

Permitting Decisions- Variation

We have decided to grant the variation for Equinix Powergate operated by Equinix (UK) Limited.

The variation number is EPR/TP3500PB/V003.

This variation adds an additional 4 new diesel generators in the new HV building of the site. Each individual generator is a Medium Combustion Plant (MCP) having a thermal input of approximately 6.9 MWth. The new engines are specified to TA Luft 2g standard and are fitted with Selective Catalytic Reduction systems to abate approximately 90% of the emissions of oxides of nitrogen, compared to their unabated operations. The total thermal input of the site is now approximately 199 MWth.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision-making process. It

- highlights key issues in the determination
- summarises the decision making process in the decision considerations section to show how the main relevant factors have been taken into account
- shows how we have considered the consultation responses

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit and the variation notice.

Key issues of the decision

Description of the installation

The site is located on Powergate Business Park in North West London. The National Grid Reference for the site is TQ 21070 82738. The surrounding area is a mix of industrial, commercial and residential uses.

The site is an existing data centre which consists of a Section 1.1 Part A(1)(a) activity under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) for the burning of any fuel in an appliance with a rated thermal input of 50 or more megawatts (MW).

The combustion plant only operates during limited routine maintenance or in an emergency scenario. The emergency combustion activity now comprises 33 diesel fuelled standby generators: the initial permit, granted in 2020, included 22 standby generators; additional 7 standby generators were permitted in 2021; this variation allows for additional 4 standby generators.

The site consists of three buildings – PG1, PG2 and the new HV – accommodating the following sets of standby generators:

- PG1 was built in 2008 and consists of 8 generators each approximately 5.7 MWth (aggregated to approximately 46 MWth). This has not changed with this variation.
- PG2 was built in 2012 and consists of 21 generators: 13 generators each approximately 5.7 MWth, and 8 generators each approximately 6.4 MWth, aggregated to approximately 126 MWth. This has not changed with this variation.
- HV, being built at the time of the application, consists of 4 generators each approximately 6.9 MWth, aggregated to approximately 27.6 MWth, in the scope of this variation application.

Each generator has a stack between 5 and 17 metres in height.

Electrical power is provided to the data centre from the National Grid. However, in the event of a failure in the electrical supply, the Operator will utilise the generators to maintain the electrical supply. The generators will be used solely for the purpose of generating power for the facility. No electricity will be exported from the installation. The standby generators are designed and configured so that in the event of a mains failure all the generators will fire up then subsequently ramp down to meet the load at the site. All the generators are subject to a maintenance testing schedule.

The generators run on ultra-low sulphur diesel fuel stored in 13 bulk diesel tanks, double skinned with a leak detection system, and installed within concrete bunds

impermeable to oil and water. Most of the generators also have individual double skinned day tanks.

The 4 new engines proposed to be installed in the HV building are specified to TA Luft 2g standard and are fitted with Selective Catalytic Reduction (SCR) systems to abate approximately 90% of the emissions of oxides of nitrogen, compared to their unabated operations. According to revised documentation submitted with the application, the 4 new engines were fitted with SCR to comply with the conditions of the planning granted by the local authority.

The overarching testing regime remains as originally permitted, with fortnightly start-up tests, quarterly building tests and an annual load bank test. However, there have been some changes to the groupings of generators to incorporate the new generators on site. In summary:

1. Start-up test (fortnightly): Each generator is operated for 5 minutes, one after the other with no electrical load (NOx emissions 30% of maximum). This takes approximately 3 hours to run all the engines.
2. Building Load test (3 times a year, every 4 months): Groups of up to 17 generators are operated simultaneously for an hour at 60% electrical load. One group is tested after another. Previously groups of up to 13 engines were run together, now the maximum number of engines in group 8 has increased to 17 to include the additional 4 new engines.
3. Load Bank test (annually): Each engine is operated one after the other for one hour at 100% load.

Air quality

The Applicant reviewed and updated the air quality assessment that was submitted as part of the original Environmental Permit application reflecting the addition of the 4 new generators.

The Applicant's assessment was carried out in line with the Environment Agency's guidance (<https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>) and the relevant parts of the guidance applicable to the assessment of air dispersion modelling of emissions from generators (<https://www.gov.uk/guidance/specified-generators-dispersion-modelling-assessment>).

The methodology for risk assessment of point source emissions to air, the associated definitions, and the relevant environmental standards (ES) are set out in our guidance <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>.

Process contributions (PCs) are considered **Insignificant** if:

- the **long-term** process contribution is less than **1%** of the relevant ES; and
- the **short-term** process contribution is less than **10%** of the relevant ES.

The **long-term** 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality;
- The threshold provides a substantial safety margin to protect health and the environment.

The **short-term** 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short-term process contributions are transient and limited in comparison with long-term process contributions;
- the threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the Applicant's proposals for the prevention and control of the emission to be BAT. That is because if the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant.

However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedances of the relevant ES are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking background concentrations and modelling uncertainties into account. Where an exceedance of an ES is identified, we may require the Applicant to go beyond what would normally be considered BAT for the Installation or we may refuse the Application if the Applicant is unable to provide suitable proposals. Whether or not exceedances are considered likely, the Application is subject to the requirement to operate in accordance with BAT.

This is not the end of the risk assessment, because we also take into account local factors for example:

- Statutory protected ecological receptors nearby, i.e. Sites of Special Scientific Interest (SSSIs), Ramsar sites, Special Areas of Conservation (SACs) or Special Protection Areas (SPAs).
- Non-statutory protected ecological receptors, such as local nature sites

The insignificance criteria for statutory protected ecological receptors are:

- the short-term PC is less than 10% of the short-term environmental standard for protected conservation areas
- the long-term PC is less than 1% of the long term environmental standard for protected conservation areas

If the long-term PC is greater than 1% we look at the background concentration and calculate the predicted environmental concentration (PEC). If the PEC at the statutorily protected ecological receptor is less than 70% of the long-term environmental standard for protected conservation areas, the emissions are considered insignificant.

According to our guidance, the insignificance criteria for non-statutory protected ecological receptors are:

- the short-term PC is less than 100% of the short-term environmental standard for protected conservation areas
- the long-term PC is less than 100% of the long-term environmental standard for protected conservation areas

The air dispersion modelling report submitted by the Applicant assesses the potential impact of emissions of nitrogen dioxide (NO₂) and particulates (PM₁₀) from the generators on local air quality. The primary pollutant of concern to air quality is (NO₂), resulting from the combustion process on site. SO₂ is not considered to be an issue as all fuel used is ultra-low sulphur diesel, leading to negligible impacts; the fuel type is specified in the permit in Table S2.1.

The data centre is situated in an Air Quality Management Area (AQMA) in the borough of Ealing. There are a further 3 AQMAs within 2 km as follows; Brent Borough 350 metres to the North, Hammersmith and Fulham 500 metres to the East, Kensington and Chelsea 1.9 kilometres to the East. The London Borough of Ealing were consulted; their comments and our responses are shown in the consultation section.

The Environment Agency's Air Quality Modelling and Assessment Unit (AQMAU) has audited the updated air dispersion modelling report submitted for this variation.

The outcomes of our audit are summarised in the following:

Long-term impacts (all scenarios combined)

- The process contributions for all pollutants are predicted to be less than 1% of the applicable long-term environmental standards for human health, hence the risk to human health associated with long-term operations is considered insignificant.

- The annual NO_x and NH₃ process contributions are less than 1% of the long-term critical levels applicable at all the ecological conservation sites within screening distance, hence insignificant according to our criteria.
- The nutrient nitrogen and acid deposition process contributions are less than 1% of the long-term critical loads at all ecological conservation sites included in the assessment, hence the long-term impacts on conservation sites are insignificant according to our criteria.

Assessing the risk against the long-term criteria is only part of the assessment and other factors are also relevant to our decision, such as whether risks are acceptable against short-term criteria, whether the installation, as a whole, implements the best available techniques applicable to the sector and whether the emissions are prevented or where that is not practicable minimised. This is discussed in the following paragraphs.

Short-term impacts - Testing scenarios

- For NO₂, we refer to the short-term ES of 200 µg/m³, not to be exceeded for more than 18 hours per year, corresponding to 99.79% of the time. According to the findings of our audit, exceedances of the 99.79th percentile 1-hour NO₂ air quality standard are possible during all testing scenarios, should the operations coincide with the worst-case meteorological conditions. However, we have found that the statistical likelihood of exceedances occurring to be highly unlikely when using the hypergeometric probability distribution, in line with our guidance [Specified generators: dispersion modelling assessment - GOV.UK \(www.gov.uk\)](http://www.gov.uk/guidance/specification-of-dispersion-modelling-assessment).
- When exceedances of the short-term NO₂ ES are possible, although highly unlikely as concluded by statistical analysis, we assess the magnitude of the worst case NO₂ predictions against acute exposure risk criteria. The US EPA Acute Exposure Guidelines (AEGL) were used for this part of the assessment. According to our findings, exceedances of the 10-minute, 30-minute and 1-hour NO₂ Acute Exposure Guidelines Level-1 (AEGL-1) for NO₂ are possible during the building load test, should the operations coincide with the worst-case meteorological conditions.
- Exceedances of the 1-hour NO ES for human health are also possible during the building load test should the operations coincide with the worst-case meteorological conditions. However, we consider this to be unlikely based on the operating envelope.
- Based on higher daily mean NO_x critical level of 200 µg/m³, that we consider applicable at all conservation sites included in the assessment, we have found that exceedances of the daily mean NO_x critical level are

possible at the closest non-statutory local nature sites during the building load test should operations coincide with the worst-case meteorological conditions.

- We have found that daily mean NO_x process contributions at statutory conservation sites within screening distance are predicted to be insignificant during all testing scenarios.

Short-term impacts - Emergency scenario

- Exceedances of the 99.79th percentile 1-hour NO₂ Environmental Standard are predicted if the emergency operations occur for 19 hours or more during the worst-case meteorological conditions. We have used the hypergeometric probability distribution to assess the likelihood of exceedances occurring. We have found that the statistical likelihood of exceedances would be <5% provided emergency operations do not occur for more than 55 hours per year. We consider a <5% chance of exceedances to be unlikely. The Applicant has provided evidence, based on their operational history since 2008, suggesting that emergency operations of the scale modelled in the air emissions assessment submitted with the application are extremely rare. This is consistent with our regulatory experience of similar sites.
- Exceedances of the 1-hour NO environmental standard are possible, should emergency operations occur during the worst-case meteorological conditions.
- Exceedances of the 10-minute, 30-minute and 1-hour NO₂ AEGL-1 are predicted, should emergency operations occur during the worst-case meteorological conditions.
- Exceedances of the daily mean NO_x critical level are predicted at the closest local nature sites should emergency operations occur during the worst-case meteorological conditions.
- We find that daily mean NO_x PCs are predicted to be not insignificant at Richmond Park SAC and Wimbledon Common SAC should emergency operations occur continuously for 24 hours during the worst-case meteorological conditions, however, the PECs do not exceed the critical level. Furthermore, as the applicant has provided evidence to suggest that emergency operations are extremely rare, we consider impacts to statutory conservation sites as a result of emergency outages to be very unlikely.

Further assessment and consideration of additional impacts from the new engines

We have carried out source attribution analysis to understand the impacts associated with the additional 4 new engines in the scope of this application against the impacts associated with the engines that are already permitted.

The source attribution analysis suggests that the majority of the impacts are from the existing permitted engines, and the new engines will only contribute to a slight increase in predictions compared to the permitted operations.

We have found that exceedances of the 10-minute, 30-minute and 1-hour NO₂ AEGL-1, 1-hour NO environmental standard for human health, and short-term NO_x critical level at local conservation sites are predicted for the existing site in the absence of the proposed additional engines.

Therefore, we have concluded that the overall environmental risks from the installation would remain substantially unchanged as a result of the proposed variation, and we have decided to permit the 4 new engines.

However, we consider that improvements are necessary to the environmental performance of the existing engines to reduce the environmental impacts from the installation as a whole, prior to the beginning of the operations of the 4 new engines.

In order to address the potential issues from short term impacts of NO_x emissions, the site was required to implement an improvement programme as part of the original determination of the permit granted in 2020. The improvement programme is still under assessment and has not, at present, led to a schedule of improvements and a timeline for their implementation agreed by the Environment Agency.

When we first permitted the site in 2020, this was an existing activity. Therefore, we decided to give the operator time to deliver some improvements that we considered were necessary and achievable.

Some of the Improvement Conditions specified in the original permit (IC01, IC02 and IC05) are still outstanding. In summary:

- Improvement conditions IC01, IC02 require the Operator to carry out feasibility studies into retro-fitting abatement measures and installing vertically discharging stacks to engines consisting of horizontal stacks.
- Improvement condition IC05 requires the Operator to submit a review of options for reducing predicted short term NO₂ emission impacts.

In 2021, as part of variation V002, we even allowed the operator to expand the operations of the installation on the basis they would deliver those improvements. When we granted variation V002, we remarked at that time in the Decision Document that the outstanding improvement conditions specified in the original

permit determination were relied upon as a condition necessary to reduce the overall environmental impact of the installation.

The Applicant is now seeking a further expansion even though they have yet to deliver on the original improvement plan. So, even though the additional engines are of a high standard (in accordance with the requirements of the planning conditions granted by the local authority), we do not consider there should be any increase in emissions from the installation until there are firm proposals to deliver improvements that have been a requirement since 2020.

We must exercise our functions under Schedule 7 paragraph 3 of the Environmental Permitting Regulations 2016 to prevent or where that is not practicable minimise emissions into air. We would not be doing that if we simply allowed the Applicant to add to the existing emissions when they have failed to reduce those emissions in accordance with previous requirements as the overall impact from the installation would be higher than is practicable. We have already allowed an extension on the assumption they would deliver improvements, but they still have not done this and we are not prepared to allow them to begin operating additional engines until we have firm proposals and timescales in relation to the existing emissions to ensure the cumulative impact remains as low as practicable and a high level of protection for the environment is achieved.

We therefore don't consider it acceptable that the installation is expanded before the historical improvement programme is progressed to our satisfaction.

Hence, we have specified a pre-operational condition requiring that, prior to the commissioning of the 4 new engines in the scope of this variation application, the operator must obtain a formal written approval from the Environment Agency to a detailed and substantiated plan setting out the actions and their implementation timeline to improve the environmental performance of the installation and reduce the emissions of oxides of nitrogen from the existing permitted engines, as a follow-up to the outstanding improvement conditions IC01, IC02 and IC05 already set out in the permit.

The permit forbids the operator to begin the operation of the proposed 4 new engines, corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan of the permit), prior to obtaining the specific approval from the Environment Agency to this improvement plan.

Other permit conditions

The permit includes a maximum 500 hours per annum 'emergency/standby operational limit' for any or all the plant producing on-site power under the limits of the combustion activity. Therefore, emission limit values (ELVs) to air are not required within the permit. Emergency hours' operation includes those unplanned

hours required to come off grid to make emergency repair of electrical infrastructure.

Each individual generator with its own discharge stack, can be maintained, tested and used in a planned way for up to 500 hours per calendar year each without ELVs under the Industrial Emissions Directive (IED) and Medium Combustion Plant Directive (MCPD). The Environment Agency expects planned testing and generator operations to be organised to minimise occasions and durations.

We have specified monitoring of emissions of carbon monoxide from the 4 new engines corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan in the permit), which are new medium combustion plant, with a minimum frequency of once every 1,500 hours of operation or every five years (whichever comes first). This monitoring has been included in the permit in order to comply with the requirements of Medium Combustion Plant Directive (MCPD), which specifies the minimum requirements for monitoring of carbon monoxide emissions, regardless of the reduced operating hours of the plant.

We have also specified monitoring of emissions of nitrogen oxides (NO_x) from the same emission points, with the same frequency specified for the monitoring of carbon monoxide emissions. In setting out this requirement, we have applied our regulatory discretion, as we consider that this limited monitoring, to happen in concurrence with the carbon monoxide monitoring, is proportionate to the risk associated with the emissions of NO_x from the installation.

Taking into account the limited hours of operation of the engines operating at the installation, and the fact that we are not setting emission limits for NO_x and carbon monoxide, we consider this monitoring can be carried out in line with web guide 'Monitoring stack emissions: low risk MCPs and specified generators' Published 16 February 2021 (formerly known as TGN M5).

We have set a requirement for the first monitoring of carbon monoxide and NO_x to happen within 4 months of the issue date of the permit variation or the date when each new medium combustion plant is first put into operation, whichever is later.

We have also specified continuous process monitoring of levels of nitrogen oxides (NO_x) from A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan) because these generators are fitted with SCR systems, hence we consider this monitoring necessary to ensure the effective operations of the abatement system, to prevent excessive ammonia slip and to dose the right amount of urea solution. Because this monitoring is not specified to assess compliance with emission limits, we are satisfied that it will not require certification to MCERTS standards.

The permit has a limit on the activity to exclude voluntary 'elective power operation' such as demand side response (i.e. on-site use) or grid short term operating reserve (STOR) (i.e. off-site export of electricity) and Frequency Control by Demand Management (FCDM) for grid support. This is primarily to differentiate data centres from 'diesel arrays' that voluntarily operate within the balancing market and importantly provide a clear way to demonstrate minimisation of emissions to air as 'emergency plant'.

Operational and management procedures should reflect the outcomes of the air quality modelling by minimising the duration of testing, phasing engines into subgroups, avoiding whole site tests and planning off-grid maintenance days and most importantly times/days to avoid adding to "at risk" high ambient pollutant background levels.

The Applicant has assessed and provided evidence of the actual reliability of the local electricity grid distribution allowing the Environment Agency to judge that the realistic likelihood of the plant needing to operate for prolonged periods in an emergency mode is low. However, the atmospheric dispersion modelling provided in the application, albeit at very much worst-case scenario, has predicted that the emissions of NO₂ from operation of the generators for solely testing purposes over weekends may itself have the potential to exceed short term air quality standards. Some of the improvement conditions included in the permit to address this in the original application remain relevant and have now been combined with a pre-operational condition forbidding the operator to begin operating the new engines prior to obtaining the specific approval from the Environment Agency to this improvement plan (see above).

We have also:

- Specified an additional improvement condition (IC08) requesting the operator to update the site Air Quality Management Plan to include the risks arising from the proposed new engines. This is because the installation operates under and approved Air Quality Management Plan that needs updating to reflect the changes to the operations after this variation.
- Specified an additional pre-operational condition requesting the operator to provide the schedule and assess the risks associated with the commissioning phase for the proposed new engines. This is because, we asked for this information during the determination of this variation application, but the Applicant was not able to respond since the commissioning plan was not defined yet at that time.
- Specified a pre-operational condition requiring the operator to validate the performance of the SCR systems during the commissioning of the engines and to propose a plan to periodically calibrate the NO_x sensors governing the dosing of urea solution.

Reporting of standby engine maintenance run hours is required annually and any electrical outages (both those planned and those resulting from grid failures regardless of duration) require both immediate notification to the Environment Agency and annual reporting.

Noise

The Applicant reviewed and updated the Noise Management Plan and Noise Impact Assessment as part of the variation application. The site will only run the engines regularly as part of the testing regime described earlier, for short periods of time. This occurs during daytime hours at the weekend. Prolonged operation might only occur in an emergency situation where the National Grid supply is lost. The Applicant has provided evidence to suggest that emergency operations are extremely rare. As such this is deemed a low risk and the potential for prolonged noise is therefore considered to be low.

The Applicant has taken measures to minimise noise emissions:

- The existing PG1 generators are located within acoustic containers (no change with this variation);
- The existing PG2 generators are located:
 - within the PG2 building; or
 - within acoustic containers to the north of the PG2 building.

There are no changes with this variation to the noise mitigation measures relating to the existing PG2 generators;

- The proposed four new generators will be housed within the HV building, again to the north of the PG2 building. Fresh air intake acoustic louvres will be located at ground level whilst the generator exhausts and air outlets will be on top of the building. The design includes acoustic louvres for the air inlet and silencers for the outlet / exhaust for the new generators.

Due to the nature of the operation and measures implemented, we consider the installation to be low risk in relation to noise, so a detailed assessment of the submitted noise report has not been completed. Permit condition 3.4.2 enables the Environment Agency to request a revised Noise Management Plan if considered necessary in the future.

Best Available Techniques (BAT)

We accept that oil-fired diesel generators are presently a commonly used technology for standby generators in data centres. The Operator reviewed and updated the BAT assessment submitted as part of the original Environmental

Permit application, detailing the choice of technology for the 4 new generators in their standby arrangement.

The default generator specification as a minimum for new plant to minimise the impacts of emissions to air of NO_x is 2g TA-Luft (or equivalent standard) or an equivalent NO_x emission concentration of 2000 mg/m³ or less. The 4 new generators have unabated emissions of NO_x to levels that are consistent with the 2g TA-Luft specification.

Furthermore, as a condition of the Planning Approval for the new HV building, which was determined 'Grant with Conditions' on the 12th December 2022, the local authority, Ealing Council, has required the Applicant to meet emission levels of NO_x that require the installation of SCR systems onto the four additional generators that will be installed in the HV building. NO_x emissions will reduce approximately 90% as a result of the addition of the SCR abated systems compared to unabated operations.

We are therefore satisfied that the new engines in the scope of this variation application will meet our BAT requirements.

However, since we determine BAT holistically for the whole installation, and some of the existing 29 permitted engines were determined not to meet BAT standards in the original determination of the permit application and the previous variation V002, we consider necessary that the beginning of the operation of the 4 new engines is subject to the operator demonstrating substantial progress in the attainment of the improvement programme specified as part of the previous determinations for the existing engines. Refer to 'Air Quality' section above for further details.

In order to minimise the need for emergency operation, the data centre has two separate substation electrical power feeds. This dual substation supply means that if emergency repair of some electrical infrastructure is required, the site will generally be able to remain connected to the national grid. To address short term fluctuations, brown-outs or black-outs, the site has uninterruptable power supplies. This can supply power for six minutes, until the generators kick in. The Applicant has provided evidence to suggest that emergency operations of the scale modelled in the risk assessment submitted with the application are extremely rare.

Protection of soil and groundwater

Most of the installed generators have individual double skinned day tanks. There are:

- 7 day tanks in PG1 (no change with this variation);
- 17 day tanks in PG2 (no change with this variation); and
- 4 new day tanks in HV, being introduced by this variation.

All of the 4 new day tanks in HV, located in the vicinity of each new generator, have approximately 1,000 litres capacity, are double skinned (self banded to 110% volume) and are fitted with leak detection alarms.

There are 13 bulk fuel tanks, each with a 43,000 litre capacity, on site:

- 1 bulk fuel tank in PG1, located inside the building (no change with this variation); and
- 12 bulk fuel tanks in PG2 (2 of these are new, being introduced by this variation).

The 2 new bulk fuel tanks are located outdoors adjacent to those already permitted in PG2. Consistent with the original permit application, the new PG2 bulk fuel tanks will be double skinned with a leak detection system, within a concrete bund impermeable to oil and water.

The concrete bund is designed to capture tank leaks should these occur and to transfer fuel from the bund into an underground diesel holding tank that is capable of holding more than 110% of a single tank. The holding tank is segmented and visually examined regularly. Recovery arrangements are in place with a specialist subcontractor if necessary.

The site is covered in hardstanding. Oil tanks are banded to prevent oil entering surface water drains. Any water collected in external bunds is tested prior to release to rainwater drains. Any oil or oily water is collected from the bunds by vacuum truck and disposed of or recycled by an appropriate waste disposal company.

We consider the techniques proposed by the Applicant for protection of soil and groundwater to represent BAT for the installation.

Decision considerations

Confidential information

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

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality.

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

UK Health Security Agency (UKHSA)/Director of Public Health

The Local Authority (The London Borough of Ealing)

The comments and our responses are summarised in the [consultation responses](#) section.

The regulated facility

We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN2 'Defining the scope of the installation', Appendix 1 of RGN 2 'Interpretation of Schedule 1'

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan which we consider to be satisfactory.

This shows the extent of the site of the facility including the emission points.

The plan is included in the permit.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

The improvement plan included in the original permit to protect the Local Wildlife Sites are still outstanding. The additional 4 generators permitted by this variation are not likely to change the environmental risks posed by the operations of the installation, however we have specified that their operation is conditional to satisfactory progress on the historical improvement programme that is still outstanding.

The installation is within relevant screening distance from the following statutory conservation sites:

- Richmond Park (SAC), 8 km South of the installation and
- Wimbledon Common (SAC), 9.5 km South-South East of Site.

Based on the conclusions of our audit of the air emissions risk assessment, we consider that the installation will not be likely to cause significant effect to either conservation site.

Further details are discussed in the key issues section.

We have not consulted Natural England.

The decision was taken in accordance with our guidance.

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment all emissions may be screened out as environmentally insignificant with the exception of short-term emission of NO_x during testing and emergency operation.

The overall environmental risks from the installation will remain substantially unchanged as a result of the proposed variation and we have decided to permit the 4 new engines. However, we consider that improvements are necessary to the environmental performance of the existing engines to reduce the environmental impacts from the installation as a whole, prior to the beginning of the operations of the 4 new engines. This is discussed in the key issues section.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility, subject to completion of the improvement programme previously specified as part of the original environmental permit determination. This is discussed in the key issues section.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Operating techniques for emissions that do not screen out as insignificant

Emissions of NO_x cannot be screened out as insignificant. We have assessed whether the proposed techniques are Best Available Techniques (BAT).

We consider that the proposed techniques/ emission levels for emissions that do not screen out as insignificant will meet BAT for the proposed additional generators in the scope of this application.

However, the techniques/ emission levels for emissions that do not screen out as insignificant depart from the techniques and benchmark levels contained in the technical guidance for some of the existing permitted generators. We had specified an improvement programme for the existing generators as part of previous determinations. The requirements set out in the improvement programme still stand and we consider that the new generators in the scope of this application shall not become operational before the improvement programme is agreed by us. Refer to the key issues section for further details.

Operating techniques for emissions that screen out as insignificant

Emissions of PM₁₀ and NH₃ have been screened out as insignificant, and so we agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

National Air Pollution Control Programme

We have considered the National Air Pollution Control Programme as required by the National Emissions Ceilings Regulations 2018. By setting emission limit values and/or specifying operating techniques in line with technical guidance we are minimising emissions to air. This will aid the delivery of national air quality targets. We do not consider that we need to include any additional conditions in this permit.

Noise management

See key issues section.

Pre-operational conditions

Based on the information in the application, we consider that we need to include pre-operational conditions for future development, as in the following:

Reference	Operation	Pre-operational measures
PO1	Operation of the engines corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan) permitted by variation V003	<p>Improvement programme</p> <p>Prior to the commissioning of the 4 new engines in the scope of this variation application, the operator shall have obtained the Environment Agency's written approval to the reports, review and plans submitted in response to the outstanding improvement conditions IC01, IC02 and IC05. The commissioning of the 4 new engines shall not begin prior to having obtained the written approval from the Environment Agency to a detailed and substantiated plan setting the actions and their implementation timeline to improve the environmental performance of the installation and reduce the impacts associated with the emissions of oxides of nitrogen from the engines permitted prior to this variation, in response and as a follow-up to the outstanding improvement conditions IC01, IC02 and IC05.</p>
PO2	Operation of the engines corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan) permitted by variation V003	<p>Commissioning plan</p> <p>At least 1 month prior to the commissioning of the additional four new engines, the operator shall submit a commissioning plan to the Environment Agency for approval. The plan shall provide timescales for the commissioning of the diesel generators and shall demonstrate that the commissioning of the diesel generators is covered within the site's permitted regular testing regime, thereby minimising durations and impacts. When the commissioning is not covered within the site's permitted regular testing regime, the operator shall submit an environmental risk assessment for approval by the Environment Agency, demonstrating that the environmental risks during the commissioning are</p>

Reference	Operation	Pre-operational measures
		<p>minimised and remain not significant. The commissioning of the engines shall not begin prior to receiving written approval to the plan and associated environmental risk assessment by the Environment Agency.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>
PO3	<p>Operation of the engines corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan) permitted by variation V003</p>	<p>Performance of SCR systems</p> <p>At least 1 month prior to operation of the additional four new engines, the operator shall submit a written report to the Environment Agency for assessment and written approval. The report must contain:</p> <ul style="list-style-type: none"> - Detailed information on the specification of the suitability of the NOx sensors and urea solution dosing to the SCR systems - Evidence of the initial calibration of the NOx sensors and verification of the levels of unabated and abated NOx emissions upstream and downstream of the SCR system according to a methodology consistent with web guide 'Monitoring stack emissions: low risk MCPs and specified generators' Published 16 February 2021 (formerly known as TGN M5) - Confirmation that the SCR systems achieve the NOx abatement performance stated in the application documents referred to in table S1.2, or a proposal for remedial actions when this is not achieved - A plan to periodically calibrate the NOx sensors and verify the performance of the SCR systems, including the proposed frequencies. <p>The operator must implement the proposals in the report in line with the timescales agreed within the Environment Agency's written approval.</p>

Refer to the key issues section for the reasons of these pre-operational conditions.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme.

IC08 - The operator shall update the Air Quality Management Plan written in accordance with IC07 to include the operations of the additional four new engines corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan) permitted by variation V003.

We have also implemented an Environment Agency initiated variation to update the deadline of the outstanding improvement conditions IC01, IC02 and IC05 and

amend improvement conditions IC01 and IC05 to ensure implementation provisions are included in the wording of these conditions. The additional wording we have added now to IC01 and IC05 should have been included originally and finishes off the condition by ensuring the improvements are actually delivered.

Refer to the key issues section for the reasons of this improvement condition.

Emission limits

No emission limits have been added, amended or deleted as a result of this variation.

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. Refer to the key issues section 'Other permit conditions' for further details on the monitoring requirements for the 4 new engines.

Reporting

We have added reporting in the permit for the following parameters:

Emissions of carbon monoxide from the 4 new engines corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan in the permit),

Emissions of NO_x from the new 4 engines corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan in the permit)

Continuous process monitoring of NO_x from the 4 new engines corresponding to emission points A222 to A225 (PG2-22 to PG2-25 as referenced in Schedule 7 Site plan in the permit) for the purpose of the correct operation of the SCR systems and abatement efficiency of the SCR systems.

We made these decisions in accordance with our guidance.

Management system

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation Responses

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from: UK Health Security Agency

Brief summary of issues raised:

The UKHSA requested that the Environment Agency takes account of the following concerns when considering appropriate permit conditions:

- The Environment Agency should be satisfied that the applicant has measures in place to manage prolonged emergency running of the generators, considering the potential for exceedance of the NO₂ Air Quality Standard during any emergency power generation scenario, and prevention of short-term impact on vulnerable receptors.
- The Environment Agency should consider the need for a complaints procedure.

Summary of actions taken:

We have assessed the revised air dispersion modelling assessment submitted by the Applicant. Refer to the key issues session 'Air Quality' for details of our findings. In summary, we consider that the overall environmental risks from the installation will remain substantially unchanged as a result of the proposed variation, and we have decided to permit the 4 new engines. However, we consider that improvements are necessary to the environmental performance of the existing engines to reduce the environmental impacts from the installation as a whole, prior to the beginning of the operations of the 4 new engines. For this reason, we have specified a pre-operational condition, preventing the Applicant from beginning the operation of the new engines prior to obtaining the specific approval from the Environment Agency to the improvement plan previously set out for the existing engines. Improvements to the performance of the existing engines will result in reduced impacts both during testing and emergency scenarios. Furthermore, the Applicant has provided evidence to suggest that emergency operations of the scale modelled in the risk assessment submitted with the application are extremely rare and emergency running will need to be kept to a minimum to comply with the conditions of the permit.

We have also specified that the Operator shall update the Air Quality Management Plan for the installation, in response to a new improvement

condition (IC08). According to our guidance, the Air Quality Management Plan must cover the response measures to be taken in the event of a grid failure.

The installation is required to operate according to a written environmental management system according to condition 1.1.1 of the permit. This condition specifies that the Operator must take action to minimise risks drawn to the attention of the operator as a result of complaints. According to our guidance '[Develop a management system: environmental permits](#)', the Operator is required to implement a complaint procedure within the site's environmental management system.

Response received from: Ealing Council, Environment Protection

Brief summary of issues raised:

The Ealing Council informed us about the conditions of the planning consent granted to for the expansion of the site, requiring demonstration to the Local Planning Authority of compliance with a minimum NO_x emissions standard of 150mg/Nm³ (at 5% O₂) and evidence of installation of suitable abatement to meet this emission level.

Summary of actions taken:

The Applicant revised the application initially submitted to us, to account for the requirement of the Local Authority planning consent. According to the revised application documents, the 4 new engines installed in the HV building will be fitted with SCR systems capable of reducing NO_x emissions of approximately 90% in comparison to unabated operations, to levels that are consistent with the planning requirements. In acceptance of the revised proposal submitted by the Applicant, we have specified the use of the SCR systems for the new engines in the scope of this variation in the operating techniques table of the permit (table S1.2), in the emission table (S3.1) and in the process monitoring requirements table (S3.3). Since the engines operate for less than 500 hours per year, we consider that the specification of emission limits is not required. Refer to the key issues section for additional details.