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GCU-OE Environment & Chemistry

Your ref.	PAN-010169
Your letter	-
Our ref.	PMB/EBGP/20-5
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10th September 2020

Pembroke Variation Application ref. PAN-100169
Choice of Meteorological Data for Pembroke EBG Air Quality Assessment

Dear Kirsty,

In your e-mail of 8th September 2020, you raised a question about the choice of meteorological data used in the air quality assessment and how this was representative.

I attach a note prepared by our air quality specialist in response. Hopefully it will require no further explanation.

Yours sincerely

Neil B K Richardson

Neil Richardson
Principal Consents and Permitting Advisor
RWE Generation UK plc

Attachment to letter ref. PMB/EBGP/20-5

Choice of meteorological data for Pembroke EBG air quality impact assessment

NRW asked the following question :

'It has been noted that the air quality assessment has been complete using meteorological data from 2001-2005. We would expect recent meteorological data to be used in a model. Please can you explain the choice of meteorological data and how this is representative. Based on the response it may be requested that the model is run again with representative meteorological data used to show the results are accurate.'

RWE response

The 2001-2005 Milford Haven meteorological data were used because they were immediately available. RWE's judgement is that the data sets used are entirely fit for purpose and obtaining more recent data would have made little difference to the conclusions of the assessments undertaken. This judgement is explained in more detail below.

When modelling air quality impacts using historic meteorological data it is important to use data representative of site conditions. In the case of Pembroke, data representative of its coastal location is particularly important, hence selection of Milford Haven, the nearest coastal location where the required data are recorded.

When modelling using long term datasets with associated long term outputs, in this case derived from 8760 separate hours, the year within which the data were recorded will typically make little difference to outputs relevant to air quality standards as these are derived statistically from outputs from each hour. The use of five separate sequential years adequately accounts for any inter-annual variation, regardless (within reason) of the years chosen.

In the particular case of the Pembroke EBG, relevant impacts are so small that even if there were significant percentage increases in modelled impacts from using more recent meteorological data, the report's conclusions would be unchanged.

To provide additional comfort that the above judgement is valid, RWE have, as a response to the above question, separately obtained sequential hourly Milford Haven meteorological data for 2019 and remodelled some of the important metrics presented in the original AQ report. The resultant comparisons are presented in Table 1 below. They clearly show that the maximum model outputs using 2001-2005 meteorological data are virtually the same as for 2019, therefore the use of alternative meteorological data from Milford Haven in the assessment does not change the conclusions that EBG air quality

impacts will be insignificant, there will be no likely significant effect on human or ecological receptors and no further modelling is justified.

(Note: The results in Table 1 are for comparison purposes only, based on the EBG running continuously for a year at full load. The 2001-2005 results are extracted from the listed Table in the original AQ report).

Table 1.

Air quality metric	Table reference in Appendix C of submitted AQ report	Maximum impact for 2001-2005 meteorology ($\mu\text{g}/\text{m}^3$)	Maximum impact for 2019 meteorology ($\mu\text{g}/\text{m}^3$)
Maximum annual mean NO_x across modelling grid	CAmax	13	11
Maximum 99.79 th percentile of hourly mean NO_x across modelling grid	CAmax	228	229
Maximum annual mean NO_x on coastal footpath (NGR 193104,202163)	CA6	0.84	0.59
Maximum 99.79 th percentile of hourly mean NO_x on coastal footpath (NGR 193104,202163)	CA6	16	16
Maximum annual mean NO_x at Atlantic Salt Meadows site (NGR 192172,202939)	CA9	0.45	0.34
Maximum daily mean NO_x at Atlantic Salt Meadows site (NGR 192172,202939)	CA9	3.8	4.3

End.