

Energy and Climate Change Directorate  
Energy Division

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Our ref: 2013/0011162  
30 May 2013

Dear Mr Constable

Thank you for your letter of 26 April to Fergus Ewing MSP, Minister for Energy, Enterprise and Tourism. I have been asked to respond.

We recognise that renewable energy, and onshore wind in particular, can be a contentious issue and not everyone, including Professor Hughes, agrees with the Scottish Government's position on the subject. While we have the utmost respect for Professor Hughes, on this occasion we do disagree with his conclusions.

The Scottish Government did not rely on any individual report to form our conclusions but we did, as we always do, utilise a combination of sources and advice. The particular report you mention, *'Investigating wind farm performance in the UK and Sweden'* by Bloomberg New Energy Finance, was referenced to highlight the technological enhancements in wind generation over the last few years and to re-emphasise that turbines aged 10 or 15 year old cannot be considered mature and are very much in the minority within the GB generation mix. It is entirely appropriate to believe that older immature turbines are likely to show lower levels of efficiency than their modern counterparts but other evidence we considered included studies into machine reliability, performance and efficiency and operation and maintenance.

Given this range of evidence and evidence from REF's own website, we therefore take a different view to the conclusions of the report *'The Performance of Wind Farms in the United Kingdom and Denmark'* by Professor Hughes. The OFGEM ROC data represented on the REF website shows that of the 113 sites accredited before 20/05/2003 (as a proxy for 10 year old projects), only around 20 projects exhibit annual load factors at or below the 15% suggested by the report's conclusions. These projects account for around 42 MW of capacity. Meanwhile, the same data shows almost 50 projects accounting for over 275 MW of capacity which exhibit load factors greater than 24%. Acknowledging that any individual year's load factor is exposed to the vagaries of the UK climate, these empirical figures do not appear to be consistent with the modelled ranges suggested by the report.

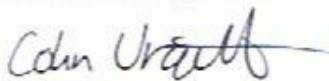
As a minimum, we would have expected to see the model results validated against empirical evidence rather than relying on a theoretical normalisation process. As Professor Hughes himself points out, normalisation for wind availability is not straightforward and the scale of these discrepancies does cause us to question the robustness of the results.

In relation to your concerns regarding the Renewables Obligation, a key pillar of Scottish energy policy is the importance of minimising the cost to consumers. As you will be aware, renewable obligation support levels are derived using estimates of levelised costs. These are estimated by DECC and Scottish Government (and other independent bodies such as the Committee on Climate Change) on the basis of twenty year life expectations and assumptions on load factors.

This approach proactively incorporates scope for adjustment in light of any evidence which suggests that support levels are excessive. In response to calls from a minority of members of the UK Government coalition, DECC have recently instigated a call for evidence to investigate whether that is currently the case. We await the results of DECC's recent call for evidence on the subject but are confident that the review will confirm that support levels adopted in Scotland strike the right balance between delivering low carbon investment and minimising the impact on consumers.

I hope you find this response helpful.

Yours sincerely



**COLIN URQUHART**  
Renewables Routemap