

G2 – Calculation of Supplier Demand

EMRS Guidance

Public

Version: 13.0
Date: 17 July 2023



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Change Amendment Record

Version	Date	Description
1.0	6 August 2015	Go-Live Version.
2.0	12 October 2015	Housekeeping - updated to include Guidance number.
3.0	21 March 2017	New CCC I.D's added to Table 1 following BSC Change P339 'Introduction of new Consumption Component Classes for Measurement Classes E-G.
4.0	1 August 2017	Transfer to new template.
5.0	1 March 2018	CM to start using Chargeable Demand data from Delivery Year 2018 onwards.
6.0	12 July 2018	Reference amendment in section 7.
7.0	22 November 2018	Changes as a result of the interim solution exempting electricity supplied to Licensed Generators or Storage Facilities from paying EMR levies and charges.
8.0	4 February 2019	Housekeeping - cosmetic updates.
9.0	24 August 2020	Annual Review.
10.0	1 February 2022	Housekeeping Changes.
11.0	30 June 2023	Included updates for Nuclear Regulated Asset Base (RAB) and Annual Review.
12.0	6 July 2023	Small content update to section 6.
13.0	17 July 2023	Document Title Change

1. Introduction

This guidance document provides Suppliers with an understanding of how their charges for Contracts for Difference (CfD), Nuclear Regulated Asset Base (RAB) and the Capacity Market (CM) are calculated. Charges for all schemes are based on the volume of electricity supplied.

On behalf of the Low Carbon Contracts Company Ltd (LCCC) and Electricity Settlement Company Ltd (ESC), EMR Settlement Limited (EMRS) calculates Suppliers charges payable under The Contracts for Difference (Electricity Supplier Obligations) Regulation 2014¹ (as amended), The Nuclear Regulated Asset Base (Electricity Supplier Obligations) 2023² and The Electricity Capacity (Supplier Payment) Regulations 2014 (as amended) as determined by these Regulations³.

In accordance with the Regulations, these charges are calculated from demand data that is provided to EMRS by BSCCo at the BM Unit level, and then summed by EMRS to calculate the total demand for each Supplier for each scheme.

2. Purpose

The purpose of this document is to answer the following questions:

- What and how is the data received to perform these calculations?
- What is Chargeable Demand and why is it used in CfD, RAB and CM charging?
- How can Supplier verify the calculation of Chargeable Demand?
- Which BM Units will be used in CfD, RAB and CM charging?
- How can Supplier verify the calculation of Chargeable Demand?
- What is Net Demand and why is it used in CM charging?
- Which BM Units will be used in CM charging?
- Is Transmission Loss Multiplier applied for CM charging?
- How can Suppliers verify the calculation of Net Demand?
- What will be the treatment of electricity imported by power stations?
- What does an example of this calculation look like?

3. Whom is this document for?

This document is for all electricity Suppliers.

4. Associated Documents

This document should be read in conjunction with:

- WP5 – Supplier Capacity Market Demand Forecast
- G5 – Supplier CfD and Nuclear RAB Credit Cover
- G12 – Supplier Capacity Market Demand Forecast
- G14 – Supplier CM Credit Cover
- G15 – Capacity Market Supplier Payments
- G16 – Supplier CfD and Nuclear RAB Payments

¹ <http://www.legislation.gov.uk/uksi/2014/2014/contents/made>

² <https://www.legislation.gov.uk/uksi/2023/254/contents/made>

³ <http://www.legislation.gov.uk/uksi/2014/3354/contents/made>

Similarly, The Electricity Capacity (Amendment) Regulations 2017⁷ denote the Chargeable Demand methodology for the calculations in the CM. Within the CM scheme, only periods of high demand are used in the calculations. This is defined in the Regulations as 4pm to 7pm on any working day between November and February.

6.2 Which BM Units will be used in CfD, RAB and CM charging?

In most cases, Supplier’s EMR and RAB charges are only calculated using data for BM Units where the Supplier is the Lead Party (i.e. where the legal entity holding the supply license has registered the BM Unit under the BSC). There are certain exceptions to this where (due to the history of the site or the supply license) the legal entity supplying the premises is not the Lead Party, and EMRS will discuss such exceptions with the parties involved.

Where a Supplier is responsible for a BM Unit (either by being the Lead Party, or through one of the exceptions referred to above), the Chargeable Demand for that BM Unit may be used in CfD, RAB and CM charging, depending on the BM Unit Type. This is set out in Table 1 below.

Table 1: BM Units used in CfD, RAB and CM Chargeable Demand Calculation.

BM Unit Type	Chargeable Demand Used in CfD/RAB/CM Charging?	How is Chargeable Demand Calculated?
Supplier BM Unit (type 'G' or 'S')	Yes	Aggregated values for Active Import Consumption Component Classes only (i.e. excluding Active Export), adjusted by GSP Group Correction Factor, Line Loss Factor and Transmission Loss Multiplier. Note that the Active Import (AI) Consumption Component Classes are CCCs 1-5, 9-13, 17-23, 25-26, and 28, 30-31, 42-47, and 54-59.
Embedded (type 'E')	Yes, unless the BM Unit is at premises occupied for the purposes of operating a Licensable Generating Plant.	Negative values of BM Unit Metered Volume adjusted for Transmission Loss Multiplier. Positive values of BM Unit Metered Volume will not be used in the calculation.
Transmission-connected (type 'T')	Yes, unless the BM Unit is at premises occupied for the purposes of operating a Licensable Generating Plant.	Negative values of BM Unit Metered Volume adjusted for Transmission Loss Multiplier. Positive values of BM Unit Metered Volume will not be used in the calculation.
Interconnector (type 'I')	No	Not Applicable

6.3 How can Supplier verify the calculation of Chargeable Demand?

⁷ <http://www.legislation.gov.uk/ukxi/2017/1053/contents/made>

The process for calculating Chargeable Demand differs depending on whether the BM Unit is a Supplier BM Unit (type 'G' or 'S'), or a CVA BM Unit (type 'E' or 'T').

Chargeable Demand for a Supplier BM Unit can be calculated by:

- Summing Corrected BM Unit Energy (J1638) and Corrected BM Unit Line Losses (J1639) (for Active Import CCCs only) from group SE1 of the D0296 Data Flow; and
- Applying the relevant Transmission Loss Multiplier (TLM_{ij}).

i – In the D0296 Data Flow, group SE1 includes the Corrected BM Unit Energy (J1638) and Corrected BM Unit Line Losses (J1639)

Chargeable Demand for a CVA BM Unit can be calculated by:

- Summing negative values of BM Unit Metered Volume (QM_{ij}); and
- Applying the relevant Transmission Loss Multiplier (TLM_{ij}).

The Transmission Loss Multiplier (TLM) is the factor applied to BM Unit in each Settlement Period in order to adjust for Transmission Losses.

The relevant TLM is applied to Chargeable Demand in BSC systems for CfD, RAB and CM metered volumes because the BSCCo adjust the metered volumes for transmission losses. This is to ensure it is consistent with BSC Configurable Items, which require the Settlement Administration Agent (SAA) to provide the relevant Settlements Service Provider with a report of TLM-adjusted Chargeable Demand.

6.4 How is electricity imported by Power Stations treated?

Where a Lead Party of the BM Unit(s) holds both Supply and Generation licenses and has registered a BM Unit that records electricity imported to a premise occupied for purposes of operating Licensed Generation or, a Licensed Storage entity, the imported power for the Suppliers' demand is not be included. This is because it does not constitute supply for the purposes of the Regulations. However, where a Lead Party has registered a BM Unit that records electricity imported to a premise occupied for purposes of operating an Exemptible power station, the imported power is included in the calculation of that Suppliers' demand. This is because it would constitute supply for the purposes of the Regulations.

6.5 What does an example of this calculation look like?

To validate your understanding an example of how this calculation works can be located within 9.1 and 9.2

7. Need more information?

For more information, please visit our website www.emrsettlement.co.uk or email us at contact@emrsettlement.co.uk.

8. Acronyms and Definitions

A list of acronyms and definitions can be found in the Glossary⁸ on the EMRS website.

⁸ <https://www.emrsettlement.co.uk/glossary/>

9. Appendices

9.1 Appendix 1 – Example of CfD, RAB and CM Charging

To validate your understanding here is an example of how to calculate your demand for EMR charging. Consider a hypothetical Supplier with four BM Units⁹ as follows:

- BM Unit 1 (id '2__AXXX000') is a Supplier BM Unit containing a number of customers (i.e. demand only);
- BM Unit 2 ((id '2__BXXXX000') is a Supplier BM Unit containing both customers and Embedded Generation;
- BM Unit 3 (id 'E_XXXX-1') is an embedded licence exempt power station; and
- BM Unit 4 (id 'T_XXXX-2') is a directly connected exempt export power station.

9.2 Appendix 2 – Calculation of Chargeable Demand for CfD, RAB and CM

BM Units 1 and 2 are Supplier BM Units, and the calculation of Chargeable Demand therefore takes into account only those Consumption Component Classes (CCC) related to Active Import.

For example, suppose that the D0296¹⁰ data flow shows the following consumption data (in a given Settlement Period):

Table 4: CCC related to the BM Units 1 and 2.

CCC ID	CCC Description	Corrected Energy for BM Unit 1 (from data item J1638 or J1639 ¹¹)	Corrected Energy for BM Unit 2 (from data item J1638 or J1639 ¹²)
1	Active Import (Half Hourly metered)	3,125.4273 MWh	478.1983 MWh
4	Active Import Losses (Half Hourly metered)	287.3191 MWh	32.6712 MWh
6	Active Export (Half Hourly metered)	0	983.9812 MWh
8	Active Export Losses (Half Hourly metered)	0	75.3165 MWh
18	Active Import (NHH profiled)	4,871.9513 MWh	393.8712 MWh
21	Active Import Losses (NHH profiled)	492.7134 MWh	40.6143 MWh

Chargeable Demand is calculated by summing those CCCs corresponding to Active Import, which in this example is CCCs 1, 4, 18 and 21:

- BM Unit 1 (id '2__AXXX000') is a Supplier BM Unit containing a number of customers (i.e. demand only);
- BM Unit 2 ((id '2__BXXXX000') is a Supplier BM Unit containing both customers and Embedded Generation;

⁹ Every Supplier is required to have at least fourteen Base BM Units (one per GSP Group). However, to keep the example simple we only consider two Base BM Units.

¹⁰ <https://www.electralink.co.uk/dtc-catalogue/>

¹¹ <https://www.electralink.co.uk/dtc-catalogue/>

¹² <https://www.electralink.co.uk/dtc-catalogue/>

BM Units 3 and 4 are CVA BM Units (and are not at premises occupied for the purposes of operating a Licensable Generating Plant), so their Chargeable Demand is calculated from any negative values of BM Unit Metered Volume (QMij).

Any positive values represent generation, and are not included in the calculation. For example, suppose the BM Unit Metered Volumes are as stated in Table 5 below:

Table 5: Metered Volumes for BM Units 3 and 4

BM Unit	Metered Volume (QMij)
E_XXXX-1	312.412 MWh
T_XXXX-2	-11.612 MWh

The BM Unit Metered Volume for E_XXXX-1 is positive, representing generation, and is therefore not relevant to the calculation of Chargeable Demand. The BM Unit Metered Volume for T_XXXX-2 is negative, representing demand, and therefore this 11.612 MWh must be added in to the calculation.

The final step of the Chargeable Demand calculation is to adjust all of the demand values for transmission losses, by applying the appropriate Transmission Loss Multiplier.

For example, suppose that BM Units 1 to 3 are in off taking Trading Units (and the off taking TLM was calculated to be 1.0106512 in this half hour)¹³; and BM Unit 4 is in a delivering Trading Unit (and was calculated to be 0.9901318 in this half hour).

The value of Chargeable Demand for the Supplier in this half hour would be **9,837.8227 MWh**, calculated as demonstrated in Table 6:

Table 6: Illustrates the Chargeable Demand for the Supplier calculation

BM Unit	Demand (calculated as described above)	TLM	Loss-adjusted demand
2__AXXX000	8777.4111	1.0106512	8870.9011
2__BXXX000	945.355	1.0106512	955.4242
E_XXXX-1	0	1.0106512	0
T_XXXX-2	11.612	0.9901318	11.4974
CHARGEABLE DEMAND FOR SUPPLIER			9837.8227 MWh

¹³ In each half hour, there are two values of TLM: one for BM Units in off taking Trading Units, and one for BM Units in delivering Trading Units. The SAA-I014 settlement report shows the relevant value for each BM Unit.

