

## Natural Resources Wales Permitting Decisions

# Deeside Power (UK) Limited (Deeside Power Station)

## Decision Document

## Application for a Substantial Variation

**The application number is: PAN-028461**

**The permit variation number is: EPR/XP3131VK/V003**

**The applicant / operator is: Deeside Power (UK) Limited**

**The Installation is located at: Deeside Power Station, Deeside Power Station,  
Weighbridge Road, Deeside Industrial Park, Deeside, Flintshire, CH5 2UL**

### 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.

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## Glossary of acronyms used in this document

(Please note that this glossary is standard for our decision documents and therefore not all these acronyms are necessarily used in this document.)

AQIA	Air Quality Impact Assessment
BAT	Best Available Technique(s)
BRef	Best Available Techniques Reference document
CCGT	Combined Cycle Gas Turbine
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalents
CROW	Countryside and Rights of Way Act 2000
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
EED	Energy Efficiency Directive (2012/27/EU)
ELV	Emission limit value
EN	European Standard
EPR	Environmental Permitting (England and Wales) Regulations 2016
EQS	Environmental quality standard
GWP	Global Warming Potential
HRA	Habitats Regulations Assessment
HRSG	Heat Recovery Steam Generators
IED	Industrial Emissions Directive (2010/75/EU)
LCP	Large Combustion Plant
MCERTs	Monitoring Certification Scheme
MCP	Medium Combustion Plant
MCPD	Medium Combustion Plant Directive
MW <sub>th</sub>	Net rated thermal input (in megawatts)
NIA	Noise Impact Assessment
NO	Nitrogen monoxide
NO <sub>x</sub>	Oxides of nitrogen (NO plus NO <sub>2</sub> expressed as NO <sub>2</sub> )
OPRA	Operator Performance Risk Appraisal
PC	Process Contribution
PEC	Predicted Environmental Concentration

PHW	Public Health Wales
RGN	Regulatory guidance note
SAC	Special Area of Conservation
SMNR	Sustainable Management of Natural Resources
SPA(s)	Special Protection Area(s)
SSSI(s)	Site(s) of Special Scientific Interest
TGN	Technical guidance note
WFD	Waste Framework Directive

# 1. Executive summary

## 1.1. Application summary

The operator has applied for a substantial variation to the environmental permit ('the permit') for the Deeside Power Station installation ('the installation'). The operator is Deeside Power (UK) Limited ('the operator'). Since the previous variation, the operator has changed its Registered Office address to Saltend Power Station, Saltend Chemicals Park, Hedon Road, Hull, East Riding of Yorkshire, England, HU12 8GA. The company number remains as 08887001 and there is no change to the legal entity. We have therefore updated the Registered Office address in the permit as part of this variation.

Prior to this variation, the permit was for the combustion of natural gas in a Combined Cycle Gas Turbine (CCGT) process with a net rated thermal input of 927 MW. This variation includes the removes the CCGTs as a permitted listed activity. This variation application also permits the operation of 11 natural gas-fuelled reciprocating engines for fewer than 1500 hours per year as a five-year rolling average, with no more than 2250 hours in any one of those years. More detail on these changes is presented in Section 7.2.

## 1.2. Our decision

We have decided to issue the variation for Deeside Power Station operated by Deeside Power (UK) 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.

# 2. Receipt of the application

The application was accepted as duly made on 21/02/2025. 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.

### 3. Confidential information

The applicant made no claim for commercial confidentiality, and we have not received information in relation to the application that appears to be confidential in relation to any party.

### 4. Legislation

The variation will be issued under Regulation 20 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:

- an *installation* as described by the IED;
- 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; and
- an aggregation of Medium Combustion Plant as described by the MCPD.

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that the decision on this application 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 issuing the permit a high level of protection will be delivered for the environment and human health through the operation of the Installation 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

As the EPR regulator for Part A1 installations in Wales, NRW are required to determine any duly made Part A1 permit applications. This means that we must decide either to

grant, or to refuse the variation based upon an objective assessment of the proposals against the detailed legal requirements of EPR. Our public participation statement<sup>1</sup> gives more information on what can, and cannot, be taken into account when making our permitting decision.

The application, and this decision document, only considers the permitting of the facility under EPR as described throughout the document. We only assess the installation and its impacts and cannot take into consideration indirect impacts which are not as a direct result of activity within the installation boundary.

Any proposed development and wider associated activities will be required to be compliant with all relevant and applicable law, for example, environmental law, health and safety law, planning law. This other legislation acts largely independently of EPR (although they may be inter-related). Such other matters are beyond both the scope of this document, and of our regulatory remit and expertise and are not relevant to our EPR permitting decision. Ensuring compliance with all other regulation and obtaining any required consents (such as planning permission) is the responsibility of those undertaking the development and is regulated by the relevant appropriate authority for each.

## **5. Consultation**

### **5.1. Consultation on the Application**

We have carried out consultation on the application in accordance with the Environment Permitting Regulations (EPR), our statutory Public Participation Statement (PPS) and our Regulatory Guidance.

A copy of the application is available on the public register for anyone to view. We advertised the application to the public by a notice placed on our website directing people to the public register, advising them of how they could arrange for copies to be made if required and how they can provide comments.

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<sup>1</sup> [Natural Resources Wales / Public participation: how you can take part in our permit and licence consultations](#)

We also consulted with the following bodies, in line with our Public Participation Statement:

- Public Health Wales;
- Health and Safety Executive;
- Local Authority Planning Department – Flintshire County Council; and
- Local Authority Environmental Health Department – Flintshire County Council.

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

The consultation started on 04/12/2025 and ended on 07/01/2026. A summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our decision.

## **5.2. Draft Permit Consultation**

We are now carrying out consultation on our draft decision. This consultation began on 11/06/2026 and will end on 09/07/2026.

## **6. Requests for information**

Further information was requested during determination by way of two Schedule 5 Notices dated 20/03/2025 and .

Notice 1 required the applicant to provide:

- A revised OPRA spreadsheet which had a completed 'Air' tab; and
- The Ecology report appended to the Air Quality Impact Assessment (AQIA).
- An assessment of the impact of emissions to air arising from the operation of the engines on non-statutory habitats sites; and
- An assessment of the risk from noise on receptors in the vicinity of the installation.

Notice 2 required the applicant to provide:

- Justification for the use of a Critical Load for nutrient nitrogen deposition of 10kgN/ha/yr for the Dee Estuary / Aber Dyfrydwy SAC;
- For those emissions that ‘screen out’ as insignificant, and those that ‘screen in’ as potentially significant, an assessment of the impact of emissions to air on European Protected Habitat sites in combination with the impact of emissions from any other relevant plans or projects;
- Net rated thermal input, hours of operation and MCPD Annex I information for the diesel standby engine;
- A Climate Change Risk assessment that assesses the impacts of global warming potential on the installation;
- A cost benefit analysis for the use of the installation for high-efficiency cogeneration;
- Confirmation that the CIRIA c736 guidance<sup>2</sup> has been followed when considering risks associated with the storage of oil and antifreeze / coolant;
- Provision of the Accident Management Plan referred to in the submitted Environmental Risk Assessment; and
- A description of how the Environmental Management System / Accident Management Plan will be used to control fire risk.

The Schedule 5 Notices were sent on:

- Notice 1: sent on 21/03/2025 with a deadline for response of 22/04/2025; and
- Notice 2: sent on 16/01/2026 with a deadline for response of 02/03/2026.

The applicant’s response to the Schedule 5 Notice 1 was provided in full by 22/04/2025. The additional information supplied satisfied the requirements of Schedule 5 Notice 1.

The applicant’s response to the Schedule 5 Notice 2 was provided in full by 25/03/2026. The additional information supplied satisfied the requirements of Schedule 5 Notice 1.

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<sup>2</sup> [CIRIA Containment systems for the prevention of pollution \(C736\)](#)

Several informal information requests were also made via email. These related to:

- clarification on the number of annual operating hours requested by the operator (as the information given in the application was inconsistent);
- confirmation that the operator wished to change the requested annual operating hours to fewer than 1500 per year, as a five-year rolling average, with no more than 2250 in any one of those years; and
- addition of a plan to the 'in combination' assessment report depicting the spatial distribution of the 'gridded receptors'.

A copy of the information notice(s) and e-mails requesting further information were placed on our public register as were the responses when received.

## 7. The Installation

### 7.1. The permitted activities

The regulated facility will remain as an installation which comprises the following activity listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations:

- Section 1.1 Combustion Activities - Part A (1) (a) Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts.

An installation may also comprise "directly associated activities", which at this Installation includes:

- Surface water drainage;
- Storage and handling of raw materials and fuel;
- Waste management;
- Electricity transformers and 400kV banking compound; and
- Stand-by emergency diesel generator.

Together, these listed and directly associated activities comprise the Installation.

Although following the variation, the listed activity remains the same (i.e. Section 1.1 Part (A)(1)(a)), the installation is no longer considered to be an IED Chapter III (Large Combustion Plant) installation and instead becomes a Chapter II installation.

## 7.2. Changes to the installation

Prior to this variation, the permit was for the combustion of natural gas in a CCGT process with a net rated thermal input of 927 MW. The CCGTs consisted of two gas turbines (each fitted with dry low NO<sub>x</sub> burners), two associated Heat Recovery Steam Generators (HRSG) and a steam turbine. HRSGs recover heat from the exhaust gases of gas turbines and use it to produce steam. There is also a diesel-fuelled generator that provides back-up power to the site in the event of a National Grid power outage.

The CCGTs have not operated since 2018 and have since been converted into synchronous compensators which do not burn any fuel. These are large rotating electrical machines that help stabilise the National Grid by providing inertia and reactive power to support grid voltage and frequency. In 2020, the operator entered into a 6-year contract with National Grid to provide power to the Grid using the synchronous compensators.

This variation removes the CCGTs as a permitted listed activity. They will remain in the permit as a Directly Associated Activity (DAA), operating as synchronous compensators. The diesel-fuelled back-up generator also remains in the permit. The diesel generator has a net rated thermal input of 1.305 MW and was put into operation in 2013. Under the Medium Combustion Plant Directive (MCPD), it is therefore classed as an 'existing' Medium Combustion Plant (MCP). Given its thermal capacity, it will not need to comply with MCP conditions and monitoring requirements until 1<sup>st</sup> January 2030 and will therefore remain in the permit as a Directly Associated Activity (DAA).

This variation also permits the operation of 11 natural gas-fuelled reciprocating engines for fewer than 1500 hours per year as a five-year rolling average, with no more than 2250 hours in any one of those years. The new plant will produce electricity only and will be called upon by National Grid to supply electricity during times of peak demand or reduction in baseload supply. The 11 natural gas engines will be on standby 24 hours a day, 7 days a week and every day of the year with the potential to run at any time. However, the peak times for the National Grid are typically between the hours of 08:00 and 22:00.

The operator initially applied to operate the 11 engines for a maximum of 2000 hours per year. However, during determination of the application, the operator revised this request to fewer than 1500 hours per year as a five-year rolling average, with no more than 2250 hours in any one of those years. We did not require the applicant to submit revised risk assessments as a result of this change given that they are all based on the higher number of operating hours and therefore, in view of the change, represent a conservative assessment of environmental risk associated with the installation.

Each engine will be housed within an individual fully enclosed concrete sided structures which will be fitted with a waste heat radiator, ventilation air inlet, ventilation air outlet and an exhaust stack fitted with a silencer. The engines will be housed on impermeable concrete hardstanding.

The net rated thermal input of each engine is 9.896 MW, meaning that the aggregated new plant will have a net rated thermal input of 108.856 MW. Including the diesel engine in the aggregation takes the total to 110.161 MW.

The 11 reciprocating engines are also classed as MCPs, but, unlike the diesel engine, are new MCPs as they have never before been put into operation. As the aggregated net rated thermal input of the site is 110.161 MW, under the Environmental Permitting (England and Wales) 2016 regulations (EPR) it is classed as a Section 1.1 Part A(1)(a) combustion activity, and under the Industrial Emissions Directive 2010/75/EU (IED) as a Chapter II installation, but not a Chapter III installation as it is not considered to be a Large Combustion Plant. It is therefore subject to BAT and any relevant BAT Conclusions published in the Official Journal of the European Union<sup>3</sup>.

However, there are no BAT conclusions that relate directly to this type of operation. In such cases, it falls to Natural Resources Wales (NRW), as the regulator, to define BAT for the installation. NRW has taken the position that the MCPD defines BAT, as minimum standards, for this type of installation. More information on this can be found in section 8.3 of this document.

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<sup>3</sup> [Official Journal of the European Union – BAT Conclusions](#)

The diesel back-up engine is not considered to be a specified generator (SG), and is therefore what is term an Excluded SG under Schedule 25B of EPR. The 11 reciprocating engines are also not subject to Schedule 25B, and therefore form part of the Excluded SG. This is because although they generate electricity for export to the National Grid, they form part of an IED Chapter II installation.

This means that any conditions, monitoring and reporting requirements that appeared in the permit to ensure compliance with Annex V of the IED (which details specific controls that must be placed on the operation of LCPs) have been removed. As the new engines fit the definition of new MCP, conditions, monitoring and reporting requirements related to the operation of new MCPs have been added to the permit.

As the installation comprises the operation of new combustion units with an aggregated thermal input of greater than 20MW, the provisions of the Energy Efficiency Directive (2012/27/EU) (EED) and Schedule 24 of EPR are applicable. Article 14(5) of the EED stipulates that combustion installations that fall within the scope of the EED must complete an assessment of the costs and benefits of the potential application of high-efficiency cogeneration and efficient district heating and cooling. Article 14(6)(a) exempts combustion installations that are operated as peak load power generation facilities for fewer than 1500 hours per year as a five-year rolling average. The operator provided an EED assessment with the application, but, given the operator's decision to apply for reduced hours which took the installation into the scope of Article 14(6)(a) of the EDD, the assessment was deemed no longer relevant to our determination. As such we have not discussed it further in this document.

In relation to discharge to surface water, this variation also removes from the permit emission points W2a, W2b and W3. These emission points previously permitted the discharge of clean, uncontaminated surface water (W2a and W2b) and return of abstracted cooling water, associated with the Large Combustion Plant, back to the River Dee (W3). All monitoring and reporting requirements associated with these emission points have been removed from the permit. Emission point W1 remains in the permit, but will be used only for the purpose of discharging clean, uncontaminated surface water from the installation. All monitoring and reporting requirements

associated with this emission point have been removed from the permit as they are no longer required.

## 8. Operation of the installation

### 8.1. Operator competence

The applicant is the sole operator of the Installation. We are satisfied that the applicant is the person who will have control over the operation of the Installation the variation is issued; and that they will be able to operate the Installation so as to comply with the conditions included in the permit, if issued. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator<sup>4</sup>.

### 8.2. Environmental 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<sup>5</sup>.

The EMS is accredited to the ISO14001:2015 standard and is part of the site’s Integrated Management System. The EMS will be updated to include the new activities, and we have included an Improvement Condition in the permit to require the operator to complete this work within 3 months of the date of issue of the variation.

The applicant has submitted a summary of the EMS with their application.

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

### Accident management

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<sup>4</sup> [RGN 1 Understanding the meaning of 'operator' \(naturalresources.wales\)](#)

<sup>5</sup> [Natural Resources Wales / Guidance to help you comply with your environmental permit](#)

The EMS includes an Accident Management Plan which the applicant has submitted as part of this application. We have reviewed this and are satisfied that appropriate controls are in place to help reduce the occurrence and impact of any accident that occur.

In order to ensure that the management system proposed by the applicant sufficiently manages the residual risk of accidents, permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents.

### Fire Prevention and Mitigation

The facility will be operated in accordance with an approved Fire Prevention and Mitigation Plan which has been submitted as part of this application. We have reviewed this and are satisfied that appropriate controls are in place to help reduce the occurrence of fires and impact should one occur.

## 8.3. Operating techniques

### Installation activities and assessment of Best Available Techniques

Individually, the 11 reciprocating engines are classed as new Medium Combustion Plant (MCP). The stand-by diesel engine is classed as an existing MCP. As the aggregated thermal input of the site is 110.161 MW, under EPR it is a Section 1.1 Part A(1)(a) combustion activity, and under the IED as a Chapter II installation. As each of the new MCPs are not individually >15MWth and do not discharge through a common windshield or stack (nor could the emissions from them be reasonably combined), the installation is not considered Chapter III IED installation as it is not deemed a LCP.

Article 14(3) of IED states that BAT conclusions (BATc) should be the reference for setting permit conditions. However, there are no published BATc which are directly relevant to this proposal. Although the total thermal capacity of the Installation is 110.161 MW, neither Chapter III of IED (for LCP) nor the LCP BATc are directly applicable as the individual combustion plant (engines) are each less than 15 MWth and exhaust gases from them are discharged through separate stacks that could not reasonably be combined, so aggregation through a common stack is not applicable.

In this situation Article 14(6) of IED applies, making the regulator responsible for determining BAT in consultation with the operator and considering the criteria in Annex III of IED (as far as it is applicable to this installation).

With regard to Chapter III of IED, operators of open cycle combustion plant which fall into this category and which operate for less than 1500 hours per year as a five-year rolling average, with no more than 2250 hours in any one of those years, can benefit from the less stringent BAT-Associated Emission Levels (BAT-AELs) set out in Annex V of IED than they would have to comply with if they were operated as mid-merit or baseload plant (i.e. at a greater number of hours per year). As part of the group of UK EPR and IED regulators, NRW has adopted this position via the IED Compliance Protocol<sup>6</sup> (this document is produced by the Joint Environmental Programme (JEP), which is funded by seven of the leading producers in the UK support a programme of research into the environmental impacts of electricity generation. The content has been agreed with the UK Regulators.)

In line with the IED Compliance Protocol, if an IED Chapter II combustion installation that is made up of natural gas-fired engines operates for less than 1500 hours per year as a five year rolling average, with no more than 2250 hours in any one of those years, this demonstrates equivalence with the position set out above for open cycle units and therefore we consider that this represents BAT for this type of installation.

We have therefore defined BAT in this case as:

- Each individual plant 1MW<sub>th</sub> and over is subject to the MCPD, the requirements of the Directive (Schedule 25A of EPR) for each individual engine may be considered minimum standard BAT for the collective combustion plant;
- The installation will be operated for fewer than 1500 hours per year, as a five-year rolling average with no more than 2250 hours in any one of those years, this represents BAT for operating hours;
- The most relevant BAT conclusions, we may refer to the LCP BATc “for information” only, if applicable;

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<sup>6</sup> [JEP IED Compliance Protocol \(LCP BREF Update 2025\) - Energy UK](#)

- The above is supplemented but not replaced by BAT definitions in our adopted regulatory guidance<sup>7</sup>; and
- As engines on an IED Chapter II Installation, the plant is excluded from the Specified Generator regulations, but these may provide indicative BAT.

The applicant has also described the proposed equipment and operating techniques and compared these against the BATc for LCP, except where BAT-AELs are stated in the BATc, where they have demonstrated compliance with the equivalent relevant ELVs stipulated in the MCPD. We are in agreement with this approach. See Annex 4 for more information.

#### Efficient use of raw materials, water and energy

Having considered the information submitted in the application, we are satisfied that the applicant will ensure that raw materials, water and energy is used as efficiently as possible.

The operator will be required to report energy usage under condition 4.2 and Schedule 4 of the permit.

#### Avoidance, recovery or disposal of wastes produced by the activities

Having considered the information submitted in the application, we are satisfied that the waste hierarchy referred to in Article 4 of the Waste Framework Directive (WFD) will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of offsite using a method that minimises any impact on the environment. Permit condition 1.4.1 of the permit will ensure that this position is maintained.

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<sup>7</sup> Natural Resources Wales “BAT for [Installation] combustion plant outside of the scope of the LCP BREF – Interim Position”, 30/04/2019 (internal position statement)

## 9. The site

### 9.1. Site Plan

The applicant has provided an updated plan which we consider is satisfactory, showing the extent of the site of the facility and the new emission points.

The update plan will be included in the permit and the operator will be required to carry on the permitted activities within the site boundary.

### 9.2. Site Condition Report

The proposal does not include the addition of any land and so a Site Condition Report was not required to support this application.

### 9.3. Site protection: potentially polluting substances and prevention measures

The operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED.

The operator has indicated that there are several sources of potentially polluting substances stored on site. These are clean and dirty engine oil and antifreeze / coolant.

The applicant has assessed the risk associated with the storage of these liquids using the guidance given in CIRIA Containment systems for the prevention of pollution (C736F)<sup>8</sup>. They have also explained their controls and management systems for the storage of oil, which we consider demonstrates compliance with the Water Resources (Control of Pollution) (Oil Storage) (Wales) Regulations 2016<sup>9</sup>.

Based upon the information in the application we are satisfied appropriate measures will be in place to protect the site and its surroundings from polluting substances.

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<sup>8</sup> [CIRIA Containment systems for the prevention of pollution \(C736F\)](#)

<sup>9</sup> [The Water Resources \(Control of Pollution\) \(Oil Storage\) \(Wales\) Regulations 2016](#)

## 10. Environmental Risk Assessment

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, water, sewer and discharges to ground or groundwater, global warming potential and generation of waste. All these factors have been considered during the determination and the relevant risks from this proposal are discussed in this and other sections of this document.

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

In line with our guidance, the applicant has provided an environmental risk assessment with the application which identifies key environmental risks associated with the changes and associated pollution pathways to sensitive receptors. This risk assessment and further assessments provided by the applicant and/or completed by NRW will be discussed in further detail below.

### 10.1. 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 Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health in line with relevant guidance<sup>10</sup>. These assessments predict the potential effects on local air quality from the Installation's stack emission.

The Air Quality Impact Assessment (AQIA), which incorporates a dispersion modelling study, has been based on the Installation operating intermittently at the relevant long-term or short-term emission limit values, i.e., the maximum permitted emission rate.

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<sup>10</sup> [Air emissions risk assessment for your environmental permit - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

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.

\*A note on the operator's presentation of the results given in the AQIA report: during our audit, we noticed that the operator had not presented the maximum modelled Process Contributions. However, we have audited the full set of results, and used the maximum modelled PCs in our assessments. This includes the assessments discussed here and in the Habitats Regulations Assessment (HRA) and SSSI Assessment.

The operator has calculated process contributions (PC) and predicted environmental concentrations (PEC) at locations within the immediate vicinity and all identified sensitive receptor locations. The modelling results for each pollutant is discussed below.

Emissions of NO<sub>2</sub> were assessed against a long-term Air Quality Standard (AQS) of 40 µg/m<sup>3</sup> (annual) and short term AQS of 200 µg/m<sup>3</sup> (hourly, not to be exceeded on more than 18 occasions in any year). At sensitive receptor locations, all predicted long-term PCs were <1% of the long-term AQS. Therefore, in accordance with the relevant guidance<sup>11</sup> the long-term impacts from NO<sub>2</sub> can be considered as insignificant. At sensitive receptor locations, all predicted short-term PCs were <10 % of the short-term AQS (99.79th percentile 1-hour mean NO<sub>2</sub> concentrations). Therefore, in accordance with the relevant guidance the short-term impacts from NO<sub>2</sub> can be considered insignificant.

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<sup>11</sup> [Air emissions risk assessment for your environmental permit - GOV.UK](https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit)

## Emission limits

We have decided that emission limits should be set for the parameters listed in the permit.

The following substances have been identified as being emitted in significant quantities and Emission Limit Values (ELVs) based on MCPD have been set for those substances:

- Oxides of nitrogen – 95 mg/m<sup>3</sup>

It is considered that the ELVs or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.

Based upon the information in the application and the measures that will be imposed by the permit we are satisfied that the appropriate measures will be in place to protect air quality for the environment and human health.

## 10.2. Assessment of impact to surface and ground water

The proposal includes a direct discharge to surface water.

In relation to discharges to surface water, this variation removes emission points W2a, W2b and W3 from the permit. These emission points were for the discharge of clean, uncontaminated surface water (W2a and W2b) and the return of abstracted cooling water to the River Dee (W3). All monitoring and reporting requirements associated with these emission points have also been removed from the permit. Emission point W1 remains in the permit for the discharge of clean, uncontaminated surface water only, with all associated monitoring and reporting requirements removed with the exception of a weekly visual inspection for oil and grease.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent pollution of ground and surface water.

### **10.3. Fugitive emissions**

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions and to prevent pollution from fugitive emissions.

Permit condition 3.2.1 requires that emissions of substances not controlled by emission limits (i.e., fugitive emissions) shall not cause pollution. Condition 3.2.2 requires that a management plan shall be developed if pollution is subsequently identified.

### **10.4. Noise and vibration assessment**

There are sensitive receptors within the vicinity of the installation, the closest of which is approximately 1.6km to the South-West.

The installation is located in a heavily industrialised area, and as such the soundscape is characterised by a variety of frequent, intermittent and continuous noises of varying frequencies and sound powers. In particular, it is immediately adjacent to Shotton Mill, an EPR Part A(1) paper-making installation, and Tata Colourworks, an EPR Part A(1) coating installation. There are also many roads, of various sizes and traffic volumes (including the A458 dual carriageway). In the immediate vicinity there are also a number of other Part A(1) installations, as well as other, non-regulated, heavy industrial sites.

The applicant has identified the following sources of noise in their environmental risk assessment:

- Gas engines;
- Gas engine exhausts; and
- Radiators on the gas engine enclosures.

The applicant used the SoundPlan noise modelling software to calculate the specific sound level at receptors. SoundPlan uses the noise propagation model ISO9613:2-

2024 'Attenuation of sound during propagation outdoors – Part 2: General method of calculation.'<sup>12</sup>

The model assumes that all plant is operating simultaneously at full capacity. This is an over-estimation given that the maximum number of hours they will be able to operate in any one year is 2250. Modelled results for nearby sensitive receptors have been compared to noise rating (NR) curves outlined in ISO 1996-1:2016. These are ratings for indoor noise assessment. NR25, which is for assessment of impacts on residential dwellings during the night-time and which applies a 15dB penalty for open window attenuation, and is therefore, they say, a worst-case assessment.

The modelled results are presented for various octave band frequencies and are all greater than 13dB lower than the equivalent NR25 number (which is for assessment of impacts on residential dwellings during the night-time and which applies a 15dB penalty for open window attenuation).

We have included an Improvement Condition (IC13) in the permit requiring the operator to confirm the findings of this assessment once the engines are commissioned and running in a steady state. See Section 12.4 for more information.

The application details measures which will be in place for preventing and minimising noise. The operator has undertaken this assessment in line with the requirements of 'BAT 17 Noise Reduction Techniques' of the Large Combustion Plant<sup>13</sup>. Their assessment shows them to be compliant with this BAT conclusion and we agree with their conclusions.

Condition 3.3.1 of the stipulates that emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures.

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<sup>12</sup> [ISO9613:2-2024 'Attenuation of sound during propagation outdoors – Part 2: General method of calculation](#)

<sup>13</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021D2326>

We are satisfied that this will be sufficiently protective in conjunction with the measures described by the applicant for minimising noise at the installation. Condition 3.3.2 requires the operator to devise and implement a Noise Management Plan in the event that Natural Resources Wales determines that activities are giving rise to pollution outside the site due to noise.

Although the methodology followed by the operator in its Noise Impact Assessment does not strictly follow our guidance<sup>14</sup>, we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of noise for the following reasons:

- The variation represents a change from continuous operation (i.e. year-round) to intermittent operation for part of the year (approximately 17%), which represents a significant net benefit in terms of noise risk;
- The soundscape in the vicinity of the installation is already comprised of numerous existing noise sources which are industrial in nature and characterised by a range of sound types and durations;
- The operator's assessment of the risk from noise is considered to be appropriate and is in line with the requirements of BAT 17 of the Large Combustion Plant BRef;
- We have imposed IC13 in the permit requiring the operator to confirm the findings of this assessment once the engines are commissioned and running at a steady state; and
- The inclusion of Conditions 3.3.1 and 3.3.2 in the permit.

## **10.5. Global warming potential**

Emissions of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases differ from those of other pollutants in that, except at gross levels, they have no localised environmental impact. Their impact is at a global level and in terms of climate change.

The applicant has submitted a Climate Change Risk Assessment which:

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<sup>14</sup> [Noise and vibration management: environmental permits - GOV.UK](#)

- plans and manages the risks associated with a 2°C rise in average global temperature by 2050;
- assesses the risks associated with a 4°C rise in average global temperature by 2100; future-proofs the installation; and
- considers internal, external and consequential climate change impacts.

This document is subject to review and update annually and will incorporate any issues identified during this process. We have reviewed this document and consider it satisfactory.

## 11. Impact on European Sites, SSSIs and non-statutory sites

The applicant has used a screening distance of 15km to identify relevant protected conservation sites which could be at risk from the proposal. However, in line with our guidance<sup>15</sup>, we have used a screening distance of 10km for European Sites and 2km for SSSIs and non-statutory sites.

A full assessment of the variation application and its potential to affect the identified sites identified has been carried out as part of the permit determination process. European sites, Sites of Special Scientific Interest (SSSI) and non-statutory conservation sites will be discussed separately below.

### 11.1. European Sites

The following European sites are located within 10 km of the installation:

- Dee Estuary / Aber Dyfrdwy (Wales and England) (SAC / SPA / Ramsar) (UK0030131);
- River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales) (SAC) (UK0030252);
- Deeside and Buckley Newts (SAC) (UK0030132); and
- Halkyn Mountain (SAC) (UK0030163).

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<sup>15</sup> [Air emissions risk assessment for your environmental permit - GOV.UK](https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit)

A Habitat Regulations Assessment (HRA) was completed to assess the potential to affect any of the sites identified. In light of the conclusions of an appropriate assessment and taking account of the advice received from NRW's protected sites advisors, it has been established that the project will not adversely affect the integrity of any European 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 1b and section 5). The full assessment is available to view on the public register, see [here](#).

### **11.2. Sites of Special Scientific Interest (SSSI)**

The following SSSIs are located within 2 km of the installation:

- Afon Dyfrdwy (River Dee) 31WDW;
- Dee Estuary / Aber Afon Dyfrdwy 31WHJ;
- Inner Marsh Farm 31WTC; and
- Shotton Lagoons and Reedbeds 31WBU.

As a Section 28G Authority as defined in the Countryside Rights of Way Act 2000 permitting teams within NRW has a legal duty, under Section 28I of the Wildlife and Countryside Act 1981, to consult with NRW for formal advice when permitting an activity which has been determined to be likely to damage the features of a SSSI.

To determine if consultation is required, a SSSI Assessment was completed. The assessment concluded that the proposed permission is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest.

A copy of the assessment is available to view on the public register, please see [here](#).

### **11.3. Non-statutory conservation sites**

The following relevant non-statutory sites re located within 2 km of the installation:

- The River Dee 36NW01; and
- Shotton Steelworks 37SW01.

The applicant has calculated process contributions (PC) and predicted environmental concentrations (PEC) at locations within the immediate vicinity and all identified sensitive receptor locations. The modelling results for each pollutant will be discussed separately below.

Emissions of NO<sub>x</sub> were assessed against a long-term Critical Level (CL<sub>e</sub>) of 30 µg/m<sup>3</sup> (annual) and a short-term EQS of 75 µg/m<sup>3</sup> (daily). Deposition of airborne NO<sub>x</sub> as nutrient nitrogen and acid were assessed against a long-term (annual) nutrient nitrogen deposition Critical Load (CL<sub>o</sub>) of 5 kgN/ha/yr, and a long-term (annual) acid deposition CL<sub>o</sub> of 1.07 keq/ha/yr (Shotton Steelworks) and 0.89 keq/ha/yr (River Dee).

At both sensitive receptor locations, all predicted long-term and short-term PCs were <100% of the relevant CL<sub>e</sub>s and CL<sub>o</sub>s. Therefore, in accordance with the relevant guidance<sup>16</sup>, impacts from NO<sub>x</sub>, nutrient nitrogen deposition and acid deposition can be considered insignificant.

Based upon the information in the application we are satisfied that there will be no adverse impact to the non-statutory conservation sites identified.

## **12. The Permit Conditions**

### **12.1. Incorporating the variation**

This variation application removes all conditions, monitoring and reporting requirements related to the operation of the CCGTs and associated ancillary equipment. This means that any conditions, monitoring and reporting requirements that appeared in the permit to ensure compliance with Annex V of the IED (which details specific controls that must be placed on the operation of LCPs) have been removed. As the new engines fit the definition of new MCP, conditions, monitoring and reporting requirements related to the operation of new MCPs have been added to the permit.

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<sup>16</sup> [Air emissions risk assessment for your environmental permit - GOV.UK](https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit)

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

These descriptions have been specified in the Operating Techniques table in the permit.

## **12.2. Emission limits, monitoring and reporting**

Article 14(3) of IED states that BAT conclusions shall be the reference for permit conditions. Article 15(3) further requires that under normal operating conditions; emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions.

BAT conclusions set out specific limits that the operator must comply with. As referred to in the above (see Section 8.3), the MCPD applies and sets out BAT for emission limit values (ELVs). Modelling has been used to demonstrate that the operator will be able to comply with the emission limits described in the MCPD.

We have therefore, for emission points A9 to A19, included the following in the permit:

- Oxides of nitrogen – 95 mg/m<sup>3</sup>
- Carbon monoxide – no limit set

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.

NRW's internal position statement<sup>17</sup> states that the MCPD provides 'indicative BAT' for IED Chapter II combustion installations. It also states that, 'it is expected that the tightest of the indicative BAT levels set out in the above would apply unless there is a

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<sup>17</sup> Natural Resources Wales "BAT for [Installation] combustion plant outside of the scope of the LCP BREF – Interim Position", 30/04/2019 (internal position statement)

BAT justification for deviation'. In line with this, for emission points A9 to A19, we have included:

- Annual monitoring to MCERTS and BS EN 14792 (NO<sub>x</sub>) and BS EN 15058 (CO) to be reported within 4 months of the date of issue of the variation or when the MCP is first put into operation, which is later, then every year thereafter.

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 and to monitor the efficiency of material use and waste recovery at the installation.

A number of reporting requirements have been removed from the permit as result of this variation. These relate largely to operation of the installation as an LCP, and are no longer required. Reporting requirements included in the permit are now as follows:

**Table S4.1 Reporting of monitoring data**

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A3, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19	Within 4 months of the date of issue of the variation or when the MCP is first put into operation, which is later, then every year thereafter	1 January

**Table S4.3 Performance parameters**

Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes
Energy usage	Annually	MWh
Total raw material used	Annually	tonnes

### 12.3. Raw Materials

We have specified limits and controls on the use of raw materials and fuels.

#### **12.4. Improvement conditions**

Based on the information on the application, we consider that we need to impose improvement conditions. Details of the improvement conditions used can be found at Annex 2.

### **13. OPRA**

The OPRA score has changed as a result of this variation. The new agreed score is now 108 (was 207). This will form the basis for ongoing subsistence fees.

## ANNEX 2: Improvement Conditions

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC13	Following successful commissioning and establishment of routine steady operation, the Operator shall undertake a BS 4142:2014+A1:2019 noise impact assessment following guidance set out in Noise and Vibration Management: Environmental Permits and Method implementation document (MID) for BS 4142, to demonstrate that impacts do not exceed those specified in the Noise Impact Assessment submitted with the application dated 31/03/2025.	No more than 3 months from the date of completion of engine commissioning unless otherwise agreed in writing with NRW
IC14	The operator shall update its existing Environment Management System to incorporate all the activities now covered by this permit in accordance with BAT 1 of the BAT Conclusions for Large Combustion Plant, under Directive 2010/75/EU of the European Parliament and of the Council.	26/10/26
IC15	Prior to the operation of the 4000l diesel tank referred to in activity reference AR5 in Table S1.1, the operator shall submit for written approval by Natural Resources Wales a report that demonstrates that the storage of diesel (for the purposes of fuelling the diesel back-up generator) is sufficiently protective of the environment. The report shall follow guidelines stipulated in CIRIA guidance 'Containment systems for the prevention of pollution (C736) Secondary, tertiary and other measures for industrial and commercial premises'. The 4000l diesel tank shall not be put into operation until the report is approved by Natural Resources Wales.	At least one month prior to the date of commencement of operation of the 4000l diesel tank referred to in activity reference AR5 in Table S1.1
IC16	The operator shall submit for approval in writing by Natural Resources Wales a report that verifies that the containment measures described in response to Improvement Condition IC15 have been installed and verified. The 4000l diesel tank shall not be put into operation until the report is approved by Natural Resources Wales.	At least one month prior to the date of commencement of operation of the 4000l diesel tank referred to in activity reference AR5 in Table S1.1

## ANNEX 3: Consultation Responses

### 1. Advertising and consultation on the Application

The application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. Responses to this consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex.

#### Consultation Responses from Statutory and Non-Statutory Bodies

<b>Response Received from: Public Health Wales</b>	
<b>Brief summary of issues raised:</b>	<b>Summary of action taken / how this has been covered</b>
<p>We recommend that the regulator satisfy themselves that the assumptions made in (<i>the air</i>) dispersion model are appropriate to the site and the proposed operation.</p> <p>We recommend that if a breach of short-term air quality objectives were likely, local workplaces should be included as potential receptor locations.</p>	<p>The applicant's Air Quality Impact Assessment has been audited by our Air Quality and Noise Team, who have determined that it has been completed in accordance with our guidance. We therefore consider that it adequately assesses risks from emissions to air associated with the installation on both human and ecological receptors.</p> <p>We have not required the Operator to consider risks to workplace receptors in the vicinity of the installation as these risks are covered by the Control of Substances Hazardous to Health Regulations 2002 (as amended) and, specifically, the Workplace Exposure Limits which are outlined in EH40<sup>18</sup>. The Health and Safety Executive is the Lead Regulator for this piece of legislation.</p>
<p>We recommend that emissions are kept as low as possible.</p>	<p>We have included emission limits and monitoring conditions on all emission points to air in the permit. These are made in line with the Medium Combustion Plant Directive, and are considered appropriate for this type of plant.</p>

<sup>18</sup> [EH40/2005 Workplace exposure limits - HSE](#)

<p>We recommend that a suitable permit condition be used to ensure the site implement a noise management plan, including a complaint management procedure.</p>	<p>Condition 3.3.2 requires the Operator to implement, and maintain, a Noise Management Plan in the event that it is notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration.</p> <p>The Operator's Environmental Management System, which is accredited to ISO14001:1500 standard, contains procedures for managing complaints at the site.</p>
<p>We recommend that the operator ensure that there is adequate installation of fire suppression systems, gas detection, and ventilation.</p> <p>The operator should also carry out ongoing safety audits and updates in line with a safety management plan.</p> <p>The operators should liaise with the local Fire and Rescue Service, North Wales FRS.</p>	<p>The applicant has considered the risk from fire, firefighting water and the explosive risk of natural gas, in its submitted Environmental Risk Assessment. We have reviewed this document and consider that the applicant has adequately assessed these risk and will employ appropriate preventative and management techniques to control these risks. We have included this document in the permit via its inclusion in the Operating Techniques table.</p> <p>The operator has also provided a Fire Risk Assessment, which considers fire suppression systems, gas detection, and ventilation. The document also outlines strategies for communication with North Wales Fire and Rescue Service.</p> <p>Risks from fire are incorporated into the site's Environmental Management Plan via the site's Accident Management Plan, which is subject to continual review and revision.</p>

We received no other responses to the consultation from our statutory consultees or members of the public or any other interested parties.

## 2. Advertising and consultation on the draft decision

**\*\*TO BE COMPLETED FOLLOWING DRAFT DECISION CONSULTATION\*\***

## **ANNEX 4: BAT Assessment**

BAT Conclusions for Large Combustion Plant<sup>19</sup> in the Official Journal of the EU on 30 November 2021. There are 75 BAT Conclusions. This checklist provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the permit. For definitions and acronyms see the BAT Conclusions Document.

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<sup>19</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021D2326>

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future, Not Compliant
1	<i>Environmental Management System</i>	Currently Compliant
2	<i>Net Electrical Efficiency</i>	Currently Compliant
3	<i>Monitoring Process Parameters</i>	In line with MCPD
4	<i>Monitoring Emissions to Air</i>	In line with MCPD
5	<i>Emissions to Water and Monitoring</i>	Not applicable
6	<i>Combustion Optimisation</i>	Currently Compliant
7	<i>Emission Abatement System</i>	Not applicable
8	<i>Emission Abatement System</i>	Not applicable
9	<i>Quality Control Programme</i>	Currently Compliant
10	<i>OTNOC Management</i>	Currently Compliant
11	<i>Emissions Monitoring During OTNOC</i>	Not applicable
12	<i>Energy Efficiency</i>	Currently Compliant
13	<i>Water Usage and Emissions to Water</i>	Not applicable
14	<i>Water Usage and Emissions to Water</i>	Not applicable
15	<i>Water Usage and Emissions to Water</i>	Not applicable
16	<i>Waste Management</i>	Currently Compliant
17	<i>Noise Emissions</i>	Currently Compliant
40	<i>Energy Efficiency for the Combustion of Natural Gas</i>	Currently Compliant
41	<i>NO<sub>x</sub> Emissions to Air</i>	Not applicable
42	<i>NO<sub>x</sub> Emissions to Air</i>	Not applicable
43	<i>NO<sub>x</sub> Emissions to Air</i>	Currently Compliant
44	<i>CO Emissions to Air</i>	Currently Compliant
45	<i>CO Emissions to Air</i>	Currently Compliant