# Single Electricity Market

# (SEM)

## Appendix A:

## Capacity Market Technical Guidance for determining $CO_2$ Emissions for Compliance with the Clean Energy Package

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# 1. CAPACITY MARKET TECHNICAL GUIDANCE FOR DETERMINING $CO_2$ EMISSIONS FOR COMPLIANCE WITH THE CLEAN ENERGY PACKAGE

## 1.1 DEFINITIONS

1.1.1 This technical guidance document is published from time to time by the RAs pursuant to paragraph D.4.1.1 of the Capacity Market Code (CMC).

1.1.2 Unless otherwise stated, terms are as defined in the CMC or, where specified, the Acer Opinion.

1.1.3 Definitions used in this Technical Guidance Document are as follows:

"**Acer Opinion**" means Opinion 22 of 2019 of the European Union Agency for the Cooperation of Energy Regulators dated 17 December 2019;

"**Cogeneration**" means the simultaneous generation in one process of thermal energy and electrical or mechanical energy;

"**Heat Bonus Method**" means that the fuel consumption associated with electricity production shall be determined on the basis of the total fuel consumption less the fuel that would have been used for the simultaneous thermal energy production had it been produced using a boiler of the relevant BAT standard;

"**IPCC Waste Model**" means the spreadsheet model provided as part of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 5: Waste[1];

"**Biomass Fraction**" means the ratio of carbon stemming from biomass to the total carbon content of a fuel or material, expressed as a fraction.

## 1.2 DETERMINATION OF $CO_2$ EMISSIONS

1.2.1 All CMUs or CMU Components seeking to Qualify for a Capacity Auction should provide a value for Specific Emissions as defined in section 6.1 of the Acer Opinion.

1.2.2 CMUs or CMU Components with a Date of Start of Commercial Production prior to 4 July 2019 and with Specific Emissions greater than 550g/kWh should additionally provide a value of Annual Emissions as defined in section 6.2 of the Acer Opinion. In particular, where available the determination of Annual Emissions should be determined on the basis of the most recent three calendar years of historic data.

[1] https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol5.html

1.2.3 Where a CMU or CMU Component has less than three calendar years but more than one calendar year of historic data, Annual Emissions should be determined on the basis of the number of full calendar years of historic data available.

1.2.4 When determining Annual Emissions, any periods where a CMU or CMU Component were subject to a Test under the relevant Grid Code should be excluded.

1.2.5 The Fuel Share ($S_f$) for a Fuel used by a CMU or CMU Component should be determined in accordance with section 7.1 of the Acer Opinion. The Fuel Share for a fuel used as a Secondary or Back-up Fuel only (as defined in the relevant Grid Code) shall be set to zero.

1.2.6 CMUs or CMU Components which operate within the EU ETS should determine an Emission Factor ($EF_{F, CO2}$) for each fuel with a non-zero Fuel Share as defined in paragraph 7.2.1 of the Acer Opinion.

1.2.7 CMUs or CMU Components operating outside of the EU ETS should determine their Emission Factor as their $CO_2$ Emissions divided by their fuel consumption, i.e. following the principles set out in equation 5 of section 7.2.1 of the Acer Opinion.

1.2.8 The Emission Factor of CMUs and CMU Components that are Clean shall be zero.

1.2.9 The Emission Factor of energy storage CMUs and CMU Components, e.g. pumped and battery storage, shall be zero.

1.2.10 The Emission Factor for the Biomass Fraction of the fuel consumption shall be set to zero. If the Biomass Fraction is equal to or higher than 97%, it shall be considered to be 100% and the Emission Factor for the relevant CMU or CMU Component shall be zero.

1.2.11 For waste-to-energy CMUs or CMU Components the saving in $CO_2$ equivalent emissions that arises from waste not being sent to landfill should be recognised in the determination of both Specific and Annual Emissions. This saving should be determined using the methodology set out in the IPCC Waste Model over the operating life of the relevant CMU or CMU Component.

1.2.12 With the exception of Cogeneration CMUs, the Design Efficiency ($\eta_{DES}$) of a CMU or CMU Component should be determined as set out in section 7.3 of the Acer Opinion

1.2.13 The Design Efficiency ($\eta_{DES}$) for a Cogeneration CMU should be determined on the basis of the Heat Bonus Method.

1.2.14 For New Capacity which has not yet been Commissioned or for CMUs or CMU Components with less than one calendar year of historic data, any values to be determined in accordance with these Guidelines should be made on the basis of the most recent performance test or the best available alternative evidence of the required value.

1.2.15 Participants should provide sufficient supporting documentation to the System Operators to evidence any determinations that have been made in accordance with these Technical Guidelines.