UKAS
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CIS 18

Edition 2 April 2025

Capacity Market

Accredited verification of fossil fuel emissions declarations

Contents

Changes since last edition

Updated throughout to reflect legislation changes and to reference ISO/IEC 17029 and DESNZ.

1. Introduction

The purpose of this document is to set out the policy of the Department for Energy Security and Net Zero ("DESNZ") and the United Kingdom Accreditation Service ("UKAS") regarding the accreditation of bodies validating and verifying Fossil Fuel Emissions Declarations under the Capacity Market Rules.

This includes:

- UKAS' approach to assessment of applicant validation/verification bodies
- Clarification of the details of the verification process as agreed between UKAS and DESNZ
- Further details on the role of Independent Emissions Verifiers

Please note: this document does not present the full details of the Capacity Market Emissions Limits. Validation/verification Bodies need to ensure they are fully conversant with the relevant legislation and guidance pertaining to the CM.[1]

[1] https://www.gov.uk/government/publications/capacity-market-rules

2. Background

2.1 General

The Capacity Market ("CM") is a mechanism to ensure security of electricity supply in Great Britain. It was established by the government in 2014 as part of the Electricity Market Reform policy.

The CM ensures secure electricity supplies by incentivising 'Capacity Providers' to be available to provide capacity – that is, to generate more electricity or reduce electricity consumption. This helps ensure that the electricity system is able to meet peak demand at all times.

Capacity Providers comprise many types of electricity market participants, including generators, demand-side response and interconnectors. In order to participate in the CM, they must bid into annual Capacity Auctions in an attempt to secure a 'Capacity Agreement', under which they commit to be available to provide capacity in return for receiving monthly 'Capacity Payments', which are funded through consumers' bills. Capacity Providers must deliver their obligated capacity at times of system stress (i.e. when there is insufficient electricity supply to meet demand) or face financial penalties.

The years in which a Capacity Agreement has effect are known as 'Delivery Years'.[2]

The length of Capacity Agreements awarded ranges from one year (for most Capacity Providers) up to fifteen Delivery Years (for new build capacity only).

Capacity Agreements apply in respect of 'Capacity Market Units' (CMUs). CMUs are the units of electricity generation capacity or DSR capacity that can be put forward in a Capacity Auction. They are the product that forms the capacity to be purchased through the CM.

CMUs often correspond to one plant; however, they may also comprise more than one 'Generating Unit' or 'DSR CMU Components'. Generating Units are defined as any equipment which produces electricity, including equipment which produces electricity from storage. DSR CMU Components are the means by which a DSR provider commits to providing capacity – whether by turning down demand or by using on-site generating units to reduce electricity consumed from the grid.[3] Generating Units and DSR CMU Components which produce electricity using at least one fossil fuel would also be termed 'Fossil Fuel Components.[4]

Capacity Auctions are held each year around February or March by National Grid Electricity System Operator (NGESO). Two auctions are held: the four-year ahead ("T-4") and the one-year-ahead ("T-1") auctions. The clearing price of the auction determines the level of Capacity Payments that Capacity Providers will receive for Agreements secured in that auction.

In order to participate in Capacity Auctions, prospective Capacity Providers ("Applicants") must first prequalify. The prequalification window runs from around July to September each year. Applicants must submit an application to NGESO, which assesses the Applicant on various criteria to determine whether they are eligible to enter the auctions.

The CM is governed by the Electricity Capacity Regulations 2014 ("the Regulations") and the Capacity Market Rules ("the Rules"). The Regulations provide the overarching policy and design, including the

[2] See Part 1, Section 2 of the Capacity Market Regulations for the full definition of 'Delivery Year'.

[3] A full definition of 'DSR CMU Component' is provided in Regulation 2.

[4] Fossil Fuel Component is defined in the Capacity Market Rules as "any Generating Unit or DSR CMU Component (where that component comprises of a Generating Unit) which produces electricity using a Fossil Fuel". When this guidance references Fossil Fuel Components it also relates to Associated Fossil Fuel Components.

powers the Secretary of State holds in overseeing the CM. The Rules provide the practical detail on how the CM operates under the Regulations. They cover:

- details on the contents of capacity agreements
- obligations of capacity agreement holders, including penalties
- technical operation of the Capacity Market.

The government published an informal Consolidated Version of the Capacity Market Rules on 30 July 2024.[5]

2.2 Fossil Fuel Emissions Limits

On 4 July 2019, the EU's recast Electricity Regulation came into effect as part of the EU's Clean Energy Package. Article 22 of the Electricity Regulation introduced a requirement for capacity mechanisms such as the GB CM to include carbon emissions limits for both new build capacity and existing capacity. These legal obligations were transposed into UK law via amendments to the Capacity Market Rules, and the Electricity Regulation has been assimilated into since the UK left the EU.

The government introduced emissions limits to the CM in 2020 in respect of all Fossil Fuel Components. All Applicants seeking to prequalify Fossil Fuel Components for entry into the Capacity Auctions are required to demonstrate that these Components comply with the Emissions Limits.

There are two emissions limits that apply in the CM to capacity which uses Fossil Fuels to produce electricity:

- 550g of CO_2 of Fossil Fuel origin per kWh of electricity generated ("the Fossil Fuel Emissions Limit"); and
- 350kg CO_2 of Fossil Fuel origin on average per year per installed kWe ("the Fossil Fuel Yearly Emissions Limit").

For capacity[6] that started commercial production before 4 July 2019, the Fossil Fuel Emissions Limit and Fossil Fuel Yearly Emissions Limit apply to Agreements for all Delivery Years from 1 October 2024. For capacity that started commercial production on or after 4 July 2019, the Fossil Fuel Emissions Limit has applied to Agreements for all Delivery Years from 4 July 2019.

As defined in Rule 1.2.1, waste is not considered a fossil fuel except in specific circumstances[7], so energy-from-waste installations are not subject to the Emissions Limits. Biomass and biofuels are not considered fossil fuels and therefore are not subject to the emission limits.

The government published an informal Guidance Document on Fossil Fuel Emissions Limits in the CM ("the Guidance"), which includes answers to FAQs on emissions verification, on 17th August 2022.[8]

[5] https://assets.publishing.service.gov.uk/media/Informal Consolidation of Capacity Market Rules July 2024

[6] i.e. generators and DSR units taking part in the Capacity Market

[7] Unless the waste is something which was produced directly or indirectly from a fossil fuel listed in Rule 1.2.1 (a) to (f) for use as a fuel for a Generating Unit, and, when burned, it produces a greenhouse gas

[8] https://www.gov.uk/government/publications/carbon-emissions-limits-in-the-capacity-market

2.3 Reporting and verification in respect of Fossil Fuel Emissions Limits

The government introduced a framework relating to the reporting and verification of Capacity Providers' emissions through the Capacity Market (Amendment) (No. 2) Rules 2020, Capacity Market (Amendment) (No. 3) Rules 2020, Capacity Market (Amendment) (No. 1) Rules 2021, Capacity Market (Amendment) (No. 2) Rules 2022, Capacity Market (Amendment) Rules 2023 and Capacity Market (Amendment) Rules 2024.[9]

Applicants seeking to enter Fossil Fuel Components into the CM are required to submit a Fossil Fuel Emissions Declaration demonstrating compliance with the Emissions Limits in order to prequalify.

The template for a Fossil Fuel Emissions Declaration is provided as Exhibit ZA in the CM Rules.[10] A Fossil Fuel Emissions Declaration must list all Fossil Fuel Components with a capacity of 1MW or more comprised by the CMU. Fossil Fuel Emissions must be calculated in line with the formulae in Schedule 8 of the Rules.[11]

Fossil Fuel Emissions Declarations need to be verified by an Independent Emissions Verifier (IEV) prior to submission. As a prerequisite for applying to be accredited as an IEV in the United Kingdom, it is necessary to be accredited by UKAS ISO/IEC 17029 for the relevant ISO 14065 scope, under ISO/IEC 17029: 2019 with a scope of ISO 14065: 2020 including the requirements of the United Kingdom Department for Business, Energy and Industrial Strategy Capacity Market Rules 2014.

Fossil Fuel Emissions Declarations are typically submitted as part of the prequalification process, although under certain circumstances the submission can happen at a different time. These circumstances are:

- When a New Build, Refurbishing or Proven DSR CMU delays the submission of a Fossil Fuel Emissions Declaration by submitting a Fossil Fuel Emissions Commitment.
- When a CMU delays the submission of a Fossil Fuel Emissions Declaration as it intends/is required to apply a formula for which it does not have access to the required 12 months of data.
- When a CMU is required to submit a new Fossil Fuel Emissions Declaration following an Emissions Related Material Change.[12]
- When a CMU delays the provision of a verified Fossil Fuel Emissions Declaration by meeting the conditions set out in rule 3.18.3 of the Capacity Market Rules.

The deadlines governing the submission of a Fossil Fuel Emissions Declaration under various circumstances are only relevant to IEVs insofar as they give an idea of when they can expect to receive more requests and can plan resources accordingly. IEVs should note that Applicants' submissions of Fossil Fuel Emissions Declarations are subject to deadlines and therefore verification may be time-sensitive; however, the responsibility for submitting the verified Fossil Fuel Emissions Declaration by the deadline rests solely with the Applicant.

[9] https://www.gov.uk/government/publications/capacity-market-rules

[10] Exhibit A can be seen in Annex 1 of this document.

[11] Schedule 8 can be seen in Annex 2 of this document.

[12] An Emissions Related Material Change is defined in Rule 1.2.1. In respect of a CMU, it means adding a Fossil Fuel Component or Storage Facility which has part or all of its electricity requirements met by an Associated Fossil Fuel Component; and in respect of a Fossil Fuel Component (including where that Fossil Fuel Component is an Associated Fossil Fuel Component) means any change which alters its Fossil Fuel Emissions or Fossil Fuel Yearly Emissions. Rules 8.3.12 and 8.3.13 contain requirements for a Fossil Fuel Emissions Declaration to be provided following an Emissions Related Material Change.

2.4 What materiality will be applied in the verification process?

The concept of materiality is central to the verification process as set out in the Rules, not least because the confirmation that verifiers give when providing an unqualified certificate as set out in Part 9 of Exhibit ZA refers to the applicant's declaration being "true and accurate in all material respects".

It follows that in the CM context, when deciding what form of opinion (if any) to give in respect of a declaration, verifiers must, where they consider it appropriate to do so, exercise their expert judgment in relation to both types of question about materiality outlined above. Since any such exercise of judgment will be highly case-specific, it is not possible to put forward a single, percentage figure as a materiality threshold for accuracy.

That said, consistent with general industry practice, we would not expect the quantitative materiality threshold applied by an IEV in relation fossil fuel emissions declarations to exceed 5% of fossil fuel emissions in any case.

Note that the application by the verifier of a materiality level does not mean that errors (e.g. mistakes of arithmetic in working out formulae) or misstatements can be ignored. Any such issues detected during the verification should be corrected by the applicant. If they cannot be corrected, the verifier will consider the materiality of these misstatements in their verification opinion.

2.5 What are appropriate data sources for design efficiency?

Consistent with the DESNZ guidance, applicants should provide verifiers the most representative data, such as recent performance tests if available. Where an applicant does not have (or expect to have, before it completes the declaration) access to relevant (recent) performance test data to provide it with a value for its plant's consumption rate, it should consider having a preliminary discussion with an IEV about the alternative data it would rely on for its consumption rate and the reasons for why performance data would not be available.

If an IEV is provided with supporting data source(s) where the representativeness of the stated consumption rate compared to the current normal operations cannot be determined, then it should select Part 9, 1(b) when completing the Exhibit ZA to provide a qualified certificate.

Alternatively, the applicant may choose to schedule a performance test which would mitigate the risk of their performance data being materially at variance with current plant configuration.

2.6 Which is the correct version of the Exhibit ZA?

Applicants must use the latest version of Exhibit ZA in the consolidated version of the CM Rules, unless providing an older version of the Exhibit which was signed by a verifier no later than four weeks after the introduction of a newer version (see Rule 3.17.1).

In 2024 a new version of the Exhibit ZA was introduced on 17 July 2024, meaning any version of the Exhibit prior to this version will not be accepted unless signed by a verifier before 14 August 2024.

3. The Role of the Independent Emissions Verifier

3.1 Role of the IEV

The role of the IEV is to verify with reasonable assurance that the values reported by the applicant on their Fossil Fuel Emissions Declaration are true and correct in all material aspects.

As described in Annex A of Exhibit ZA, the IEV should carry out verifications based on evidence presented by the applicant and based on the IEV's own assessment of relevant risks. The IEV may choose to state its assessment of risks and materiality when signing off on the Fossil Fuel Emissions Declaration.

In carrying out a verification, the IEV may need to perform the following tasks:

- **Verify that the formulae applicable relative to the prequalification year declared by the applicant have been used**
  UKAS and DESNZ will maintain an archive of applicable Rules by year at XXXX.

- **Verify that the correct formulae have been applied in respect of the relevant Generating Technology Type**
  The IEV should ensure that the formulae selected by the applicant in calculating fossil fuel emissions are appropriate to the Generating Technology Class of the relevant Fossil Fuel Component(s). In particular, where a Fossil Fuel Component uses more than one fossil fuel to generate electricity, the IEV should verify that the appropriate mixed fuels formula has been applied. Please see Section 11.5 of the Guidance for more information.

- **Verify that any calculations have been performed correctly**
  More information on Fossil Fuel Emissions calculations can be found in the Guidance.

- **Verify that calculations have been performed on the basis of accurate and appropriate data sources**
  The approach to data sources are covered in section 2.5 above.

- **Where applicable, verify the accuracy of the metering methodology and equipment used to measure captured and transferred CO_2**
  The IEV should establish with reasonable certainty that the methodology and equipment used to measure $CO2_{transferred}$ is accurate to ±2.5% and that CO_2 is not simply released into the atmosphere after capture. More information can be found in Section 11.4 of the Guidance.

The government expects that verifications will consist primarily of desk-based review of relevant documents, calculations and data provided by the applicant. On-site visits may be necessary in certain cases, for example when verification of the accuracy of metering methodology and equipment used to measure captured and transferred CO_2. is required. The necessity of such on-site visits for providing reasonable assurance as to the accuracy of the Fossil Fuel Emissions Declaration will be at the discretion of the IEV.

The IEV should ask for any errors on the Fossil Fuel Emissions Declaration to be rectified.

3.2 Simple verifications

In a majority of cases, applicants will be able to apply the standard Fossil Fuel Emissions Formula, which is found at Part 1.2(a) of Schedule 8 of the Rules. This is a design-efficiency based calculation that calculates the Fossil Fuel Component's average Fossil Fuel Emissions based on the fuel consumed and the efficiency of the unit.

Verifications of calculations where this formula has been applied are likely to be more straightforward, since the calculations are largely based on relatively 'fixed' values and information such as design efficiency and fuel type.

Applicants may approach IEVs to undertake these simple verifications at any time of year, since the Fossil Fuel Emissions Formula does not require operational data from specific periods of time. As a result, these verifications are less likely to be time-sensitive.

It should also be noted that these simple verifications will only need to be carried out once in respect of some Fossil Fuel Components. This is because when applying to prequalify, an applicant may benefit from an exception to the requirement to provide a Fossil Fuel Emissions Declaration where certain conditions are met, one of which is that a previously submitted declaration remains accurate – that is, that there has not been an Emissions Related Material Change.

After the 2023 prequalification window, some applicants will therefore be able to reuse and resubmit previously submitted Fossil Fuel Emissions Declaration when entering the same CMU as part of a subsequent applications, unless there has been an Emissions Related Material Change since that Declaration was submitted. In these circumstances, an 'updating' Fossil Fuel Emissions Declaration will be required as soon as reasonably practicable after the person becomes aware of the Emissions Related Material Change.

3.3 Complex verifications

Schedule 8 of the Rules contains a number of formulae that may be applied in respect of particular technology types. These are set out in Table 1 below:

Table 1

Formula	Comments	Further Information
Fossil Fuel Yearly Emissions Formula	• May be applied in respect of a Fossil Fuel Component that cannot meet the Fossil Fuel Emissions Limit of 550g CO_2/kWh generated, but still wishes to enter the Capacity Auctions on the basis that it meets the Fossil Fuel Yearly Emissions Limit of 350kg CO_2 of Fossil Fuel origin on average per year per installed kWe.	• Formula located at Schedule 8, Part 2.1 of the Rules. • See Section 11.1 of the Guidance.

Formula	Comments	Further Information
Fossil Fuel Emissions CCUS Formula	• Optional formula that may be applied in respect of a Fossil Fuel Component that is equipped with carbon capture, utilisation and storage (CCUS) technology. • Allows the average percentage of CO_2 captured and transferred to be 'discounted' from the Fossil Fuel Emissions of the Unit.	• Formula located at Schedule 8, Part 1.2(b) of the Rules. • Requires the calculation of a Transferred Carbon Factor. See Section 11.4 of the Guidance.
Fossil Fuel Emissions Mixed Fuel Formula	• Mandatory formula that must be applied in respect of a Fossil Fuel Component that uses more than one fossil fuel to generate electricity. • Fuels used for start-up and flame control purposes do not need to be included.	• Formula located at Schedule 8, Part 1.2(c) of the Rules. • Requires the calculation of a weighted emission factor. See Section 11.5.1 of the Guidance.
Fossil Fuel Emissions Composite Formula	• Optional formula that may be applied in respect of a Fossil Fuel Component that uses more than one fuel to produce electricity and that is equipped with CCUS technology.	• Formula located at Schedule 8, Part 1.2(d) of the Rules. • Requires the calculation of a Transferred Carbon Factor and a weighted emission factor. See Sections 11.5.2 and 11.5.4 of the Guidance.
Design Efficiency CHPQA Formula	• Optional formula that may be applied in respect of a Fossil Fuel Component in the Combined Heat and Power (CHP) Generating Technology Class. • Allows design efficiency to be calculated on the basis of fuel used for electricity generation only, which may allow for a better reflection of the true efficiency of the Component. • As a prerequisite for applying this formula, the relevant Component(s) must be covered by a Qualifying Combined Heat and Power Quality Assurance (CHPQA) Certificate.	• Formula located at Schedule 8, Part 3.2(c) of the Rules. • May require the use of a conversion factor to transform the value for Total Fuel Input from Gross Calorific Value to Net Calorific Value. See Section 11.3 of the Guidance.

The emissions profile of Fossil Fuel Components in respect of which any of the formulae in Table 1 have been applied may vary over time. For this reason, the calculations will be required to be carried out with every application using datasets from a continuous 12-month period during the 14 months leading up to the application being submitted. This will allow for an assessment of the ability of the relevant Fossil Fuel Components to comply with the Emissions Limits given their recent commercial behaviour.

Since recent data is required, applicants applying any of the formulae in Table 1 will not be able to benefit from the exception established by Rule 3.6.5(b) and 3.9.5(b). They will therefore not be able to reuse previously submitted Fossil Fuel Emissions Declarations; rather, they will be required to submit a new Fossil Fuel Emissions Declaration with every application, even if there has not been an Emissions Related Material Change.

To summarise, there are a number of important implications for IEVs carrying out these more complex verifications:

- Since calculations will require 12 months of data from the 14 months leading up to the application being submitted, it is more likely that these verifications will be requested in late spring/early summer rather than throughout the year.
- These verifications are more likely to need to be completed in the 2 months ahead of the closure of the prequalification window in September. They are therefore more likely be time-sensitive.
- The verifications will need to be carried out for every application in respect of certain Fossil Fuel Components, i.e. the Applicant cannot rely upon a previously submitted Fossil Fuel Emissions Declaration, even if there has not been an Emissions Related Material Change.

3.4 Requirements placed on the IEV

The object of conformity assessment is the Fossil Fuel Emissions Declaration, the template for which is Exhibit ZA in the Capacity Market Rules.

An IEV is referred to as a verification/validation body in ISO/IEC 17029 with a relevant scope under ISO 14065.

The conformity activity is considered to be validation for the Fossil Fuel Emissions Limit and verification for[13]:

- the Fossil Fuel Yearly Emissions Limit
- the Fossil Fuel Yearly Emissions Formula
- the Fossil Fuel Emissions CCUS Formula
- the Fossil Fuel Emissions Mixed Fuel Formula
- the Fossil Fuel Emissions Composite Formula
- the Design Efficiency CHPQA Formula

If a CMU contains Fossil Fuel Components that cannot comply with the Fossil Fuel Emissions Limit, they cannot prequalify unless they can demonstrate compliance with the Fossil Fuel Yearly Emissions Limit.

Part 9 of the Fossil Fuel Emissions Declaration is to be completed by the v/v body. This refers to confirmation with “reasonable assurance that the declaration[s] in Part 3 [is]/[are] true and correct in all material aspects.”

[13] Verification is confirmation of a claim based on historical data. Validation is confirmation of a claim regarding information about the outcome of future activities. (Adapted from ISO/IEC 17029).

3.5 Clarification on CM milestones

DESNZ has clarified that the Fossil Fuel Emissions Commitment is not related to the Financial Commitment Milestone referred to elsewhere in the Rules. DESNZ has further clarified that the milestone is specified in Rule 8.3.11. The milestone is different depending on whether the CMU is a new build, refurbished or unproven DSR, but in none of the cases does the deadline align with the Financial Commitment Milestone (there are a number of milestones in the CM). Table 1 of the Guidance Document sets out which milestone applies in each case.[14]

IEVs should familiarise themselves with requirements pertaining to the Emissions Limits, as set out in the Regulations, the Rules and the Guidance. The CM framework also places various other obligations on Capacity Providers, including obligations related to the Financial Commitment Milestone; however, these will have no direct bearing on the work of IEVs, and consequently it is not necessary for IEVs to be familiar with these other obligations.

4. UKAS Actions

The v/v body will comply with the requirements of ISO 14065: 2020 under ISO/IEC 17029: 2019 accreditation.

The standards referred to in Section 2 of Part 9 of Exhibit ZA are considered to be ISO/EC 17029: 2019 covering the scope of ISO 14065: 2020 and ISO 14064-3: 2019.

UKAS has invited applications from ISO 14065: 2013 accredited v/v bodies to extend their scope to include v/v of FFEDs under the CM. Other bodies may apply but will need a full assessment for conformity with ISO ISO/IEC 17029: 2019 covering a scope of 14065: 2020 as well as covering the requirements of the CM.

It is anticipated that this extension to scope will be assessed by off-site document review. Applicants will need to demonstrate their understanding of the Rules as they apply to verification, and that they have sufficient and appropriate resources to carry out the verification activities.

5. Contact

Note that further information on the CM Emissions Limits reporting and verification frameworks can be found in the Government Response to the 2021 Consultation on Future Improvements.[15] We also recommend that IEVs consult the Regulations, the Rules and the Guidance to ensure they have fully understood the requirements of the CM.

For further information about the contents of this document, please contact UKAS:
Main contact: Richard McFarlane (Head of Technical Coordination)
Tel: +44 (0) 1784 428748
Email: richard.mcfarlane@ukas.com

Accredited Validation/Verification Bodies should also contact your Assessment Manager.

For questions related to the CM, please contact the Energy Security Team at DESNZ.
Email: remamailbox@energysecurity.gov.uk

[14] Guidance, p.12

[15] Government Response link

6. Annexes

- *Annex 1* – *p.13*
  Exhibit ZA – Form of Fossil Fuel Emissions Declaration
  This is the part of the Rules which provides the template for the Fossil Fuel Emissions Declaration.
  Please use the version of Exhibit ZA which appears int the latest informal consolidation of the Rules to fulfil any relevant obligations under the Rules.

- *Annex 2* – *p.21*
  Schedule 8: Calculation of Fossil Fuel Emissions and Fossil Fuel Yearly Emissions
  This is the section of the Rules containing the formulae for calculating emissions.

- *Annex 3* – *p.33*
  Schedule 9 of the Capacity Market Rules
  This is the section of the Rules that containing standardised Emission Factors and Net Calorific Value figures in respect of various fuels.

Annex 1

Substitution of Exhibit ZA (Fossil Fuel Emissions Declaration)

EXHIBIT ZA: FORM OF FOSSIL FUEL EMISSIONS DECLARATION[1]

FOR USE FROM 17 JULY 2024, EXCEPT AS PERMITTED BY RULE 3.15.6(b)

[NAME OF APPLICANT OR CAPACITY PROVIDER]

(Incorporated in England and Wales, or Scotland under Registered No. [ ])

[ADDRESS OF REGISTERED OFFICE]

The following confirmations and declarations are made by Directors[2] of *[NAME OF [APPLICANT] or [CAPACITY PROVIDER]* (the "**Relevant Person**")[3], and

where required[4], this Declaration is signed by an authorised signatory on behalf of *[NAME OF INDEPENDENT EMISSIONS VERIFIER]* (the "**Independent Emissions Verifier**"), and

with respect to *[DESCRIPTION OF CMU]* (the **"Relevant CMU"**) and each Fossil Fuel Component or Associated Fossil Fuel Component by which a Storage Facility comprising the Relevant CMU has part or all of its electricity requirements met (each a "**relevant Fossil Fuel Component**") comprising the Relevant CMU, and

in respect of the Delivery Year in respect of which a Capacity Obligation awarded to the Relevant CMU applies (a **"Relevant Delivery Year"**);

[1] Exhibit ZA was substituted by the Capacity Market (Amendment) (No. 2) Rules 2020 and the Capacity Market (Amendment) Rules 2021.

[2] Or officers, in the case of a body other than a company.

[3] For sole director companies, substitute "The following confirmations and declarations are made by the director of [NAME OF APPLICANT] or [CAPACITY PROVIDER] (the "Relevant Person")".

[4] Not required in respect of a Transitional Fossil Fuel Emissions Declaration.

Contents of this declaration:

- **Part 1:** The Relevant CMU
- **Part 2:** Declaration in respect of relevant Fossil Fuel Components
- **Part 3:** Declarations of Fossil Fuel Emissions (and where relevant, Fossil Fuel Yearly Emissions) in respect of relevant Fossil Fuel Components with an Installed Capacity equal to or greater than 1MW
- **Part 4:** Declarations in respect of Formulae applied to determine Fossil Fuel Emissions
- **Part 5:** Declarations in respect of relevant Fossil Fuel Components with an Installed Capacity below 1MW
- **Part 6:** Omitted
- **Part 7:** Declaration in respect of Emissions Related Material Changes
- **Part 8:** Director signatures
- **Part 9:** Independent Emissions Verifier certification
- **Annex A:** Assurance work conducted by an Independent Emissions Verifier

Capitalised terms used herein have the meaning given in the Capacity Market Rules 2014 unless otherwise indicated.

When completing the remainder of this Declaration, delete or strikethrough content in "[ ]" where not applicable.

Part 1: The Relevant CMU

(You must complete this Part in all cases in respect of the Relevant CMU, by retaining (a), (b), (c), or (d)) as applicable.)

The Relevant Person hereby confirms that the Relevant CMU is:

[(a) a New Build CMU.]

[(b) a Refurbishing CMU (where this declaration is not provided in respect of the Pre-Refurbishment CMU and is provided in respect of the Relevant CMU once improvement works have been completed).]

[(c) an Existing Generating CMU (including where this declaration is provided in respect of the Pre-Refurbishment CMU in relation to a Refurbishing CMU).]

[(d) a DSR CMU.]

Part 2: Declaration in respect of whether the relevant CMU includes any Fossil Fuel Components with an Installed Capacity equal to or greater than 1MW

(You must complete this part in all cases in respect of the Relevant CMU, by retaining either (a) or (b):

- *If retaining (a), you must complete Part 5, Part 7 and Part 8.*
- *If retaining (b), you must complete Part 3, Part 4, Part 5, Part 6, Part 7 and Part 8, and arrange for an Independent Emissions Verifier to complete Part 9[4].)*

The Relevant Person hereby declares that:

[(a) the Relevant CMU does not comprise of any relevant Fossil Fuel Component which has an Installed Capacity of equal to or greater than 1MW.]

[(b) the Relevant CMU comprises of at least one relevant Fossil Fuel Component which has an Installed Capacity of equal to or greater than 1MW.]

Part 3: Declarations of Fossil Fuel Emissions (and, where relevant, Fossil Fuel Yearly Emissions) in respect of relevant Fossil Fuel Components with an Installed Capacity equal to or greater than 1MW

(You must complete this Part if you have retained the declaration in Part 2(b), in respect of each relevant Fossil Fuel Component with an Installed Capacity equal to or greater than 1MW by populating each column, where applicable:

- *In the first column, use a brief descriptor/reference of your choice.*
- *In the second column, retain '[Before 4 July 2019]' or '[On or after 4 July 2019]'.*
- *In the third column, list each Generating Unit Fuel Type.*
- *In the fourth column, declare the Fossil Fuel Emissions of each relevant Fossil Fuel Component which has an Installed Capacity of equal to or greater than 1MW.*

Only where applicable, retain the fifth column and declare the Fossil Fuel Yearly Emissions of a relevant Fossil Fuel Component[5].)

Fossil Fuel Component descriptor	**Commercial Production Start Date**	**Generating Unit Fuel Type/s**	**Fossil Fuel Emissions (in gCO_2 per kWh_e)**	**[Fossil Fuel Yearly Emissions (in kg CO_2 per kWe)]**
……	[Before 4 July 2019] or [On or after 4 July 2019]	……	……	[……]
……[6]	[Before 4 July 2019] or [On or after 4 July 2019]	……	……	[……]

[4] Not required in respect of a Transitional Fossil Fuel Emissions Declaration.

[5] i.e., in respect of a Delivery Year which commences in 2024 or a subsequent Delivery Year, in relation to a relevant Fossil Fuel Component with a Commercial Production Start Date before 4 July 2019, and where the Fossil Fuel Emissions of the Relevant Fossil Fuel Component exceed the Fossil Fuel Emissions Limit (see Rule 3.15.1(b)).

Part 4: Declarations in respect of formulae applied to determine Fossil Fuel Emissions

(You must complete this Part if you have retained the declaration in Part 2(b), by populating each column where applicable:

- *In the first column, use the same descriptor/reference you used in Part 3 for a relevant Fossil Fuel Component.*
- *In the second column, retain one of '[Fossil Fuel Emissions Formula]' or '[Fossil Fuel Emissions CCUS Formula]' or '[Fossil Fuel Mixed Fuels Formula]' or '[Fossil Fuel Composite Formula]' where applicable to specify which formula you applied to determine the Fossil Fuel Emissions declared in Part 3.*
- *In the third column, retain one of '[Design Efficiency Formula]', '[Design Efficiency Steam Formula]' or '[Design Efficiency CHPQA Formula]' where applicable to specify which formula you applied when determining the Fossil Fuel Emissions declared in Part 3.)*

Fossil Fuel Component descriptor	**Formula applied to determine Fossil Fuel Emissions**	**Formula applied to determine Design Efficiency**
……	[Fossil Fuel Emissions Formula] or [Fossil Fuel Emissions CCUS Formula] or [Fossil Fuel Mixed Fuels Formula] or [Fossil Fuel Composite Formula]	[Design Efficiency Formula] or [Design Efficiency Steam Formula] or [Design Efficiency CHPQA Formula]
……[6]	[Fossil Fuel Emissions Formula] or [Fossil Fuel Emissions CCUS Formula] or [Fossil Fuel Mixed Fuels Formula] or [Fossil Fuel Composite Formula]	[Design Efficiency Formula] or [Design Efficiency Steam Formula] or [Design Efficiency CHPQA Formula]

[6] an additional row must be added for each additional relevant Fossil Fuel Component.

Part 5: Declarations in respect of relevant Fossil Fuel Components with an Installed Capacity below 1MW

(You must complete this Part in all cases by retaining (a), (b), (c), or (d) as applicable.)

The Relevant Person hereby confirms that:

[(a) omitted:

[(b) omitted:

[(c) where the Relevant Delivery Year is the Delivery Year that commences in 2024 or a subsequent Delivery Year:

(i) the Relevant CMU comprises of at least one relevant Fossil Fuel Component which has an Installed Capacity of less than 1MW and each of those relevant Fossil Fuel Components does not exceed the Fossil Fuel Emissions Limit (other than a relevant Fossil Fuel Component which has a Commercial Production Start Date before 4 July 2019 which exceeds the Fossil Fuel Emission Limit, but does not exceed the Fossil Fuel Yearly Limit);]

(ii) in the event that the Relevant CMU will, after making this declaration, comprise of any additional relevant Fossil Fuel Component with a Commercial Production Start Date on or after 4 July 2019 and which has an Installed Capacity of less than 1MW, such additional relevant Fossil Fuel Components will not exceed the Fossil Fuel Emissions Limit; and

(iii) in the event that the Relevant CMU will, after making this declaration, comprise of any additional relevant Fossil Fuel Component with a Commercial Production Start Date which is before 4 July 2019 and which has an Installed Capacity of less than 1MW, each such additional relevant Fossil Fuel Component will not exceed Fossil Fuel Emissions Limit (other than where it exceeds the Fossil Fuel Emission Limit, it will not exceed the Fossil Fuel Yearly Emissions Limit);]

[(d) where the Relevant Delivery Year is the Delivery Year that commences in 2024 or a subsequent Delivery Year:

(i) the Relevant CMU does not comprise of any relevant Fossil Fuel Component which has an Installed Capacity of less than 1MW;

(ii) in the event that the Relevant CMU will, after making this Declaration, comprise of at least one relevant Fossil Fuel Component with a Commercial Production Start Date on or after 4 July 2019 and which has an Installed Capacity of less than 1MW, such relevant Fossil Fuel Component will not exceed the Fossil Fuel Emissions Limit; and

(iii) in the event that the Relevant CMU will, after making this Declaration, comprise of at least one relevant Fossil Fuel Component with a Commercial Production Start Date which is before 4 July 2019 and which has an Installed Capacity of less than 1MW, each relevant Fossil Fuel Component will not exceed both the Fossil Fuel Emissions Limit (except that, where it exceeds the Fossil Fuel Emissions Limit, it will not exceed the Fossil Fuel Yearly Emissions Limit).]

Part 6: Omitted

Omitted.

Part 7: Declaration in respect of Emissions Related Material Changes

(You must retain this Part in all cases.)

The Relevant Person hereby confirms that an Updating Fossil Fuel Emissions Declaration will be provided if there is an Emissions Related Material Change to the Relevant CMU and/or to a relevant Fossil Fuel Component and:

(a) where the Relevant Delivery Year is the Delivery Year that commences in 2022 or a subsequent Delivery Year, the Relevant CMU and/or each relevant Fossil Fuel Component will not exceed the Fossil Fuel Emissions Limit; and/or

(b) where the Relevant Delivery Year is the Delivery Year that commences in 2024 or a subsequent Delivery Year, the Relevant CMU and/or each relevant Fossil Fuel Component will not exceed the Fossil Fuel Emissions Limit, and where any relevant Fossil Fuel Component which has a Commercial Production Start Date which is before 4 July 2019 exceeds the Fossil Fuel Emission Limit, it will not exceed the Fossil Fuel Yearly Limit.

Part 8: Director Signatures

(You must complete this Part.)

DATED: [dd/mm/yyyy][7]	DATED: [dd/mm/yyyy][7]
Signed	
…….....	…….....
Director[8]	Director[8]
Print Name:	Print Name:

To be executed by the signature of two Directors, (unless Rule 1.3A applies)

Part 9: Independent Emissions Verifier certification of declaration(s) made in **Part 3** and **Part** 4:

(You must arrange for an Independent Emissions Verifier to complete this Part if you have retained the declaration in Part 2(b)[9].)

1. Independent Emissions Verifier to retain either (a) or (b)

[(a) We have conducted a verification of the information provided in the tables in **Part 3** and **Part 4** and the data provided in support of that information and, on the basis of the Assurance Work described in Annex A to this Declaration, we confirm with reasonable assurance that the declaration[s] in Part 3 [is]/[are] true and correct in all material aspects.]

or

[(b) We have conducted a verification of the information provided in the tables in **Part 3** and **Part 4** and the data provided in support of that information and, on the basis of the Assurance Work described in **Annex A** to this Declaration, we confirm with reasonable assurance that the declaration[s] in **Part 3** [is]/[are] true and correct, with the exception of the technical specification(s) / performance test(s) of combustion units made available by the operator [and attached to this declaration]. These documents have been accepted as representative of current operations in the absence of alternative data sources. The risk of mis-statement of data in Part 3 due to the age, degradation or non-optimum condition of the combustion units in operation has not been taken into account in the verification process.

2. Independent Emissions Verifier to complete all of the following

We have applied the following standard/s when conducting the verification of the information provided in the tables in **Part 3** and **Part 4** and the data provided in support of that information:

[*INCLUDE A DESCRIPTION (INCLUDING TITLE AND YEAR) OF THE ISO (INTERNATIONAL ORGANISATION FOR STANDARDISATION) OR EN (EUROPEAN STANDARDS) STANDARD/S APPLIED*]

DATED: [dd/mm/yyyy][10]

Signed…….....

Authorised signatory (Print Name)…….....

Position…….....

Authorised signatory for and on behalf of……..

Name of Independent Emissions Verifier…….....

[7] Signatures need to be dated: The date for each signature is to be provided on the day in which the relevant person signs, in the format: day, month, year (dd/mm/yyyy).

[8] or officer, in the case of a body other than a company.

Accreditation body: ……

Accreditation number of Independent Emissions Verifier: ……..…..

Annex A: Assurance Work Conducted by the Independent Emissions Verifier

Responsibilities:	The Relevant Person is responsible for the preparation and reporting of data in this Fossil Fuel Emissions Declaration ("Declaration") and for its submission to the Delivery Body in accordance with the Rules. The Independent Emissions Verifier is responsible (in accordance with its contract with the Relevant Person and its accreditation obligations) for carrying out verification of the Declaration and data submitted with the Declaration.
Assurance Work Conducted:	The Independent Emissions Verifier has conducted its examination having regard to the criteria used for verification outlined below. This involved examining, based on the verifier's own assessment of risk, evidence provided by the Relevant Person, to assess whether the verifier is able to give reasonable assurance that the declaration(s) in **Part 3** and **Part 4** of this Declaration is/are true and correct in all material respects.
Criteria used for verification:	The Capacity Market Rules, the Electricity Capacity Regulations 2014 (SI 2014/ 2043); relevant ISO and/or EN standards.

[10] Signatures need to be dated: The date for each signature is to be provided on the day in which the relevant person signs, in the format: day, month, year (dd/mm/yyyy).

Annex 2

SCHEDULE 8 TO THE CAPACITY MARKET RULES 2021

SCHEDULE 8: CALCULATION OF FOSSIL FUEL EMISSIONS AND FOSSIL FUEL YEARLY EMISSIONS

This Schedule 8 contains the formulae to determine Fossil Fuel Emissions and Fossil Fuel Yearly Emissions of a Generating Unit:

Contents of this Schedule:

Principal formulae

- **Part 1:** Formulae to determine Fossil Fuel Emissions
- **Part 2:** Formula to determine Fossil Fuel Yearly Emissions

Secondary formulae

- **Part 3:** Formulae to determine Design Efficiency (for use in the Fossil Fuel Emissions Formula, the Fossil Fuel Emissions CCUS Formula, the Fossil Fuel Emissions Mixed Fuel Formula, and the Fossil Fuel Emissions Composite Formula)
- **Part 4:** Formula to determine transferred CO_2 factor (for use in the Fossil Fuel Emissions CCUS Formula and the Fossil Fuel Emissions Composite Formula)
- **Part 5:** Formula to determine weighted emission factor (for use in the Fossil Fuel Emissions Mixed Fuel Formula and the Fossil Fuel Emissions Composite Formula)

Other ancillary formulae

- **Part 6:** Formula to determine the power extracted by expanding the output steam (for use in the Design Efficiency Steam Formula)
- **Part 7:** Formula to determine $CO_{2generated}$ (for use in the formula to determine transferred CO_2 factor)
- **Part 8:** Formula to determine fuel share (for use in the formula to determine weighted emission factor)

Capitalised terms used herein have the meaning given in the Capacity Market Rules 2014 unless otherwise indicated.

Principal formulae

Part 1: Formulae to determine the Fossil Fuel Emissions of a Generating Unit

1.1.

(a) Subject to paragraphs (b), (c) and (d), a person must determine the Fossil Fuel Emissions ("FFE") of a Generating Unit in accordance with the formula in paragraph 1.2(a) of this Part (the "Fossil Fuel Emissions Formula").

(b) A person may opt to determine the FFE of a Generating Unit in accordance with the formula in paragraph 1.2(b) of this Part (the "Fossil Fuel Emissions CCUS Formula") if the Generating Unit was awarded a Capacity Obligation in an auction after the Capacity Market (Amendment) Rules 2021 came into force, and it is equipped with CCUS technology and uses one fuel to produce electricity.

(c) Subject to paragraph (d), a person must determine the FFE of a Generating Unit in accordance with the formula in paragraph 1.2(c) of this Part (the "Fossil Fuel Emissions Mixed Fuel Formula") if the Generating Unit was awarded a Capacity Obligation in an auction after the Capacity Market (Amendment) Rules 2021 came into force and it uses more than one fuel to produce electricity.

(d) A person may opt to determine the FFE of a Generating Unit in accordance with the formula in paragraph 1.2(d) of this Part (the "Fossil Fuel Emissions Composite Formula") if the Generating Unit was awarded a Capacity Obligation in an auction after the Capacity Market (Amendment) Rules 2021 came into force, and it uses more than one fuel to produce electricity and is equipped with CCUS technology.

1.2 Formulae:

(a) Fossil Fuel Emissions Formula:

$$FFE = \frac{0.0036 \times EF_{f,CO2}}{\eta_{des}} = \left[\frac{gCO_2}{kWh_e}\right]$$

(b) Fossil Fuel Emissions CCUS Formula:

$$FFE = \frac{0.0036 \times (1 - TCF) EF_{f,CO2}}{\eta_{des}} = \left[\frac{gCO_2}{kWh_e}\right]$$

(c) Fossil Fuel Emissions Mixed Fuel Formula:

$$FFE = \frac{0.0036 \times EF_W}{\eta_{des}} = \left[\frac{gCO_2}{kWh_e}\right]$$

(d) Fossil Fuel Emissions Composite Formula:

$$FFE = \frac{0.0036 \times (1 - TCF) EF_W}{\eta_{des}} = \left[\frac{gCO_2}{kWh_e}\right]$$

1.3 In paragraph 1.2 of this Part:

η_{des}	is the Design Efficiency of the Generating Unit, which is the value determined by applying the relevant formula in Part 3.2 of this Schedule;
$EF_{f,CO2}$	is the Emission Factor specified in Schedule 9 corresponding to the fuel used by the Generating Unit;
EF_W	is the weighted emissions factor, which is the value determined by applying the formula in Part 5.2(a) or (b) of this Schedule;
f	is the fuel used by the Generating Unit;
TCF	is the transferred CO_2 factor determined in accordance with Part 4.1 of this Schedule.

Part 2: Formula to determine the Fossil Fuel Yearly Emissions of a Generating Unit

2.1 A person must determine the Fossil Fuel Yearly Emissions ("FFYE") of a Generating Unit in accordance with the following formula:

$$FFYE = \frac{FFE \times Electricity\ Production}{Installed\ Capacity} = \left[\frac{kg\ CO_2}{kWe}\right]$$

2.2 In paragraph 2.1 of this Part:

Electricity Production	is the electricity Exported into the Total System by the Generating Unit in an Emissions Year, expressed in GWh;
FFE	is the Fossil Fuel Emissions of the Generating Unit;
Installed Capacity	has the meaning given in Rule 1.2.1.

Secondary formulae

Part 3: Formulae to determine Design Efficiency (for use in the Fossil Fuel Emissions Formula, Fossil Fuel Emissions CCUS Formula, Fossil Fuel Emissions Mixed Fuel Formula and the Fossil Fuel Emissions Composite Formula)

3.1

(a) Subject to paragraphs (b) and (c), a person must determine the Design Efficiency ("η_{des}") of a Generating Unit in accordance with the formula in paragraph 3.2(a) ("the Design Efficiency Formula").

(b) A person may opt to determine the η_{des} of a Generating Unit in accordance with the formula in paragraph 3.2(b) ("the Design Efficiency Steam Formula") in respect of a Generating Unit which is in the Combined Heat and Power (CHP)

Generating Technology Class and was awarded a Capacity Obligation in an auction before the Capacity Market (Amendment) Rules 2021 came into force.

(c) A person may opt to determine the η_{des} of a Generating Unit in accordance with the formula in paragraph 3.2(c) ("the Design Efficiency CHPQA Formula") in respect of a Generating Unit which is in the Combined Heat and Power (CHP) Generating Technology Class and was awarded a Capacity Obligation in an auction after the Capacity Market (Amendment) Rules 2021 came into force.

3.2 Formulae:

(a) Design Efficiency Formula:

$$\eta_{des} = \frac{W_E}{Consumption\ Rate \times NCV} = [\%]$$

(b) Design Efficiency Steam Formula (for agreements awarded pre-Capacity Market (Amendment) Rules 2021):

$$\eta_{des} = \frac{W_E + Q\ W_T}{Consumption\ Rate \times NCV} = [\%]$$

(c) Design Efficiency CHPQA Formula (for agreements awarded post-Capacity Market (Amendment) Rules 2021):

$$\eta_{des} = \frac{TPO}{TFI \times Cf \times F_e} = [\%]$$

3.3 In paragraph 3.2 of this Part:

Cf	is the conversion factor specified in Schedule 9 of the Rules which corresponds to the fuel used by the Generating Unit;
Consumption Rate	is the consumption rate of fuel used by the Generating Unit at maximum electrical output, in kilograms per second;
F_e	is the percentage of fuel referable to electricity generation as specified in a Qualifying CHPQA Certificate;
NCV	is the Net Calorific Value specified in Schedule 9 which corresponds to the fuel used by the Generating Unit;
Q	is the efficiency of the turbine (comprised in the Generating Unit) that is outputting steam, expressed as a percentage;
TPO	is the total power output of the Generating Unit as determined for the equivalent CHP scheme under the CHPQA Programme, specified on a CHPQA Certificate, expressed in MWh;
TFI	is the total fuel input as specified in the same Qualifying CHPQA Certificate, expressed in MWh;
W_E	is the maximum electrical output of the Generating Unit, expressed in MW;
W_T	is the power extracted by expanding the output steam, determined under Part 6.1 of this Schedule, expressed in MW.

Part 4: Formula to determine transferred CO_2 factor (for use in the Fossil Fuel Emissions CCUS Formula and the Fossil Fuel Emissions Composite Formula)

4.1 A person must determine the transferred CO_2 factor ("TCF") of a Generating Unit in accordance with the following formula:

$$TCF = \frac{CO2_{transferred}}{CO2_{generated}} = [\%]$$

4.2 In paragraph 4.1 of this Part:

$CO2_{generated}$ is the value determined in accordance with the formula in Part 7.2 of this Schedule, in respect of the same Emissions Year, expressed in kg;

$CO2_{transferred}$ is the CO_2 captured and transferred by the Generating Unit (not including CO_2 immediately released upon capture) over an Emissions Year, accurate to ±2.5%, expressed in kg.

Part 5: Formula to determine weighted emission factor (for use in the Fossil Fuel Emissions Mixed Fuel Formula and the Fossil Fuel Emissions Composite Formula)

5.1

(a) Subject to paragraph (b), a person must determine the weighted emissions factor ("EF_W") of a Generating Unit in accordance with the standard formula in paragraph 5.2(a).

(b) A person must determine the EF_W of a Generating Unit in accordance with the CHP formula in paragraph 5.2(b) if the person opts to apply the Design Efficiency CHPQA Formula to determine the Design Efficiency of that Generating Unit.

5.2 Formulae:

(a) standard formula:

$$EF_W = (FS_{F1} \times EF_{F1}) + (FS_{F2} \times EF_{F2}) + \ldots + (FS_{Fn} \times EF_{Fn}) = \left[\frac{kg\ CO_2}{TJ}\right]$$

(b) CHP formula:

$$EF_W = \frac{(Q_{F1} \times QE_{F1} \times EF_{F1}) + (Q_{F2} \times QE_{F2} \times EF_{F2}) + \ldots + (Q_{Fn} \times QE_{Fn} \times EF_{Fn})}{TFI \times F_e} = \left[\frac{kgCO_2}{TJ}\right]$$

5.3 In paragraph 5.2 of this Part:

EF_{F1}	is the Emission Factor of the primary fuel, specified in Schedule 9;
EF_{F2}	is the Emission Factor of the secondary fuel, specified in Schedule 9;
EF_{Fn}	is the Emission Factor of any other fuel additional to the primary and secondary fuel, with each fuel being considered individually, specified in Schedule 9;
FS_{F1}	is the Fuel Share of the primary fuel, determined in accordance with Part 8 of this Schedule, expressed as a percentage;
FS_{F2}	is the Fuel Share of the secondary fuel, determined in accordance with Part 8 of this Schedule, expressed as a percentage;
FS_{Fn}	is the Fuel Share of any additional fuel, with each fuel being considered individually, determined in accordance with Part 8 of this Schedule, expressed as a percentage;
F_e	is the percentage fuel referable to electricity generation as specified in a Qualifying CHPQA Certificate, expressed as a percentage;

Q_{F1}	is the quantity of the primary fuel used by the Generating Unit as determined for the purposes of a Qualifying CHPQA Certificate, expressed in MWh;
Q_{F2}	is the quantity of the secondary fuel used by the Generating Unit as determined for the purposes of the same Qualifying CHPQA Certificate, expressed in MWh;
Q_{Fn}	is the quantity of any other fuel used by the Generating Unit additional to the primary and secondary fuel (with each fuel being considered individually) as determined for the purposes of the same Qualifying CHPQA Certificate, expressed in MWh;
QE_{F1}	is the percentage of the primary fuel referable to electricity generation, as determined for the purposes of the same Qualifying CHPQA Certificate, expressed as a percentage;
QE_{F2}	is the percentage of the secondary fuel referable to electricity generation, out of all fuels used, as determined for the purposes of the same Qualifying CHPQA Certificate, expressed as a percentage;
QE_{Fn}	is the percentage of any other fuel referable to electricity generation additional to the primary and secondary fuel, with each fuel being considered individually, out of all fuels used, as determined for the purposes of the same Qualifying CHPQA Certificate, expressed as a percentage;
TFI	is the total fuel input as specified in the same Qualifying CHPQA Certificate, expressed in MWh.

Other ancillary formulae

Part 6: Formula to determine the power extracted by expanding the output steam (for use in the Design Efficiency Steam Formula)

6.1

(a) Subject to paragraph (b), a person must determine the power extracted by expanding steam ("W_T") in accordance with the following formula:

$$W_T = M\ RT\ ln\left(\frac{P_1}{P_0}\right)\left(\frac{1}{1000}\right) = \ [MW]$$

(b) A person may take W_T to be zero.

6.2 In paragraph 6.1(a) of this Part:

M	is the rate of release of steam, expressed in kilograms per second;
P_1	is the pressure of the steam at release from the Generating Unit at maximum electrical output;
P_0	is the atmospheric pressure;
R	is the constant for air as ideal gas, specified for the purposes of this formula as 0.287 kJ $kg^{-1}K^{-1}$;
T	is the temperature of the steam at release from the Generating Unit at maximum electrical output, expressed in K.

Part 7: Formula to determine $CO2_{generated}$ (for use in the formula to determine TCF of a Generating Unit)

7.1 A person must determine the $CO2_{generated}$ of a Generating Unit over an Emissions Year, as a value expressed in kilograms of carbon dioxide:

(a) in accordance with the formula in paragraph 7.2(a), unless the Generating Unit uses more than one fuel to produce electricity.

(b) if the Generating Unit uses more than one fuel, in accordance with the formula in paragraph 7.2(b).

7.2 Formulae:

(a) standard formula:

$$C02_{generated} = TFEI \times EF_{f,CO2} \times 0.0036 = [kgC0_2]$$

(b) mixed fuel formula:

$$C02_{generated} = TFEI \times EF_{W} \times 0.0036 = [kgC0_2]$$

7.3 In paragraph 7.2 of this Part:

$EF_{f,CO2}$	is the Emission Factor specified in Schedule 9 corresponding to the fuel used by the Generating Unit;
EF_W	is the weighted emission factor, which is the value determined by applying a formula in Part 5.2 of this Schedule;
TFEI	is the total fuel combusted to generate electricity over the same Emissions Year used when determining $C02_{transferred}$, expressed in MWh.

Part 8: Formula to determine Fuel Share (for use in the formula to determine weighted emission factor of a Generating Unit)

8.1 A person must determine the Fuel Share ("*FS*") of a Generating Unit as a value expressed as a percentage in accordance with the following formula:

$$FS_i = \frac{Q_{Fi} \times NCV_{Fi}}{(Q_{F1} \times NCV_{F1}) + (Q_{F2} \times NCV_{F2}) + \ldots + (Q_{Fn} \times NCV_{Fn})} = [\%]$$

8.2 In paragraph 8.1 of this Part:

F_i	is the fuel for which the FS is being calculated;
NCV	is the Net Calorific Value specified in Schedule 9 which corresponds to the relevant fuel used by the Generating Unit;
Q_{F1}	is the quantity of the primary fuel used by the Generating Unit during an Emissions Year, expressed in gigagrams;
Q_{F2}	is the quantity of the secondary fuel used by the Generating Unit during the same Emissions Year, expressed in gigagrams;
Q_{Fn}	is the quantity of any other fuel used by the Generating Unit additional to the primary and secondary fuel, with each fuel being considered individually, during the same Emissions Year, expressed in gigagrams.

Annex 3

SCHEDULE 9: STANDARD EMISSION FACTORS AND NET CALORIFIC VALUES

For each Generating Unit Fuel Type specified in the first column of the table:

(a) the corresponding Emission Factor ("$EF_{f,CO2}$") is specified in the second column of the table below; and

(b) the corresponding Net Calorific Value (*"NCV"*) is specified in the third column of the table.

Fuel		Emission Factor (kg CO_2 per terajoule)	Net Calorific Value (tera joule per gigagram)	Conversion factor (Cf) for GCV to NCV
Crude Oil		73,300	42.3	0.95
Orimulsion		77,000	27.5	0.94
Natural gas liquids		64,200	44.2	0.95
Motor gasoline		69,300	44.3	0.95
Kerosene (other than jet kerosene)		71,900	43.8	0.95
Shale oil		73,300	38.1	0.95
Gas/diesel oil		74,100	43.0	0.94
Residual fuel oil		77,400	40.4	0.94
Liquefied petroleum gases		63,100	47.3	0.9313
Ethane		61,600	46.4	0.92
Naphtha		73,300	44.5	0.95
Bitumen		80,700	40.2	0.94
Lubricants		73,300	40.2	0.94
Petroleum coke		97,500	32.5	0.95
Refinery feedstocks		73,300	43.0	0.95
Other Oil	Refinery gas	57,600	49.5	0.9025
	Paraffin waxes	73,300	40.2	0.94
	White spirit and SBP	73,300	40.2	0.94
	Other petroleum products	73,300	40.2	0.94
Anthracite		98,300	26.7	0.95

Fuel		Emission Factor (kg CO_2 per terajoule)	Net Calorific Value (tera joule per gigagram)	Conversion factor (Cf) for GCV to NCV
Coking coal		94,600	28.2	0.95
Other bituminous coal		94,600	25.8	0.95
Sub-bituminous		99,610	18.9	0.95
Lignite		101,000	11.9	0.95
Oil shale and tar sands		107,000	8.9	0.94
Brown Coal Briquettes		97,500	20.7	0.95
Patent fuel		97,500	20.7	0.95
Coke	Coke, oven coke and lignite coke	107,000	0.95	0.95
	Gas coke	107,000	0.95	0.95
Coal tar		80,700	28.0	0.94
Derived Gases	Gas works gas	44,400	1	1
	Coke oven gas	44,400	1	1
	Blast furnace gas	260,000	1	1
	Oxygen steel furnace gas	182,000	1	1
Natural gas		56,100	48.0	0.9025