ELEXON

Capacity Market Advisory Group (CMAG) Briefing

Date	**12th November 2024**	Classification	**Public**
CP or Subject	**Rule 3.5.1A**	Document version	**V1.0**

Objectives

- Review Rule 3.5.1A and determine current interpretation of Rules

Overview

Outstanding queries on Rule 3.5.1A

Q1: It is our understanding that not all Generating Units within a Generating CMU will have an associated TEC or MEC (e.g. where TEC/MEC is only given at the power station level and not at the GU level in the GCA or DCA) if this is the case how is the TEC/MEC for each Generating Unit within a Generating CMU under Rule 3.5.1A determined?

Q2: In some cases Distribution Connected Prospective CMUs may defer providing their Distribution Connection Agreements (under Rule 3.7.3 (c)). In this case how is Rule 3.5.1A interpreted given that MEC will not be available at Application?

Q3: Initial design intent of Rule 3.5.1A was to cap the sum of the Connection Capacity of the relevant units (i.e. Generating Units within a power station) at the site/power station level of TEC or MEC whereas Rule 3.5.1 does this at a CMU level (comments from Raoul for more details). Is there a reason this has changed as the CMAG Secretariat does not believe that the current drafting meets this intention?

Q4: Private Networks (PN) are not included in the controls in Rule 3.5.1A (Rule 3.7.3(ba) refers to a 'maximum export' from the CMU to the PN, which is not the defined MEC). Is there a need for additional controls for Private Networks under Rule 3.5.1A?

Potential Housekeeping Changes

- In Rule 3.5.3 the highlighted text after 'Average Output' appears to be inconsistent as the Rule is allowing nomination, by Generating Unit, to use Average Output.

- In Rule 3.5.5 for consistency with other Rules, e.g. Rule 8.6.1, a CMU should be "i" and a Generating Unit "k"

Analysis

1. Context

1.1 Relationship between physical and logical elements

1.1.1 For a Generating CMU the Rules discuss:

- **Capacity Market Units (CMUs)** – Generating CMUs consist of Generating Units.
- **Generating Unit** – This means any equipment in which electrical conductors are used or supported or of which they form part which produces electricity and includes such equipment which produces electricity from storage.
- **Generating set** – A synonym of Generating Unit. Has the meaning given to it in the relevant Distribution Connection Agreement.
- **Component** – The same as a Generating Unit or generating set with the key difference that a component is part of a CMU i.e. all components are Generating Units/generating sets but not all Generating Units/generating sets are components.
- **Power stations** – A collection of Generating Units or generating sets.

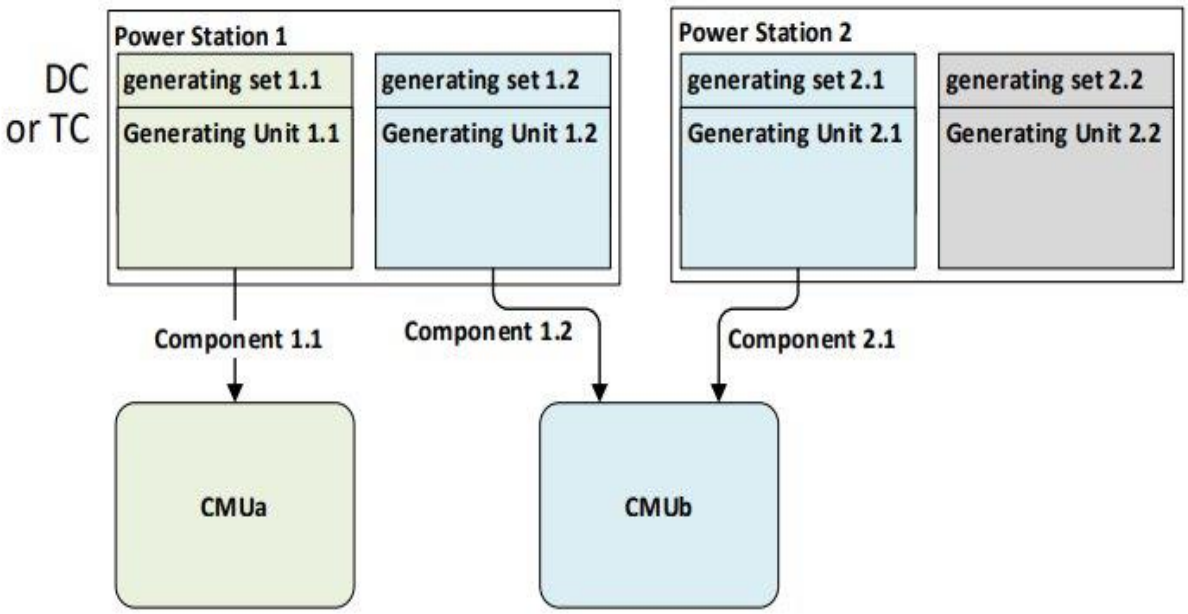
Note that:

- A CMU must be Transmission Connected or Distribution Connected but cannot be both.
- A CMU must be CMRS or Non-CMRS but not both.
- Not all Generating Units or generating sets within a power station are required to be part of the same CMU.
- Not all Generating Units or generating sets within a power station are required to be of the same Generating Technology Class (GTC).
- A power station can consist of both Generating Units and generating sets.
- A single Generating Unit or Generating Set can be a power station.

1.1.2 For a Generating CMU the Rules discuss:

- Power Stations on a site (we have identified by subscript s);
- Generating sets (we have used subscript g) within a Power Station;
- A CMU (subscript i) being Transmission Connected (TC), Distribution Connected (DC), or Private Network (PN), but cannot be a mixture of those;
- A CMU being comprised of Generating Unit components (subscript k), which may be on different sites and using different Generating Technology Classes (GTC)

1.1.3 The above can be represented as follows



1.2 Evidence of Connections

1.2.1 Existing CMUs are expected to submit evidence of their related connections under Rule 3.6.3 (a) TC, (c) DC and (d) PN.

1.2.2 For New Build CMUs submission of evidence for connection arrangements is covered under Rule 3.7.3 but under 3.8.1 Refurbishing CMUs must also comply with Rule 3.7, so Rule 3.7.3 can be treated as relating to Prospective CMUs that covers both New Build and Refurbishing CMUs.

1.2.3 For TC Prospective CMUs must submit related Grid Connection Agreement(s) at Application under Rule 3.7.3(a).

1.2.4 For DC Prospective CMUs, an Application for T-4 Auction can, under Rule 3.7.3(c), defer submitting a Distribution Connection Agreement until 18 months before the target Delivery Year (DY).

1.2.5 For PN Prospective CMUs, under 3.7.3(ba) the CMU must submit a letter from the owner of the PN confirming the CMU's maximum export to the PN and the PN is connected to the relevant DNO, but again for a T-4 Auction this can also be deferred under Rule 3.7.3(c).

1.3 Interpretation of current Rule 3.5

1.3.1 See Appendix: Interpretation of Rule 3.5, from which we can see the following issues.

1.3.2 Rule 3.5.2(a) requires TEC per GU_k but guidance from NG and CUSC definitions (sources of guidance in appendix) suggests that TEC is only for the Power Station as a whole. So this Rule would only work for a site comprised of a single GU. Hence the need for the formula in Rule 3.5.5 to apportion TEC_s by CEC_k.

1.3.3 Rule 3.5.2(b) relates to DC CMUs but does not include PN connected CMUs. If so, 3.5.2(b)/(c) does not appear to cover GU_k within such PN connected CMUs.

1.3.4 Similarly, Rule 3.5.5 does not specifically address PN connected CMUs.

1.3.5 The Rules (Amendment) 2023 changes to 3.5.2(c) now mean that 3.5.2 does not appear to address DC Prospective CMUs with a DCA or offer, which either:

a) does provide the Registered Capacity (RC); or

b) does not contain the RC but does contain other information from which the RC can be derived.

1.3.6 The nominations by a CMU to use either 3.5.5 based formula or 3.5.3 Average Output, are per GU_k, consequently a CMU could theoretically end up comprised of GUs with their Connection Capacity (CC) determined from any, or all of:

a) 3.5.5 formula;

b) 3.5.3 Average Output;

c) 3.5.2(a)/(b) GCA/DCA based TEC/MEC; and

d) 3.5.2(c)(iii)(bb) Good Faith Estimate~~.~~ (Only for Distribution CMUs).

1.3.7 Rule 3.5.1A seeks to ensure that the sum of the above CC for all GUs comprising a CMU cannot exceed the sum of the TEC or MEC for those same GUs. However, the reason for the different options in 3.5 for determining CC is because such TEC or MEC may not exist, so it appears that total cannot necessarily be determined:

a) For TC, if TEC is not available by GU, but only by Power Station; or

b) For DC, because for Prospective CMUs applying into a T-4 Auction they may have deferred submission of DCA(s), or their DCA or Offer does not contain a MEC; or

c) For PN, because 3.7.3(ba) refers to a ‘maximum export’ to the PN, which is not the defined MEC.

2. Supporting Definitions and Rules

2.1 Current Rules as at July 2024

In the below 'DN' means design note and contains important supporting information or commentary. 'DQ' means design question and provides more background and details to the questions detailed on page 1 of this paper.

1.2 Definitions

Average Output	has the meaning given in Rule 3.5.4
Connection Capacity [CC]	means, with respect to a Generating CMU or a Generating Unit, the capacity of that Generating CMU or Generating Unit as determined pursuant to Rule 3.5…
Connection Entry Capacity [CEC]	has the meaning given to that term in section 11 of the CUSC [DN CUSC definition: "the figure specified as such for the Connection Site and each Generating Units as set out in Appendix C of the relevant Bilateral Connection Agreement;"] [DN Grid guidance: "Connection Entry Capacity (CEC) is a CUSC defined term. Essentially it represents the maximum physical capability of the transmission connection assets installed at a connection site. At each transmission connected Power Station both the Power Station as a whole and each Generating Unit at that Power Station will have a CEC. Power Station owners are required by the CUSC not to export power in excess of their CEC from a generating unit or Power Station."]
Distribution CMU	means a CMRS Distribution CMU or a Non-CMRS Distribution CMU [DN also in Reg 2: means a generating CMU consisting of one or more generating units which export electricity to a distribution network]
Distribution Connection Agreement [DCA]	means, for a Distribution CMU, an agreement entered into between a DNO and the person responsible for that CMU for the connection of that CMU to, and use of, a Distribution Network
Distribution Network	has the meaning given to that term in Regulation 2 Reg 2 "means a distribution network in Great Britain operated under a licence granted pursuant to section 6(1)(c) of EA 1989 "
Distribution Network Operator (DNO)	has the meaning given to that term in Regulation 2 Reg 2 "means a person who operates a distribution network"
Generating Unit	means any equipment in which electrical conductors are used or supported or of which they form part which produces electricity, and includes such equipment which produces electricity from storage DN Same definition appears in the Regulations so this cannot be changed in the Rules
Maximum Export Capacity [MEC]	has the meaning given to that term in the Distribution Connection Agreement
Private Network [PN]	means a distribution network which is exempt from the requirement to hold a licence under section 4 EA 1989 by virtue of The Electricity (Class Exemptions from the Requirement for a Licence) Order 2001 DN distribution network is lower case and thus this implies that such a CMU is not a Distribution CMU
Transmission Entry Capacity [TEC]	has the meaning given to that term in the Grid Code

	[DN The Grid Code states “Has the meaning set out in the CUSC.”] [DN CUSC definition: “the figure specified as such as set out in Appendix C of the relevant Bilateral Connection Agreement or Bilateral Embedded Generation Agreement;”] [DN Grid guidance: “Transmission Entry Capacity (TEC) is defined in the CUSC. TEC (and its short term derivatives) cumulatively represent the maximum level of transmission access at which a Power Station owner wishes to purchase and use for a given financial year. It is measured on a Power Station basis only and is specified at the relevant Connection Site.”]

3.4.5 Statement as to Capacity

Each Application must specify:

(a) the Connection Capacity or DSR Capacity (as applicable) of the CMU and, in the case of a Generating CMU, each Generating Unit comprising such CMU, for the Delivery Year to which the Capacity Auction relates and, in the case of a Generating CMU or Interconnector CMU, the basis on which the Connection Capacity has been determined pursuant to Rule 3.5 or Rule 3.5A;

[DN so, as relates to Rule 3.5, CC per GU summed to CMU, as per Rule 3.5.1]

(b) in the case of a Generating CMU, the Generating Technology Class to which each Generating Unit that comprises such a CMU belongs; and

(c) in the case where Rule 3.5.5 applies, each CMU to which the relevant Grid Connection Agreement or Distribution Connection Agreement (as applicable) applies.

[DN ie where multiple CMUs relate to a single GCA/DCA, see DB’s guidance on ‘multi-unit sites’.]

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3.5 Determining the Connection Capacity of a Generating CMU

3.5.1A The aggregate Connection Capacity of all Generating Units comprised in a Generating CMU must not exceed the sum of the Transmission Entry Capacity and Maximum Export Capacity (as applicable) which apply to each of the Generating Units comprised in that Generating CMU.

[DQ 3.5B.1(a) specifies that only GCA/DCA in place at Application can be used by 3.5, so only TEC/MEC from those can be considered by 3.5.1A.

This means that the 3.5.1A test can therefore only be applied when DCA/MEC is available for all GU comprising a Distribution CMU, yet under 3.7.3(c) Prospective CMUs applying to a T-4 Auction can defer submitting their DCA until 18 months before the target DY? Related to Q2]

3.5.1 The Connection Capacity of a Generating CMU is the aggregate of the Connection Capacity of each Generating Unit comprised in that Generating CMU as determined pursuant to Rule 3.5.2.

3.5.2 Subject to Rules 3.5.3 and 3.5.5, the Connection Capacity of a Generating Unit must be calculated as follows:

(a) for a Generating Unit forming all or part of a Transmission CMU, the Transmission Entry Capacity stated in the Grid Connection Agreement for that Generating Unit; and

[DQ It appears that TEC per GU is not always stated in the GCA? see:

Grid’s ‘15664-pp07-49 - Grid Code Capacity Terms.pdf’ “It is measured on a Power Station basis only and is specified at the relevant Connection Site”; and

CUSC definition from CUSC Section 11_v1. 71_15 November 17_0 .pdf “the figure specified as such as set out in Appendix C of the relevant Bilateral Connection Agreement or Bilateral Embedded Generation Agreement”]

(b) for a Generating Unit forming part or all of an Existing Generating CMU which is a Distribution CMU, the Maximum Export Capacity stated in the Distribution Connection Agreement for that

Generating Unit or in the written confirmation from the Distribution Network Operator provided pursuant to Rule 3.6.3(c)(ii) (as applicable);

(c) for a Generating Unit forming part or all of a Prospective Generating CMU which is a Distribution CMU:

(i)—omit

(ii) omit

(iii) where the Generating Unit:

(aa) omit

(bb) does not have a Distribution Connection Agreement or a connection offer, or has a Distribution Connection Agreement or a connection offer but such agreement or offer contains no information relevant to the calculation of registered capacity or inverter rating, the estimated capacity that the Applicant, with respect to the Generating CMU (that includes that Generating Unit) anticipates (acting in good faith) to be the maximum capacity which will be physically capable of being transmitted from the Generating Unit to the Distribution Network,

in each case expressed in MW to three decimal places.

3.5.3 An Applicant for an Existing Generating CMU may, as an alternative to the determination of Connection Capacity set out in Rule 3.5.2, nominate a Connection Capacity for that Generating Unit equal to the Average Output of that Existing Generating CMU.

[DQ the highlighted text in 3.5.3 is inconsistent, because the Rule is allowing nomination, by GU, to use Average Output which is defined at the CMU level. Related to potential housekeeping changes on page 1]

3.5.4 For the purposes of Rule 3.5.3, the "Average Output" of a Generating Unit is the mean average of the physically generated net outputs, or Metered Volume where applicable in MWh, multiplied by two to convert to MW and stated to three decimal places, of that Generating Unit in the three Settlement Periods identified by the Applicant under Rule 3.6.1(a) or Rule 3.6.1(aa).

3.5.5 Subject to Rule 3.5.1A an Applicant for a Generating CMU may, as an alternative to the determination of Connection Capacity set out in Rule 3.5.2 or 3.5.3, nominate a Connection Capacity for a Generating Unit comprised in that Generating CMU in accordance with following formula:

$$CC_i = \frac{U\,CEC_i}{SCEC} \times STEC$$

where:

CCi is the Connection Capacity of Generating Unit "i";

[DQ Housekeeping: for consistency with other Rules, eg 8.6.1, a CMU should be "i" and a Generating Unit "k". Related to potential housekeeping changes on page 1]

STEC is:

(a) in the case of a Generating Unit which is part of a Transmission CMU, the Transmission Entry Capacity for the power station of which Generating Unit "i" is a component; or

(b) in the case of a Generating Unit which is part of a Distribution CMU, the Maximum Export Capacity for the power station of which Generating Unit "i" is a component;

SCEC is:

(a) in the case of a Generating Unit which is part of a Transmission CMU:

(i) Omitted;

(ii) the sum of the Connection Entry Capacities stated in that Grid Connection Agreement for each Generating Unit which is a component of that power station;

(b) in the case of a Generating Unit which is part of a Distribution CMU:

(i) Omitted;

(ii) the sum of the registered capacities (or inverter ratings, if applicable) stated in that Distribution Connection Agreement for each of the generating sets comprised in that power station;

UCECi is:

(a) in the case of a Generating Unit which is part of a Transmission CMU, the Connection Entry Capacity stated in the Grid Connection Agreement for Generating Unit "i"; or

(b) in the case of a Generating Unit which is part of a Distribution CMU, the registered capacity (or inverter rating, if applicable) stated in the Distribution Connection Agreement for Generating Unit "i";

"generating set" has the meaning given to it in the relevant Distribution Connection Agreement;

"power station" has the meaning given to it in the relevant Grid Connection Agreement or Distribution Connection Agreement as applicable.

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3.5B Clarifications for determining the Connection Capacity of CMUs

3.5B.1 For the purposes of Rules 3.5 and 3.5A, where:

(a) reference is made to a Grid Connection Agreement, Distribution Connection Agreement or connection offer for a Generating Unit these refer to the agreement or offer in force at the date on which the Application is made;

(b) a Distribution Connection Agreement or connection offer for a Generating Unit states a range of values for the registered capacity or inverter rating of that Generating Unit, the registered capacity or inverter rating of that Generating Unit will be taken to be the lowest value specified in that range; and

(c) reference is made to the Connection Entry Capacity, Transmission Entry Capacity, registered capacity or inverter rating, the values of those terms must be specified net of Auxiliary Load.

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3.6 Additional Information for an Existing Generating CMU

3.6.1 Previous Settlement Period performance

(a) Except where Rule 3.6.1(aa) applies each Applicant for an Existing Generating CMU must identify in the Application three Settlement Periods on separate days in: the 24 months prior to the end of the Prequalification Window, or in the case where Rule 3.13 applies, prior to the close of the last day for submission of secondary trading, in which such Existing Generating CMU delivered a net output equal to or greater than its Anticipated De-rated Capacity, and specify the physically generated net outputs, or Metered Volume where applicable, in MWh to three decimal places for each of those Settlement Periods.

(aa) [Temporary arrangements for 22/23, 23/24 Auction Windows where plant was closed]

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3.6.3 Connection Arrangements

(a) Each Applicant for an Existing Generating CMU that is a Transmission CMU must:

(i) confirm that one or more Grid Connection Agreements have been entered into which, subject to Rule 3.6.3(b), secure Transmission Entry Capacity for the relevant Delivery Year for the Generating Units comprised in the CMU at least equal, in aggregate, to the Anticipated De-rated Capacity of that CMU and any other CMU to which any such Grid Connection Agreement applies; and

(ii) provide a copy of the Grid Connection Agreement for each Generating Unit comprised in the CMU with the Application.

(b) In the First Full Capacity Auction and the Second Full Capacity Auction only, an Applicant for an Existing Generating CMU that is a Transmission CMU and that is unable to give the confirmation

referred to in Rule 3.6.3(a)(i) may instead declare that it will secure the required Transmission Entry Capacity by the date falling 18 months prior to the commencement of the relevant Delivery Year.

(c) Each Applicant for an Existing Generating CMU that is a Distribution CMU must:

(i) confirm that one or more Distribution Connection Agreements have been entered into which permit at least, in aggregate, the Anticipated De-rated Capacity of that CMU and any other CMU to which any such Distribution Connection Agreement applies to connect to the Distribution Network in the relevant Delivery Years; and

(ii) provide a copy of the Distribution Connection Agreement for each Generating Unit comprised in the CMU with the Application or, where this is not possible, written confirmation from the Distribution Network Operator that such Distribution Connection Agreement is in effect and confirming:

(aa) the registered capacity (or inverter rating, if applicable) of that Generating Unit and where a range of values is specified for the registered capacity (or inverter rating if applicable), the minimum value in that range; and

(bb) the capacity that such Generating Unit is permitted to export to the Distribution Network.

(d) For an Existing Generating CMU that is not directly connected to a Distribution Network the Applicant may, instead of complying with Rule 3.6.3(c), provide a letter from the owner of the Private Network to which the CMU is connected confirming:

(i) the full output that CMU is able to Export onto that Private Network; and

(ii) that the owner of that Private Network has an agreement with the relevant Distribution Network Operator for the connection of the Private Network to, and use of, a Distribution Network.

(e) Where reference is made to a Grid Connection Agreement, Distribution Connection Agreement or connection offer for a Generating Unit these refer to the agreement or offer in force at the date on which the Application is made

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3.7 Additional Information for a New Build CMU

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3.7.3 Connection Arrangements

(a) Each Applicant for a New Build CMU that is or will be a Transmission CMU must:

(i) confirm that one or more Grid Connection Agreements have been entered into which secure Transmission Entry Capacity for the relevant Delivery Years for the Generating Units comprised in that CMU at least equal, in aggregate, to the Anticipated De-rated Capacity of that CMU and any other CMUs to which any such Grid Connection Agreement applies; and

(ii) provide a copy of the Grid Connection Agreement for each Generating Unit comprised in the CMU with the Application.

(aa) Each Applicant for a New Build CMU that is or will be an Interconnector CMU must:

(i) confirm that a Grid Connection Agreement has been entered into which secures Transmission Entry Capacity for the relevant Delivery Year for that CMU at least equal to the Anticipated De-rated Capacity of the CMU and any other CMUs to which any such Grid Connection Agreement applies; and

(ii) provide a copy of the Grid Connection Agreement with the Application.

(b) Subject to Rule 3.7.3(c) below, Applicants for a New Build CMU that is, or will be, directly connected to a Distribution Network must:

(i) confirm that there are one or more Distribution Connection Agreements or accepted connection offers which permit at least, in aggregate, the Anticipated De-rated Capacity of that CMU and any other CMUs to which the Distribution Connection Agreement applies to connect to the Distribution Network in the relevant Delivery Years, and

(ii) provide with the Application a copy of any such Distribution Connection Agreement or connection offer (with evidence of acceptance), or where this is not possible, written confirmation from the Distribution Network Operator that such Distribution Connection Agreement or connection offer is in effect and confirming:

(aa) the registered capacity (or inverter rating, if applicable) of that Generating Unit and where a range of values is specified for the registered capacity (or inverter rating, if applicable), the minimum value in that range; and

(bb) the capacity that such Generating Unit is permitted to export to the Distribution Network.

(ba) Subject to Rule 3.7.3(c) below, Applicants for a New Build CMU that is not directly connected to a Distribution Network may, instead of complying with Rule 3.7.3(b), provide a letter from the owner of the Private Network to which the CMU is, or will be, connected confirming:

(i) the full output that CMU will be able to Export onto that Private Network; and

(ii) that the owner of that Private Network has an agreement with the relevant Distribution Network Operator for the connection of the Private Network to, and use of, a Distribution Network.

(c) Except in the case of an Application to participate in a T-1 Auction, an Applicant which is unable to give the confirmation referred to in Rule 3.7.3(b)(i), or the letter referred to in Rule 3.7.3(ba) may, instead of complying with Rule 3.7.3(b), or Rule 3.7.3(ba), either

(i) declare that a Distribution Connection Agreement will be in place by the date 18 months prior to the commencement of the relevant Delivery Year; or

(ii) provide a letter from the owner of the Private Network, to which the CMU will be connected, that confirms that the owner of that Private Network will have an agreement with the relevant Distribution Network Operator for the connection of the Private Network to, and use of, a Distribution Network by the date 18 months prior to the commencement of the relevant Delivery Year.

3. Note from Raoul Thulin (CMAG Member)

3.1 The following note was shared by Raoul Thulin with the CMAG Secretariat following CMAG Meeting 24. The intention of the note was to consider the background and design intent of Rule 3.5.1A.

Note shared with CMAG

In the Government Response to the Capacity Market 2023 Consultation (https://assets.publishing.service.gov.uk/media/648837ec5f7bb700127fa8e4/capacity-market-2023-consultation-government-response.pdf) the proposal to address options for calculating Connection Capacity stated (Page 23):

For units that do not have TEC or MEC specified at the site level, and are not able to determine an individual Average Output value, options will be retained for units to determine an appropriate connection capacity for the individual unit, as a portion of the site TEC or MEC, provided that the sum of the connection capacities at that site does not exceed the total site TEC or MEC. The government will work with delivery partners to ensure timely updated guidance for CM participants.

The intent was also set out in the consultation document https://assets.publishing.service.gov.uk/media/63bbe5698fa8f55e31a9f1bb/capacity-market-2023-consultation.pdf (Page 15) :

The government is also minded to require Capacity Providers whose CMUs are part of multiunit sites to cap the sum of the connection capacity of the relevant units at the site level of TEC or MEC. This will prevent situations in which the connection capacity of individual units on a multi-unit site may be overstated in relation to the total site TEC or MEC.

The intent in both documents was clear; the site TEC should not be exceeded by CMUs sharing the same site.

However, the Rule change that was implemented referred instead to the aggregate Connection Capacity of Generating units in a Generating CMU:

3.5.1A The aggregate Connection Capacity of all Generating Units comprised in a Generating CMU must not exceed the sum of the Transmission Entry Capacity and Maximum Export Capacity (as applicable) which apply to each of the Generating Units comprised in that Generating CMU.

The wording in the Rule change does not deliver the intent outlined in the consultation, nor does it make sense in its own terms. TEC and MEC do not generally 'apply to each of the Generating Units comprised in' a Generating CMU. TEC and MEC are site rather than unit specific and therefore in multi-unit sites the applicable TEC or MEC will, except in very unusual circumstances, equal or exceed the connection capacity of any single unit.

To implement the intent of the 2023 consultation, 3.5.1A should be amended to reflect that it is the sum of CMUs at a site that should not exceed the site TEC.

A first draft would be:

The aggregate Connection Capacity of all Generating CMUs at a site with a common Connection Agreement should not exceed the Transmission Entry Capacity and Maximum Export Capacity (as applicable) which applies to that site.

4. Change history for Rules related to 3.5

4.1 Original 2014

5.1.1 Original 1.2 Definitions

Average Highest Output	has the meaning given in Rule 3.5.4
Connection Capacity	means, with respect to a Generating CMU or a Generating Unit, the capacity of that Generating CMU or Generating Unit as determined pursuant to Rule 3.5
Connection Entry Capacity	has the meaning given to that term in section 11 of the CUSC
Transmission Entry Capacity	has the meaning given to that term in the Grid Code

4.1.2 Original 3.4.5

Statement as to Capacity

Each Application must specify:

(a) the Connection Capacity or DSR Capacity (as applicable) of the CMU for the Delivery Year to which the Capacity Auction relates and, in the case of a Generating CMU, the basis on which the Connection Capacity has been determined pursuant to Rule 3.5;

(b) in the case of a Generating CMU, the Generating Technology Class to which such CMU belongs;

(c) the applicable De-rating Factor for the CMU; and

(d) the anticipated De-rated Capacity for that CMU, based on the information provided pursuant to paragraphs (a) to (c) above (the "**Anticipated De-rated Capacity**").

4.1.3 Original 3.5.1

The Connection Capacity of a CMU is the aggregate of the Connection Capacity of each Generating Unit comprised in that Generating CMU as determined pursuant to Rule 3.5.2.

4.1.4 Original 3.5.2

Subject to Rules 3.5.3 or 3.5.5, the Connection Capacity of a Generating Unit must be calculated as follows:

(a) for a Generating Unit forming part or all of a Transmission CMU, the Connection Entry Capacity stated in the Grid Connection Agreement for that Generating Unit;

(b) for a Generating Unit forming part or all of an Existing Generating CMU which is a Distribution CMU, the registered capacity (or inverter rating, if applicable) stated in the Distribution Connection Agreement for that Generating Unit or in the written confirmation from the Distribution Network Operator provided pursuant to Rule 3.6.3(c)(ii) (as applicable);

(c) for a Generating Unit forming part or all of a Prospective Generating CMU which is a Distribution CMU:

(i) the registered capacity (or inverter rating, if applicable) for that Generating Unit stated in the Distribution Connection Agreement for that Generating Unit or in the written confirmation from the Distribution Network Operator provided pursuant to Rule 3.7.3(b)(ii) (as applicable); or

(ii) where the Generating Unit does not have a Distribution Connection Agreement, the registered capacity (or inverter rating, if applicable) for that Generating Unit stated in the connection offer for that Generating Unit or in the written confirmation from the Distribution Network Operator provided pursuant to Rule 3.7.3(b)(ii) (as applicable); or

(iii) where the Generating Unit:

(aa) does not have a Distribution Connection Agreement or a connection offer, or

(bb) has a Distribution Connection Agreement or a connection offer but such agreement or offer does not state its registered capacity or inverter rating,

the estimated capacity that the Applicant with respect to the Generating CMU that includes that Generating Unit anticipates (acting in good faith) to be the maximum capacity which will be physically capable of being transmitted from the Generating Unit to the Distribution Network,

in each case expressed in whole MW.

4.1.5 Original 3.5.3

An Applicant for an Existing Generating CMU may, as an alternative to the determination of Connection Capacity set out in Rule 3.5.2, nominate a Connection Capacity for that Generating Unit equal to the Average Highest Output of that Existing Generating CMU.

4.1.6 Original 3.5.4

For the purposes of Rule 3.5.3, the "Average Highest Output" of a Generating Unit is the mean average of the physically generated net outputs of that Generating Unit in the three Settlement Periods identified by the Applicant under Rule 3.6.1(a).

4.1.7 Original 3.5.5

An Applicant for an Existing Generating CMU may, as an alternative to the determination of Connection Capacity set out in Rule 3.5.2 or 3.5.3, nominate a Connection Capacity for a Generating Unit comprised in that Existing Generating CMU in accordance with following formula:

$$CC_i = \min\left(\frac{STEC}{SCEC}, 1\right) \times UCEC_i$$

where:

CCi is the Connection Capacity of Generating Unit "i";

STEC is:

(i) in the case of a Generating Unit which is part of a Transmission CMU, the Transmission Entry Capacity for the power station of which Generating Unit "i" is a component; or

(ii) in the case of a Generating Unit which is part of a Distribution CMU, the Maximum Export Capacity for the power station of which Generating Unit "i" is a component;

SCEC is:

(i) in the case of a Generating Unit which is part of a Transmission CMU, the higher of:

(aa) the Connection Entry Capacity stated in the Grid Connection Agreement for the power station of which Generating Unit "i" is a component; or

(bb) the sum of the Connection Entry Capacities stated in that Grid Connection Agreement for each Generating Unit which is a component of that power station;

(ii) in the case of a Generating Unit which is part of a Distribution CMU, the higher of:

(aa) the registered capacity (or inverter rating, if applicable) stated in the Distribution Connection Agreement for the power station of which Generating Unit "i" is a component; or

(bb) the sum of the registered capacities (or inverter ratings, if applicable) stated in that Distribution Connection Agreement for each of the generating sets com prised in that power station;

UCECi is:

(i) in the case of a Generating Unit which is part of a Transmission CMU, the Connection Entry Capacity stated in the Grid Connection Agreement for Generating Unit "i"; or

(ii) in the case of a Generating Unit which is part of a Distribution CMU, the registered capacity (or inverter rating, if applicable) stated in the Distribution Connection Agreement for Generating Unit "i";

"generating set" has the meaning given to it in the relevant Distribution Connection Agreement;

"Maximum Export Capacity" has the meaning given to it in the Distribution Connection and Use of System Agreement;

"power station" has the meaning given to it in the relevant Grid Connection Agreement or Distribution Connection Agreement as applicable.

4.2 **Rules (Amendment) 2015**

4.2.1 Insert in 3.5.1

The Connection Capacity of a Generating CMU is the aggregate of the Connection Capacity of each Generating Unit comprised in that Generating CMU as determined pursuant to Rule 3.5.2.

4.3 **Rules (Amendment) #2 2015**

4.3.1 2015#2 amendments to 3.4.5

Statement as to Capacity

Each Application must specify:

(a) the Connection Capacity or DSR Capacity (as applicable) of the CMU for the Delivery Year to which the Capacity Auction relates and, in the case of a Generating CMU or Interconnector CMU, the basis on which the Connection Capacity has been determined pursuant to Rule 3.5 or Rule 3.5A;

(b) in the case of a Generating CMU, the Generating Technology Class to which each Generating Unit that comprises such a CMU belongs; [CP04]

(c) the applicable De-rating Factor for the CMU and in the case of a Generating CMU that comprises more than one Generating Technology Class the applicable De-rating Factor for each Generating Unit; [CP04] and

(d) the anticipated De-rated Capacity for that CMU, based on the information provided pursuant to paragraphs (a) to (c) above, specified in MW to three decimal places [CP17] (the "Anticipated De-rated Capacity").

4.3.2 2015#2 insert 3.5.2(ba)

(ba) for a Generating Unit forming part or all of an Existing Generating CMU which is a Distribution CMU, but where the Distribution Connection Agreement or connection offer does not state its registered capacity (or inverter rating, if applicable):

(i) the estimated capacity that the Applicant, with respect to the Generating CMU (that includes that Generating Unit), calculates to be the registered capacity or inverter rating, based on information otherwise contained within the Distribution Connection Agreement or a connection offer; or

(ii) the maximum capacity which will be physically capable of being transmitted from the Generating Unit to the Distribution Network, based on information otherwise contained within the Distribution Connection Agreement or a connection offer. [CP69]

4.3.3 2015#2 substitute 3.5.2(c)(iii)

(iii) where the Generating Unit:

~~(aa) does not have a Distribution Connection Agreement or a connection offer, or~~

~~(bb) has a Distribution Connection Agreement or a connection offer but such agreement or offer does not state its registered capacity or inverter rating,~~

~~the estimated capacity that the Applicant with respect to the Generating CMU that includes that Generating Unit anticipates (acting in good faith) to be the maximum capacity which will be physically capable of being transmitted from the Generating Unit to the Distribution Network,~~

(aa) has a Distribution Connection Agreement or a connection offer but such agreement or offer does not state its registered capacity or inverter rating, the estimated capacity that the Applicant, with respect to the Generating CMU (that includes that Generating Unit), calculates to be the registered capacity or inverter rating, based on information otherwise contained within the Distribution Connection Agreement or connection offer; or

(bb) does not have a Distribution Connection Agreement or a connection offer, or has a Distribution Connection Agreement or a connection offer but such agreement or offer contains no information relevant to the calculation of registered capacity or inverter rating, the estimated capacity that the Applicant, with respect to the Generating CMU (that includes that Generating

Unit) anticipates (acting in good faith) to be the maximum capacity which will be physically capable of being transmitted from the Generating Unit to the Distribution Network, [CP69]

4.3.4 2015#2 edit in 3.5.2

in each case expressed in ~~whole~~ MW to three decimal places. [CP17]

4.3.5 2015#2 edit in 3.5.4

For the purposes of Rule 3.5.3, the "Average Highest Output" of a Generating Unit is the mean average of the physically generated net outputs, in MWh to three decimal places, [CP17] of that Generating Unit in the three Settlement Periods identified by the Applicant under Rule 3.6.1(a).

4.3.6 2015#2 revised 3.5.5

An Applicant for ~~an Existing~~ [CP84] Generating CMU may, as an alternative to the determination of Connection Capacity set out in Rule 3.5.2 or 3.5.3, nominate a Connection Capacity for a Generating Unit comprised in that ~~Existing~~ [CP84] Generating CMU in accordance with following formula:

4.4 **Rules (Amendment) #2 2016**

4.4.1 2016#2 edit in 3.4.5

Statement as to Capacity

Each Application must specify:

(a) the Connection Capacity or DSR Capacity (as applicable) of the CMU for the Delivery Year to which the Capacity Auction relates and, in the case of a Generating CMU or Interconnector CMU, the basis on which the Connection Capacity has been determined pursuant to Rule 3.5 or Rule 3.5A; and

(b) in the case of a Generating CMU, the Generating Technology Class to which each Generating Unit that comprises such a CMU belongs~~;~~.

~~(c) the applicable De-rating Factor for the CMU and in the case of a Generating CMU that comprises more than one Generating Technology Class the applicable De-rating Factor for each Generating Unit; and~~

~~(d) the anticipated De-rated Capacity for that CMU, based on the information provided pursuant to paragraphs (a) to (c) above, specified in MW to three decimal places (the "Anticipated De-rated Capacity")~~

4.4.2 2016#2 edit in 3.5.4

For the purposes of Rule 3.5.3, the "Average Highest Output" of a Generating Unit is the mean average of the physically generated net outputs, or Metered Volume where applicable in MWh, multiplied by two to convert to MW and stated to three decimal places, of that Generating Unit in the three Settlement Periods identified by the Applicant under Rule 3.6.1(a). [CP150]

4.4.3 2016#2 edit in 3.5.5

An Applicant for an Existing Generating CMU may, as an alternative to the determination of Connection Capacity set out in Rule 3.5.2 or 3.5.3, nominate a Connection Capacity for a Generating Unit comprised in that Existing Generating CMU in accordance with following formula:

~~$CC_i = \min\left(\frac{STEC}{SCEC}, 1\right) \times UCEC_i$~~ $\quad CC_i = \frac{UCEC_i}{SCEC} \times STEC$

[DN So originally the STEC was capped at SCEC, meaning CCi could be less than UCECi but not higher, but now the CCi can exceed its UCECi if STEC is greater than SCEC]

where: [DQ when between 2014 and 2016 #2 were the subsections below aligned from (n)/(aa) to (a)/(n)?]

CCi is the Connection Capacity of Generating Unit "i";

STEC is:

(a) in the case of a Generating Unit which is part of a Transmission CMU, the Transmission Entry Capacity for the power station of which Generating Unit "i" is a component; or

(b) in the case of a Generating Unit which is part of a Distribution CMU, the Maximum Export Capacity for the power station of which Generating Unit "i" is a component;

SCEC is:

(a) in the case of a Generating Unit which is part of a Transmission CMU~~, the higher of:~~

~~(i) the Connection Entry Capacity stated in the Grid Connection Agreement for the power station of which Generating Unit "i" is a component; or~~ [OF4]

~~(ii)~~ the sum of the Connection Entry Capacities stated in that Grid Connection Agreement for each Generating Unit which is a component of that power station;

(b) in the case of a Generating Unit which is part of a Distribution CMU~~, the higher of:~~

~~(i) the registered capacity (or inverter rating, if applicable) stated in the Distribution Connection Agreement for the power station of which Generating Unit "i" is a component; or~~

~~(ii)~~ the sum of the registered capacities (or inverter ratings, if applicable) stated in that Distribution Connection Agreement for each of the generating sets com prised in that power station;

UCECi is:

(i) in the case of a Generating Unit which is part of a Transmission CMU, the Connection Entry Capacity stated in the Grid Connection Agreement for Generating Unit "i"; or

(ii) in the case of a Generating Unit which is part of a Distribution CMU, the registered capacity (or inverter rating, if applicable) stated in the Distribution Connection Agreement for Generating Unit "i";

"generating set" has the meaning given to it in the relevant Distribution Connection Agreement;

"Maximum Export Capacity" has the meaning given to it in the Distribution Connection and Use of System Agreement;

"power station" has the meaning given to it in the relevant Grid Connection Agreement or Distribution Connection Agreement as applicable.

4.4.4 Ofgem's 2016 Consultation and Decision on OF4

Source: decision_on_statutory_consultation_on_amendments_to_the_cm_rules_june_2016.pdf

Of4 – Ofgem

Applicants currently have the option of using Transmission Entry Capacity (TEC) to determine a generating unit's connection capacity . Where a site is split into multiple CMUs, the power station's TEC is split between each unit in proportion to that unit's share of the total Connection Entry Capacity (CEC). Currently, the total CEC used is the maximum of the station level CEC or the sum of individual units' CEC. However, using the station level CEC could result in a connection capacity that is not equal to the total station TEC. That is not the intention of the formula. This proposal seeks to correct the TEC formula by removing the option to use station level CEC.

Consultation responses and decision

We previously consulted on this change in our November Open Letter and most respondents were supportive. In response to the April consultation two respondents noted their support for the change. One respondent noted that the minimum rule is no longer necessary and that there is an interaction with CP125, which also proposed to amend this formula.

We intend to make the change and also amend the formula to remove the minimum rule, as it is not mathematically possible for an individual unit CEC to be greater than the sum of all unit CECs. This does not change the working of the formula but makes it more readable. We think this removes the need for further changes because of auxiliary load, as proposed in CP125.

There is one further drafting change from the proposal: the option to use station level CEC has also been removed from Rule 3.5.5(b), which ensures the formula works for Distribution CMUs as well as Transmission CMUs.

Of4	This proposal seeks to correct the formula in Rule 3.5.5 by removing the option to use station level CEC for apportioning TEC between different generating units.	Take forward

CP125 – Energy UK

This proposal seeks to clarify how Connection Entry Capacity (CEC) should be stated for the purposes of calculating a Transmission CMU's Connection Capacity. In particular it would:

- require applicants to declare whether a CMU's CEC is set net of Auxiliary Load or as a gross figure;
- if it is the latter, require the CMU to submit an outline of the methodology used to calculate Auxiliary Load and then subtract it from CEC;
- explicitly state that the Delivery Body must not prequalify a CMU if the above information is not provided;
- amend the formula in Rule 3.5.5 to ensure it is compatible with the Auxiliary Load requirement in Rule 3.5B.1(c).

Consultation responses and decision

We received one response in favour of this proposal and one response agreeing with our rejection. Further evidence was offered to support the argument that there is a "capacity gap" between capacity available in the market (via MEL data) and capacity offered in the capacity market.

We acknowledge that such a "capacity gap" could be due to a variety of reasons, including failure of plant to net-off auxiliary load. However we have not seen any specific evidence that this gap is due to auxiliary load. Therefore we continue to reject the proposal for the reasons outlined in our consultation, in particular that the Rules already provide that connection capacity must be stated net of auxiliary load.

However, we will re-consider this proposal in future if sufficient evidence is presented to us showing that auxiliary load has not been accounted for correctly.

We note that one part of this proposal relates to Rule 3.5.5 and ensuring it is compatible with the requirement to state connection capacity net of auxiliary load. We are making changes to this formula as part of **Of4**, which will ensure auxiliary load can be accounted for correctly so are not taking the CP125 proposal forward. (In addition to the changes outlined in our consultation we intend to remove the minimum function from this formula, as mathematically it is unnecessary. This does not change the working of the formula but makes it more readable.)

See also **Annex C** Connection Capacity, for Consultation Q and responses relating to Of4.

4.5 Rules (Amendment) 2018

4.5.1 2018 amended 1.2 Definitions

Average ~~Highest~~ Output	has the meaning given in Rule 3.5.4

4.5.2 2018 amended 3.5.3

An Applicant for an Existing Generating CMU may, as an alternative to the determination of Connection Capacity set out in Rule 3.5.2, nominate a Connection Capacity for that Generating Unit equal to the Average ~~Highest~~ Output of that Existing Generating CMU.

4.5.3 2018 amended 3.5.4

For the purposes of Rule 3.5.3, the "Average ~~Highest~~ Output" of a Generating Unit is the mean average of the physically generated net outputs, or Metered Volume where applicable in MWh, multiplied by two to convert to MW and stated to three decimal places, of that Generating Unit in the three Settlement Periods identified by the Applicant under Rule 3.6.1(a).

4.6 **Rules (Amendment) 2022**

4.6.1 2022 insert in 3.4.5

Statement as to Capacity

Each Application must specify:

(a) the Connection Capacity or DSR Capacity (as applicable) of the CMU and, in the case of a Generating CMU, each Generating Unit comprising such CMU, for the Delivery Year to which the Capacity Auction relates and, in the case of a Generating CMU or Interconnector CMU, the basis on which the Connection Capacity has been determined pursuant to Rule 3.5 or Rule 3.5A; and

(b) in the case of a Generating CMU, the Generating Technology Class to which each Generating Unit that comprises such a CMU belongs.

4.7 **Rules (Amendment) #2 2022**

4.7.1 2022#2 edit in 3.5.4

For the purposes of Rule 3.5.3, the "Average Output" of a Generating Unit is the mean average of the physically generated net outputs, or Metered Volume where applicable in MWh, multiplied by two to convert to MW and stated to three decimal places, of that Generating Unit in the three Settlement Periods identified by the Applicant under Rule 3.6.1(a) or Rule 3.6.1(aa).

4.8 **Rules (Amendment) 2023**

4.8.1 2023 moved MEC from 3.5.5 to 1.2 so it can be used in 3.5.1A

Maximum Export Capacity	has the meaning given to that term in the Distribution Connection Agreement

4.8.2 2023 insert in 3.4.5

Statement as to Capacity

Each Application must specify:

(a) the Connection Capacity or DSR Capacity (as applicable) of the CMU and, in the case of a Generating CMU, each Generating Unit comprising such CMU, for the Delivery Year to which the Capacity Auction relates and, in the case of a Generating CMU or Interconnector CMU, the basis on which the Connection Capacity has been determined pursuant to Rule 3.5 or Rule 3.5A; ~~and~~

(b) in the case of a Generating CMU, the Generating Technology Class to which each Generating Unit that comprises such a CMU belongs~~.~~; and

(c) in the case where Rule 3.5.5 applies, each CMU to which the relevant Grid Connection Agreement or Distribution Connection Agreement (as applicable) applies.

[DN not the same as 3.4.5(c) deleted in 2016#2, highlighting the need to use 'omit' rather than delete]

4.8.3 2023 insert 3.5.1A

The aggregate Connection Capacity of all Generating Units comprised in a Generating CMU must not exceed the sum of the Transmission Entry Capacity and Maximum Export Capacity (as applicable) which apply to each of the Generating Units comprised in that Generating CMU.

4.8.4 2023 amended 3.5.2

Subject to Rules 3.5.3 or 3.5.5, the Connection Capacity of a Generating Unit must be calculated as follows:

(a) for a Generating Unit forming ~~part or~~ all or part of a Transmission CMU, the Transmission Entry Capacity ~~Connection Entry Capacity~~ stated in the Grid Connection Agreement for that Generating Unit;

(b) for a Generating Unit forming part or all of an Existing Generating CMU which is a Distribution CMU, the Maximum Export Capacity ~~registered capacity (or inverter rating, if applicable)~~ stated in the Distribution Connection Agreement for that Generating Unit or in the written confirmation from the Distribution Network Operator provided pursuant to Rule 3.6.3(c)(ii) (as applicable);

(ba) for a Generating Unit forming part or all of an Existing Generating CMU which is a Distribution CMU, but where the Distribution Connection Agreement or connection offer does not state its registered capacity (or inverter rating, if applicable):

(i) the estimated capacity that the Applicant, with respect to the Generating CMU (that includes that Generating Unit), calculates to be the registered capacity or inverter rating, based on information otherwise contained within the Distribution Connection Agreement or a connection offer; or

(ii) the maximum capacity which will be physically capable of being transmitted from the Generating Unit to the Distribution Network, based on information otherwise contained within the Distribution Connection Agreement or a connection offer.

(c) for a Generating Unit forming part or all of a Prospective Generating CMU which is a Distribution CMU:

[DN the informal consolidated version of the Rules has not followed the instructions in R(A)2023 to "omit" (i), (ii) and (iii)(aa) and has marked them as deleted, including (iii)'s initial text. Below we have followed the R(A), as implemented in informal consolidated Rules 2024.]

(i) omit the registered capacity (or inverter rating, if applicable) for that Generating Unit stated in the Distribution Connection Agreement for that Generating Unit or in the written confirmation from the Distribution Network Operator provided pursuant to Rule 3.7.3(b)(ii) (as applicable); or

(ii) omit where the Generating Unit does not have a Distribution Connection Agreement, the registered capacity (or inverter rating, if applicable) for that Generating Unit stated in the connection offer for that Generating Unit or in the written confirmation from the Distribution Network Operator provided pursuant to Rule 3.7.3(b)(ii) (as applicable); or

(iii) where the Generating Unit:

(aa) omit has a Distribution Connection Agreement or a connection offer but such agreement or offer does not state its registered capacity or inverter rating, the estimated capacity that the Applicant, with respect to the Generating CMU (that includes that Generating Unit), calculates to be the registered capacity or inverter rating, based on information otherwise contained within the Distribution Connection Agreement or connection offer; or

(bb) does not have a Distribution Connection Agreement or a connection offer, or has a Distribution Connection Agreement or a connection offer but such agreement or offer contains no information relevant to the calculation of registered capacity or inverter rating, the estimated capacity that the Applicant, with respect to the Generating CMU (that includes that Generating Unit) anticipates (acting in good faith) to be the maximum capacity which will be physically capable of being transmitted from the Generating Unit to the Distribution Network,

in each case expressed in MW to three decimal places.

4.8.5 2023 amended 3.5.5

An Subject to Rule 3.5.1A an Applicant for a Generating CMU may, as an alternative to the determination of Connection Capacity set out in Rule 3.5.2 or 3.5.3, nominate a Connection Capacity for a Generating Unit comprised in that Generating CMU in accordance with following formula:

:

"Maximum Export Capacity" has the meaning given to it in the Distribution Connection Agreement;

4.8.6 DESNZ March 2023 Consultation

Source: capacity-market-2023-consultation.pdf

2.3 Connection Capacity

2.3.1 Context

Section 3.2 of the CfE explored the creation of a connection capacity test (as devised by Ofgem in an earlier consultation) to ensure that a CMU's Capacity Obligation accurately reflects its total export capacity to the transmission or distribution network. Feedback on this proposal was mixed, with several respondents highlighting their view that the risk that the introduction of a test would increase the CM's complexity and create additional administrative burdens for Capacity Providers. Responses also suggested connection capacity should instead be based wherever possible on actual metered data. In subsequent engagement sessions, the

government has held with industry, stakeholders have commented on the overall complexity of connection agreements and of the process for selecting the appropriate connection capacity for submission as part of the prequalification process in accordance with the Rules.

In light of stakeholder feedback, the government is not minded to introduce a connection capacity test as considered in the CfE. Instead, the government is minded to amend the Rules on determining connection capacity to achieve two aims: firstly, to ensure as far as possible that a CMU's connection capacity is reflective of the capacity it can credibly export either to the transmission or the distribution network; and secondly, to simplify the process for determining a CMU's connection capacity by clarifying and harmonising the available options for different CMUs under the Rules.

2.3.2 Proposed changes to connection capacity

The government proposes to amend the Rules such that all Capacity Providers can base the connection capacity of their CMUs (regardless of technology type) on one of the following three figures:

- The CMU's Transmission Entry Capacity (TEC); or
- The CMU's Maximum Export Capacity (MEC); or
- The CMU's Average Output (calculated in accordance with Rule 3.6.1(a) on Previous Settlement Period Performance).

The government is also minded to require Capacity Providers whose CMUs are part of multi-unit sites to cap the sum of the connection capacity of the relevant units at the site level of TEC or MEC. This will prevent situations in which the connection capacity of individual units on a multi-unit site may be overstated in relation to the total site TEC or MEC.

The proposed approach would remove the option to base connection capacity on Connection Entry Capacity (CEC) for Transmission CMUs, as well as a range of options for Distribution CMUs. The government is of the view that Average Output is a viable option for the majority of CMUs, and that TEC or MEC should be clearly visible on connection agreements, including prospective agreements for new build CMUs. However, stakeholder views are welcome on whether there are any risks that TEC and MEC are not included in all connection agreements or prospective agreements.

For example, Rule 3.5.2 accounts for scenarios in which the registered capacity or inverter rating is not shown on a connection agreement, or where such an agreement or offer has not yet been made, by allowing Capacity Providers to estimate in good faith the maximum amount of capacity physically capable of being exported to the Distribution Network. The government welcomes stakeholder views on whether it is necessary to retain such options in any amendments to the Rules.

A CMU's ability to deliver on the Capacity Obligation which results from this connection capacity (once de-rated) will be demonstrated at the first SPD (see section 2.1 above), with CMUs subject to the relevant sanctions for failing to meet SPDs (suspension of payments followed by a possible termination).

The government is also seeking views on whether Capacity Providers would prefer to be able to self-nominate their connection capacity up to but no higher than whichever is the highest figure: the CMU's TEC, MEC, or Average Output. This may help Capacity Providers to manage any non-delivery risks specific to their CMUs. Again, the connection capacity for all units on a multi-unit site would be required to be capped at the sum of site-level TEC or MEC.

Question 3

Do you agree with the proposed changes to enable Capacity Providers to determine a CMU's connection capacity solely on the basis of TEC, MEC or Average Output? Are there any unintended consequences of taking this approach?

Question 4

Should Capacity Providers be allowed to self-nominate their CMU's connection capacity, provided the nominated figure is not higher than TEC, MEC or Average Output?

4.8.7 DESNZ March 2023 Consultation Decision

Source: capacity-market-2023-consultation-government-response.pdf

Connection Capacity

Section 2.3 consulted on reforming the way connection capacity is assessed in the CM to ensure a higher degree of accuracy in assessing the security of supply contributions of capacity providers. Options for selecting the amount of connection capacity to enter into the CM will be limited to either a CMU's Transmission Entry Capacity (TEC), Maximum Export Capacity (MEC), or Average Output (on the basis of historic metering data). The proposed approach would remove the option to base connection capacity on Connection Entry Capacity (CEC) for Transmission CMUs, as well as streamline the options available for Distribution CMUs. This change aims to ensure that a CMU's connection capacity accurately reflects the capacity it can credibly export to the transmission or distribution network, and to simplify the process for determining a CMU's connection capacity by clarifying and harmonising the options for different CMUs under the Rules.

Summary of responses

Question 3 sought feedback on the government proposal to amend the Rules to enable Capacity Providers to determine a CMU's connection capacity on the basis of TEC, MEC or Average Output. Stakeholders were also asked to comment on whether there would be unintended consequences of this approach. This question elicited 37 responses. Of these, 14 respondents provided clear support, while a further four respondents indicated support but also noted areas for further consideration. 15 respondents did not support the proposal. A further five respondents did not declare a position, but shared feedback on additional considerations for the proposal.

Supportive respondents felt the proposed approach to streamline the options available for determining a CMU's connection capacity and simplify the framework was sensible. Some respondents felt that the proposed change would ensure that a CMU's capacity more accurately reflects their ability to deliver during times of system stress and noted support for the government's decision to not progress with the creation of a connection capacity test at this time. Responses which offered further justification of their support for this change considered that the options proposed fell broadly in line with existing connection capacity arrangements and would work for the majority of CMUs. A number of further considerations were raised in supportive responses, including a request for greater clarity on how the new framework would apply to different CMUs, such as multi-unit sites and requests to retain the option to provide an "estimate in good faith" as currently facilitated by Rule 3.5.2.

Respondents who opposed the changes to limit the options to TEC, MEC or Average Output raised concerns around what they saw as potential unintended consequences of the proposal. Some stakeholders expressed the view that removing Connection Entry Capacity as an option could increase the demand for commercial agreements for network capacity such as TEC, with two respondents of the view that this would be particularly inefficient for assets that also consumed energy on site. Of these respondents, a few shared concerns with existing delays in processing grid connection agreements and felt that this proposal could exacerbate issues with competition for connection agreements. A few respondents felt that the risk of assets overstating their connection capacity was already managed appropriately, through uplifts in auction targets.

Question three also noted that government is minded to require Capacity Providers whose CMUs are part of multi-unit sites to cap the sum of the connection capacity of the relevant units at the site level of TEC or MEC. This is to avoid situations in which the connection capacity of individual units on a multi-unit site may be overstated in relation to the total site TEC or MEC. Some respondents raised concerns about what they saw as potential impacts on incentives for co-located assets of this proposal. These respondents felt that sites which had co-located renewable generation and storage assets may have a shared grid connection value lower than the total of the nameplate capacities at that site, and that limiting the connection capacity to site level TEC or MEC could impact on incentives to build out co-located assets. A few stakeholders felt that capping the sum of connection capacity, rather than capping the sum of de-rated capacity, risked increased costs for consumers as they considered it would require additional capacity to be procured. A few of these respondents believed that this could be particularly inefficient for sites with highly derated technology types, such as renewable generation. The majority of respondents who disagreed with this proposal felt it would be more appropriate for Capacity Providers with CMUs as part of a multi-unit site to cap the sum of the de-rated capacities at the site level of TEC or MEC. A few of these respondents caveated that this should be allowed, provided that Capacity Providers can evidence that the site level of TEC or MEC is not exceeded, and one respondent noted that this approach would remain consistent with wider agreement requirements for testing and delivery on obligations. A few stakeholders also requested clarity from government on the role of co-located assets in the CM and questioned whether the creation of a new technology class with specific de-rating factors would be a more effective approach.

Question 4 sought views on whether Capacity Providers would prefer to be able to self-nominate their connection capacity, provided the nominated figure is not higher than TEC, MEC or Average Output. This elicited 41 responses, with strong support for self-nomination of connection capacity. The majority of respondents were supportive, with 33 stating a preference for self-nomination and a further three respondents indicated caveated support. One respondent did not agree with self-nomination and three respondents did not state an overall position but raised additional considerations.

Of the stakeholders who stated support for self-nomination of their connection capacity, the majority agreed with self-nomination up to TEC, MEC or Average Output. Others supportive of this principle felt that self-nomination would be preferable if aligned with current connection capacity arrangements, with the ability to self-nominate up to Connection Entry Capacity (CEC) as well. Supportive respondents considered self-nomination provided a route for Capacity Providers to manage risks to delivery against obligations, particularly for agreements awarded at T-4 stage, which numerous respondents believed Capacity Providers were best placed to assess. In particular, a few stakeholders felt that self-nomination of connection capacity could allow Capacity Providers to better manage some technology-specific risks, such as the impact of battery degradation on the ability to meet Extended Performance Testing requirements (as explored in section 2.2.3 of the Consultation) or refurbishment plans. One respondent felt that the principle of allowing Capacity Providers greater control over their agreement level, given the view that the provider will be the most informed about their delivery capabilities, should be extended more broadly across the CM. A few stakeholders also highlighted that there are existing requirements within Capacity Market agreements that provide protections against concerns over impact on delivery assurance, such as testing requirements and penalties for non-delivery.

Of the other responses to question 4, one stakeholder raised gaming concerns. Three stakeholders also asked for government to consider what the remainder of a Capacity Provider's capacity should be used for and queried whether this additional capacity could be used in Secondary trading or in future T-1 auctions if this change were to be implemented. One respondent considered that greater flexibility in the timescales for self-nomination would enable Capacity Providers to optimise against delivery risks based on updated views of auction participation.

Policy response

In line with the majority view of respondents, the government intends to proceed with changes to connection capacity in line with consultation proposals to streamline arrangements and ensure better value for consumers by reducing the risk of CMUs overstating their connection capacity. For example, CEC can currently be used to determine the connection capacity and a CMU's TEC may be lower than its CEC. Over the past six years, the Delivery Body has increased the recommended T-1 target capacity by an average of 0.9GW to account for the difference between the TEC and the nominated connection capacity awarded agreements in the earlier T-4 auction[3].

The government recognises the concerns raised in consultation responses around the increased demand for TEC and MEC, and impact on co-located assets which may play an important role in reaching a net zero electricity system. However, the government notes that the purpose of de-rating factors is to act as a fleet-level correction to account for the expected availability of different technology types, and believes that connection capacity should reflect the export capacity of an asset. The government therefore intends to implement the proposal as consulted but will continue to consider the impacts on incentivising co-location.

To implement this change, the government intends to make changes to the Rules as necessary to limit the options available for applicants to determine their connection capacity to TEC, MEC or Average Output. In light of feedback, the option for Prospective CMUs who are distribution connected to make an estimate in good faith of connection capacity will be retained, to accommodate CMUs who may not yet have the relevant information to determine TEC, MEC or Average Output. For units that do not have TEC or MEC specified at the site level, and are not able to determine an individual Average Output value, options will be retained for units to determine an appropriate connection capacity for the individual unit, as a portion of the site TEC or MEC, provided that the sum of the connection capacities at that site does not exceed the total site TEC or MEC. The government will work with delivery partners to ensure timely updated guidance for CM participants.

The government welcomes the views shared on the option for applicants to self-nominate connection capacity, provided the value does not exceed TEC, MEC or Average Output. While feedback received was broadly supportive of the proposal, the government intends to explore this policy proposal further as part of phase 2, including undertaking further analysis and development in order to better understand interactions with wider arrangements.

Footnote 3 https://www.emrdeliverybody.com/CM/Capacity.aspx

5. DB Guidance

5.1 Multi-Unit Sites

Source: [Multi-Unit Sites.pdf] v1.0 March 2024

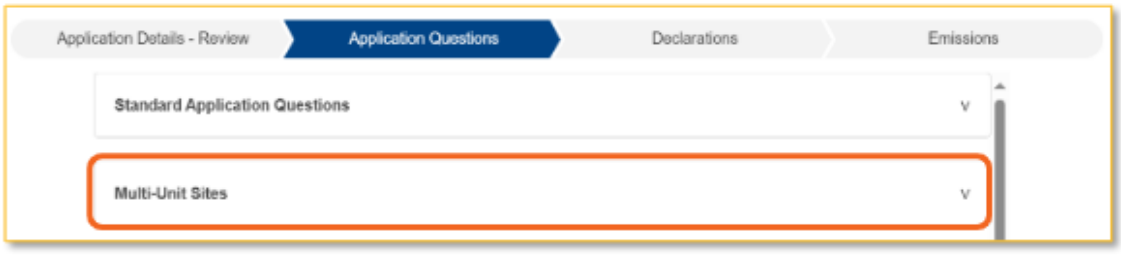
2. Multi-Unit Sites

2.1.1 A Multi-Unit Site is a site that contains multiple CMUs that operate under the same Connection Agreement, even if that Connection Agreement has individual values, or in the case of Grid Connection Agreements, more than one Appendix C. It does not include sites with multiple units if only one of those units is being entered into the Capacity Market. It also does not include CMUs that contain all the Generating Units within the Connection Agreement, in a single CMU.

2.1.2 The information provided in your Application is used to assess Connection Agreements and determine the Connection Capacity of the site, as per CM Rule 3.5.

2.1.3 As mentioned in the Method of Calculation and Capacity guidance, those CMUs using the Pro-Rata methods for splitting Connection Capacity would likely be a Multi-Unit Site. CM Rule 3.4.5(c) requires Applicants who are using the pro-rata formula in CM Rule 3.5.5 to identify each of the CMUs that the Connection Agreement applies. If the Delivery Body find a Connection Agreement applicable to multiple CMUs and the Multi-Unit Site information hasn't been completed, this could result in a failure. Multi-unit site requirements are not exclusive to those CMUs using the pro-rata formula.

2.1.4 The Multi-Unit Site declarations that need to be completed are part of the Application Questions; for applicable CMU Types it will be the second heading as shown below.



2.1.5 Once expanded the first question will be "is this CMU part of a Multi-Unit Site". This is a Yes/No question with Yes leading to two further questions regarding the details of the arrangement.

2.1.6 Total site Capacity is the maximum capacity as stated on the Connection Agreement, and this must be greater than the sum of the CMUs applying for the same Delivery Year (DY). CMUs that are part of a previous Auction and have been awarded an Agreement for the same DY should also be included in the calculation of Total site Capacity.

5.2 Method of Calculation and Capacity

Source: [Method of Calculation and Capacity.pdf] v1.0 March 2024

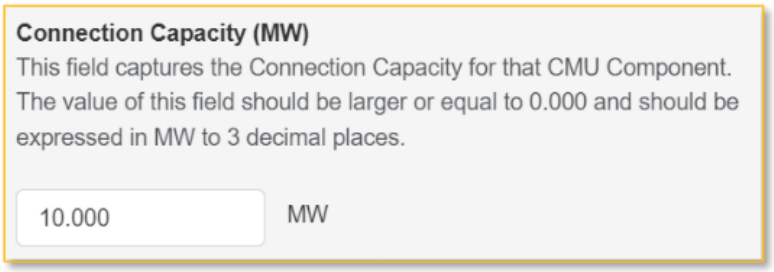
2. Method of Calculation (MoC)

2.1.1 CM Rules 3.5, 3.5A and 3.5B describe the options available to determine the Connection Capacity of the CMU. Below are the options available in the drop-down menu for the Method used to calculate the Connection Capacity with the CMU types they can be used for.

Method of calculation	CMU Types	Example
Distribution CMU – Estimate in Good Faith	Prospective CMUs only	No Connection Offer/Agreement available or a Connection Offer that does not contain the information required to determine capacity.
Distribution CMU – Maximum Export Capacity (MEC)	Prospective and Existing Distribution CMUs	Connection Capacity stated in a Distribution connection offer or agreement that has been confirmed by the DNO for exclusive use by the CMU.
Distribution CMU – Maximum Export Capacity (MEC) Pro-Rata	Prospective and Existing Distribution CMUs	Site that connects to a Distribution network that may have multiple CMUs using the same Distribution connection point but does not exceed overall MEC.
Transmission Entry Capacity (TEC)	Prospective and Existing Transmission CMUs	CMU consists of Transmission connected generator with exclusive use of the connection.
Transmission Entry Capacity (TEC) Pro-Rata	Prospective and Existing Transmission CMUs	Site that connects to a Transmission network that may have multiple CMUs using the same Transmission point.
Historic / Average Output	Existing Generating CMUs	Existing Generating CMUs that can prove historic output on three specific days in the last 24 months.
Interconnector CMU – TEC	Prospective and Existing Interconnectors	All Interconnector CMUs

3. Connection Capacity

3.1.1 Enter the Connection Capacity in megawatts (MW) of the Component to three decimal places.



3.1.2 The aggregate Connection Capacity of the Components cannot exceed the MEC or TEC value stated in the Connection Offer/Agreement provided for that CMU during CMU creation, as per CM Rule 3.5.1A.

3.1.3 Then complete the Connection Capacity field, confirming if Capacity entered is inclusive of Auxiliary Load (AL). If AL has already been subtracted from Capacity, select Yes and no further Capacity related questions will be required.

3.1.4 If AL has not been considered, select No. This will prompt two further questions to confirm the relevant information required.

5.3 **Component Location**

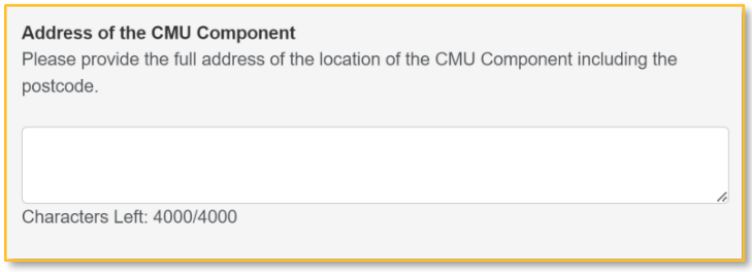
Source: [Component Description, Location, and BMU ID.pdf] v1.1 June 2024

3. Address of the CMU Component

3.1.1 As stated in CM Rules 3.4.3, 7.4.1(a)(iii), and 3.6B enter the address and the postcode of the CMU Component, except for Unproven DSR.

If a site does not have a postcode, enter the rest of the address and provide a Covering Letter giving an explanation for this.

Once a postcode has been allocated, you must notify the Delivery Body.

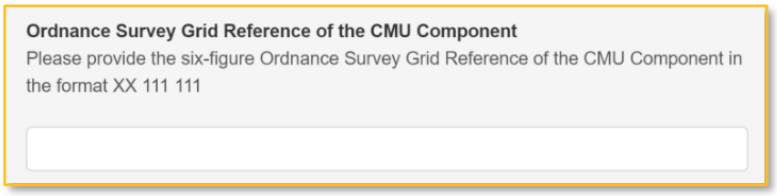


4. Ordnance Survey Grid Reference of the CMU Component

4.1.1 In accordance with CM Rules 3.4.3(a)(i) and 7.4.1(a)(iii) you will need to enter the Ordnance Survey Grid Reference.

Enter the Ordnance Survey Grid Reference in the following format: XX 111 111

(Not the 10-digit format).



Ensure the address/postcode match the Ordnance Survey Grid Reference.

Use UK https://gridreferencefinder.com/ or https://magic.defra.gov.uk/MagicMap.aspx to identify the correct Ordnance Survey Grid Reference for the postcode.

The Delivery Body will also check that the postcode provided matches the Ordnance Survey Grid Reference entered to within the acceptable limit of one mile. If the postcode is more than one mile away from the Ordnance Survey Grid Reference, it is recommended that evidence is provided in a Covering Letter to confirm the locational details are for the same site.

Appendices

Grid Guidance on Connection Capacity

*Source: decision_on_statutory_consultation_on_amendments_to_the_cm_rules_**june_2016**.pdf*

ANNEX C: Connection Capacity

This section describes the responses we received to the questions in Annex C in our consultation, which covered possible amendments to connection capacity. It also sets out our intention to further consider our leading option of allowing a free choice of connection capacity, with testing up to that amount.

Background

Last year we received two Rules change proposals which suggested that the current methodology for calculating connection capacity could lead to Generating CMUs being able to overstate their capacity. Given the potential impacts of this change we decided to consider the proposals further before making any change. In November 2015 we published an open letter seeking stakeholder views on the issue and also on a number of potential options for amending the methodology. In our statutory consultation on rule changes we set out, in Annex C, some quantification of the issue and a proposed way forward, noting we did not plan to take forward these changes before the next prequalification round. We asked participants for their views on our proposed approach.

Our proposed approach

In our consultation we presented further evidence of the issue which aimed to quantify the extent of the problem. We showed that total capacity from units in the capacity market register was higher than the equivalent sum of capacity using the highest historical MEL figures. We also noted that capacity from existing units had increased from 2014 to 2015 largely due to a change in the connection capacity methodologies used by participants.

Our preferred approach is for generators to have a free choice of connection capacity which they are then tested up to. This is because we believe participants are best placed to know their maximum potential capacity during stress. We agreed with many of the respondents to our open letter that the best solution is for parties to have a 'free choice' of connection capacity. However, we believe a free choice would need to be supported by appropriate incentives to ensure that parties pick their maximum potential capacity and do not overestimate it.

Responses to our consultation

Stakeholders were generally supportive of making changes to the rules around connection capacity, with a majority favouring a free choice. There was also significant support for changes to the testing regime to accompany this change.

Several respondents disagreed that any changes were required, however two of those respondents agreed that if some change was made, Ofgem's proposal was a sensible way forward. Responses to the specific questions are summarised below.

Question 9: Do you agree with our analysis and conclusions in relation to connection capacity?

In relation to our analysis, participants noted that there could be other reasons for the highest MEL figures to be lower than the equivalent connection capacities on the register. These include ambient temperature conditions, participants failing to include auxiliary load, and other commercial reasons. However, most of those who commented on our analysis agreed with the broad conclusions.

On our proposed way forward, the vast majority of participants agreed with allowing a free choice, with significant support for changes to the testing regime. Those who did not support making a change generally favoured the current arrangements.

Two respondents believed participants should only be tested up to their de-rated capacity, as this is the level of the obligation.

Most respondents thought it was sensible not to make changes immediately and to develop changes further.

Question 10: Would the satisfactory performance requirements remain appropriate if we test up to connection capacity? In particular, would it be appropriate to demonstrate satisfactory performance on three separate days, and for CMUs to lose all capacity payments if this is not met?

The majority of respondents suggested some changes to the satisfactory performance requirements were needed.

Several respondents argued that some leeway is required as performance depends on ambient conditions at the time and in a warm winter units may not be able to meet their maximum output. Other reasons for allowing leeway included that plant degrades over time and that for a CHP generator, local steam and power requirements may change over time. Because of the need for leeway, one respondent argued for testing to de-rated capacity within the delivery year but allowing historical evidence of achieving connection capacity. Another stakeholder supported the case for using historical output, but testing up to connection capacity should the participant wish to exceed this level.

It was noted that the risk of losing all payments is likely to encourage generators to reduce the level of capacity they commit in the auction and that it would be unfair to penalise generators who entered a connection capacity in good faith. Four respondents suggested a pro-rata approach under such circumstances would be appropriate.

One respondent suggested a CUSC modification could be brought forward to allow generation above TEC or CEC during Capacity Market performance tests.

Two respondents noted that performance on three separate days was unnecessary and that one period would be sufficient.

Three respondents thought the current satisfactory performance requirements should remain, with one noting this would ensure connection capacity is not stated above TEC.

Question 11: Would market rules around exceeding TEC result in genuine capacity being excluded under this approach? Does the ability to purchase short term TEC help address this? If not, is this a significant enough issue for concern?

Respondents raised concerns about the exclusion of genuine capacity. It was noted requiring sufficient TEC to cover connection capacity could raise costs for participants which could increase the auction clearing price and the costs of the CM. A couple of participants noted that generators may be able to exceed TEC in a stress event as they may provide maxgen services, which would not breach the CUSC.

Five respondents believed TEC was not a barrier to entry. One of those respondents noted that if given a free choice there will not be any testing issue as parties will not state a connection capacity higher than TEC.

One respondent believed participants are already remunerated for capacity exceeding their TEC, either through over-delivery payments or the opportunity to earn revenue through volume reallocation. They noted that even if, in theory, a participant can exceed TEC, it has made a commercial decision not to pay the charges, eg TNUoS or DUoS, for it to be able to utilise that capacity. They argued that any additional output may only be deliverable for a short period of time and therefore that parties should not be remunerated with a “firm” capacity payment for capacity that is only available under certain system conditions.

The majority of respondents did not see short term TEC as a solution to the possibility of excluding genuine capacity, noting that applying for it was a lengthy and expensive process, that it may not be available, that participants must already have TEC at prequalification, and that it may not be a worthwhile investment.

Question 12: Do you consider that there is a significant risk of capacity withholding if generators are given a free choice of connection capacity? Would any additional measures be needed to help mitigate this risk (e.g. minimum capacity thresholds or supporting justifications for going below certain thresholds)?

The majority of respondents did not believe there was any risk of capacity withholding if given a free choice of connection capacity. Reasons included adequate competition preventing any benefit from withholding and that the Regulations and REMIT legislation already forbids this behaviour.

One respondent noted that if liquidity in the auction were to decrease withholding could become a problem and suggested monitoring against MEL values.

Respondents did not generally support further measures to address the possibility of withholding, noting that a supporting justification would be difficult to evaluate and minimum thresholds could prevent participation as participants may need to discount the capacity of their plant to mitigate the risk of not being able to meet their satisfactory performance criteria.

However, one respondent agreed with the need for supporting justification and two respondents supported setting minimum capacity thresholds, with one suggesting a prudent approach would be to base these on historical performance.

Next Steps

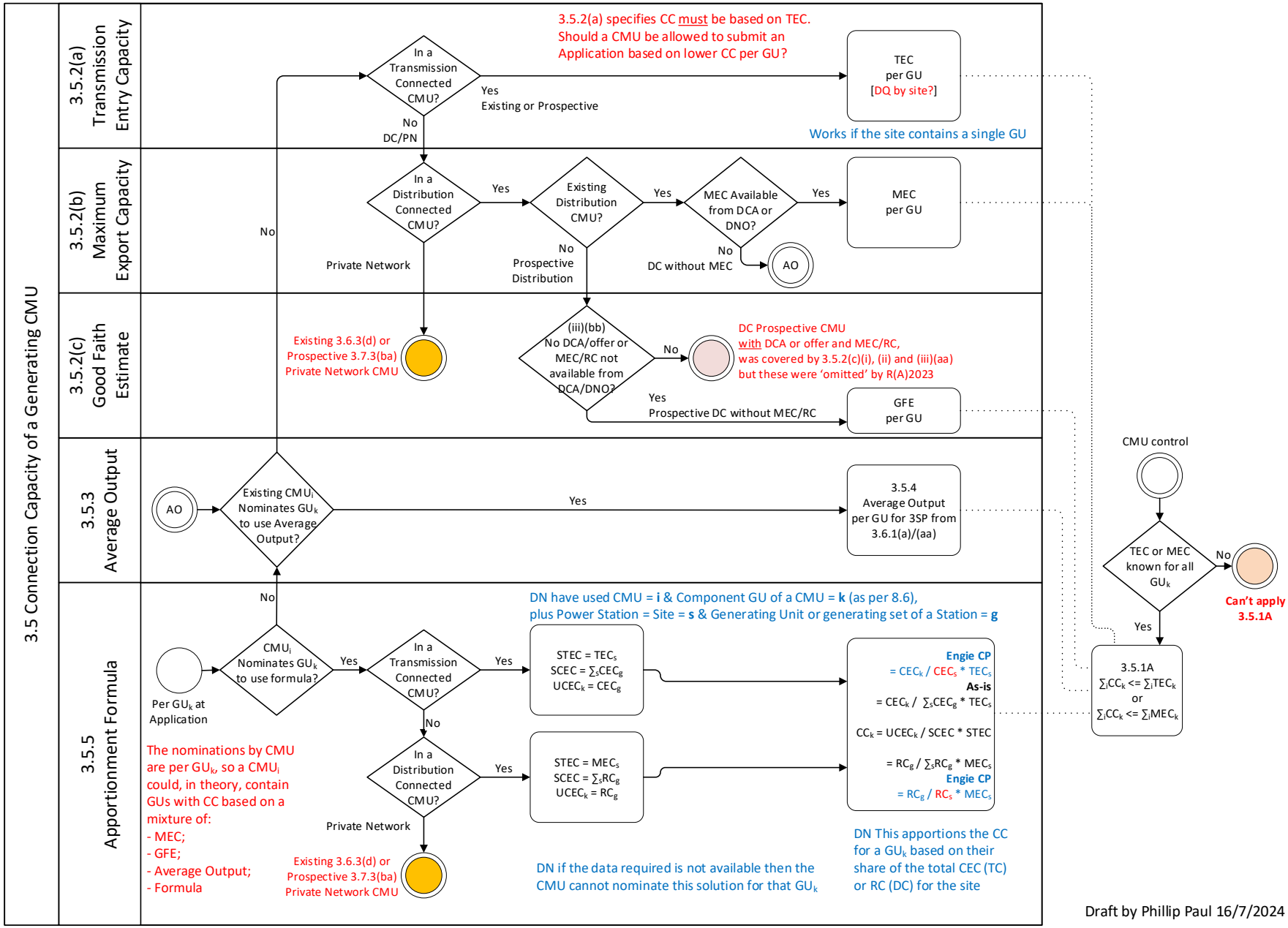
Following the responses to this consultation we remain of the view that the most appropriate way of determining connection capacity is to allow a free choice and test participants up to this level.

However, we think changes to the testing regime may be necessary to ensure genuine capacity is not excluded. Therefore we will develop this proposal further. We plan to work closely with industry and will consult again before proposing any amendments.

Related proposals

While we do not intend to make immediate changes to prevent overstating of capacity, we do intend to take forward two other proposals which relate to connection capacity. We intend to correct the TEC formula (Of4) as this is a simple change which was generally supported. We also intend to take forward CP136, which would allow Interconnectors to use Connection Entry Capacity to set their connection capacity. We believe this proposal can allow more genuine capacity to participate and therefore making this change now brings forward those benefits.

Interpretation of Rule 3.5



Draft by Phillip Paul 16/7/2024