

**Regional Inspectorate,
McCumiskey House,
Richview,
Clonskeagh Road,
Dublin 14,
Ireland**

RE: Application for Allowances from New Entrant Set Aside (NESA) - NE2-010

Dear Sir/Madam,

I refer to your letter of 26th November in relation to the proposed decision on the allocation of carbon allowances to Cushaling Power Ltd from the New Entrant Set Aside, (your reference NE-210).

Cushaling Power Ltd has reviewed the basis of the calculation of the Annual Relevant Emissions figure and respectfully requests a minor alteration to the methodology as follows.

The average load factor of the BNE peaker unit when operating is estimated at 60%, as indicated in the decision paper of the SEM regulatory authorities¹. The calculation methodology indicates the historical overall utilisation factor of equivalent peaking units in the period 2007-2009 as 1%, however it does not indicate the average load these units were dispatched too when they ran.

The relevance of this point is that the efficiency figure used in the calculation of the annual Relevant Emissions uses a full load efficiency, (corrected for degradation) of 35.793%. The average efficiency of the unit when operating at part load will be less than this, resulting in higher fuel consumption and emissions.

There is no detail in the BNE papers on the variation of heat rate with unit output. However, this can be estimated from unit no – load and incremental heat rate data of Cushaling Power Ltd. This data has been independently verified for the SEM, as part of the annual independent review of SEM generators Technical and Commercial characteristics, carried out this year by Redpoint Energy, and published in April 2010².

The heat rate data for the Cushaling units is given as follows

¹2011 Fixed costs of a Best New Entrant Peaking Plant decision paper available at http://www.allislandproject.org/en/cp_decision_documents.aspx?article=ab764619-7dec-4b19-afb2-d38b728bcfd4

² Data available in “Datasheets Public” link, available at http://www.allislandproject.org/en/market_decision_documents.aspx?page=2&article=cb4ee33b-a83a-47ce-956a-6cff30900495

Directors

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From
Richard Neale

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PLEXOS Unit ID	Unit Name	No Load Heat Requirement (GJ/hr)	Capacity Point [MW exported]	Incremental Heat Rate Slope [GJ/MW hr]
ED3	Cushaling	85.00	56	9.00
ED5	Cushaling	85.00	56	9.00

Note that the as commissioned max continuous export for the unit is 58MW, greater than the 56 MW indicated.

The heat rate at any load point is given by:

Unit heat rate (@ Ouput P) = Incremental Heat rate + No load/P

At 60% full output (60% x 58 MW = 34.8MW)

the heat rate = $9 + 85/34.8 = 11.44 \text{ GJ/MWh} = 3.18 \text{ MWh/MWh}$

This heat rate can be expressed in terms of efficiency as

$\eta = \text{Energy Output/Energy input} = 1/\text{heat rate}$

$\eta_{60\% \text{ load}} = 1/3.18 = 31.45\%$

The total annual Relevant Emissions for 2011 would therefore be calculated as follows:

MWe output 116MWe / (operational efficiency 0.3145) x 8760 (hours in 365 day year) x (1% capacity factor) x (Country specific emission factor for gas oil 73.3 tCO₂/TJ) / (conversion factor MWh to TJ 277.778) = 8,526 tonnes CO₂ for a 365 day year.

The equivalent output for 2010 (pro-rated for 110 operational days) is 2,569 tonnes, which added to the 3,823 tonnes for commissioning equates to a total for the year of 6,392 tonnes.

The total for 2012, adjusted for the 366 day year equals 8,549 tonnes.

Cushaling Power Ltd would appreciate if due consideration can be given to this alteration to the calculation methodology in the final determination of the annual Relevant Emissions for the plant. Please let me know if you require any clarifications in relation to this proposal,

Yours sincerely,

Richard Neale
EHS Manager

For and on behalf of Cushaling Power Ltd.