Non-Technical Summary EPR/XP3131VK

Deeside Power Station Permit Variation

Deeside Power (UK) Limited

Report No. CRM 343 001 PE R 003

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Non-Technical Summary

Project:	Deeside Power Station Permit Variation
For:	Deeside Power (UK) Limited
Status:	FINAL
Date:	February 2025
Author:	Steph Charnaud, Director of Permitting
Reviewer:	Peter Cumberlidge, Senior Director

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Tables and Figures

1.0 Overview of the Proposed Facility

1.1 Introduction

1.1.1 This Non-Technical Summary relates to a permit variation application to Natural Resources Wales (NRW) for a variation to environment permit reference EPR/XP3131VK/V002 at Deeside Power Station, Weighbridge Road, Deeside Industrial Park, Deeside, Flintshire, CH5 2UL.

1.1.2 The Operator of the Facility is unchanged from Deeside Power (UK) Limited, however the registered office address is now; Saltend Power Station, Saltend Chemicals Park, Hedon Road, Hull, East Riding of Yorkshire, England, HU12 8GA. The company registration number remains as 08887001.

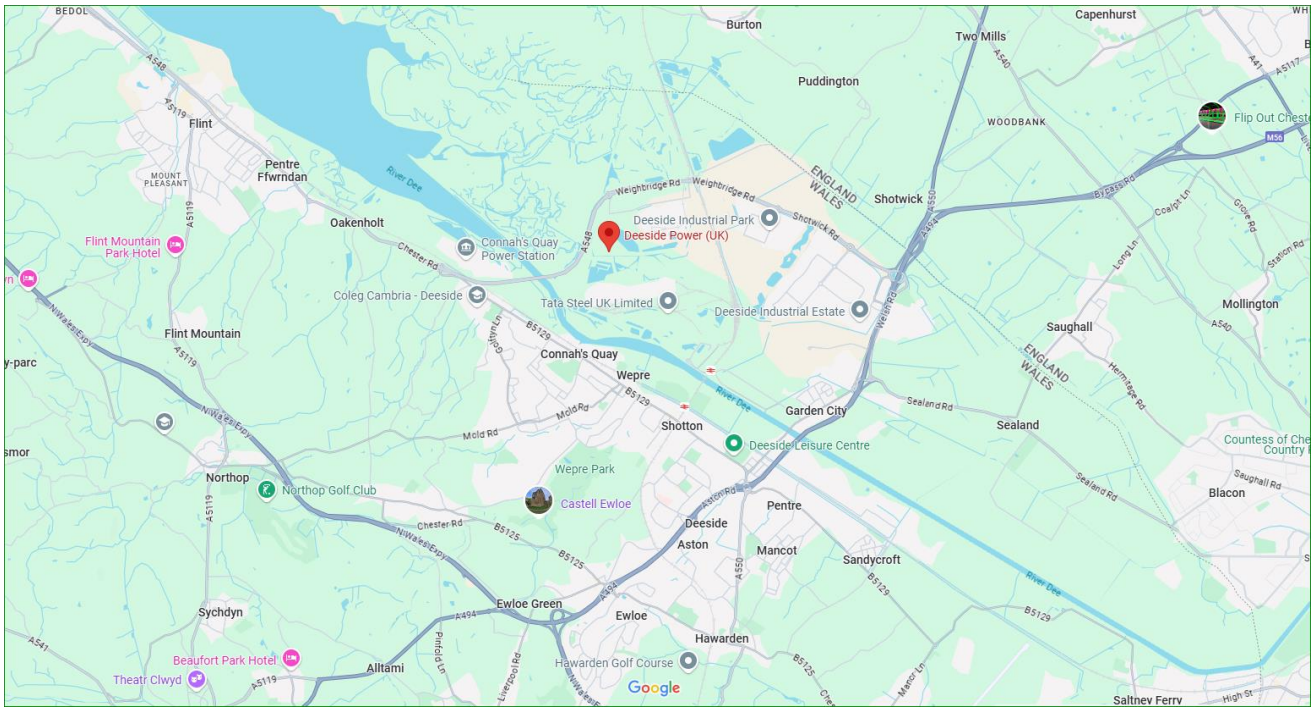
1.1.3 The permit for the Facility was originally for the combustion of natural gas in a Combined Cycle Gas Turbine (CCGT) process. The facility originally consisted of two Alstom 13E2 gas turbines each with dry low NOx burners, two CMI Heat Recovery Steam Generators (HRSG) and an Alstom steam turbine. The HRSG's and Alstom steam turbine have not been operational since 2018 while the gas turbines have been converted into synchronous compensators which do not burn any fuel and are back powered from the overhead lines, providing inertia and reactive power to the National Grid since January 2020 under a 6 year contract. This will continue under this permit variation. The existing diesel generator used to provide backup power in the event of the full grid losing power will also remain.

1.1.4 The Operator is now proposing to supply electricity to the National Grid via 11no gas reciprocating engines for a maximum of 2000 hours per annum. The net rated thermal input of the previous plant was 927MWth the new plant is proposed to have a net rated thermal input of just under 109 MWTh. The new plant will produce electricity only.

1.1.5 As above, it's proposed that the site be operational for a maximum of 2000 hours per year as a rolling average and when called on to supply electricity by the National Grid.

1.1.6 Figure 1.1.1 below shows the location of the facility.

Figure 1.1.1: Site Location



1.2 Environmental Setting

1.2.1 The full address of the site is:

Deeside Power Station
Weighbridge Road
Deeside Industrial Park
Deeside
Flintshire
CH5 2UL

1.2.2 Deeside Power Station is located within Deeside Industrial Park on the north east side of the Dee Estuary close to Fingerpost Gutter, a drainage ditch which feeds to River Dee. The site occupies approximately 1.8 hectares of land with an NGR at the centre of the site SJ 29703 71233.

1.2.3 The nearest residential property is approximately 1197m from the Facility.

1.2.4 The nearest surface watercourse is the Fingerpost Gutter drainage ditch which located 16m west of the Facility.

1.2.5 A review of the Flood Risk Map on the NRW website shows the Facility to have a low risk of flooding from the sea along the Facility's western and southern boundary edges. There are also four small areas across the Facility that are listed as having a low risk of flooding from surface water and small watercourses. Finally, the Flood Risk Map records a very low risk from rivers at the Facility.

1.3 Sensitive Receptors

1.3.1 The key sensitive receptors that have the potential to be impacted by the site are summarised in Table 1.3.1 below. These receptors have been considered, where appropriate within each risk assessment undertaken.

Table 1.3.1: Sensitive Receptors

Receptor	Type	Distance (m)	Direction
Bedrock geology Secondary A aquifer	Hydrogeological	-	Onsite
Superficial geology undifferentiated secondary aquifer	Hydrogeological	-	Onsite
Fingerpost Gutter	Hydrological and Ecological	16	W
Shotton Converter Station	Industrial	97	E
Shotton Lagoons and Reedbeds SSSI	Hydrological and Ecological	110	S, W and N
The Dee Estuary SSSI, SAC, SPA and Ramsar Site	Hydrological and Ecological	110	S, W and N
Dee Estuary / Aber Afon Dyfrdwy	Hydrological and Ecological	200	S, W and N
Shotten Mill	Industrial	395	E
Tata Steel	Industrial	396	SE
Connah's Quay Power Station	Industrial	1142	WSW
Afon Dyfrdwy (River Dee) SSSI	Hydrological and Ecological	1169	S
Parc Adfer EfW facility	Industrial	1195	E
Residential properties off Quay Lane	Residential	1197	SSW
Dock Road Industrial Estate	Industrial	1224	S
Converter Station	Industrial	1226	SE
Residential Properties off Bank Road	Residential	1239	SW
St. Mark's Parish Church	Recreational	1322	SSW
Logistic Centre off Weighbridge Road	Industrial	1354	ENE
River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC	Hydrological and Ecological	1465	SE
Connah's Quay Cricket Club	Recreational	1475	SSW
Golftyn Primary School	Education	1592	SW
Coleg Cambria School	Education	1627	SW
Toyota Deeside	Industrial	1640	ESE
Commercial Complex off Dock Road	Commercial	1705	SSW
Inner Marsh Farm SSSI	Ecological	1777	NNE
Deeside Industrial Park Zone 3	Industrial	1789	ENE
Deeside and Buckley Newt SAC	Ecological	2625	S
Connah's Quay Ponds and Woodland SSSI	Ecological	2661	S
Mynydd Y Fflint / Flint Mountain SSSI	Ecological	4756	W
Buckley Claypits and Commons SSSI	Ecological	5160	SSW
Maes y Grug SSSI	Ecological	5512	SW
Halkyn Mountain / Mynydd Helygain SAC	Ecological	8125	WSW
Comin Helygain a Glaswelltiroedd Treffynnon / Halkyn Common and Holywell Grasslands SSSI	Ecological	8160	W

1.4 Proposed Permitted Activities

1.4.1 The current and proposed permitted activities are listed below in Tables 1.4.1A and 1.4.1b.

Table 1.4.1a: Currently Permitted Activities

Schedule 1 Activity	Description of Activity	Limit of Specified Activity
Part A(1) Section 1.1 (a)	Burning of any fuel in an appliance with a net rated thermal input of 50 or more megawatts.	Combustion of natural gas in a combined cycle gas turbine
Directly Associated Activities		
DAA 1	Surface Water Treatment	Handling and storage of site drainage until discharge to the site surface water system.
DAA 2	Water Treatment	From receipt of raw materials to dispatch to chemical effluent and dirty water system.
DAA 3	Waste Management	Waste generation and handling from generation of waste to despatch from the installation
DAA 4	Storage and Handling of raw materials and fuel	From receipt of raw materials to handling, storage and use to despatch from the installation
DAA 5	River water intake station	From receipt of the river water, use in the plant to dispatch to the site cooling water purge system.
DAA 6	Electricity transformers and 400kV banking compound	From generator to the connection to the National Grid
DAA 7	Standby emergency diesel generator	From generator to gas turbines

Table 1.4.1b: Proposed Activities

Schedule 1 Activity	Description of Activity	Limit of Specified Activity
Part A(1) Section 1.1 (a)	Burning of any fuel in an appliance with a net rated thermal input of 50 or more megawatts.	Combustion of natural gas in 11no gas reciprocating engines
Directly Associated Activities		
DAA 1	Surface Water Treatment	Handling and storage of site drainage until discharge to the site surface water system.
DAA 2	Water Treatment	From capture of surface water drainage to discharge.
DAA 3	Waste Management	Waste generation and handling - from generation of waste to despatch from the installation
DAA 4	Storage and Handling of raw materials and fuel	From receipt of raw materials to handling, storage and use to despatch from the installation
DAA 5	Electricity transformers and 400kV banking compound	From generator to the connection to the National Grid
DAA 6	Standby emergency diesel generator	From generator to gas turbines

1.5 Process Description

1.5.1 The gas reciprocating engines will operate for approximately 2000 hours per annum.

1.5.2 The facility will consist of the following elements:

- 11no. Jenbacher J624 9.896MWth gas engine each with its own stack;
- 1no. Emergency Diesel Generator (already on the site)

1.5.3 The engines will be fuelled by natural gas to generate 4.5Mwe (9.896MWth) per engine for a stated aggregate export capacity of 49.5Mwe and a net rated thermal input of 108.856MWth.

1.6 Management and Control

1.6.1 NRW relies heavily upon the use of effective Environmental Management Systems (EMS) as a driver for environmental compliance and improvement.

1.6.2 The Operator has in place an Environmental Management System (EMS) which will be modified to incorporate the new activities, plant and equipment.

1.6.3 The EMS is in line with NRW's environmental management system guidance.

1.7 Point Source Emissions

1.7.1 There are currently 8 point source emissions to air and 4 point source emissions to water listed in the Permit.

1.7.2 The addition of the 11no. generators each with their own stack will lead to an additional 11 point source releases. However, as the cooling towers, temporary diesel generator and HSRG's are no longer in operation these emission points will be removed as part of this variation

application. Only emission point A3 will remain, which is from the emergency diesel generator stack.

1.7.3 The plant no longer requires cooling water so the emissions point labelled W3 will be removed from the permit as will emission points W2a and W2b. Emission point W1 will remain but only utilised for the discharge site surface water not cooling water.

1.8 Environmental Risk Assessment

1.8.1 An Environmental Risk Assessment has been completed as part of the preparatory work undertaken to support this Permit Application. The assessments undertaken have followed NRW's guidance, How to carry out a risk assessment for an Environmental Permit, last updated 17th July 2024.

1.8.2 A number of assessments have been considered to determine the environmental risks posed by the Site's operations to identify whether the level of risk is considered appropriate.

1.8.3 The risk assessments have concluded that the proposed activities will not result in an unacceptable impact on nearby sensitive receptors. The Environmental Risk Assessment is provided within document reference CRM 343 005 PE R 005.

1.9 Operational Techniques and BAT Assessment

1.9.1 Document reference CRM 343 005 PE R 006 has been prepared to describe details of the operational techniques that will be used to seek to minimise and control emissions from the varied Facility and to demonstrate that the technology selection and control measures to be implemented follow Best Available Techniques.

1.10 Monitoring

1.10.1 The 11no. engines are identical and subject to broadly comparable use, it is proposed that NOx as (NO_2) emissions are monitored

1.11 Closure and Decommissioning

1.11.1 In the event that activities cease on Site and de-commissioning is required, a detailed 'Closure Plan' will be submitted to NRW and other Regulatory Bodies, e.g. Flintshire County Council as appropriate.

1.11.2 This will include details of how the Site will be dismantled and how wastes produced from the decommissioning process will either be recycled/reused or where appropriate disposed of. The Operator will ensure that appropriate records and reporting procedures are implemented during the operational phase of the Permit to ensure that a Site Condition Report can be completed and that necessary data is collected (following the lifetime approach) to demonstrate that the land is in a 'satisfactory state' at the time of Permit Surrender.

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