

Natural Resources Wales permitting decisions

**RWE Generation UK plc - Emergency Back-up
Generating Plant (EBGP) at Pembroke Power
Station**

Decision Document

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Variation

The variation number is: EPR/DP3333TA/V005

The operator is: RWE Generation UK plc

The Installation is located at: Pembroke Power Station, West Pennar, Pembroke, SA71 5SS

We have decided to issue the variation for Pembroke Power Station's Emergency Back-up Generating Plant (EBGP) operated by RWE Generation UK plc.

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.

This is a normal variation application to an existing installation permit for Pembroke Power Station EPR/DP3333TA.

The operator has varied the permit to install an additional plant at the site of Pembroke Power Station, to enable it to restart without external power supplies should some incident cause the Grid system to shut down and electricity supplies from external sources to be lost. This includes the installation of an emergency back-up generating plant (EBGP) to provide auxiliary power for this purpose.

The EBGP will provide auxiliary power to start one main generating unit at Pembroke at any given time, independently of external power supplies following the loss of the latter. It may also provide essential power supplies to the other main generating units as well as essential common Station services during an interruption to power supplies from the Grid.

In order to perform its role of providing auxiliary power in the event of a loss of external power supply from the Grid, the EBGP must itself be capable of starting and operating without relying on any external power supply or services from the main power station. The EBGP must be capable of meeting the auxiliary power demand profile in Figure 1 of "Proposed Emergency Back-up Generating Plant at Pembroke, Project Description"

plus the Station services load during the start-up of a main generating unit and thereafter continue to provide auxiliary power to sustain the operation of one of Pembroke's main CCGT generating units for a number of days after any loss-of-supply event (a standard NGENSO technical requirement) while stable operating conditions on the Grid system are re-established.

The EGBP will not itself export power to the Grid via the existing power station's Grid connections. It will only be used for an emergency situation and will involve a low amount of testing and maintenance hours.

The variation proposes to add 3 No. reciprocating natural gas engine generator units, each with a rated thermal input of approx. 7.6 MWth (22.8 MWth aggregated) and electrical output of approx. 3.4 MWe combined with a lithium-ion battery energy storage system (BESS) with a rated storage capacity of 6.27 MWh and a maximum output of 10 MWe when supplying power. The auxiliary gas engine units are located within individual cells within a single power house structure. Each engine has an individual exhaust stack extending up to 15 m above local ground level incorporating a vertically mounted silencer. The gas engines are guaranteed by the manufacturer to meet the NO_x emission limits for such plant set out in Annex II to the Medium Combustion Plant Directive (MCPD), 95 mg/Nm³ @ 15 % O₂. However the proposed activity will fall under the Chapter 3 of the Industrial Emissions Directive, Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.

There will also be the addition of:

- other Auxiliary Electrical Plant equipment. It is proposed to add a resistive load bank, a new transformer and a new switch room, located to the south of the Unit 31 turbine building. It may also be necessary to install harmonic filters. If so these would be located in the same area.
- Gas Pressure Reduction Facility including gas heaters. A new gas pressure let-down facility will be installed to reduce the pressure of the gas supply to the new auxiliary gas engine units from the incoming National Transmission System pressure of up to 85 barg to approximately 8 barg to supply the gas

engines, in contrast to the existing gas turbines which use gas at high pressure. This will incorporate two small gas-fired package boilers with an aggregate thermal rating of approximately 100 kWth to heat the gas supply to the gas engines to counter the cooling effect of adiabatic expansion of the gas as its pressure is reduced. Emissions from these will be insignificant and not assessed further.

- Surface water drainage will additionally include drainage from the EBG and runoff from new building roofs, roadways and hardstanding's constructed as part of the EBG Project within the revised Installation boundary but will otherwise be unaltered.
- Other Directly associated activities DAA's such as storage of oils and chemicals (principally lubricating oil) required for the operation and maintenance and increase in site boundary to accommodate the EBG system.

As a natural gas engine, the primary emissions from the back up engines are emissions to air of oxides of nitrogen (NO_x) and carbon monoxide (CO).

The EBG will be located on currently unoccupied land between the existing main power plant buildings and the former oil-fired power station basement void currently outside the permitted installation boundary. There are no existing buildings or above-ground structures on the proposed site for the EBG, so no significant demolition will be required. This variation is also to extend the installation site boundary.

The variation is also to take into account modifications to existing main CCGT Generating Units. The main CCGT unit being started and operated in a supply restoration situation has to be capable of picking up load almost instantaneously as successive groups of consumers are reconnected to the Grid. To accommodate these sudden step increases in load ("block loads"), which may be up to 35 MWe at a time, the CCGT unit will need to be operated differently from normal. Some significant modifications to the control systems of the two CCGT units adapted for operation under these conditions are proposed, to enable them to respond immediately to block loads. These modifications will not alter the mode of operation of these CCGT units in normal operating conditions.

When the CCGT unit's main gas turbine is started, there will be no power demand from the transmission system to absorb the power generated by the gas turbine when the generator would normally be synchronised to the Grid, so some changes to the starting procedure are necessary. The gas and steam turbines of the CCGT unit to be operated in supply restoration (SR) mode will instead be started and prepared to begin exporting power without being connected to the Grid system.

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.

Key issues of the decision

Receipt of application

Confidential information

A claim for commercial or industrial confidentiality has not been made.

Consultation

The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements. There was no requirement to carry out a consultation as part of this normal variation.

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

The facility

The regulated facility is an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations and the following directly associated activities.

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

There are several Directly Associated Activities (DAA's) that are associated with the above listed activities and these include hydrogen-cooled electricity generators, heat recovery steam generators, water treatment plant, main cooling water system and closed cooling water system, raw materials storage, steam turbines, surface water drainage, sewage treatment plant, battery energy storage system and a resistive electrical load bank.

Legislation

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

All applicable European directives have been considered in the determination of the application. We have therefore assessed their relevance to this particular Permit as follows:

- Industrial Emissions Directive 2010/75/EU (IED)

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 several aspects of the application including addition Air Quality assessment/habitat assessment updates, clarification on operation modes etc. 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.

1 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:

- 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.
- The Medium Combustion Plant Directive (MCPD) applies to the facility's new combustion plant as they all have a rated thermal input of greater than 1MWth. The combustion plants (EBGP) will each operate for less than 500 hours per year and will be exempt from complying with the emission limits.
- 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.

The site

The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. This includes the extended site boundary and emission points associated with the EBG. P.

A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.

Site condition report

The operator has provided a description of the condition of the site. An addendum was provide to the site condition report (WYG report 2018 and 2019) for the new area of land included to accommodate the new EBG. P. and associated equipment. The key points are summarised in the addendum report.

The area which will be incorporated into the existing Environmental Permit boundary is referred to in the 2018 and 2019 WYG reports as 'Plant Area 4'. The WYG report includes a comprehensive desk study review, this detailed the history of the site location, site history, geology, hydrogeology and hydrology and summary of any potential contaminant sources from existing data. Plant area 4 was formerly occupied by the west wing of the former oil-fired power station. Following demolition of the power station, concrete slabs remain and the area has been used as a storage and laydown area. Plant Area 4 comprises a flat area of concrete slab covering an area of approximately 0.4Ha surrounded by a wire mesh perimeter fence. Archive drawings show the layout of the foundations of the oil fired power station and indicate cooling water culvers running from the north west to the south east through the area. Two separate structures are shown running parallel on the west side of the CEGB site.

Historic plans show the basement void of the former power station extending into Plant Area 4.

Ground investigations at the site have identified superficial deposits and drift deposits of varying thicknesses overlaying the solid geology beneath the site. The Pembroke Power Station site sits in an area which has been subject to complex geological processes. Geological maps indicate heavy faulting and a series of east-west trending folds. The northern portion of the new area is underlain by the Avon Group, described as interbedded grey mudstones and thin to medium bedded limestone with units of mudstone interbedded with limestone. The southern part of the new area is underlain by younger deposits of the Black Rock subgroup and Gully Oolite Formation, which comprise undifferentiated limestones. The Avon Group outcrop in the northern half of the new area is classified as a Secondary A aquifer while the Black Rock Subgroup and Gully Oolite Formation in the south are classified as Principal Aquifers.

The Pembroke power station site is surrounded by higher ground on three sides and could only potentially be flooded by tidal waters from Pennar Gut to the east. Nevertheless part of the site is at risk from tidal flooding on the basis of 1 in 1000 year predicted tides, although there are no known instances of the former oil-fired power station being flooded during its operational life. Further information on flood protection for the EBGp is provided in the report.

A Phase 1 desk top study report was completed by WYG of the areas of the Pembroke Power Station site considered as potential locations for the EBGp. The report includes a ground investigations desk study and non-invasive survey of the site. The results of the report were used to inform the scope of the intrusive ground investigations. Intrusive ground investigations were undertaken in January 2019 to support the development plans for the EBGp, following completion of a desktop study of the site. The site investigations, scoped to target the provisional proposed installation locations within the confines of the constraints plan developed by WYG in 2018, were undertaken in January 2019. Investigations were restricted by a dense engineered fill layer at the surface which prevented the progression of investigations to deeper levels in most areas. Completed investigations comprised non-intrusive service clearance, 12No. Plate Load Tests, 19No. Inspection Pits, 1No. Window Sample, 3No.

groundwater and land gas monitoring installations, laboratory geotechnical and environmental assessment, and 2 return groundwater sampling and gas monitoring visits. Investigations were focused on the proposed footprints for the siting of the new installations.

Full details of the ground investigations and the findings of the works can be found in report 'WYG Pembroke Power Station Ground Investigation Report May 2019'. Seven intrusive fieldworks were included within Plant Area 4. The WYG Phase 1 report concluded that as the site has been associated with large scale electricity generation since the 1970s it is considered possible for some level of ground contamination associated with the industrial activities or construction materials to be present. Potential contamination sources are considered further in the WYG Ground Investigations report (May 2019).

WYG 2019 report concludes "Further ground investigation to include deeper soil analysis, leachate testing and groundwater monitoring" is recommended. On site sources of potential contamination include site won fill materials which includes demolition rubble with traces of Asbestos Containing Materials (ACMs), and current and historical industrial processes / fuel storage over the broader site. Pathways exist for potential impact to the site users, groundwater and nearby surface water receptors. The risk of the trace ACMs encountered should be managed under CDM and CAR 2016 regulations. No other evidence of significant contamination of shallow soils or groundwater was encountered during the investigations; however, it is noted that baseline conditions of deeper groundwater conditions could not be established due to the limited depth of the investigations. In general, the preliminary ground contamination assessment has found the site to be of Low Risk with respect to human health, and further investigations would be required to determine the risks to groundwater and surface water receptors. No evidence of land gas accumulation was recorded during the monitoring visits in the areas investigated. The risk to deeper ground/groundwater conditions was not established. In the absence of deeper intrusive soil and groundwater investigations, we consider that the baseline level of contamination at permit issue is zero for the deeper soil and groundwater conditions, in line with our H5 Site Condition Report guidance. As such any pre-existing

contamination discovered during a future permit surrender will be required to be remediated to zero contamination levels.

An H1 environmental assessment has been undertaken for the proposed EBG (document reference ENV/655/2020). The H1 found that there are no predicted significant emissions from the EBG.

We consider this description in the addendum site condition report is satisfactory. The decision was taken in accordance with our guidance on site condition reports – guidance and templates (H5).

Biodiversity, Heritage, Landscape and Nature Conservation

The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.

A full assessment of the application and its potential to affect the site(s)/species/habitat has been carried out as part of the permitting process. We consider that the application will not affect the features of the site/species/habitat.

The EBG will be fuelled for natural gas and therefore the main combustion emissions to be considered are Oxides of nitrogen (NO_x) and Carbon Monoxide (CO). There are no environmental standards for protected conservation areas for CO therefore it will not be discussed, only NO_x impacts. The air impact assessments, and the dispersion modelling has been based on the Installation operating at a worst case scenario of 500 hours a year at the relevant long-term or short-term emission limit values. The EBG will only be used in an emergency situation when there is a grid failure or for low amounts of engine testing and maintenance.

As the thermal input of EBG is 22.8 MW (aggregated), a screening distance of 10km was used to assess European and National sites. Screening carried out from centre of the EBG emission points NGR SM 93198 02632. The following nature conservation sites are within the relevant screening distances for an EPR installation with discharges to air:

6 European sites (SAC's, SPA's, RAMSAR's) were identified within screening distance (10km). 2 SSSI's were identified with 2km. We also identified non-statutory sites, these include 9 Ancient Woodlands identified within 2km of the installation.

The 6 European Sites were;

- Pembrokeshire Marine SAC
- Limestone Coast of South West Wales SAC
- Castlemartin Coast SPA
- West Wales Marine SAC
- SPA Skomer, Stockholm and the seas off Pembrokeshire
- Pembrokeshire Bat Sites and Bosherton Lakes

The 2 SSSI's within 2km of the site are;

- Milford Haven Waterway SSSI.
- Gweunydd Somerton Meadows SSSI

The non- statutory sites within 2km of the site were Ancient Semi Natural Woodlands and Restored Ancient Woodland Sites.

Conservation objectives for the above sites were obtained from the relevant site management plans and information relating to the sensitivity of the habitats to air pollution for the qualifying and interest features have been taken from the APIS website.

Pembrokeshire Marine SAC

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for Pembrokeshire Marine SAC. The maximum long-term process contribution (PC) is <1 % of the long-term critical level (0.085%) therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level (5.1%) therefore the short-term impact from NO_x emissions can be considered

insignificant. This assessment is based on the location of nearby sensitive receptors identified, Atlantic Salt Meadows.

Nutrient Nitrogen Deposition: The minimum nutrient nitrogen critical load value of 10 kgN/ha/yr has been assumed for SAC Pembrokeshire Marine by the operator. The maximum nitrogen deposition process contribution is <1 % of the lower critical load value, therefore the impacts from nutrient nitrogen deposition can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified, Atlantic Salt Meadows.

Acid Deposition No critical loads to assess against for this habitat.

The Pembrokeshire Marine SAC is the closest European designated site to the installation. Maximum impacts have been shown to be within the installation boundary and insignificant at the nearest designated site.

West Wales Marine SAC

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SAC West Wales Marine. The maximum long-term process contribution (PC) is <1 % of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level, therefore the short-term impact from NO_x emissions can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified, Atlantic Salt Meadows of the Pembrokeshire Marine SAC which is much closer. NO_x emissions will be lower at this SAC as it is further away and maximum impacts are within the installation site boundary.

Nutrient Nitrogen deposition: Designated feature not sensitive and therefore no further assessment required

Acid deposition: Designated feature not sensitive and therefore no further assessment required

Limestone Coast of South West Wales SAC

A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SAC Limestone Coast. The maximum long-term process contribution (PC) is <1 % of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level, therefore the short-term impact from NO_x emissions can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified, Atlantic Salt Meadows of the Pembrokeshire Marine SAC which is much closer. NO_x emissions will be lower at this SAC as it is further away and maximum impacts are within the installation site boundary.

SAC Pembrokeshire Bat Sites and Bosherton Lakes

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SAC Pembrokeshire Bat Sites and Bosherton Lakes . The maximum long-term process contribution (PC) is <1 % of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level, therefore the short-term impact from NO_x emissions can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified, Atlantic Salt Meadows of the Pembrokeshire Marine SAC which is much closer. NO_x emissions will be lower at this SAC as it is further away and maximum impacts are within the installation site boundary.

Nutrient Nitrogen Deposition: As above, the minimum nutrient nitrogen critical load value of 10 kgN/ha/y has been assumed for SAC Pembrokeshire Marine. The maximum nitrogen deposition process contribution is <1 % of the lower critical load value, therefore the impacts from nutrient nitrogen deposition can be considered insignificant. The critical load for the most sensitive feature of the Pembrokeshire Bat Site and Bosherton Lakes SAC is also 10 kgN/ha/y (there is no set critical load for the Hard oligo-mesotrophic waters- standing waters, this feature is not the nearest

feature to the installation, these waters are over 7km away. So is reasonable to use the critical load for the Bat Site of 10kgN/ha/y which this feature closer). The SAC is significantly further away from the installation boundary and adjacent Pembrokeshire Marine SAC. Therefore it is expected that Nutrient nitrogen and acid deposition will be correspondingly low and will therefore have no likely significant effect. This is demonstrated in detail for the Pembrokeshire Marine SAC, which is much closer to the proposed EBG location. Also, the worst case assessment for the EBG is based on the engines running simultaneously for 500hr a year. In reality, the engines are only likely to run a maximum of 60 hours a year for testing and maintenance purposes (unless there is an emergency). So these impacts calculated for the closest SAC are likely to be actually less and as a result will be even less of an impact at sites further away such as the Pembrokeshire BAT Sites and Bosherton Lakes SAC.

Acid deposition: As above, acid deposition will be correspondingly low and will therefore have no likely significant effect. Maximum impacts are expected to be within site boundary and screen out as insignificant for critical levels and acid deposition impacts are deemed to be correspondently low as per the nutrient nitrogen deposition figures above. The engines are only used for small amount of testing hours. Therefore, acid deposition impacts can be considered insignificant.

Catlemartin Coast SPA

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SPA Castlemartin Coast. The maximum long-term process contribution (PC) is <1 % of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level, therefore the short-term impact from NO_x emissions can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified, Atlantic Salt Meadows of the Pembrokeshire Marine SAC which is much closer. NO_x emissions will be lower at this SAC as it is further away and maximum impacts are within the installation site boundary.

Nutrient Nitrogen Deposition: The minimum nutrient nitrogen critical load value of 10 kgN/ha/y has been assumed for SAC Pembrokeshire Marine/ The maximum nitrogen

deposition process contribution is <1 % of the lower critical load value, therefore the impacts from nutrient nitrogen deposition can be considered insignificant. The critical load for the most sensitive feature of the Castlemartain SPA is also 10 kgN/ha/y. The SPA is significantly further away from the installation boundary and adjacent Pembrokeshire Marine SAC. Therefore it is expected that Nutrient nitrogen and acid deposition will be correspondingly low and will therefore have no likely significant effect. This is demonstrated in detail for the Pembrokeshire Marine SAC, which is much closer to the proposed EGBP location. Also, the worst case assessment for the EGBP is based on the engines running simultaneously for 500hr a year. In reality, the engines are only likely to run a maximum of 60 hours a year for testing and maintenance purposes (unless there is an emergency). So these impacts calculated for the closest SAC are likely to be actually less and as a result will be even less of an impact at sites further away such as the Castlemartain SPA.

Acid deposition: As above, acid deposition will be correspondingly low and will therefore have no likely significant effect. Maximum impacts are expected to be within site boundary and screen out as insignificant for critical levels and acid deposition impacts are deemed to be correspondently low as per the nutrient nitrogen deposition figures above. The engines are only used for small amount of testing hours. Therefore, acid deposition impacts can be considered insignificant.

Skomer, Stockholm and the seas off Pembrokeshire

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SPA Skomer, Stockholm and the seas off Pembrokeshire . The maximum long-term process contribution (PC) is <1 % of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level, therefore the short-term impact from NO_x emissions can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified, Atlantic Salt Meadows of the Pembrokeshire Marine SAC which is much closer. NO_x emissions will be lower at this SAC as it is further away and maximum impacts are within the installation site boundary.

Nutrient Nitrogen Deposition: The minimum nutrient nitrogen critical load value of 10 kgN/ha/y has been assumed for SAC Pembrokeshire Marine. The maximum nitrogen deposition process contribution is <1 % of the lower critical load value, therefore the impacts from nutrient nitrogen deposition can be considered insignificant. The critical load for the most sensitive feature of the Skomer SPA is also 10 kgN/ha/y. The SPA is significantly further away from the installation boundary and adjacent Pembrokeshire Marine SAC. Therefore it is expected that Nutrient nitrogen and acid deposition will be correspondingly low and will therefore have no likely significant effect. This is demonstrated in detail for the Pembrokeshire Marine SAC, which is much closer to the proposed EBG location. Also, the worst case assessment for the EBG is based on the engines running simultaneously for 500hr a year. In reality, the engines are only likely to run a maximum of 60 hours a year for testing and maintenance purposes (unless there is an emergency). So these impacts calculated for the closest SAC are likely to be actually less and as a result will be even less of an impact at sites further away such as the Skomer SPA.

Acid deposition: This site is designated for the protection of numerous bird species. Supralittoral rock which supports breeding populations of Manx Shearwater, European Storm Petrel, Razorbill and Atlantic Puffin are not sensitive to the secondary effects from air pollutants – NO_x, acid deposition and nutrient nitrogen deposition, so no further assessment was required.

Habitats that support bird species may be sensitive to acidification. However, as above, maximum impacts are expected to be within site boundary and screen out as insignificant for critical levels and acid deposition impacts are deemed to be correspondingly low as per the nutrient nitrogen deposition figures above. The engines are only used for small amount of testing hours. Therefore, acid deposition impacts can be considered insignificant.

Milford Haven Waterway SSSI

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SSSI Milford Haven Waterway. The maximum long-term process contribution (PC) is <1 % of the long-term critical level

(0.085%) therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level (5.1%) therefore the short-term impact from NO_x emissions can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified at the Milford Haven Waterway SSSI/Pembrokeshire Marine SAC; Atlantic Salt Meadows.

Nutrient Nitrogen Deposition: The minimum nutrient nitrogen critical load value of 10 kgN/ha/yr has been assumed for the Pembrokeshire Marine SAC which is in the same footprint of the Milford Haven Waterway SSSI. The most sensitive feature of the Milford Haven Waterway SSSI is also 10 kgN/ha/yr. The maximum nitrogen deposition process contribution is <1 % of the lower critical load value, therefore long-term nutrient nitrogen enrichment impacts can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified at the Milford Haven Waterway SSSI/Pembrokeshire Marine SAC; Atlantic Salt Meadows.

Acid deposition: The acid deposition critical load values of 0.856 kEq/ha/yr (Min N), 4.856 kEq/ha/yr (Max N) and 4.0 kEq/ha/yr (Max S) are assumed for SSSI Milford Haven Waterway for Calcareous Grassland. From discussions with Conservations Officers, it has been confirmed that no Calcareous Grasslands are present in this area. Other features of the site are not sensitive to acid deposition. Therefore, long term acid deposition impacts can be ruled out for needing further assessment.

Gweunydd Somerton Meadows SSSI

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SSSI Gweunydd Somerton Meadows SSSI. The maximum long-term process contribution (PC) is <1 % of the long-term critical level (0.085%) therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level (5.1%) therefore the short-term impact from NO_x emissions can be considered insignificant. This assessment is based on the location of nearby sensitive receptors identified at the Milford Haven Waterway SSSI/Pembrokeshire Marine SAC;

Atlantic Salt Meadows. NO_x emissions will be lower at this SSSI as it is further away and maximum impacts are within the installation site boundary.

Nutrient Nitrogen and acid deposition: The AQ report demonstrates that maximum short and long term NO_x impacts from the EBGPs are focused in a small area within the Pembroke station site boundary. Impacts at any location beyond the site boundary are below the relevant 'no likely significant effect' screening criteria (10% of short term and 1% of long term critical level). So impacts from the EBGPs at all the sites including the Gweunydd Somerton Meadows SSSI will be well below these screening criteria and so there will be no likely significant effect from ambient NO_x. Nutrient nitrogen and acid deposition will be correspondingly low and will therefore have no likely significant effect. This is demonstrated in detail for the Milford Haven Waterway SSSI/Pembrokeshire Marine SAC, which is much closer to the proposed EBGPs location than the additional Natura 2000 sites or the Gweunydd Somerton Meadows SSSI which is over 1.7km away.

Non-statutory sites

There are sites of ancient woodland located within the customary 2km air impact screening distance, the closest being to the north of the proposed EBGPs location on the edge of the Pembrokeshire Marine SAC. The assessment criteria for SAC's/SPA's, RAMSAR's and SSSI's are more stringent than that of Ancient Woodlands. For Ancient Woodlands, the following criteria is used; Impacts are insignificant if:

- the short-term PC is less than 100% of the short-term environmental standard
- the long-term PC is less than 100% of the long-term environmental standard.

The maximum short and long term NO_x impacts from the EBGPs are focused in a small area within the Pembroke station site boundary. At any location beyond the site boundary are below the relevant 'no likely significant effect' screening criteria for designated sites (10% of short term and 1% of long term critical level). Therefore no impacts to Ancient Woodlands which have a less stringent percentage of the environmental standard to meet.

The impacts on ecological sites above is based on the Installation operating at a worst case scenario of 500 hours a year at the relevant long-term or short-term emission limit values. In reality, the EBGPs is expected to be operator for a small amount of

testing and maintenance hours so the impacts calculated above are expected to be less than those predicted in the modelling.

Environmental Risk Assessment

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 impacts of the proposed development on short and long-term NO₂ concentrations have been predicted using the ADMS dispersion model.

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 at a worst case scenario of 500 hours a year at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate. The EBGp will only be used in an emergency situation when there is a grid failure or for low amounts of engine testing and maintenance. The EBGp will be fuelled for natural gas and therefore the main combustion emissions to be considered are Oxides of nitrogen (NO_x) and Carbon Monoxide (CO).

It was noted that the AQ Assessment has been complete using meteorological data from 2001-2005. We would expect recent meteorological data to be used in a model. The operator provided further information on the Milford Haven meteorological data for 2019 and remodelled some of the important metrics presented in the original AQ report. These results were compared to those currently in the AQ Assessment. They show that the maximum model outputs using 2001-2005 meteorological data are virtually the same as for 2019, therefore the use of alternative meteorological data from Milford Haven in the assessment does not change the conclusions that EBGp air quality impacts will be insignificant.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the operator 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 operators air impact assessment and high level comments were provided. The output from the model has then been used to inform further assessment of health impacts.

The majority of the adjacent land is industrial or rural and in agricultural use. Human impacts have been assessed at the following receptors, located in different directions from the site of the proposed development, and representative of the nearest dwellings:

- Pennar Point (R1) to the east,
- Lambeeth Farm (R2) to the south,
- Greenhill Farm (R3) to the southwest (currently being demolished),
- the Pwllcrochan Visitor Centre (R4) to the west,
- Martin's Haven House (R5) (currently unoccupied) to the northwest.

As representative of locations that might have occasional public access, impacts have also been assessed along the publicly accessible Pembrokeshire Coast Path (although the public would not be there continuously). The Coast Path runs west and south of the development site, with closest distances of approximately 750m (to the west) and 450m (to the south).

The emissions from the main CCGT at the power station have been operating for many years and will already be accounted for in background. It is therefore only the impacts (the PC) of the EBGp which have been modelled and assessed.

Short term impacts of Oxides of nitrogen (NO_x)

For short term impacts, the 99.79th and 96.4th percentiles of hourly mean NO_x concentrations from operation at full load for five separate years for all engines in each development option have been modelled, to capture all possible weather conditions. The operator states that the 96.4th percentile of hourly means for a whole year gives

a more realistic prediction of the 99.79th percentile for 500hrs/yr operation. The maximum modelled NO_x engine impact figures are multiplied by a factor of 0.35 (representing the proportion of NO_x in the form of NO₂) to give an estimate of engine NO₂ impacts (the PC).

The 99.79th percentile of hourly mean NO₂ engine impacts at all locations of relevant exposure for continuous operation. All impacts are well below the 10% of AQAL (200µg/m³) significance criterion and so are classed as insignificant on that basis.

Long term impacts Oxides of nitrogen (NO_x)

For the development option the PCs, equivalent to increases in the long term (annual mean) NO₂ concentrations, at all locations of relevant exposure for 500hrs/yr engine operation are a maximum of 0.03µg/m³ or 0.09% of the AQAL (on the coastal path: grid reference 193104,202163) against a long term average background concentration of 4.9µg/m³. All impacts are well below the EA/NRW 1% of AQAL (40µg/m³) significance screening criterion and so are classed as insignificant on that basis.

Whole site impacts

The operator also provided additional information on the impacts with the 5 main CCGT's for the Power Station running. The highest 99.79th of modelled hourly mean concentrations from the proposed EBGPs is at a location on the coastal footpath with a modelled impact of 5.6µg/m³. This is a conservative prediction as the assessment assumes the EBGPs run continuously and overestimates the impacts. The operator provided information to show that the proposed EBGp emissions in-combination with the emissions from the main station (5 x CCGT's) at the same coastal path location. The information shows that the maximum 99.79th percentile of the 5 CCGT's at the coastal path location is 34.1µg/m³ and the maximum 99.79th percentile of the 5 CCGT's combined with the EBGp at the coastal path location is 34.2 µg/m³. This method of assessment is acceptable and shows a negligible increase impact for NO_x and demonstrates the impacts from the EBGp are low.

Carbon Monoxide impacts

Carbon Monoxide emissions were also assessed. The maximum impact at any location is 989µg/m³, 9.89% of the 10,000µg/m³ limit value (The maximum daily 8-hr

rolling mean); below the 10% short-term impact screening threshold even if all the engines ran continuously at full load for the whole year. Including modelled impacts for the main station running at full load throughout the year has no effect on this maximum modelled impact, because respective plumes do not overlap, with the maximum contribution from the EBGPs occurring on-site close to the engines.

These modelling results clearly show that CO impacts at any location with relevant human exposure will be insignificant, with no adverse effect on human health, regardless of the operating regime of the EBGPs and main Pembroke station.

There is a short term Environmental Assessment Level (EAL) for CO of $30,000\mu\text{g}/\text{m}^3$. The maximum modelled hourly mean CO concentration using 2002 meteorology (the year with highest 8-hr R mean CO impact) is $1654\mu\text{g}/\text{m}^3$, ie ~5.5% of the EAL, which is well below a notional 10% significance screening threshold. These results are for if the EBGPs operating continuously throughout the whole year and that the maximum occurs well within the site boundary. Impacts at locations of relevant exposure for 500hrs/yr operation will be much lower.

Supply restoration mode

During the supply restoration mode in an emergency event the impacts of formaldehyde would need to be considered if CO emissions are greater than 440-1000mg/m³. During operation in SR mode the load on the CCGT unit concerned and the time taken to increase load to within the normal operating load range of the unit would be outside RWE's control as it would depend on the progress of restoration of supplies by National Grid and distribution network operators. In this situation (which would be a regional or national emergency from which it would be vital to recover as soon as practicable) it might be necessary to operate the gas turbine at a low load (and consequently with higher than normal emissions of nitrogen oxides and possibly carbon monoxide) for a sustained period, longer than in a normal unit start-up. The operator confirmed the CO emissions would not be as high as 440-1000mg/m³. RWE will secure a contact to provide a black start capability at Pembroke, there will be a Joint Local Restoration Plan (JLRP) developed by NGESO, RWE and the regional distribution network operator (DNO) for the restoration of supplies from Pembroke Power Station in the event of a loss of supply incident. The constraints on the loads at

which the main gas turbines can operate (except transiently during start-up and shut-down) will be written into the JLRP. This means that operation (in SR mode or otherwise) with CO emissions are high should be avoided.

The main CCGT unit being operated in a supply restoration situation following a black start has to be capable of picking up sudden increases of load (“block loads”) almost instantaneously as successive groups of consumers are reconnected. To do this the unit concerned will have to be operated differently from normal. Modifications will be made to the control systems of two Units (the units to be made black start-capable) to facilitate operation under these conditions. These changes will not affect the normal operation of these units. In supply restoration (SR) mode, the operation of the gas turbine will be exactly the same as in normal operation at the same gas turbine power output. It is the steam plant which will be operated differently, to provide a reserve of energy enabling the steam turbine and hence the generator to increase output immediately in response to a block load, for a very short time until the gas turbine output can increase in response to the step increase in load. Therefore the operation of a main CCGT unit in SR mode does not increase the likelihood of the formation of products of incomplete combustion (e.g. formaldehyde) as compared to normal main unit operation.

Emission limits

We have decided that emission limits shall not be set for the parameters listed in the permit. The engines will operate for less than 500 hours unless in an emergency situation and MCPD exempts plants that operate for less than 500 hours from Emission Limit Values. The engines will meet the MCPD emission limit values of 95mg/Nm³ at 15% O₂ as which is the minimum requirement.

There will be low testing/maintenance hours per year and the engines will only be used in emergency situations.

Emissions to water

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.

There are no new discharges to water associated with this variation for the EBG. Surface water drainage from the EBG will be directed to the existing surface water drainage system.

The gas engine units will be self-contained with their own individual closed circuit cooling systems which reject heat via radiators into the atmosphere. Therefore the EBG will not require a cooling water supply and will not add to the thermal discharge from Pembroke Power Station into the Milford Haven Waterway. There will be no additional discharge of liquid effluent from the power station into the Milford Haven Waterway or any other controlled waters as a result of the addition of the EBG. The operation of a single main CCGT generating unit in SR mode will be possible without exceeding the existing limitations on cooling water flowrate and temperature rise imposed on the power station as a whole by Pembroke Power Station's existing environmental permit.

The new oil-filled transformers will be appropriately banded to prevent oil pollution in case of leakage or fire. There will be storage tanks for new and used lubricating oil adjacent to the gas engine units. These will also be banded.

Surface water drainage from the EBG and other proposed items of plant will be directed into the existing power station surface water drainage system, which discharges into Pennar Gut. No limits set.

Emissions to Sewer

There will be no emissions to sewer associated with the EBG.

Emissions to Land

There will be no emissions to land associated with the EBG.

Odour

Odour is not expected to be an emission of significant concern for the EBG as it is not combusting a malodorous substance. Permit conditions 3.3.1 and 3.3.2 requires that emissions from the activities are free from odour at levels likely to cause pollution outside the site. We are satisfied this condition will be sufficiently protective for the proposed variation to the installation.

Noise

The noise impact assessment concluded that it will be unlikely that any additional noise from the EBG will be noticeable at locations outside of the installation boundary. Permit conditions 3.4.1 and 3.4.2 requires that emissions from the activities are free from noise and vibration at levels likely to cause pollution outside the site. We are satisfied this condition will be sufficiently protective for the proposed variation to the installation.

The EBG would provide the capability to restart the power station, in the circumstances where no external supplies to the power station were available, enabling one of Pembroke Power Station's main combined cycle gas turbine (CCGT) generating units to restart and supply power to the National Grid electricity transmission system following a loss of Grid power supplies.

In the event of an emergency involving loss of grid supplies, the EBG would be operated continuously at up to full design duty for a period of up to 7 days to provide secure auxiliary power supplies to one of the main CCGT generating sets, whilst stable conditions on the National Grid system were being re-established.

The normal (non-emergency) status of the EBG was assessed in the noise impact assessment, would be 'not running, but ready to run'. Once commissioned, the plant would be routinely operated only to the extent necessary to ensure its availability and readiness for use in re-starting the Pembroke Power Station CCGT units. This would include the following operating scenarios:

1. A series of short initial proving tests, as part of its commissioning, to confirm that one of the main generating units could be restarted without external power supplies.

2. A similar 'self-start proving test' (i.e. starting a main CCGT unit without external power supplies) when required contractually to meet National Grid's test and validation requirements, Currently this is expected to be required once every two years.
3. Additional 'routine test' operation of EBGp equipment, as necessary to keep the EBGp in good working order and the BESS partially charged.

Under a worst-case assumption, the proving tests, as described under 1) and 2) would involve the EBGp operating at full design duty. However, in practice the duration of the tests would be for a period of a few hours, so significantly less than for an emergency event requiring self-start. The load bank would operate for only a small part of this period.

The additional 'routine test' operation of equipment, as described by 3) would typically include short-period operation of 2 x PCS units, at low 15% load, to top-up batteries and the test operation of the gas engines. As a worst case, battery charging and test operation of the gas engines might coincide.

All self-start proving and routine test operations (scenarios 1 to 3) would be planned to occur during the normal daytime working period 07:00-17:00. Such operations would have a likely duration of just a few hours.

The operator has designed the EBGp to mitigate against noise impacts.

Design mitigation:

The choice of the hybrid solution, comprising 3 x Gas Engine Generator Sets, along with a Battery Energy Storage System, provides a reduced sound power emission from the alternative option of an engine-only solution, which would comprise 8 x Gas Engine Generator Sets.

The RWE design specification requirement for all the power generation equipment to meet a 1m surface sound pressure level of 75dB(A), requires a much higher standard of acoustic design over the more standard 85dB(A) requirement, utilising specialist and bespoke attenuation, silencing and acoustic treatment. Some of the specific mitigating design measures are detailed as follows:

- Gas Engine Generator Sets to be housed inside a building enclosure of precast concrete construction, comprising individual sections (enclosures) housing each unit. Acoustic door sets fitted to doors opening into noisy areas of the building.
- Ventilation to each enclosure (within the building) to be provided by a dedicated air intake / discharge system, incorporating high performance attenuators to achieve a sound level of 75dB(A) at 1m from the openings.
- Dry-air coolers fitted with low-noise fans/motors, with each dump radiator cell designed to achieve a sound level of <72dB(A) at 1m.
- Each engine exhaust stack to be fitted with high-performance silencer, to achieve a sound level of 75dB(A) at 1m from the stack outlet.
- PCS containers, including associated ventilation systems, having a low sound emission, consistent with supplier's acoustic environmental test report, which indicates sound power levels of Lw 93dB(A) for full load operation and 70dB(A) at 15% load.

A quantitative assessment of operational sound from the EBGp has been completed, with the assessment of potential noise impact based on the following criteria:

- A BS41421 assessment of noise impact covering planned daytime test operation;
- Change in overall ambient sound (which includes operational sound from Pembroke Power Station), due to the new sound contribution from operation of the EBGp.
- A demonstration that the EBGp can be designed to ensure that the resulting total ambient sound is still below and therefore compliant with the Pembroke Power Station operational noise limits, as defined in the Operational Noise & Vibration Management Plan, approved by Pembrokeshire County Council, pursuant to Condition 23 of the deemed planning permission granted by the Secretary of State.

For the purpose of assessing any potential adverse impact from operational noise associated with the EBGp the receptor positions (RP's) used for the Pembroke Power Station operational noise monitoring programme have been used. These receptors are at RP2A: Greenhill Farm and RP4A Pennar Point. RP1: Pwllcrochan has been excluded as there have been no dwellings located in this former hamlet since it was abandoned as a result of the construction of the nearby oil refinery in the 1960's.

Predicted EBG operational sound, resulting from the self-start proving tests, would produce an increase in the overall ambient LAeq,T sound level of +3.0dB(A) at RP2A: Greenhill Farm and +0.5dB at RP4A Pennar Point. The predicted ambient sound change, at RP2A: Greenhill Farm, resulting from the EBG self-start proving tests (+3dB(A)), would produce a medium adverse impact. However, Greenhill Farm is now owned by RWE and no longer has any residential use. The +0.5dB(A) ambient sound change at RP4A: Pennar Point, would produce a negligible adverse impact. Predicted EBG operational sound, resulting from the more routine test operation, would produce an increase to the overall ambient LAeq,T sound level of +0.5dB(A) at RP2A: Greenhill Farm and +0.2dB at RP4A Pennar Point. For the routine test operation of EBG equipment, the small change to ambient sound at RP2A: Greenhill Farm and RP2A: Pennar Point would produce a negligible adverse impact. Self-start testing would be a daytime operation, repeated not more frequently than once every 2 years to meet National Grid's test and validation requirements, the adverse impact, in practice, would be very low.

Based on the operators Noise Impact Assessments, a qualitative assessment of EBG operational sound would indicate that, based on the intended operating regime of the plant, there would be a low risk of adverse noise impact.

Noise impacts were also looked at for nearby ecological sites. It is reasonable to conclude that there would be no potential risk of likely significant effects from operation of the EBG. Operational noise from EBG is shown to be very low (40dB(A)) at the closest and therefore most sensitive positions relating to the Pembrokeshire Marine and West Wales Marine Special Areas of Conservation (SACs) and lower than the existing specific sound level from operation of the main CCGT power plant. Impact on these SACs, due to EBG operation, would therefore be negligible, particularly when consideration is given to the short operating time of just a few hours annually. Therefore, it is reasonable to conclude that there would be no potential risk of likely significant effects from operation of the EBG, at the most sensitive areas of the Pembrokeshire Marine and West Wales Marine Special Areas of Conservation (SACs), due to EBG operation and this potential impact may be screened out of full assessment.

The noise impact assessments main assumptions and conclusions have been reviewed by NRW's internal specialists. NRW agree the impacts are low risk. As above, the noise impact assessment is based on the normal (non-emergency) status (testing and maintenance scenario's). The Operator has modelled 3 scenarios, to reflect the realistic operating scenarios. These are the initial (commissioning) self-start test, the 2 yearly self-start proving tests and the routine test operation of the EBGp equipment. The Operator hadn't initially assessed the noise impact at receptors for the emergency operation of the generators due complete power failure during the night-time period, (daytime periods of operation have been assessed, as described above) but provided additional information. Background sound levels fall to a similar low value of 35dB(A) during both daytime and night time periods, due to the residual continuous sound emission from the Valero Refinery, that the BS 4142 assessment level and associated impact resulting from operation of the EBGp equipment would be the same for both daytime and night time period. It was concluded the noise impacts for the emergency operational for both daytime and night time will be insignificant.

An emergency event is unlikely and will be for a short period of time. It will be of national significance to get the Power Station operating again in an emergency situation.

BAT

The gas engines comprising the EBGp are guaranteed by the engine manufacturer to meet the emission limit values for NOx specified in the Medium Combustion Plant Directive (MCPD) for gas engine plant of this type. Although plant operating for less than 500 hours per year is exempt from these emission limit values, there is a general requirement on the operators of installations (including Pembroke Power Station) which are subject to the Industrial Emissions Directive (IED) (implemented in England and Wales through The Environmental Permitting (England and Wales) Regulations 2016 (as amended)) to use BAT to prevent or minimise emissions. The combination of:

(1) the proposed hybrid arrangement, combining gas engine generating units and battery storage to cover the short term peaks of auxiliary power demand during main unit start-up; and

(2) the choice of gas engines meeting the MCPD emission limit values; is considered to represent BAT for minimising NO_x and other exhaust gas emissions from the EGBP, while meeting NGENSO's requirements.

Following the receipt and assessment of tenders from possible gas engine suppliers and in pursuit of a solution using Best Available Techniques (BAT), RWE had refined its proposals for the EGBP based on the proposals received from the preferred tenderer. It proposed to install an EGBP comprising 3 No. gas engine generating units, each with a rated thermal input of approximately 7.6 MW thermal (MW_{th}) and an electrical output of approximately 3.4 MWe, combined with a lithium-ion battery energy storage system (BESS) with a rated storage capacity of 6.27 MWh and a maximum output of 10 MWe when supplying power. The effect of these changes is to reduce the scale and potential environmental impacts of the construction and operation of the scheme as a whole. In particular; (1) the gas engine capacity required is substantially reduced along with the number of exhaust stacks; and (2) the ground level concentration of exhaust gas emissions from the gas engines is significantly reduced; compared with the outline scheme previously submitted by RWE as the basis for the screening opinion which concluded that EIA was not required. For comparison, the latter provided for a total of 32 MWe of back-up generating capacity (16 No. 2 MWe gas engine units or equivalent), but no new battery energy storage.

The battery storage would be used to meet the short term peak power demands for starting the main gas turbine and the major auxiliary drives such as cooling water and boiler feed pumps. The use of battery storage substantially reduces the number and aggregate capacity of gas engines required, as the battery system would be used to cover the short duration peaks of auxiliary power demand, allowing each of a smaller number of gas engines to operate at a relatively high and steady output during a main CCGT unit start without external power supplies. While there would be fewer gas engines to maintain it would introduce the need to manage the charging of the battery system and keep it sufficiently charged to enable a main CCGT unit to be started promptly in case of possible Grid supply failure.”

The operator provided details on technology choice within the “Project Description” supporting document. Other options considered were Open Gas Cycle Turbines

(OGCT), multiple reciprocating gas engines, batteries alone and a combination of a smaller number of such units and battery storage.

NRW agree the EBG represents BAT.

Fugitive emissions

The IED specifies that plants must be able to demonstrate that the plant is designed in such a way as to prevent the unauthorised and accidental release of polluting substances into air, soil, surface water and groundwater.

The sources of potential fugitive emissions to air, land, and water from activities at the EBG are restricted to fuel and chemical storage, waste storage, and vehicle movements associated with the installation and infrequent maintenance activities for the through life management of the plant. All chemicals and waste associated with the EBG will be stored in the already designated areas for the main power station and all existing management practices will be adhered to. The EBG will be fuelled by natural gas and therefore there will be no fugitive emissions associated with fuel use.

There will be new storage tanks adjacent to the EBG for new and used lubricating oil for gas engines and management practices will be adhered to. The new oil-filled transformers will be appropriately banded to prevent oil pollution in case of leakage or fire. The storage tanks for new and used lubricating oil adjacent to the gas engine units will also be banded and located on impermeable surfacing.

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.

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified in line with MCPD.

Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.

Reporting

We have specified reporting in the permit.

We have specified the reporting requirements in Schedule 4 of the Permit. We are satisfied that this frequency is appropriate for a plant of this type.

The reporting requirements are to ensure the installation is being operated in line with that specified in the operating techniques and to ensure we are notified in the instance that the site ever operates in the emergency mode scenario.

Operating 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 the TGN and we consider them to represent appropriate techniques for the facility.

We consider that the emission limits included in the permit reflect minimum standards as required by MCPD.

The permit conditions

Incorporating the application

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.

These descriptions are specified in the Operating Techniques table in the permit.

Environment management system

There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.

Relevant convictions

Our Enforcement Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found.

The operator satisfies the criteria in RGN 5 on Operator Competence.

OPRA

The OPRA score at permit issue is 316, it has changed from 346 due to updates in compliance. An additional fixed subsistence fee will be charged for the new MCP.