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Natural Resources Wales permitting decisions

UK Power Reserve Limited

Rev No1

Bespoke permit

The application number is: PAN-005372
The Applicant / Operator is: UK Power Reserve Limited
The Facility is located at: Docks Way, Newport, NP20 2NN

We have decided to grant the permit for Docks Way operated by UK Power Reserve 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

Table of Contents

Contents

Bespoke permit	2
Purpose of this document	3
Structure of this document	4
Table of Contents	5
Contents	5
Key issues of the decision	6
1 Our decision	6
2 How we reached our decision	7
2.1 Receipt of Application	7
2.2 Consultation on the Application	7
2.3 Requests for Further Information	7
3 The Legal Framework.....	7
4 The Facility	8
4.1 Description of the Facility and related issues	8
4.2 Operation of the Facility – general issues	12
5 Minimising the Facility’s environmental impact.....	13
5.1 Assessment of Impact on Air Quality	14
5.2 Impact on Habitats sites, SSSIs, non-statutory conservation sites etc.....	15
5.3 European Sites.....	16
Assessment of Likely Significant Effect:	17
Appropriate assessment:	17
HRA Overall conclusion:.....	17
6 Setting ELVs and other Permit conditions	18
6.1 Monitoring.....	18
6.2 Other Permit Conditions.....	19
6.3 Reporting	20
7 MCPD/SG Charges and Subsistence Fees	20

Key issues of the decision

1 Our decision

We have decided to grant a permit for UK Power Reserve 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 **25/07/2019**. 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 a claim for 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

In order for us to be able to consider the Application duly made, we needed more information. We requested further information relating to the document the Applicant had referenced in Form Part A. Upon receipt of this information we were able to consider the application Duly Made.

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

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 by Schedule 25B covering the 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 combined 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.

The plant generates electricity to serve the local area and provide power services to the National Grid via the local distribution network. The gas generators provide additional power capacity at times of peak demand. The generating plant participate in the National Grid's Short-Term Operating Reserve (STOR) programme to provide balance to the National Grid during unexpected periods of high demand for electricity or where there are constraints on electricity available in England and Wales.

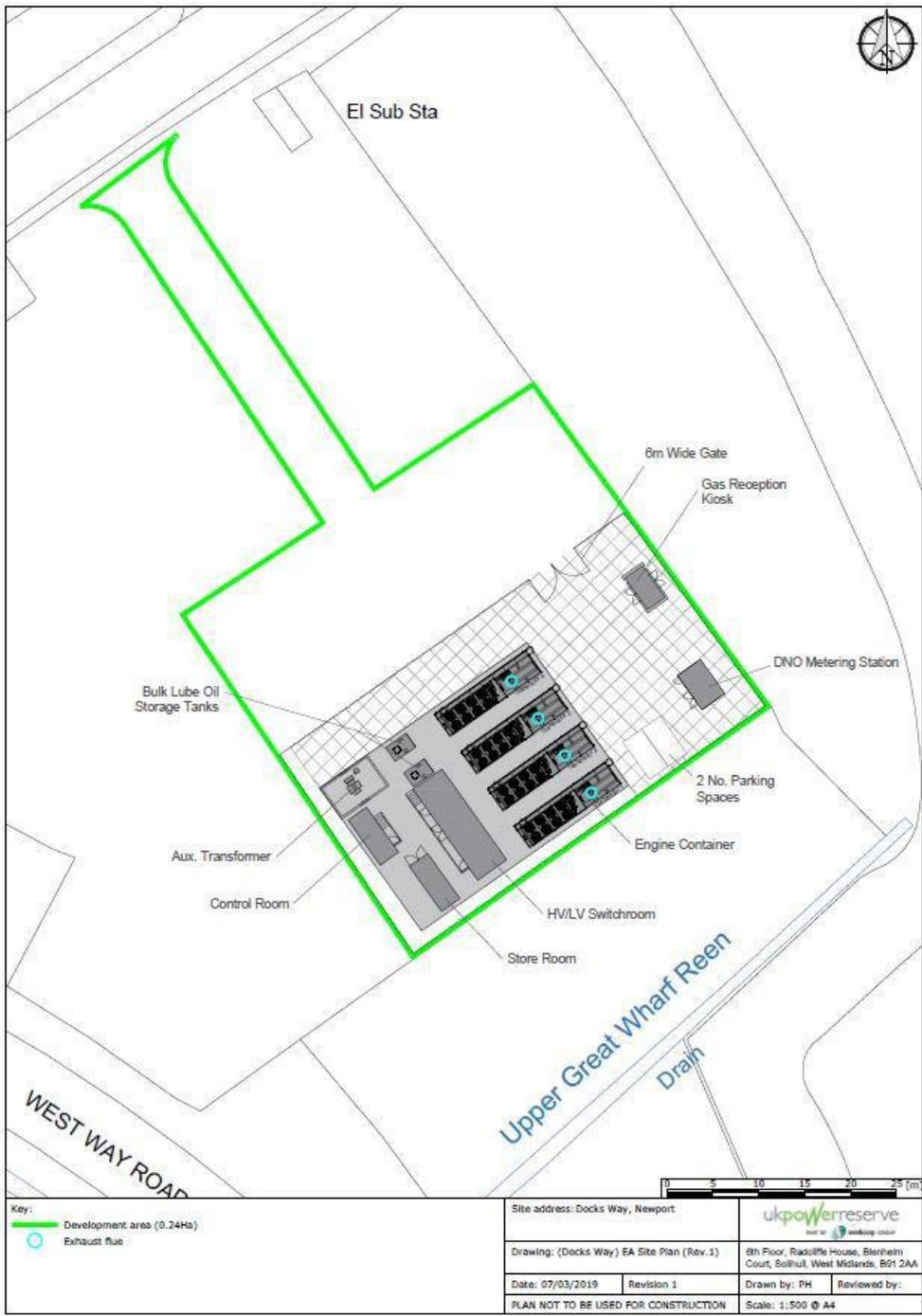
STOR plant are not designed to operate continuously throughout the year. Over the last five years, the plant (at individual sites) across UKPR's portfolio have not exceeded 1,500 operating hours per annum. However, to enable the plant to operate flexibly whenever the margin of excess capacity between supply and demand becomes sufficiently small. It is anticipated that the peaking plant will not be operated for more than 1,500 hours annually, but the modelling has been completed on 8,750 hours therefore the plant will be permitted for these hours. Any number of the plant can operate at up to 100% power output at any time and this assessment has therefore reported air quality impacts considering maximum operating hours and output for a conservative scenario.

The modelling assessed the impact of pollutants emitted from the natural gas fired engines namely oxides of nitrogen (NO_x as NO_2), particulates (PM_{10}), carbon monoxide (CO).

4.1.2 The Site

The site has an area of less than 0.5 ha, on land located to the south of Docks Way, Newport; the approximate grid reference of the site is 330916,186173. Figure 1.1 shows the location of the site. The site falls within the jurisdiction of Newport City Council (NCC). The generating plant comprises a series of four 21.4 MWth natural gas-fuelled engine generators with a continuous (when operating) electrical output of 8 MW_e. The generators are each contained within a soundproofed engine cell within a portal framed container.

The site map and is outlined in Figure 1 below:



4.1.3 What the Facility does

The generating plant comprises a series of four 21.4 MW_{th} natural gas-fuelled engine generators with a continuous (when operating) electrical output of 8 MW_e. The generators are each contained within a soundproofed engine cell within a portal framed container. The peaking plant is normally dormant and can be brought online at short notice to help cope with periods of high demand or low supply nationally.

The plant has a thermal input capacity of 21.39 MWth. The site will be permitted for 8750 hours, but due to the nature of the generators the actual expected running time will be approximately 1500 hours.

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, Dust Particulate Matter, Carbon Monoxide**

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.

Financial Provision

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

4.2.2 Management

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

4.2.3 Operating techniques

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

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

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 MCP/SG 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 Installation'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 Installation's stack emission.

The air impact assessments, and the dispersion modelling has been based on the Installation operating continuously at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate.

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.

Human Health Assessment

The results indicate that at all locations within the study area the relevant air quality standard, which is the Air Quality Strategy (AQS) objective level for annual mean NO₂ concentrations of 30µg/m³ will be met. The maximum PC arising from the plant is 8.64% of the objective level. However, when looked at the Predicted Environmental

Concentration PEC, the maximum PEC was 87.59%. This is due to the generators being modelled for a full year of operation, where in reality the design of the generators will not allow this, therefore considered to be insignificant.

All long term and short term impacts regarding human health assessment are predicted to be below limit values at locations where the Air Quality Directive states they must be applied.

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

There are 3 SSSIs within 2km of the site:

- River Usk (Lower)
- Gwent Levels – St Brides
- Severn Estuary

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 biomass 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.

The results from the air modelling shows that the PC is below 1% at Severn Estuary and can be ruled insignificant. Gwent Levels and River Usk show PC's of 1.42% and 8.64%. These results are again based on the generators running for a full year. The generators are classed as STOR (Short Term Operating Reserve) and will likely run for 1,500 hours.

Impacts can be considered insignificant when the PEC does not exceed 70% of the long-term standard, or 20% of the headroom between short term standard and short-

term background concentrations. The PEC at the River Usk, when modelled for 8,750 hours shows a result of 88%. As the plant will not likely run for these hours the PEC will likely fall below the 70% objective level and can be classed as insignificant.

For short-term (24-hour) concentrations the EA/NRW significance criteria states that for SACs and SSSIs the impact can be considered to be insignificant if the PC is less than 10% of the Critical Level. The maximum daily PC NO₂ concentration is 13.31µg/m³ which is 17.75% of the critical level. A realistic reduction to half the modelled operating hours will drop the PC to 8.88% and below the insignificant level. Therefore, in accordance with the EA criteria, the impact is 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. All sites fall below 1% of the Critical Load and are therefore 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 (5km) of the main site emission point to air:

- Severn Estuary - (RAMSAR, SPA, SAC)
- River Usk (Lower) – SAC

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 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 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 identified with site specific critical loads obtained from APIS.

As with the assessment for SSSIs, the model is based on a full year of operation. The Applicant has stated that the plant will not be continuously operating as the STOR generators do not allow this. The Severn Estuary screens out as insignificant for both NO₂ and Nitrogen Deposition.

Assessment of Likely Significant Effect:

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

Appropriate assessment:

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/Ramsar 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:

In light of the conclusions of the appropriate assessment, it has not been ascertained that the project will not adversely affect the integrity of any Natura 2000/Ramsar site.

Long-term impacts and short-term impacts on human receptors are within specified criteria and therefore insignificant.

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.

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.

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 MCP Directive and EPR Schedule 25B Regulations.

For an existing Tranche B Specified Generator, that is an engine fuelled on natural gas, the monitoring requirements are as follows:

Pollutant	Type of Specified Generator	Fuel Type	Emission Limit Value (mg/Nm³)	Monitoring Required
NOx	Gas engine	Natural Gas	190*	Periodic – every 3 years

Emission limit values are defined at a temperature of 273,15 K, a pressure of 101,3 kPa and after correction for the water vapour content of the waste gases and at a standardised 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 either MCERTS certification or MCERTS accreditation as appropriate.

6.2 Other Permit Conditions

As a Specified Generator the facility must adhere to the following operating techniques for 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 NOx ELV it must be met within 10 minutes from when the generator commences operation or within 20 minutes when the generator was a Tranche A and is now a Tranche B generator.
- (e) The stack must be vertical and unimpeded by cowls or caps.

6.3 Reporting

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

7 MCPD/SG Charges and Subsistence Fees

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