



Pat Swords  
10 Hillcourt Road  
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Co Dublin

30 August 2011

Dear Mr Swords,

I refer to your request dated 17 July 2011 concerning access to information in relation to greenhouse gas emissions and renewable energy.

*Query: In relation to the current renewable energy programme it is noted that in the application for the State Aid approval for the REFIT I tariffs it was stated in regard to anticipated environmental results, that the annual savings per 100 MWs of wind energy installed would be 0.19 million tonnes of carbon dioxide.*

*Question 1 relates to access to the environmental information, which was used to derive the above figure for the anticipated emissions savings. As far as can be ascertained there has been no verification exercise completed by the Department or other public bodies as to the effectiveness of the circa 1,500 MW of wind energy, which has been installed on the grid to date, in terms of environmental performance. In particular with regard actual savings of carbon dioxide versus the projected savings documented above.*

**Response:**


Concerning the 0.19m tonnes savings of CO<sub>2</sub> per 100MW of wind energy installed that was quoted in the REFIT 1 state aid application, the file does not indicate how the figure was derived. However the colleague who completed the state aid application has said that the figure quoted in the application at the time was based on publicly available information published by Sustainable Energy Ireland.

The state aid application was submitted to the EC in August 2006. The most up-to-date emission factor for electricity at that time was the one for calendar year 2004 - as the figure for 2005 was published the following November. See SEAI's, Energy in Ireland 1990-2004 . This document is publicly available for download at:  
[http://www.seai.ie/Publications/Statistics\\_Publications/EPSSU\\_Publications/Energy\\_In\\_Ireland\\_1990-2004.pdf](http://www.seai.ie/Publications/Statistics_Publications/EPSSU_Publications/Energy_In_Ireland_1990-2004.pdf)

Figures published in Energy in Ireland 1990-2004 would have been used to estimate the CO<sub>2</sub> savings per MWh of new wind capacity. The average capacity factor for wind used in the state aid application was 34%. Using this figure it could have been estimated that each MW of additional capacity produced 2,978 MWh of electricity (1MW x 8760hrs x 0.34).

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If each MWh of grid electricity is responsible for an average of 624kg of CO<sub>2</sub> (per the SEAI publication), each MW of wind removes an average of 1,858,521 kg of CO<sub>2</sub> from the emissions (1,859 tonnes). Per 100 MW this comes to 0.186 million tonnes of CO<sub>2</sub> avoided, which rounded up is .19. It is also possible that the 2003 figure of 651 gCO<sub>2</sub> per kWh was used.

The figures would have been a snapshot of the time, based on data available. The current figures would be different to what was compiled in 2006. I note the following paper available in SEAI's archives on the internet, which may also be of interest – showing CO<sub>2</sub> emissions for electricity generating technologies - [http://www.seai.ie/Archive1/Files\\_Misc/emissionsdata.pdf](http://www.seai.ie/Archive1/Files_Misc/emissionsdata.pdf).

By way of information, regarding current figures for CO<sub>2</sub> savings from wind, the Sustainable Energy Authority of Ireland (SEAI) publish CO<sub>2</sub> displacement figures for renewables in both their "Energy in Ireland" and "Renewable Energy in Ireland" publications. The latest figures available would be in Energy in Ireland 1990 – 2009 (see section 3.2.4, page 38).

In this SEAI quote the saving in 2009 from wind as 1,410 kt CO<sub>2</sub> based on the Operating Margin Approach. With an installed capacity of 1,264 MW of wind installed at the end of 2009 this works out at 0.11 Mt CO<sub>2</sub> per 100 MWs. It is worth noting that some 236 MW or 19% of the capacity were installed during 2009 and not generating for the full year and this would affect that figure. As SEAI undertakes the calculations in this regard, please contact SEAI directly should you require further information.

Concerning the state aid application made in 2006, there was no requirement to verify CO<sub>2</sub> emissions savings achieved. The REFIT programme was introduced to ensure delivery of an enforceable EC obligation addressed to Ireland in the RES-E Directive 2001/77/EC to have a programme in place capable of delivering 13.2% of electricity in the form of RES-E by 2010. Demonstration of an ability to save CO<sub>2</sub> was used to partly justify discrimination in favour of renewables within the energy sector as part of the state aid process rather than a commitment to contribute to any quantified environmental target related quantified CO<sub>2</sub> savings.

As the Department does not compile CO<sub>2</sub> displacement figures, SEAI should be contacted directly as regards compilation of figures used in their publications.

**Question 2** relates to access to environmental information, which has to date been used to assess emissions savings from wind energy installed on the Irish grid. With regard to the Renewable Energy Action Plan submitted to the EU Commission, it is clear that Section 5.3 of the EU template, which itemises the greenhouse gas savings, was left blank by the Irish authorities. This must be considered highly unusual with regard to a plan of this nature requiring such massive expenditure and funding by the Irish electricity consumer.

**Response:**

Section 5.3 (Assessment of the Impacts) of the National Renewable Energy Action Plan (NREAP) template, which included expected GHG reduction by gas, was defined by the

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European Commission as 'optional' for Member States to complete (unlike the rest of the NREAP template.)

A quick look through all the NREAPs which are available on the EU's Transparency Platform shows that of the 27 member states only 8 chose to complete that optional section and of those, most referred to previous work conducted outside of the NREAP. As such it was rather 'the norm' among Member States not to complete this section, rather than 'highly unusual'.

It is noted that the NREAP elsewhere referred to the All Ireland Grid study, which compared the impacts and the costs of the various electricity generation scenarios, including the 40% RES-E target.

**Question 3** therefore relates to access to environmental information with regard to greenhouse gas emissions savings, which was used in the preparation of the National Renewable Energy Action Plan and the preparation of the new REFIT II tariffs, which currently are awaiting EU State Aid approval. In particular access should be provided to any environmental information relating to the decision not to complete Section 5.3 of the EU template for the National Renewable Energy Action Plans.

**Response:**

Each year, SEAI's national energy forecasts are sent forward to the EPA for emissions projections. The EPA look at a 'with measures scenario' (SEAI Baseline) and 'with additional measures' (SEAI NEEAP/NREAP) to project the outcome of two possible futures. The 'with measures' scenario assumes no further policy action takes place to 2020 while the 'with additional measures' assumes that the targets in the NEEAP/NREAP are achieved. The difference between the two is the projected savings due to policy action. These results are publicly available, and you should contact SEAI should you have further queries.

There was no requirement in the NREAP to estimate greenhouse gas savings nor is there a requirement to estimate these for the state aid application and this has not been included in the REFIT 2 state aid application. Hence there is no environmental information the Department can provide you with on this.

There is no environmental information relating to the decision not to complete section 5.3 of the NREAP available. This decision was taken during a verbal discussion between DCENR and SEAI.

Yours sincerely,

Una Dixon  
Renewable Energy Division

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