Natural Resources Wales permitting decisions

New bespoke permit

The application number and the permit number is: PAN-018186

The Applicant / Operator is: GFI73 LTD

The Facility is located at: Waunarlwydd Generation, Titanium Road, Waunarlwydd, SA5 4SF

We have decided to grant the permit for Waunarlwydd Generation operated by GFI73 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:

- Highlights key issues in the determination
- Summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account

Unless the decision document specifies otherwise we have accepted the applicant's proposals. Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Key issues of the decision

Our decision includes but is not limited to the following:

- Air quality

This will be discussed separately in this decision document.

1 Our decision

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 Environmental Permitting Regulations 2016 (EPR).

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 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. This document should be read in conjunction with the application and supporting information and permit.

2 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 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.

The permit will regulate 48 No. 1 MWth input low-sulphur diesel fuelled compression ignition engines. The generators are currently considered a combined Tranche A Specified Generator and each an existing Medium Combustion Plant. The Operator is due to sign a new capacity market agreement in February 2023 which under the terms of the regulations will trigger the plant to become a Tranche B SG. As a Tranche A Specified Generator the plant is subject to a transitional arranagement and the relevant compliance date is 01 January 2025, however once the plant becomes a Tranche B this will remove any transitional arrangement and the plant will require to comply with the SG regulations (including the required Emission Limit Value (ELV)) immediately. The permit reflects this and ensures that once the plant becomes a Tranche B SG the SG Regulations compliance date is brought forward from 01/01/2025 to immediately.

The current engines operate with emissions above 500 mg/Nm^3 (STP, 15 % O_2) and have no abatement fitted. However, when the engines become a Tranche B SG they will be required to comply with the NOx ELV within the regulations and will have Selective Catalytic Reduction (SCR) abatement fitted. The Operator has therefore requested permitting of the following two scenarios:

- Maximum 880 operational hours per year when no abatement fitted
- Maximum 1500 operational hours per year with abatement fitted

We have assessed both scenarios and decided both are suitable for permitting, this is reflected in the permit and will give the Operator operational flexibility.

We have conducted early permitting of the existing MCP, this means we have postdated any MCP conditions in the permit to prevent the need for future variations to the permit when the relevant MCP compliance date is reached.

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.

Environment Wales Act 2016 – Biodiversity and resilience of ecosystems duty

Section 6 of the Environment Wales Act 2016 requires that we seek to maintain and enhance biodiversity in the exercise of our functions, and in so doing promote the resilience of ecosystems, in a manner that is consistent with the proper exercise of our functions. NRW is satisfied that in this case we have taken into account and had due regard to this duty in so far as it is consistent with the function of determining an application for an EPR permit.

3 Air Quality

For this kind of regulated activity, the principal emissions are emissions to air. There are no permit conditions for water, land, odour or noise and BAT does not apply as it is not an installation subject to the Industrial Emissions Directive.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of air emissions from the facility 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.

3.1 Assessment of Impact on Air Quality

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stacks 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 emissions.

As explained above the Applicant has assessed two operational scenarios:

- Current operational scenario: Operating up to 880 hours per year with no SCR abatement fitted (NOx emissions of 605 mg/Nm^3 per engine)
- Future operational scenario: Operating up to 1500 hours per year with SCR abatement fitted (NOx emissions of 190 mg/Nm^3 per engine)

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 modelling has been reviewed in line with the following relevant guidance: Specified generators: dispersion modelling assessment - GOV.UK (www.gov.uk).

The site is not located within an Air Quality Management Area nor within an area identified within The Clean Air Plan for Wales.

The applicant has calculated process contributions (PC) and predicted environmental concentrations (PEC) at locations identified as sensitive receptor locations for human health, based on the maximum operating hours for each scenario. Modelling isopleths have also been provided to show the locations where the PC is at is maximum over the modelling area. The human health assessment results for NOx, particulate matter, sulphur dioxide and ammonia will be discussed separately below. As the fuel is low sulphur diesel we would not normally require assessment of sulphur dioxide as the sulphur emissions are negligible, although as the Applicant has presented it to us we will include our review for completeness. The Applicant has only assessed emissions of ammonia within the 'future operational scenario' due to the use of SCR abatement and opportunity for ammonia slip.

Each operational scenario will be discussed in turn below.

Current operational scenario – no abatement fitted, up to 880 hours operation per year

Oxides of nitrogen (NOx)

A long-term critical level of 40 µg/m^3 (annual) and short-term critical level of 200 µg/m^3 (hourly) was applied for NOx. At sensitive receptor locations the maximum predicted long-term PC was 2.62 µg/m^3 and >1 % (6.6 %) of the long-term critical level. The maximum long-term PEC predicted was at a different location to the maximum long-term PC and was 12.64 µg/m^3 and <70 % (31.6 %) of the long-term critical level. Therefore in accordance with current guidance the long-term impacts from NOx can be considered as insignificant as PEC <100% of the ES.

At sensitive receptor locations the maximum predicted short-term PC was 277.63 µg/m^3 and >100 % (138.8%) of the short-term critical level. There were three receptor locations where the PEC is predicted to be >100 % of the short-term critical level:

Receptor ID	PC / µg/m^3	PEC / µg/m^3
R1	229.18	242.48
R2	194.60	206.82
R12	277.63	291.79

The Applicant completed hypergeometric probability distribution calculation that demonstrates due to the low operational hours of the plant (880 hours per year) the likelihood of exceedance is less than once-in-20-year occurrence (<5 % probability). The following guidance states that where the probability is less than 5 %, exceedances are unlikely as long as the generator plant operational lifetime is no more than 20 years. The generator plant will be required to reduce the NOx emissions significantly by the relevant compliance date which is 01/01/2025 at the latest, the compliance date will be brought forward to immediately if the plant becomes a Tranche B SG which currently is expected to be February 2023. We consider that exceedances are unlikely within the short operating period between now and when the SCR abatement is fitted. The generator will be limited to 880 operational hours in the permit.

Particulate matter and sulphur dioxide

See 'future operational scenario' below for assessment of particulate matter PM_{10}, $PM_{2.5}$ and sulphur dioxide. Emissions of parriculate matter and sulphur dioxide remain unchanged through application of SCR abatement and as the scenario below represents a higher number of operational hours it is considered a worst case assessment.

Future operational scenario – SCR abatement fitted, up to 1500 hours operation per year

Oxides of nitrogen (NOx)

A long-term critical level of 40 µg/m^3 (annual) and short-term critical level of 200 µg/m^3 (hourly) was applied for NOx. At sensitive receptor locations the maximum predicted long-term PC was 1.79 µg/m^3 and so >1 % (4.5 %) of the long-term critical level. The maximum long-term PEC predicted was at a different location to the maximum long-term PC and was 8.63 µg/m^3 and <70 % (21.6 %) of the long-term critical level because although the PC was lower at this point, the background was higher. Therefore in accordance with current guidance the long-term impacts from NOx can be considered as insignificant as they are <100% of the environmental standard. At sensitive receptor locations the maximum predicted short-term PC was 133.31 µg/m^3 and >10 % (66.7 %) of the short-term critical level and the short-term PEC was 147.46 µg/m^3 and <100 % (73.7 %) of the short-term critical level. Therefore the emissions are unlikely to lead to an exceedance of the the short-term critical level and the impacts can be considered as not significant.

Particulate matter PM_{10}

A long-term critical level of 40 µg/m^3 (annual) and short-term critical level of 50 µg/m^3 (24-hour mean) was applied for PM_{10}. At sensitive receptor locations the maximum predicted long-term PC was 0.11 µg/m^3 and <1 % (0.3 %) of the long-term critical level. At sensitive receptor locations the maximum predicted short-term PC was 2.67 µg/m^3 and <10 % (5.3 %) of the short-term critical level. Therefore in

accordance with current guidance the long-term and short-term impacts from PM_{10} can be considered as insignificant as <1% and <10% respectively of the respective critical level

Particulate matter $PM_{2.5}$

A long-term critical level of 20 µg/m^3 (annual) was applied for $PM_{2.5}$, there is no short-term critical level for $PM_{2.5}$. At sensitive receptor locations the maximum predicted long-term PC was 0.12 µg/m^3 and <1 % (0.6 %) of the long-term critical level. Therefore in accordance with current guidance the long-term impacts from $PM_{2.5}$ can be considered as insignificant.

Sulphur dioxide

The short-term critical levels were applied for sulphur dioxide: 266 µg/m^3 (15-minute mean); 350 µg/m^3 (1-hour mean) and 125 µg/m^3 (24-hour mean). There are no long-term critical levels for human health assessment of sulpur dioxide. At sensitive receptor locations the maximum predicted short-term PCs (for each time period) were <1 % of the respective short-term critical levels. Therefore in accordance with current guidance the short-term impacts from sulphur dioxide can be considered insignificant.

Ammonia (NH_3)

The long-term critical level of 180 µg/m^3 (annual) and short-term critical level of 2500 µg/m^3 (1-hour) was applied for ammonia (NH_3). At sensitive receptor locations the maximum predicted long-term PC was 0.01 µg/m^3 and <1 % (0.005%) of the long-term critical level. At sensitive receptor locations the maximum predicted short-term PC was 2.57 µg/m^3 and <10 % (0.1%) of the short-term critical level. Therefore in accordance with current guidance the long-term and short-term impacts from ammonia can be considered as insignificant.

3.2 Impact on Habitats sites, Sites of Special Scientific Interest (SSSIs), non-statutory conservation sites

The facility is within the relevant screening distance criteria for protected conservation sites. A full assessment of the application and its potential to affect any of the sites has been carried out as part of the permit determination process. National Site Network[1]/Ramsar sites, SSSIs and non-statutory conservation sites will be discussed in detail separately below.

3.2.1 National Site Network[1]/Ramsar sites

The following National Site Network[1]/Ramsar sites are located within the relevant screening distance from the facility:

- Special Area of Conservation (SAC) Gower Commons - UK0012685
- SAC Carmarthen Bay and Estuaries – UK0020020
- Ramsar UK14001 and Special Protection Area (SPA) UK9015011 Burry Inlet

[1] As per the amendment to Regulation 3 of the Conservation of Habitats and Species Regulations 2017: The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (legislation.gov.uk) National Site Network means the network of sites in the United Kingdom's territory consisting of such sites as – (a) immediately before exit day formed part of Natura 2000; or (b) at any time on or after exit day are European sites, European marine sites and European offshore marine sites for the purposes of any of the retained transposing regulations.

An OGN 200 Form 1 (Habitats Regulation Assessment) was completed to assess the potential to affect the National Site Network[1]/Ramsar sites, this is available to view on the public register. An appropriate assessment was completed and included both operational scenarios. It has been established that the project will not adversely affect the integrity of any National Site Network[1]/Ramsar site, taking into account any conditions or restrictions as applicable, either alone or in-combination with other plans and projects.

3.2.2 SSSI Assessment

There are no Sites of Special Scientific Interest within the relevant screening distance (2 km) of the facility.

3.2.3 Non-statutory conservation sites

In line with the following guidance: Specified generators: dispersion modelling assessment - GOV.UK (www.gov.uk) assessment of SAC, SPA, Ramsar and SSSIs are required only.

Decision checklist

Aspect considered	Decision
Receipt of application	
Duly making	The Application was accepted as duly made on 26 September 2022. 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.
Confidential application	The Applicant made no claim for commercial confidentiality.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Requests for information	In order for us to be able to consider the Application duly made, we needed more information. We requested further information relating to declaration and air quality assessment. Upon receipt of this information we were able to consider the application Duly Made.
Consultation on the Application	
Consultation on the Application	There was a consultation carried out on the Application. This decision was taken in accordance with the Environment Permitting Regulations (EPR), our statutory Public Participation Statement (PPS) and our Regulatory Guidance Note RGN6 for Determinations involving Sites of High Public Interest. See Annex 1 for further detail.
Operator	
Control of the facility	We are satisfied that the Applicant (now the Operator) is the person who will have control over the operation of the facility after the grant of the permit. We are satisfied that the Applicant will be able to operate the facility so as to comply with the conditions included in the permit. This decision was taken in accordance with current guidance on legal operator for environmental permits.

Operator competence	
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.
Management system	The Applicant has stated in the Application that they will implement an Environmental Management System (EMS) that will meet the requirements for an EMS in our "*How to comply with your environmental permit guidance*". 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.
The facility	
The regulated facility	The regulated facility is subject to EPR because it carries out an activity as described in Schedule 25A and/or Schedule 25B of EPR as well as an activity listed in Part 2 of Schedule 1 of EPR: • One combined Tranche A Specified Generator/existing Medium Combustion Plant aggregated to <50MWth at a specified location The Operator has provided the grid reference for the emission points from the plant and the activity is defined in Table S1.1 of the permit.
Annex I of MCPD	The information contained within Annex I of MCPD has been provided by the Operator and incorporated into the permit in Schedule 7.
The site	
Biodiversity, heritage, landscape and nature conservation	The application is within the relevant distance criteria of a site of nature conservation or habitat. We have assessed the application and its potential to affect all relevant sites of nature conservation or habitats identified in the screening as part of the permitting process in line with current guidance. We have assessed the Operator's air emissions impact modelling report and consider that emissions will not affect any sites of nature conservation or habitats identified in line with current guidance. See Key Issues section above.
Environmental risk assessment	
Environmental risk	For this kind of regulated activity, the principal emissions are emissions to air. We have reviewed the Operator's assessment of the environmental risk from the facility. The

	Operator's risk assessment is satisfactory. See Key Issues section above.
Operating techniques	
Operating techniques	We have specified the operating techniques and the Operator must use the operating techniques specified in Table S1.2.
Permit conditions	
Use of conditions other than those from the template	Based on the information in the application, we consider that we do not need to impose conditions other than those in our permit template.
Emission limits	Emission limit value(s) (ELV) have been set for the following substances: • Oxides of Nitrogen (NO and NO_2 expressed as NO_2) – 190 mg/Nm^3 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, 6 % for solid fuels and 3 % for all other MCPs. The ELV(s) have been set in line with the requirements specified within Schedule 25B of EPR. As the SG is currently a Tranche A SG it is currently subject to a transitional arrangement, therefore the ELV applies from 01/01/2025 or when the Tranche A SG becomes a Tranche B SG whichever comes first.
Monitoring	We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. The monitoring requirements have been imposed in order to the Operator to demonstrate compliance with the emission limits specified in the permit, as per the ELV and monitoring frequency requirements specified within Schedules 25A and/or Schedule 25B of EPR. The Operator indicated that they will not monitor each individual plant and would instead monitor a sample of the engines as they are all identical. However, as per the SG Regulations monitoring of each individual engine is required if abatement is fitted therefore this legal requirement is reflected in the permit and the Operator will be required to monitor each individual engine. The Operator has proposed monitoring in line with Monitoring stack emissions: low risk MCPs and specified generators - GOV.UK (www.gov.uk). Due to the intermitent operation of the units and to avoid operation of the units solely for emissions monitoring we consider this is appropriate.

	These decisions have been made in line with current relevant guidance including TGN M5 and Monitoring stack emissions: low risk MCPs and specified generators - GOV.UK (www.gov.uk) As the SG is currently a Tranche A SG it is currently subject to a transitional arrangement, therefore the monitoring applies from 01/01/2025 or when the Tranche A SG becomes a Tranche B SG whichever comes first.
Reporting	We have specified the reporting requirements in Schedule 4 of the permit to ensure data is reported to enable timely review by NRW to ensure compliance with permit conditions.
Improvement conditions / pre-operational measures	We have included one Improvement Condition IC1 which requires the Operator to notify NRW when the Tranche A SG becomes a Tranche B SG. The condition has been included so that NRW are aware when the ELVs apply and the monitoring period starts.
MCPD/SG charges and subsistence fees	The type of application regarding MCPD/SG will have an associated charge. The MCPD/SG application type and number of plant will also form the basis for ongoing subsistence fees. More information on this can be found in our charging scheme on our website.

ANNEX 1: Consultation Reponses

A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our decision is summarised in this Annex. Copies of all consultation responses have been placed on Natural Resources Wales public register. We decided to advertise the application and consult the bodies detailed below as we believed the proposal may have a significant impact on human health or the environment due to the predicted exceedances of environmental standards.

We advertised the Application by a notice placed on our website, which contained all the information required by EPR, including advising people where and when they could see a copy of the Application. The consultation started **26/09/2022** and ended **25/10/2022.**

A copy of the Application and all other documents relevant to our determination are available for the public to view. Anyone wishing to see these documents could arrange for copies to be made.

We sent copies of the Application to the following bodies, which includes those with whom we have "Working Together Agreements":

- **Environmental Public Health Service (Public Heath Wales)**

- **Local authority – Swansea Council**

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from: Environmental Public Health Service (Public Health Wales)	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**
Unable to locate noise, ground contamination, flood or fire risk assessments in the application.	Legislation for this type of regulated facility only controls emissions to air, there are no conditions for water, land, noise, odour and BAT does not apply. All the mentioned risk assessments are not required for the permitting process for this type of facility therefore are not present in the permit application.
Input to and assumptions made in the air quality risk assessment	See Section 3.1 for our assessment of the air quality risk assessment. The use of generator specification emissions data is considered an appropriate input to the risk assessment. The Operator is not required to use monitoring data as input to the risk assessment.
Output of air quality risk assessment and human health concerns	See Section 3.1 for our assessment of the air quality risk assessment. It has been concluded the proposal is acceptable for permitting for reasons explained in Section 3.1.
Why has the applicant not sought to monitor actual emissions from existing generators	It is not a requirement of the permitting process for the Operator to monitor emissions prior to a permitting application. The use of generator specification emissions data is considered an appropriate input to the detailed air dispersion model. Performance must be demonstrated in-service via permitted monitoring requirements
Delay to fitting of abatement	The generator is a Tranche A Specified Generator and therefore benefits from a transitional arrangement meaning the generator does not need to comply with the SG Regulations (and relevant NOx emission limit value) until at the latest 01/01/2025. The Operator will fit abatement in order to meet the NOx ELV within the regulations so will do so before the ELV applies in line with the relevant compliance date. They are not legally required to comply with the ELV until the relevant compliance date and are therefore we cannot require them to fit abatement until they are legally required to comply.
Use of low sulphur diesel as fuel and BAT	BAT does not apply to this type of regulated facility. The use of low sulphur diesel as fuel is considered appropriate.
Not all operating scenarios have been considered in the risk assessment	See Section 3.1 for our assessment of the air quality risk assessment. The permit contains an absolute limit for annual operational hours as informed by the risk assessment. The Operator will not be able to operate over this limit including all maintenance,

	test-running, start-ups regardless of any volatility in energy supplies.
Risk assessment has excluded workplaces in the vicinity of the installation as receptors	See Section 3.1 for our assessment of the air quality risk assessment. The location of all receptors have been considered in our assessment. In line with LAQM-TG16-April-21-v1.pdf (defra.gov.uk) the air quality standard applies at locations where members of the public might be regularly exposed. The guidance states objectives should generally not apply at other places of work where members of the public do not have regular access.