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See below for Submission details.

Attachments are displayed on the following page(s).

Comments on DUB40 Industrial Emissions Licence Application for Power Generation Facility (PGF) Submitted by Data and Power Hub Services Limited, Reg. No. P1165-01

1. Introduction

I have concerns on Air Quality and Climate Impact aspects of the licence application for the proposed Power Generation Facility (PGF). A core concecrn is the absence of a dedicated EIAR for the PGF, which I consider to be an unsatisfactory and highly irregular situation. I have endeavoured to find out from the planning records how this serious omission occurred, and describe below the sequence of events which provides a partial explanation. While an attempt was subsequently made by the applicant to rectify this omission through a cumulative impact assessment for the data centres plus the PGF, this EIAR failed to assess the climate impact of the PGF, and also omitted its regional air quality impact. As matters stand, the EPA has before it an application for an IE licence for a development which has no supporting EIAR for climate and regional air quality impacts.

1.1 Planning Background – Absence of EIAR

The PGF which is the subject of this IE licence application was granted planning permission by South Dublin County Council (SDCC) planning reference SD20A/0058. No EIAR was submitted with the planning application. The planning records indicate that the applicant argued an EIAR was not required as the development was below the 300MW thermal threshold for mandatory EIAR (Record of Executive Business and Chief Executive's Order, October 2020, Attachment 6-3-1, p. 14, 15).

However there was a notable and crucial omission in the documentation submitted by the applicant in that no data was provided on the thermal rating of the development. The only data provided was that the capacity of the proposed power plant was 110 MW (planning application cover letter, p.6). It was not stated whether this was electrical output or thermal rating. The question then must be asked as to how SDCC could have reached a reasoned conclusion that an EIAR was not required. It would seem from the records that SDCC initially did not agree with the applicant that an EIAR was not required, but they left it open to the applicant to satisfy themselves that they comply with the legislation:

> "… and the applicant was informed that they should be satisfied of the legislative requirements for EIAR." (p. 14)

In considering EIAR requirement under Schedule 5, Part 1 it appears that SDCC assumed the 110 MW figure referred to the thermal capacity, and since it was much lower than the threshold, they accepted the applicant's claim that no EIAR was required. This was an incorrect assumption, as the default interpretation of the MW rating of a power plant would be electrical output, and it is clear from the subsequent Additional Information submitted that the 110 MW indeed referred to electrical output.

The original planning application was for two Open Cycle Gas Turbine (OCGT) generators. An air quality impact assessment report prepared by Fichtner Consulting Engineers (Feb 2020) was submitted with the planning application. This report stated that the power plant capacity was "approximately 110 MWe", meaning MW electrical, but no data was provided on thermal rating. At a credible typical overall electrical efficiency of 35% for an OCGT, the corresponding thermal rating would be 314 MWth, and would have fallen into the mandatory EIAR category (Annex I of Directive 2011/92/EU, Part 1 of Schedule 5 of Planning and Development regulations 2001).

In the Additional Information submitted by the applicant to SDCC, the PGF was changed from OCGT to gas engines, in order to meet noise limits. In the AI cover letter (Marston 18th September 2020) the power rating was revised marginally upwards to 116 MW. There was no mention in this Additional Information letter of the thermal rating, but the revised air quality assessment prepared by Fichtner (15th September 2020) provided this important data:

> "However, in summary the Proposed Development would be comprised of 7-gas engines with a total installed thermal capacity of approximately 305 MWth."
> (Fichtner AQ Additional Information Report, p.7, emphasis added).

Therefore at the Additional Information stage of the SD20A/0058 PGF application a mandatory EIAR should have been triggered. There is no record in the planning files that SDCC was advised of the significance of this thermal capacity data.

1.2 Cumulative Assessment of Power Plant and Data Centres

The subsequent planning application for data centres at the site (SD20A/0324) included an EIAR which was claimed to be the cumulative impact of the data centres and the PGF (EIAR Planning Part 1, 3 March 2021 on EPA IE website). While the planning process for the PGF (SD20A/0058) was compromised with respect to EIAR requirement, a cumulative EIAR offered an opportunity to rectify these shortcomings, and to quantify/assess the climate and regional air quality impacts of the PGF. The IE licence application refers to this cumulative EIAR conducted for SD20A/0324 and the PGF:

> "EIAR contains a cumulative assessment of ICT facilities, power generation facility (permitted under SD20A/0058)"
>
> (Threshold Planning Attachment 6-3-7, Table 1)

As will be discussed in detail later, the climate and regional air quality impacts of the PGF were not in fact included in this EIAR, and the above statement is consequently incorrect. Also in Table 1 the error originally made by SDCC is repeated by confusing MW electrical with MW thermal:

> "EIA threshold not exceeded. Heat output of power generation facility will be in the order of 110 MW (< 300 MW)."

The above statement contradicts the thermal data provided in the IE application documentation. In the Operational Report (attachment 4-8-1, p.10) the thermal rating of the gas engines has been revised down to 269.4 MWth. While this is below the mandatory EIAR threshold, such a thermal rating would justify careful and reasoned consideration of the requirement for an EIAR under Annex II of the Directive or Schedule Part 2 of the Planning Regulations.

1.3 Responsibilities of the EPA

I am aware that the Industrial Emissions licensing process does not set limits on direct or indirect GHG emissions, and that the EPA is not required to conduct an environmental impact assessment of such 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 PGF. Based on the stated thermal power rating, an EIAR should have been mandatory at the planning application stage.

The EPA shares a degree of responsibility for the present unsatisfactory situation. The EPA was listed as a consultation body for the planning application for the PGF. SDCC records indicate that no response was received from the EPA. Since an EIAR has now been submitted in support of the

application for the Industrial Emissions licence I submit that the EPA is legally obliged to carefully review this EIAR, taking due account of my comments and significant concerns outlined below.

2. Evaluation of EIAR

The EIAR which was submitted to the EPA in support of the IE licence application was prepared in December 2000. My review of the EIAR is confined to air quality and climate impact aspects within the framework of the national policies in place at that time.

2.1 Air Quality Impact

Air quality aspects can be considered under the headings Local Air Quality and Regional Air Quality.

Local Air Quality Assessment

The Air Emissions Impact Assessment (attachment 7-1-3-2) provides a detailed description and modelling of the potential air quality impacts. However the impact of the PGF plant was not presented explicitly. In both the NO_2 tables (Tables 4 and 8), there is a contribution from continuous operation of the gas engines and from intermittent operation of the diesel generators. The contribution of the PGF cannot be readily discerned from this data. The IE licence application is for the PGF only. It would therefore be much clearer and more relevant to present the results for the PGF only, the data centres only (normal and emergency operations), and finally the sum of these impacts, i.e. the cumulative impact.

An earlier air quality impact assessment was conducted using the same modelling methodology as part of the EIAR for the planning application for the data centres (SD21A/0324), and a copy of this EIAR has been submitted to the EPA by the applicant (EIAR Planning Part 1-3 March 2021). The exposition of impact of the PGF is marginally clearer in these EIAR tables. Table 10.4 (p. 147) presents modelled concentrations for operation of diesel generators only, while Table 10.6 (p. 151) includes the additional impact of continuous operation of the PGF.

In principle, the contribution of the PGF to the modelled annual NO2 concentrations could be estimated by subtracting the values in Table 10.4 from values in Table 10.6. The differences are quite small, in the range 0.8 to 2.4ug/m3 annual average, indicating that the impact of continuous operation of the PGF is much less than the impact of intermittent operation of the diesel generators. While this is a reassuringly low air quality impact, it is difficult to reconcile this conclusion with the annual mass emissions for the PGF compared with the emissions from the diesel generators. These emissions can be calculated from the source data in Table 10.2.

I calculate annual NOx emissions from the diesel generators to be 117 tonnes NOx/year (36 generators operating for 72 hours for emergency backup, and each tested for 52 hours per year). The calculated annual emissions from PGF are 521 tonnes NOx per year (7 gas engines for 8760 hours[1]). As the annual emissions from the PGF are a factor of 4.5 higher than from the diesel generators, it is difficult to understand how the modelled annual mean concentrations from the PGF could be on average a factor of around 7 lower than that of the diesel generators. As per Table 10.2, stack heights are all 25m, exit velocities are broadly similar. Flue gas temperature for the diesel generators are significantly higher than for the gas engines, which should provide more buoyancy and if anything decrease ground level concentration near the site. This inconsistency raises questions regarding the modelling and compliance with air quality limit values.

[1] EIAR modelled PGF as running continuously

Regional Air Quality
The Emissions Impact Assessment Report 7-1-3-2 presents no data or assessment of the pollutant emissions from the PGF in the regional context.

The EIAR submitted with the IE application presents an assessment of the indirect pollutant emissions from off-site power plants connected to the national grid which supply the data centre load of 80MWe. However the EIAR contains no data or assessment of pollutant emissions from the PGF in the regional context.

2.2 Climate Impact

Failure to State GHG Emissions from PGF
GHG emissions from the data centres were estimated in the EIAR based on the emission factor for the national grid, for a data centre load of 80MWe . These indirect emissions were calculated to be 262,800 tonnes CO2eq (EIAR, 10.77, p. 149). As discussed in the introduction above, there is no statement in the EIAR of the quantity of direct GHG emissions from the PGF.

Based on the thermal power rating of 269.4 MWth as given in the Operational Report, and 2500 operation hours per year, the GHG emissions would be in excess of 130,000 tonnes CO2eq/year. Failure to consider these direct emissions is a major defect in the EIAR. Adding the indirect and direct emissions, the cumulative emissions would be around 400,000 tCO2eq/yr.

Failure to Assess Impact within National Legal and Policy Framework
The environmental consultants who prepared the EIAR were aware of the national legal and policy framework in place at the time of the planning application, yet failed to assess impact with reference to these. The national legal and policies with respect to climate in force at the time of preparation of the EIAR were:

> Climate Action and Low Carbon Development Act 2015 (“Climate Act”)
> Climate Action Plan 2019 (CAP 2019)
> Draft Climate Action and Low Carbon Development (Amendment) Bill 2021
>
> (above referred to on pages 135, 136 of EIAR)

The significance of the Climate Act was that the minister was required to prepare a national emissions mitigation plan and sectoral mitigation measures. The definition of “emissions” in the act included all emissions in the state:

> “emissions” means, in relation to greenhouse gases, emissions of those gases into the earth’s atmosphere attributable to industrial, agricultural or other human activities in the State;

This definition included emissions within the ETS.

The fundamental flaw in the EIAR is that the climate impact assessment did not address the national policy as set out in CAP 2019, which was the guiding national policy at the time of the original planning application. CAP 2019 set out indicative sectoral targets for 2030. The inclusion of emissions from the Irish ETS sector in national policy was explicit in CAP 2019:

> "A carbon budget will be the total amount of emissions which can be emitted during a five-year period and will be calculated on an economy-wide basis, i.e. the Emissions Trading System (ETS) and the non-ETS sectors." (CAP 2019, p. 38)

CAP 2019 described a GHG reduction plan, which would require reductions in both the Non-ETS sectors, and the ETS sectors. This specific national reduction requirement for the Irish ETS sector was a new development in national policy. Previously, the Irish ETS sector was left to its own devices within the EU ETS. Under this change of policy the climate action plan required substantial emissions reductions from all sectors of the economy, including those sectors in the ETS. The indicative target for the Electricity sector in 2030 set out in CAP 2019 was a maximum 4-5 MtCO2eq/yr in 2030, which represented a reduction of 50-55% re the 2017 baseline. The EIAR did not refer to this indicative target, but for some reason referred to the target for the Built Environment sector (40-45% reduction).

The Climate Act (amendment) 2021, which was in draft form at time of preparation of the EIAR also set an overall GHG reduction target of 51% to be achieved by 2030 (re 2018). While the draft Climate Act amendment was cited in the text of the EIAR, there was no mention nor discussion of the implications of the proposed national 51% GHG reduction target for 2030. This reduction target had been included in the Programme for Government published in June 2020, with an indicative trajectory of a 7% reduction annually to 2030. This government policy for achieving substantial GHG reductions by 2030 had significant implications for assessment of the GHG impact of any proposed developments in the state.

In accordance with standard assessment methodology [2]any development which gave rise to increases in national GHG emissions would have to be categorised as having a significant adverse impact, in a legal and policy environment where year on year reductions were sought. This consideration would apply to developments both in the non-ETS and ETS sectors, as they both contribute to national emissions as defined in the Climate Act 2015 and CAP 2019.

In assessing the impact of the projected 262,800 tCO2eq/yr indirect emissions the EIAR used a very simplistic and highly misleading argument to present the impact as minimal. Firstly, they compared the indirect emissions with total national emissions and stated that it is insignificant:

> "The indirect CO2 emissions from electricity to operate the facility will not be significant in relation to Ireland's national annual CO2 emissions." (EIAR, p. 149)

Secondly they compared the indirect emissions with the total emissions in the EU ETS and concluded:

> "….. the impact of the emissions associated with the proposed development (262,800 tonnes CO2eq) will be less than 0.016% of the total EU-wide ETS market which is imperceptible. The predicted impact to climate is **indirect**, **long-term, negative**, and **imperceptible**." (EIAR, p. 150, emphasis in original)

As a basis for impact assessment this methodology is patently useless. One could say the same about any individual large energy user development in Ireland or in the EU, and on this flawed basis conclude that the impacts of all such developments are insignificant or imperceptible. This specious

[2] Such as the guidelines developed by the Institute of Environmental Management and Assessment (IEMA)

argument completely misses the point that any increase in emissions, no matter how small in relation to the national total, would be counter to the national transition objective of achieving substantial annual reductions. The exception would be a development which generates GHG emissions, where these emissions are lower than a development which it is replacing.

In comparing emissions only with the total national emissions the EIAR ignored the indicative sectoral targets contained in CAP 2019, which represented national policy at the time of preparation of the EIS. A relevant comparison would have been the projected emissions as a percentage of national emissions in the Energy Industry sector. The description of "indirect" in the statement above was also incorrect, as there would be direct emissions, and as stated earlier the total emissions would in fact amount to around 400,000 tCO2eq/yr.

These emissions would have represented 3.8% of emissions from the Electricity sector (re 2017[3]). In itself, such a percentage increase in emissions from the Electricity sector would have to be considered a significant adverse impact in the national policy context. However the adverse impact of these projected additional emissions becomes much significant when compared with the CAP 2019 target. The cumulative emissions of 400,000 tCO2eq/yr would represent between 8% and 10% of the indicative targets for the Electricity sector in 2030. One could reasonably conclude from this analysis that the cumulative impact of the data centres and PGF had significant adverse implications for achieving national policy on GHG reductions from the Electricity sector, and could by no stretch of the imagination or of the English language be termed "not significant" or "imperceptible".

Misrepresentation of ETS

The EIAR implies that there is no national impact by appealing to the provisions of the EU ETS:

> "Electricity providers form part of the ETS and thus greenhouse gas emissions from these electricity generators are not included when determining compliance with the targeted 30% reduction in the non-ETS sector i.e. electricity associated greenhouse gas emissions will not count towards the Effort Sharing Decision target." (EIAR, p. 150)

While the above statement is true, it diverts attention from compliance with national GHG reduction targets. At the time of preparation of the EIAR, there were definitive national reduction targets, which included those industries operating within the ETS sector. Even in 2020 when the EIAR was prepared, the national GHG reduction targets exceeded the reduction targets for the EU ETS, and exceeded the EU effort sharing target for Ireland.

Irish operators in the ETS must comply with all EU ETS rules, but this does not imply that a development is consistent with national climate action policy, as there is no mechanism within the ETS to implement national targets. Operating within the ETS therefore did not exempt the development from assessment of its impact on national GHG emissions as defined in the Climate Act, and in CAP 2019.

[3] 2017 was reference year for CAP 2019

3. Conclusion

Arguably the greatest potential environmental impact of a gas fuelled power plant such as the proposed PGF is with respect to climate and air quality. The EPA has at present an IE licence application and supporting documents for consideration where the climate impact assessment is entirely absent, and the air quality impact is deficient. The deficiencies in the supporting IE application documents are summarised as follows:

- The PGF was not subject to an EIAR at the planning stage, on questionable grounds
- The PGF exceeded the threshold for mandatory EIAR at date of grant of permission
- The “cumulative” EIAR does not include GHG emissions from the PGF
- The air quality impacts of the PGF are not explicitly stated in the EIAR nor in attach. 7-1-3-2
- There are unexplained inconsistencies in the modelled air quality impacts
- Implications of CAP 2019 and government policy were not considered in assessing impact
- Methodology for climate impact assessment in EIAR was grossly flawed and misleading

In view of the above deficiencies in the planning and assessment of the PGF, I submit that the EPA should refuse the IE licence application.