacity of GT~~	Value of the Product Scalar for POR payments.~~The Registered Capacity for dual-shaft and three-shaft combined cycle synchronous Providing Units.~~	N/A~~MW~~	-
Initial Performance Scalar for POR~~Registered Capacity of ST~~	Value of the Initial Performance Scalar for POR payments.~~The Registered Capacity for dual-shaft and three-shaft combined cycle synchronous Providing Units.~~	N/A~~MW~~	-
Locational Scarcity Scalar for POR~~Minimum MW for Steady-state Reactive Power~~	Value of the Locational Scarcity Scalar for POR payments.~~The MW threshold value for which non-synchronous Providing Units which can only operate as generators, will be considered capable or providing the SSRP service, when their Average MW Output is greater than or equal to this value.~~	N/A~~MW~~	-

Name	Description	Units	Value
Product Scalar for multi-POR Providing Units~~Minimum Negative MW for Steady-state Reactive Power~~	Value of the Product Scalar for Static POR payments, for Providing Units which can provide both dynamic and static reserve types which should be remunerated at different rates.~~The negative MW threshold value for which Providing Units which primarily operate by demanding active power, will be considered capable or providing the SSRP service when their Average MW Output is less than or equal to ths value.~~	N/A~~MW~~	-
Payment Flag for POR Emulated Inertia~~Contracted Maximum Dispatchable MVAR Leading~~	Indicator to control whether a WFPS unit is to be paid for the provision of POR through Emulated Inertia.~~The contracted value of MVAR Leading for a Providing Unit.~~	N/A~~MVAR~~	-
Product Scalar for POR via Emulated Inertia 1~~Contracted Maximum Dispatchable MVAR Lagging~~	Value of the Product Scalar 1 for the Provision of POR through Emulated Inertia.~~The contracted value of MVAR Lagging for a Providing Unit.~~	N/A~~MVAR~~	-
Product Scalar for POR via Emulated Inertia 2~~Contracted Maximum Dispatchable MVAR Leading when in synchronous compensation mode~~	Value of the Product Scalar 2 for the Provision of POR through Emulated Inertia.~~The contracted value of MVAR Leading for a Providing Unit when operating in synchronous compensation mode.~~	N/A~~MVAR~~	-
Product Scalar for POR via Emulated Inertia 3~~Contracted Maximum Dispatchable MVAR Lagging when in synchronous compensation mode~~	Value of the Product Scalar 3 for the Provision of POR through Emulated Inertia.~~The contracted value of MVAR Lagging for a Providing Unit when operating in synchronous compensation mode.~~	N/A~~MVAR~~	-
Product Scalar for POR via Emulated Inertia 4~~Contracted Maximum Dispatchable MVAR Leading for GT~~	Value of the Product Scalar 4 for the Provision of POR through Emulated Inertia.~~The contracted value of MVAR Leading for the GT of a combined cycle Providing Unit.~~	N/A~~MVAR~~	-
Product Scalar for POR via Emulated Inertia 5~~Contracted Maximum Dispatchable MVAR Lagging for GT~~	Value of the Product Scalar 5 for the Provision of POR through Emulated Inertia.~~The contracted value of MVAR Lagging for the GT of a combined cycle Providing Unit.~~	N/A~~MVAR~~	-
Product Scalar for POR via Emulated Inertia 6~~Contracted Maximum Dispatchable MVAR Leading for ST~~	Value of the Product Scalar 6 for the Provision of POR through Emulated Inertia.~~The contracted value of MVAR Leading for the ST of a combined cycle Providing Unit.~~	N/A~~MVAR~~	-

Name	Description	Units	Value
Flag for Dynamic or Static Capability in Provision of PORContracted Maximum Dispatchable MVAR Lagging for ST	Defines the Providing Unit's capability in the provision of the POR Service: D = Dynamic S = StaticThe contracted value of MVAR Lagging for the ST of a combined cycle Providing Unit.	N/AMVAR	-
Contracted Reserve Trigger Capability for PORContracted Ability to act under Automatic Voltage Regulation	Contracted value of the frequency set point that represents the maximum capability of the Providing Unit with either dynamic or static capability in providing POR in response to a Reserve Trigger.The contracted value for AVR for a Providing Unit (which is not a combined cycle gas turbine).	HZN/A	-
Contracted Reserve Trigger Capability for POR Through Emulated InertiaContracted Ability to act under Automatic Voltage Regulation for GT	Contracted value of the frequency set point that represents the maximum capability of the Providing Unit in providing POR through Emulated Inertia in response to a Reserve Trigger.The contracted value for AVR for GT of a combined cycle Providing Unit.	HZN/A	-
Product Scalar for Enhanced Delivery of SORContracted Ability to act under Automatic Voltage Regulation for ST	Value of the Product Scalar for SOR payments.The contracted value for AVR for ST of a combined cycle Providing Unit.	N/A	
Initial Performance Scalar for SORContracted Maximum Stored Capacity	Value of the Initial Performance Scalar for SOR payments.The contracted Maximum Stored Capacity of the Providing Unit in the case of Energy Storage Power Station.	N/A	
Locational Scarcity Scalar for SORContracted POR Energy Stored Limit Low	Value of the Locational Scarcity Scalar for SOR payments.The contracted POR Energy Stored Limit Low of the Providing Unit in the case of Energy Storage Power Station.	N/A	
Product Scalar for multi-SOR Providing UnitsContracted POR Energy Stored Limit High	Value of the Product Scalar for Static SOR payments, for Providing Units which can provide both dynamic and static reserve types which should be remunerated at different rates.The contracted POR Energy Stored Limit High of the Providing Unit in the case of Energy Storage Power Station.	N/A	
Flag for Dynamic or Static Capability in Provision of SORContracted SOR Energy Stored Limit Low	Defines the Providing Unit's capability in the provision of the SOR Service: D = Dynamic S = StaticThe contracted SOR Energy Stored Limit Low of the Providing Unit in the case of Energy Storage Power Station.	N/A	
Contracted Reserve Trigger Capability for SORContracted SOR Energy Stored Limit High	Contracted value of the frequency set point that represents the maximum capability of the Providing Unit with either dynamic or static capability in providing SOR in response to a Reserve Trigger.The	HZN/A	-

Name	Description	Units	Value
	contracted SOR Energy Stored Limit High of the Providing Unit in the case of Energy Storage Power Station.		
Product Scalar for Enhanced Delivery of TOR1Contracted TOR1 Energy Stored Limit Low	Value of the Product Scalar for TOR1 payments.The contracted TOR1 Energy Stored Limit Low of the Providing Unit in the case of Energy Storage Power Station.	N/A	-
Initial Performance Scalar for TOR1Contracted TOR1 Energy Stored Limit High	Value of the Initial Performance Scalar for TOR1 payments.The contracted TOR1 Energy Stored Limit High of the Providing Unit in the case of Energy Storage Power Station.	N/A	-
Locational Scarcity Scalar for TOR1Contracted TOR2 Energy Stored Limit Low	Value of the Locational Scarcity Scalar for TOR1 payments.The contracted TOR2 Energy Stored Limit Low of the Providing Unit in the case of Energy Storage Power Station.	N/A	-
Product Scalar for multi-TOR1 Providing UnitsContracted TOR2 Energy Stored Limit High	Value of the Product Scalar for Static TOR1 payments, for Providing Units which can provide both dynamic and static reserve types which should be remunerated at different rates.The contracted TOR2 Energy Stored Limit High of the Providing Unit in the case of Energy Storage Power Station.	N/A	
Flag for Dynamic or Static Capability in Provision of TOR1Contracted RR Energy Stored Limit Low	Defines the Providing Unit's capability in the provision of the TOR1 Service: D = Dynamic S = StaticThe contracted RR Energy Stored Limit Low of the Providing Unit in the case of Energy Storage Power Station.	N/A	
Contracted Reserve Trigger Capability for TOR1Contracted RR Energy Stored Limit High	Contracted value of the frequency set point that represents the maximum capability of the Providing Unit with either dynamic or static capability in providing TOR1 in response to a Reserve Trigger.The contracted RR Energy Stored Limit High of the Providing Unit in the case of Energy Storage Power Station.	HZN/A	-
Initial Performance Scalar for TOR2Contracted Static POR Providing Unit	Value of the Initial Performance Scalar for TOR2 payments.This parameter indicates whether a synchronous Providing Unit can be interrupted in POR timeframe when operating in synchronous compensation mode or synchronous demand mode to provide static reserve.	N/A	
Locational Scarcity Scalar for TOR2Contracted Static SOR Providing Unit	Value of the Locational Scarcity Scalar for TOR2 payments.This parameter indicates whether a synchronous Providing Unit can be interrupted in SOR timeframe when operating in	N/A	

Name	Description	Units	Value
	~~synchronous compensation mode or synchronous demand mode to provide static reserve.~~		
Initial Performance Scalar for RRS~~Contracted Static TOR1 Providing Unit~~	Value of the Initial Performance Scalar for RRS payments.~~This parameter indicates whether a synchronous Providing Unit can be interrupted in TOR1 timeframe when operating in synchronous compensation mode or synchronous demand mode to provide static reserve.~~	N/A	
Locational Scarcity Scalar for RRS~~Contracted Static TOR2 Providing Unit~~	Value of the Locational Scarcity Scalar for RRS payments.~~This parameter indicates whether a synchronous Providing Unit can be interrupted in TOR2 timeframe when operating in synchronous compensation mode or synchronous demand mode to provide static reserve.~~	N/A	
Initial Performance Scalar for RRD~~Contracted Static RRS Providing Unit~~	Value of the Initial Performance Scalar for RRD payments.~~This parameter indicates whether a synchronous Providing Unit can be interrupted in RRS timeframe when operating in synchronous compensation mode or synchronous demand mode to provide static reserve.~~	N/A	
Locational Scarcity Scalar for RRD~~Contracted Maximum POR from pumped storage station~~	Value of the Locational Scarcity Scalar for RRD payments.~~This parameter reflects the hydrological limit and the total POR Volume that can be provided by the sum of all Providing Units at a pumped storage station.~~	N/A~~MW~~	-
Initial Performance Scalar for RM1~~Contracted turbine POR from Standstill mode~~	Value of the Initial Performance Scalar for RM1 payments.~~The contracted capability of a pumped storage to provide generator POR from Standstill mode.~~	N/A~~MW~~	-
Locational Scarcity Scalar for RM1~~Contracted turbine POR from Pump mode~~	Value of the Locational Scarcity Scalar for RM1 payments.~~The contracted capability of a pumped storage to provide generator POR from Pump mode.~~	N/A~~MW~~	-
Initial Performance Scalar for RM3~~Contracted turbine SOR from Standstill mode~~	Value of the Initial Performance Scalar for RM3 payments.~~The contracted capability of a pumped storage to provide generator SOR from Standstill .~~	N/A~~MW~~	-
Locational Scarcity Scalar for RM3~~Contracted turbine SOR from Pump mode~~	Value of the Locational Scarcity Scalar for RM3 payments.~~The contracted capability of a pumped storage to provide generator SOR from Pump mode.~~	N/A~~MW~~	-

Name	Description	Units	Value
Initial Performance Scalar for RM8~~Contracted turbine TOR1 from Standstill mode~~	Value of the Initial Performance Scalar for RM8 payments.~~The contracted capability of a pumped storage to provide generator TOR1 from Standstill mode.~~	N/A~~MW~~	-
Locational Scarcity Scalar for RM8~~Contracted turbine TOR1 from Pump mode~~	Value of the Locational Scarcity Scalar for RM8 payments.~~The contracted capability of a pumped storage to provide generator TOR1 from Pump mode.~~	N/A~~MW~~	-
Initial Performance Scalar for SSRP~~Contracted turbine TOR2 from Standstill mode~~	Value of the Initial Performance Scalar for SSRP payments.~~The contracted capability of a pumped storage to provide generator TOR2 from Standstill mode~~	N/A~~MW~~	-
Locational Scarcity Scalar for SSRP~~Contracted turbine TOR2 from Pump mode~~	Value of the Locational Scarcity Scalar for SSRP payments.~~The contracted capability of a pumped storage to provide generator TOR2 from Pump mode.~~	N/A~~MW~~	-
Locational Scarcity Scalar for SIR~~Contracted turbine RR from Standstill mode~~	Value of the Locational Scarcity Scalar for SIR payments.~~The contracted capability of a pumped storage to provide generator RR from Standstill mode.~~	N/A~~MW~~	-
Providing Unit Type~~Contracted turbine RR from Pump mode~~	Defines the Providing Unit type as one of the following categories: 0 = CDGU (including AGU) 3 = CDGU with sync comp 10 = Pumped Storage 20 = Interconnector 30 = DSU 40 = Wind Farm Power Station/Power Park Module 60 = Battery~~The contracted capability of a pumped storage to provide generator RR from Pump mode~~	N/A~~MW~~	-
Flag for combined cycle~~Contracted generator POR from SC mode~~	This parameter indicates whether a synchronous Providing Unit is a: 0 = single-shaft 1 = dual-shaft 2 = three-combined cycle~~The contracted capability to provide generator POR for a Providing Unit which is operating in synchronous compensation mode.~~	N/A~~MW~~	-
Flag for split voltage declarations~~Contracted generator SOR from SC mode~~	This parameter indicates whether a synchronous dual-shaft/three-shaft Providing Unit sends voltage related declarations as a combined cycle Providing Unit (= 0) or separately for the GT and ST (=1).~~The contracted capability to provide generator SOR for a Providing Unit which is operating in synchronous compensation mode.~~	N/A~~MW~~	-

Name	Description	Units	Value
Flag for Available Active Power signal~~Contracted generator TOR1 from SC mode~~	This parameter indicates whether a non-synchronous Providing Unit sends an Available Active Power signal through EMS, primarily a signal sent by WFPS (Wind Farm Power Station) and PPM (Power Park Module).~~The contracted capability to provide generator TOR1 for a Providing Unit which is operating in synchronous compensation mode.~~	N/A~~MW~~	-
Flag for Energy Storage Unit~~Contracted generator TOR2 from SC mode~~	This parameter indicates whether a non-synchronous Providing Unit is limited by Energy Storage and sends a Percentage Energy Stored signal through EMS, (primarily a signal sent by a battery).~~The contracted capability to provide generator TOR2 for a Providing Unit which is operating in synchronous compensation mode.~~	N/A~~MW~~	-
Flag for Remaining MWh~~Contracted generator RR from SC mode~~	This parameter indicates whether a Providing Unit is Energy Limited and sends a Remaining MWh signal through EMS, (primarily a signal sent by hydro and pumped storage generators)~~The contracted capability to provide generator RR for a Providing Unit which is operating in synchronous compensation mode.~~	N/A~~MW~~	-
Flag for Default RM1~~Contracted Maximum POR Available Volume~~	This parameter indicates whether a Providing Unit can quick-start from a desynchronised state within 1 hour.~~The Contracted Maximum POR Available Volume for a Providing Unit.~~	N/A~~MW~~	-
Flag for Default RM3~~Contracted Maximum SOR Available Volume~~	This parameter indicates whether a Providing Unit can quick-start from a desynchronised state within 3 hours~~The Contracted Maximum SOR Available Volume for a Providing Unit.~~	N/A~~MW~~	-
Flag for Default RM8~~Contracted Maximum TOR1 Available Volume~~	This parameter indicates whether a Providing Unit can quick-start from a desynchronised state within 8 hours~~The Contracted Maximum TOR1 Available Volume for a Providing Unit.~~	N/A~~MW~~	-
Kinetic Energy~~Contracted Maximum TOR2 Available Volume~~	The product of Base MVA and Inertial constant~~The Contracted Maximum TOR2 Available Volume for a Providing Unit.~~	MWs~~MW~~	-
Base MVA used for Kinetic Energy calculation~~Contracted Maximum RRS Available Volume~~	For single-shaft Providing Units, sets the kinetic energy of the Providing Unit.~~The Contracted Maximum RRS Available Volume for a Providing Unit.~~	MVA~~MW~~	-
Inertial Constant~~Contracted Maximum RRD Available Volume~~	For single-shaft Providing Units, sets the kinetic energy of the Providing Unit. ~~The Contracted Maximum RRD Available Volume for a Providing Unit.~~	s~~MW~~	-

Name	Description	Units	Value
Kinetic Energy for GTContracted Trip Order Sequence for pumped storage unit	The product of Base MVA and Inertial constant of the GTThe contracted trip order sequence (i.e. 1, 2, 3, 4) by which the units in pumped storage station are interrupted during a frequency event.	MWsN/A	-
Base MVA used for Kinetic Energy calculation for GTContracted Minimum Load for pumped storage unit	For dual-shaft and three-shaft combined cycle Providing Units, sets the kinetic energy of the GT of Providing Unit.The contracted Minimum Load for that pumped storage unit.	MVAMW	-
Inertial Constant for GTContracted capability to perform fuel changeover within 1 hour	For dual-shaft and three-shaft combined cycle Providing Units, sets the kinetic energy of the GT of Providing Unit.The contracted capability of a Providing Unit which can operate on multiple fuels to perform a fuel changeover within 1 hour.	sN/A	-
Kinetic Energy for STContracted capability to perform fuel changeover within 3 hours	The product of Base MVA and Inertial constant of the STThe contracted capability of a Providing Unit which can operate on multiple fuels to perform a fuel changeover within 3 hours.	MWsN/A	-
Base MVA used for Kinetic Energy calculation for STContracted capability to perform fuel changeover within 8 hours	For dual-shaft and three-shaft combined cycle Providing Units, sets the kinetic energy of the ST of Providing Unit.The contracted capability of a Providing Unit which can operate on multiple fuels to perform a fuel changeover within 8 hours.	MVAN/A	-
Inertial Constant for STMaximum Ramping Margin 1-3 hours	For dual-shaft and three-shaft combined cycle Providing Units, sets the kinetic energy of the ST of Providing Unit.The contracted 'Maximum Ramping Margin 1-3 hours' for that Providing Unit.	sMW	-
Minimum MW for full synchronisationMaximum Ramping Margin 3-8 hours	For synchronous Providing Units the MW threshold value, for which full synchronisation is assumed for that Providing Unit, when its Average MW Output is greater than or equal to this value.The contracted 'Maximum Ramping Margin 3-8 hours' for that Providing Unit.	MW	-
Minimum MW for partial synchronisationMaximum Ramping Margin 8-16 hours	For synchronous Providing Units the MW threshold value, for which partial synchronisation is assumed for that Providing Unit, when its Average MW Output is greater than or equal to this value.The contracted 'Maximum Ramping Margin 8-16 hours' for that Providing Unit.	MW	-
Minimum MW for SC ModeDefault Maximum Ramping Margin 1-3 hours	For synchronous Providing Units capable of operating in synchronous compensation mode the (negative) MW threshold value, for which full synchronisation in SC mode is assumed for that Providing Unit when its Average MW Output is less	MW	-

Name	Description	Units	Value
	than or equal to this value.~~The Default Maximum Ramping Margin 1-3 hours, which is assumed for Providing Units capable of quick-start from a desynchronised state.~~		
Minimum MW for partial SC Mode~~Default Maximum Ramping Margin 3-8 hours~~	For synchronous Providing Units capable of operating in synchronous compensation mode the (negative) MW threshold value, for which partial synchronisation in SC mode is assumed for that Providing Unit, when its Average MW Output is less than or equal to this value.~~The Default Maximum Ramping Margin 3-8 hours, which is assumed for Providing Units capable of quick-start from a desynchronised state~~	MW	-
Minimum Pump Capacity~~Default Maximum Ramping Margin 8-16 hours~~	For synchronous Providing Units capable of operating in synchronous demand load, the (negative) MW threshold value for which synchronisation as pump is assumed for that Providing Unit, when their Average MW Output is less than or equal to this value.~~The Default Maximum Ramping Margin 8-16 hours, which is assumed for Providing Units capable of quick-start from a desynchronised state~~	MW	-
Minimum partial Pump ~~Contracted Maximum SIR Available Volume~~	For synchronous Providing Units capable of operating in synchronous demand load, the (negative) MW threshold value, for which partial synchronisation as pump is assumed for that Providing Unit, when their Average MW Output is less than or equal to this value.~~The Maximum SIR Available Volume for a Providing Unit~~	MW~~MWs^2~~	-
Registered Capacity~~Contracted Maximum SIR Available Volume in combined cycle mode~~	The Registered Capacity for single-shaft synchronous Providing Units and for non-synchronous Providing Units.~~The Maximum SIR Available Volume in combined cycle mode, for a dual- or three-shaft combined cycle machine Providing Units~~	MW~~MWs^2~~	-
Registered Capacity on alternative fuel~~Contracted Maximum SIR Available Volume in open cycle mode~~	The Registered Capacity on alternative fuel for Providing Units~~The Maximum SIR Available Volume in open cycle mode, for a dual- or three-shaft combined cycle machine Providing Units~~	MW~~MWs^2~~	-
Registered Capacity of GT~~Contracted Maximum SIR Available Volume in half combined cycle mode~~	The Registered Capacity for dual-shaft and three-shaft combined cycle synchronous Providing Units.~~The Maximum SIR Available Volume in half combined cycle mode, for a three-shaft combined cycle machine Providing Units~~	MW~~MWs^2~~	-
Registered Capacity of ST~~Contracted Maximum SIR Available Volume in synchronous~~	The Registered Capacity for dual-shaft and three-shaft combined cycle synchronous Providing Units. ~~The Maximum SIR Available Volume in synchronous compensation mode, for a~~	MW~~MWs^2~~	-

Name	Description	Units	Value
~~compensation mode~~	~~Providing Unit which can operate in synchronous compensation mode~~		
Minimum MW for Provision of FFR through Emulated Inertia~~Contracted Maximum SIR Available Volume in pump mode~~	Value of the minimum output below which a WFPS unit is not available to provide FFR through Emulated Inertia.~~The Maximum SIR Available Volume in pump mode, for a Providing Unit which can operate in pump mode~~	MW~~MWs^2~~	-
Minimum MW for Provision of POR through Emulated Inertia~~Contracted Maximum SSRP Available Volume~~	Value of the minimum output below which a WFPS unit is not available to provide POR through Emulated Inertia.~~The Maximum SSRP Available Volume for a Providing Unit~~	MW~~MVAr~~	-
Threshold for MW Export for Synchronous Compensator~~Contracted Maximum SSRP Available Volume in combined cycle mode~~	The contracted value of the MW limit beyond which a synchronous compensator is deemed to be providing power to the system. Used to determine if a unit is operating at 0MW within tolerances.~~The Maximum SSRP Available Volume in combined cycle mode, for a dual- or three-shaft combined cycle machine Providing Units~~	MW~~MVAr~~	-
Threshold for MW Export for Wind Farm Unit~~Contracted Maximum SSRP Available Volume in open cycle mode~~	The contracted value of the MW limit beyond which a WFPS is deemed to be providing power to the system. Used to determine if a unit is operating at 0MW within tolerances.~~The Maximum SSRP Available Volume in open cycle mode, for a dual- or three-shaft combined cycle machine Providing Units~~	MW~~MVAr~~	-
Threshold for MW Export for Energy Storage Unit~~Contracted Maximum SSRP Available Volume in half combined cycle mode~~	Contracted value of the maximum MW limit beyond which an ESU is deemed to be providing power to the system. Used to determine if a unit is operating at 0MW within tolerances.~~The Maximum SSRP Available Volume in half combined cycle mode, for a three-shaft combined cycle machine Providing Units~~	MW~~MVAr~~	-
Threshold for Charge for Energy Storage Unit~~Contracted Maximum SSRP Available Volume in synchronous compensation mode~~	Contracted value of the maximum MW limit (negative number) beyond which an ESU is deemed to be drawing power from the system. Used to determine if a unit is operating at 0MW within tolerances.~~The Maximum SSRP Available Volume in synchronous compensation mode, for a Providing Unit which can operate in synchronous compensation mode~~	MW~~MVAr~~	-
Threshold for Import for Interconnector~~Contracted Maximum SSRP Available Volume in pump mode~~	Value of the contracted maximum MW limit beyond which an IC is deemed to be providing power to the system. Used to determine if a unit is operating at 0MW within tolerances.~~The Maximum SSRP Available Volume in pump mode, for a Providing~~	MW~~MVAr~~	-

Name	Description	Units	Value
	~~Unit which can operate in pump mode~~		
Threshold for Export for Interconnector~~Contracted Maximum RM1 Available Volume~~	Value of the contracted maximum MW limit beyond which an IC is deemed to be exporting power from the system. Used to determine if a unit is operating at 0MW within tolerances.~~The Contracted Maximum RM1 Available Volume for a Providing Unit~~	MW	-
Minimum MW for Steady-state Reactive Power~~Contracted Maximum RM3 Available Volume~~	The MW threshold value for which non-synchronous Providing Units which can only operate as generators, will be considered capable of providing the SSRP service, when their Average MW Output is greater than or equal to this value.~~The Contracted Maximum RM3 Available Volume for a Providing Unit~~	MW	-
Minimum Negative MW for Steady-state Reactive Power~~Contracted Maximum RM8 Available Volume~~	The negative MW threshold value for which Providing Units which primarily operate by demanding active power, will be considered capable of providing the SSRP service when their Average MW Output is less than or equal to this value.~~The Contracted Maximum RM8 Available Volume for a Providing Unit~~	MW	-
Threshold for Provision of Steady-state Reactive Power Leading~~Governor Droop~~	The contracted value of SSRP leading limit (negative number) beyond which the unit is considered to be providing reactive power (leading) to the system. Used to identify if unit is providing reactive power to system above tolerances.-	MVAR~~%~~	-
Threshold for Provision of Steady-state Reactive Power Lagging~~Export Adjustment Factor 1~~	The contracted value of the SSRP lagging limit (positive number) beyond which the unit is considered to be providing reactive power (lagging) to the system. Used to identify if unit is providing reactive power to system above tolerances.-	MVAR~~N/A~~	-
Cable Network Charging Capacitance for a WFPS Unit ~~Export Adjustment Factor 2~~	The contracted value of the maximum MVAR that a WFPS Unit absorbs to offset cable charging to achieve 0 MVAR at the Connection Point.-	MVAR~~N/A~~	-
Contracted Maximum Dispatchable MVAR Leading~~POR Governor Droop Multiplier Alpha~~	The contracted value of MVAR Leading for a Providing Unit.-	MVAR~~N/A~~	-
Contracted Maximum Dispatchable MVAR Lagging~~POR Governor Droop Multiplier Beta~~	The contracted value of MVAR Lagging for a Providing Unit. -	MVAR~~N/A~~	-
Contracted Maximum Dispatchable MVAR Leading when in synchronous	The contracted value of MVAR Leading for a Providing Unit when operating in synchronous compensation mode.~~The machine capacity~~	MVAR~~MW~~	-

Name	Description	Units	Value
compensation mode~~Governor Droop Providing Unit Related Capacity~~	~~relating to the operation of the Frequency control system of a Providing Unit~~		
Contracted Maximum Dispatchable MVAR Lagging when in synchronous compensation mode~~Inertia Response~~	The contracted value of MVAR Lagging for a Providing Unit when operating in synchronous compensation mode.	MVAR~~MW~~	
Contracted Maximum Dispatchable MVAR Leading for GT~~Inertia Response Calculation Tolerance~~	The contracted value of MVAR Leading for the GT of a combined cycle Providing Unit.	MVAR~~MW~~	

Note: The Operating Parameters table above is a generic list of Providing Unit Operating Parameters and may be amended on a Providing Unit basis.

Parameters for FFR, DRR and FPFAPR (~~Qualifcation~~Qualification Trial Process):

Name	Description	Units	Value
Declaration Flag for DRR (Ability to provide DRR)	Flags whether the Providing Unit sends declarations for DRR through EDIL	N/A	

Name	Description	Units	Value
Contracted Dynamic Reactive Response	The value of contracted Dynamic Reactive Response of the Providing Unit	N/A	
Minimum MW for Dynamic Reactive Response	The MW threshold value for non-synchronous Providing Units which can only operate as generators, when their Average MW Output is greater or equal to, will be considered capable ~~or~~of providing the DRR service.	MW	
Contracted Dynamic Reactive Response for GT	The value of contracted Dynamic Reactive Response of the GT of the combined cycle Providing Unit.	N/A	
Contracted Dynamic Reactive Response for ST	The value of contracted Dynamic Reactive Response of the ST of the combined cycle Providing Unit.	N/A	
Minimum Negative MW for Dynamic Reactive Response	The negative MW threshold value for which Providing Units which primarily operate by demanding active power, when their Average MW Output is less than or equal to, will be considered capable ~~or~~of providing the DRR service.	MW	
Contracted Maximum DRR Available Volume	The contracted Maximum DRR Available Volume for a Providing Unit.	MW	
Declaration Flag for FFR (Fast Frequency Response Availability)	Flags whether the Providing Unit sends declarations for FFR through EDIL	N/A	
Contracted FFR Energy Stored Limit Low	The contracted FFR Energy Stored Limit Low of the Providing Unit in the case of Energy Storage Power Station.	N/A	
Contracted FFR Energy Stored Limit High	The contracted FFR Energy Stored Limit High of the Providing Unit in the case of Energy Storage Power Station.	N/A	
Contracted Static FFR Providing Unit	This parameter indicates whether a synchronous Providing Unit can be interrupted in FFR timeframe when operating in synchronous compensation mode or synchronous demand mode to provide static reserve.	N/A	
Contracted Maximum FFR from pumped storage station	This parameter reflects the hydrological limit and the total FFR Volume that can be provided by the sum of all Providing Units at a pumped storage station.	MW	
Contracted turbine FFR from Standstill mode	The contracted capability of a pumped storage to provide generator FFR from Standstill mode.	MW	
Contracted turbine FFR from Pump mode	The contracted capability of a pumped storage to provide generator FFR from Pump mode.	MW	
Contracted generator FFR from SC mode	The contracted capability to provide generator FFR for a Providing Unit which is operating in synchronous compensation mode.	MW	
Contracted Maximum FFR Available Volume	The contracted Maximum FFR Available Volume for a Providing Unit.	MW	
Declaration Flag for FPFAPR (Ability to provide	Flags whether the Providing Unit sends declarations for FPFAPR through EDIL	N/A	

Name	Description	Units	Value
FPFAPR)			
Contracted Ability to provide Fast Post Fault Active Power Recovery	The contracted value for AVR for a Providing Unit (which is not a combined cycle gas turbine).	N/A	
Contracted Maximum FPFAPR Available Volume	The contracted Maximum FPFAPR Available Volume for a Providing Unit.	MW	

CALCULATION VALUES TABLE

Input

All values entered through EDIL -which are required for calculations in this Agreement have the precision detailed in the table below.

EDIL Parameter	Acronym as displayed in EDIL GUI	Data Type	Unit of Measurement	Precision
Fast Frequency Response	FFR	Float	MW	1
Ramping Margin 1 Hour	RM1	Float	MW	1
Ramping Margin 3 Hour	RM3	Float	MW	1
Ramping Margin 8 Hour	RM8	Float	MW	1
Dynamic Reactive Response	DRR	Binary	None	Yes = 1 / No = 0
Fast Post Fault Active Power Recovery	FPFAPR	Binary	None	Yes = 1 / No = 0
Maximum Generation Available	MDMW	Integer	MW	0
Minimum Generation Available	MNMW	Integer	MW	0

Primary Operating Reserve	POR	Float	MW	1
Secondary Operating Reserve	SOR	Float	MW	1
Tertiary 1 Operating Reserve	TOR1	Float	MW	1
Tertiary 2 Operating Reserve	TOR2	Float	MW	1
Replacement Reserve	RRA	Float	MW	1
Maximum MVAR Leading	MDLD	Float	MVAr	1
Maximum MVAR Lagging	MDLG	Float	MVAr	1
Ability to act under AVR	AVR	Binary	None	Yes = 1 / No = 0
Current Fuel Being Used	FUEL	Text	None	N/A

Output

Where input data is reflected in output reports, the output data shall be displayed to the same level of accuracy as required for the corresponding input data.
Where payment data is reflected in output reports, the payment data shall be displayed to two decimal places.
Where SIR, RM1, RM3, RM8, FFR, FPFAPR and DRR payment data is calculated by the settlement system, at both the Trading Period and monthly level, it will be calculated to floating point precision (7 digits).
Where POR, SOR, TOR1, TOR2, RRS, RRD and SSRP payment data is calculated by the settlement system, at both the Trading Period and monthly level, it will be calculated to two decimal places and any parameters used in calculating the final payment data will be rounded to two decimal places.

Output Values	**Unit of Measurement**	**No. of Decimal Places**
Sums to be Paid	£	2

Calculations

All calculations within the software used by the Company for DS3 System Services shall be calculated to floating point precision (7 digits).

Part 3- Provision of DS3 System Service by the Providing Unit

The Service Provider shall provide the following Relevant DS3 System Services from the Providing Unit:

[list of services]

For the avoidance of doubt, the Service Provider shall have no obligation to provide the following DS3 System Services from the Providing Unit save where required under the Grid Code:

[list of services]