Beaufort Power Limited

Response to Schedule 5 Notice

Air Quality Technical Note

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Response to Schedule 5 Notice
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Executive Summary

Natural Resources Wales (NRW) issued a Schedule 5 Notice to Beaufort Power Limited to request further information to inform an application for Beaufort Power Limited's environmental permit.

NRW requested that Beaufort Power Limited provide an addendum to the air dispersion modelling assessment assessing the impacts of the facility on the Mynyddoedd Llangynidr a Llangatwg Cefn yr Ystrad a Chomin Merthyr (MLL) Site of Special Scientific Interest (SSSI) assuming alternative proposals.

The alternative proposals considered in this addendum are based on each engine operating for 365 hours per year, and up to 18 hours in any one day.

The air quality modelling has predicted that sensitive habitats within the MLL SSSI would not be subject to significant impacts from deposition of nutrient nitrogen and from acid deposition as both are below the 1% screening thresholds, and therefore the impacts can be screened out as insignificant.

For annual-mean and daily-mean NOx, the PECs are below the 70% screening thresholds, and the impacts can be screened out as insignificant.

Therefore, the air quality impact of the facility on the MLL SSSI is not significant.

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1 INTRODUCTION

1.1.1 NRW issued a Schedule 5 Notice (dated 23/01/2026) to request further information to inform an application for Beaufort Power Limited's environmental permit (Application Number PAN-028063).

1.1.2 NRW provided Beaufort Power Limited an option to submit a revised proposal *"that avoids or mitigates the effects of the emissions to air, such that the activity is not likely to damage the features of the MLL SSSI*"

1.1.3 Beaufort Power Ltd submitted their permit application to NRW on 17/01/2025. The Air Quality Assessment accompanying the application (RPS, *Air Quality Assessment for Permit Rassau Industrial Estate, dated 26/02/2024*) assessed the designated sites listed on public records at the time of submission. Beaufort Power Ltd was not notified that NRW had ratified the extension to MLL SSSI until the Schedule 5 was issued on 20/08/2025, over seven months after the application was submitted.

1.1.4 An addendum was originally prepared by Dr. Steven Lees, an air quality assessment specialist who completed the dispersion modelling for the project, and Jo Atkinson, an ecologist with over 20 years of experience in professional ecological consultancy including Ecological Impact Assessments (EcIA) and Habitats Regulations Assessments (HRA) for power generation facilities requiring assessments of the effects of operational emissions on designated sites.

1.1.5 Following the submission of the addendum, a review was carried out by NRW (*AQNT Reference: C801_WD01 (DRAFT), dated 10/11/2025*). NRW's review confirmed the results of the addendum that 2,250 hours would lead to exceedances of the critical loads and levels for nutrient N and acid deposition.

1.1.6 TetraTech RPS have been commissioned by Beaufort Power Limited to respond to the Schedule 5 Notice and provide a technical note to the Air Quality Assessment and addendum. In order to "*avoid or mitigate the effects of the emissions to air, such that the activity is not likely to damage the features of the MLL SSSI*", the number of hours of operation for each engine has been reduced from 2,250 hours to 365 hours per year, and up to 18 hours in any one day.

1.1.7 This note presents the revised results for each engine operating for 365 hours per year and up to 18 hours in any one day.

2 AIR QUALITY DISPERSION MODELLING

2.1 Methodology

2.1.1 Updated dispersion modelling based on a maximum of 365 hours per annum and up to 18 hours in any one day has been undertaken to assess the impact of Beaufort Power Limited's facility on the updated MLL SSSI boundary.

2.1.2 Concentrations of nitrogen oxides (NO_x) and ammonia (NH_3) have been predicted using the same model and methodology as used in the previous assessment (RPS, *Air Quality Assessment for Permit Rassau Industrial Estate, dated 26/02/2024*), with additional receptors added to represent locations with highest impact. The receptor points have been modelled at ground level.

2.1.3 The process contribution (PC), i.e. the difference between the with and without development concentrations and, if appropriate, the predicted environmental concentration (PECs) have been calculated for comparison with the relevant critical level/load. The PEC has been calculated by adding the PC to the background levels which have been derived from the UK Air Pollution Information System (APIS) database[1]. As in the previous modelling, maximum PCs and PECs of NO_x, NH_3 and N/acid deposition have been compared against the relevant critical levels/loads for the relevant habitat type/interest feature. The Environment Agency guidelines[2] (applied within this assessment in the absence of Natural Resources Wales alternative guidance) state that:

To screen out a PC for any substance so that you don't need to do any further assessment of it, the PC must meet the following criteria:

- the long-term PC is less than 1% of the long-term environmental standard

If you meet this criteria you don't need to do any further assessment of the substance.

If you don't meet it you need to carry out a second stage of screening to determine the impact of the PEC.

If your long-term PC is greater than 1% and your PEC is less than 70% of the long-term environmental standard, the emissions are insignificant – you don't need to assess them any further.

2.1.4 The predicted PCs and PECs for the updated MLL SSSI receptors are outlined below:

[1] Air Pollution Information Systems, www.apis.ac.uk
[2] Air emissions risk assessment for your environmental permit - GOV.UK

Table 2-1: Annual Mean NO_x Concentration

Annual Mean NOx concentrations (All Habitats)						
Designated Site	**AC (µg.m^{-3}) Background**	**CL (µg.m^{-3})**	**PC (µg.m^{-3})**	**PC as % of CL**	**PEC (µg.m^{-3})**	**PEC/Critical Level (%)**
MLL SSSI	11.7	30	0.49	1.6	12.19	41

Table 2-2: Daily Mean NO_x Concentration

Daily Mean						
Designated Site	**AC (µg.m^{-3}) Background**	**CL(µg.m^{-3})**	**PC (µg.m^{-3})**	**PC as % of CL**	**PEC (µg.m^{-3})**	**PEC/Critical Level (%)**
MLL SSSI	23.4	200*	113.0	56.5	136.4	68

Note that a critical level of 200 µg.m^{-3} has been applied on the basis that ozone concentrations are below the AOT40 critical level and sulphur dioxide concentrations are below the lower critical level of 10 µg.m^{-3}.

Table 2-3: Nutrient N Deposition: Bogs and Mires

Designated Site	Tall or Short Vegetation	CL (kgN.ha-1.yr-1)	AC (µg.m-3) Background	PC (kgN.ha-1.yr-1)	PC/CL (%)	PEC (kgN.ha-1.yr-1)	PEC as % of CL (kgN.ha^{-1}.yr^{-1})
MLL SSSI	Short	5	17.6	0.05	0.99	-	-

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Table 2-4: Nutrient N Deposition: Wet and Dry Heathland

Designated Site	Tall or Short Vegetation	CL (kgN.ha-1.yr-1)	AC (µg.m-3) Background	PC (kgN.ha-1.yr-1)	PC/CL (%)	PEC (kgN.ha-1.yr-1)	PEC as % of CL (kgN.ha^{-1}.yr^{-1})
MLL SSSI	Short	5	17.6	0.05	0.99	-	-

Table 2-5: Acid Deposition: Bogs and Mires

Designated Site	AC N (keq.ha-1.yr-1)	CL Max N (keq.ha^{-1}.yr^{-1})	PC (keq.ha-1.yr-1)	PC/CL (%)	PEC (kgN.ha^{-1}.yr^{-1})	PEC as % of CL (kgN.ha^{-1}.yr^{-1})
MLL SSSI	1.5	0.879	0.004	0.4	-	-

Table 2-6: Acid Deposition: Wet and Dry Heathland

Designated Site	AC N (keq.ha-1.yr-1)	CL Max N (keq.ha^{-1}.yr^{-1})	PC (keq.ha-1.yr-1)	PC/CL (%)	PEC (kgN.ha^{-1}.yr^{-1})	PEC as % of CL (kgN.ha^{-1}.yr^{-1})
MLL SSSI	1.5	0.932	0.004	0.4	-	-

2.2 Assessment of Air Quality Impacts

Annual-Mean NO_x

2.2.1 The annual-mean NO_X PC exceeds 1% of the critical level and the impacts cannot be screened out as insignificant at the PC stage.

2.2.2 However, the maximum annual-mean NO_X PEC is less than 70% of the long-term environmental standard. In accordance with the Environment Agency guidelines, the emissions are insignificant, with no requirement to assess further.

Daily-Mean NO_x

2.2.3 The maximum daily-mean NO_X PC exceeds 10% of the critical level and the impacts cannot be screened out as insignificant at the PC stage.

2.2.4 However, the maximum daily-mean NO_X PEC is less than 70% of the long-term environmental standard. In accordance with the Environment Agency guidelines, the emissions are insignificant, with no requirement to assess further.

Nutrient N and Acid Deposition - Bogs and Mires

2.2.5 The maximum nitrogen and acid deposition PCs are below 1% of the critical load and the impacts can be screened out as insignificant.

Nutrient N and Acid Deposition - Wet and Dry Heathland

2.2.6 The maximum nitrogen and acid deposition PCs are below 1% of the critical load and the impacts can be screened out as insignificant.

3 CONCLUSIONS

3.1.1 The air quality modelling undertaken for the Beaufort Power Facility has predicted that sensitive habitats within the MLL SSSI would not be subject to significant deposition rates of nitrogen and acid from the operational facility, as both are below the 1% screening thresholds. Therefore, the impacts can be screened out as insignificant.

3.1.2 For annual-mean and daily-mean NOx, the PECs are below the 70% screening thresholds, and the impacts can be screened out as insignificant.

3.1.3 Therefore, the air quality impact of the facility on the MLL SSSI is not significant.

4 REFERENCES

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