



Submission

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Application

Applicant:	Vantage Data Centers Dub11 Limited
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See below for Submission details.

Attachments are displayed on the following page(s).

Submission on Application for Industrial Emissions Licence by Vantage Data Centres P1203-01 SD21A/0241**1. Introduction**

My main concern on the IE application P1203-01 is the climate impact of the development, which in my considered opinion has not been accurately assessed in the EIAR, has not been properly considered in the planning process, and consequently compromises achievement of legally binding national targets for 2030.

I am aware that the Industrial Emissions licensing process does not set limits on direct or indirect GHG emissions. However, this is within a regulatory framework where it is assumed that the potential climate impacts have been adequately addressed by the competent authorities during the planning process. This is not the case for the present application. While the EIAR identified a significant negative climate impact, this was not referred to in the South Dublin County Council (SDCC) planning decision (SD21A/0241). This constitutes a significant flaw in the environmental assessment which is the legal responsibility of the competent authority.

Ireland has carbon budgets established in law, but there is a gap in the regulatory system as to how emissions from new developments are assessed at a national level in terms of compliance with national targets. There is no national statutory body which can assess proposed developments with potential large GHG emissions with the authority to ensure equitable allocation of the remaining reduced national carbon budget. This heavy responsibility falls on the Planning Authorities, who may not have the necessary technical expertise and have been provided with absolutely no guidance on how to decide these matters. In granting planning permission for a large energy user development a planning authority is in fact assigning a portion of the small remaining carbon budget to the applicant.

In the case of the proposed Vantage Data Centre development the planning permission was granted despite an identified significant negative climate impact in the EIAR. There was no proposal by the applicant to significantly mitigate this impact. The proposed development will generate large direct emissions of GHG from the onsite Multifuel Generation Plant (MFGP) and indirect emissions from power plants supplying the national grid. Estimates of these emissions are provided in the EIAR. However, my considered opinion is that all of the estimates are grossly in error.

As the EIAR has been submitted in support of the IE licence application the EPA is legally obliged to review this document and to consider its adequacy, taking account of my submission which identifies a number of deficiencies and serious errors in the climate section of the EIAR.

2. Climate Impact Identified in EIAR and Flawed EIA by SDCC

The methodology used for assessment of climate impact in the EIAR was based on guidance published by the Institute of Environmental Management (IEMA). Under these guidelines a project which results in an increase in GHG emissions or which does not align with the desired national GHG reduction trajectory is considered to have a significant adverse impact (in the EIAR the word “negative” is used instead of “adverse”, but has the same essential meaning).

As the proposed development will result in an increase in GHG emissions it was therefore correctly assessed as having a significant negative impact. This is stated in the EIAR as follows:

“13.101 However, with the embedded mitigation measures outlined in Table 13-10 and Table 13-11 implemented, the construction and operational stages are considered **significant** in terms of EIA.”

“13.102 There are predicted impacts to climate during the operation phase of the proposed development. Therefore, the operation stage is considered **negative** for climate and **significant** in terms of EIA.” (emphasis in original)

The Non-Technical Summary (NTS) summarised the estimated GHG emissions and mentioned that the impact was significant, but omitted the word “negative”.

“The GHG assessment has estimated the completed development would result in between 6,757,028 and 152,210,999 tonnes CO₂e during the operation stage of the proposed development. This would contribute between 0.35 and 8.3 % of Ireland’s carbon budget for 2021 to 2035, with the range representing the anticipated normal operation of the site with power from the Eirgrid substation south of Falcon Avenue (0.35%) up to the use of the MFGP 24/7 in the worst case in response to requirements from Eirgrid (8.3%).

As outlined IEMA best practice guidance states all GHG emissions contribute towards climate change and are **significant**.” (NTS, 8.8.2, emphasis in original)

Remarkably, the SDCC planning report (attachment 6-7-6) does not refer anywhere to the significant negative climate impact of GHG emissions identified in the EIAR. In the SDCC planning report under the heading “EIAR Reasoned Conclusion”, consideration of GHG impact is limited to one statement:

“GHG: no additional mitigation, residual demolition and construction remain as reported in the Assessment of Effects.” (p. 60)

Nor were any conditions on climate impact included in the Final Grant of permission (attachment 6-7-5). A possible explanation for this serious omission was the disproportionate attention in the EIAR to negligible climate-related impacts compared with the assessment of GHG impacts. The EIAR devoted much more attention to assessment of climate change resilience impacts (CCR) for the proposed development, i.e. would the development suffer from climate change. Also there was disproportionate attention and very detailed presentation of trivial “in combination climate impacts” (ICCI). All of these CCR and ICCI impacts were described as imperceptible and not significant. As they were inherently negligible impacts they could have been considerably scoped down, or even scoped out of the EIAR. The numerous repetitions of these “imperceptible, not significant” climate-related assessments quite likely distracted SDCC from noticing the stated significant negative impact of the GHG emissions. This provides a possible explanation, but is naturally not an excuse for the failure of SDCC to identify or comment on the identified negative climate impact of the proposed development.

3. Errors in EIAR

3.1 Large Errors in Estimated GHG Emissions

I was surprised by the very large estimated GHG emissions presented in the EIAR for Scenario 1 for 2025 in Table 13-14. An estimated emission of over 2 million tonnes GHG for a single project in 2025 should have raised flags with both the consultants who prepared the EIAR and with SDCC, but apparently it did not. In contrast, emissions estimates for Scenario 2 appeared to be unusually low. The difference between Scenarios 1 and 2 is that the MFGP is not operating in Scenario 2. Yet there is a difference of 1.9Mt GHG between the two scenarios, which could not possibly be accounted for by emissions from the MFGP based on the stated thermal power rating.

These huge Scenario 1 emission estimates were also used as the basis for calculating the percentage of the national carbon budget in section 13.138. It is therefore reasonable to conclude that the Scenario 1 emissions estimates presented in Table 13-14 were accepted as correct by the consultants, and were not a clerical error. As is demonstrated below, the Scenario 1 emissions are overestimated by a factor of more than two. Emission estimates for Scenario 2 err in the other direction, and are significantly underestimated by a factor of two to three.

In the GHG assessment in chapter 13, Scenario 1 (2025)¹ represents the situation where the DUB 11 and 12 data centres are powered from the national grid, and the MFGP is also operating 24/7. Scenario 1 also includes 1.5 years operation of DUB 11 prior to 2025 powered by the MPFG fuelled by HVO (as stated in the footnote to Table 13-14). HVO is a low carbon fuel which has significantly lower fossil GHG emissions than diesel. The reduction in emission factor depends on the origin of the HVO. I base my calculations below on a nominal reduction of 50% (re diesel) which is representative of typical values given in REDD II. Scenario 2 represents the situation with the DUB11+DUB12 data centres operating from the national grid, resulting in indirect GHG emissions, and where the MFGP is not operating. I estimate that GHG emissions for these two Scenarios would be as follows:

Scenario 1 (2025)

As detailed in Table 13-1 of the EIAR the estimates of GHG emissions were based on UK emission factors as the consultants erroneously believed that there were no Irish Government equivalents available (SEAI annual reports provide emission factors for fuels and electricity). The UK emission factor for electricity in 2021 was approximately 0.23 tCO₂eq/MWh (0.23 kgCO₂eq/kWh), which was significantly lower than the Irish EF at that time of 0.348 tCO₂eq/MWh. Assuming that the EIAR used the UK emission factor as claimed, and based on an emission factor of 0.204t/MWh(th) for the

¹ There is inconsistency in the EIAR on definition of scenarios. In section 2.33 Scenario 1 is defined as DUB 11 powered by MFGP, Scenario 2 as DUB 11+12 on Eirgrid, + MFGP, and Scenario 3 as DUB 11+12 on Eirgrid, with no MFGP. These are also the scenarios defined in the Air Quality Impact Assessment submitted with the IE application. However, in the climate assessment the scenarios are defined differently in Table 13.6 and can reasonably be assumed to be the basis for the calculated GHG emissions presented in Table 13-14. Note, that a possible confusion of scenario definition could not explain the large errors in estimated emissions.

MFGP run on natural gas, and allowing for a 50% GHG saving for powering DUB11 for 1.5 years on HVO, the calculated emissions would be:

	Emissions (rounded)
DUB 11+12 (grid):	$104.4 \text{ MW(elec)}^2 \times 8760 \text{ hrs} \times 0.23 \text{ tCO}_2\text{eq/MWh(elec)} = 210,000 \text{ t CO}_2\text{eq/yr}$
MFGP (gas):	$235.4 \text{ MW(th)}^2 \times 8760 \text{ hrs} \times 0.204 \text{ tCO}_2\text{eq/MWh(th)} = 420,000 \text{ t CO}_2\text{eq/yr}$
MFGP (DUB 11/HVO)	$144 \text{ MW(th)}^3 \times 13140 \text{ hrs}^4 \times 0.132 \text{ tCO}_2\text{eq/MWh(th)}^5 = 250,000 \text{ tCO}_2\text{eq/yr}$
Total for Scenario 1 (2025)	880,000 t CO ₂ eq/yr

Using a grid emission factor for new projects in itself is questionable, and using the low UK emission factor of 0.23 was clearly not appropriate. The immediate physical effect of connecting a new load to an electricity grid is to induce a corresponding increase in base load generation. A higher and more credible estimate of emissions could be arrived at by assuming that connection of DUB 11+12 to the electricity grid results in additional base load fossil fuel generation (provided by CCGT for example). This would increase the estimated indirect emissions to 370,000 tCO₂eq/yr⁶, and would bring the total for Scenario 1 to 1,040,000 tCO₂eq/yr. The estimate for Scenario 1 given in Table 13-14 is 2,024,425 t GHG in 2025, which is a factor 2 to 2.3 times higher than the above estimates.

Scenario 2

In Scenario 2 both data centres are powered from the electricity grid. The resulting indirect GHG emissions would be as calculated above, i.e. 210,000 tCO₂eq/yr if calculated using the UK grid emission factor as claimed, or 370,000 tCO₂eq/yr if calculated using a justifiable assumption that the power demand requires additional CCGT power generation. The estimated emissions for scenario 2 in Table 13-14 of the EIAR are 105,335 t CO₂eq/yr, which is a factor of 2 to 3.5 lower than the above calculated emissions.

I can find no information in the EIAR which could explain the above disparities between emissions presented in the EIAR and my calculated emissions based on the same underlying data for the power ratings of the data centres and MFGP.

3.2 Further Comments on EIAR

Table 13.14 also presents estimated emissions over a 60 year lifetime, which is a ridiculous speculation to attempt. Given the large underlying uncertainties and unknown factors in economic, technological, and energy projections, there is no credible methodology for undertaking such an

² From Operational Report 4-8-1

³ Assuming DUB 11 represents 2/3rd of overall data centre power consumption

⁴ DUB 11 operating from Q3 2023 and in 2024 on HVO i.e. for 1.5 years

⁵ Assuming 50% GHG saving re fossil diesel: $0.264 \text{ (diesel)} \times 50\% = 0.132$

⁶ CCGT efficiency 55%, 9% grid loss, natural gas EF 0.204tCO₂/MWh(th)

assessment. However, taking the lifetime data at face value, the Scenario 1 60-year emissions do not tally with the stated emissions in 2025.

In Table 13.14, estimates are presented of the mitigated emissions, and the mitigation effect can be obtained by subtracting the mitigated emissions from the unmitigated emissions. The mitigation effect amounts to just 5 tCO₂eq/yr, due to solar PV on the buildings, which is a risible number to present as a mitigation for a project of this scale.

In presenting the emissions in the national context in sections 13.98 and 13.99 of the EIAR, emissions were expressed as a fraction of the national carbon budgets. I will not comment on the resulting percentages, as my analysis indicates that all of the underlying emissions data were grossly in error. However, as the EIAR was prepared in 2022, it should have taken account of targets set out in Climate Action Plan 2021, which was in fact referenced in the EIAR. It therefore should have expressed emissions as a percentage of the indicative target emissions for the electricity sector in 2030, which were between 2 and 4 MtCO₂eq/yr.

To mitigate the identified significant negative climate impact the EIAR suggests that it can be addressed with reference to recommendations in the Energy Statement:

“IEMA best practice guidance states all GHG emissions contribute towards climate change and are significant. It is recommended that the Energy Statement (accompanying the application) recommendations are considered further at the detailed design stage to reduce GHG emissions.” (13.108)

The above refers to the Energy Statements prepared by Burns and McDonnell Engineering Co. for the initial planning application and in the additional information submitted. The mitigation measures specified were PV panels, and provision of supply and return pipes for low grade heat. However it was noted that there were no projects in the vicinity which could potentially use this low grade heat. The scope of the Energy Statements did not include the operational energy requirements of the data centre servers, nor the fuel requirements of the MFGP. I conclude that there was no mitigation in the Energy Statements which could be scaled up to significantly reduce or offset GHG emissions.

Document 4-7-2-3 submitted with the IE licence application reviews BAT Energy Efficiency of the proposed development. The stated electrical power consumption of the data centres, and power rating of the MFGP are the same as in the EIAR, and therefore there is no evidence of additional mitigations of energy consumption nor GHG emissions beyond the negligible solar PV stated in the EIAR.

In section 13.100 of the EIAR the consultants use professional judgement to contextualise the GHG impact. It is argued that as the MFGP will be used as a peaking plant, emissions will be lower. This does not constitute a robust mitigation, as the future grid peaking and base load demands are inherently unknown. In addition they speculate on 20% renewable gas in the network as per GNI projections which would further reduce MFGP emissions. Replacing fossil gas with renewable gas will be a major challenge in Ireland and is unlikely to be of any significance until the late 2030s and 2040s. Even the very optimistic GNI projections⁷ show 50% of demand being met by fossil gas in

⁷ GNI Vision 2050

2050. Overall, the professional judgement contextualising the climate impact is vague and unconvincing.

In Table 13-1 the only example given of GHG emissions during the operation stage of the development is “lighting”. Obviously direct emissions from the MFGP and indirect emissions should have been listed.

In Section 13.12 only Scope 2 GHG emissions are listed. The much larger Scope 1 emissions from MFGP were omitted. In this section reference to “GHG emissions associated with ongoing land use change/sequestration” was not relevant to this project.

In Section 13.30 it is stated: “ In line with IEMA guidance, the assessment would only consider GHG emissions in the context of GHG emissions in local area and the UK.” No mention of Ireland. It appears that the report was based on a template for a UK project. As referred to earlier, UK emission factors were also used for calculating GHG emissions, when Irish data was readily available and more accurate.

In the lengthy Table 13-15, significant negative impacts were supposed to be highlighted in red, but the significant GHG impact was not highlighted. Despite the identification of a significant negative GHG impact, the entry in the mitigation column is “None required”.

In the EIAR NTS, Section 8.8 presents the following statement in isolation without any subsequent qualification or discussion:

“It is expected that general climate trends for Ireland, including extreme weather events (e.g., increased wind speeds, drought, intensity of precipitation events) will continue to occur irrespective of whether the development is built or not.”

I consider the above statement to be highly misleading and bordering on the unethical in the context of an EIAR addressing climate impact. By this specious and flawed argument no project would have an impact on climate. The established science, accepted by all member states of the UNFCCC is that the cumulative GHG emissions from all anthropogenic activities causes climate change. This is the basis of the IEMA guidance that all additional GHG emissions are significant.

In the EIAR NTS summary in section 10 the only identified significant negative environmental effect was correctly identified as “Greenhouse gas (GHG) emissions during operation”. However this is followed by a misleading statement:

“Identified additional mitigation measures would be secured by means of appropriately worded planning conditions.”

This implies that the planning authorities had knowledge of certain planning conditions which they could apply to mitigate the impact. However the planning authorities relied almost entirely on the EIAR to identify mitigation measures for climate impact. As the EIAR did not specify any significant mitigation measures, the above statement is misleading. As it transpired permission was granted without conditions for mitigation of climate impact.

In any large technical document it will inevitably happen that minor errors, oversights and omissions may occur. However the serious errors in GHG emissions estimates, compounded by a number of

other errors and deficiencies in the climate section of the EIAR have the cumulative effect of undermining confidence in the reliability of the report.

4. Summary and Conclusion

The EIAR identified a significant negative climate impact for which no credible mitigation has been identified or specified either in the EIAR nor in the planning conditions of the permission granted by SDCC, nor in the BAT report 4-7-2-3.

Based on my analysis I conclude that all of the GHG emission estimates presented in the EIAR are grossly in error.

The climate section of the EIAR submitted along with the IE Licence application is seriously flawed and could not form a reliable basis for arriving at a reasoned conclusion on the environmental impact of the development.

The EPA has an overarching responsibility for environmental protection. Granting an IE licence for a project with a defective and inadequate climate EIAR would result in harm to the environment and compromise national GHG reduction targets.

Under the Environmental Protection Agency Act 1992 (as amended) the EPA is obliged to review the EIAR. Where it determines that the EIAR material is not adequate the Agency shall:

“..... give notice in writing to the applicant for the licence requesting further information, which notice shall—
(I) identify the manner in which the content of the environmental impact assessment report and other material is inadequate, and
(II) require the applicant for the licence to furnish to the Agency additional information required to correct the inadequacy so identified.”

I ask the EPA to carry out such a review of the EIAR, taking account of my submission, and to take appropriate action in accordance with the legislation.

The EIAR relevant to this IE application was prepared in March 2022. In the interim a significant climate policy development has been the publication of sectoral emissions ceilings. In requesting additional information to address identified inadequacies, the EPA should also request an update of the EIAR to take account of sectoral emissions ceilings and any other relevant policy developments which have occurred since preparation of the EIAR.