

# Thurrock Power Ltd Comments on Gravesham Borough Council Deadline 4 Submission

## Deadline 5



## 1 THURROCK POWER LTD COMMENTS

- 1.1.1 This document provides the applicant's comments on matters raised in relation to air quality in Gravesham Borough Council's Written Representation at Deadline Four (REP4-023).
- 1.1.2 Detailed comments on the matters raised by Gravesham Borough Council are provided in the table overleaf.
- 1.1.3 To aid understanding of the discussion on each issue, points from Gravesham Borough Council's initial Written Representation submission (REP2-066) and Thurrock Power Ltd's response at Deadline 3 (REP3-007) are shown in the left-hand columns of the table, with the latest Gravesham Borough Council submission at Deadline 4 (REP4-023) and Thurrock Power Ltd's response for Deadline 5 shown in the right-hand columns.
- 1.1.4 As set out in the applicant's Deadline 3 submission, the applicant agrees with Gravesham Borough Council that air pollution should be controlled at source. With respect to air quality management areas (AQMA) designated due to high levels of traffic-source pollution, the dominant source to control is traffic in Gravesend.
- 1.1.5 Thurrock Flexible Generation Plant's traffic, in construction or operation, will not travel in or near the Gravesend AQMA. Thurrock Flexible Generation Plant's air pollutant emissions in operation will be controlled at source by its Air Pollution Control (APC) system, as regulated by the Environmental Permit and including the permitting requirement to apply Best Available Techniques (BAT) for APC.
- 1.1.6 Technical responses are made to questions raised by Gravesham Borough Council in the table overleaf. There is no change in the approach or conclusions of the air quality impact assessment.



Gravesham Borough Council Comment	Thurrock Power Ltd Response	Further Gravesham Council Comment	Further Thurrock Power Ltd Response
<p>Bureau Veritas (BV) have also reviewed the air quality material where they find that there are some deficiencies in the analysis and a need for further clarification. In particular they say that:</p> <ul style="list-style-type: none"> <li>On construction 'it is considered that the conclusion that the change in emissions from construction is 'negligible' is robust and defensible'</li> <li>However on operation: – "The short-term and long term contour plots do not seem to match results within the tables. There is a conflicting long-term contour plot in Appendix 12.8.</li> </ul>	<p>In response to the comments on operation:</p> <p>The response to ExQ1 acknowledged that mis-match in the short-term and long-term contour plots and those errors were corrected in response to ExQ1, with the correct contours having been provided in supporting document AQ-1 (RE2-044).</p>	<p>There do not appear to be amended contours in AQ-1 (<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010092/EN010092-001192-AQ-1_Air_Quality_Baseline.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010092/EN010092-001192-AQ-1_Air_Quality_Baseline.pdf</a>) (<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010092/EN010092-001192-AQ-1_Air_Quality_Baseline.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010092/EN010092-001192-AQ-1_Air_Quality_Baseline.pdf</a>). We are not able to provide comment on whether these have been correctly updated.</p>	<p>Amended contours were included in AQ-3 (REP2-044) (<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010092/EN010092-001194-AQ-3_Nitrogen_Dioxide_Contours.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010092/EN010092-001194-AQ-3_Nitrogen_Dioxide_Contours.pdf</a>)</p>
<p>For the additional roads modelling within Gravesham, details of the model verification are not provided and it is stated that 'a ratio has been used as an adjustment factor' and the ratio is not clearly provided.</p>	<p>Details of the model verification were given in Appendix 12.8 (APP-108), Section 1.2 which provides a comparison of modelled and monitored concentrations in 2018. The ratios used as an adjustment factor for each receptor are shown in the last column of Table 1.2 of Appendix 12.8.</p>	<p>The verification process used is not in line with Box 7.17 of TG(16). We would need to complete further analysis as to whether the method used is appropriate as it deviates from the technical guidance.</p> <p>However, additional clarity is sought as to how there appears to be an increase between the 2018 monitoring concentration and the 2022 modelled baseline concentration in Table 1.3 of Appendix 12.8. It would be expected that the concentration would reduce in line with national projections.</p>	<p>The verification process did not use Box 7.17 of TG(16) because of the method used to derive the model adjustment factors.</p> <p>Individual adjustment factors for <u>each monitoring location</u> were derived by examining the ratio between the modelled and monitored NO<sub>x</sub>. This was instead of the TG(16) Box 7.17 guide approach of deriving one <u>overall</u> adjustment factor for the whole study area. The choice to use a refined approach with individual adjustment factors was made because a single overall adjustment factor would overestimate concentrations in some locations and underestimate elsewhere; the location-by-location approach is more accurate.</p> <p>Box 7.17 of TG(16) sets out three statistical parameters to help describe model uncertainty and evaluate model performance. These would usually be used when a single overall adjustment factor is derived to help describe whether the model is generally over- or underestimating concentrations at most locations; however, this approach is not required and cannot be meaningfully applied where specific, individual adjustment factors have been derived for each location.</p> <p>Concentrations reported for 2018 were lower than in 2022 because of the height at which the concentration was predicted. Concentrations in 2018 were predicted at the actual height of the samplers at the monitoring locations. This was because the purpose of that exercise was to allow a comparison of the modelled and monitored concentrations to help derive adjustment factors to ensure that the model was not underpredicting.</p> <p>Concentrations in 2022, 2025 and 2030 were predicted at the typical breathing height of sensitive receptors, because the purpose of these predictions is to assess impacts on those receptors. As the latter is usually lower than the height of the samplers, the concentrations reported for 2022 were in some cases greater than those reported for 2018.</p> <p>Particularly where the main source of air pollution is road traffic, the concentration is lower at a greater height (away from the pollution source, which is close to ground level).</p>
<p>It is not clear what background concentrations were used for the purpose of the additional Gravesham traffic assessment and the traffic data used in the modelling is not provided.</p>	<p>The background concentrations and the source of the traffic data are given in Appendix 12.8 Paragraph 1.2.1, which states: "Traffic data from the Department for Transport (DfT) website for 2018 was used in the roads modelling. The baseline concentrations used are the same as (or the nearest/most representative) the baseline concentrations used by GBC in its 2019 Annual Status Report, Table C.2 – Fall-off Distance Correction (GBC, 2019)"</p>	<p>We would seek to clarify the road speeds used in the model and how the congestion around GR13 has been modelled.</p>	<p>Speeds of 48 kmph were used on all road links within the roads modelling. Speeds were reduced by 10 kmph close to junctions and roundabouts. The section of road to the west of GR13 had a speed of 38 kmph and the section of road to the east had a speed of 48 kmph.</p> <p>With regard to the effect of congestion on baseline air pollutant concentrations at receptor GR13, this is specifically accounted for by the model adjustment factor derived for this monitoring location. The modelled concentration is adjusted for consistency with the monitored concentration at that location, which reflects the influence of any prevailing congestion/low speed conditions.</p>
<p>There is no discussion of short-term exceedances in the additional assessment of Gravesham.</p>	<p>The short-term impacts were considered in Chapter 12: Air Quality (APP-061) and Chapter 25: Cumulative Environmental Assessment, Air Quality (APP-074). Paragraph 2.2.31 of Chapter 25 states:</p>	<p>Whilst it is accepted that it is unlikely that there are exceedances of the short-term NO<sub>2</sub> objective, confirmation of modelled short-term concentrations at receptors within Gravesham would be expected to be rationalised in the context of the assessment.</p>	<p>Short-term NO<sub>2</sub> concentrations were predicted in Table 2.4 of Chapter 25: Cumulative Environmental Assessment, Air Quality (APP-074) and the impacts considered to be not significant. Receptors 9, 10, 11, 46 and 47 are within Gravesham. For these receptors, the cumulative Predicted Environmental Concentration (PEC) was, respectively, 61%, 49%, 52%, 36% and 52% of the Air Quality Assessment Level. As the cumulative PEC for all receptors modelled in Gravesham are well below the Air Quality Assessment Level, the short-term effects would be not significant.</p>

	<p><i>“For all receptors the cumulative PEC is less than 70% of the AQAL of 200 µg.m-3. This demonstrates that there is considerable headroom between the short-term AQAL and the</i></p> <p><i>PEC”</i>. As there were no predicted exceedances of the short-term objectives, the discussion in Appendix 12.8 focused on annual-mean concentrations only.</p>		
<p>Further advice has been sought from the consultants taking into account the questions posed in ExQ1 to the applicant: 1.1.3, 1.1.4 and 1.5.7.</p> <p><i>1.1.13 Explain the adverse impact on air quality at receptor 9 – Gravesend one way system. BV comment that “additional work including modelling of additional receptors around ‘Receptor 9’ and GR13 (West Street) has been completed by the applicant in appendix 12.8. This additional work confirms that the AQAL is predicted to be exceeded at receptors adjacent to West Street as a result of the development (Paragraph 1.3.11 of Appendix 12.8). This is true in both the 2022 and 2025 modelled scenarios. This is as a result of the effect of traffic emissions and process contribution from the proposed development. Without the development in place the pollutant concentration at these receptors is above 40ug/m3. Given that the sensitivity of the site increases at higher pollutant concentrations, the effect is considered ‘moderate adverse’”.</i></p> <p><i>1.1.14 Asking the applicant why air quality exceedances in Tilbury and Gravesend have not been addressed in the Environmental Statement. This comment relates only to the situation in Gravesend. BV comments that “it is our understanding that the effect of the development on air quality has been identified as ‘Moderate adverse’ in the Environmental Statement at affected sensitive receptors in Gravesend. This has been identified through use of the industry standard IAQM/EPUK Guidance document – ‘Land-use planning and development control: Planning for Air Quality’. It is not accepted that, given the evidence provided, the effect is ‘not significant’ as stated in ES Chapter 12, paragraph</i></p> <p><i>5.1.5.”</i></p> <p><i>1.5.7 Asking the applicant to comment on the exceedance in air quality at point 47 (A227 Wrotham Road in school grounds and at the north west corner of the Mid Kent Golf Course). BV state “it appears that the applicant has used a background concentration close to the AQAL of 38.6µg/m³ based on the concentration monitored at location ‘GR57’. This is a ‘roadside’ monitoring location within the Old Road West</i></p>	<p>Appendix 12.8 notes that in 2025 concentrations at West Street are predicted to exceed the Air Quality Assessment Level (AQAL) with or without Thurrock FGP. The existing background concentrations and traffic on the Gravesend one-way system (designated in 2005 due to elevated NO<sub>2</sub> levels from traffic) remain the major sources of elevated concentrations at West Street. Para 1.3.1 of Appendix 12.8 describes the small contribution from Thurrock FGP, a predicted NO<sub>2</sub> increase of 0.6 µg.m-3 at West Street. This is only 1.5% of the AQAL of 40 µg.m-3 and 1.3% of the cumulative predicted environmental concentration (PEC) of 44.9 µg.m-3 predicted in 2025 at GR13.</p> <p>The small incremental contribution that is emissions from Thurrock FGP will indeed be controlled at source: an air pollution control (APC) system will be used to control emissions at source to ensure that the emissions limits set out in the Industrial Emissions Directive, and on which the modelling is based on, are met. Regulatory control once operational would be through the Environmental Permitting Regime as outlined in paragraph 2.8.8 of Chapter 2: Proposed Development (APP-045):</p> <p><i>“Environmental management of the flexible generation plant will be regulated by the Environment Agency using the facility’s Environmental Permit, which will specify operating techniques and will include a regular schedule of audits. The permit will also regulate discharges and emissions from the facility, specifying limits, monitoring and reporting of these. Thurrock Power will implement an ISO14001 or equivalent Environmental Management System (EMS) as required by the Environmental Permit”.</i></p> <ul style="list-style-type: none"> <li>• Future vehicle emissions are expected to decrease and Appendix 12.8 shows that based on Defra’s traffic emission factors, the concentrations at West Street (and at all modelled receptors in Gravesend) are predicted to meet the air quality objective by 2030, with the Thurrock FGP operational.</li> </ul>	<p>It is accepted that emissions will be controlled at source, though the effect of these controls has not been quantified and the results presented in the assessment still show that there would be a ‘moderate adverse’ effect at GR13 as a result of Thurrock FGP in 2022 in line with the IAQM guidance.</p> <p>As above, as emissions from traffic are expected to reduce, clarification is sought as to the increase from 2018 of 47.1µg/m³ to 2022 of 48.4µg/m³ modelled concentration at GR13 and other modelled increases between 2018 and 2022.</p>	<p>The predicted concentrations in the air quality assessment are based on a number of conservative assumptions (engine type, stack configuration, background concentration used) and actual concentrations are likely to be lower than predicted. Under these conservative assumptions, the predicted concentrations showed a ‘moderate adverse’ effect at GR13 for 2022 and 2025 using the impact descriptors in the EPUK&amp;IAQM <i>Land-Use Planning &amp; Development Control: Planning for Air Quality</i> guidance</p> <p>This impact at one receptor does not mean the effect of the development is significant, as outlined explicitly in paragraph 7.4 of the EPUK&amp;IAQM guidance: <i>“The assessment framework for describing impacts can be used as a starting point to make a judgement on significance of effect, but there will be other influences that might need to be accounted for. The impact descriptors set out in Table 6.3 are not of themselves, a clear and unambiguous guide to reaching a conclusion on significance. These impact descriptors are intended for application at a series of individual receptors. Whilst it may be that there are ‘slight’, ‘moderate’ or ‘substantial’ impacts at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances.”</i></p> <p>Predicted concentrations are only expected to exceed the Air Quality Assessment Level for a few receptors around West Street in 2022 and 2025. Without the Thurrock FGP development, the concentrations are also predicted to exceed the Air Quality Assessment Level. The main source of pollution in the area is from existing traffic emissions.</p> <p>Furthermore, as development consent (if granted) would now be in place by Q1 2022 at the earliest, and the first full year of operation is in practice likely to be no earlier than 2024, at which time the predicted background concentrations will be lower than those predicted for 2022.</p> <p>Therefore the overall conclusion of the assessment is unchanged and the effect of the development is not significant.</p> <p>As clarified above, reported concentrations for 2018 were lower than those reported for 2022 because of the height at which the concentration was predicted. Concentrations in 2018 were predicted at the actual height of the samplers at the monitoring locations. This was to allow a comparison of the modelled and monitored concentrations to help derive adjustment factors to ensure that the model was not underpredicting. Concentrations in 2022, 2025 and 2030 were predicted at the typical breathing height of sensitive receptors. As the latter is usually lower than the height of the samplers, the concentrations reported for 2022 were in some cases higher than those reported for 2018.</p>

<p>Junction AQMA (see footnote 3 for link to map). With the effect of additional roadside and process emissions included, this results in the predicted exceedance of the AQAL at this committed development.”</p> <p>• There is therefore in the view of the Borough Council that there is a significant air quality issue in West Street, Gravesend as a result of the proposed development. The one-way system round the Town Centre is an Air Quality Management Area already due to impacts of pollution from traffic flow and the impact of built form. The applicant is not responsible for the base conditions, but is for the increment. This is despite the relatively infrequent operation of their facility. This is a matter that should be tackled at source and the Council will discuss the matter with the applicant</p>			
<p>One of the unclear matters is what traffic levels assumed in the modelling for the one way system. It is not clear what flow data has been used and whether it reflects recent permissions and forthcoming proposals.</p>	<p>Traffic flow was assumed to remain constant at 2018 levels. Department for Transport traffic data indicates that traffic flows in the area are generally decreasing and this was therefore a reasonable assumption.</p>	<p>Section 6.2.2 of the IAQM/EPUK ‘Lane-Use Planning for Development Control: Planning for Air Quality’ Guidance states: <i>The report prepared detailing the results of the assessment should contain the following information (but not necessarily in this order):</i></p> <p>...</p> <p><i>Cumulative impacts and effects. In many cases, the impact of the development being assessed will have a cumulative effect with other planned developments, which may or may not have planning permission. Where these developments have been granted planning consent and are therefore ‘committed’ developments, their impacts should be assessed cumulatively with those of the application site. The contribution of these committed developments should be accounted for in the ‘future baseline’, provided that their contributions can be quantified.</i></p> <p>As the effects of committed development traffic from the following schemes (in accordance broadly with sites allocated the Local Plan Core Strategy 2014) in Gravesend Town Centre has not been considered, there is the potential that the traffic model is under predicting future conditions:</p> <ul style="list-style-type: none"> <li>• Clifton Slipways, West Street (permitted 227 units)</li> <li>• M Block, Clifton Road (115 units permission subject to s.106)</li> <li>• The Charter, Crooked Lane/The Terrace (permitted 242 units)</li> <li>• Canal Basin, Canal Road (planning application for 1500 homes under consideration)</li> <li>• St George’s Phase 2, Bath Street/West Street (application under preparation)</li> </ul>	<p>At the time of the assessment (February 2020) data were not available for three of the committed developments listed; therefore the effects on air quality could not be considered.</p> <p>Nevertheless, the predicted concentrations in the air quality assessment are based on a number of conservative assumptions (engine type, stack configuration, background concentration used).</p> <p>In particular, with regard to background air pollution levels from other sources, the assessment took the conservative position that background annual-mean NO<sub>2</sub> concentrations would not have decreased in future years. The background concentrations used are conservative because after a prolonged period through the last decade where background annual-mean NO<sub>2</sub> concentrations did not generally decrease in line with expectations, the most recent monitoring studies indicate ambient traffic-related NO<sub>2</sub> concentrations are now falling.</p> <p>Therefore, the presence of any traffic generated by committed developments (if these are consented, implemented and not themselves subject to mitigation of traffic-source air pollution) is not expected to alter the overall conclusion of the assessment. This is because any increase in traffic emissions from committed developments is expected to be offset by the ongoing reduction in background air pollution concentrations.</p> <p>At GR13, the Defra mapped background concentration estimate for 2022 is 2.7 µg.m<sup>-3</sup> lower than in 2018. For 2025 and 2030, the background concentration is expected to be 4.0 and 5.5 µg.m<sup>-3</sup> lower than in 2018. Therefore, any increase in traffic is unlikely to offset this reduction, especially as more electric and efficient vehicles become an increasing proportion of the fleet.</p>