Cyfoeth Naturiol Cymru
Natural Resources Wales

Natural Resources Wales permitting decisions

Brecon Power Ltd
Former Tech Board Facility
Decision Document

Rev No1

Bespoke permit

The application number is: PAN-009650

The Applicant / Operator is: Brecon Power Ltd

The Facility is located at: Former Tech Board Facility, Rassau Industrial Estate Ebbw Vale, NP23 5SD

We have decided to grant the permit for the Former Tech Board Facility, operated by Brecon Power Ltd.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Structure of this document

- Table of contents
- Key issues

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Key issues of the decision

1 Our decision

We have decided to grant a permit for the Former Tech Board facility, operated by Brecon Power Ltd.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

This Application is to operate a regulated facility which is subject principally to the Medium Combustion Plant Directive (MCPD) and Specified Generator (SG) regulations.

The permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations (EPR) and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the standard conditions appropriate.

2 How we reached our decision

2.1 Receipt of Application

The Application was accepted as duly made on 06/03/2020. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

The Applicant made **no claim for commercial confidentiality**. We **have not** received information in relation to the Application that appears to be confidential in relation to any party.

2.2 Consultation on the Application

There was no requirement to carry out a consultation on the application.

2.3 Requests for Further Information

No further information was requested or required.

3 The Legal Framework

The Permit will be granted, under Regulation **13** of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

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- plant as described by Schedule 25A and Schedule 25B covering the Medium Combustion Plant Directive (MCPD) and Specified Generator (SG) regulations respectively;
- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed.

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that this decision is consistent with its general purpose of pursuing the sustainable management of natural resources (SMNR) in relation to Wales and applying the principles of SMNR. In particular, NRW acknowledges that it is a principle of sustainable management to take action to prevent significant damage to ecosystems. We consider that, in granting the Permit a high level of protection will be delivered for the environment and human health through the operation of the Facility in accordance with the permit conditions. NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

4 The Facility

4.1 Description of the Facility and related issues

4.1.1 The permitted activities

The Facility is subject to the EPR because it carries out an activity as described in Schedules 25A and Schedule 25B of the EPR:

- One combined Tranche B Specified Generator/existing Medium Combustion Plant aggregated to <50MWth at a specified location

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A Generator means any combustion plant generating electricity. The regulations use the term ‘specified generator’ to encompass both individual generators and multiple generators at the same location or site, operated by the same Operator and for the same purpose. The “same purpose” means that having a different function does not stop individual generators being treated as part of a specified generator, e.g. generators with a capacity market agreement or providing a balancing service whether they are under the same contract or not would be classed as operating for the “same purpose” as they generate electricity. Similarly, generators with different fuels or technologies are also classed as operating for the “same purpose”.

The specified generator permit will apply to the site, rather than its constituent individual generators. All specified generators equal to or more than 1 MWth will also be Medium Combustion Plant (MCP) and must also meet the requirements of the MCP Directive at the appropriate time. In this instance, the spark ignition reciprocating generator engines are defined as existing medium combustion plant (MCP) on the basis that they were first operated before 20 December 2018; the MCP Directive regulations will apply from 01 January 2024.

Specified Generators are also divided into Tranche A and Tranche B sites, which will determine the relevant permitting date. A site is a Tranche A site if it meets the following criteria:

• It came into operation before 1 December 2016, or
• It is the subject of a capacity agreement arising from the 2014 or 2015 capacity auctions

A generator with a rated thermal input of less than 1MWth will be classed as Tranche A if:

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• It is the subject of a capacity agreement arising from the 2014, 2015 or 2016 capacity auctions, or
• A FiT preliminary accreditation application was received by OfGEM before 1 December 2017, or
• Is the subject of an agreement to provide balancing services entered into before 31 October 2017.

Tranche B generators are all those that are not Tranche A.

The site consists of 14 x 3.57 MWth natural gas fuelled spark ignition reciprocating generators (comprising one 49.98MWth Specified Generator); The 14 No.spark ignition gas reciprocating engines are to be housed in separate containers and each provided with 9.1 m high exhaust stacks. The generators are expected to operate for more than 50 hours per year, they came into operation on 19th December 2018, therefore the site is comprised of a Tranche B Specified Generator.

The activity will not also be classified as a Part B section 1.1, even though the aggregated input is >20MWth, as the type of combustion plant is spark gas ignition reciprocating engines; therefore, Part B section 1.1 regulations will not apply.

4.1.2 The Site

This application is for the site at the Former Tech Board Facility, Rassau Industrial Estate, Ebbw Vale, NP23 5SD which will consist of fourteen engines each with a thermal input of 3.568 MW (1.488 MWe output) gas engine which shall be run to provide reserve services to the National Grid. The total capacity of the fourteen engines will be 20.832 MWe with a net thermal input of approximately 49.98 MW.

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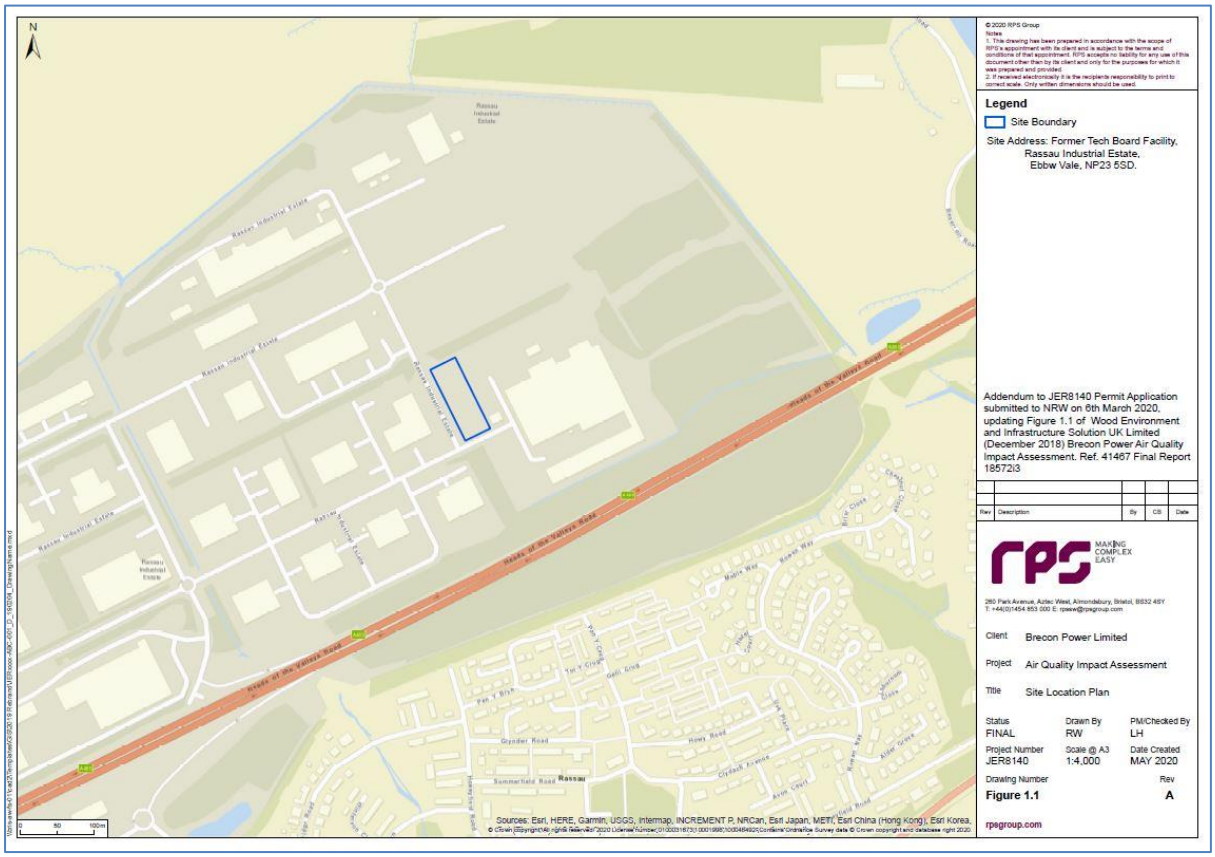
The site is centred on grid reference SO 15625 12600.

The location plan and site plan are shown in Figure 1:

Figure 1: Location Plan



4.1.3 What the Facility does

Natural gas will be delivered to the plant via a dedicated gas supply. The 14 No. engines (Jenbacher Type 4 engines – J420) are to be housed in separate containers and each provided with 9.1 m high exhaust stacks. The engine NOx emission concentrations are to be to a maximum of 95 mg/Nm^3 (at 15% O_2, dry conditions). The electrical output from the plant will be exported to the 33kV distribution network via a

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step-up transformer. The plant would be able to reach full load in less than ten minutes from cold. Cooling for the gas engines will be provided by engine jacket cooling water system.

Operation would not be continuous and air quality dispersion modelling has been undertaken for the site based on 2,000 hours of operation per year. This is conservative and we are in agreement with this approach.

4.1.4 Key Issues in the Determination

The key environmental and human health issues considered during the determination of this variation were:

- **Air quality – Oxides of Nitrogen**

This will be discussed separately in this decision document.

4.2 Operation of the Facility – general issues

4.2.1 Administrative issues

The Applicant is the sole Operator of the Facility. We are satisfied that the Applicant is the person who will have control over the operation of the Facility if the Permit were to be granted; and that the Applicant will be able to operate the Facility so as to comply with the conditions included in the Permit, if issued.

Relevant Convictions

NRW's COLINS Database has been checked to ensure that all relevant convictions have been declared.

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No relevant convictions were found.

Financial Provision

There is no known reason to consider that the operator will not be financially able to comply with the permit. The decision was taken in accordance with RGN 5 on Operator Competence.

4.2.2 Management

We are satisfied that appropriate management systems and management structures will be in place for this Facility, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

4.2.3 Operating techniques

The operator has stated that they will implement the quality assurance techniques and a maintenance schedule, in order to for the generators to achieve and retain optimal performance. In order to enable each generator and the power plant in general to achieve and retain optimal performance in both efficiency and emissions, the plant will engage in the following best available operational management techniques.

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. The proposed techniques/emission levels for priorities for control are in line with the benchmark levels contained in TGN M5 and we consider them to represent appropriate techniques for the facility. These are specified in the Operating Techniques table in the permit.

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We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.

5 Minimising the Facility's environmental impact

For this kind of regulated activity, the principal emissions are emissions to air. There are no permit conditions for water, land, energy efficiency, odour or noise and BAT does not apply.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of air emissions from the SG on human health and the environment and what measures we are requiring ensuring a high level of protection.

We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment, all emissions may be categorised as environmentally insignificant.

We will discuss the operators risk assessment in more detail as follows:

5.1 Assessment of Impact on Air Quality

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality.

The Applicant has assessed the facility's potential emissions to air against the relevant air quality standards, and the potential impact upon human health. These

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assessments predict the potential effects on local air quality from the Installation's stack emission.

The air impact assessments, and the dispersion modelling has been based on the facility operating 2000 hours at the emission rate for the engines based on the manufacturer's specification.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the Applicant used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed by Natural Resources Wales modelling specialists to establish the robustness of the Applicant's air impact assessment. The output from the model has then been used to inform further assessment of health impacts.

The Air Quality Assessment has showed that impacts at relevant human receptors are predicted to be below limit values at the sensitive human receptor locations where the Air Quality Directive states that they must be applied.

5.2 Impact on Habitats sites, SSSIs, non-statutory conservation sites etc

There are two SSSI's within 2 km of the site:

- Mynydd Llangynidr SSSI
- Mynydd Llangatwg SSSI

As a result, an Appendix 4 form – CroW Act 2000: Natural Resources Wales application for permission – Formal Notice, has been completed in conjunction with this application.

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Air quality modelling has been carried out with regards to the potential impact from the Former Tech Board Facility.

An assessment has been carried out to determine the local air quality impacts associated with the operation of the facility.

Detailed air quality modelling using the ADMS 5 dispersion model has been undertaken to predict the impacts associated with stack emissions from the gas engines (Specified Generator) at the Site. Emissions from the stacks have been assumed to occur for the full year when comparing against short term and long-term air quality critical levels (as stipulated by the Air Quality Strategy Objectives), as well as Critical Loads (for nitrogen and acid deposition) for the protection of vegetation.

Critical Levels

NOx impacts from the Specified Generator on the ecological receptors within the relevant screening distance of the SSSI sites are predicted to be below the relevant Critical Levels. The maximum annual NOx mean PEC is 30% of the annual mean Critical Level (30 ug/m3) and the contribution of the proposed facility (PC) alone is very small, less than 1.4% of the Critical Level; in accordance with NRW guidance, as the long term PEC is less than 70% of the critical level, these impacts can be considered insignificant and screened out from further assessment. R
Regarding the short term daily mean NOx, the maximum PC is <10% of the short-term critical level, therefore the short-term impact from NOx emissions can be considered insignificant.

Critical Loads

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For the two SSSI sites in scope for this application, the process contribution (PC) is less than 1% of the minimum critical load for nutrient nitrogen deposition; therefore, under our guidance, the nutrient nitrogen PC can be considered insignificant (this is true for both grassland and woodland-type habitats).

Regarding acid deposition, the impact of the facility is very small, less than 1% of the critical load across all habitat receptors, so is therefore deemed insignificant.

In conclusion, the modelling has shown that all ecological impacts are predicted to be below limit values at locations where the Air Quality Directive states that they must be applied.

5.3 European Sites

There are two designated European Natura 2000/Ramsar sites located within the relevant screening distance (5.0 km) of the main site emission points to air:

• Cwm Clydach Woodlands / Coedydd Cwm Clydach (UK0030127) – approximately 4.0 km from the facility at the nearest point.
• Usk Bat Site / Safleodd Ystlumod Wysg (UK0014784) – approximately 1.5 km from the facility at the nearest point.

An OGN200 FORM 1 (Habitats Regulation Assessment) has been completed.This is required because there is a conceivable impact pathway to the Natura 2000/Ramsar sites listed above.

Detailed air quality modelling has been carried out with regards to the potential impact from the Specified Generator facility.

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NOx impacts from the Specified Generator facility on the designated ecological receptors within the relevant screening distance of the SAC sites are predicted to be below the relevant Critical Levels. The maximum annual NOx mean (PEC) is 30% of the annual mean Critical Level (30 ug/m3) and the contribution of the proposed facility (PC) alone is very small, less than 1.4% of the Critical Level; in accordance with NRW guidance, as the long term PEC is less than 70% of the critical level, these impacts can be considered insignificant and screened out from further assessment. Regarding the short term daily mean NOx, the maximum PC is <10% of the short-term critical level, therefore the short-term impact from NOx emissions can be considered insignificant.

Regarding nutrient nitrogen deposition critical loads the process contribution (PC) is less than 1% of the minimum critical load for nutrient nitrogen deposition; therefore, under our guidance, the nutrient nitrogen PC can be considered insignificant (this is true for both grassland and woodland-type habitats).

Regarding acid deposition, similarly the PC is less than 1% of the critical load across all habitat receptors, so is therefore deemed insignificant.

Assessment of Likely Significant Effect:

The project has been screened for likelihood of significant effects and, taking account of the advice received from protected sites advisors, is considered not likely to have a significant effect on any Natura 2000/Ramsar site (As documented in section 3.2 of OGN 200 form 1, or section 5 if applicable).

Appropriate assessment:

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N/A

SSSI Assessment

Considering the conclusions of the appropriate assessment in Section 5.2, it has been ascertained that the site will not adversely affect any of the flora, fauna or geological or physiological features which are of special interest.

6 Setting ELVs and other Permit conditions

We have decided that emission limits should be set for the parameters listed in the permit. Emissions Limit Values (ELVs) are in line with those set out in 25B (Specified Generator regulations). The operator has confirmed the Jebacher engines can achieve lower NOx emissions than that stated in the SG regulations. The engines can achieve a NOx ELV of 95 mg/Nm3 as opposed to 190 mg/Nm3 (at 15% O2) stated in the regulations, the lower figure has been used to inform the air dispersion modelling therefore will be the ELV set in the permit.

6.1 Monitoring

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 of the permit using the methods and to the frequencies specified in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with the emissions limits in the permit, as per the ELV and monitoring frequency requirements specified within EPR Schedule 25B Regulations.

For a combined Tranche B Specified Generator and existing Medium Combustion Plant, that is an engine fuelled on natural gas, the monitoring requirements are as follows:

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Pollutant	Type of Specified Generator	Fuel Type	Emission Limit Value (mg/Nm^3)	Monitoring Required
NOx	Spark Ignition Reciprocating Engine	Natural Gas	95	Periodic – every 3 years

Emission limit values are defined at a temperature of 273,15 K, a pressure of 101,3 kPa and after correction for the water vapour content of the waste gases and at a standardised O_2 content of 15% for engines (and gas turbines).

For emissions to air, the methods for continuous and periodic monitoring are in accordance with the Environment Agency's Technical Guidance Note M5 for monitoring of stack gas emissions from medium combustion plants and specified generators.

Based on the information in the Application and the requirements set in the conditions of the permit we are satisfied that the monitoring techniques, personnel and equipment employed by the Operator will have either MCERTS certification or MCERTS accreditation as appropriate.

6.2 Other Permit Conditions

As a Specified Generator, the facility must adhere to the following operating techniques for both SG.

As a Specified Generator (SG), these are:

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(a) Each generator must be operated in accordance with the manufacturer's instructions and records must be made and retained to demonstrate this.

(b) The operator must keep periods of start-up and shut down of the generators as short as possible

(c) There must be no persistent emission of 'dark smoke' as defined in section 3(1) of the Clean Air Act 1993.

(d) Where secondary abatement is required to ensure compliance with the NOx ELV it must be met within 10 minutes from when the generator commences operation or within 20 minutes when the generator was a Tranche A and is now a Tranche B generator.

(e) The stack must be vertical and unimpeded by cowls or caps.

6.3 Reporting

We have specified the reporting requirements in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions.

7 MCPD/SG Charges and Subsistence Fees

The type of application regarding MCPD and SG will have an associated charge. The MCPD/SG application type will also form the basis for ongoing subsistence fee's. More information on this can be found in our charging scheme on our website.

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