

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Drax Power Limited

Hirwaun OCGT Plant
Main Avenue
Hirwaun Industrial Estate
Hirwaun
Aberdare
CF44 9UP

Permit number
EPR/BB3297CG

Hirwaun OCGT Plant

Permit number EPR/BB3297CG

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows:

This permit controls the operation of a large combustion plant. The relevant listed activity is Section 1.1 A(1)(a): Burning fuel in an appliance with a rated thermal input of 50 megawatts or more.

The installation uses a single open cycle gas turbine burning natural gas and has a net thermal input of 760MW.

Fuel is burnt in the combustion chamber from where hot gases expand through the gas turbine driving an electrical generator to produce up to 299MW of electrical energy. The plant has been designed and will run as a peaking power station supplying electricity to the National Electricity Transmission System for up to 1500 hours per year at times of high demand or during periods of instability in the grid.

The Installation will only burn natural gas, however there is an emergency diesel generator fuelled by diesel. This generator allows the safe shutdown of the power station and provides electricity to essential building systems during times of power failure. This falls within the scope of the Medium Combustion Plant Directive.

Natural gas will be brought to the installation by a pipeline linked to the National Transmission System approximately 0.9km from the power station. There is no natural gas stored on-site.

Aerial emissions from the site will be discharge to air through a purpose built 35m stack. Emissions will comprise products of combustion, including oxides of nitrogen and carbon monoxide. The emissions of oxides of nitrogen will be minimised through the use of dry low NO_x burners.

The Installation uses a fin fan cooling system to dispose of waste heat generated from the infrastructure operating onsite. Waste heat from the turbine exits via the stack, thus eliminating the requirement for large quantities of cooling water.

There will be no release to surface water or land of process effluent. The only discharge will be clean surface water run via the site surface water drainage system. Run-off from hard surfaces, including parking and storage areas, will be passed through an oil separator prior to discharge to the Nant Yr Ochain/River Camnant.

Process releases including effluent from toilet facilities will be discharge to the local sewer network. Process effluents from the cleaning of turbine blades and used lubricants will be tankered off site for off-site disposal.

The installation will be run remotely from the control room of Drax Power Station in Selby. Drax Power limited operates an Environmental Management System (EMS) accredited to ISO14001. This EMS will be extended to include the Hirwaun installation.

The status log of the permit sets out the permitting history, including any changes to the permit reference number

Status Log of the permit		
Detail	Date	Comments
Application PAN-002854	Duly made 10/07/18	Application for a new 760MW gas-fired power station
Schedule 5 request for more information	13/08/18	Further information sought regarding noise modelling – revised modelling assessment
Schedule 5 Information received	11/09/18	
Schedule 5 request for more information	15/10/18	Further information sought regarding noise modelling
Schedule 5 Information received	14/12/18	
Schedule 5 request for more information	20/12/18	Further information sought regarding noise modelling
Schedule 5 Information received	25/01/19	
Schedule 5 Information received	14/03/19	
Schedule 5 Information received	09/04/19	
Schedule 5 request for more information	29/04/19	Further information sought regarding remote operations
Schedule 5 Information received	01/05/19	
Permit Issued EPR/BB3297CG	05/06/2019	

End of Introductory Note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BB3297CG

The Natural Resources Body for Wales (“Natural Resources Wales”) authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

Drax Power Limited (“the operator”),

whose registered office is

Drax Power Station

Drax

Selby

North Yorkshire

YO8 8PH

company registration number **4883589**

to operate an installation at

Hirwaun OCGT Plant

Main Avenue

Hirwaun Industrial Estate

Hirwaun

Aberdare

CF44 9UP

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Holly Noble	05/06/2019

Authorised on behalf of Natural Resources Wales

Conditions

1 Management

1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
 - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
 - (b) take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised;
 - (c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
 - (d) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
 - (b) maintain records of raw materials and water used in the activities;
 - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
 - (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
 - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
 - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP002854. Without prejudice to condition 2.3.1, the activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines revision 1 dated December 2018 or any later version unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.3 If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP002854. The activities shall operate for less than 1,500 hours per year as a rolling average over a period of five years.

- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP002854. The end of the start-up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.
- 2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP002854. The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.6.
- 2.3.8 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
 - (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.9 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.
- 2.3.10 Limited Operating hours MCPs detailed in Schedule 1, table S1.1: MCP1 and MCP2, which are exempt from compliance with Emission Limit Values shall:
- (a) not exceed 500 hours operation in a year as a rolling average over a 3-year period
 - (b) the year refers to a 12-month period of operation not a calendar year
 - (c) once 3 years have been established, the average is calculated on a rolling annual basis thereafter
 - (d) no more than 750 hours may be operated by a Limited Operating hours MCP in any single year.

2.4 Improvement programme

- 2.4.1 The operator shall complete the improvements specified in Schedule 1 Table S1.3 by the date specified in that table unless otherwise agreed in writing by Natural Resources Wales.
- 2.4.2 Except in the case of an improvement which consists only of a submission to Natural Resources Wales, the operator shall notify Natural Resources Wales within 14 days of completion of each improvement.

2.5 Pre-operational conditions

- 2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 The Operator shall carry out monitoring of groundwater at least once every 5 years and of soil at least once every 10 years; to the monitoring plan agreed in writing with Natural Resources Wales under Pre-Operational Condition 1.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
 - (a) if notified by Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour 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, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.
- 3.3.2 The operator shall:
 - (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
 - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.4 Noise and vibration

- 3.4.1 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, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
- (a) if notified Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to Natural Resources Wales for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
 - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1 and S3.2; and
 - (b) process monitoring specified in table S3.3.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by Natural Resources Wales.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in Schedule 3 Tables S3.1 and S3.2 unless otherwise agreed in writing by Natural Resources Wales.

3.6 Monitoring for Large Combustion Plant

- 3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the LCP Bref BAT Conclusions.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to Natural Resources Wales for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
 - (b) implement the approved proposals.

- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by Natural Resources Wales in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with Natural Resources Wales.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to Natural Resources Wales in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, tables S3.1; the Continuous Emission Monitors shall be used such that:
- a) for the continuous measurement systems fitted to the LCP release points defined in Tables S3.1 the validated hourly, monthly, annual and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
 - b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
 - c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
 - d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
 - e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and
 - f) any day, in which more than three hourly average values are invalid shall be invalidated.

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

- (d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
 - (b) the annual production /treatment data set out in schedule 4 table S4.2;
 - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
 - (d) the hours of operation in any year shall be reported to Natural Resources Wales by 31 January in the following year.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by Natural Resources Wales, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
 - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to Natural Resources Wales, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

- 4.3.1 The Operator shall
- (a) in the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform Natural Resources Wales,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

- (iii) take the measures necessary to prevent further possible incidents or accidents;
 - (b) in the event of a breach of any permit condition, the operator must immediately—
 - (i) inform Natural Resources Wales, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
 - (c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1(a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- Where the operator is a corporate body other than a registered company:
- (a) any change in the operator's name or address; and
 - (b) any steps taken with a view to the dissolution of the operator.
- In any other case:
- (a) the death of any of the named operators (where the operator consists of more than one named individual);
 - (b) any change in the operator's name(s) or address(es); and
 - (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) Natural Resources Wales shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 Natural Resources Wales shall be given at least 14 days' notice before implementation of any part of the site closure plan.

- 4.3.7 Where the operator has entered into a climate change agreement with the Government, Natural Resources Wales shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
 - (b) a decision by either the operator or the Secretary of State to terminate the agreement;
- and
- (c) any subsequent decision by the Secretary of State to re-certify such an agreement.
- 4.3.8 The operator shall inform Natural Resources Wales in writing of the closure of any LCP within 28 days of the date of closure

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “immediately”, in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 Activities			
Activity ref.	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
Section 1.1 A (1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.		LCP002854: Production of electricity in an open cycle gas turbine (OCGT) with a net thermal input of approximately 760MW operating on natural gas.	From receipt of natural gas to the discharge of combustion gases from the associated 35m stack, and the generation of electricity.
		Producing up to 299MW electrical output.	All activities to be carried out within a dedicated building Dry Low NOx burners are to be used
		MCP1: Operation of one emergency diesel generator (<2MW)	From receipt of gas oil for the emergency generator and fire pump to discharge of exhaust gases and the generation of electricity for use on site.
		MCP2: Operation of one diesel driven fire pump (<2MW)	No electricity shall be exported to the grid from the emergency generator.
Directly Associated Activities			
		Gas Reception Facility (GRF)	From receipt of natural gas at Grid pressure to dispatch of natural gas at the flow and pressure required for input to the gas turbine.
		Main cooling system	Fin fan air cooling utilised within a closed cycle cooling system
		Raw materials storage	From receipt of raw materials to their use and the dispatch from the Installation of any wastes arising.
Tank Farms		Waste tanks	Storage of waste and associated emissions. All storage tanks are contained within a bund complying with relevant guidelines and in an area with sealed drainage.
		Surface water drainage	From collection of rainwater through operation of oil-water separators to discharge to an un-named watercourse.

Table S1.2 Operating techniques

Description	Parts	Date Received
Response to Schedule 5 RFI	Response to air quality questions relating to start-up and shut-down impacts	22/06/18
Response to Schedule 5 RFI	Further response to air quality questions relating to start-up and shut-down impacts – percentage impact increase.	03/07/18
Application	Part B2 of the application form - Sections 5b	10/07/18
Application	Part B3 of the application form - Sections 2, 3a, 3c, 4a, 4b, 5a, 6a, 6c, 6d, 6e and Appendix 1.	10/07/18
Application	EP HPL Application supporting document (V1.2)	10/07/18
Response to Schedule 5 RFI	Amended noise impact assessment report and document – NRW Queries 01022019	14/03/19
Response to Schedule 5 RFI	Email from Jim Doyle confirming that remote operations will be controlled from Drax Power station.	01/05/19

Table S1.3 Improvement programme requirements

Ref.	Requirement	Date
IC1	<p>The Operator shall submit a report in writing to Natural Resources Wales for approval. The report shall define and provide a written justification of the “minimum start up load” and “minimum shut-down load”, for the LCP as required by the Commission Implementing Decision 2012/249/EU in terms of:</p> <ul style="list-style-type: none"> i. The output load (i.e. electricity, heat or power generated) (MW); and ii. This output load as a percentage of the rated thermal output of the combustion plant (%). <p>And / Or</p> <ul style="list-style-type: none"> iii. At least three criteria (operational parameters and/or discrete processes as detailed in the Annex of the commissioning decision) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU. 	Within 4 months of the completion of commissioning
IC2	The Operator shall submit a report in writing to Natural Resources Wales for approval. The report shall define an output load or operational parameters and provide a written justification for when the dry low NO _x operation is effective. The report shall also include the NO _x profile through effective dry low NO _x to 70% and then to full load.	Within 4 months of the completion of commissioning
IC3	The Operator shall propose an achievable emission limit value (ELV) for carbon monoxide expressed as an annual mean of validated hourly averages. If the proposed ELV deviates from the indicative BAT AEL for CO of 40mg/m ³ then an associated BAT justification shall be submitted to Natural Resources Wales for approval in the form of a written report.	Within 4 months of the completion of commissioning

Table S1.3 Improvement programme requirements

Ref.	Requirement	Date
IC4	<p>The Operator shall provide a report in writing to Natural Resources Wales for approval which provides the net rated thermal input and net rated electrical output for LCP002854.</p> <p>Evidence to support this figure, in order of preference, shall be in the form of: -</p> <ul style="list-style-type: none"> a) Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes); b) Manufacturer's contractual guarantee value; c) Published reference data, e.g., Gas Turbine World Performance Specifications (published annually); d) Design data, e.g., nameplate rating of a boiler or design documentation for a burner system; e) Operational efficiency data as verified and used for heat accountancy purposes; f) Data provided as part of Due Diligence during acquisition. <p>*Performance test results shall be used if these are available.</p>	Within 4 months of the completion of commissioning
IC5	The Operator shall submit a written report to Natural Resources Wales for approval on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.	Within 4 months of the completion of commissioning
IC6	<p>Following successful commissioning and establishment of routine steady operation, the Operator shall undertake noise monitoring at the nearest local receptors for both normal operation and for periods of start-up and shut-down. This shall include:</p> <ul style="list-style-type: none"> • A full noise monitoring survey and assessment meeting the BS4142:2014 standard • 1/3rd octave and narrow band (FFT) measurements to identify any tonal elements or low frequency noise • Reference to the World Health Organisation guidelines for community noise • Reference to the Noise Action Plan for Wales <p>Upon completion of the work, a written report shall be submitted to Natural Resources Wales. The report shall refer to the predictions in the report produced as part of the application. If rating levels likely to cause adverse impact at sensitive receptors are detected, the report shall include an assessment of the most suitable abatement techniques, an estimate of the cost and a proposed timetable for their installation.</p>	Within 6 months of the completion of commissioning
IC7	The Operator shall submit a written report to Natural Resources Wales on the implementation of its Environmental Management System and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.	Within 12 months of the date commissioning

Table S1.3 Improvement programme requirements

Ref.	Requirement	Date
IC8	The Operator shall submit a written summary report to Natural Resources Wales which presents the results of calibration and verification testing to confirm that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Initial calibration report to be submitted to Natural Resources Wales within 3 months of completion of commissioning Full summary evidence compliance report to be submitted within 18 months of commissioning
IC9	The Operator shall propose achievable emission limit values (ELV) for NO _x and CO expressed as a daily mean of validated hourly averages from Minimum start-up load (MSUL) to baseload. This must be supported by a summary of emissions data. Justification shall be submitted to Natural Resources Wales for approval in the form of a written report.	Within 6 months of the completion of commissioning

Table S1.4 Pre-operational measures

Ref.	Pre-operational measures
PO1	At least 1 month prior to the commencement of commissioning, the Operator shall submit the written monitoring plan referenced in Condition 3.1.3 for the monitoring of soil and groundwater for approval by Natural Resources Wales. The monitoring plan shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED. The monitoring plan shall be implemented in accordance with the written approval from Natural Resources Wales.
PO2	At least 1 month prior to the commencement of commissioning; the Operator shall provide a written commissioning plan, including timelines for completion, for approval by Natural Resources Wales. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment, you will report to Natural Resource Wales if actual emissions exceed expected emissions and compliance with LCP Bref BAT-AELs, Annex V, Part 2 NO _x limits to be qualified from 70% load to baseload. Commissioning shall be carried out in accordance with the commissioning plan as approved.
PO3	At least 1 month prior to the commencement of commissioning the Operator shall supply an as-built drainage plan for the Installation, covering all aspects of the system listed in the Application Supporting Document.

Table S1.5 Start-up and Shut-down thresholds

Emission Point and Unit.	“Minimum Start-Up Load” Load in MW and as percent of rated power output (%) and discrete processes	“Minimum Shut-Down Load” Load in MW and as percent of rated power output (%) and discrete processes
A1	To be agreed in writing with Natural Resources Wales following completion of IC1	To be agreed in writing with Natural Resources Wales following completion of IC1

Table S1.6 Effective Dry Low NO_x thresholds

Emission Point and Unit Ref.	Effective Dry Low NO _x threshold Load in MW and as percent of rated power output (%) and discrete processes
A1	To be agreed in writing with Natural Resources Wales following completion of IC2

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels

Raw materials and fuel description	Specification
Diesel	Not exceeding 0.1% w/w sulphur content

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air from Gas Turbine >100MWth

Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down. ^{Note 2}	Reference period	Monitoring frequency	Monitoring standard or method
A1 [point A1 on-site plan in schedule 7]	LCP002854 Gas turbine fired on natural gas	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	50 mg/m ³	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			Effective Dry Low NO _x to baseload ^{Note 1}			
			70% to baseload ^{Note 1}	Daily mean of validated hourly averages	Continuous	BS EN 14181
			50 mg/m ³			
			Effective Dry Low NO _x to baseload ^{Note 1}	Daily mean of validated hourly averages	Continuous	BS EN 14181
			70% to baseload ^{Note 1}			
			TBC following completion of IC9			
			From MSUL to baseload ^{Note 3}	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
			100 mg/m ³			
			Effective Dry Low NO _x to baseload ^{Note 1}			
			70% to baseload ^{Note 1}			

Table S3.1 Point source emissions to air from Gas Turbine >100MWth

Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down. ^{Note 2}	Reference period	Monitoring frequency	Monitoring standard or method
A1 [point A1 on-site plan in schedule 7]	LCP002854 Gas turbine fired on natural gas	Carbon monoxide	35 mg/m ³	Annual mean of validated hourly averages	Continuous	BS EN 14181
			Effective Dry Low NO _x to baseload ^{Note 1}			
			100 mg/m ³	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			Effective Dry Low NO _x to baseload ^{Note 1}			
			70% to baseload ^{Note 1}			
			110 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
			Effective Dry Low NO _x to baseload ^{Note 1}			
			70% to baseload ^{Note 1}			
			TBC following completion of IC9	Daily mean of validated hourly averages	Continuous	BS EN 14181
			From MSUL to baseload ^{Note 3}			
			200 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
			Effective Dry Low NO _x to baseload ^{Note 1}			
			70% to baseload ^{Note 1}			

Table S3.1 Point source emissions to air from Gas Turbine >100MWth

Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down. ^{Note 2}	Reference period	Monitoring frequency	Monitoring standard or method
			TBC following completion of IC3	Annual mean of validated hourly averages	Continuous	BS EN 14181
			Effective Dry Low NO _x to baseload ^{Note 1}			
		Oxygen	-	-	Continuous	BS EN 14181
					As appropriate to reference	
		Water Vapour	-	-	Continuous	BS EN 14181
					As appropriate to reference	
A1 [point A1 on-site plan in schedule 7]	LCP002854 Gas turbine fired on natural gas	Stack gas temperature	-	-	Continuous	Traceable to national standards
					As appropriate to reference	
		Stack gas pressure	-	-	Continuous	Traceable to national standards
					As appropriate to reference	
		Stack gas volume flow	-	-	Continuous	BS EN 16911 & Environment Agency Technical Guidance Note M2

Table S3.1 Point source emissions to air from Gas Turbine >100MWth

Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down. ^{Note 2}	Reference period	Monitoring frequency	Monitoring standard or method
		Sulphur dioxide	-	-	6 monthly by calculation	Agreed in writing with NRW
		Dust	-	-	6 monthly by calculation	Agreed in writing with NRW
A2 [point 5 on-site plan in schedule 7]	Emergency Diesel Generator	No limit set		No Monitoring Required		
A3 [point 6 on-site plan in schedule 7]	Diesel Fire pump	No limit set		No Monitoring Required		

Note 1: This ELV applies between the effective dry low NO_x threshold and baseload once IC5 has been completed. Effective dry low NO_x thresholds are defined in Table S1.6 (following completion of IC2), until IC5 has been completed the 70% to baseload threshold applies.

Note 2: ELV averaging periods and applicable load ranges may be rationalised upon receipt and approved in writing by Natural Resources Wales following completion of Improvement Condition IC5, if sufficient justification and evidence is provided.

Note 3: This ELV applies between the minimum start-up load (MSUL) (as defined in Schedule 6) and baseload.

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 – un-named tributary of the Nant Yr Ochain/River Cament	Accumulated surface and roof water run-off	No Parameters set	No visible oil or grease		No Monitoring Required	

Table S3.3 Process monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
W1	Oil and Grease	Continuous	-	Oil in water detector – to monitor the clean surface water discharge
LCP002854	Net electrical efficiency	After commissioning and then after each modification that could significantly affect these parameters	EN Standards or equivalent	To be measured at ISO baseload conditions

Schedule 4 - Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
Parameters as required by condition 3.5.1	A1 – Sulphur Dioxide	6 monthly	1 January, 1 July
	A1 - Dust	6 monthly	1 January, 1 July

Table S4.2: Annual production/treatment

Parameter	Units
Power generated	MWh
Number of hours MCP1 (emergency generator) is operational	Hours
Number of hours MCP2 (fire pump) is operational	Hours

Table S4.3 Chapter III Performance parameters for reporting to DEFRA

Parameter	Frequency of assessment	Units
Thermal Input Capacity for LCP	Annually	MW
Annual Fuel Usage for LCP	Annually	TJ
Total Emissions to Air of NO _x for LCP	Annually	t
Total Emissions to Air of SO ₂ for LCP	Annually	t
Total Emissions to Air of particulate matter (dust) for LCP	Annually	t
Operating Hours for LCP (Load Factor)	Annually	h

Table S4.4 Reporting forms

Media/parameter	Reporting format	Starting Point	NRW recipient	Date of form
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy	05/06/19	SI	12/06/16
LCP	Form IED HR1 – operating hours	05/06/19	SI	12/06/16
Air	Form IED CON 2 – continuous monitoring	05/06/19	SI	12/06/16
CEMs	Form IED CEM – invalidation log	05/06/19	SI	12/06/16
Air	Form IED PM1 – discontinuous monitoring and load	05/06/19	SI	12/06/16

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	EPR/BB3297CG
Name of operator	Drax Power Limited
Location of Facility	Hirwaun OCGT Plant, Hirwaun Industrial Estate, Hirwaun, Aberdare, CF44 9UP
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution

To be notified within 24 hours of detection

Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit

To be notified within 24 hours of detection unless otherwise specified below

Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by Natural Resources Wales under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“average over the sampling period” means average value of three consecutive measurements of at least 30 minutes each.

“base load” means: (i) as a mode of operation, operating for >4000hrs pa; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating.

“calendar monthly mean” means the value across a calendar month of all validated hourly means.

“CEN” means Comité Européen de Normalisation.

“Commissioning” means testing of the installation that involves any operation of a Large Combustion Plant referenced in schedule 1, table S1.1.

“Daily average” means the average over a period of 24 hours of valid hourly averages obtained by continuous measurements.

“DLN” means dry, low NO_x burners.

“emissions to land” includes emissions to groundwater.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“Energy efficiency” the annual net plant energy efficiency means the value calculated from the operational data collected over the year.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“large combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshield or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“LCP Bref BAT Conclusions” means Commission implementing decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and the Council, for large combustion plant, published 17 August 2017.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“MCR” means maximum continuous rating.

“MSDL” means minimum shut-down load as defined in Implementing Decision 2012/249/EU.

“MSUL” means minimum start-up load as defined in Implementing Decision 2012/249/EU.

“Natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“Net electrical efficiency” means the ratio between the net electrical output (electricity produced minus the imported energy) and the fuel/feedstock energy input (as the fuel/feedstock lower heating value) at the combustion unit boundary over a given period of time.

“NRW” means Natural Resources Wales.

“operational hours” are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“RFI” means Request for Further Information

“SI” means site inspector.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

“yearly average” means the average over a period of one year of validated hourly averages obtained by continuous measurements.

Schedule 7 - Site plan



Figure 3: Indicative Activity layout

Key

— Installation boundary

○ Approximate site centre (NGR 293730, 206265)

A1 Indicative air discharge point

W1 Indicative water discharge point

1. Gas receiving station

2. Gas turbine

3. Fin fan cooler

4. Transformers

5. Fire water tank and fire pumps

6. Emergency diesel generator

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Not to scale

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