



OFFICE OF CLIMATE, LICENSING & RESOURCE USE

- CLIMATE CHANGE UNIT

NEW ENTRANT/CHP VERIFICATION REPORT		CHP2-001/NE2-006
New Entrant/CHP Register Number	Verified NESA Priority	Verified CHPSA Priority
CHP2-001/NE2-006	6	1
Date: 20 October 2009		
RE: Application for a free allocation of EU allowances from Ireland's New Entrant Set Aside 2008-12		

Application Details	
Installation name:	Wyeth Medica Biopharma Campus at Grange Castle
Installation address:	Grange Castle International Business Park, Kilmahudrick, Nangor Road, Clondalkin, Dublin 2
GHG permit Register number:	IE-GHG026-04
Class of activity:	Combustion installations with a rated thermal input exceeding 20 MW (except hazardous or municipal waste installations)
NESA application received:	7 January 2009
Letters (Request for Further Information) issued:	2 March 2009
Further information received:	24 March 2009, 30 September 2009, 6 October 2009
Site Visit:	11 August 2009
New Entrant proposed start date (in application):	17 August 2009

Description of the development/increase in capacity:

- The new entrant application is in relation to the installation of a 23.3 MW (17.719 +5.58) Combined Heat and Power Plant-Gas turbine and associated waste heat boiler

Consents submitted:

- Planning permission: Planning permission S00A/0455 was granted on 21 September 2000 by South Dublin County Council to construct a Bio-technology Campus for the manufacture of pharmaceutical products which among other buildings consists of a two number 5 MVA combined heat and power electrical turbines, external stacks and items of plant and equipment.
- Major User Connection Agreement: Connection Agreement No: 6001730388 between ESB and Wyeth Medica Ireland was signed on 2 October 2008.
- Grant of Authorisation to Construct a Generating Station under Section 16 of The Electricity Regulation Act 1999 (Auth 2008/11-02) was granted on 29th December 2008 by the Commission for Energy Regulation.

Site Inspection:

Date of Site Inspection: 11 August 2009

Application Representatives: Mr. Bryan Mulchinock, Ms Mary Curran and Mr. Derek Mullins

EPA Representatives: Ms Elaine Farrell

Basis for Priority on CHP/ New Entrant Application Register: All necessary consents were in place on the date of application

Site Tour Observations: The CHP was observed to be in place, connected to the natural gas line and the emission point and being prepared for commissioning.

Documentation Examined:

(i) Substantiated Valid Business Reason: Contract dated 15 July 2008 signed and stamped by AHP CEO and Purchasing Directors and the Directors of Dalkia Alternative Energy who will operate the CHP. The CHP unit was in place and being prepared for commissioning on the date of the site visit.

(ii) Substantiated New Entrant Start Date: 13 August 2009

Basis for Substantiation: Confirmation letter from Fingleton White and Co Limited, Engineers and Project Managers dated 23 September 2009 that first firing of the gas turbine on natural gas was on Thursday 13 August 2009 with the first electricity generation on Monday 17th August 2009.

(iii) Basis for Projections:

Projected emissions from the CHP are based on annual natural gas utilisation calculated using the electrical output, the electrical efficiency and heat recovery. Technical data sheets from the equipment supplier and from the project engineers were examined to substantiate the data used in the calculations.

(iv) Confirmation that the plant satisfies the definition of high-efficiency CHP: Report from Fingleton White and Co. Limited, Engineers and Project Managers dated 27 January 2009 concludes following assessment that the CHP facility at Wyeth Medica exceeds the efficiency standard that will be required to be classified as "high efficiency" under Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EC"

Detailed Calculation of Projected Emissions

Applicant methodology for calculation of projected emissions:

Projected emissions are based on calculated natural gas utilisation of 155,717 MW in a 12 month period. This was based on the electrical output of 5.449 MWe divided by the electrical efficiency of 29.94 % and multiplied by the operating hours of 8556 hours per year (source: Confirmation letter from Fingleton White and Co Limited, Engineers and Project Managers dated 23 September 2009-1005 availability less scheduled maintenance). The applicant has calculated that the CO₂ associated with this natural gas use is 28,762 tonnes per year or 2,397 tonnes per month as follows:

$155,717 * 0.9028(\text{GCV to NCV calculation}) * 0.0036(\text{MW to TJ conversion}) * 56.832 \text{ t CO}_2/\text{TJ (emission factor 2008)} = 28,762 \text{ t CO}_2$

On an annual basis it has been calculated that the CHP will displace 96,688 MWh of natural gas that would have been used by the boilers. This was based on 49% heat recovery of annual output and 95% thermal utilisation. It was then assumed that boiler efficiency is 75% in order to calculate the displaced natural gas. It was calculated that the CO₂ associated with this natural gas use is 17,859 tonnes per year (1,488 tonnes per month) as follows:

$96,688 * 0.9028(\text{GCV to NCV calculation}) * 0.0036(\text{MW to TJ conversion}) * 56.832 \text{ t CO}_2/\text{TJ (emission factor 2008)} = 17,859 \text{ t CO}_2$
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The applicant therefore calculates that the installation of the CHP will result in an additional 59,029 MWh (155,717-96,688) of natural gas per year. The associated CO₂ increase is 10,903 (28,762-17,859) tonnes per year.

Applicant Projected tonnes CO₂/annum:

2009 (September to December)	2010	2011	2012
3,634	10,903	10,903	10,903

EPA methodology for calculation of projected emissions:

In relation to steam production, the CHP and associated waste heat boiler will be in addition to the existing 3 steam boilers (which are of greater capacity than the CHP) on site. The CHP will act as lead boiler for the site with additional boilers coming on line to a maximum of two boilers as steam demand increases. The third steam boiler will provide redundant capacity in the event of a failure of the CHP or a boiler. A temporary boiler has been used on site to provide redundant capacity in the event of the failure of one of the three steam boilers until the CHP

was installed and made operational. There was no allocation associated with this temporary boiler.

Therefore based on the applicant's submission there is no additional CO₂ arising from thermal utilisation of the CHP/Waste heat boiler, only the CO₂ from electrical generation has been taken into account and an application for allowances from the New Entrant Set Aside in respect of thermal capacity does not arise.

EPA Projected tonnes CO₂/annum:

In relation to electricity generation the approach as recommended in the NAP, based on a "Best New Entrant " (BNE) CCGT power plant (CER 2007) has been deemed appropriate by the EPA. The basis for the projections has been determined as follows:

(Net electrical output MWh/ BNE efficiency for CCGT plant of 54.7%)*(Number of hours per year 8760)*(CER recommended capacity utilisation factor 90.87%)*(Emission factor for natural gas^{Note 1} 57.112/ 277.778 tonnes CO₂/MWh (NCV))

Note 1: The emission factor is based on the factor for 2009 (57.112 tCO₂/TJ)

$$= (5.449/0.547)*8760*(0.9087)*(57.112/277.778)$$

$$= 16,303.6 \text{ tonnes}$$

2009 emissions were calculated as follows: Based on an email received from Wyeth Biopharma on 6 October 2009, the CHP commenced full run hours from October 2009. Following commissioning on 13 August 2009, the run hours for August were 11 hours and 19 hours for September.

Based on 8760 run hours per year, the run hours for October (31 days) are calculated as 744 hours, November 720 hours and December 744 hours.

Therefore for 2009 = (16,303.6/8760) * (30 hours operation August/September) + (16,303.6/8760(hours)*2208 (October, November and December hours))= 55.83 + 4109.4 = 4165 tonnes

2009	2010	2011	2012
4,165	16,304	16,304	16,304

Recommendation

The new entrant set aside application is found to have the necessary consents in place and to have a substantiated start date as detailed above. A valid business reason is available. It is recommended that the new entrant set aside allocation be taken from CHPSA and be based on the following Relevant Emission (tonnes CO₂/annum):

2008	2009	2010	2011	2012
0	4,165	16,304	16,304	16,304

Signed: _____ Date: 20 October 2009
Elaine Farrell
Inspector

Reviewed: _____ Date: 20 October 2009
Dr Maria Martin
Senior Manager