Submission	
Submitter:	Miss Selina Gallagher
Organisation Name:	Health Service Executive, Environmental Health Service
Submission Title:	HSE Report P01203-01
Submission Reference No.:	S011320
Submission Received:	28 September 2023
Application	
Applicant:	Vantage Data Centers Dub11 Limited
Reg. No.:	P1203-01

See below for Submission details.

Attachments are displayed on the following page(s).

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Health Service Executive

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Office of Environmental Sustainability
Environmental Protection Agency
PO Box 3000
Johnstown Castle Estate
Co Wexford

26 September 2023

Applicant: Vantage Data Centers DUB11 Ltd.
Proposal: Industrial Emission Licence Application for a Data and Energy Centre at Profile Park Industrial Estate, Clondalkin, Dublin 22

Dear Sir/Madam,

The HSE Environmental Health Consultation report regarding the above application is attached below. The following HSE departments were made aware of the consultation request for the proposed development on 3 August 2023.

- HSE Estates – Helen Maher/Stephen Murphy
- Emergency Planning – Brendan Lawlor
- Director of National Health Protection – Eamonn O'Moore
- CHO – Mary O'Kelly

All commitments to future actions including mitigation and further testing have been taken as read and all data results have been accepted as accurate. No additional investigations or measurements were undertaken. This report only refers to those sections of the documents which are relevant to the HSE.

If you have any queries regarding the report, please contact me.

Yours Sincerely,

Patricia Doona

Principal Environmental Health Officer

22 September 2023

EHIS Reference No. 3331

HSE EIS SUBMISSION REPORT
Environmental Health Service Consultation Report

Report to: Environmental Protection Agency
Type of consultation: Industrial Emissions Licence
Reference Number: P01203-01

Applicant: Vantage Data Centers DUB11 Ltd.
Proposal: Industrial Emission Licence Application for a Data and Energy Centre at Profile Park Industrial Estate, Clondalkin, Dublin 22

Introduction
This report only comments on Environmental Health impacts of the Industrial Emission Licence Review Application and reports submitted by the applicant on the EPA website. The Environmental Health Service (EHS) has made observations and submissions on the following specific environmental health areas.

1. Description of proposed development
The applicant has received planning permission for the construction of 2 no 2 storey data centres (Northern DUB11 and Southern DUB12), each with a double stacked bank of backup electricity generators (diesel powered) adjacent to the data halls. The applicant advises that the generators will be used to generate electricity in the event of an interruption to the electricity supply to the site from the on-site energy centre. In addition to this emergency operation, the applicant advises that each generator will be operated for less than 18 hours per annum to allow for maintenance.

The applicant intends to develop a multi-fuel generation plant (MFGP) which will use natural gas and hydrotreated vegetable oil (HVO) to produce electricity to power the data centre. It is understood that the MFGP will be fuelled using hydrotreated vegetable oil until the natural gas connection becomes available. This HVO will be used as a secondary fuel for the MFGP and 72 hours of fuel will be stored in a 2 million litre fuel storage facility beneath the MFGP facility.

The EIAR advises that the MFGP will operate as a peaking power unit, the main electricity supply for the development will be provided by ESB. When the EirGrid connection is available, the MFGP will produce equal energy to the amount used on site and will provide supply to the electricity infrastructure in the event of local grid network failure.
The site is located approximately 10km from Dublin City Centre within Profile Park Industrial Estate, Clondalkin, Dublin 22. The surrounding area is industrial to north and west, agricultural to the south and west. There are commercial and residential properties to the east and Grange Castle Golf club to the South East. There are rail and tram stations 3 and 4 Km from the site, with a bus stop 600m from the site. The EIAR states that there are good quality pedestrian and cycle routes in the vicinity of the site.

The construction phase of this development has commenced and is expected to continue until the end of 2024.

2. Non-Technical Summary

Two non-technical summaries were found in the applicant documents section of the EPA website. There is a substantial summary which fully describes the project and a further six page summary is also provided. This brief document does not adequately describe the proposed development. There is an error in the second paragraph as follows: "The installation comprises three data halls". It did not adequately describe the proposed infrastructure associated with this development or outline any alternatives as required by legislation. The summary referred to the "Total thermal Input" of the development without any further explanation of this term or any context within the summary. This brief 6 page non-technical summary may be the only source of information for a local resident regarding this development, it is recommended that this summary is removed from the EPA website.

I did not find any reference to any public consultation regarding the licence application in the documents on the EPA website.

2. Air

Chapter 8 of the EIAR outlines the likely significant air quality effects to arise from the proposed development. The applicant established the baseline air quality conditions using data from the EPA's continuous monitoring network. The applicant advises that the main air pollutants of concern are dust and particulate matter which will be generated during demolition and construction activities, and nitrogen oxides (NOx) represented as nitrogen dioxide (NO_2) generated by combustion engine emissions and road traffic.

The EIAR outlines the main emissions to air which are anticipated during the construction phase of the project. Control measures are outlined in the Construction and Environmental Management Plan (CEMP). These mitigation when implemented fully should ensure there are no significant effects on air in the vicinity of the development during the construction phase.

The existing air quality monitoring data from local stations in the vicinity of the development would indicate compliance with Air Quality Standards for NO_2 and particulate matter (PM10 & PM 2.5). The EIAR advises that the site is surrounded by commercial and industrial areas with 1 residential property within 75m of the development, there are several other residential receptors approximately 500m from the site.

Predictive air dispersion modelling was carried out by the applicant for the 2 phases of the development to predict the annual and hourly mean concentrations of NO_2 at nearest sensitive receptors. This modelling predicted the process contribution from the development site and predicted environmental concentration. The applicant concluded that the localised air quality effects of the operation of the development are either short or long term, negative and imperceptible i.e. not significant in terms of EIA.

The applicant makes the following statement regarding the operation effects, "8.167 The potential impact to air quality during the operation stage of the proposed development is a breach of the ambient air quality standards because of air emissions from the proposed development MFGP and emergency engines. The modelled predicted concentrations are below the relevant objectives at all the existing receptor locations for the operation stages".
The applicant states that phase 1 will consist of the operation of DUB11 with 22 emergency generators. An assessment of phase 1 operation with emergency generators operating for 780 hours indicated that the closest receptor, R1, may be exposed to a predicted environmental concentration of NO_2 which is 60.3% of the annual mean Air Quality Standard for NO_2.

I could not establish from the EIAR how long the emergency generators may be required to operate during Phase 1 until the MSGP plant is operational. The EHS recommends that the applicant provides further information regarding the length of time the emergency generators may operate during Phase 1 and ensures that the impact on the local air environment is fully assessed. The EPA must be satisfied that the proposed development will be in compliance with Air Quality Standards throughout every stage of the development to protect public health.

(**Note:** There is a discrepancy in table 8.14 and 8.15 regarding the hours of operation – applicant should clarify if the assessment was carried out over 680 or 780 hours)

3. Odour

The applicant states in section 8.16 of the EIAR that the operation of the proposed development is not expected to give rise to any odour impacts and was not considered any further during the EIA process.

4. Noise

Chapter 9 of the EIAR outlines the impact the proposed development may have on the noise environment during the construction and operational phases of the development.

The EIAR and CEMP outlines mitigation measures for the control of noise during the construction phase of the development. It is of utmost importance that the applicant implements the proposals regarding community engagement and liaison to ensure that members of the public may contact the applicant or contractor to ensure that complaints can be dealt with an efficient and effective manner. The EHS is satisfied that these measures should prevent a noise nuisance arising during the construction phase and ensure the protection of public health.

The applicant outlined the methodology used to establish the baseline or background noise environment in the vicinity of the site. There are a number of noise sensitive receptors within 500m of the proposed development with 1 receptor approximately 75m from the development site. Noise monitoring during daytime hours at location ST1 and ST6 would indicate L_{AEQ} noise levels of up to 69dB and up to 54dB at night time.

The applicant used standard methodology to predict the operational noise from the proposed development and presented the modelled noise emissions for each operational scenario. This modelling indicated that for Scenarios 1-3 (non-emergency operations), the applicant predicts a "slight, negative and not significant" effect. A similar prediction is made for emergency operation scenarios.

The following table from the EIAR outlines the phasing of the development and indicates the applicant's intention to have DUB11 constructed and operational with 22 emergency generators in Q4 of 2023.

Table 4.4: Development Phasing		
Phase	**Detail**	**Indicative Construction Completion and Start of Operation**
Phase 1	• Site infrastructure works, landscaping and Baldonnel Stream enhancements constructed. • Sustainable Drainage System (SuDS) drainage constructed. • AGI Plant/Gas Regulator constructed. • Step-up Transformers. • DUB 11 constructed and operational with 22 emergency generators. • North MFGP constructed and operational. South MFGP building / slab constructed but not operational. • Construction of the 20kV switchrooms.	Q4 2023
Phase 2	• DUB 12 constructed and operational with 14 emergency generators. • South MFGP generators installed and operational. • Remaining external works • Main power supply from EirGrid Substation to the south of Falcon Avenue for main power supply.	Q3/Q4 2024

This proposal is not considered in the scenarios outlined in the noise section of the EIAR. In this case, the plant would be operating under the emergency scenario for an unspecified period of time, 24 hours a day until a power supply is secured from Eirgrid or the MFGP.

Table 9.29 would indicate that some noise sensitive receptors would be exposed to excessive noise particularly at night from the plant if operating for long periods in the emergency scenarios.

Table 9.29: Predicted emergency operational building services noise at NSR at 1m from the façade with façade reflection				
NSR reference	**Emergency Noise Guideline Limit $L_{Aeq,1hr}$ (dB)**	**Predicted Emergency Noise Level $L_{Aeq,1hr}$ (dB)**		
		Scenario 1	**Scenario 2**	**Scenario 3**
1	55	51	52	53
2	55	42	44	44
3	55	49	50	50
4	55	41	44	43

It is not acceptable to expose local residents to excessive noise for long periods of time particularly during the night. The perception of noise is subjective and may cause annoyance/nuisance to local receptors even when levels comply with limits set at site boundaries. The applicant should clarify if it is their intention to commence the operation of the data centre using emergency generators and if so, the full impact of noise from the generators on noise sensitive receptors should be considered along with mitigation measures. The EPA must be satisfied that the operation of the proposed development will prevent a noise nuisance occurring at local sensitive receptors at all times in order to protect public health.

5. Water Resources and Flood Risk

Chapter 10 of the EIAR assessed the impact the construction and operation of the proposed development may have on water resources on flood risk effects. The applicant established the baseline characteristics of surface and ground water on the site using data from various studies, government bodies and South Dublin County Council.

The applicant identified the likely significant effects of the demolition and construction phase of the development and outlined several measures to protect local water resources during this phase. The EHS is satisfied that if these measures are fully implemented, they will be adequate to protect the local water environment and in turn, protect public health.

7. Climate Change

The Green House Gas assessment in the EIAR outlined that the completed development would result in between 6,757,028 and 152,210,999 tonnes CO_2e during the operation stage of the proposed development which would contribute between 0.35 and 8.3 % of Ireland's carbon budget for 2021 to 2035. The EIAR explains that the anticipated normal operation of the site with power from the EirGrid substation south of Falcon Avenue would represent 0.35% and the use of the MFGP 24/7 would contribute to 8.3% of Ireland's carbon budget.

Climate change is considered "the greatest global health threat of the 21st Century[1]". The Irish Government declared a climate and biodiversity emergency in 2019 and sets out a roadmap to halve emissions by 2030. It is incumbent on every energy consumer to reduce energy consumption and green house gas production to protect human health.

It is the view of the EHS that the IE licence should include conditions which require the applicant to continuously investigate and implement technologies which reduce GHG emissions and should consider the use of renewable energy resources on site for the creation of electricity.

Conclusions

1. Two non-technical summaries were found in the applicant documents section of the EPA website. There is a substantial summary which fully describes the project and a further six page summary is also provided. This brief document does not adequately describe the proposed development. There is an error in the second paragraph as follows: "The installation comprises three data halls". It did not adequately describe the proposed infrastructure associated with this development or outline any alternatives as required by legislation. The summary referred to the "Total thermal Input" of the development without any further explanation of this term or any context within the summary. This brief 6 page non-technical summary may be the only source of information for a local resident regarding this development, it is recommended that this summary is removed from the EPA website.

2. The applicant makes the following statement regarding the operation effects, "8.167 The potential impact to air quality during the operation stage of the proposed development is a breach of the ambient air quality standards because of air emissions from the proposed development MFGP and emergency engines. The modelled predicted concentrations are below the relevant objectives at all the existing receptor locations for the operation stages".
   The applicant states that phase 1 will consist of the operation of DUB11 with 22 emergency generators. An assessment of phase 1 operation with emergency generators operating for 780 hours indicated that the closest receptor, R1, may be exposed to a predicted environmental concentration of NO_2 which is 60.3% of the annual mean Air Quality Standard for NO_2.

[1] Managing the Health Effects of Climate Change, The Lancet, Vol 373, Issue 9676, May 2009

I could not establish from the EIAR how long the emergency generators may be required to operate during Phase 1 until the MSGP plant is operational. The EHS recommends that the applicant provides further information regarding the length of time the emergency generators may operate during Phase 1 and ensures that the impact on the local air environment is fully assessed. The EPA must be satisfied that the proposed development will be in compliance with Air Quality Standards throughout every stage of the development to protect public health.

3. The EIAR and CEMP outlines mitigation measures for the control of noise during the construction phase of the development. It is of utmost importance that the applicant implements the proposals regarding community engagement and liaison to ensure that members of the public may contact the applicant or contractor to ensure that complaints can be dealt with an efficient and effective manner. The EHS is satisfied that these measures should prevent a noise nuisance arising during the construction phase and ensure the protection of public health.

4. It is not acceptable to expose local residents to excessive noise for long periods of time particularly during the night. The perception of noise is subjective and may cause annoyance/nuisance to local receptors even when levels comply with limits set at site boundaries. The applicant should clarify if it is their intention to commence the operation of the data centre using emergency generators and if so, the full impact of noise from the generators on noise sensitive receptors should be considered along with mitigation measures. The EPA must be satisfied that the operation of the proposed development will prevent a noise nuisance occurring at local sensitive receptors at all times in order to protect public health.

5. Climate change is considered "the greatest global health threat of the 21st Century[2]". The Irish Government declared a climate and biodiversity emergency in 2019 and sets out a roadmap to halve emissions by 2030. It is incumbent on every energy consumer to reduce energy consumption and green house gas production to protect human health.

   It is the view of the EHS that the IE licence should include conditions which require the applicant to continuously investigate and implement technologies which reduce GHG emissions and should consider the use of renewable energy resources on site for the creation of electricity.

Carmel Lynch
Environmental Health Officer
Environment and Climate Change Network Support Unit

[2] Managing the Health Effects of Climate Change, The Lancet, Vol 373, Issue 9676, May 2009