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Natural Resources Wales permitting decisions

PeakGen Power Limited Decision Document

Rev No1

Bespoke permit

The application number is: PAN-003574
The Applicant / Operator is: PeakGen Power Limited
The Facility is located at: East Road off Sully Moors Road, Barry,
Penarth, CF64 5RP

We have decided to grant the permit for PeakGen Power Limited.

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 Peak Gen Power Limited.

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 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 **29/01/2019**. 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 requests for further information were 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:

- plant as described in 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 Schedule 25B of the EPR:

- One Tranche B Specified Generator aggregated to <50MWth at a specified location

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, once these requirements apply from 01/01/2024.

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:

- 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.

Peak Gen Power Limited operates ten 4.79 MWth diesel compression ignition engines (one 47.9MWth Specified Generator) which are used for the purposes of electricity generation. The facility at PeakGen Power Ltd can be classified as a Tranche B Specified Generator, by virtue of having a National Grid static FFR contract for January 2019 which was won after 31st October 2017.

4.1.2 The Site

PeakGen Power Limited is a small balancing plant, which will operate on a short term basis to meet peak demand or shortfalls in generation along the electricity distribution network. It has a contract to supply electrical power via balancing services.

PeakGen operates 10 diesel compression ignition engines, each with a thermal output of 2MW, and a corresponding thermal input of 4.79MW. This results in the total thermal input for the site being 47.9MW. The peaking plant engines are expected to operate up to 500 hours per year (in total aggregated). Each diesel engine has secondary abatement fitted in order to meet statutory emission limit values for Oxides of Nitrogen (as per the relevant regulations).

The site map and layout plan is outlined in the figures below.

Figure 1: PeakGen Power Limited Site Map

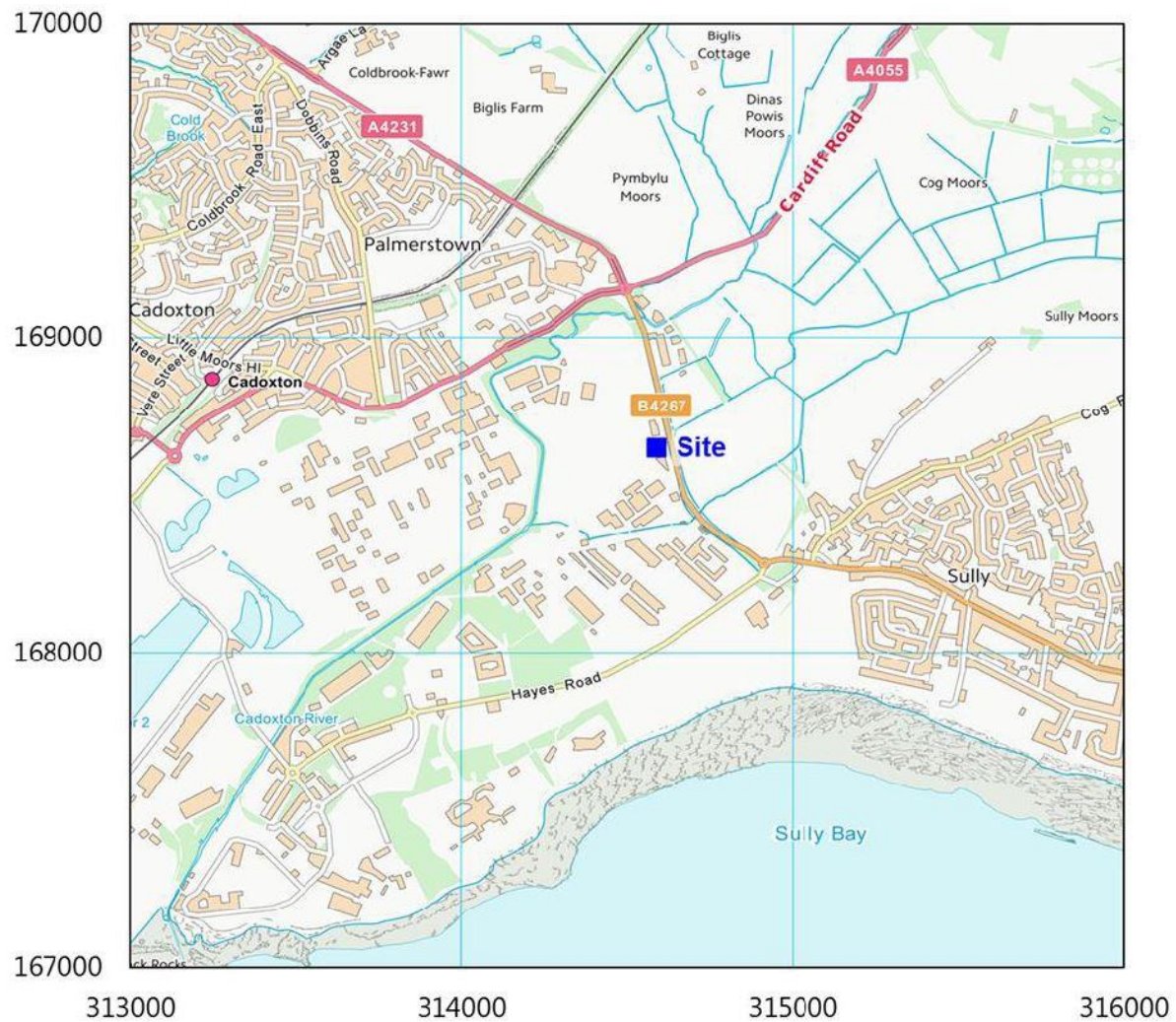


Figure 2: PeakGen Power Limited Site Layout Plan



4.1.3 What the Facility does

PeakGen Power Limited is a small balancing plant, which will operate on a short term basis to meet peak demand or shortfalls in generation along the electricity distribution network. It has a contract to supply electrical power via balancing services.

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. No relevant convictions were found. The operator satisfies the criteria in RGN 5 on Operator Competence.

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

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 with MCERTS certification methods/techniques and TGN M5, and we consider them to represent appropriate techniques for the facility. These are specified in the Operating Techniques table in the permit.

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 Specified Generator on human health and the environment and what measures we are requiring to ensure 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 assessments predict the potential effects on local air quality from the Facility's stack emission.

The air impact assessments and the dispersion modelling has been based on the Facility (Balancing plant) operating up to a maximum of 500 hours per year (this being the maximum number of aggregated hours of allowable operation per annum from the whole plant). 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.

Based on the Tranche B Screening Tool risk assessment tool results, and based on the type of fuel (diesel) used by the Specified Generator, this has resulted and

indicated the risk to air quality to be high, with further detailed quality modelling and impact assessment required (for human health and designated habitat sites) as part of a complex bespoke permit application.

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

There are two SSSIs within 2km of the site:

- Cog Moors SSSI
- Hayes Point to Bendrick Rock 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.

Detailed air quality modelling impact assessment has been carried out with regards to any potential impact from the Balancing Plant facility on the designated SSSI sites within 2km of the facility. The significance criteria provided by the EA/NRW states that for SSSI's the air quality impact can be considered to be insignificant if the long-term process contribution (PC) is less than 1% of the Critical Level. Detailed air quality impact assessment modelling shows that the impact of the operation of PeakGen Power's Balancing Plant on Cogs Moor and Hayes Point to Bendrick Rock SSSI's is less than 1% of the Critical Level for daily and annual mean Nitrogen Dioxide concentrations and is therefore considered to be insignificant.

The significance criteria provided by the EA/NRW states that for SSSI's the air quality impact can be considered to be insignificant if the long-term process contribution (PC) is less than 1% of the Critical Load, in relation to nutrient nitrogen deposition. Detailed air quality impact assessment modelling shows that the impact of the operation of

PeakGen Power's Balancing Plant on Cogs Moor and Hayes Point to Bendrick Rock SSSI's is less than 1% of the Critical Load for nutrient nitrogen deposition, and is therefore considered to be insignificant.

In conclusion, the impact on airborne NO_x concentrations, and acid and nitrogen deposition at the designated SSSI's was determined to be insignificant.

5.3 European Sites

The following Natura 2000 sites are located within the relevant screening distance (3.5km) of the main site emission point to air:

- Severn Estuary (SPA) (UK9015022) – approximately 2.4km to the south-east (by Sully Island)
- Severn Estuary (Ramsar) (UK11081) – approximately 2.4km to the south-east (by Sully Island)

A FORM 1 has been completed with regards to a Habitats Regulations Assessment (HRA). This is required because there is a conceivable impact pathway to the Natura 2000 sites listed above.

Detailed air quality modelling has been carried out with regards to the potential impact from the Balancing Plant facility. The maximum predicted ground level concentrations of NO_x have been compared with relevant critical level thresholds above which damage may be sustained to sensitive plants and animals. For European sites within 3.5km, an assessment of deposition impacts has also been completed. Critical loads refer to the threshold beyond which deposition of pollutants to water or land results in measurable damage to vegetation and habitats. Predicted concentrations of NO_x can

be used to determine nutrient nitrogen deposition rates, using typical deposition velocities. The maximum predicted deposition rates have been with site specific critical loads obtained from APIS.

The significance criteria provided by the EA/NRW for these designated ecological sites states that the impact can be considered to be insignificant if the long-term PC (annual mean) is less than 1% of the annual average Critical Level and 10% of the 24-hour average critical level. The impact of the Balancing Plant at PeakGen Power Ltd on the designated ecological sites with regards to airborne NO_x concentrations is therefore considered to be insignificant.

At all of the sensitive habitat sites, the impacts are insignificant when compared with the Air Quality Assessment Level (AQAL) with regards to nutrient nitrogen deposition rates. Acid Deposition critical loads do not apply to these ecological sites. The impact of the Balancing Plant at PeakGen Power Ltd on the designated ecological sites with regards to airborne NO_x concentrations is therefore considered to be insignificant.

This project complies with NRW agreed criteria for ruling out significant effects without conducting a project-specific LSE test. Therefore this project is considered not likely to have a significant effect on any Natura 2000 sites, either alone or in-combination with other plans and projects.

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/site (As documented in section 3.2 of OGN 200 form 1, or section 5 if applicable).

Appropriate assessment:

In light of the conclusions of an appropriate assessment, and taking account of the advice received from protected sites advisors, it has been established that the project will not adversely affect the integrity of any Natura 2000 site, taking into account any conditions or restrictions as applicable, either alone or in-combination with other plans and projects. (As documented in section 4 of OGN 200 form 1, and section 5 if applicable).

HRA Overall conclusion:

All long-term impacts on human receptors are predicted to be below the relevant air quality objective levels at locations where the Air Quality Directive states they must be applied. The short-term impacts at the receptors are also below the relevant air quality objective levels. The short-term impact at the point of maximum impact is above the relevant limit, however taking into account the operating hours, it is considered unlikely that the operation of the Facility will coincide with the worst-case meteorological conditions such that the impact can be considered to be lower than the modelling results indicate.

An assessment of the impact on nearby sensitive ecological sites has also been completed. The impact on airborne NO_x concentrations and nitrogen deposition at the sensitive habitats was determined to be insignificant.

In light of the above conclusions of the appropriate assessment, it has not been ascertained that the project will not adversely affect the integrity of any Natura 2000 site, as documented in section 4 of OGN 200 form 1, and section 5 is applicable.

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 the MCP Directive and Specified Generator Regulations.

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 the EPR Schedule 25B Regulations.

For a Tranche B Specified Generator, that are comprised on of engines fuelled on natural gas, the monitoring requirements are as follows (for each individual engine):

Pollutant	Type of Specified Generator	Fuel Type	Emission Limit Value (mg/Nm ³)	Monitoring Required
NO _x	Compression Ignition Engine	Diesel	190*	Periodic (one hour) – every 3 years

*380 mg/Nm³ for dual fuel engines in gas mode.

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 O₂ 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 MCERTS certification/MCERTS accreditation as appropriate.

6.2 Other Permit Conditions

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

As a Specified Generator (SG), these are:

- (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 NO_x 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 Specified Generator Charges and Subsistence Fees

The type of application regarding Specified Generators will have an associated charge. The Specified Generator 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.