# Permitting Decisions- Bespoke Permit

We have decided to grant the permit for Thurrock Flexible Generating Plant operated by Thurrock Power Limited.

The permit number is EPR/MP3526SF.

The permit was granted on 30/12/2025.

The proposed facility is located at Thurrock Flexible Generating Plant, Station Road, East Tilbury, Tilbury, Essex, RM18 8QR ('the site'). The site is located on open fields, approximately 1 km east of the edge of Tilbury, Essex. The nearest post code is RM18 8UL and the site is centred at National Grid Reference TQ 66398 76793.

The Environment Agency received a permit application from the Operator for the operation of combustion plant at a peaking plant, comprising of 95 new natural gas spark ignition reciprocating engines each with a thermal input of 9.896 MWth during normal operations and 10.8 MWth during high power mode.

The combined net rated thermal input of all new natural gas engines on site is 1026 MWth (95 x 10.8 MWth engines).

All of the new natural gas engines on site are classed as new Medium Combustion Plant (MCP).

Operation of the peaking plant will be regulated as a Section 1.1 Part A (1) (a) activity under the Environmental Permitting (England and Wales) Regulations (EPR) 2016 for the burning of any fuel in an appliance with a rated thermal input of 50 or more megawatts (MW).

Thurrock Power Limited applied for operational hours of 1,500 hours per engine per year, calculated as a rolling average over five years, with a maximum of 2,250 hours in any single year.

Following a detailed technical review, we do not accept this proposal. The assessment identified risks of air quality exceedances and concluded that the site design does not provide optimal dispersion to minimise impacts.

We have instead set stricter operational limits:

- **Annual Limit:** Each engine shall not exceed 1,500 operating hours per calendar year.

- **Daily Limit:** The total combined operating time of all engines shall not exceed 1,520 engine-hours per day, except during a system stress event as defined under the Capacity Market rules.

- **Stack Operation Preference:** The Operator shall prioritise operating two engines in combined stacks rather than a single engine in a combined stack. An individual engine may operate in a combined stack without its paired engine only in the following circumstances:

  a) commissioning, testing, or maintenance;

  b) when an odd number of engines are operating on site;

  c) where a fault or technical availability issue prevents operation of the paired unit.

In the absence of these operational restrictions the application would have been refused.

Further explanation on these restrictions is covered below in Key Issues.

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:

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

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

Read the permitting decisions in conjunction with the environmental permit.

# Key issues of the decision

The key issues arising during this determination were the:

- The Application.
- Nature of Site.
- Legal Framework.
- Best Available Techniques (BAT).
- Assessment of emissions to air, noise and water.
- Implementation of operational restrictions.

We describe how we determined these issues in most detail in this document.

**1. The Application**

The proposed development is a Nationally Significant Infrastructure Project (NSIP) for which Thurrock Power Limited submitted an application to the Planning Inspectorate (PINS) for development consent.

On 22 August 2024 the Operator submitted an application for a Schedule 1, Section 1.1 A(1)(a) activity under the Environmental Permitting Regulations for the burning of any fuel in an appliance with a rated thermal input of 50 or more megawatts (MW).

The original application proposed 95 natural gas engines to act as a peaking plant for the National Grid. The purpose of the Installation is to provide security of electricity supply by operating at times when there is a peak demand for electricity. The site is connected to the National Grid via the local distribution network and will operate when called upon to fill the gap in capacity for supply and demand of electricity. The Installation will be operated remotely and remain unmanned the majority of the time.

With a rated thermal input of 1026 MWth distributed across 95 engines, the Installation will represent England's largest peaking plant in terms of installed capacity.

Construction of the peaking plant commenced prior to completion of this permit determination.

Following a comprehensive technical review, including consideration of revised operational hours proposed by the Operator, we concluded that the plant cannot be permitted without additional operational restrictions. The Operator was afforded multiple opportunities to amend site infrastructure; however, in the absence of such changes, further restrictions have been imposed within the permit. The rationale and key issues underpinning this determination are set out in this decision document.

## 2. Nature of Site

Thurrock Flexible Generating Plant (TFGP) will be operated by Thurrock Power Limited (TPL). However, the transformers and other grid infrastructure associated with the plant are owned by a separate legal entity, Thurrock Flexible Generation Limited (TFGL). Both companies are owned by the same umbrella company, have the same board of Directors and have the same registered address.

Having considered the relevant content of RGN 2: Understanding the meaning of regulated facility - GOV.UK[1] we consider that the transformers should be permitted as a "Directly Associated Activity" (DAA) to the main activity as they are:

- On the same site as the Stationary Technical Unit (STU).
- "Directly Associated" - and have a "technical connection" with the STU.
- Are capable of causing pollution namely by having an impact on sound emissions - as identified in the Noise Impact Assessment (NIA).

To determine whether the site should be permitted as a Multiple Operator Installation, the Environment Agency required clarification of operational responsibilities. On 14 May 2025, we issued a formal request to the Operator for further information[2]. This request sought detailed explanation of the respective roles and responsibilities of Thurrock Power Limited and Thurrock Flexible Generation Limited in relation to statements (a)–(e) set out below:

a) Having day-to-day control of the transformers - including the manner and rate of their operation.
b) Ensuring that any permit conditions which are applicable to the transformers are complied with.
c) Deciding who holds important staff positions in relation to the transformer operation - and have incompetent staff removed, if required.
d) Making investment and financial decisions that affect transformer performance or how their activity is carried out.
e) Making sure activities relating to the transformers are controlled in an emergency.

The Operator's submission dated 19 May 2025[3] confirmed that Thurrock Power Limited holds responsibility for statements (a)–(e) referenced above.

On the basis of this confirmation, we are satisfied that Thurrock Power Limited is the legal entity accountable for the Installation, including the DAAs. Accordingly,

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[1] Appendix 1 - RGN 2: Understanding the meaning of regulated facility - GOV.UK
[2] Appendix 2 - Formal Request for Further Information, dated 14 May 2025.
[3] Appendix 3 - Operator's submission dated 19 May 2025 in response to our Request for Further Information dated 14 May 2025.

we conclude that the Installation may be permitted under a single-Operator permit with Thurrock Power Limited designated as the responsible Operator.

## 3. Legal Framework

We permit MCPs for peaking plants within the context of the Industrial Emissions Directive (IED) 2010 and Section 1.1 A(1) (a) of the EPR 2016 as a combustion activity aggregated to >50MWth input (as defined by the IED Chapter II).

There is not a BAT Conclusion document or BAT Reference Document (BREF note) that covers the scope of the combustion activities carried out at the peaking plant.

Article 14(6) of the IED requires that, where an activity or a type of production process carried out within an Installation is not covered by any of the existing BAT conclusions or where those conclusions do not address all the potential environmental effects of the activity or process, the Environment Agency, as the Competent Authority, shall set the permit conditions on the basis of the BAT that it, the Environment Agency has determined for the activities or processes concerned. Special consideration shall be given to the criteria listed in Annex III of the IED as follows:

i. The use of low-waste technology.

ii. The use of less hazardous substances.

iii. The furthering of recovery and recycling of substances generated and used in the process and of waste, where appropriate.

iv. Comparable processes, facilities or methods of operation which have been tried with success on an industrial scale.

v. Technological advances and changes in scientific knowledge and understanding.

vi. The nature, effects and volume of the emissions concerned.

vii. The commissioning dates for new or existing Installations.

viii. The length of time needed to introduce the best available technique.

ix. The consumption and nature of raw materials (including water) used in the process and energy efficiency.

x. The need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it.

xi. The need to prevent accidents and to minimise the consequences for the environment.

xii. Information published by public international organisations.

## 4. Best Available Techniques (BAT) Assessment

Although no BAT Conclusion document or BREF currently exists for MCPs, reference is made to the Department of Energy & Climate Change publication Developing BAT for Combustion Plants Operating in the Balancing Market[4]. In the absence of a sector-specific BREF, the Environment Agency establishes and applies BAT requirements to MCPs in accordance with its regulatory mandate.

In determining BAT under Article 14(6) of the IED we must consider in particular minimising the duration and potential impact of Oxides of Nitrogen (NOx) emissions to air and the subsequent harm to human health and habitat sites.

We must have regard to Article 18 of IED that states where an Environmental Quality Standard (EQS) requires stricter conditions than those achievable by the use of the BAT, additional measures shall be included in the permit, without prejudice to other measures which may be taken to comply with EQSs.

The most relevant EQS to be considered for natural gas MCPs is that for NOx. As each individual engine is an MCP, the Medium Combustion Plant Directive (MCPD) 2015 referenced in Schedule 25A of EPR applies. The Installation will have mandatory emission limit values (ELVs) set on the combustion plant within the permit for NOx in line with the MCPD.

Application of BAT is the main basis for setting permit conditions however this must also satisfy Article 18 of the IED which states that where compliance with an EQS requires stricter ELVs than those achievable under BAT, the regulator must impose those stricter limits. Under Article 14(2) of the IED the stricter ELVs may be supplemented or replaced by equivalent parameters or technical measures. In meeting this requirement there is no consideration of cost and benefit.

The BAT the Environment Agency set for MCPs on a peaking plant follows the principles set out in IED Article 14(6) and is based primarily around stack design, fuel choice, combustion technology, emissions and emissions controls, energy efficiency and management techniques, all of which is intended to minimise NOx emissions, both peak and duration.

The following discusses how the key aspects of the proposal meet BAT.

### 4.1 Stack Height and Configuration

Peaking plants emit pollutants to air via a stack. The stack is usually designed to ensure that the facility does not have a significant impact on air quality for key

[4] Appendix 4 - Department of Energy & Climate Change, Developing BAT for Combustion Plants Operating in the Balancing Market, Final Report, dated June 2016.

pollutants such as oxides of nitrogen (NOx), acid gases and particulates. The height and configuration of the stack is key to this.

- A higher stack results in better dispersion and therefore has a lower impact on receptors.
- Combining a number of stacks results in better dispersion and therefore has a lower impact on receptors.

IED requires plants to use BAT which is defined as:
*'the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole'.*

BAT is about minimising the impact of emissions as well at the quantity of emissions that are emitted in the first place. The stack height and configuration are therefore relevant when considering BAT.

In addition to BAT requirements, Article 47 of the Industrial Emissions Directive (IED) also requires that '*Waste gases from incineration plants or combustion plants shall be discharged in a controlled way by means of a stack, containing one or more flues, the height of which is calculated in such a way as to safeguard human health and the environment.*

As part of the application, the Operator submitted an Air Quality Assessment (AQA)[5] together with a Stack Height Determination[6], within these documents, the Operator proposed the following stack design and height:

- A stack height of 20 m.

- A stack configuration of 95 engines combined into 48 stacks. This configuration included 47 stacks with 2 flues each and 1 stack with a single flue, for simplicity, the Operator assumed that there were 96 engines, each modelled as an individual point source.

Following our audit[7] of the Operators AQA and Stack Height Determination we were not satisfied that a stack height of 20 m or the proposed stack configuration of 95 engines combined into 48 stacks achieved adequate dispersion.

[5] Appendix 5 - Air Quality Assessment, Thurrock Flexible Generation Plant, For Statera Energy Limited - RPS, JAR03000, 21/08/2024.
[6] Appendix 6 - RPS Memo Report, JAR03000, 14/10/2024.
[7] Appendix 7 - Acoustics & Air Quality Modelling & Assessment Unit (AQMAU), Audit of air quality assessment, EPR/MP3526SF/A001, Thurrock Flexible Generating Plant, AQMAU-C2928-RP01, 18 March 2025.

Our audit concluded that:

- The Process Contributions (PCs) at the highest impacted human receptors were considered significant.

- PCs should be reduced at some protected conservation sites.

- The daily NOx critical level risks being exceeded at Thames Estuary and Marshes Special Protection Area (SPA) and Ramsar site, Mucking Flats and Marshes Site of Special Scientific Interest (SSSI) and South Thames Estuary and Marshes SSSI, and at all assessed Local Wildlife Sites (LWS) and Tilbury Power Station LWS.

- At Thames Estuary and Marshes SPA and Ramsar site, Mucking Flats and Marshes SSSI and South Thames Estuary and Marshes SSSI nutrient nitrogen deposition PCs do not screen out as insignificant with the background already exceeding the lowest critical loads.

We requested additional information through a Schedule 5 notice dated 20 March 2025[8] requiring the Operator to provide a detailed justification for the proposed stack height and design. Specifically, the Operator was asked to demonstrate, with reference to relevant technical standards and comparative assessment, why the chosen stack height and configuration represent BAT when considered against the options of a higher stack design and combining more engine stacks into a common windshield.

The Operator submitted two responses dated 16 May 2025[9] and 27 May 2025[10] fulfilling the Schedule 5 Notice. The responses included revised operational hours, but the Operator did not propose changes to the stack height or configuration, neither did they propose alternative measures that could further reduce emissions, improve dispersion, or demonstrate compliance with BAT. Instead, the Operator provided justification as to why they deemed the chosen stack height and configuration BAT.

The Operator's justification for a 20 m stack height includes the following:

- The Operator carried out a stack height determination to establish the height at which there was minimal additional environmental benefit associated with the cost of further elevating the stack. The assessment assessed stack heights between 15 m and 45 m.

[8] Appendix 8 - Schedule 5 Notice, dated 20 March 2025.
[9] Appendix 9 - RPS Technical Note (794-ENV-EPC-20502): Response to Schedule 5 Requirement for Further Information, version 2.1, 16/05/2025.
[10] Appendix 10 - RPS Technical Note (794-ENV-EPC-20502): Supplement to Response to Schedule 5 Requirement for Further Information, version 1.1, 27/05/2025.

- The stack height modelling results were analysed by plotting the PCs against height to determine if there was a height at which no material benefit was gained from further increases in stack heights.

- The Operator compared the annual-mean $NO_2$ PCs and the 99.79th percentile of hourly-mean $NO_2$ PCs against stack height.

- The Operator explained that for long-term predictions, improvement is maximised at 25 m and that for short-term predictions, improvement is maximised at 20 m.

- The Operator argued that greater weight should be given to short-term predictions given the nature of operations.

- The Operator carried out a Cost-Benefit Analysis for stack heights and concluded a 20 m stack was optimum for the proposed facility as capital costs would increase by £5.3 million for a 25 m stack and by £15.5 million for a 30 m stack.

- The Operator concluded that a suitable stack height for the engines is considered to be 20 m. Although benefits could be achieved with a higher stack, the additional costs are considered disproportionate to the benefit, given that the impacts from the facility on human and ecological receptors with a 20 m stack are not considered significant.

We do not accept the Operator's findings. Specifically, we do not agree that the Operator's proposed stack height represents BAT. In our view, a taller stack height would constitute BAT for this Installation, given its thermal capacity and the associated dispersion characteristics.

Stack height must be determined through a formal Stack Height Determination. Such determination should be based on the principle of the height of diminishing returns, that is, the point at which further increases in stack height no longer deliver meaningful environmental benefits relative to the additional costs incurred.

We consider that the Operator's Stack Height Determination is not adequately representative of potential improvements at maximally impacted receptor locations. The assessment appears to rely on grid maximums rather than receptor specific impacts. The Operator's own modelling demonstrates that a taller stack would achieve significant improvements in dispersion.

Furthermore, the Operator's Stack Height Determination prepared for planning purposes identified a 40 m stack height. This height is more consistent with BAT, taking into account the Installation's thermal capacity and the need to ensure adequate dispersion at sensitive receptors.

The Operator's justification for a stack configuration of 95 engines combined into 48 stacks (47 stacks with 2 flues each and 1 stack with a single flue) includes the following:

- The Operator carried out a stack configuration sensitivity analysis whereby they considered the following stack configurations:
    - 96 engines served by their own individual stacks in pairs.
    - 96 engines served by 48 stacks (i.e. two engines served by one stack).
    - 96 engines served by 24 stacks (i.e. four engines served by one stack).
- The Operator's results show that the long-term and short-term $NO_2$ PCs for the 24 and 48 stack scenarios are lesser than those predicted for the 96 stack scenario. The Operator's results also show that the benefit in terms of PC reduction between the 96 stack scenario and the 48 stack scenario is generally greater than the benefit between the 48 stack scenario and the 24 stack scenario.
- The Operator only considered human receptors in the stack sensitivity analysis and stated that it is very likely that the resulting trends would similarly be seen at the ecological receptors.
- The Operator states that it is important to note that the 48 and 24 stack configuration scenarios considered within the assessment assume that 2no. or 4no. engines, respectively, will share a common stack with a divider. However, the Operator has been made aware that a shared stack with a 4-way divider is not market procurable and, therefore, in reality a 24 stack configuration would essentially comprise sets of 4 individual stacks contained within a common windshield. The Operator states that whilst it has not been possible to accurately model this specific configuration, there is potential that the 24 stack option in reality would not show the benefits identified within the assessment as the engines would not share a common stack, just a common windshield and care should be taken when considering the results of the 24 stack configuration option in this sensitivity analysis.
- The Operator carried out a Cost-Benefit Analysis for stack configuration and concluded the 48 stack option was optimum for the proposed facility as to implement a 24 stack design, capital costs would increase by £8,678,534. The Operator states that whilst additional benefits are possible with a 24 stack design compared to a 48 stack design, these would only be achieved if the stack remained the same height and also if all engines within a shared stack operated at the same time. It is therefore possible that the benefits would not in fact be achieved, and under certain circumstances PCs could potentially be worse. They state that the increased costs of a more complex design, which may not always result in environmental benefits, combined with the performance of the current design which has sought to incorporate combining stacks in a manner that would realise benefits is considered as BAT.

- The Operator concluded that following the stack sensitivity analysis, the greatest benefit is achieved in moving from a 96 stack arrangement to a 48 stack configuration. Therefore, the Operator proposes that the 95 engines are combined into 48 stacks. This configuration includes 47 stacks with two flues each and one stack with a single flue. All proposed stacks and flues will discharge vertically upwards with no obstruction to the flow of emitted waste gases.

We do not accept the Operator's findings. Specifically, we do not agree that the proposed stack configuration represents BAT. In our assessment, BAT for this Installation given its thermal capacity and dispersion characteristics would require the combination of multiple flues (four or more) into single stacks.

Evidence from comparable peaking plants demonstrates that such configurations are both technically feasible and commonly adopted. Current planning applications also show similar approaches, with four flues into one stack, or at minimum four or more flues contained within a common windshield.

The Operator's modelling indicates that, at the maximally impacted receptors, PCs would reduce by approximately 25% when using 24 stacks compared to 48 stacks. While a 25% reduction is beneficial, it remains uncertain whether this level of improvement is sufficient for PCs to be deemed 'not significant'. For this Installation, a greater reduction would be expected to meet BAT standards.

By comparison, operational restrictions such as limiting engines to an average of 16 hours per day achieve a 33% reduction in daily mean NOx PCs. This demonstrates that operational measures deliver greater improvements than either the proposed stack configuration or a minor increase in stack height (e.g. 5 m).

Accordingly, we consider that BAT should comprise a design with a larger number of flues combined into single stacks. This would deliver more robust dispersion and materially reduce impacts at sensitive receptors.

In auditing[11] the Operator's stack height and stack configuration analysis[12] [13], by means of detailed check modelling and sensitivity analysis, we determined that the evidence provided does not demonstrate that the 20 m stack height or that the proposed stack configuration achieves the best practicable dispersion of pollutants. On this basis, the design cannot be considered to represent BAT for the sector, as required under Article 14 of the IED and national permitting regulations.

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[11] Appendix 11 - Acoustics & Air Quality Modelling & Assessment Unit (AQMAU), Audit of air quality assessment, EPR/MP3526SF/A001, Thurrock Flexible Generating Plant - follow up AQMAU-C3007-RP01, 18 July 2025 (RP01).
[12] Appendix 9 - RPS Technical Note (794-ENV-EPC-20502): Response to Schedule 5 Requirement for Further Information, version 2.1, 16/05/2025.
[13] Appendix 10 - RPS Technical Note (794-ENV-EPC-20502): Supplement to Response to Schedule 5 Requirement for Further Information, version 1.1, 27/05/2025.

Given that BAT is neither prescriptive nor exhaustive, we have assessed whether an equivalent level of environmental protection could be secured through alternative means. We conclude that such protection can be achieved, but only subject to the operational limits imposed under this permit.

In order to ensure compliance with the overarching statutory duty to prevent significant pollution, we have determined it necessary to impose additional operational restrictions beyond those required by the MCPD. These restrictions constitute proportionate and enforceable regulatory measures, specifically designed to address the risks associated with the proposed stack height and configuration.

By applying these conditions, we are satisfied that an equivalent level of environmental protection will be delivered to that which would otherwise be achieved through a taller stack and improved stack design. The detailed requirements are set out in the Operational Restrictions section of this Decision Document.

4.2 Fuel Choice

The Operator has chosen to operate their proposal using mains natural gas as this represents the most reliable and least polluting fuel available for use at the site. By using mains gas, there will be negligible emissions of sulphur and particulates and by operating in a lean-burn mode, the quantities of nitrogen oxides emitted comply with the MCPD for new gas fuelled engines.

The choice of mains gas only (not dual fuel) also minimises the need to store significant quantities of raw materials on-site.

We are satisfied that mains supply natural gas represents BAT in terms of fuel choice for this Installation.

4.3 Combustion Technology

The Operator has proposed the use of reciprocating engines. We consider that, for peaking plant, reciprocating engines are well suited to fast reserve as they are capable of quick start up and shut down times and that small individual engines can be run at optimum loading. Furthermore, they provide the necessary flexibility required for the peaking plant and are therefore considered BAT.

4.4 Emissions and Emissions Controls

The engines will operate using the principle of enhanced lean burn combustion to offer a high rate of efficiency and a primary method of minimising exhaust emissions to air.

There will be no selective catalytic reduction (SCR) fitted as the engines will achieve the BAT ELV for emissions of NOx by using lean burn technology as a primary emission control measure: application of BAT for this type of engine is

expected to result in emissions of NOx in waste gases at <95 mg/$m^3$ (at 15% oxygen), i.e., within the MCPD emission limit for this type of engine.

The Operator has justified that the use of SCR would not be BAT for this Installation due to economic and technical feasibility. The Operator states that SCR has the potential to mitigate NOx emissions, however, the operation of SCR requires the use of a catalyst and reduces the energy efficiency of the plant as a whole. In particular, the use of a catalyst in SCR systems requires operation across an optimum temperature window.

LCP BAT Conclusion 44 states that BAT for controlling carbon monoxide (CO) emissions is to ensure optimised combustion and/or to use oxidation catalysts. The Operator confirms that control and management of combustion conditions within the proposed gas engines, including performance monitoring, process control techniques and suitable maintenance regimes, will be in place to minimise CO emissions.

The LCP BREF acknowledges that emissions of dust and $SO_2$ associated with combustion plant burning natural gas are very low without the need for plant level controls to be applied. The Operator confirms that on this basis further consideration of abatement/controls for these pollutants is not considered necessary.

As the emissions of methane and formaldehyde have not been quantified in the application, we have decided to set out Improvement Conditions (IC1 and IC2) requiring the Operator to establish emissions of methane and formaldehyde.

We agree that the proposal meets BAT: although we would not consider this type of plant BAT for operation over 1,500 hours as a rolling average. However, as this site will operate as peaking plant below this threshold, we are satisfied that it is appropriate technology for the mode of operation.

4.5 Energy efficiency

Operation of the proposed Installation will be limited to 1,500 hours per engine per year; therefore, it is not subject to the requirements of Article 26 of the Energy Efficiency Directive. The limited operating hours and the mode of operation of balancing plant as short-term operating reserve justify the non-inclusion in the proposal of waste heat recovery in the form of combined heat and power (CHP) or combined cycle operation.

The gas reciprocating engines proposed to be installed will have an electrical efficiency of circa 45.4%, at Lower Heating Value (LHV), when operating at 100% rating. Although the proposed engines are not large combustion plant (LCP), the Operator compared the efficiency levels achieved by the proposed engines against the BAT associated energy efficiency levels (BAT-AEEL) for LCP, as a relevant source of information. The LCP BAT-AEEL for new engines fired on natural gas is 39.5-44%.

We are satisfied the spark ignition engines exceed the minimum efficiency for electrical generation and the oxides of nitrogen (NOx) emissions will achieve 95 $mg/m^3$ in line with the requirements of the MCPD.

The Operator has stated that the engines will be performance tested during the commissioning process in line with relevant standards to confirm the net electrical efficiency. We have specified Improvement Condition IC4, requiring the Operator to submit a written report to the Environment Agency on the commissioning of the Installation, which shall provide a review of the environmental and energy efficiency performance of the plant as installed against the design parameters set out in the application.

4.6 Containment of Raw Materials

The proposed Installation is set to arise on undeveloped land. In order to minimise any future contamination risk to the environment, all operational areas on site will be covered in concrete hardstanding.

The main materials used within the plant will include natural gas for fuel, lubrication oil and ethylene glycol in the cooling system. Waste generation from the plant is anticipated to be low and will comprise primarily waste oil and waste from maintenance activities.

Natural Gas - Natural gas will be delivered to the site via a new gas pipeline to be built to intercept the existing high-pressure National Grid gas national transmission system (NTS). There will be no storage of natural gas on site.

Lubricating Oil - Lubricating oil will be used in the engines and stored in lubrication oil storage tanks located within a bunded containment area.

The tanks consist of:

- 6x clean lubricating oil of 7,000 litres each.
- 6x waste oil tanks of 5,000 litres each.

All the tanks are double skinned and will comply with The Control of Pollution (Oil Storage) (England) Regulations 2001 (Oil Storage Regulations) and CIRIA guidance. The tanks are held within 6 bunded areas, each holding a clean oil and waste oil tank. The tank bunds will be designed to hold 110% of the stored volume of the largest tank within the bund. In addition, the lubricating oil tanks will have gel filters that will close in the presence of oil. The gel filters work by allowing water to pass through the gel, however if oil is present the gel blocks and prevents any discharge containing the oil. This is a once use system and the system would need to be cleaned, and a replacement gel filter inserted.

The tanks will be subject to routine inspections during routine site maintenance visits. Spill kits will also be provided in areas where oil is delivered, stored and collected.

The Operator confirms that lubrication oil will be delivered in intermediate bulk containers (IBCs) which will be placed on portable bunds before being connected to the oil storage tanks for transfer of the oil and that the tanks will only be re-filled whilst a maintenance engineer from the engine maintenance contractor is on site to oversee the delivery. The Operator also confirms that all delivery staff and maintenance engineers will be trained and will hold contact details for the remote monitoring centre to alert operatives in the event of an incident.

The Operator confirms that on collection the waste oil will be transferred to IBCs from site for reprocessing or appropriate disposal. During transfer of waste oil, IBCs will be placed upon temporary bunds.

Ethylene Glycol - An Ethylene glycol/water mixture will be used in the cooling circuits. The Operator confirms that in the event that a cooling circuit requires a top-up, or a spillage is identified, the engine maintenance contractor will be responsible for overseeing this and notifying the Operator of any spillage incident and actions taken in accordance with the incident reporting system. The Operator also confirms that a leak from the glycol-water closed-circuit cooling water (CCCW) system would be identified by a drop in pressure within the system which would automatically close valves installed within the downpipes from the glycol leak catchment basin preventing a discharge into the site drains. Should there be any doubt that either oil or glycol has entered the drains the valve on the attenuation pond would be closed.

Process Water - The only process waters associated with operation of the new plant are within the CCCW system which contains only a small volume of water. The area containing the fin fan coolers and CCCW circulating pumps will be bunded so the risk of accidental discharge of process waters to controlled waters is minimised.

There will be no other hazardous materials stored on site.

We are satisfied with the containment measures proposed by the Operator.

## 5. Emissions to Air

### 5.1 Environmental risk assessment

In line with the Environment Agency's guidance (Air emissions risk assessment for your environmental permit - GOV.UK) and the relevant parts of the guidance applicable to the assessment of air dispersion modelling of emissions from gas engines the Operator submitted detailed air dispersion modelling and impact assessments to assess the predicted impacts on human receptors and ecological sites.

The methodology for risk assessment of point source emissions to air, and the associated definitions, are set out in our guidance Air emissions risk assessment for your environmental permit - GOV.UK

We reviewed the following air quality assessments and documentation with associated modelling files submitted by the Operator, completed by RPS ('the Consultant).

- Air Quality Assessment, Thurrock Flexible Generation Plant, For Statera Energy Limited – RPS, JAR03000, 21/08/2024[14]

- RPS Memo Report, JAR03000, 14/10/2024 – Note sets out additional information with regards the air quality assessment for the Thurrock Flexible Generation Plant[15]

- RPS Technical Note (794-ENV-EPC-20502): Response to Schedule 5 Requirement for Further Information, version 2.1, 16/05/2025[16]

- RPS Technical Note (794-ENV-EPC-20502): Supplement to Response to Schedule 5 Requirement for Further Information, version 1.1, 27/05/2025[17]

5.2 Operator's Assessment of Potential Impact on Air Quality

The Consultant's assessments considered the potential impacts of the principal pollutants of concern with respect to emissions to air from natural gas fired engines. The Consultant has assessed potential impacts at human and ecological receptors for nitrogen oxides (NOx) and carbon monoxide (CO), within the defined screening distances.

The Consultant carried out the air quality assessment for the peaking plant based on the following:

- Operating hours - The Installation has been modelled to operate for a maximum of 1,500 hours per engine per year.

- Stack configuration - The 95 engines are combined into 48 stacks. This configuration includes 47 stacks with two flues each and one stack with a single flue.

- Stack height - A 20 m stack height has been selected.

[14] Appendix 5 - Air Quality Assessment, Thurrock Flexible Generation Plant, For Statera Energy Limited – RPS, JAR03000, 21/08/2024
[15] Appendix 6 - RPS Memo Report, JAR03000, 14/10/2024 – Note sets out additional information with regards the air quality assessment for the Thurrock Flexible Generation Plant
[16] Appendix 9 - RPS Technical Note (794-ENV-EPC-20502): Response to Schedule 5 Requirement for Further Information, version 2.1, 16/05/2025
[17] Appendix 10 - RPS Technical Note (794-ENV-EPC-20502): Supplement to Response to Schedule 5 Requirement for Further Information, version 1.1, 27/05/2025

5.2.1 Human Receptors

The Consultant modelled 47 discrete human receptor locations to represent relevant public exposure.

The Installation is not situated in an Air Quality Management Area (AQMA).

The Operator concluded the following for human health:

- The predicted environmental concentrations (PECs) are below the environmental standards (ES) for nitrogen dioxide ($NO_2$) and carbon monoxide (CO).

- With no predicted exceedance of an ES the effects are deemed not significant.

5.2.2 Ecological Receptors

The Consultant considered the following protected European sites:

- Thames Estuary and Marshes Special Protection Area (SPA)
- North Downs Woodlands Special Area of Conservation (SAC) – This is outside of our screening distance, so was not included in our audit.

They also considered 20 Sites of Special Scientific Interest (SSSI) and 7 Local Wildlife Sites (LWS) as receptor points – In terms of habitats assessment, all of the SSSI's were outside of our screening distance, so were not included in our habitats assessment.

The Operator concluded the following for ecological receptors:

- The annual mean NOx emissions are not considered to be significant because the process contributions (PCs) do not exceed 1% (or 100% for local nature sites) of the critical level, or the PECs do not exceed the critical level at all sites.

- The acid deposition impacts are not considered to be significant because the PCs do not exceed 1% (or 100% for local nature sites) of the critical load function at all sites.

- The nutrient nitrogen deposition impacts are not considered to be significant because the PCs do not exceed 1% (or 100% for local nature sites) of the critical load function at all sites except the Thames Estuary and Marshes SPA when a critical load of 5 kgN/ha/yr is applied.

- At the Thames Estuary and Marshes SPA and based on the project ecologist's advice, there is no potential for likely significant effect on Ringed Plover using the SPA as a result of emissions from the peaking plant Installation. The most sensitive designated feature of the SPA is the Hen Harrier with a critical load of 5 kgN/ha/yr. However, Ringed Plover was selected to be the most sensitive designated feature of the SPA despite having a critical load of 10 kgN/ha/yr because as per the project ecologist's advice the habitat associated with Hen Harriers is not present within the impacted area. By using a critical load of 10 kgN/ha/yr, the PCs would be insignificant.

5.3 Environment Agency Review of Operator Assessment of Potential Impact on Air Quality

The Consultant has assessed potential impacts at human and ecological receptors for nitrogen oxides (NOx), and carbon monoxide (CO). Our audit[18] has focused on NOx emissions because CO emissions are generally low risk compared to the emissions of NOx.

We have audited the Consultant's assessments and have made observations relating to their methods and assumptions. We have conducted our own modelling checks and have analysed model sensitivities. As a result, we agree with the Consultant's numerical predictions although there is scope for further reductions in PCs which should be considered as part of a site-specific BAT assessment.

We note the following which could be relevant to a site-specific BAT assessment:

- Further reduction can be gained by combining stacks into groups of four at all sensitive receptors.

- Reductions are small from minor increases in stack height at sensitive receptors.

- Increasing the stack height to 25 m and combining the stacks into groups of four does not rule out potential daily mean NOx exceedances at Tilbury Power Station LWS and Lytag Brownfield LWS.

- Limiting daily operations to 16 hours would rule out potential exceedances at all local nature sites except for Tilbury Power Station LWS.

[18] Appendix 11 - Acoustics & Air Quality Modelling & Assessment Unit (AQMAU), Audit of air quality assessment, EPR/MP3526SF/A001, Thurrock Flexible Generating Plant – follow up, AQMAU-C3007-RP01, 18 July 2025 (RP01).

5.3.1 Human Health Observations

As a result of our modelling audit and sensitivity analysis, we observe the following:

- The grid maximum predicted concentrations have not been provided.

- At the maximally impacted residential receptor (located approximately 900 m from the Installation), the predicted 1-hour $NO_2$ PC is up to 45% of the ES. The highest PEC is up to 76% of the ES and therefore no exceedances are predicted at sensitive receptors.

- At the maximally impacted residential receptor, the predicted annual $NO_2$ PC is up to 6% of the ES. The highest PEC is up to 81% of the ES and therefore no exceedances are predicted at sensitive receptors.

- The Consultant concludes the resulting air quality effect of the proposed development is considered to be not significant overall.

5.3.2 Ecological Observations

As a result of our modelling audit and sensitivity analysis, we observe the following:

- At Broom Hill LWS, Lytag Brownfield LWS and Tilbury Power Station LWS, the maximum daily mean NOx PCs are predicted to exceed the higher daily mean NOx critical level of 200 $\mu g/m^3$. The PC for Broom Hill LWS was 284.5 $\mu g/m^3$, which is up to 142% of the daily critical level of 200 $\mu g/m^3$, the PC for Lytag Brownfield LWS was 344.9 $\mu g/m^3$, which is up to 173% of the daily critical level of 200 $\mu g/m^3$ and the PC for Tilbury Power Station LWS was 643.9 $\mu g/m^3$, which is up to 323% of the daily critical level of 200 $\mu g/m^3$. The PCs are based on all engines operating for the full 24-hours during the worst-case meteorological conditions and the Consultant has not suggested restricting daily operational hours.

- The Consultant has used a statistical analysis to assess the likelihood of exceedances occurring. They identified 73 exceedance days which they assigned as a variable in 1000 Monte Carlo simulations. They reported a mean likelihood of exceedance of 4.3%, which they consider ‘unlikely’ based on our specified generator guidance. We observe that less than 1% of their simulations resulted in a probability greater than 5%.

- At Thames Estuary and Marshes SPA the nutrient nitrogen deposition PC is 2% (does not screen out as insignificant) compared to the worst-case APIS critical load of 5 kgN/ha/yr with background already exceeding. We agree with the Consultant’s project ecologist and confirm that a critical

load of 10 kgN/ha/yr can be applied at this area of Thames Estuary and Marshes SPA. The Consultant's nutrient nitrogen deposition PC is insignificant when assessed against this critical load.

- The annual NOx PC is 4% of the critical level but the PEC is not predicted to exceed (65% of the critical level). The acid deposition flux PCs are predicted to be insignificant.

- At the assessed local nature sites, the Long-Term PCs are less than 100% of the annual critical level and critical loads and are insignificant.

- For annual mean NOx, nutrient nitrogen deposition and acid deposition the Consultant concludes for all conservation sites the emissions are not considered to be significant.

5.3.3 Modelling Audit

We carried out a modelling audit and sensitivity analysis to several of the assumptions and input parameters made by the Consultant. The checks listed in this section were deemed necessary to understand model sensitivity and uncertainties in the Consultant's reported predictions:

- A 48 stack paired scenario as well as combining the flues into groups of four (24 stacks).

- Increasing the stack heights from 20 m to 25 m.

- Limiting daily operations to 16 hours (06:00-22:00).

By combining the flues into a smaller number of shared stacks, dispersion is improved as the volumetric flow is greater and can retain its heat for a longer period of time. This increases buoyancy and allows the plume to rise higher, which increases the distance that the plume has to travel before it reaches ground level. This allows for more time and distance for pollutants to disperse. We would expect that in most meteorological conditions, exhaust gases from flues that share a common stack or wind shield would combine into a single, higher volume plume provided the exhaust gases share similar characteristics (i.e. efflux velocity, temperature and density).

By increasing the stack height, dispersion is improved by increasing the distance the plume must travel before it reaches ground level. Dispersion is improved further by combining an increased stack height and by merging multiple flues into a smaller number of shared stacks.

By limiting the number of operational hours that are permissible over different time periods, the maximum possible predicted PCs can be reduced to a similar extent as engineered mitigation that improves dispersion or reduces mass emissions. By limiting the annual operations to 1,500 hours per engine per year, the maximum possible annual predictions are lower than by allowing 2,250 hours, as the total mass emissions over that time period will be reduced. By limiting the daily operations to an average of 16 hours per engine, the maximum possible daily predictions are lower than when there are no daily restrictions.

5.3.3.1 Human Health Assessment

Our modelling audit and sensitivity analysis indicates the following:

- Our highest long- and short-term $NO_2$ predictions at sensitive receptors closely match those reported in the technical note submitted by the Operator.

- ES exceedances at modelled sensitive receptors are not predicted, however, there is a risk of exceedance at the point of grid maximum.

- Further improvements could be gained from combining stacks into groups of four. However, there is unlikely to be any meaningful improvement from minor increases in stack height at sensitive human health receptors.

Overall, for human health we find the Consultant's modelling and our audit predicts no potential exceedances at human health receptors; however, grid maximum NOx PCs are high and there are opportunities to significantly improve dispersion.

5.3.3.2 Ecological Assessment

Our modelling audit and sensitivity analysis indicates the following:

- At Thames Estuary and Marshes SPA and Ramsar site, the nutrient nitrogen deposition PC is insignificant when assessing against a critical load of 10 kgN/ha/yr.

- We agree with the Consultant that the higher daily mean NOx critical level of 200 $\mu g/m^3$ can be applied at all assessed ecological sites. However, there is a risk that even this higher critical level could be exceeded at Broom Hill LWS, Lytag Brownfield LWS and Tilbury Power Station LWS.

- We consider the Consultant's statistical analysis to be a reasonable indication of risk and agree that daily mean NOx exceedances are unlikely.

- Limiting daily operations to 16 hours would rule out exceedances at all local nature sites except for Tilbury Power Station LWS.

- Increasing the stack height to 25 m and combining the stacks into groups of four would rule out daily mean NOx exceedances at all local nature sites except for Tilbury Power Station LWS and Lytag Brownfield LWS.

Overall, for ecological receptors we find the Consultant's modelling and our audit predicts that emissions to air are insignificant at all protected European sites (Thames Estuary and Marshes SPA and Thames Estuary and Marshes Ramsar) within our screening distances. Our Stage 1 Habitats Regulations Assessment (HRA)[19] which is a record of screening for likely significant effects, concluded no significant effect for daily and annual NOx and no likely significant effect due to nitrogen deposition. We have not consulted Natural England on our HRA due to the emissions to air being insignificant; however, we have sent them our assessment for information in line with our guidance.

The SSSIs identified within the Consultant's modelling and our subsequent audit were not subject to a detailed assessment, as they fall outside the prescribed screening distances. The established screening thresholds are 2 km for SSSIs in relation to air emissions, and 10 km for European Sites. Although the Thames Estuary and Marshes SPA is legally underpinned by both the Mucking Flats and Marshes SSSI and the South Thames Estuary and Marshes SSSI, there is no regulatory requirement to assess impacts on these underpinning SSSIs. Notwithstanding this, the conclusions of the HRA are considered to provide protective assurance for them.

In recognition of the high aggregated thermal input of the engines, potential impacts at designated sites beyond the standard screening distances were considered. The Operator's updated modelling report incorporated several additional SSSIs and one SAC. Predicted emissions at these sites were demonstrated to be insignificant. Our audit of the updated report confirmed that the numerical predictions were robust and suitable for permit determination.

For designated sites assessed within the standard screening distances, the Stage 1 HRA confirmed that predicted emissions were insignificant. On the basis of these findings, it was concluded that the likelihood of significant emissions at sites beyond the standard screening distances is negligible. Accordingly, no further assessment was required.

The Consultant's modelling and our audit predicts possible exceedances of the higher daily mean NOx critical level of 200 µg/m$^3$ at three LWSs should prolonged operation of the peaking plant (all 95 engines operating for 24 hours)

[19] Appendix 12 - Stage 1 Habitats Regulations Assessment (HRA), Environment Agency record of screening for likely significant effects, Version: Final - 01/09/2025.

coincide with worst-case meteorological conditions. However, the modelling is based on a worst-case and we consider that this scenario is unlikely to occur. The Consultant confirmed that the likelihood of long periods of reliance on the peaking plant to provide power to the national grid is considered to be highly unlikely.

Following a Habitats assessment of the LWS[20], mitigation measures are considered necessary to rule out exceedances of the higher daily mean NOx critical level of 200 µg/m$^3$ at Broom Hill LWS and Lytag Brownfield LWS, therefore, we have included restrictions on operational hours in the permit – see Operational Restrictions section below.

The peaking plant is being constructed within the boundary of Tilbury Power Station LWS; therefore, we cannot rule out exceedances of the higher daily mean NOx critical level at this LWS. Although we cannot rule out exceedances at all three LWS, we consider the restriction on operating hours is necessary to prevent exceedances of daily NOx concentrations at two of the nearby LWS and minimise impacts at Tilbury Power Station LWS. Additionally, the Consultant's statistical analysis indicates the likelihood of all 95 engines operating for 24 hours coinciding with worst-case meteorological conditions to be highly unlikely.

The need to restrict operating hours arises from the fact that the peaking plant was not designed to BAT with adequate dispersion in mind. Without these operational limitations, additional mitigation or compensation measures would be required to reduce NOx emissions from the plant. In this context, operational restrictions are considered the most practical and cost-effective mitigation approach.

## 6. Operational Restrictions

Following our audit[21] of the Consultant's air quality assessments and documentation[22] [23] [24] [25] we remain concerned about NOx emissions and their dispersion from the peaking plant.

We engaged with the Operator on multiple occasions, via email correspondence and telephone discussions (including video conferencing), to address matters

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[20] Appendix 13 - Application Bespoke A001 Internal Consultation – Fisheries, Biodiversity and Geomorphology (FBG) Response – 05082025.
[21] Appendix 11 - Acoustics & Air Quality Modelling & Assessment Unit (AQMAU), Audit of air quality assessment, EPR/MP3526SF/A001, Thurrock Flexible Generating Plant – follow up, AQMAU-C3007-RP01, 18 July 2025 (RP01).
[22] Appendix 5 - Air Quality Assessment, Thurrock Flexible Generation Plant, For Statera Energy Limited – RPS, JAR03000, 21/08/2024.
[23] Appendix 6 - RPS Memo Report, JAR03000, 14/10/2024 – Note sets out additional information with regards the air quality assessment for the Thurrock Flexible Generation Plant.
[24] Appendix 9 - RPS Technical Note (794-ENV-EPC-20502): Response to Schedule 5 Requirement for Further Information, version 2.1, 16/05/2025.
[25] Appendix 10 - RPS Technical Note (794-ENV-EPC-20502): Supplement to Response to Schedule 5 Requirement for Further Information, version 1.1, 27/05/2025.

relating to NOx emissions and dispersion from the peaking plant. At each stage of engagement, we it made clear that we were prepared to consider alternative measures that could further reduce emissions, improve dispersion, or demonstrate compliance with BAT. Despite these opportunities, the Operator did not submit any proposals or evidence of such measures during the course of determination. We have accordingly imposed operational conditions within the permit, specifying requirements for stack configuration and restricting operational hours, in order to ensure effective control of emissions and alignment with regulatory standards.

In the absence of these operational restrictions the application would have been refused.

6.1 Stack Configuration

The modelling indicates exceedances at three LWSs. While no exceedances are predicted at human receptors, we recognise that grid maximum NOx PCs are high and there are clear opportunities to significantly improve dispersion, particularly through adjustments to stack height and configuration.

Therefore, in accordance with Article 14(6) of the IED, the following restriction has been incorporated into the permit under Condition 2.3.8:

The Operator shall ensure that it operates two engines in combined stacks in preference to an individual engine in a combined stack. Individual engines may operate in a combined stack without the other engine operating in the same combined stack in any one or more of the following circumstances:

a. commissioning, testing or maintenance purposes.

b. an odd number of total engines operating at the site.

c. there is a fault or technical availability issue with the unit that shares the combined stack with an individual engine that is operating.

The need for this restriction stems from the fact that the site was not designed with adequate dispersion in mind and therefore, cannot be considered to represent BAT for the sector, as required under Article 14 of the IED and national permitting regulations.

The above permit condition is to ensure that dispersion is maximised to the fullest extent practicable, consistent with the limitations imposed by the site design.

6.2 Operating Hours

The standard permitted operating hours for a peaking plant are 1,500 hours per engine as a rolling average over five years, with a maximum of 2,250 hours in any single year.

As outlined above, we are not satisfied that the Operator's proposed stack height and configuration have been designed with adequate dispersion in mind. Accordingly, the permit imposes the following restrictions on operating hours:

- Each engine shall not exceed 1,500 operating hours per year (no rolling average).
- The combined operating time of all engines shall not exceed 1,520 engine-hours per day, except during a system stress event as defined under the Capacity Market rules.

During determination and in response to the Schedule 5 request dated 20 March 2025[26] the Operator agreed to cap individual engine operation at 1,500 hours per year and submitted modelling[27] to support this figure. However, this restriction alone does not prevent exceedances at three LWSs, and further mitigation is required. In the absence of design modifications to the stack height or configuration, our modelling audit indicates that tighter restrictions on the operational envelope and operating techniques can achieve a meaningful reduction in NOx PCs at the LWSs and grid maximum.

During determination, and in accordance with Article 14(6) of the IED we proposed the following additional restriction:

- No individual engine may operate for more than 16 hours per day, unless responding to a system stress event.

In correspondence dated 29 July 2025[28] the Operator objected to the 16-hour daily limit, citing the need for greater flexibility and proposed a rolling five-year average for exceedances above a 16-hour daily limit, together with a higher single-year exceedance allowance. This equates to an average of 10 days of 24-hour operation per year (80 hours above the daily limit), with a potential single year of up to 30 days of 24-hour operation (240 hours above the daily limit). The Operator justified this approach by citing precedent for annual controls and the need to account for future uncertainties, including grid expansion and unforeseen high-impact events.

We did not agree with the Operator's proposal as our modelling and statistical checks confirm that restricting operations to 16 hours per engine per day prevents exceedances at all sites except Tilbury Power Station LWS. Once the 16-hour threshold is exceeded, daily NOx exceedances cannot be ruled out. The more frequently this occurs, the greater the likelihood of exceedances. Allowing extensive operating hours (80 or 240) introduces excessive flexibility and does not provide meaningful protection for nearby habitat sites. Limiting the number of

[26] Appendix 8 - Schedule 5 Notice, dated 20 March 2025.
[27] Appendix 9 - RPS Technical Note (794-ENV-EPC-20502): Response to Schedule 5 Requirement for Further Information, version 2.1, 16/05/2025.
[28] Appendix 14 - Correspondence from Operator RE Operational Hours – 29072025.

exceedance days was considered but rejected, as risk increases with each permitted day and exceedances cannot be ruled out once the 16-hour threshold is breached.

To ensure full compliance with applicable environmental protection requirements while maintaining necessary operational capacity, during determination the restriction was reconfigured to establish a clear, enforceable limit:

- The combined operating time of all engines shall not exceed 1,520 engine-hours per day, except during a system stress event as defined under the Capacity Market rules.

This limit is equivalent to the operation of 95 engines for 16 hours each but may be achieved through any combination of engines and operating durations, provided the aggregate daily generator-hours do not surpass 1,520.

Given that the site is already under construction, engineered mitigation options are limited. Operational restrictions are therefore prioritised as the primary means of managing environmental impact.

In correspondence dated 28 August 2025[29] and 02 September 2025[30] the Operator objected to the proposed daily limit of 1,520 generator-hours for the Installation, citing the strategic importance of the asset to the grid and the requirement for enhanced operational flexibility. Reference was made to their Monte Carlo analysis[31] indicating a low probability of exceedances (less than 5%).

While we acknowledge that the Operator's statistical analysis suggests a low probability of exceedances this does not negate the risk of significant environmental harm. The 16-hour average limit remains necessary to prevent exceedances of daily NOx concentrations at nearby LWSs. This restriction is required because the Installation was not designed with adequate dispersion in mind. For example, the air quality assessment submitted during the planning phase recommended stack heights of 40 m, whereas the final design implemented stacks of only 20 m. This design choice materially reduces dispersion capacity and necessitates the imposition of operational limits to safeguard air quality.

During determination the Operator undertook further assessments and submitted two revised proposals dated 12 September 2025[32] and 01 October 2025[33]

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[29] Appendix 15 - Correspondence from Operator RE Operational Hours – 28082025.
[30] Appendix 16 - Correspondence from Operator RE Operational Hours – 02092025.
[31] Monte Carlo analysis is a mathematical technique that uses repeated random sampling to model the probability of different outcomes in processes with uncertainty.
[32] Appendix 17 - Correspondence from Operator RE Operational Hours and 10 day Proposal – 12092025.
[33] Appendix 18 - Correspondence from Operator RE Operational Hours and 5 day Proposal – 01102025.

concerning exceedance of the 1,520 generator-hour daily cap. The initial proposal permitted 10 days of exceedance per year, subsequently reduced to 5. The Operator contended that such limited exceedance, even if marginal (e.g., by one minute), would be proportionate and present negligible environmental risk.

We did not agree with the Operator's revised proposals. We note that the Operator's assessment draws upon monitoring data from another Installation using the same engine model. This data indicates that a lower ELV than the current 95 mg/Nm³ set under the MCPD may be achievable. However, the Operator has not proposed a tighter ELV for inclusion in the permit. Moreover, a reduced ELV alone does not guarantee avoidance of exceedances at any of the three affected LWSs. Only the operational restrictions we have specified are predicted to secure the necessary level of environmental protection.

Modelling demonstrates that 16 hours of operation per day represents the maximum threshold before exceedances become theoretically possible, specifically in circumstances where peak operational activity coincides with worst-case meteorological conditions. While we acknowledge the Operator's statistical analysis showing a low probability of exceedance under conservative assumptions, this does not alter the regulatory requirement.

It must be emphasised that a PC not causing an exceedance does not automatically render it acceptable. Under the IED, permit conditions are determined on the basis of BAT to minimise environmental impact, and the Environment Agency routinely requires additional measures where further reductions are achievable. In this case, PCs remain significant and are not as low as they could reasonably be with improved dispersion. In the absence of engineered mitigation, operational restrictions are necessary to reduce maximum PCs as far as reasonably achievable. Long-term impacts have already been addressed by reducing the annual operating cap from 2,250 to 1,500 hours. To manage short-term impacts, daily PCs will be controlled through restrictions on operational hours.

We conclude that a 16-hour daily operational limit constitutes a proportionate and enforceable regulatory measure, based on the following considerations:

- It eliminates predicted exceedances of daily NOx at two of the three local sites.
- It permits full operation during daylight hours, with night-time operation being less likely.
- It substantially exceeds the expected operational requirements of the facility within any 24-hour period.

This approach provides the maximum operational latitude consistent with the statutory obligation to achieve meaningful reductions in daily mean PCs and to prevent environmental harm.

6.3 Operator Concerns

We have addressed the following concerns raised by the Operator in response to our decision to impose operational restrictions in the permit:

- The Operator based their assessment on background air quality data from previous years, suggesting that those values may not reflect the improved conditions now.

We acknowledge that there are no predicted exceedances for pollutants or averaging periods where background concentrations are used to calculate the PEC, including for human health and statutory ecological sites. However, our focus remains on the fact that the PC is too high due to inadequate dispersion. A PC not resulting in an exceedance does not automatically make it acceptable, particularly where improvements could reasonably be made. Our assessment is therefore based on ensuring alignment with BAT and minimising environmental impact as far as reasonably achievable.

- The Operator used Monte Carlo analysis that demonstrated the very low likelihood of 16+ hour operational days coinciding with worst-case meteorological conditions.

We agree that the statistical analysis provided by the Operator adequately demonstrates that exceedances are unlikely, and we do not dispute this conclusion. However, the PCs remain too high due to insufficient dispersion. As such, we have taken steps to reduce the maximum possible PC as far as reasonably achievable. This approach aligns with our regulatory duty to minimise environmental impact, regardless of whether exceedances are predicted.

- The Operator stated that real-world emissions from the selected plant are materially lower than the modelled levels.

We do not agree. Real-world emission concentrations are likely to be higher than the monitoring data suggests and are expected to be much closer to the ELV than indicated by the Operator. While reducing the ELV could lower the maximum possible PC, the impact would be limited, amounting to only an estimated 11% reduction. This is not sufficient to alter our position, as it would not materially change the risk of exceedances or address the underlying dispersion limitations.

- The Operator raised a concern that we have adopted a test of “no exceedances whatsoever under any circumstances” at the two LWSs, which the Operator believes is an arbitrary constraint

We do not agree. Our intention is to reduce the maximum possible PC to a more reasonable concentration. The decision to apply a 16-hour daily operational limit is based on multiple factors, not solely on the ability to rule out exceedances. In fact, we may have selected this restriction even if exceedances could not be

ruled out, due to other environmental considerations. Ruling out exceedances is just one contributing factor in our determination; the broader objective is to ensure emissions are minimised and dispersion is optimised, in line with BAT.

- The Operator raised a concern that when the daily limit was first proposed by the Environment Agency, there was an indication that some flexibility might be considered, where the Operator suggested a limited number of days above the daily limit.

While we indicated a willingness to consider the proposal, we have concluded that further flexibility beyond what has already been offered would not sufficiently protect the environment.

In the absence of any new mitigating proposals or regulatory direction, we will issue the permit with the previously discussed operational restrictions. The alternative to this is to refuse the permit.

## 7. Emissions of Noise

### 7.1 Environmental risk assessment

In line with the Environment Agency's guidance (Noise and vibration management: environmental permits - GOV.UK) and the relevant parts of the guidance applicable to the assessment of noise emissions from gas engines the Operator submitted a detailed Noise Impact Assessment (NIA) to assess the predicted impacts on human receptors along with a Noise Management Plan (NMP).

We reviewed the following NIA and NMP with associated modelling files submitted by the Operator, completed by Savills ('the Consultant) according to BS 4142.

- Noise Impact Assessment for an Environmental Permit, Thurrock Peaking Plant, Ref: 64321_Report01_Rev10, Date: 27/05/2025[34]

- Noise Management Plan, Thurrock Flexible Generating Facility, Version 04, dated 18/06/2025.[35]

[34] Appendix 19 - Noise Impact Assessment for an Environmental Permit, Thurrock Peaking Plant, Ref: 64321_Report01_Rev10, Date: 27/05/2025.
[35] Appendix 20 - Noise Management Plan, Thurrock Flexible Generating Facility, Version 04, dated 18/06/2025.

7.2 Operator's Assessment of Potential Noise Impact

The NIA considered the potential impacts of noise emissions on the nearest residential Noise Sensitive Receptors (NSRs) and commercial premises with respect to the operation of the peaking plant.

Although the primary source of noise from the Installation are the gas engines, which the Operator confirmed would be enclosed in concrete structures providing significant attenuation, the Operator included all of the following sources of noise generation in the NIA:

- Gas engines (gensets)
- Radiators
- Ventilation air intake modules
- Air outlet attenuators
- Exhaust stacks
- Exhaust ductwork
- Gas pressure regulator skid
- Transformers

They considered 6 NSRs, all were residential, the closest of which is at Byron Gardens which lies at a distance of approximately 750 m west of the proposed Installation and is representative of the residential properties west of Fort Road.

7.2.2 Noise Control

The Operator included the following noise control measures:

- Gensets are housed in concrete enclosures.
- Attenuation of the genset air inlets and outlets.
- Silencers fitted to the genset exhausts.
- Location of plant away from NSRs.

The Operator confirms that low noise radiators are proposed (as per the NMP) and that due to technical and spatial constraints, it is not feasible to select radiators with a *lower* noise emission than have been selected or install the radiators differently, i.e. at low/ground level or be more enclosed. Therefore, the Operator has done all that can be done regarding control measures within the constraints of the site.

The Operator states that the facility has applied all appropriate preventative measures taken to minimise noise pollution, in particular with the application of BAT, in accordance with the Environmental Permitting Regulations.

7.2.3 Operator's Conclusions

The Operator's assessment indicated that the proposed plant would be up to 2, 6 and 8 dB above the representative background sound level during the daytime,

evening and night-time periods, respectively at NSR locations when the plant is at its Maximum Rating Levels, i.e. when the facility is producing maximum power. However, due to low Rating Levels and resultant ambient sound levels not noticeably changing or being of a magnitude likely to increase the risk for annoyance in external amenity areas or cause sleep disturbance, it is considered that significant adverse impacts would not occur.

Furthermore, the risk for adverse impact during night-time period is significantly reduced as for only 8 hours of the night-time period (23:00 to 07:00 hours) over the course of a year, would the facility likely be operational i.e. 3% of the night-time period on average. Also, Rating Levels would often be lower than considered, reflecting the reduced power demand.

Consequently, when considering the operation of the facility over the entire year period, the Operator concluded that the resulting site noise impact would be no greater than adverse, i.e. significant impacts/effects avoided at all NSRs for all time periods.

On the basis that significant adverse impacts would be avoided, and adverse impacts minimised through the application of noise control methods/techniques the proposed development would comply with the 'Noise Policy Statement for England' (NPSE), which sets out the long-term overarching vision of Government noise policy.

7.3 Environment Agency Review of Operator's Assessment of Potential Noise Impacts

We have carried out our own audit[36] by means of detailed check modelling and sensitivity analysis on the NIA presented by the Operator.

Following sensitivity check modelling we find similar rating levels to the Consultant.

We have reviewed the background sound level survey data submitted to the Environment Agency and find the potential for lower background sound levels; therefore, we have tested sensitivity to this lower sound level as a robust worst-case scenario.

We conclude that there is a potential risk of adverse impact at certain noise sensitive receptors. Accordingly, noise emissions from the site shall be considered acceptable only where the Operator demonstrates the application of BAT through the NMP.

The NMP must be fully aligned with the Noise Policy Statement for England, ensuring that:

[36] Appendix 21 - Acoustics & Air Quality Modelling & Assessment Unit (AQMAU), Audit of Noise Impact Assessment EPR/MP3526SF/A001, Thurrock Flexible Generating Plant, AQMAU-C3015-RP01, 06/06/2025.

- Adverse effects on human health and quality of life are appropriately mitigated and minimised.
- Noise emissions do not give rise to significant pollution of the environment.
- Operations are managed in a manner consistent with statutory obligations and regulatory expectations.

For clarity, we are not requesting a revised NIA from the Operator, or additional mitigation measures beyond the demonstration of BAT in the NMP.

### 7.4 Environment Agency Review of Operator's Noise Management Plan (NMP)

We have reviewed the Operator's NMP.

The proposed engines are MCPs for which there is currently no defined BAT requirements. Therefore, in reviewing BAT for the proposed new engines we considered Large Combustion Plant (LCP) BAT Reference (BREF) Document and associated BAT Conclusions where relevant.

The mitigation methods listed below meet BATC 17 of the LCP BAT Conclusions and are referenced in the LCP BREF Document:

- Gensets are housed in concrete enclosures.
- Low noise radiators installed.
- Attenuation of the genset air inlets and outlets.
- Silencers fitted to the genset exhausts.

The NMP is recognised as representing BAT and has been formally incorporated into the operating techniques table (S1.2) of the Environmental Permit. On this basis, the potential risk of adverse impact at identified noise-sensitive receptors is considered acceptable, as the Operator has demonstrated the application of BAT through the NMP ensuring that adverse effects on health and quality of life are appropriately mitigated and minimised and will not cause significant pollution of the environment or harm to human health.

We have also applied standard noise conditions within the permit which we consider impose sufficient control should any issues arise with noise.

## 8. Emissions to Water/Sewer/Groundwater

There will be no water discharges to surface water sewer or foul sewer.

Surface water run-off from roofs, roads and hardstanding or from washing of equipment will be collected within a site drainage system. This drainage system incorporates oil separation and retention facilities. Under normal operations no process effluents are generated from operation of the gas engines. The only potential discharge would be uncontaminated surface water run-off from the site via oil/water interceptors.

We agree that the discharge of uncontaminated surface water run-off from the site via oil/water interceptors ultimately into the River Thames is BAT.

There will be no point source emissions to land or groundwater.

## 9. Conclusion

In conclusion, we have decided to grant the permit with the following controls in place:

- **Annual Limit:** Each engine shall not exceed 1,500 operating hours per calendar year.
- **Daily Limit:** The total combined operating time of all engines shall not exceed 1,520 engine-hours per day, except during a system stress event as defined under the Capacity Market rules.
- **Stack Operation Preference:** The Operator shall prioritise operating two engines in combined stacks rather than a single engine in a combined stack. An individual engine may operate in a combined stack without its paired engine only in the following circumstances:

    a) commissioning, testing, or maintenance;

    b) when an odd number of engines are operating on site;

    c) where a fault or technical availability issue prevents operation of the paired unit.

We have determined that operational restrictions are necessary because the current stack design of the Installation does not constitute BAT with respect to air dispersion.

The restrictions serve one main purpose to reduce the maximum possible predicted impacts at both human health and ecological sites. The restrictions were selected on the basis of their demonstrable effectiveness in reducing predicted impacts and ensuring compliance with relevant environmental standards:

**Air Quality Compliance:** Limiting operation to 16 hours per day reduces maximum predicted concentrations by approximately 33%. This reduction provides a greater margin of compliance than alternative measures such as modest stack height increases (e.g., 5 m) or flue grouping, thereby ensuring adherence to statutory air quality thresholds.

**Application of BAT Principles:** The restriction represents a proportionate and technically feasible measure that achieves significant environmental benefit without imposing disproportionate costs or operational burdens, consistent with BAT conclusions.

**Operational Flexibility:** The restriction maintains sufficient flexibility for the Operator to operate at full rated capacity during all daytime hours. This reflects the operational characteristics of peaking plant Installations, where night-time operation is generally less likely.

**Exceeding Anticipated Demand:** The 16-hour limit substantially exceeds the Operator's predicted operational demands of the Installation, thereby ensuring that compliance is achieved without constraining legitimate business activity.

On the basis of the above, the 16-hour operational restriction is considered a necessary and proportionate regulatory control. It provides a clear compliance pathway with statutory environmental obligations, ensures the protection of sensitive receptors, and demonstrates the application of BAT in accordance with permitting requirements.

If the stack design were BAT compliant, exceedances at designated habitat sites would not be expected, and the receptor grid would reasonably demonstrate no exceedances. The absence of exceedances at human health receptors is attributable solely to their distance from the Installation, rather than to adequate dispersion of pollutants. Accordingly, while exceedances have been excluded at two of the three ecological sites, this outcome arises only as a secondary effect of reduced maximum potential 24-hour PCs achieved through restrictions on operating hours.

However, we consider these restrictions to be compensatory measures only. They do not substitute for a design that meets BAT. A BAT compliant design would have incorporated the combination of a substantial number of flues and the construction of significantly taller stacks (for example, 40 metres, as recommended at the planning stage).

Agreement could not be reached with the Operator regarding the operational conditions of the Installation. We engaged extensively with the Operator, including three telephone discussions (including video conferencing) and five separate email exchanges, to address issues relating to NOx emissions and dispersion from the peaking plant.

Despite these efforts, the Operator has not proposed any engineered measures capable of further reducing emissions, improving dispersion or aligning with BAT. This is primarily because the plant has already been constructed without the benefit of an environmental permit. In the absence of such engineered solutions, the imposition of operational restrictions represents the only practicable means of ensuring that the Installation does not give rise to an unacceptable impact on the environment.

Accordingly, the operational restrictions specified are a necessary condition of the permit. Without these restrictions, the environmental risks associated with the Installation would be unacceptable, and the permit would be refused.

# 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.

## 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:

- Local Authority
- Health and Safety Executive
- Director of Public Health & UK Health Security Agency (UKHSA) (formerly Public Health England (PHE))
- Cadent Gas

The comments and our responses are summarised in the consultation responses section.

## Operator

We are satisfied that the applicant (now the Operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal Operator for environmental permits.

## 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’.

Refer to the **Error! Reference source not found.** section for further details.

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 plans which we consider to be satisfactory.

These show the extent of the site of the facility including the discharge points.

The plan is included in the permit.

## Site condition report

The Operator has provided a description of the condition of the site, which we consider is satisfactory.

The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.

## 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 following operational controls/ conditions have been placed on the permit to protect Broom Hill LWS and Lytag Brownfield LWS:

- The operating hours of each engine shall not exceed 1,500 hours per year.
- The total combined operating time of all engines shall not exceed 1,520 engine-hours per day, except during a system stress event as defined under the Capacity Market rules.

We have not consulted Natural England on our Habitats Regulation Assessment; however, we have sent them our assessment for information.

Refer to the **Error! Reference source not found.** section for further details.

The decision was taken in accordance with our guidance.

## Environmental impact assessment

In determining the application, we have considered the Environmental Statement.

## Environmental risk

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

The Operator's risk assessment is deemed satisfactory, provided that the operational controls specified in the permit are fully implemented.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment and incorporating additional operational controls the emissions from the proposed Installation are not environmentally significant.

Refer to the **Error! Reference source not found.** section for further details.

## 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.

Refer to the **Error! Reference source not found.** section for further details.

The operating techniques that the Operator 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 nitrogen oxides (NOx) cannot be screened out as insignificant. We have assessed whether the proposed techniques are Best Available Techniques (BAT) – See BAT Assessment and Emissions to Air sections above for further information.

The proposed techniques for emissions that do not screen out as insignificant depart from the techniques and benchmark levels contained in the technical guidance. We have considered the Operator's justification for departure from the guidance.

We are not satisfied that the Operator's proposed stack height and configuration have been designed with adequate dispersion in mind and we have therefore included additional operational requirements of:

- The operating hours of each engine shall not exceed 1,500 hours per year.

- The total combined operating time of all engines shall not exceed 1,520 engine-hours per day, except during a system stress event as defined under the Capacity Market rules.

- The Operator shall ensure that it operates two engines in combined stacks in preference to an individual engine in a combined stack. Individual engines may operate in a combined stack without the other engine operating in the same combined stack in any one or more of the following circumstances:

    a) commissioning, testing or maintenance purposes.
    b) an odd number of total engines operating at the site.
    c) there is a fault or technical availability issue with the unit that shares the combined stack with an individual engine that is operating.

## Operating techniques for emissions that screen out as insignificant

Emissions of carbon monoxide (CO) have been screened out as insignificant, and so we agree that the Operator's proposed techniques are Best Available Techniques (BAT) for the Installation.

We consider that the emission limits included in the Installation permit reflect the BAT for the sector.

## 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 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

We have reviewed the noise and management plan in accordance with our guidance on noise assessment and control.

We consider that the noise management plan is satisfactory, and we approve this plan.

We have approved the noise management plan as we consider it to be appropriate measures based on information available to us at the current time.

The Operator should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The Operator should keep the plans under constant review and revise them annually or if necessary, sooner if there have been complaints arising from operations on site or if circumstances change. This is in accordance with our guidance 'Control and monitor emissions for your environmental permit'.

The plan has been incorporated into the operating techniques S1.2.

## Raw materials

We have specified limits and controls on the use of raw materials and fuels.

## Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme. The following improvement conditions (ICs) have been included in the permit:

**IC1 - Methane emissions**

The Operator shall submit a report to the Environment Agency for approval. The report shall provide information on methane emissions and predicted impacts from the engines and propose a plan to assess any methane slip over their operational life.

There is insufficient evidence regarding the effects of enhanced lean burn (ELB) on methane slip. This Improvement Condition has been included to establish the emission levels under ELB, compare them with the manufacturer's specifications and appropriate benchmark levels and undertake an assessment of the impacts in line with our H1 guidance or equivalent methodology.

This Improvement Condition is applied to all new Installations using gas engines to serve the balancing market on the electricity Grid.

**IC2 - Formaldehyde emissions**

The Operator shall submit a report to the Environment Agency for approval. The report shall provide information on formaldehyde emissions and predicted impacts from the engines.

There is insufficient evidence regarding the effects of enhanced lean burn (ELB) on formaldehyde production by oxidation. This Improvement Condition has been included to establish the emission levels under ELB, compare them with the manufacturer's specifications and appropriate benchmark levels and undertake an assessment of the impacts in line with our H1 guidance or equivalent methodology.

This Improvement Condition is applied to all new Installations using gas engines to serve the balancing market on the electricity Grid.

**IC3 - Monitoring locations**
The Operator shall submit a report to the Environment Agency for approval. The report shall provide information on the assessment of air emissions monitoring locations during commissioning of the Installation.

We have included this Improvement Condition to ensure that the air emissions monitoring locations meet the requirements of standard BS EN 15259 and supporting Method Implementation Document (MID).

**IC4 - Commissioning**
The Operator shall submit a report to the Environment Agency for approval. The report shall provide information on the environmental and energy efficiency performance of the plant as installed against the design parameters set out in the application.

We have included this Improvement Condition to ensure that the performance of the plant as installed is consistent with the design parameters set out in the application.

# Emission Limits

Emission Limit Values (ELVs) and/or equivalent parameters or technical measures based on Best Available Techniques (BAT) have been added for the following substances:

- Oxides of Nitrogen (NOx) (NO and $NO_2$ expressed as $NO_2$)

ELVs for oxides of nitrogen have been set at 95 $mg/m^3$ in line with the MCPD and our assessment of BAT for the proposed operation mode.

# 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.

These monitoring requirements have been included in order to demonstrate compliance with the emission limits set out in the permit for oxides of nitrogen; and in order to comply with the monitoring requirements set out within the MCPD for carbon monoxide.

Although the individual engines are below 20 MWth each, we have specified annual monitoring frequency. This is more frequent than specified by the MCPD for MCP below 20 MWth input. We consider that the increased frequency is required by and proportionate to the increased environmental risk entailed by the

higher aggregated thermal input in the scope of the Installation (i.e. 1026 MWth), compared to the requirement set out by MCPD for individual combustion plants below 20 MWth input.

We consider this approach to constitute Best Available Technology (BAT) for the facility - with the legal justification for setting these monitoring requirements being provided by Article 14 (6) of the IED (2010).

Article 14 (6) states “where an activity or a type of production process carried out within an Installation is not covered by any of the BAT conclusions or where those conclusions do not address all the potential environmental effects of the activity or process, the competent authority shall, after prior consultations with the Operator, set the permit conditions on the basis of the best available techniques that it has determined for the activities or processes concerned, by giving special consideration to the criteria listed in Annex III”.

We consider it to be reasonable, justifiable and proportionate to set monitoring requirements which are more frequent than that specified by the MCPD - to prevent a future deterioration in environmental performance (known as “backsliding”).

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, according to the specified monitoring frequencies and parameters that we consider relevant to the proposed operation. We have also added an extra reporting condition (condition 4.1.3) in the permit that requires the Operator to keep records of operation under system stress events as defined under the Capacity Market rules in order to demonstrate compliance with the relevant hourly operational restrictions imposed by the permit.

## 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.

## Previous performance

We have assessed Operator competence. There is no known reason to consider the Operator will not comply with the permit conditions.

We have checked our systems to ensure that all relevant convictions have been declared.

No relevant convictions were found. The Operator satisfies the criteria in our guidance on Operator competence.

## Financial competence

There is no known reason to consider that the Operator will not be financially able to comply with the permit conditions.

## 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.

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 Local Authority.

Brief summary of issues raised:

1. Air quality, odour and noise pollution would be key areas for consideration for local residents.

2. The Authority supports the recommendations made by UKHSA and our internal Environment Protection Team.

3. Based on the mitigation measures proposed and on speaking with our internal Environmental Protection Team and the UKHSA we do not have any significant concerns regarding the risk to the health of the local population from these environmental factors.

Summary of actions taken:

We have not taken any additional actions in response to this, but we have undertaken detailed assessments for noise and air quality. We do not consider odour to be an issue at this site.

Response received from UKHSA

Brief summary of issues raised:

1. UKHSA has no significant concerns regarding the risk to the health of the local population from the Installation.

Summary of actions taken:

None.

## Appendix

1. RGN 2: Understanding the meaning of regulated facility - GOV.UK

2. Formal Request for Further Information, dated 14 May 2025.

3. Operator's submission dated 19 May 2025 in response to our Request for Further Information, dated 14 May 2025.

4. Department of Energy & Climate Change, Developing BAT for Combustion Plants Operating in the Balancing Market, Final Report, dated June 2016.

5. Air Quality Assessment, Thurrock Flexible Generation Plant, For Statera Energy Limited – RPS, JAR03000, 21/08/2024.

6. RPS Memo Report, JAR03000, 14/10/2024 – Note sets out additional information with regards the air quality assessment for the Thurrock Flexible Generation Plant.

7. Acoustics & Air Quality Modelling & Assessment Unit (AQMAU), Audit of air quality assessment, EPR/MP3526SF/A001, Thurrock Flexible Generating Plant, AQMAU-C2928-RP01, 18 March 2025.

8. Schedule 5 Notice, dated 20 March 2025.

9. RPS Technical Note (794-ENV-EPC-20502): Response to Schedule 5 Requirement for Further Information, version 2.1, 16/05/2025.

10. RPS Technical Note (794-ENV-EPC-20502): Supplement to Response to Schedule 5 Requirement for Further Information, version 1.1, 27/05/2025.

11. Acoustics & Air Quality Modelling & Assessment Unit (AQMAU), Audit of air quality assessment, EPR/MP3526SF/A001, Thurrock Flexible Generating Plant – follow up, AQMAU-C3007-RP01, 18 July 2025 (RP01).

12. Stage 1 Habitats Regulations Assessment, Environment Agency record of screening for likely significant effects, Version: Final - 01/09/2025.

13. Application Bespoke A001 Internal Consultation – Fisheries, Biodiversity and Geomorphology (FBG) Response – 05082025.

14. Correspondence from Operator RE Operational Hours – 29072025.

15. Correspondence from Operator RE Operational Hours – 28082025.

16. Correspondence from Operator RE Operational Hours – 02092025.

17. Correspondence from Operator RE Operational Hours and 10 day Proposal – 12092025.

18. Correspondence from Operator RE Operational Hours and 5 day Proposal – 01102025.

19. Noise Impact Assessment for an Environmental Permit, Thurrock Peaking Plant, Ref: 64321_Report01_Rev10, Date: 27/05/2025.

20. Noise Management Plan, Thurrock Flexible Generating Facility, Version 04, dated 18/06/2025.

21. Acoustics & Air Quality Modelling & Assessment Unit (AQMAU), Audit of Noise Impact Assessment EPR/MP3526SF/A001, Thurrock Flexible Generating Plant, AQMAU-C3015-RP01, 06/06/2025.