CUSC - SECTION 4

BALANCING SERVICES

*Payment Formulae – **Response Energy Payment***

4.1.3.9A   (a)   The **Response Energy Payments** for **BM Unit** i in **Settlement Period** j to be made by **The Company** to a **User** referred to in Paragraph 4.1.3.8 shall be calculated in accordance with the following formulae:-

$$REP_{ij} = RE_{ij} \times \text{Reference Price}$$

But so that where REP$_{ij}$ is negative such amount shall be paid by the **User** to **The Company**.

Where:

REP$_{ij}$ is the **Response Energy Payment** to be made to or, as the case may be, by the User; and

RE$_{ij}$ is the expected response energy for **BM Unit** i in **Settlement Period** j calculated as follows:-

$$RE_{ij} = \int_{0}^{SPD} \left[\begin{array}{l} \max(FR_{ij}(t),0) \times (1 - SF_{LF}) \\ + \min(FR_{ij}(t),0) \times (1 - SF_{H}) \end{array} \right] \times K_{T} \times K_{GRC}\, dt$$

Where:

$\int_{0}^{SPD} dt$ is the integral at times t, over the **Settlement Period** duration.

SF$_{LF}$ is equal to SF$_P$ in the case of a **BM Unit** being instructed to deliver **Primary Response** without **Secondary Response** or the mean of SF$_P$ and SF$_S$ in the case of a **BM Unit** being instructed to deliver **Primary Response** and **Secondary Response**.

SF_P, SF_S, SF_H, K_T and K_{GRC} have the meanings ascribed to them in Paragraph 4.1.3.9.

$FR_{ij}(t)$ is the expected change in **Active Power** output for **BM Unit** i, at time t (resolved to the nearest integer minute), expressed in MW derived from the relevant **Frequency Response Power Delivery Data** table in the **Mandatory Services Agreement** (as such table is interpreted in accordance with Paragraph 4.1.3.11) by reference to the level of **De-Load** of the **BM Unit** concerned at the end of the minute and the mean **Frequency Deviation** over that minute when that **BM Unit** is providing **Mode A Frequency Response** and zero at all other times.

For this purpose:-

(i)   for a positive **Frequency Deviation** the expected change in **Active Power** output of **BM Unit** i shall be derived from the table entitled **"High Frequency Response Power Delivery – Mode A"** set out in the **Mandatory Services Agreement** and shall be signed negative; and

(ii)   for a negative **Frequency Deviation**, the expected change in **Active Power** output of **BM Unit** i shall be derived from:

   A) the table entitled "Primary Response Power Delivery – Mode A" in the case of a **BM Unit** being instructed to deliver **Primary Response** without **Secondary Response**; or

   B) the table entitled "Primary and Secondary Response Power Delivery – Mode A" in the case of a **BM Unit** being instructed to deliver **Primary Response** and **Secondary Response**,

in each case set out in the **Mandatory Services Agreement** and shall be signed positive. Where: RE_{ij} is positive then:

Reference Price = max ($\sum_s$ {**PXP_{sj}** x **QXP_{sj}**} / $\sum_s$ {**QXP_{sj}**} x 1.25, 0) except in the case of (a) a non-fuel cost **BM Unit** or (b) a BM Unit registered in respect of a Power

Station whose operator is a party to an agreement with the CfD Counterparty still in effect during the relevant Settlement Period, where it = 0

where $\sum_s$ represents the sum over all **Market Index Data Providers**.

Where RE_{ij} is negative then:

Reference Price = max ($\sum_s$ {**PXP$_{sj}$** x **QXP$_{sj}$**} / $\sum_s$ {**QXP$_{sj}$**} x 0.75, 0) except in the case of (a) a non-fuel cost **BM Unit** or (b) a BM Unit which relates to a Power Station whose operator is a party to an agreement with the CfD Counterparty, still in effect during the relevant Settlement Period, where it = 0

where $\sum_s$ represents the sum over all **Market Index Data Providers**

Where for the purposes of this Paragraph:

a non-fuel cost **BM Unit** means a **BM Unit** [associated with] [registered in respect of] a non-fuel cost **Power Station**

a non-fuel cost **Power Station** means:

a **Power Station** of the following type which does not have the facility to store the energy produced)

Onshore wind
Offshore wind
Solar
Tidal
Wave