Karen

Li Clarke

From:	Bord
Sent:	Monday 16 December 2024 12:45
To:	Appeals2
Subject:	FW: Ref. 317446
Attachments:	20241216-ABP-317446.pdf

From: Phoebe Duvall <[redacted]>
Sent: Monday, December 16, 2024 12:37 PM
To: Bord <bord@pleanala.ie>
Subject: Ref. 317446

A Chara,

Please find attached a submission from An Taisce in relation to Ref. 317446.

Best regards,

Phoebe Duvall

Senior Planning and Environmental Policy Officer
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An Taisce is a membership-based charity
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Please note that I work Monday through Thursday.

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20241216-ABP-317446

An Bord Pleanála
64 Marlborough Street
Dublin 1

Sent by email to: bord@pleanala.ie

16th December 2024

ABP Ref: **317446**
App: **Vantage Data Centres DUB11 Limited**
For: **Construction of a data centre**
Site: **Site within the townlands of Ballybane & Kilbride, Clondalkin, Dublin 22**

A Chara,

Thank you for your letter of 18th November 2024 referring the applicant's submission of additional information on 17th October 2024 to An Taisce for comment. We wish to make the following observations.

1. Power Purchase Agreement

Per the documents submitted to the Board, the applicant proposes to enter into a power purchase agreement (PPA) with Nephin Renewable Gas Limited (NRG) for the production of biomethane.

The use of PPAs exacerbates the issue of data centres diluting renewables penetration into the electricity grid. Data centres with PPAs for renewable energy are still increasing the overall demand for electricity - the higher the total electricity demand, the more renewable capacity is needed to decarbonise the electricity sector. If new data centres, such as the one proposed, use PPAs to buy renewable power, that renewable energy will simply cover new data centre energy demand rather than dealing with the country's existing emissions mitigation needs in line with our emissions reduction obligations under the Climate Action and Low Carbon Development Act 2015 (as amended). The applicant has not addressed these issues, particularly in the context of our legally binding carbon budgets, and as such we do not consider this to be an adequate mitigation measure.

We would highlight that SEAI figures show that the share of renewable energy has not increased since 2020, largely due to the impact of data centres.[1] Indeed, since 2017 the increase in data centre power demand has outstripped all the additional electricity generated from wind power in Ireland.[2] SEAI state in their 2024 National Energy Projections report:[3]

> *"If the scale and pace of renewable energy growth cannot exceed that of electricity demand, as was the case in 2023, then renewables are just abating further increases in emissions rather than delivering the absolute reductions in greenhouse gas emissions required."*

Furthermore, issues of dilution aside, the implications of recent research from University College Cork[4] call into question the efficacy of PPAs in actually meeting and keeping pace with data centre energy demand. The study concluded that from 2020-2023, renewable energy projects financed by PPAs only met 16% of new data centre electricity demand. We would recommend that the Board take the findings of this research into account in their decision on the subject appeal.

1.1 PPA for Biomethane Production

The cover letter supplied with the documents states that the PPA with NRG for biomethane production "*will lead to a genuine increase in Ireland's renewable energy capacity and any organisation procuring biomethane from NRG will be directly contributing to Ireland's renewable energy targets.*"

We would highlight however, that without detailed assessment of any given biogas proposal, biomethane cannot be automatically labelled as a renewable gas or be assumed to contribute to climate mitigation due to the environmental risks associated with fugitive methane losses, the use of chemical fertiliser to produce silage and the ammonia emissions which can result from applying the by-product of the anaerobic digestion (AD) process, namely digestate, as fertiliser.

An Taisce would highlight that scientifically reported field assessments show that anaerobic digesters suffer from significant fugitive emissions problems via methane leaks. The effect of the leakage of this potent greenhouse gas may greatly reduce or even negate the potential climate benefits of using biomethane in place of fossil fuels.

A highly relevant peer-reviewed journal paper by Scott et al. on The Role of Anaerobic Digestion in Reducing Dairy Farm Greenhouse Gas Emissions[5] uses standard climate accounting to assess AD biomethane from different dairy farm system options in Northern Ireland. Crucially, the study finds that small fugitive methane loss rates 'can wipe out any advantage' of AD biomethane production.

Expert testimony to the Joint Oireachtas Committee on Environment and Climate Action[6] highlighted the need to address the issue of fugitive methane losses, stating that "*As methane loss may be the*

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[1] https://www.businesspost.ie/politics/irelands-renewable-energy-still-at-2020-levels-says-seai/
[2] Daly, H. (2024) Data centres in the context of Ireland's carbon budgets. University College Cork. https://www.friendsoftheearth.ie/assets/files/pdf/data_centrres_and_the_carbon_budgets_-_prof_hannah_daly_dec_2024.pdf
[3] SEAI (2024) National Energy Projections 2024: https://www.seai.ie/sites/default/files/publications/National-Energy-Projections-Report-2024.pdf
[4] Daly, H. (2024) Data centres in the context of Ireland's carbon budgets. University College Cork. https://www.friendsoftheearth.ie/assets/files/pdf/data_centrres_and_the_carbon_budgets_-_prof_hannah_daly_dec_2024.pdf
[5] Scott, A. and Blanchard, R., 2021. The Role of Anaerobic Digestion in Reducing Dairy Farm Greenhouse Gas Emissions. Sustainability, 13(5), 2612. https://www.mdpi.com/2071-1050/13/5/2612
[6] https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_environment_and_climate_action/submissions/2022/2022-07-05_opening-statement-dr-ciara-beausang_en.pdf

largest contributor to the carbon footprint of biogas production it would be important that biogas plants in Ireland monitor, report and address methane losses".

Scientific assessments of AD biomethane repeatedly stress the importance of fugitive methane losses in leakage from AD plants and from digestate spreading that can cancel out much of the claimed climate benefits. Recent field measurements of multiple operational AD plants – in the UK,[7] by the Danish Energy Agency,[8] in addition to another study focusing on Denmark[9] and Belgium,[10] confirm that unsustainable levels of AD and digestate methane losses are common.

The observed average and upper rates are well above the base rate of 0.6% and the maximum of 2% indicated by the Teagasc MACC (p. 120).[11] Teagasc states that "*an increase in fugitive methane from 0.6% to 2% would halve the mitigation potential*", therefore if losses approached the field measurements indicating substantially higher average and high rates, this would likely wipe out much or all climate benefits of AD biomethane.

Regarding "Renewable Natural Gas" (RNG) – a common industry term for AD biomethane – a journal article by Grubert[12] states that:

> *"RNG is not inherently climate friendly. Based on consideration of both the source of methane used to produce RNG and the likely alternative fate of that methane, and using reasonable assumptions about likely system methane leakage, it is unlikely that an RNG system could deliver GHG-negative, or even zero GHG, energy at scale. ...*
>
> *Under some system leakage rates that have been observed for biogas systems (Liebetrau et al 2017, Scheutz and Fredenslund 2019), RNG might not even meet the less stringent threshold of outperforming Fossil Natural Gas from a GHG perspective. ...*
>
> *This work shows that RNG needs to be carefully evaluated in the context of expected long-run system conditions before it is adopted as a component of a zero GHG energy system, particularly given its potential for methane leakage-related climate pollution."*

The use of feedstocks and the digestate (the byproduct of the AD process) can also have emissions impacts that must be taken into account. The emissions that contribute to the production of feedstocks (often grass or other energy crops, slurries, food wastes, etc.) can significantly negatively impact biomethane's overall contribution to climate mitigation. For example, AD predicated on increased grass or energy crop production has the potential for significant adverse impacts to climate and water quality as a result of the increased levels of nitrogen fertiliser input needed to grow the energy crops.

Digestate is often used as fertiliser, however, excess ammonia emissions from digestate spreading can find their way back into soils and waterbodies in the form of gas or as ammonium in

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[7] Bakkaloglu, S., et. al., 2021. Quantification of methane emissions from UK biogas plants. Waste Management, 124 https://www.sciencedirect.com/science/article/pii/S0956053X21000167

[8] https://ens.dk/presse/ny-rapport-om-metantab-fra-danske-biogasanlaeg

[9] Scheutz, C. and Fredenslund, A.M., 2019. Total methane emission rates and losses from 23 biogas plants. Waste Management, 97. http://www.sciencedirect.com/science/article/pii/S0956053X19304842

[10] Vergote, T.L.I., et. al., 2020. Monitoring methane and nitrous oxide emissions from digestate storage following manure mono-digestion. Biosystems Engineering, 196. https://www.sciencedirect.com/science/article/pii/S1537511020301240

[11] MACC 2023, Teagasc. https://www.teagasc.ie/media/website/environment/climate-action/climate-centre/MACC-2023.pdf

[12] Grubert, E. 2020. At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates. Environmental Research Letters, 15, 084041. https://iopscience.iop.org/article/10.1088/1748-9326/ab9335/pdf

precipitation.[13] This can be highly detrimental to aquatic ecosystems by causing eutrophication due to excess nutrient deposition and the proliferation of algal blooms within the waterbody. These ammonia emissions can completely offset the benefits of reducing chemical fertiliser use.

When assessing if the proposed PPA does indeed contribute to a genuine increase in renewable energy capacity and to emissions mitigation, these issues must be considered.

Consideration must also be given to the end use of the biomethane. Injection into the grid for mixing with fossil gas will exacerbate infrastructural lock-in to fossil fuel use in the medium to long term which is incompatible with our emissions reduction legal obligations. Supplying the biomethane to local off-grid industrial users is in principle a preferable option, provided it is used for electricity generation and is not mixed with fossil gas.

While it is acknowledged that these issues are largely outside of the control of the applicant, they are nevertheless highly relevant to the applicant's claims regarding renewables additionality, the mitigation of emissions related to the proposed development, and the use of the PPA as a justification for the subject proposal.

2. Climate Impact Assessment Report

We note that the applicant has submitted a Climate Impact Assessment Report prepared by AWN Consulting as part of their response to the Board's request for additional information.

2.1 Flawed Calculations and Assumptions

We submit that the emissions calculations provided in the AWN report are flawed. Crucially, the calculations throughout assume that Carbon Budget 2 for 2026-2030 will be 200MtCO2e. Per the Climate Action and Low Carbon Development Act 2015 (as amended) (hereafter referred to as the Climate Act), any exceedance of a carbon budget must be carried over into the next carbon budget, thereby decreasing that subsequent budget by the amount of the overshoot. Therefore, as the EPA have emphasised, Carbon Budget 2 for the 2026-2030 period will have to be reduced by any overshoot that occurs in Carbon Budget 1 for 2021-2025. Currently, EPA projections[14] estimate that this overshoot is will be within a range of 26 MtCO2e for the With Existing Measures (WEM) scenario to 19 MtCO2e for the With Additional Measures (WAM) scenario.[15] Therefore, once the exceedance is applied, the 2026-2030 budget will be smaller and actually lie in the range of 174-181 MtCO2e. Therefore, the percentage of national emissions, per the carbon budget, contributed by proposed development should be increased accordingly.

This failure to account for the projected exceedances impacts the calculations throughout the AWN report means that the development will have a more significant impact on the carbon budgets and sectoral ceilings than is stated by the applicant.

We would also highlight that not only will Carbon Budget 2 be reduced from 200Mt as a result of the Carbon Budget 1 exceedance, but the EPA projections also already indicate there will be a very

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[13] https://www.nnfcc.co.uk/files/mydocs/Ammonia%20I%20-%20AD%20and%20digestate%20management%20-%20October%202022.pdf

[14] https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-GHG-Projections-Report-2022-2050-May24--v2.pdf

[15] It is worth noting that this apparent improvement on the 2023 EPA budget exceedance projections is primarily a result of timeseries changes in the Agriculture, Forestry and Other Land Use sector as opposed to improved effectiveness in emissions mitigation policy.

significant exceedance of Carbon Budget 2. They state in section 4.1 of the 2024 emissions projections report:

> *"With this carryover, Budget 2 is projected to be exceeded by 135 Mt CO2 eq in the WEM scenario and by 85 Mt CO2 eq in the WAM scenario. Consequently, far higher emissions reductions will be needed in order to comply with Budget periods 2 and 3."*

This is particularly relevant because the emissions and carbon budget impacts of the subject proposal have not been assessed beyond 2030, despite the fact that at the time the AWN report was written, the provisional allocation for Carbon Budget 3 was known (the Climate Change Advisory Council has since published the proposed third budget and provisional fourth budget on 12th December 2024), and we already have information on the projected exceedances of Budget 2.

There is also the issue of the "unallocated emissions" in the sectoral ceilings for Carbon Budget 2 which gives a Budget 2 total of 226 MtCO2e rather than 200 MtCO2e (before exceedances are factored in). Section 1.27 of the AWN report does acknowledge this issue, but it does not comment further or provide any analysis. Resolving this problem of unallocated emissions either requires the reduction the sectoral ceilings or requires carbon removal (which is not technologically viable at scale yet and is very unlikely to be by 2030). Even if the unallocated emissions issue is ignored for the purposes of assessing this application, the issue of carbon budget and sectoral ceiling exceedances remains.

Additionally, and very crucially, the AWN report assesses the emissions from the onsite Multi-Fuel Generation Plant (MFGP) in the context of the sectoral ceiling for electricity. We would question whether this is correct or whether it in fact should fall under the sectoral ceiling for the commercial built environment. If this is the case, the impact of the proposal would be significantly higher than that reported by AWN as the ceiling for the commercial built environment sector is significantly smaller than that for the electricity sector. For 2026-2030 the electricity sectoral ceiling is currently set at 20 MtCO2e and the commercial built environment ceiling is 5 MtCO2e, one quarter the size of the electricity ceiling.

The AWN report is also assuming the carbon budget would be evenly divided over the five years, with similar emissions each year 2026 to 2030. We would highlight that this is a somewhat unrealistic with the likely reality that higher emissions in the earlier years would mean a smaller budget remaining for 2029 and 2030. In this scenario, the data centre would account for a greater share of national emissions (per the carbon budget) during these last two years.

The AWN report further assumes commencement of operations in 2026, which may be unlikely given construction timeframes (the applicant does acknowledge the uncertainty here). We would highlight that the third and fourth carbon budgets (2031-2035 and 2036-2040) will be even more stringent than the 2026-2030 budget, particularly if overshoots continue to occur.

The inconsistencies in the calculations and assumptions discussed above imply that a significantly greater emissions commitment is occurring as a result of the proposed plant at a time when compliance with the Climate Act and CAP24 are requiring increasingly radical reductions in emissions.

To comply with the constraints of the legally binding carbon budgets, sectoral activities must add up to a figure within the relevant sectoral ceiling. Given the currently projected exceedances for Carbon Budget 2 and the ceilings therein, budget and sectoral ceiling compliance must mean cutting back on current projected WEM/WAM activities as well as not adding further new demand. This should be fully taken into account by the Board

in assessing whether the proposed development constitutes proper planning and sustainable development within the legal context of carbon budget constraints.

The AWN report invokes the 2022 IEMA Guidance for project assessment. The IEMA "Significance" assessment starting in section 1.46 concludes that the proposed development has only "Minor Adverse" outcomes both for the emissions from the proposal's use of electricity from the grid and for the emissions from the MFGP. First, this entirely ignores the period beyond 2030 when, as stated above, our emissions reduction requirements and carbon budgets will be even more stringent.

Second, the IEMA framework does not account for the legally binding carbon budget sectoral ceiling constraints. In that context, even taking the AWN report's calculations at face value without correcting for the budget exceedances, the potential incorrect use of the sectoral ceiling for electricity etc., we submit that one single development accounting for 3.5% of the entire 2026-2030 sectoral ceiling for electricity (including both the grid electricity use and the MFGP) is very significant. If the commercial built environment ceiling should have been used for the MFGP, the significance should be much higher again.

Additionally, the AWN report states that the proposed PPA is an "appropriate 'Substitution' mitigation measure". However, the proposed use of a PPA does not resolve the carbon budget compliance issues as the subject proposal still increases overall energy demand and the emissions associated with that. While it discusses PPAs and alignment with IEMA guidance, the AWN submission has not addressed how a PPA resolves the issue of our legally binding obligation to ensure on-time carbon budget and sectoral ceiling compliance, particularly in light of the projected exceedances. While we note that the use of the PPA is considered a "appropriate 'Substitution' mitigation measure" under the IEMA framework, we would refer the Board to section 1 of this submission on why An Taisce does not concur that it is sufficient as a mitigation measure more broadly.

2.2 EU Climate Legal Obligations

In discussing the EU Effort Sharing Regulation, section 1.16 of the AWN submission states: "*...Ireland's obligation under the Regulations is a 30% reduction in non-ETS GHG emissions by 2030 relative to its 2005 levels.*" However, this is contradictory to CAP24 (see Box 2.1, pg. 38) which states:

> "*For non-ETS sectors, which includes emissions from agriculture, transport, buildings, and light industry, Member States' nationally binding targets (for the period 2021 to 2030) are covered by the Effort Sharing Regulation (ESR). Under the ESR, Ireland is required to reduce its emissions from these sectors by 42% by 2030, relative to 2005 levels.*"

In addition, the ETS scheme targets a reduction of 62% in emissions by 2030. This proposal will not facilitate this as it increases ETS emissions. Furthermore, by doing so it compromises the flexibility arrangements whereby Ireland can offset some of its ETS emissions to Effort Sharing Regulation emissions overshoots.

We would also again emphasise that any participation in the EU ETS and the purchase of the associated emissions permits relates to mitigation obligations under EU climate law. This does not negate, prevent or act in place of the obligations under the national carbon budgets and sectoral emissions ceilings in accordance with the Climate Act, which covers both the ETS and non-ETS sectors.

2.3 Climate Act Section 15 Obligations

Section 15(1) of the Climate Action and Low Carbon Development Act 2015 (as amended) places obligations on relevant bodies, including An Bord Pleanála:

> *"15(1) A relevant body shall, in so far as practicable, perform its functions in a manner consistent with—*
> *(a) the most recent approved climate action plan,*
> *(b) the most recent approved national long term climate action strategy,*
> *(c) the most recent approved national adaptation framework and approved sectoral adaptation plans,*
> *(d) the furtherance of the national climate objective, and*
> *(e) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State."*

The applicant has submitted a report assessing the climate impact of the proposal and its alignment with the carbon budgets and the Climate Action Plan 2024 (CAP24) which the Board must now assess (and we submit that it is practicable to do so). On the basis of the report's contents and the flaws as highlighted above, An Taisce considers that the applicant has failed to demonstrate that the proposal is aligned with CAP24 and with the carbon budgets and sectoral emissions ceilings to which CAP24 is bound (as well as the national climate objective, the Long Term Strategy and the objective of emissions mitigation). We therefore respectfully submit that the Board, in performing its function to determine planning appeals, is likely precluded by s.15(1) from granting permission for the subject proposal.

3. Multi-Fuel Generation Plant

We note that the proposed on-site Multi-Fuel Generation Plant may be powered using natural gas. This will exacerbate lock-in to fossil gas which is wholly incompatible with our national and European climate targets. Indeed, multiple groups have expressed concern about this, including the Climate Change Advisory Council, which said in a 2023 statement: *"the recent growth in 'Islanded' data centres is of particular concern due to their potential to increase gas demand and associated carbon emissions."*[16] We submit that no further permissions should be granted for data centres to establish fossil fuel powered generating systems grid in support of their activities.

The applicant states in the cover letter that the MFGP could potentially be run on alternative fuels in the future such as biomethane, hydrogen, or HVO. This is uncertain and should not be relied on as a mitigation measure or justification for the proposal.

4. Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy

We note that the materials submitted by the applicant relies on the Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy. Despite being repeatedly utilised as a basis, framework and justification for further data centre development, including in the subject case, the Statement was never subject to Strategic Environmental Assessment (SEA) per EU Directive 2001/42/EC. To An Taisce's knowledge no SEA screening was conducted.

[16] https://www.climatecouncil.ie/councilpublications/councilcorrespondenceandadvice/CCAC%20response%20to%20Joint%20Committee%20on%20Environment%20and%20Climate%20Action_16Oct23.pdf

We consider that the content of the Statement likely constitutes the setting a framework for future development consent of projects listed in Annexes I and II to the EIA Directive. Indeed, the Statement's Principles for Sustainable Data Centre Development are described as *"A set of national principles that should inform and guide decisions on future data centre development."* Therefore, because it has not undergone SEA or SEA screening, we submit that the Statement and the content therein cannot be used as a framework or criteria to justify or permit development. Furthermore, given the significant and wide-ranging climate and environmental implications of data centre development, it is submitted the Statement falls within the ambit of the Aarhus Convention and should have been subject to public consultation, which, as far as An Taisce is aware, it was not.

It should be noted that the CJEU has generally taken a broad approach to the interpretation and application of the various aspects of the SEA Directive.

Additionally, we would highlight a quote from the Government Statement which in fact acknowledges the need limit to further data centre expansion:

> *"The capacity constraints experienced by our electricity system today, and the binding carbon budgets that require rapid decarbonisation of energy use across all sectors, necessarily mean that not all existing demand for data centre development can be accommodated."*

5. Conclusion

On the basis of the above points in this submission, An Taisce recommends that the Board uphold South Dublin County Council's refusal of the subject application.

Please acknowledge our submission and advise us of any decision made.

Is mise le meas,

Phoebe Duvall
Senior Planning and Environmental Policy Officer
An Taisce – The National Trust for Ireland