DRAFT

Emissions Reduction and Management Plan

Virtus 7.5

Virtus Holdco Ltd

Project reference: 77241/APP/2022/1407
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DRAFT

Delivering a better world

Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position

Distribution List

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1. Introduction

1.1 Planning permission reference 77241/APP/2022/1407 was issued by the London Borough of Hillingdon (LBH) subject to a number of conditions, including Condition 11 which relates to preparation of an Emission Monitoring Plan (which has been developed and provided to LBH and is awaiting a response) and Condition 10 which requires the preparation of an Emissions Reduction and Management Plan (ERMP). Condition 10 states:

"Prior to operation of the development, or each development phase, an Emission Reduction and Management Plan (ERMP) for the development, shall be submitted to and approved in writing by the Local Planning Authority. This shall outline and commit to a programme for carrying out a viability study to review emissions performance and alternative options for the diesel backup units, with clear time scales, to be submitted no later than year 21. The viability study shall be based on the BAT (best available technology) principle giving weigh to sustainability principles and aligned with the objectives of the Borough on improving air quality. This shall include but is not limited to the following:

(i) A review of options for reducing NOx and PM2.5 emissions impacts for the National Grid power failures;

(ii) A review of options for reducing NOx and PM2.5 emissions for the testing and maintenance regimes;

(iii) A review of options for reducing NOx and PM2.5 emissions by improved SCR systems /alternative retrofitting systems

(iv) A review of options for reducing NOx and PM2.5 emissions by alternative fuels/technologies

(v) A feasibility study including benefit analysis for potential upgrades of the backup generators or other changes to infrastructure (e.g. SCR), type of fuel, generator type and operational regimes on site that could reduce emissions over time; alternative emergency backup solutions are to be also evaluated, e.g. fuel cells, etc.

(vi) Use of the above information to propose appropriate changes in the generators type, selection of generators or other potential options for decreasing emissions over time no later than year 21; and

(vii) Proposal of an appropriate timescale for improvements.

Thereafter the development shall be implemented and operated in accordance with these details.

1.2 Additional discussions were also held between representatives from Virtus, LBH and AECOM in order to further define the requirements of Conditions 10 and 11 and a memo produced by AECOM (appended as Appendix A).

1.3 This document has been prepared in order to meet the requirements of Condition 10.

2. Plan

2.1 The aim of this ERMP is to minimise the emissions associated with the additional back-up generators to be installed at the site over the longer term by maximising the use of any new or improved relevant technology. The development has been approved (subject to conditions) for a period of 30 years and it is hoped that actions set out within this ERMP will ensure that the associated emissions will be temporary.

2.2 Details of the plan are set out below, with a timetable set out in Table 1.

Annual Emissions Data

2.3 Emissions data will be calculated and submitted on an annual basis following the methodology set out within the EMP. This data will also be evaluated by Virtus on a 5 yearly basis (as a minimum) in order to

ensure that appropriate actions are taken to minimise any exceedance of the agreed emissions limits as set out within the EMP. This requirement is part of the Emissions Monitoring plan, however, it is repeated here for information as the resulting data will inform the viability study.

Viability Study

2.4 The Viability study will be conducted in order to evaluate the viability of any alternative technology and or processes in order to reduce the emissions of NO_X and/or $PM_{2.5}$. The Viability Study will review emissions performance and available technology based on BAT (Best Available Technology). This will aim to identify how advancements in technology or processes could be used to:

- Reduce the emissions associated with national grid failures
- Reduce the emissions associated with testing and maintenance regimes
- Improve SCR and/or alternative retrofitting emissions reduction systems
- Reduce emissions by the use of alternative fuels/technologies

2.5 Benefit analysis will be carried out relating to the potential for upgrades to the backup generators or other changes to infrastructure, fuel type, generator type, and operational regimes to reduce emissions from the site. Alternative backup solutions will also be evaluated, such as battery backup, fuel cells and secondary power supply.

Proposed Improvements

2.6 Proposed upgrades to the backup generators or other changes to infrastructure, fuel type, generator type, and operational regimes to reduce emissions from the site or any other changes identified as a result of the Viability Study will be issued to LBH no later than the end of year 21. This will include a details of how the proposal will reduce emissions as well as a timetable for the improvements. Following agreement, the proposals will be implemented in accordance with the agreed details, or in accordance with any revised planning or other agreement developed as part of the improvements.

2.7 Whilst some improvement may be viable within the span of the development (30 years), it is also expected that identified improvements or revisions will be utilised provide the basis for any new emergency energy strategy to replace the permitted development following the approved 30 year period.

Table 1. ERMP Timetable

Year	Action
1	
2	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
3	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
4	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
5	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
	Evaluate emissions monitoring data against agreed limits.
6	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
7	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
8	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
9	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
10	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations

Year	Action
	Evaluate emissions monitoring data against agreed limits
11	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
12	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
13	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
14	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
15	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
	Evaluate emissions monitoring data against agreed limits
16	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
17	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
18	Submit emissions monitoring data for previous year including comparison against amount accounted for within damage cost calculations
19	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
20	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
	Evaluate emissions monitoring data against agreed limits
	Commence Viability Study
21	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
	Submit outcomes of viability study
22	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
23	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
24	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
25	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
	Evaluate emissions monitoring data against agreed limits
26	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
27	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
28	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
29	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations
30	Submit emissions monitoring data for previous year, including comparison against amount accounted for within damage cost calculations

2.8 No review of emissions monitoring data has been included for year 30 as no suggested improvements at this stage could impact emissions during the approved length of the development.

3. Review

3.1 The ERMP and its associated timetable will be reviewed to ensure it remains appropriate at the following intervals:

a. Prior to the commencement of each phase of development;

b. As a minimum, every 5 years following the review of emission levels against agreed limits;

c. Following the completion of the Viability Study; and

d. In the event that changes to Policy or regulations introduce new requirements.

Appendix A - Air Quality Conditions Memo

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Project name:
Virtus Tiered Gantry

Project ref:
77241/APP/2022/1407

From:
Barry Roberts

Date:
27 October 2022

To:
London Borough of Hillingdon
c/o Dr Ana Grossinho
Air Quality Experts Global
[by email only]

CC:
Val Beale – LB Hillingdon
Helen Kinsman, Peter Betts – Virtus Data Centres
Nick Green – Savills

Memo

Subject: Air Quality Conditions

Dear Ana,

Thanks again for making the time to speak to Helen and I yesterday. This memo provides a summary of the Applicant's thoughts in light of recent engagement on the matter of air quality conditions for the proposed four additional generators to be deployed at the existing LONDON7 data centre. As a note for context/clarity, these four additional generators and associated elements of the proposal have been informally referred to as "LONDON7.5" (as an inference to an extension to the existing LONDON7 data centre). As discussed, the Applicant will look to provide the LPA with a document which clearly defines the context and strategy of how these four proposed additional generators integrate with the existing data centres within the wider campus.

The first section of this memo relates to a revised damage cost assessment, while the second section sets out the Applicant's proposed approach to content/commitments which would be enshrined within an Emission Reduction and Management Plan to be subsequently submitted to the LPA. We would value your and the Council's feedback ahead of preparing a formal submission.

1. Environmental Damage Cost with SCR NOx Abatement

The 30-year environmental damage costs for the four generators have been revised, assuming the following:

- Generator run times and run scenarios are consistent with what has been previously prepared and submitted;
- NOx emissions from any generator operation longer than 20 minutes after starting have been assumed to be reduced by 87% to account for the expected effect of SCR abatement ("NOx scrubbers");
- Unit damage costs for "Part A – Category 3" have been used. We note the recent feedback received in relation to this assumption (and the suggestion that the "Commercial" category could be more appropriate in this instance). However it is expected that the additional four proposed generators would be required by the Environment Agency to be incorporated, via variation, to the over-arching, campus-wide environmental permit, which is for a Part A installation.

The revised 'Central Estimate' damage cost is £42,478, while the 'High Sensitivity Estimate' damage cost is £153,641. A copy of the updated calculations is attached.

2. Emission Reduction and Management Plan

A. The Plan would be based upon a 30 year period (linked to the expected generator life cycle).

B. At each year following commencement of operations, the collected emission monitoring data shall be submitted to the LA to verify the generators' emission performance and compare real world annual emissions with the annual emissions on which the damage cost was calculated. Any shortfall against the assumed emission performance assumed shall be calculated and submitted to the LPA no later than end of first month of year of monitoring +1.

   Should the total annual emissions for NOx and/or $PM_{2.5}$ be higher than the accounted for in the damage cost calculations, the LA will be entitled to seek a proportionate payment by the Applicant to contribute funding towards the London Borough of Hillingdon's Local Air Quality Action Plan to further protect residents from exposure to local pollution levels. The calculations are to be based on g/s per backup generator at 5% O_2, multiplied by the total operating hours (testing + maintenance, etc.) to derive annual emission in tonnes/year which would then be valued using the damage cost calculation approach.

C. Every 5 years from commencement of operation of the generator sets, the Applicant will undertake an evaluation of cleaner technologies available at that time, aimed at identifying progressions/developments in technology which may have applicability and relevance to reducing emissions associated with back-up power supply. The Applicant will feed back to the LPA, the findings of these evaluations, along with details of any emission reductions realised in the preceding 5 year period due to any interventions (operational or infrastructural) taken.

D. In Year 30 of operation of the proposed development, the evaluation of cleaner technologies available at that time will be supplemented by a commitment to engage the LPA to a way forward to implementing cleaner technologies (including the scope and timeline). This will be supported by a cost benefit analysis to be undertaken by the Applicant and shared with the LPA, as well as consideration of broader sustainability principles.

E. The Plan will include:

   i. an emission monitoring program by the Applicant to track emissions performance during operation. This will include a commitment to agreeing a strategy and timeline for implementing corrective measures with the LPA in the event that emissions are determined to be significantly higher than the tabulated Year 0 operation emissions;

   ii. a description of committed measures to be deployed to secure regular and proper maintenance of the generators and associated emissions abatement equipment;

   iii. any additional requirements as per the EA permit.

Enclosed:

Air_Quality_Damage_Cost_Appraisal_Toolkit_SCR Scenario_30Year_Rev1.xlsx

--END--