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20 March 2020

Re: Capacity Remuneration Mechanism 2024/25 T-4 Capacity Auction Parameters and Compliance with the Clean Energy Package

Dear Sir/Madam,

Ibec, the group that represents Irish business, welcomes this opportunity to respond to the *Capacity Remuneration Mechanism 2024/25 T-4 Capacity Auction Parameters and Compliance with the Clean Energy Package* consultation paper.

Ibec is the largest business representative organisation in Ireland. We speak for businesses across a range of industrial, commercial and non-profit sectors. The organisation and its sector associations strive for business conditions that enable sustainable economic growth.

Overview

Ibec's main concern at present is the potential exclusion of CHP from the capacity market mechanism due to a legislative oversight.

Ibec notes that efficient combined heat and power is a critical component of Ireland's energy system and it will remain a key technology throughout the low carbon transition. CHP remains the most sustainable and least carbon intensive fossil fuel technology available in Ireland today for both heavy industry and power generation.

Ibec is concerned that an unintended oversight in the legislation will see electricity generated from CHP excluded from the Irish capacity market. This would send the wrong signal to the market and undermine the financial viability of several efficient CHP systems in operation today.

The next capacity auction is scheduled for April 2020 where rules will need to be in place for new generators. Qualification application for T-4 2024/2025 for existing generators will be similarly affected by 1st July 2020.

Article 22(4) of Regulation (EU) 2019/943 published on the 5 June 2019, excludes units whose electrical carbon intensity is greater than 550 g CO_2 per kWh except for limited run hours. This intensity limit is in line with the Government's 2019 Climate Action Plan to phase out coal-fired and peat-fired generation.

On the 17 Dec 2019 ACER opinion no 22/2019 "Calculation of the values of CO_2 emission limits" was published. This opinion looked selectively at a subparagraph of

Article 22(4) without considering the overall objective of the Clean Energy Package (CEP). The CEP consists of eight legislative files aimed at enabling the EU to transition to cleaner energy. The ACER opinion ignores the carbon saving associated with CHP and its ability to meet an existing heat load while generating electricity. Irish CHP avoids over 400,000t CO_2 every year[1], if part of the Irish CHP fleet is shut down due to an exit signal from the capacity market Irish emissions will increase. Put simply the ACER opinion chose a power generation efficiency definition and applied it to CHP. This completely ignored the useful heat which is a key component of CHP. There are recognised ISO standard definitions for CHP Efficiency which are more appropriate when comparing such efficiencies and emissions (ISO 50045:2019 includes the useful heat as part of CHP see appendix 1)

Ibec notes that the ACER opinion is not binding and allows for individual Member States to develop their own methodology. Ibec calls on the SEM Committee to address this oversight ahead of future capacity auctions. A methodology is needed to calculate the carbon intensity of CHP in line with the "heat bonus method" used by the European Investment bank.

- Appendix I
- Appendix II is COGEN Europe model for a similar calculation in line with the "heat bonus method

If you have any further questions, please don't hesitate to get in contact

Yours sincerely,

Fergal O'Brien

Director of Policy and Public Affairs,

Ibec

[1] SEAI CHP in Ireland update 2018

Appendix I: Extract from page 13 of ISO_50045:2019

The thermodynamic efficiency, or first-law efficiency, of the steam turbine can be calculated based on Formulae (8) and (9).

For producing electric energy only:

$$\eta_{st} = \frac{Q_{eg,st}}{Q_{s,b}} \times 100\,\% \tag{8}$$

For cogeneration and CHP:

$$\eta_{st} = \frac{Q_{eg,st} + Q_h}{Q_{s,b}} \times 100\,\% \tag{9}$$

where

$Q_{eg,st}$ is the electric energy generated at a steam turbine boundary, in kJ (1 kWh = 3 600 kJ);

$Q_{s,b}$ is the energy entering into the steam turbine from the boiler, in kJ;

Q_h is the energy extracted for heating applications, in kJ;

η_{st} is the efficiency of the steam turbine.

6.3 Gas turbine efficiency

Appendix II: Extract from COGEN Europe Carbon intensity calculation using European Investment Bank "Heat Bonus" method

COGEN EUROPE
Project: CHP EMISSIONS ANALYSIS
ID: 0404-2019-CHA
Date: 08/10/2019
Summary Examples

		Heat Bonus Method		
		Example 1	Example 2	Aughinish
		Gas engine	Gas Turbine	Gas Turbine
		Hot Water	Steam at 15 bar(a)	
CHP plant				
Total efficiency	%	**85.0**	**82.0**	**89.0**
Electrical efficiency	%	**42.0**	**34.7**	**35.6**
Thermal efficiency	%	**43.0**	**47.3**	**53.4**
Electricity generation, P_{CHP}	kWh	1.00	1.00	1.00
Thermal generation	kWh	1.02	1.36	1.50
Fuel input	kWh	2.38	2.88	2.81
Total CO_2 emissions, e_{CHP}	kg	0.481	0.582	0.568
Specific CO_2 emission	g/kWh_{al}	481	582	568
Assumed energy input	kWh	N/A	N/A	N/A
Gas boiler				
Thermal efficiency	%	92.0	87.0	87.0
Thermal generation (same as for gas engine)	kWh	1.02	1.36	1.50
Fuel input for heat (gas boiler)	kWh	1.11	1.57	1.72
Total CO_2 emissions, e_{boiler}	kg	0.225	0.316	0.348
CHP thermal generation displacing gas boiler				
Specific CO_2 emissions of power generation by CHP plant, $e_{CHP,specific}$	g/kWh_{al}	**256**	**266**	**220**

CHP methodology EED (check)				
Electrical efficiency	%	42.0%	34.7%	35.6%
Thermal efficiency	%	43.0%	47.3%	53.4%
Primary energy savings (PES)	%	**24.6%**	**20.2%**	**21.8%**

Reference Boiler Efficiency	%	92.0	87.0	90.0
Refererence Electric Efficiency	%	53.0	53.0	53.0
Correction for Ambient Temperature	%	0.5	0.5	0.5
Correction for Grid Losses	%	91.4	91.4	97.0

$e_{CHP,specific}$ = Specific CO_2 emissions of power generation by CHP plant
e_{CHP} = Total CO_2 emissions of CHP plant
e_{boiler} = Total CO_2 emissions of gas boiler (displaced by CHP)
P_{CHP} = Total electricity generation of CHP plant

$$e_{CHP,specific} = \frac{(e_{CHP} - e_{boiler})}{P_{CHP}}$$