



**THIS REACTIVE MARKET ANCILLARY SERVICES AGREEMENT** is made the  
day of \_\_\_\_\_ 2012

**BETWEEN:-**

- (1) **NATIONAL GRID ELECTRICITY TRANSMISSION plc** a company registered in England with number 2366977 whose registered office is at 1-3 Strand, London, WC2N 5EH ("**The Company**") which expression shall include its permitted successors and/or assigns); and
- (2) [ ] a company registered in [England/Scotland]<sup>1</sup> with number [ ] whose registered office is at [ ] (the "**Generator**") which expression shall include its permitted successors and/or assigns).

**WHEREAS:-**

- (A) **The Company** and the **Generator** are parties to a **Mandatory Services Agreement** [dated [ ]] in respect of [ ] **Power Station** ("the **MSA**").
- (B) Clause 3 of the **MSA** gives effect to the provisions of paragraph 2 of Schedule 3, Part I to the **Connection and Use of System Code** ("the **CUSC Schedule**") with respect to the payments to be made by **The Company** to the **Generator** for the provision by the **Generator** of the **Obligatory Reactive Power Service** from the **BM Unit[s]** at the [ ] **Power Station**.
- (C) For the duration of its term, this Reactive Market Ancillary Services Agreement ("**Market Agreement**") replaces certain provisions of the **MSA** and sets out alternative terms upon which the **Generator** has agreed to provide the [**Obligatory**] [**Enhanced**]<sup>2</sup> **Reactive Power Service** from the **BM Unit(s)** pursuant to paragraph 3 of the **CUSC Schedule**.

**NOW IT IS HEREBY AGREED** as follows:-

**1. DEFINITIONS, INTERPRETATION AND CONSTRUCTION**

Unless the subject matter otherwise requires or is inconsistent therewith or unless expressly defined in Schedule A, the definitions contained or referred to in Section 11 of the **Connection and Use of System Code**, in the **CUSC Schedule** and in Appendix 3 to the **MSA** have the same meanings, interpretations and construction in this **Market Agreement** as though the same were set out in full in this **Market Agreement**. In addition, the further definitions set out in Schedule A to this **Market Agreement** shall apply.

**2. COMMENCEMENT, TERM AND SUSPENSION**

- 2.1 This **Market Agreement** shall apply to **Settlement Days** from 1<sup>st</sup> April 2012 and, subject always to earlier termination in accordance with Clause 5 hereof, shall continue in force and effect until the earlier of:-
  - (i) 24.00 hours on [ ]; or

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<sup>1</sup> To be deleted as applicable depending on whether the Generator is from England/Wales or Scotland .

<sup>2</sup> To be deleted as applicable depending on whether an Obligatory or Enhanced Reactive Power Service is being provided.

(ii) the date of termination of the **CUSC Schedule** or the **MSA**.

For the avoidance of doubt, in the event this **Market Agreement** is terminated in relation to any individual **BM Unit**, the provisions of this **Market Agreement** shall terminate in relation to that **BM Unit** only.

- 2.2 For the duration of this **Market Agreement**, in relation to any **BM Unit** to which this **Market Agreement** applies, the provisions of Clause 3 of the **MSA** (except Sub-Clause 3.2) shall be suspended and have no force and effect.
- 2.3 Nothing in this **Market Agreement** shall affect the rights and obligations of the **Parties** accrued under the terms of Clause 3 of the **MSA** as at the date this **Market Agreement** comes into effect.

### 3. SERVICE PROVISION AND PAYMENT

#### 3.1 Provision of the [Obligatory][Enhanced]<sup>2</sup> Reactive Power Service

3.1.1 Subject as herein provided, the **Generator** hereby agrees to provide the **[Obligatory][Enhanced]<sup>2</sup> Reactive Power Service** from each **BM Unit**.

3.1.2 The **Parties** agree that, for the purpose of Appendix 2 to the **CUSC Schedule**:-

- (a) the figures set out in Tables B of Schedule B, Part I represent for each relevant **BM Unit** the **Reactive Power** capability at **Rated MW** [which the **Generator** is obliged to provide under and in accordance with the **Connection Conditions** of the **Grid Code**][which the **Generator** has agreed to provide in excess of that which the **Generator** is obliged to provide under and in accordance with the **Connection Conditions** of the **Grid Code**]<sup>2</sup>, together with **Reactive Power** capability at **Full Output** and at other levels of MW output as specified therein, by reference to the **Generator Performance Chart** submitted in accordance with **Grid Code OC2.4.2** and in each case being measured at the generator stator terminals; and
- (b) the figures set out in Tables A of Schedule B, Part I shall constitute for each relevant **BM Unit** the values of  $QC_{lead}$  and  $QC_{lag}$  referred to in Section 2 of Appendix 3 to the **CUSC Schedule** representing the **Reactive Power** capability of that **BM Unit** at **Nominated Registered Capacity** shown at the **Commercial Boundary**. The **Nominated Registered Capacity** shall be equivalent to the **Full Output** shown in summary Table(s) B, Part I and such **Reactive Power** capability shall be derived by application of the formulae set out in Schedule B, Part II.

For the avoidance of doubt, the values of  $QC_{lead}$  and  $QC_{lag}$  shall remain fixed throughout the duration of this **Market Agreement** notwithstanding any change in the **Registered Capacity** of the **BM Unit** or any change in technical provisions relevant to Schedule B, Part II.

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<sup>2</sup> To be deleted as applicable depending on whether an Obligatory or Enhanced Reactive Power Service is being provided.

<sup>3</sup> Additional terms to be included if an Enhanced Reactive Power Service is provided by the Generator.

- [3.1.3<sup>3</sup> Subject always to Sub-Clause 3.1.4, the **Generator** agrees that, in relation to each **BM Unit**, it shall comply with each of the obligations contained in the **Grid Code** with regard to **Reactive Power** as if the minimum **Reactive Power** capability required by **Grid Code CC 6.3.2** was substituted by the **Reactive Power** capability at **Rated MW** specified in Table B of Schedule B, Part I and the **Grid Code** shall be read and construed accordingly.]
- [3.1.4<sup>3</sup> It is hereby acknowledged and agreed that, to the extent a **BM Unit** is providing **Reactive Power** by virtue of operating outside of the minimum capability required by the Connection Conditions of the **Grid Code**, then notwithstanding **Grid Code CC 6.3.4** the **Reactive Power** output at  $QC_{lead}$  and  $QC_{lag}$  under steady state conditions shall be available across the voltage range specified in Table C of Schedule B, Part I.]
- [3.1.5<sup>3</sup> Where as a result of voltage changes on the **System**, a **BM Unit**, following the issue of a **Reactive Despatch Instruction** given by **The Company** in accordance with Sub-Clause 3.3.1, is operating outside of the **Reactive Power** capability specified in Sub-Clause 3.1.2(b), the **Generator** will not take any action to vary the level of **Leading** or **Lagging** Mvar (as the case may be) being provided by that **BM Unit** except as permitted by **Grid Code BC 2.5.4**.]
- [3.1.6<sup>4</sup> The figures for **Reactive Power** capability set out in Table A of Schedule B, Part I are specified at an ambient air temperature of [ ] °C. It is hereby acknowledged that the level of **Reactive Power** output will vary in accordance with changes to the ambient air temperature as shown in Table D of Schedule B, Part 1.]

## 3.2 Redeclarations

- 3.2.1 For the avoidance of doubt, nothing in this **Market Agreement** shall affect the provisions of **Grid Code OC2** and/or **BC** concerning the redeclaration in relation to any of the **BM Units** of a revised capability to provide **Leading** and/or **Lagging** Mvar at the generator stator terminals[, for the avoidance of doubt including in relation to the **Enhanced Reactive Power Service**]<sup>3</sup>. All such redeclarations submitted pursuant thereto may include the revised capability at the **Commercial Boundary** at the then applicable **Registered Capacity**, which shall be derived from the capability at the generator stator terminals by application of the formulae set out in Schedule B, Part II.
- 3.2.2 Where a redeclaration of capability to provide **Leading** and/or **Lagging** Mvar does not specify the revised capability at the then applicable **Registered Capacity** at the **Commercial Boundary**, then for the purposes of this **Market Agreement** **The Company** shall calculate the revised capability at the then applicable **Registered Capacity** at the **Commercial Boundary** by application of the formulae set out in Schedule B, Part II.
- 3.2.3 The **Generator** shall immediately advise **The Company** in accordance with Sub-Clause 3.2.1 of the revised capability of a **BM Unit** to provide **Leading** or **Lagging** Mvar (as the case may be) at the then applicable **Registered**

<sup>3</sup> Additional terms to be included if an Enhanced Reactive Power Service is provided by the Generator.

<sup>4</sup> Additional terms which may be included if an Enhanced Reactive Power Service is provided by the Generator.

**Capacity** upon any change in **Registered Capacity** of the relevant **BM Unit** from time to time.

3.2.4 Any revised capability of a **BM Unit** at **Registered Capacity** at the **Commercial Boundary**, for the avoidance of doubt including any revised capability of a **BM Unit** following a change in **Registered Capacity** pursuant to Sub-Clause 3.2.3 or a change to data referred to in Schedule B, Part II submitted in accordance with **Grid Code DRC**, shall constitute the respective values of  $QR_{lead}$  and  $QR_{lag}$  as referred to in Section 2 of Appendix 3 to the **CUSC Schedule**.

3.2.5 Following commencement of this **Market Agreement**, **The Company** shall calculate the values of  $QR_{lead}$  and  $QR_{lag}$  using the then applicable **Registered Capacity** and the then applicable data referred to in Schedule B, Part II submitted in accordance with **Grid Code DRC**.

### 3.3 Utilisation

[3.3.1]<sup>3</sup> **The Company** shall have the right (but shall not be obliged) at any time to instruct the **Generator** by the issue of a **Reactive Despatch Instruction** to provide **Leading** and/or **Lagging Mvar** from some or all of the **BM Units**.

[3.3.2]<sup>3</sup> **The Company** may not issue a **Reactive Despatch Instruction** pursuant to Sub-Clause 3.3.1 in relation to any **BM Unit**, (except in accordance with **Grid Code BC2**) requiring it to produce **Leading** or **Lagging Mvar** in excess of those levels shown in Table B of Schedule B, Part I or as amended by any redeclaration as to the capability of that **BM Unit** to provide **Leading** and **Lagging Mvar** given by the **Generator** in accordance with Sub-Clause 3.2.1.]

### 3.4 Payments to Generator

3.4.1 In respect of each **BM Unit**, and in consideration of the **Generator** providing the [**Obligatory**][**Enhanced**]<sup>2</sup> **Reactive Power Service** from that **BM Unit**, **The Company** shall pay to the **Generator** in respect of each calendar month in accordance with Paragraph 4.3 of the **Connection and Use of System Code** the aggregate total payments calculated by reference to the prices specified in Schedule C and in accordance with the formulae set out in Appendix 2 to the **CUSC Schedule** and referred to therein as "PTM".

3.4.2 For the purposes of Sub-Clause 3.4.1:-

- (a) the system voltage range performance factor (referred to in Appendix 2 to the **CUSC Schedule** as "V") is specified in Schedule B, Part IV;
- (b) without prejudice to Sub-Clause 3.5.1, **The Company** shall use the meters and aggregation principles specified and/or referred to in Schedule B, Part III to ascertain the amount of **Leading** and **Lagging Mvarh** produced in each **Settlement Period** by each **BM Unit**, and such

<sup>2</sup> To be deleted as applicable depending on whether an Obligatory or Enhanced Reactive Power Service is being provided.

<sup>3</sup> Additional terms to be included if an Enhanced Reactive Power Service is provided by the Generator.

amount of **Leading** and **Lagging** Mvarh shall constitute the respective values of  $U_{lead}$  and  $U_{lag}$  as referred to in Section 1 of Appendix 3 to the **CUSC Schedule**; and

- (c) the **Parties** acknowledge that all meters and metered data used for the purposes of this **Market Agreement** shall comply with the provisions of Appendix 4 to the **CUSC Schedule**.

**[Indexation provisions will be incorporated into this Sub-Clause 3.4 where appropriate]**

### 3.5 Monitoring

3.5.1 In order to comply with its obligations contained in **Grid Code OC5**, **The Company** may use its operational metering equipment or operational metering equipment owned by a **Relevant Transmission Licensee** to ensure that, in respect of each **BM Unit**, the **Generator** is complying with its obligations to provide the **[Obligatory][Enhanced]<sup>2</sup> Reactive Power Service** in accordance with the **Grid Code** and the terms of this **Market Agreement**.

3.5.2 The **Generator** acknowledges that following the coming into effect of this **Market Agreement**, **The Company** may wish to install additional monitoring equipment at the **Power Station** to monitor the ability of a **BM Unit** to provide the **[Obligatory][Enhanced]<sup>2</sup> Reactive Power Service**, such monitoring equipment to be installed on terms to be agreed with the **Generator** (such agreement not to be unreasonably withheld or delayed). The cost of such additional monitoring equipment and its installation shall be borne by **The Company**.

### 3.6 Reactive Testing

[3.6.1]<sup>3</sup> Where, in accordance with **Grid Code OC5.4.2.4**, **The Company** shall be entitled to require a **Reactive Test**, such test shall be in addition to, and shall not prejudice **The Company's** right to require, the two annual **Reactive Tests** referred to in **Grid Code OC5.5.1.1**. If a **BM Unit** fails a **Reactive Test**, then **The Company** shall advise the **Generator** that the **BM Unit** has so failed whereupon, subject always to resolution of any dispute in accordance with **Grid Code OC5.5.4** and (where applicable) **OC5.5.5**, the **Generator** shall immediately advise **The Company** of the revised capability of that **BM Unit** to provide **Leading** and/or **Lagging** Mvar (as the case may be) in accordance with Sub-Clause 3.2.1.

[3.6.2]<sup>3</sup> For the avoidance of doubt, the provisions of **Grid Code OC 5.4.1** shall be deemed to apply to the provision by the **Generator** of the **Enhanced Reactive Power Service** and, notwithstanding **Grid Code OC 5.4.2.4**, **The Company** shall be entitled to require a test in accordance with the provisions of **Grid Code OC 5.5.1** (as though the same were set out in full herein) but so that **The Company** shall test the ability of a **BM Unit** to provide the **Enhanced Reactive Power Service** rather than the ability of a **BM Unit** to meet the requirements of **Grid Code CC 6.3.2**. For the avoidance of doubt,

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<sup>2</sup> To be deleted as applicable depending on whether an Obligatory or Enhanced Reactive Power Service is being provided.

<sup>3</sup> Additional terms to be included if an Enhanced Reactive Power Service is provided by the Generator.

any such test shall be in addition to, and shall not prejudice **The Company's** right to require the two annual **Reactive Tests** referred to in **Grid Code OC 5.5.1.1**. If a **BM Unit** fails such a test, then **The Company** shall advise the **Generator** that the **BM Unit** has so failed whereupon subject always to resolution of any dispute in accordance with **Grid Code OC 5.5.4** and (where applicable) **OC 5.5.5**, the **Generator** shall immediately advise **The Company** of the revised capability of that **BM Unit** to provide **Leading** and/or **Lagging** Mvar (as the case may be) in accordance with Sub-Clause 3.2.]

#### 4. GRID CODE

It is acknowledged by both **Parties** that the provision by the **Generator** of the **[Obligatory][Enhanced]<sup>2</sup> Reactive Power Service** in accordance with the terms hereof shall not relieve it of any of its obligations set out in the **Grid Code** including without limitation its obligations set out in **Grid Code CC8.1** to provide **Reactive Power** (supplied otherwise than by means of **Synchronous** or **Static Compensation**) in accordance with **Grid Code CC6.3.2** and **CC6.3.4**.

#### 5. TERMINATION

**The Company** shall be entitled to terminate the provisions of this **Market Agreement** in relation to any **BM Unit** in the following circumstances:-

- 5.1 upon a change in the **Registered Capacity** of that **BM Unit** to less than 25MW; or
- 5.2 upon a continuous period of unavailability of that **BM Unit** to be instructed by **The Company** in accordance with **Grid Code BC2** extending beyond 84 consecutive days; or
- 5.3 upon a continuous period in which, for that **BM Unit**,  $QR_{lead}$  is less than  $QC_{lead}$  extending beyond 28 consecutive days; or
- 5.4 upon a continuous period in which, for that **BM Unit**,  $QR_{lag}$  is less than  $QC_{lag}$  extending beyond 28 consecutive days; or
- 5.5 upon an aggregate period of 42 days in any rolling 365 day period,  $QR_{lead}$  is less than  $QC_{lead}$ ; or
- 5.6 upon an aggregate period of 42 days in any rolling 365 day period,  $QR_{lag}$  is less than  $QC_{lag}$ ,

in each case by giving notice in writing to the **Generator**, not later than 30 days following such occurrence, that such occurrence constitutes an event of default. Once **The Company** has given such notice of an event of default, this **Market Agreement** shall terminate in relation to the **BM Unit** concerned.

#### 6. CONNECTION AND USE OF SYSTEM CODE

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<sup>2</sup> To be deleted as applicable depending on whether an Obligatory or Enhanced Reactive Power Service is being provided.

The provisions of Paragraphs 4.3, 6.12, 6.14, 6.15, and 6.20 to 6.26 inclusive of the **Connection and Use of System Code** shall apply to this **Market Agreement** as if set out in full herein.

7. **DISCLOSURE OF INFORMATION**

The **Generator** hereby consents to the disclosure and use by **The Company** of data and other information relating to this **Market Agreement** and the provision of the **[Obligatory][Enhanced]<sup>2</sup> Reactive Power Service** to the extent necessary to enable **The Company** to comply with its obligations set out in the **CUSC Schedule**.

8. **DISPUTE RESOLUTION**

It is hereby acknowledged and agreed by the **Parties** that any dispute or difference of whatever nature concerning the obligations of the **Parties** under this **Market Agreement** insofar as and to the extent the same relate to the **[Obligatory][Enhanced]<sup>2</sup> Reactive Power Service** shall be a dispute or difference arising out of or in connection with the **CUSC Schedule**, and accordingly the provisions of Section 7 of the **Connection and Use of System Code** shall apply.

9. **HIERARCHY**

If any provision of this **Market Agreement** shall be inconsistent with the provisions of the **CUSC Schedule**, the provisions of the **CUSC Schedule** shall prevail to the extent of such inconsistency.

10. **VARIATIONS**

No variations or amendments to this **Market Agreement** shall be effective unless made in writing and signed by and on behalf of both **Parties**.

**IN WITNESS WHEREOF** the hands of the duly authorised representatives of the **Parties** at the date first above written.

**SIGNED** on behalf of )  
**NATIONAL GRID** )  
**ELECTRICITY TRANSMISSION plc** )

**SIGNED** on behalf of )  
[ ] )

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<sup>2</sup> To be deleted as applicable depending on whether an Obligatory or Enhanced Reactive Power Service is being provided.

## SCHEDULE A

### Definitions

“ <b>BM Unit(s)</b> ”	for the purposes of this <b>Market Agreement</b> , means those <b>BM Unit(s)</b> specified in Schedule B, and “ <b>BM Unit</b> ” shall be construed accordingly;
“ <b>Connection and Use of System Code (CUSC)</b> ”	the meaning attributed to it in the <b>Transmission Licence</b> ;
“ <b>CUSC Schedule</b> ”	for the purposes of this <b>Market Agreement</b> , the meaning attributed to it in the recitals hereto;
“ <b>Market Agreement</b> ”	means this Reactive Market Ancillary Services Agreement;
“ <b>MSA</b> ”	for the purposes of this <b>Market Agreement</b> , the meaning attributed to it in the recitals hereto;
“ <b>Nominated Registered Capacity</b> ”	for each <b>BM Unit</b> , means the figure (in MW) shown in Table(s) A of Schedule B, Part I;
“ <b>Registered Capacity</b> ”	the meaning attributed to it in the <b>Grid Code</b> ;
“ <b>Settlement Day</b> ”	the meaning attributed to it in the <b>BSC</b> ;
“ <b>Static Compensation</b> ”	means the operation of shunt connected static var generator/absorber apparatus, whose output is adjusted to exchange capacitive or inductive current so as to maintain or control parameters of the electrical power system.

**SCHEDULE B**

**Part I**

**[Enhanced]<sup>2</sup> Reactive Power Capability Tables for [ ] Power Station**

BM Unit No. [ ]

**[ENHANCED]<sup>2</sup> REACTIVE POWER CAPABILITY AT COMMERCIAL BOUNDARY** (at rated stator terminal and nominal system voltage)

<b>TABLE A</b>	<b>MW</b>	<b>LEAD (Mvar)</b>	<b>LAG (Mvar)</b>
<b>AT NOMINATED REGISTERED CAPACITY</b>			

**[ENHANCED]<sup>2</sup> REACTIVE POWER CAPABILITY AT GENERATOR STATOR TERMINAL** (at rated terminal voltage)

<b>TABLE B</b>	<b>MW</b>	<b>LEAD (Mvar)</b>	<b>LAG (Mvar)</b>
AT RATED MW			
AT FULL OUTPUT (MW)			
AT MINIMUM OUTPUT (MW)			

**[VOLTAGE RANGE]<sup>3</sup>**

<b>TABLE C</b> <b>MW</b>	<b>QC<sub>Lead</sub></b>	<b>QC<sub>Lag</sub></b>
<b>Maximum Voltage (%)</b>		
<b>Minimum Voltage (%)</b>		

<sup>2</sup> To be deleted as applicable depending on whether an Obligatory or Enhanced Reactive Power Service is being provided.

<sup>3</sup> Additional Table to be included if an Enhanced Reactive Power Service is provided by the Generator.

**[ENHANCED REACTIVE POWER CAPABILITY AT COMMERCIAL BOUNDARY at Nominated Genset Registered Capacity (at rated stator terminal and nominal system voltage) at ambient air temperatures as specified]<sup>4</sup>**

<b>TABLE D</b>	<b>-10°C</b>	<b>0°C</b>	<b>10°C</b>	<b>20°C</b>	<b>30°C</b>	<b>40°C</b>
Lead (Mvar)						
Lag (Mvar)						

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<sup>4</sup> Additional Table which may be included if an Enhanced Reactive Power Service is provided by the Generator.

BM Unit No. [ ]

**[ENHANCED]<sup>2</sup> REACTIVE POWER CAPABILITY AT COMMERCIAL BOUNDARY** (at rated stator terminal and nominal system voltage)

<b>TABLE A</b>	<b>MW</b>	<b>LEAD (Mvar)</b>	<b>LAG (Mvar)</b>
<b>AT NOMINATED REGISTERED CAPACITY</b>			

**[ENHANCED]<sup>2</sup> REACTIVE POWER CAPABILITY AT GENERATOR STATOR TERMINAL** (at rated terminal voltage)

<b>TABLE B</b>	<b>MW</b>	<b>LEAD (Mvar)</b>	<b>LAG (Mvar)</b>
AT RATED MW			
AT FULL OUTPUT (MW)			
AT MINIMUM OUTPUT (MW)			

**[VOLTAGE RANGE]<sup>3</sup>**

<b>TABLE C</b> <b>MW</b>	<b>QC<sub>Lead</sub></b>	<b>QC<sub>Lag</sub></b>
<b>Maximum Voltage (%)</b>		
<b>Minimum Voltage (%)</b>		

**[ENHANCED REACTIVE POWER CAPABILITY AT COMMERCIAL BOUNDARY** at Nominated Genset Registered Capacity (at rated stator terminal and nominal system voltage) at ambient air temperatures as specified]<sup>4</sup>

<b>TABLE D</b>	<b>-10°C</b>	<b>0°C</b>	<b>10°C</b>	<b>20°C</b>	<b>30°C</b>	<b>40°C</b>
Lead (Mvar)						
Lag (Mvar)						

<sup>2</sup> To be deleted as applicable depending on whether an Obligatory or Enhanced Reactive Power Service is being provided.

<sup>3</sup> Additional Table to be included if an Enhanced Reactive Power Service is provided by the Generator.

<sup>4</sup> Additional Table which may be included if an Enhanced Reactive Power Service is provided by the Generator.

**Part II**  
**Calculation of Reactive Power Capability**  
**at the Commercial Boundary**

In accordance with Sub-Clauses 3.1.2, 3.2.1 and 3.2.2, the following formulae will be used to convert **Reactive Power** capability at the generator stator terminals to the capability at the **Commercial Boundary**.

$$Q_{\text{lead}} = (Q_{\text{Glead}} + Q_U) + \left[ \frac{[\text{NRC}^2 + (Q_{\text{Glead}} + Q_U)^2] X_t}{100 \cdot \text{MVA}_x} \right] + Q_{\text{ts}}$$

Where the **BM Unit** has a **Reactive Power** capability (leading), this shall be expressed as a positive integer. Where the **BM Unit** does not have a **Reactive Power** capability (leading),  $Q_{\text{lead}}$  and/or  $Q_{\text{Glead}}$  shall be the minimum **Reactive Power** capability (lagging) expressed as a negative integer or zero.

$$Q_{\text{lag}} = (Q_{\text{Glag}} - Q_U) - \left[ \frac{[\text{NRC}^2 + (Q_{\text{Glag}} - Q_U)^2] X_t}{100 \cdot \text{MVA}_x} \right] + Q_{\text{ts}}$$

Where the **BM Unit** has a **Reactive Power** capability (lagging), this shall be expressed as a positive integer. Where the **BM Unit** does not have a **Reactive Power** capability (lagging),  $Q_{\text{lag}}$  and/or  $Q_{\text{Glag}}$  shall be the minimum **Reactive Power** capability (leading) expressed as a negative integer or zero.

Where:

- $Q_{\text{lead}}$  = the **Reactive Power** capability (leading) of the **BM Unit** at **Nominated Registered Capacity** at the **Commercial Boundary** in Mvar
- $Q_{\text{lag}}$  = the **Reactive Power** capability (lagging) of the **BM Unit** at **Nominated Registered Capacity** at the **Commercial Boundary** in Mvar
- NRC** = **Nominated Registered Capacity**
- $Q_U$  = normal auxiliary lagging load (Reactive Power) in Mvar supplied by the **BM Unit** at **Rated MW** referred to in Schedule 1 of **Grid Code DRC**
- $X_t$  = positive sequence reactance, nominal tap, of the **BM Unit** step-up transformer in percentage of rating referred to in Schedule 1 of **Grid Code DRC**
- $Q_{\text{Glag}}$  = the **Reactive Power** capability (lagging) in Mvar of the **BM Unit** at **Full Output** (as defined in **Grid Code BC2.A.3.1**) at the generator stator terminals as set out in Tables B of Schedule B, Part I or as redeclared by the **Generator** pursuant to **Grid Code BC**

$Q_{Glead}$  = the **Reactive Power** capability (leading) in Mvar of the **BM Unit** at **Full Output** (as defined in **Grid Code BC2.A.3.1**) at the generator stator terminals as set out in Tables B of Schedule B, Part I or as redeclared by the **Generator** pursuant to **Grid Code BC**

$Q_{ts}$  = the relevant reactive load applicable to each of the **BM Units** shown in the table below, the summation of which represents the lagging reactive load in Mvar taken by a **Trading Unit** calculated in accordance with the values for **Demand (Active Power)** and Power Factor referred to in **Grid Code PC.A.4.3.1(a)** or **Grid Code PC.A.5.2.2(a)** (as the case may be), or as agreed between **The Company** and the **Generator** from time to time (and where such load is leading,  $Q_{ts}$  will be negative)

$MVA_x$  = **BM Unit** step-up transformer rated MVA referred to in Schedule 1 of **Grid Code DRC**

Reactive Load	
BM Unit	$Q_{ts}$

N.B. All of the above factors referred to in **Grid Code DRC** shall be expressed in such units as are specified in **Grid Code DRC** and to the same number of significant figures as also specified therein (as varied from time to time).

**Part III**

**Meters and Aggregation Principles**

BM Unit No	Meter Identification No.	Channel Number	Meter Location Code	Meter Type	Loss Adjustment Factor	Outstation ID

**Aggregation Methodology**

[N/A]

*or*

[Category A/B/C/D\* aggregation principles as set out in the latest version of the document entitled "Methodology Document for the Aggregation of Reactive Power Metering" shall apply]

*\*Delete as applicable*

**Part IV**

**System Voltage Range Performance Factor**

$$V = 1$$

**SCHEDULE C**  
**Capability Breakpoints and Prices**

Note:

1. Where a Capability Breakpoint is not used and is therefore denoted by “null”, the range is correspondingly not used and the corresponding price is denoted by “null”.
2. In the following price tables, Q0 defines a Capability Breakpoint at zero Mvar.

BM Unit No(s):

Leading Capability Breakpoints

Capability Breakpoint	(Mvar)
QC <sub>lead</sub>	=
Q2 <sub>lead</sub>	=
Q1 <sub>lead</sub>	=

Lagging Capability Breakpoints

Capability Breakpoint	(Mvar)
QC <sub>lag</sub>	=
Q2 <sub>lag</sub>	=
Q1 <sub>lag</sub>	=

BM Unit No(s):

Leading Utilisation Prices

Range (Mvar)	Price (£/Mvarh)
QC <sub>lead</sub> to Q2 <sub>lead</sub>	CU3 <sub>lead</sub> =
Q2 <sub>lead</sub> to Q1 <sub>lead</sub>	CU2 <sub>lead</sub> =
Q1 <sub>lead</sub> to Q0	CU1 <sub>lead</sub> =

Lagging Utilisation Prices

Range (Mvar)	Price (£/Mvarh)
Q0 to Q1 <sub>lag</sub>	CU1 <sub>lag</sub> =
Q1 <sub>lag</sub> to Q2 <sub>lag</sub>	CU2 <sub>lag</sub> =
Q2 <sub>lag</sub> to QC <sub>lag</sub>	CU3 <sub>lag</sub> =

BM Unit No(s):

Leading Utilisation Prices

Range (Mvar)	Price (£/Mvarh)
QC <sub>lead</sub> to Q2 <sub>lead</sub>	CU3 <sub>lead</sub> =
Q2 <sub>lead</sub> to Q1 <sub>lead</sub>	CU2 <sub>lead</sub> =
Q1 <sub>lead</sub> to Q0	CU1 <sub>lead</sub> =

Lagging Utilisation Prices

Range (Mvar)	Price (£/Mvarh)
Q0 to Q1 <sub>lag</sub>	CU1 <sub>lag</sub> =
Q1 <sub>lag</sub> to Q2 <sub>lag</sub>	CU2 <sub>lag</sub> =
Q2 <sub>lag</sub> to QC <sub>lag</sub>	CU3 <sub>lag</sub> =

BM Unit No(s):

Available Leading Capability Prices

Range (Mvar)	Price (£/Mvar/h)
QC <sub>lead</sub> to Q2 <sub>lead</sub>	CA3 <sub>lead</sub> =
Q2 <sub>lead</sub> to Q1 <sub>lead</sub>	CA2 <sub>lead</sub> =
Q1 <sub>lead</sub> to Q0	CA1 <sub>lead</sub> =

Available Lagging Capability Prices

Range (Mvar)	Price (£/Mvar/h)
Q0 to Q1 <sub>lag</sub>	CA1 <sub>lag</sub> =
Q1 <sub>lag</sub> to Q2 <sub>lag</sub>	CA2 <sub>lag</sub> =
Q2 <sub>lag</sub> to QC <sub>lag</sub>	CA3 <sub>lag</sub> =

Synchronised Leading Capability Prices

Range (Mvar)	Price (£/Mvar/h)
QC <sub>lead</sub> to Q2 <sub>lead</sub>	CS3 <sub>lead</sub> =
Q2 <sub>lead</sub> to Q1 <sub>lead</sub>	CS2 <sub>lead</sub> =
Q1 <sub>lead</sub> to Q0	CS1 <sub>lead</sub> =

Synchronised Lagging Capability Prices

Range (Mvar)	Price (£/Mvar/h)
Q0 to Q1 <sub>lag</sub>	CS1 <sub>lag</sub> =
Q1 <sub>lag</sub> to Q2 <sub>lag</sub>	CS2 <sub>lag</sub> =
Q2 <sub>lag</sub> to QC <sub>lag</sub>	CS3 <sub>lag</sub> =

BM Unit No(s):

Available Leading Capability Prices

Range (Mvar)	Price (£/Mvar/h)
QC <sub>lead</sub> to Q2 <sub>lead</sub>	CA3 <sub>lead</sub> =
Q2 <sub>lead</sub> to Q1 <sub>lead</sub>	CA2 <sub>lead</sub> =
Q1 <sub>lead</sub> to Q0	CA1 <sub>lead</sub> =

Available Lagging Capability Prices

Range (Mvar)	Price (£/Mvar/h)
Q0 to Q1 <sub>lag</sub>	CA1 <sub>lag</sub> =
Q1 <sub>lag</sub> to Q2 <sub>lag</sub>	CA2 <sub>lag</sub> =
Q2 <sub>lag</sub> to QC <sub>lag</sub>	CA3 <sub>lag</sub> =

Synchronised Leading Capability Prices

Range (Mvar)	Price (£/Mvar/h)
QC <sub>lead</sub> to Q2 <sub>lead</sub>	CS3 <sub>lead</sub> =
Q2 <sub>lead</sub> to Q1 <sub>lead</sub>	CS2 <sub>lead</sub> =
Q1 <sub>lead</sub> to Q0	CS1 <sub>lead</sub> =

Synchronised Lagging Capability Prices

Range (Mvar)	Price (£/Mvar/h)
Q0 to Q1 <sub>lag</sub>	CS1 <sub>lag</sub> =
Q1 <sub>lag</sub> to Q2 <sub>lag</sub>	CS2 <sub>lag</sub> =
Q2 <sub>lag</sub> to QC <sub>lag</sub>	CS3 <sub>lag</sub> =