

This Report has been cleared for submission to the Director by Programme Manager Darragh Page,

Signed: 

Date: 9th December 2024



**OFFICE OF ENVIRONMENTAL
SUSTAINABILITY**

**INSPECTOR'S REPORT ON AN INDUSTRIAL EMISSIONS LICENCE APPLICATION, LICENCE
REGISTER NUMBER P1165-01**

TO: DAVID FLYNN

FROM: CIAN O'ROURKE

DATE: 09/12/2024

Applicant:	Data And Power Hub Services Limited
CRO number:	656704
Location/address:	Peamount Road, Newcastle, Dublin.
Application date:	27 October 2021
Classes of Activity (under EPA Act 1992 as amended):	2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more.
Category of activity under IED (2010/75/EU):	1.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more
Main CID:	Commission Implementing Decision (CID) (EU) 2021/2326 of 30 November 2021 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants (hereafter referred to as LCP CID). All relevant BREF documents are listed in Appendix 4 of this report.
Activity description / background:	The operation of a power generation installation consisting of seven dual fuel reciprocating internal combustion engines with a total output of approx. 116 MWe; and the operation of an information and communication technology (ICT) installation with 36 standby generators to provide power to the ICT facilities, in the event of a loss of electricity supply from the grid.
Additional information received:	Yes (18 January 2022, 20 May 2022, 09 September 2022, 03 February 2023, 13 May 2024, 08 July 2024, 19 September 2024 and 18 October 2024)
No of submissions received:	5
Environmental Impact Assessment required: Yes	Stage 2 Appropriate Assessment required: No
Environmental Impact Assessment Report submitted (EIAR): Yes	02 November 2021 (ICT EIAR), 18 January 2022 (Substation EIAR)
Site visit: 23 September 2024	Site notice check: 06 November 2021

1. Introduction

Data and Power Hub Services Limited, hereafter referred to as the applicant, propose to operate an installation consisting of a power generation installation and an information and communication technology (ICT) installation on a c. 8.2 hectares site approximately 500 m southwest of Grange Castle Business Park.

The proposed power generation installation will consist of seven no. dual fuel, reciprocating internal combustion engines (RICE) (hereafter referred to as engines), with individual 25 m high flues housed in two no. stacks to the north of the installation. The power generation installation will have capacity to generate a total of approx. 116 MWe. The power generation installation will have the capability to operate 24 hours a day, 7 days a week, however the actual operation will be non-continuous and correspond to periods of high grid demand. The power generation installation is designed as a peaking plant, providing a source of electrical supply to the national grid during periods of low supply. During normal operations, the power generation installation will run on natural gas. During abnormal/emergency conditions (such as failure of the natural gas supply), the dual fuel engines will also be capable of running on hydrotreated vegetable oil (HVO) in accordance with the secondary fuel obligations specified by the Commission for Regulation of Utilities (CRU).

The proposed ICT Installation will consist of two no. two storey buildings located to the south and east of the site. The installation will be powered by 36 no. standby generators in the event of a loss of power supply from the grid. The ICT installation will provide data storage services, and distribution of information to individuals, businesses, and organisations. The ICT installation will be operated continuously (24 hours per day, 7 days per week, 365 days per year). During normal operations, the ICT installation will be powered by electricity from the national grid. There will be 36 standby generators to provide power to the installation in the event of loss or reduction in power supply from the grid. The generators will run on HVO and will be operated less than 500 hours per annum. The generators are within the scope of the Medium Combustion Plant (MCP) Regulations 2017, SI 595/2017, hereafter referred to as the MCP Regulations.

Planning permission was granted for the development of a 110kV substation located centrally within the site, by An Bord Pleanála (ABP) on 18 March 2021 (ABP Ref. no. 309773). This will be connected to the national grid via two new underground transmission lines routing to an existing circuit, approximately 940 m east of the site.

The combined capacity of total rated thermal input at the installation exceeds the 50 MWth threshold of Class 2.1 First Schedule of the EPA Act 1992, as amended and therefore the applicant has applied to the Agency for an Industrial Emissions Licence. The installation will require a Greenhouse Gas (GHG) Emissions permit, in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012, SI 490/2012 and amendments.

2. Description of activity

The proposed site is an area of largely undeveloped greenfield land located in the townland of Milltown, near Newcastle in Co. Dublin. The site is located within the administrative area of South Dublin County Council (SDCC) and is bordered to the south by the Peamount Road (R120), and in all other directions by agricultural lands except for an area to the west that borders some commercial developments.



Figure 2.1: Installation Site Location

The nearest residential receptors are directly adjacent to the site boundary (one residence by the south-west and one by the south-east).

The power generation installation will be contained within a 14,240 m² compound in the northern part of the site. The installation is designed to operate as a peaking plant, providing supply to the national grid during periods where high electricity demand coincides with low supply.

The power generation installation will have seven no. 38.488 MWth dual fuel reciprocating internal combustion engines.

Power generation installation figures for the 7 engines combined are:

- Total rated thermal input: 269 MWth
- Maximum thermal output: 153 MW
- Maximum generation capacity: 116 MWe

The primary fuel for the engines will be natural gas. In the event of an interruption to the natural gas supply, the engines will be capable of running on HVO for up to 72 hours. This is in accordance with the secondary fuel requirements of the Commission for Regulation of Utilities (CRU). The operation of the engines will result in noise emissions and emissions to air. The engines will have individual 25m flues that will be housed between two stacks (one stack will house three flues, the second stack will house four flues). The installation will also include medium and low voltage switchgear, an above ground installation gas connection, a gas compressor, a water tank, water treatment, firewater tank and pumps, fuel skids, fuel tanks and a battery energy storage system (BESS) compound containing 17 skids including step up transformer, auxiliary power transformer, switchgear container and 35 inverters. The main production process will be supported by an ancillary substation for the connection and export of electricity.

The proposed ICT installation will include two no. two storey buildings. One building will be located in the southern part of the site and the other building will be located on the eastern part of the site. Each building will have a 15,196 m² footprint. The ICT installation will be supported by 36 no. 8 MWth standby HVO generators for an uninterrupted supply of power in the event of loss or reduction of supply from the grid.

ICT installation figures for the 36 standby HVO generators combined are:

- Total rated thermal input: 288 MWth
- Maximum thermal output: 119 MW

Each generator will have an individual flue of 25 m in height and will be supplied by its own dedicated double skinned HVO tank. The generators will be fully enclosed within acoustic screens for mitigation of noise emissions. Each generator will be subject to routine testing and the operation of the generators will result in noise emissions and emissions to air. The generators will be operated less than 500 hours per annum and fall within the scope of the MCP Regulations. Each building will also include data storage rooms, electrical and mechanical plant rooms, loading bays, maintenance and storage spaces, office administration areas, two pump rooms, water storage tanks and a separate house generator to provide emergency power to administrative and ancillary spaces.

Figures for the entire installation (7 no. engines and 36 no. generators) are:

- Total rated thermal input: 557 MWth
- Maximum thermal output: 272 MW
- Maximum generation capacity: 116 MWe¹

The main emissions from the installation will include noise, emissions to air and sewer.

3. Planning Status

A number of planning applications have been made by the applicant for the area within the installation boundary. The installation is comprised of three projects, each subject to separate planning applications:

- Power generation installation (Ref. SD20A/0058), which was granted planning permission by South Dublin County Council (SDCC) in December 2020,
- Information and communication technology (ICT) installation (Ref. SD20A/0324), granted planning by South Dublin County Council in July 2021, and
- A new substation and grid connection works (ABP 309773-21), which was granted planning by An Bord Pleanála in December 2021.

Details of the relevant planning applications and permissions have been provided in the application form. Specific additional information received by SDCC of relevance as part of the Agency's functions under Section 15(1) of the Climate and Low Carbon Development Act 2015 as amended, are outlined below.

¹ Power generation installation only

SDCC issued a request for additional information from the applicant on 16 June 2020, requesting additional information in respect of the power plant requesting from the applicant: *"...justification for the form of energy production proposed in relation to climate change and renewable energy policy..."*. The applicant responded to the request for further information on 18 September 2020 and outlined in detail the justification for the application to construct a peaking power plant. On review of the additional information, SDCC concluded that: *"In terms of climate change and renewable energy the Applicant's argument is that the proposal would support a change to a low carbon energy system and would essentially provide a back-up for any shortfalls in renewable energy generation."* Furthermore, in respect of the Energy Analysis provided by the applicant, SDCC considered that: *"An estimate has been provided based on exporting 100MW of heat which would provide a maximum of 250GWh/annum, if the plant operates for 2,500 hours per annum. However, this appears to indicate that due to the fluctuating nature of the amount of waste heat that would be produced, largely due to the fact that the plant would only operate in response to fluctuations in the Irish electricity grid, there is no set figure for the amount of waste heat that would be generated."* In this regard, SDCC noted that: *"The Energy Analysis report has concluded that due to the fact that the facility would consist of a peaking power plant, that would operate sporadically over a maximum period of 29% of the year, it would not be feasible to install a heat network. The report states that the plant would operate in response to electricity demand from the Irish Electricity Grid which fluctuates and therefore not in response to heat demand from consumers."*

In response to the additional information requested by SDCC in relation to climate and energy, the applicant represented to SDCC that it intends to operate a peaking plant. SDCC ultimately granted planning permission *inter alia* because of the additional information submitted by the applicant, including that:

- The power generation installation will operate as a peaking plant that will only operate in response to fluctuations in the Irish electricity grid.

This additional information is captured as part of Condition 1 of the planning permission.

In respect of the data centre, a senior planner in SDCC requested further information from the applicant in respect of the proposed development on 11 February 2021. In particular, the planner noted SDCC's concerns in respect of the feasibility and adverse impacting of servicing the site and the power plant with power. SDCC requested the applicant to clarify:

"...the servicing and energy relationship between the proposed data centres and the permitted power plant..."

By response dated 17 May 2021, the applicant informed SDCC that:

*"We wish to confirm that the Power Generation Facility (PGF) as granted under SDCC Reg. Ref. SD20A/0058 and the ICT facilities, subject of this application, **are not** power connected and nor are they reliant on each other. There are no direct power connections between each. They solely import and export power from and to the national grid via the substation that is the subject of an SID application and is with the Board for determination."*

In addition, the applicant stated that:

"We note from the quote that the Planning Authority refer to under this part of the AI request and planners report. It is unclear from the submitted application documents, where this stems from, as no reference to any interdependence is outlined in either the planning report, EIA Report or the Energy Statement. We wish to be extremely clear in this regard in making this response".

On the basis of the response, the planner considered that, overall, the applicant had provided the further information requested. SDCC ultimately granted planning permission *inter alia* because of the additional information submitted by the applicant, including that:

- There will be no power connection between the power plant and the data centre, and
- The data centre will only be powered by the national grid.

This additional information is captured as part of Condition 1 of the planning permission.

The Agency has had regard to the reasoned conclusions reached by SDCC as part of performing its functions under Section 15(1) of the Climate and Low Carbon Development Act 2015 as amended.

An Environmental Impact Assessment Report (EIAR) was not submitted in support of the planning application for the power generation installation (Ref. SD20A/0058). However, a letter from SDCC confirming that EIA was not required for this development has been submitted as part of the licence application. The applicant submitted a separate EIAR for planning applications Ref. SD20A/0324 for the ICT installation and ABP 309773-21 for the substation, to the planning authorities. Each EIAR contains a cumulative assessment of the three projects: the ICT installation, power generation installation and the new substation/grid connection works. The EIAR (dated December 2020) for the ICT installation and an EIAR (dated March 2021) for the new substation have been submitted as part of the licence application.

The Agency has had regard to the reasoned conclusions reached by SDCC and ABP in undertaking its environmental impact assessment of the activity.

4. EIA Screening

In accordance with Section 83(2A) of the Environmental Protection Agency Act 1992, as amended (hereafter referred to as the EPA Act) the Agency must ensure that before a licence or revised licence is granted, that the application is made subject to an environmental impact assessment (EIA), where the activity meets the criteria outlined in Section 83(2A)(b) and 83(2A)(c).

In accordance with the EIA Screening Determination, the Agency has determined that the activity is likely to have a significant effect on the environment, and accordingly is carrying out an assessment for the purposes of EIA.

The activity exceeds the threshold of project type 10(b)(iv) in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 as amended:

- *Class 10 (b) (iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.*

An EIAR associated with Planning Ref. No. SD20A/0324 and an EIAR associated with Planning Ref. No. ABP 309773-21 were submitted to the Agency as part of the licence application on 02 November 2021 and 18 January 2022, respectively. These are dealt with in the EIA Section later in this report.

5. Best Available Techniques

BAT for the installation was assessed against the BAT Conclusions contained in the Commission Implementing Decision (CID) (EU) 2021/2326 of 30 November 2021 establishing

best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants (hereafter referred to as LCP CID). and in any other relevant BREF documents specified in Appendix 4 of this report.

A detailed BAT assessment was carried out by the applicant and is included in the application form (Application Form LA007312). Appendix 5 of this report sets out the applicable BAT Conclusions, the specific techniques employed and the relevant condition / schedule in the RD.

BAT for the installation was also assessed against the following horizontal BREF documents:

- BREF document for Emissions from Storage (July 2006) (BREF Assessment Attachment 4-7-3),
- BREF document for Energy Efficiency (February 2009) (BREF Assessment Attachment 4-7-2), and
- BREF Document for Industrial Cooling Systems (December 2001) (BREF Assessment Attachment-4-7-4).

The applicant submitted an assessment of the installation's activity against the relevant BAT requirements set out under each of the above listed horizontal BREFs.

The assessment has demonstrated that the installation will comply with the LCP and MCP Regulations and will be in line with the guidance specified in the relevant horizontal BREF Documents as listed above.

BAT associated emission levels (BAT-AELs) as specified in the LCP CID have been included in Schedule B of the RD and are specified in the emissions sections of this report. The monitoring frequencies of emissions to air have been set out Schedule B of the RD, in line with the LCP CID, where relevant.

I consider that the applicable BAT Conclusion requirements, and guidance as outlined in the relevant BREF Documents, are addressed through the technologies and techniques as described in the application, as well as the conditions and limits specified in the RD.

6. Emissions

6.1 Emissions to Air

This section addresses emissions to air from the installation and the environmental impact of those emissions.

6.1.1 Channelled Emissions to Air

Main Emissions

The main emissions at the installation arise from the seven dual-fuel engines running on natural gas (normal operations) and HVO (emergency operations).

Each of the seven engines will have its own individual 25 m (above ground level) emission flue. Each flue is considered a main emission point (Ref. Nos. A1-1 to A1-7). The seven flues will be grouped between two no. stacks – three flues housed in one stack; four flues housed in the other. The exhaust gases from the combustion process within the engines will be channelled through the emission flues and discharged to the atmosphere via the stacks at 25 m above ground level. The engines incorporate selective catalytic reduction (SCR) abatement technology to reduce NO_x concentrations.

The power generation installation is designed as a peaking plant, and thus the engines will only operate during periods of high demand and low generation – the applicant has stated that this is expected to be around 2,500 hours per annum. The pollutants released from the operation of the engines on natural gas will include NO_x, CO and NH₃ (see Table 6.1 below for details).

The engines will only operate on HVO during situations involving a loss of natural gas to the installation and for routine testing. The applicant has stated that such a scenario requiring the use of HVO would not be expected to exceed 24-48 hours. The pollutants released from the operation of the engines running on HVO will include NO_x, CO, SO₂, and dust (see Table 6.1 below for details). Emission Limits for the engines operating on HVO have been assessed against “gas-oil” limits of the LCP CID BAT, as HVO is not specified in the LCP CID, LCP Regulations, or in Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (hereafter referred to as the IED). In accordance with the LCP CID BAT, ELV’s are not applicable for the installations engines when operating on HVO for less than 500 hours in a year.

Table 6.1: Emission Concentrations at Main Emission Points

Emission Reference	Process Description	Parameter	LCP CID BAT – AEL (mg/Nm ³)		Modelled (mg/Nm ³)	RD ELV (mg/Nm ³)
			Annual	Daily		
A1-1 to A1-7	<i>Engines combusting natural gas</i>	NO _x	20 - 75	55 - 85	45 (hourly)	45 (yearly average) 55 (daily average)
		CO	30 - 100	100 ³	100 (hourly)	100 (yearly average)
		NH ₃	3 - 10	3 - 10	10 (yearly average)	10 (yearly average)
A1-1 to A1-7	<i>Engines combusting HVO¹</i>	NO _x	115 – 190 ²	145 – 300 ²		n/a ⁴
		CO	Note 5	-		n/a ⁴
		SO ₂	45 – 100 ²	60 – 110 ²		n/a ⁴
		Dust	5 – 10 ²	10 – 20 ²		n/a ⁴

Note 1: In the absence of BAT-AELs for HVO-fired engines, BAT-AELs for gas-oil-fired engines have been used instead, as the most comparable option for fuel characteristics.

Note 2: These BAT-AELs may not apply for emergency use operated less than 500 h/yr, when such emergency use is not compatible with meeting the BAT-AELs.

Note 3: LCP Regulations ELV.

Note 4: Schedule A of the RD restricts operation hours combusting HVO fuel to less than 72 h/yr, therefore the exemption in note 2 applies.

Note 5: The yearly average CO emission levels should generally be 50–175 mg/Nm³.

Minor Emissions

There are other emission points to air at the installation which, due to their emission characteristics are regarded as minor emissions. The minor emissions at the installation will arise from the operation of the ICT’s 36 no. emergency generators running on HVO (routine testing and emergency operations only). Each generator is rated as 8 MWth and is classed as a Medium Combustion Plant (MCP).

Each generator will have its own individual 25 m emission flue. Each flue is considered a minor emission point (Ref. No. A3-1 to A3-36). The 36 flues will be grouped between 10 no. stacks (25 m) - eight stacks housing four flues each, with the remaining two stacks housing two flues

each. The exhaust gases from the combustion process within the generators will be channelled through the emission flues and discharged to the atmosphere via the stacks.

The generators will only operate during situations involving the loss of power from the grid to the ICT installation and for routine testing purposes. A situation requiring the use of the emergency generators is not expected to exceed 24-48 hours, and routine testing will be carried out periodically, typically one hour per generator once a month, on an individual basis. Fixed unit meters will track their duration of operation. Condition 11.16 of the RD requires the hours of operation to be recorded and available for inspection by the Agency at all times.

The applicant proposes that the generators will operate less than 500 hours per year - under Reg. 13 of the MCP Regulations, plant which operate less than 500 hours per year are not required to comply with the emission limit values set out in the MCP Regulations. The applicant has requested this exemption be applied, based on the proposed limited use of the generators at the installation. The applicant has carried out air modelling for an annual maximum of 72 hours of generator operations. Accordingly, Schedule A of the RD restricts the annual hours of operation of the generators to < 72 hours per year.

The pollutants released from the operation of the generators will include NO_x, CO, SO₂ and dust (see Table 6.2 below for details). Emission limit values have been assessed against “Liquid fuel other than gas-oil” limits in the MCP Regulations, as HVO is not specified in these regulations.

Table 6.2: Emission Concentrations at Minor Emission Points

Emission Reference	Process Description	Parameter	MCP Regulations ELV (mg/Nm ³)	RD ELV
A3-1 to A3-36	<i>Standby generators combusting HVO (liquid-fuel)³</i>	NO _x	300 ¹	N/A ²
		CO	-	
		SO ₂	350 ¹	
		Dust	20 ¹	

Note 1: These ELVs may not apply where operation is < 500 h/yr, as a rolling average over a period of three years.

Note 2: Schedule A of the RD limits the operation of the generators to < 72hr/year, so ELVs do not apply.

Note 3: MCP regulations do not specify limits for HVO – “liquid fuel” limits have been adopted instead as the most comparable.

Air Dispersion Modelling

To assess the potential impacts of the installation’s channelled air emissions, the applicant carried out air emissions dispersion modelling under four scenarios: normal operations, emergency operations, a cumulative scenario that includes the cumulative impact of emissions from nearby installations, and a further cumulative scenario that includes an additional 40 emission points (not yet constructed) at the nearby Edgeconnex Ireland Limited site.

AERMOD dispersion modelling software was used incorporating terrain, albedo, bowen ratio and surface roughness values and plume rise and building downwash algorithms. The models incorporated a gridded receptor network and included site boundary receptors (at 25 m intervals), discrete individual residence receptors and sensitive ecological site receptors. All receptors were modelled for concentrations at 150 cm height.

Meteorological data for a five-year period (2019 – 2023) was used and collected from Casement Aerodrome Meteorological Station (approximately 1.3 km south of the site). As part of the implementation of the Framework Directive on Air Quality (Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management) four air quality zones have been defined in Ireland for air quality management and assessment purposes. In

terms of air monitoring, Dublin is categorised as Zone A. Ambient background concentrations for NO₂, CO, PM₁₀, PM_{2.5}, ammonia and SO₂ were selected based on data from relevant Zone A, EPA monitoring stations, and used in the model. The impact of the modelled emissions was assessed for against ambient air quality standards, in conjunction with the background concentrations established. The results of the air dispersion modelling are contained within the applicant's Air Impact Assessment Report (Letter from applicant - Regulation 10 Reply-5 Jul 2024 Attachment A).

Normal Operations Scenario

As part of the application, air dispersion modelling was carried out to predict the ambient pollutant concentrations resulting from channelled emissions during normal operations. The modelling carried out was in accordance with published Agency guidance and was considered sufficiently detailed and conservative to assess the impact of the channelled emissions to air. Table 6.3 below outlines the hours of operation and fuel combustion types modelled by the applicant in the normal operation scenario.

Table 6.3: Annual Combustion Plant Operations - Normal

Combustion Plant	Fuel	Max Expected	Modelled
Engines (normal)	Natural Gas	2,500 hours	8,760 hours
Emergency Generator (tests)	HVO	Monthly basis ¹	Weekly basis ²

Note 1: One hour per month.

Note 2: One hour per week.

The modelling approach can be regarded as conservative as it assumes significantly longer duration of the normal operations expected in a year.

Table 6.4 gives details of the predicted impact on ambient air quality of the channelled emissions to air proposed. The results presented are for the worst-case location outside the installation boundary, for the worst-case year.

Table 6.4: Dispersion Model Results - Normal Operations Scenario

Parameter	Averaging Period	Background concentration (µg/m ³)	Process contribution (µg/m ³)	Predicted Environmental Concentration (PEC) (µg/m ³)	Air Quality Standards/Guidelines (µg/m ³) ¹	PEC as % of Air Quality Standard
Nitrogen Oxides (as NO ₂)	99.8%ile hourly (2020)	28	99.6	127.6	200	64%
	Annual mean (2020)	14	11.5	25.5	40	64%
Carbon monoxide (CO)	Maximum 8 hour (2022)	3,700	620	4,320	10,000	43%
	Daily (90.4%ile) (2021)	23	0.18	23.05	50	46%

Parameter	Averaging Period	Background concentration ($\mu\text{g}/\text{m}^3$)	Process contribution ($\mu\text{g}/\text{m}^3$)	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	Air Quality Standards/ Guidelines ($\mu\text{g}/\text{m}^3$) ¹	PEC as % of Air Quality Standard
PM ₁₀	Annual mean (2023)	16	0.05	16.05	40	40%
	Annual mean (2023)	10	0.05	10.05	25	40%
NH ₃	Annual mean (2020)	1	5.2	6.24	180 ²	3%
	Maximum 1-hour (2023)	2	79.7	81.37	2,500 ²	3%
	99 th ile 1 hour mean (2022)	2	54.4	56.38	300 ³	19%

Note 1: Air Quality Standards Regulations 2022, SI 739/2022, unless otherwise stated.

Note 2: UK Environmental Guidelines.

Note 3: Danish Environmental Guidelines.

The model results of the normal operations scenario indicate that the ambient ground level concentrations are within the relevant air quality standards:

- NO₂ (including background concentrations) in the worst-case year modelled are at most 64% of the 1-hour limit value (as a 98th percentile) and 64% of the annual limit value at the worst-case receptor modelled.
- CO concentrations in the worst-case year (including background) are at most 43% of the maximum 8-hour limit value at the worst-case receptor modelled.
- Ammonia concentrations are at most 3% of the maximum ambient 1-hour limit value and 3% of the annual limit value and at most 19% of the 99th percentile 1-hour limit value at the worst-case receptor modelled.
- Particulate matter concentrations of PM₁₀ (including background) are 46% of the maximum ambient 24-hour limit value (measured as a 90.4th percentile) and 40% of the annual limit value at the worst-case receptor modelled. Particulate matter concentrations of PM_{2.5} (including background) are at most 40% of the annual mean limit value.

According to the applicant's Air Impact Assessment Report:

- the ecological habitat site closest to the installation, and where the highest modelled concentrations are predicted, is the Grand Canal proposed natural heritage site (pNHA), site code 002140, and
- the Natura 2000 site closest to the installation is the Rye Water Valley/Carlton SAC (site code 001398), however, the Natura 2000 designated habitat where the highest modelled concentrations are predicted is the Glenasmole Valley SAC (site code 001209), approx. 8 km south-east of the site.

Regarding the ecological habitat site where the highest modelled concentrations are predicted, the Grand Canal pNHA, the results of the modelling outlined in the applicant's Air Impact Assessment Report state that emissions from the installation result in:

- Ambient NO_x and NH₃ concentrations (including background) which are at most 29% and 74% respectively of the annual limit values, and
- Nitrogen deposition flux for the worst-case year is 6.649 kg/ha/yr and is below the range in worst-case critical loads of 10-15 kg/ha/yr for the habitat types (hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland) in the Grand Canal pNHA.

Regarding the Natura 2000 site where the highest modelled concentrations are predicted, Glenasmole Valley Special Area of Conservation (SAC), the results of the modelling outlined in the applicant's Air Impact Assessment Report state that emissions from the installation result in:

- Ambient NO_x and NH₃ concentrations (including background) which are at most 14% and 51% respectively of the annual limit values, and
- Nitrogen deposition flux for the worst-case year is 6.9 kg/ha/yr and is within the range in worst-case critical loads of 5-15 kg/ha/yr for the habitat "Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*)" in the Glenasmole Valley SAC. The modelling undertaken by the applicant indicates that the worst-case process contribution of nitrogen deposition is 0.101 kg N/ha/year. While background N deposition levels may already exceed the lower level in this range (an APIS Background nitrogen deposition figure of 6.8 kg /ha/yr is referred to in the licence application), the contribution of the installation to N deposition is low relative to the background and is approximately 2% of the critical load for the most sensitive qualifying interest habitat at this SAC.

Emergency Operations Scenario

As part of the application, air dispersion modelling was also carried out to predict the ambient pollutant concentrations resulting from channelled emissions during emergency operations. The modelling carried out was in accordance with published Agency guidance and was considered sufficiently detailed and conservative to assess the impact of the channelled emissions to air. Table 6.5 below outlines the hours of operation and fuel combustion types modelled by the applicant in the emergency operations scenario – this scenario includes the hours and fuels of the normal operations in addition to those of an emergency scenario.

Table 6.5: Annual Combustion Plant Operations – Normal plus Emergency

	Fuel	Max Expected	Modelled
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Engines (normal)	Gas	2,500 hours	8,760 hours
Engines (emergency)	HVO	24 – 48 hours	72 hours
Generators (tests)	HVO	Once per month	Once per week
Generators (emergency)	HVO	24 – 48 hours	72 hours

The modelling approach can be regarded as conservative as it assumes significantly longer durations of annual operation of the combustion plants under normal and emergency conditions than are reasonably expected.

Table 6.6 below gives details of the predicted impact of the channelled emissions to air from the emergency operations model. The results presented are for the worst-case location outside the installation boundary and worst-case year.

Table 6.6: Dispersion Model Results - Emergency Operations Scenario

Parameter	Averaging Period (µg/m ³)	Background concentration (µg/m ³)	Process contribution (µg/m ³)	Predicted Environmental Concentration (PEC) (µg/m ³)	AQS (µg/m ³) ¹	PEC % of AQS
Nitrogen Oxides (as NO ₂)	<i>99.8%ile hourly (2020)</i>	28	146.3	174.3	200	87%
	<i>Annual mean (2020)</i>	14	16.9	30.9	40	77%
Carbon monoxide (CO)	<i>Maximum 8 hour (2022)</i>	3,700	630	4,330	10,000	43%
PM ₁₀	<i>Daily (90.4%ile) (2020)</i>	23	0.53	23.17	50	46%
	<i>Annual mean (2020)</i>	16	0.17	16.17	40	40%
PM _{2.5}	<i>Annual mean (2020)</i>	10	0.17	10.17	25	41%
SO ₂	<i>Annual mean (2020)</i>	3	0.2	3.16	-	-
	<i>99.7%ile 1-hr mean (2020)</i>	29	2.3	29.32	8%	8%

	99.2 nd ile 24hr mean (2020)	18	1.2	18.32	15%	15%
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Note 1: Air Quality Standards Regulations 2022, SI 739/2022, unless otherwise stated.

The model results of the emergency operations scenario indicate that the ambient ground level concentrations are within the relevant air quality standards:

- NO₂ (including background concentrations) in the worst-case year modelled are at most 87% of the 1-hour limit value (as a 98th percentile) and 77% of the annual limit value at the worst-case receptor modelled.
- Ammonia results are the same as under the Normal Operations Scenario as NH₃ is not emitted during emergency operations with the engines operating on liquid fuel.
- CO concentrations in the worst-case year (including background) are at most 43% of the maximum 8-hour limit value at the worst-case receptor modelled.
- SO₂ concentrations are at most 8% of the 99.7 percentile 1-hour limit value at the worst-case receptor modelled and 15% of the maximum 24-hour limit value (measured as a 99.2nd percentile) at the worst-case receptor modelled.
- Particulate matter concentrations of PM₁₀ (including background) are 46% of the maximum ambient 24-hour limit value (measured as a 90.4th percentile) and 40% of the annual limit value at the worst-case receptor modelled.
- Particulate matter concentrations of PM_{2.5} (including background) are at most 41% of the annual mean limit value.

According to the applicant's Air Impact Assessment Report:

- the ecological habitat site closest to the installation, and where the highest modelled concentrations are predicted, is the Grand Canal proposed natural heritage site (pNHA), site code 002140, and
- the Natura 2000 site closest to the installation is the Rye Water Valley/Carlton SAC (site code 001398), however, the Natura 2000 designated habitat site where the highest predicted pollutant concentrations will occur is the Glenasmole Valley SAC (site code 001209), approx. 8 km south-east of the site.

Regarding the ecological habitat site where the highest modelled concentrations are predicted, the Grand Canal pNHA, the results of the modelling outlined in the applicant's Air Impact Assessment Report state that emissions from the installation result in:

- Ambient NO_x, NH₃ and SO₂ concentrations (including background) which are at most 32%, 74% and 4% respectively of the annual limit values, and
- Nitrogen deposition flux for the worst-case year is 6.77 kg/ha/yr and is below the range in worst-case critical loads of 10-15 kg/ha/yr for the habitat types (hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland) in the Grand Canal pNHA, indicating that the effects of nitrogen deposition on ecological habitat sites due to the installation are not significant.

Regarding the Natura 2000 site where the highest modelled concentrations are predicted, Glenasmole Valley Special Area of Conservation (SAC), the results of the modelling outlined in the applicant's Air Impact Assessment Report state that emissions from the installation result in:

- Ambient NO_x, NH₃ and SO₂ concentrations (including background) which are at most 14%, 51% and 4% respectively of the annual limit values, and
- Nitrogen deposition flux for the worst-case year is 6.908 kg/ha/yr and is within the range in worst-case critical loads of 5-15 kg/ha/yr for the habitat "*Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)*" in the Glenasmole Valley SAC. The modelling undertaken by the applicant indicates that the worst-case process contribution of nitrogen deposition is 0.108 kg N/ha/year. While background N deposition levels may already exceed the lower level in this range (an APIS Background nitrogen deposition figure of 6.8 kg /ha/yr is referred to in the licence application), the contribution of the installation to N deposition is low relative to the background and is approximately 2% of the critical load for the most sensitive qualifying interest habitat at this SAC.

Cumulative Assessment

In addition to modelling the impact of the proposed installations air emissions from normal operations and emergency operations, the applicant also modelled the impact of the air emissions when considered cumulatively with the air emissions of other EPA licensed activities (proposed and operational power generation, data storage and pharmaceutical manufacturing installations) in the area, including:

Greener Ideas Limited (P1196-01), Microsoft (DUB06), Microsoft (DUB07), Microsoft (DUB08), Microsoft (DUB09), Microsoft (DUB10), Microsoft (DUB11), Microsoft (DUB12), Microsoft (DUB13), Microsoft (DB07 & DB08 Admin Generators), Microsoft (DB09 & DB10 Admin Generators), Microsoft (DB12 Admin Generators), Microsoft (DB13 Admin Generators), Microsoft (DB03), Microsoft (DB04), Microsoft (DB05), Microsoft (DB04 & DB05 Admin Generators), Microsoft (DUB14), Microsoft (DUB15), ADSIL (P1170-01) Building A, B & C Generators, ADSIL (P1184-01), Edgeconnex Gas Generators (20 no.), Edgeconnex Phase 1, Edgeconnex Phase 2, Edgeconnex Phase 3, Edgeconnex DUB03, Edgeconnex DUB04, Edgeconnex DUB05, Google Ireland, Interxion (DUB03), Interxion (DUB04), Digital Realty Trust (DUB13), Digital Realty Trust (DUB14), Digital Realty Trust (DUB15), Digital Realty Trust (DUB16), Vantage (DUB11), Equinix (DB8), Pfizer (P0652-02), Takeda (P0693-03) and Grange Back-Up Power (P1033-02).

The modelling carried out was in accordance with published Agency guidance and was considered sufficiently detailed and conservative to assess the cumulative impact of the channelled emissions to air.

The cumulative model includes the following conservative assumptions:

- the air emissions for the proposed installation in the worst-case emergency scenario, coinciding with,
- the cumulative air emissions of all EPA licensed (and proposed) sites within a 2.5km radius, including,

- the air emissions from the emergency operation of backup generators at IE licensed data sites,
- coinciding with the worst-case 5-year meteorological data, and
- for the worst-case receptor impacted.

The results of the cumulative model indicate that the ambient ground level concentrations at the worst-case receptor for the worst-case year are within the relevant air quality standards:

- NO₂ of 87.19% of the ambient 1-hour limit value (measured as a 99.8th percentile) and 99.82% of the ambient annual mean limit value,
- NH₃ of 3% of the maximum ambient 1-hour limit value and 3% of the annual limit value and 19% of the 99th percentile 1-hour limit value,
- PM₁₀ of 46% of the 90.4th percentile ambient 24-hour limit value and 40% of the annual limit value,
- PM_{2.5} of 41% of the annual mean limit value, and
- SO₂ of 10% of the 99.7th percentile 1-hour limit and 16% the 99.2nd percentile.

NO₂ contour plots supplied with the modelling report (Figures 6.1 and 6.2 below) show the location and extent of the areas where the maximum process contribution applies (including background), and the rate of drop in ambient concentration with distance from the location of the maximum.

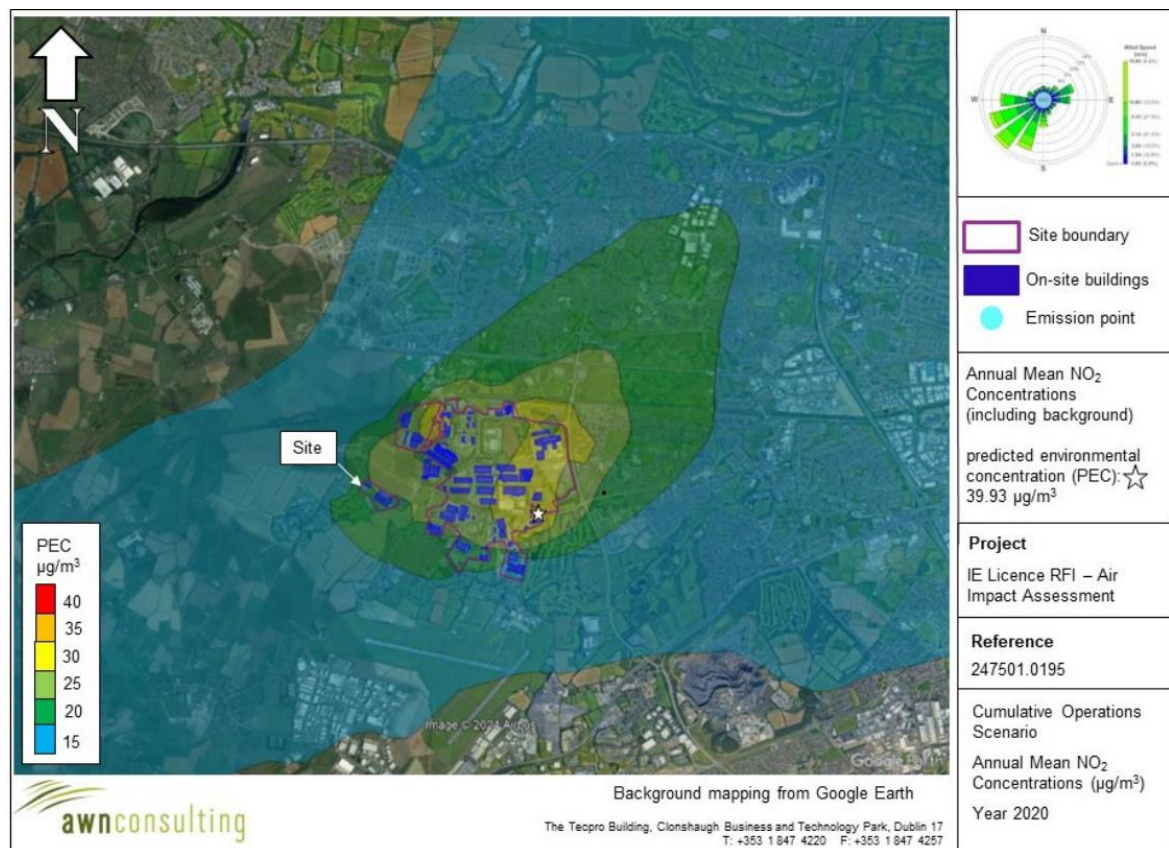


Figure 6.1: Maximum annual mean concentration of NO₂ PEC for the worst-case year (2020) under cumulative scenario. [Source: Letter from applicant - Regulation 10 Reply-5 Jul 2024 Attachment A, July 2024].

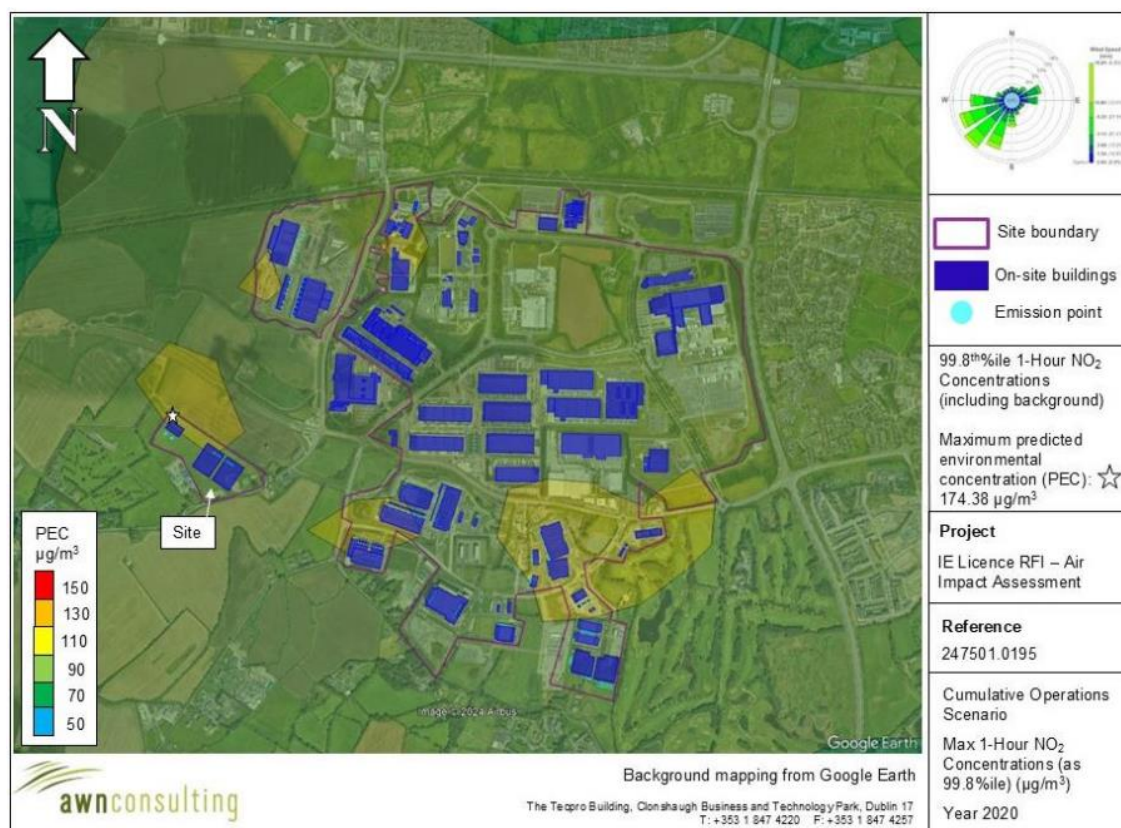


Figure 6.2: Maximum 1-hour mean concentration of NO₂ PEC for the worst-case year (2020) under cumulative scenario. [Source: Letter from applicant - Regulation 10 Reply-5 Jul 2024 Attachment A, July 2024].

According to the applicant's Air Impact Assessment Report:

- the ecological habitat site closest to the installation and where the highest modelled concentrations are predicted, is the Grand Canal proposed natural heritage site (pNHA), site code 002140, and
- the Natura 2000 site closest to the installation is the Rye Water Valley/Carton SAC (site code 001398), however, the Natura 2000 designated habitat site where the highest predicted pollutant concentrations will occur) is the Glenasmole Valley SAC (site code 001209), approx. 8 km south-east of the site.

Regarding the ecological habitat site where the highest modelled concentrations are predicted, the Grand Canal pNHA, the results of the modelling outlined in the applicant's Air Impact Assessment Report state that emissions from the installation result in:

- ambient NO_x, NH₃ and SO₂ concentrations (including background) which are at most 96%, 76% and 6% respectively of the annual limit values, and
- nitrogen deposition flux for the worst-case year is 9.45 kg/ha/yr and is below the range in worst-case critical loads of 10-15 kg/ha/yr for the habitat types (hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland) in the Grand Canal pNHA, indicating that the effects of nitrogen deposition on ecological habitat sites due to the installation are not significant.

Regarding the Natura 2000 site where the highest modelled concentrations are predicted, Glenasmole Valley Special Area of Conservation (SAC), the results of the modelling outlined in

the applicant's Air Impact Assessment Report state that emissions from the installation result in:

- ambient NO_x, NH₃ and SO₂ concentrations (including background) which are at most 17%, 52% and 2% respectively of the annual limit values, and
- nitrogen deposition flux for the worst-case year is 7.18 kg/ha/yr and is within the range in worst-case critical loads of 5-15 kg/ha/yr for the habitat "Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)" in the Glenasmole Valley SAC. The modelling undertaken by the applicant indicates that the worst-case process contribution of nitrogen deposition is 0.108 kg N/ha/year. While background N deposition levels may already exceed the lower level in this range (an APIS Background nitrogen deposition figure of 6.8 kg /ha/yr is referred to in the licence application), the contribution of the installation to N deposition is low relative to the background and is approximately 2% of the critical load for the most sensitive qualifying interest habitat at this SAC.

Additional Cumulative Assessment

Under SDCC planning Reg. Ref. no. SD21A/0042, Edgeconnex Ireland Limited have been granted planning for a total number of 60 no. gas engines. To date, Edgeconnex have applied to the EPA for a licence (Reg. No. P1204-01) to operate 20 no. gas engines. Due to the proximity of the Edgeconnex site, the applicant has included the 20 no. engines applied for as part of the cumulative air dispersion modelling scenario discussed earlier in this report under 'Cumulative Assessment'.

At the request of the Agency, the applicant completed further worst-case cumulative modelling that includes all 60 no. gas engines with planning. This was submitted by the applicant on 18/10/2024 and is titled "Technical Note - Additional Modelling-Oct-2024". The results of the air dispersion model are listed in Table 6.7 below which shows the impact on the PEC in this scenario, both with and without, the development of the Data and Power Hub Limited Installation.

Table 6.7: Dispersion Model Results - Additional Cumulative Scenario

Main channelled emissions impact							
Parameter	Averaging Period	Scenario	Background concentration (µg/m ³)	Process contribution to PEC (µg/m ³)	Predicted Environmental Concentration (PEC) (µg/m ³)	AQS ¹ (µg/m ³)	PEC as % of AQS (µg/m ³)
Nitrogen Oxides (as NO ₂)	99.8%ile hourly (2021)	Without Proposed Installation	28	181.6	209.6	200	105%
		With Proposed Installation	28	181.6	209.6	200	105%
	Annual (2019)	Without Proposed Installation	14	30.5	44.5	40	111%
		With Proposed Installation	14	32.5	46.5	40	116%

Note 1: Air Quality Standards Regulations 2022, SI 739/2022 unless otherwise stated.

For nitrogen oxides (as NO₂), Table 6.7 above shows that the predicted environmental concentrations from the modelled scenario exceeds the relevant air quality standard for

annual mean and for 99.8 percentile hourly value. While 2019 is the worst-case year for annual mean, the information submitted by the applicant shows that the annual mean is exceeded every year. While 2021 is the worst-case year for the 99.8 percentile hourly value, the information submitted by the applicant shows that the 99.8 percentile hourly value is exceeded in 4 of the 5 years assessed.

The geographical variations in ground level NO₂ concentrations beyond the site boundary for the worst-case years and the worst-case offsite gridded receptor for this scenario are shown in Figures 6.3 and 6.4 below. The worst-case receptor for the 1-hour mean NO₂ concentration in this scenario is close to the Equinix (DB8) installation (Figure 6.3 refers) and the worst-case receptor for the annual mean NO₂ concentration in this scenario is close to the Edgeconnex installation (Figure 6.4 refers).

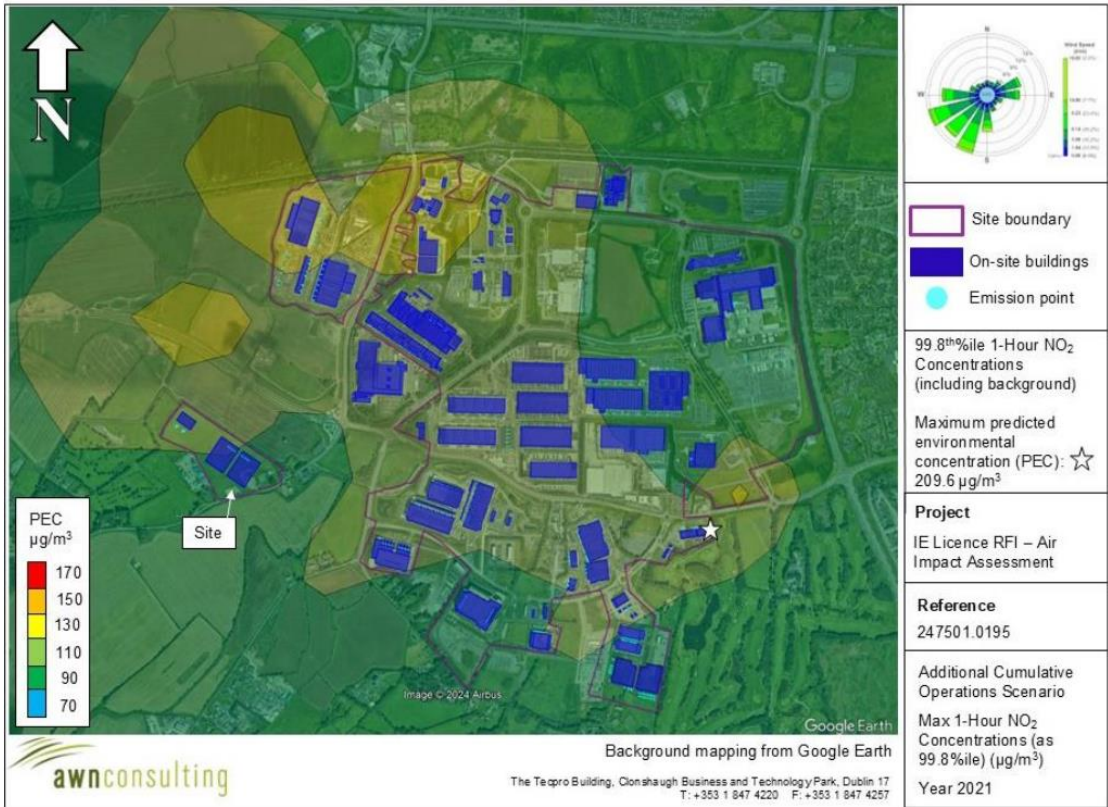


Figure 6.3: Additional Cumulative Scenario - Maximum 1-Hour NO₂ Concentrations (as 99.8th percentile) (µg/m³) (including background concentrations). [Source: *Additional Modelling-Oct-2024, 08/10/2024*].

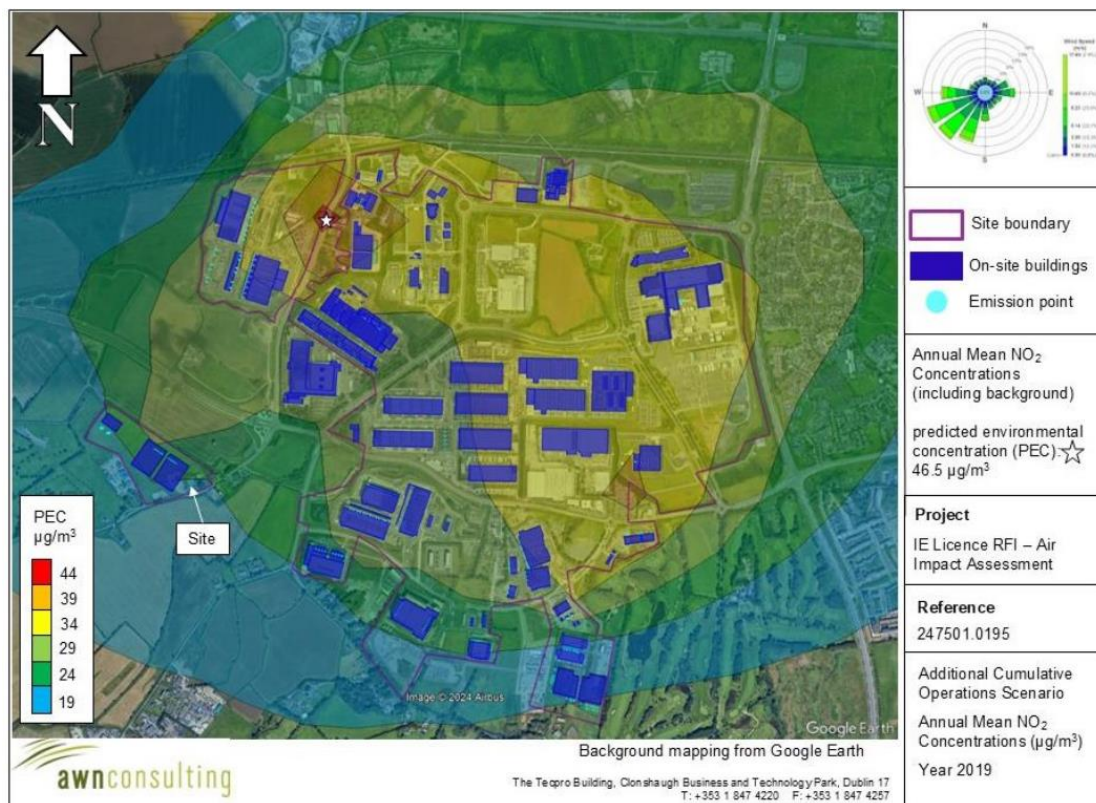


Figure 6.4: Additional Cumulative Scenario - Annual Mean NO₂ Concentrations (µg/m³) (including background concentrations). [Source: *Additional Modelling-Oct-2024*, 08/10/2024].

Recommendation

Given the number of combustion plants and their proximity to the proposed installation, there is the potential for an exceedance of air quality standards for NO_x, especially if generators across several of the data storage installations operate simultaneously with each other, and simultaneously with the proposed installation. To address the potential for an exceedance of both the short-term and long-term NO₂ emissions, protect environmental and human health and address the potential for an exceedance of NO_x for ecosystems, the Recommended Determination (RD) includes a number of conditions in order to reduce and mitigate the potential impact of channelled emissions to air:

The emissions from the 7 no. dual fuel engines are required to comply with the requirements of the Large Combustion Plant Regulations 2012, SI 566/2012 hereafter referred to as LCP Regulations, and the requirements of the LCP CID 2021/2326/EU.

For running on natural gas, the applicant has proposed an hourly emission limit value (ELV) for NO_x of 45 mg/Nm³ for the dual fuel engines. The LCP CID 2021/2326/EU for the sector does not specify an hourly value, but rather has a daily average value ranging from 55 – 85 mg/Nm³ and a yearly average value at a lower range of 20 – 75 mg/Nm³. Therefore, it is proposed to apply a daily average ELV for NO_x at the lower end of the CID range, of 55 mg/Nm³ and a yearly average ELV of 45 mg/Nm³.

For running on HVO, the applicant has not proposed an ELV for NO_x, because the engines will be running for less than 500 hours per year. This is as per the LCP Regulations, however Condition 11.15.3 requires the applicant to record the operating hours when running on HVO.

For CO, the applicant has proposed an hourly ELV of 100 mg/Nm³. Schedule 2 of the LCP Regs specifies an ELV of 100 mg/Nm³ and Schedule 4 of the LCP Regs specifies how this ELV shall

be assessed (interpreted on an hourly/daily/monthly basis). Therefore, it is proposed to apply an ELV of 100 mg/Nm³ for CO, which must be assessed against the interpretations for continuous monitoring (hourly/daily/monthly) specified in Condition 4.1.1 of the RD.

The applicant has proposed an ELV of 10 mg/Nm³ for NH₃, this is as per the BAT-associated emission level (BAT-AEL) for emissions of NH₃ to air from the use of SCR abatement and is the ELV recommended in the RD.

The applicant proposes to carry out continuous monitoring of NO_x, CO, and NH₃, and annual monitoring of SO₃, CH₄ and formaldehyde as per BAT 4 of the LCP CID. These monitoring requirements are reflected in *Schedule B.1: Emissions to Air* of the RD.

While Schedule B.1 of the RD requires that the applicant monitors NO_x, CO, SO₂ and PM_{10/2.5} emissions from the 36 generators, there are no for ELVs proposed because the generators will run for less than 500 hours per year. This is as per the MCP Regulations, however Condition 11.16 requires the applicant to record the running hours of the generators.

Condition 6.1 of the RD requires a test programme to be carried out to confirm that the emissions from the installation will comply with the ELVs set in the RD. Condition 6.17 of the RD requires the applicant to validate the calculation used to determine volumetric flow, in accordance with Office of Environmental Enforcement (OEE), *Guidance Note on EPA requirements for calculation of flue gas volume flow rate from energy consumption using Annex E of ISO EN 16911-1. Air Guidance Note 10, 2020*.

Condition 3.23 of the RD requires the applicant to establish an Ambient Air Quality Monitoring Programme. As part of the Ambient Air Quality Monitoring Programme, the applicant will establish trigger levels for relevant monitoring parameters at the monitoring locations. The air dispersion modelling shows the spatial distribution of ambient air concentrations due to emissions from the activity. Based on this data, trigger levels at monitoring points can be used to demonstrate compliance with Air Quality Standards beyond the installation boundary. The condition also requires a response programme containing actions to be taken, in the event of an exceedance of trigger levels. The condition also requires a management programme to ensure that when the installation is operational, the activity and the cumulative operation of nearby installations must not exceed the ambient air quality standards. Condition 3.23.8 of the RD requires the applicant to consult with EirGrid as part of the establishment and implementation of the Ambient Air Quality Monitoring Programme.

6.1.2 Fugitive Emissions

There will be no fugitive emissions anticipated from the operation of the installation.

6.1.3 Dust

There will be no dust emissions associated with the activity.

6.1.4 Odour

There will be no odour emissions associated with the activity.

6.2 Emissions to Water/Ground/Sewer

6.2.1 Emissions to Surface Waters

There will be no direct process emissions to surface waters from the installation.

6.2.2 Emissions to ground/groundwater

There will be no emission to ground as part of the operation of the installation.

6.2.3 Emissions to Sewer

Emissions to sewer will consist of cooling water and sanitary domestic wastewater. Discharge will be from a single emission point (Ref. no. SE1) to the foul sewer network. The generation of cooling water will be limited to instances of elevated ambient air temperatures where the cooling system will then operate in evaporative mode. In evaporative mode, water is introduced into the incoming air stream, either through the cooling pads or by spraying a fine mist. As the water evaporates, it absorbs heat from the air, lowering its temperature. The cooled air is then circulated. For the remainder of the year the ICT installation will be air cooled.

The selective catalytic reduction (SCR) abatement for the flue gas treatment system will result in no process emission to sewer or receiving water. Consent has been granted by Uisce Éireann under Section 99E for the single discharge emission point (Ref. no. SE1) to discharge to the Uisce Éireann foul sewer network approx. 550m east of the site, which in turn discharges to the Ringsend WWTP.

Ringsend WWTP (D0034-01) is designed to provide secondary treatment. Treated effluent from the Ringsend WWTP is discharged to the Liffey Estuary Lower. According to EPA Maps, the coastal water quality for Dublin Bay has a reported status of unpolluted, for the period 2018-2020.

Schedule B.3 of the RD specifies emission limit values to sewer for parameters and monitoring requirements in line with the Section 99E consent notification received from Uisce Éireann. Continuous monitoring is required for flow, pH and temperature. Emission limit values for Max Daily Load (kg/day) and ELVs for 24hr composite sample (mg/l) and max. concentration grab sample (mg/l) are provided for, for a range of parameters, as per the Section 99E consent notification.

Accordingly, it is considered that the recommended ELVs for this discharge to sewer at SE1 satisfy the requirements of the IED, the WFD, and the EPA Act 1992 as amended.

6.2.4 Other emissions to ground/groundwater

There will be no other emissions to ground/groundwater from the installation.

6.3 Storm water discharges

Stormwater discharges include stormwater from roofs and hardstanding areas. There are no process emissions to the stormwater network. Stormwater will discharge from the site at a single discharge point, Ref. no. SW1. A new stormwater line will be constructed to connect the discharge from SW1 to tie in with the existing stormwater network offsite at the junction of the Old Nangor Road and Baldonnell Road. The offsite stormwater network ultimately discharges to the Griffeen River, approximately 145 metres after the tie in point, see figure 6.5 below.

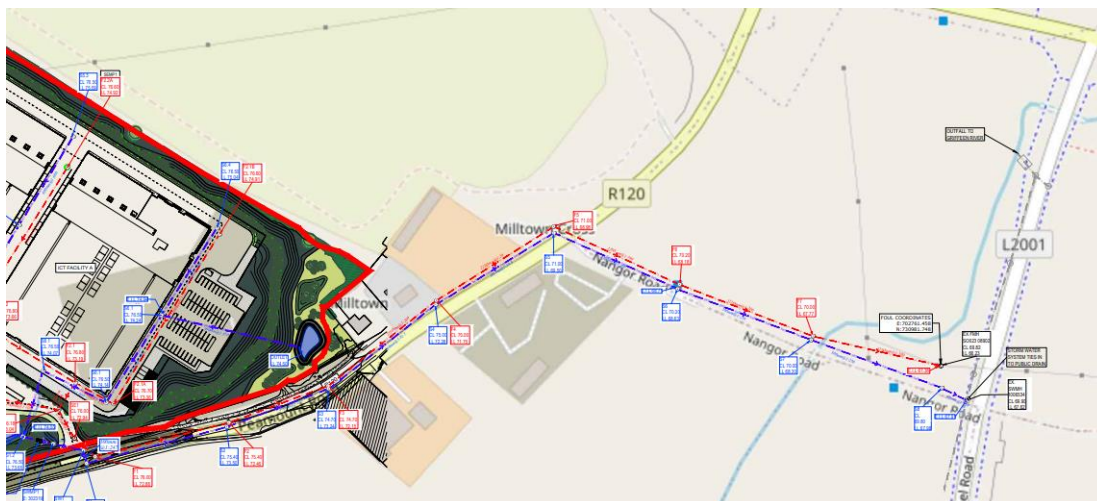


Figure 6.5: Connection lines to offsite drainage network.

All stormwater will be diverted to the on-site attenuation pond in the southwestern corner of the site. The outfall from the attenuation pond will be equipped with a non-return valve, hydrobrake, and automatic penstock. Stormwater from the attenuation pond will pass through a Class 1 bypass hydrocarbon interceptor, prior to discharge at SW1. The automatic penstock fitted at the outfall of the attenuation pond will hold potentially contaminated water on site in the event of a spill or fire, where it can be held until tested, and removed off site if required. Discharge rates will be controlled with the hydrobrake. In addition to the stormwater retention function, the attenuation pond also serves as a silt trap to prevent the release of silt offsite.

Stormwater from the site will discharge at SW1 and drain by gravity along the new offsite stormwater line until it meets with the existing public drainage network, which then ultimately discharges to the Griffeen River. The connecting line to be developed between SW1 and the existing public drainage network will form part of the public drainage network on its completion. The outfall to the Griffeen River for the existing public drainage network is equipped with an interceptor.

Table 6.7 below gives details on the installation's stormwater discharge, the sources of potential contamination of these discharges and the type of abatement measures.

Table 6.7: Stormwater discharge point details

Stormwater discharge point details					
Emission Reference	Monitored parameters (monitoring frequency)	Abatement	Drainage areas	Discharging to	Trigger levels established (Y/N)
SW1	Visual: colour & odour (daily), pH (weekly), Temperature (weekly), TOC (weekly), Conductivity (weekly), Other parameters as may be required by the Agency.	Class 1 bypass interceptor, hydrobrake, non-return valve, and attenuation pond.	Building roofs, car parking areas, and yard areas.	Public stormwater drainage network	N <i>Required by RD</i>
Automatic diversion in place:	Yes (automated penstock at outfall of attenuation pond)				

Condition 6.11.4 of the RD requires the applicant to maintain the stormwater drainage system. Condition 6.11.1 and Schedule B.5 of the RD also requires that the stormwater discharge is visually inspected daily and monitored for conductivity, pH and total organic carbon (TOC) weekly, and any other parameters, as required by the Agency, in accordance with *Schedule B.5 Stormwater Discharge Monitoring* of the RD. Trigger values will be required to be approved by the Agency and may be revised, to the satisfaction of the Agency, under Condition 6.11.3 of the RD.

Conditions 3 and 8 of the RD contain standard conditions in relation to the proper storage and management of materials and wastes. Condition 9 of the RD also requires accident prevention and emergency response procedures. The controls pertaining to accidents and emergencies are addressed in the 'Prevention of Accidents' section later in this report.

6.4 Noise

The installation is primarily located in a greenfield site in the townland of Milltown, Newcastle, Co. Dublin. The site is bordered to the south by the Peamount Road (R120), and in all other directions by agricultural lands except for an area to the west that borders some commercial developments. The two residential properties within the installation boundary have been demolished as part of the overall site development. There are a number of single dwellings along the R120, including one house to the south-east and one house to the south-west of the site boundary. The closest residential property is located immediately adjacent to the site boundary.

The main sources of noise at the installation will arise from the operation of the ICT installation, which includes the air handling units, chillers and emergency generators, as well as the operation of the power generation installation (i.e. engines, exhaust flue outlets, air intakes, cooling and ventilation units and gas pressure reducing station).

The generators will be enclosed in acoustic containers, fully surrounded by proprietary acoustic louvre screens and the engines will be housed internally within the power generation building.

In support of the licence application, the applicant submitted a noise impact assessment report in accordance with the Agency's '*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*' (2016) as may be amended or replaced by the Agency, hereafter referred to as NG4. A baseline noise survey was conducted at two locations representative of the residential properties adjoining the boundary of the installation.

The site distances to noise sensitive locations (NSLs) are outlined below and in Figure 6.6:

- **NSL1:** 30 m
- **NSL2:** 33 m
- **NSL3:** 184 m
- **NSL4:** 264 m



Figure 6.6: Noise Sensitive Locations. [Source: *Additional-Information-Oct-24*, 18/10/2024]

The proposed installation site is less than 500 m from Grange Castle Business Park. Background noise levels (L_{AF90}) recorded for the nearest NSLs were in the range of 46-47 dB(A) during the daytime, 45 dB(A) during the evening and 38 dB(A) during the night-time. The predominate source of noise was from local and distant road traffic. These levels exceed the thresholds for 'low background noise' as defined within NG4.

In accordance with NG4 the recommended noise limits for an installation in this area are as follows:

- Daytime (07:00-19:00): 55 dB(A) L_{Aeq} ,
- Evening time (19:00-23:00): 50 dB(A) L_{Aeq} , and
- Night-time (23:00-07:00): 45 dB(A) L_{Aeq} .

To conservatively assess the impact of noise emissions from the installation, four different operating scenarios have been modelled:

- **Scenario A:** Operation of the power generation installation and ICT installation (excluding the emergency generators) during daytime and evening hours.
- **Scenario B:** Operation of the power generation installation and the ICT installation (excluding the emergency generators) during night-time hours.
- **Scenario C:** Operation of the power generation installation, the ICT installation and the 36 no. emergency generators.
- **Scenario D:** Operation of the power generation installation, the ICT installation and daytime testing of 5 no. emergency generators.

Proprietary noise calculation software (DGMR iNoise) was used to quantify the noise level associated with the activity. Based on the noise assessment, the installation will be compliant

with the standard daytime, evening and nighttime limits under normal operating conditions (Scenarios A and B). In addition, Scenario D, which assessed daytime testing of 5 no. emergency generators, will be compliant with the standard daytime limit. However, under Scenario C (scenario that includes the operation of all 36 no. emergency generators) the installation would not be able to comply with the standard nighttime noise limit (45 dB LA_{eq}), with a maximum level of 47 dB LA_{eq} having been modelled for NSL2 in this scenario.

The applicant has requested that a higher nighttime limit of 50 dB(A) should be applicable in a scenario when the generators are in operation. NG4 states that where licensed sites with certain equipment which only operate in urgent events such as grid power failure (e.g. standby HVO generators), this equipment may be permitted to exceed standard noise limit values during such events.

However, given that the emergency generators could be operated for an extended period of time from between 24 – 72 hours, it is considered that the standard noise limit values should apply at the noise sensitive locations, given their proximity to the installation boundary. Based on the foregoing, the RD requires compliance with the standard noise emission limit values at noise sensitive locations.

Furthermore, as the noise levels under the worst-case scenario, Scenario C (operation of all 36 no. emergency generators) may lead to an exceedance of the standard nighttime noise limit at the noise sensitive locations, Condition 6.13.3 of the RD includes a requirement on the applicant to prepare a Noise Management Plan. The Noise Management Plan will ensure that the necessary actions are taken onsite to ensure compliance with the noise limits at the noise sensitive locations, within six months of the date of grant of licence.

In accordance with NG4, the daytime ELV has been changed from 55dB LA_{eq} to 55dB L_{A,r,T}, to allow for corrections for tonal noise, and an evening time ELV has been introduced.

7. Waste Generation

Certain wastes will be generated on site, as part of the licensable activity. The categories of waste that will be generated from the proposed activity will include dry mixed recyclables, including waste paper and packaging, cardboard, plastic packaging and bottles, aluminium cans, tins and Tetra Pak cartons; organic (food) waste; mixed non-recyclable waste; glass; confidential paper; printer cartridges; green waste from landscaping; batteries; waste electrical and electronic equipment (WEEE); metal waste; waste lubricating oil; and waste sludge from hydrocarbon interceptors. The total quantity expected to be generated will be approximately 23 tonnes per annum. A full list of waste streams that will be generated at the installation, and conditions under which such waste streams will arise, has been provided in Attachment 8.1 of the application form.

The applicant will apply measures at the installation for the prevention and/or minimisation of waste. Hazardous waste, such as waste oil and batteries, will be stored and managed as hazardous waste, until they are disposed of off-site by a licenced/permitted contractor. As outlined in Attachment 8-2-1 of the application form, and in accordance with the hierarchy specified in the IED, waste generated at the site, will in order of priority, be minimised, be prepared for re-use, recycling, recovery or disposal.

8. Energy Efficiency and Resource Use

The operation of the installation involves the consumption of fuel (primarily natural gas), electricity and water. Water will principally be used for cooling of the ICT installation during periods of high temperatures only. During normal operations, it is expected the water demand will be significantly lower and limited to domestic purposes (i.e., drinking water, and toilets). Water would also be required for firefighting purposes, in the event of a fire at the installation. The estimated quantities of fuel, electricity, and water to be used, as specified in Attachment 4.6.1 of the application are presented in Table 8.1 below.

Table 8.1: Estimated Resource Consumption Levels

Resource	Quantity per annum
Electricity	965,000 MWh
Natural Gas	55,188,000 – 231,000,000 m ³ (Note 1)
HVO	100 – 1,929 tonnes (Note 2)
Water	4,173 m ³

Note 1: Upper value is maximum potential if continuously in operation. Lower value is based on expected usage operating as a peaking plant.

Note 2: Upper value is worst case maximum in emergency conditions only. Lower value is expected usage for testing only, i.e. no emergency conditions.

The applicant will employ a variety of technology to maximise the efficient use of energy within the installation, including regular preventative maintenance on equipment, benchmarking of energy performance and efficient lighting systems. In addition, the installation uses energy efficient heating, cooling, ventilation and air conditioning (HVAC), motors / transformers and other equipment to minimise energy usage.

The installation will be operated in accordance with an Energy Management System (EnMS), and a computerised Building Management System (BMS) will be used for monitoring and reporting of energy performance and efficiency. The EnEMS will provide the features listed in BAT 1 of the Reference Document on Best Available Techniques for Energy Efficiency.

Energy efficiency at the installation will also depend on the electrical efficiency of the 7 no. engines. The BAT associated net electrical efficiency range for a new gas engine is 39.5% - 44% (LCP CID – BAT 40). The applicant has confirmed that the energy efficiency of the engines will be 44% when operating on natural gas.

Condition 7.1.3 of the RD requires the combustion plant units meet a net electrical efficiency of at least 44%.

In the application of BAT, Condition 7 of the RD provides for the efficient use of resources and energy in all site operations. It requires an energy audit to be carried out and repeated at intervals as required by the Agency and the recommendations of the audit to be incorporated into the Schedule of Environmental Objectives and Targets as outlined in Condition 2 of the RD.

The applicant has outlined that there will be no water abstraction for use on the installation.

The Climate Action Plan 2024 sets out a proposed pathway to meet the emission reduction target for the energy sector through a more rapid build out of renewables (wind and solar power) and flexible gas-fired generation, increased storage and the deployment of zero-emissions gas. The electricity sector has a ceiling of 40 MtCO₂eq. for the first budget period (2021-2025), equating to an average of 8 MtCO₂eq. per annum. GHG emissions from the electricity sector in 2022 were 9.77 MtCO₂eq.¹ and 7.56 MtCO₂e. in 2023².

Condition 7.3.1 of the RD requires the applicant to carry out a feasibility study on how to decarbonise the activity by identifying opportunities to increase the use of solar, sustainable biofuels, and alternative renewable energy sources, and submit a report to the Agency within six months of the date of grant of the licence.

The Government Statement on the Role of Data Centres in Ireland’s Enterprise Strategy³ recognises data centres as core digital infrastructure for both Ireland’s and Europe’s digital economies, and for strengthening Ireland’s position as a strategic international location for IT services. Government policy seeks to facilitate the ‘twin transitions’ of digitalisation and decarbonisation of our economy and society, and the RD has regard to the principles set out in the statement, in particular in relation to decarbonisation and energy efficiency. Condition 7.3 of the RD would further support National policy to reduce the emissions from the energy sector by requiring the applicant to carry out a feasibility study of opportunities to increase the use of solar power, sustainable biofuels and other renewable energy options including energy storage. Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency (EED), mandates that large organisations complete energy audits. The SEAI manages and oversees compliance with Ireland’s obligations under Article 8 of the EED. However, Condition 7.2 of the RD requires the applicant to carry out an audit of energy use and the energy efficiency of the site within one year of the date of grant of this licence and repeat the audit at intervals as required by the Agency.

As regards Ireland’s commitments at EU and International level, this installation is covered by the EU Emissions Trading System (EU ETS) and will operate under a GHG permit for its own direct emissions of CO₂.

¹Climate Action Plan, 2024.
²Ireland’s Provisional Greenhouse Gas Emissions 1990-2023, EPA, 2024.
³Government Statement on the Role of Data Centres in Ireland’s Enterprise Strategy, 2022.

9. Prevention of Accidents

A certain amount of accident risk is associated with the licensable activity. The applicant refers to an Accident Prevention Procedure and Emergency Response Procedure being developed in accordance with the IE licence.

Potential accidents & measures for prevention/limitation of consequences	
Potential for an accident or hazardous/ emergency situation to arise from activities at the installation.	• Potential for fire, due to large quantities of HVO stored at the installation, leading to potential emissions to air, water and/or soil and ground water. • Spillages/leaks, due to accidents on-site. • Spills/leaks of HVO during storage, use or delivery. • Malfunction of the plant including generators, etc., leading to the potential for fuel spills, or exceedances of the emission limits. • Failure of the hydrocarbon interceptors or stormwater shut off valves leading to discharges of contaminated stormwater. Environmental controls will be developed for fuel delivery, chemical storage and handling, waste management; bund and pipeline integrity testing, and incident response and reporting procedures. Emergency scenarios will also be addressed including fires, chemical spills, explosions, etc.

Potential accidents & measures for prevention/limitation of consequences	
Preventative/Mitigation measures to reduce the likelihood of accidents and mitigate the effects of the consequences of an accident at the installation.	Hazardous material (including HVO, lubricant oil and waste oil) on site will be stored in a bunded fuel area. Bunds and tanks will be equipped with level detection. Additional small quantities of maintenance chemicals will be stored in lockable, self-bunded chemstores or within buildings. All bunds will be capable of containing 110% of the volume of the largest drum/tank within the bund or 25% of the total volume of the substance stored and must be designed in accordance with the EPA's guidelines for <i>Storage and transfer of materials for scheduled activities (2004)</i>, as may be amended or replaced by the Agency). All bunds must be integrity tested every three years in accordance with the requirements of the IE licence, once issued. Within the ICT installation, each emergency generator will be supplied from individual double skinned belly tanks equipped with leak detection. Back up fuel will be delivered to the site by HGV road tankers. A dedicated tanker unloading area will be provided which will be surrounded by a drainage channel to capture any run-off. Stormwater drainage system includes an attenuation pond, Class 1 full retention interceptor, a penstock valve and hydrobrake. The installation will be equipped with automated fire detection systems (heat and smoke), and natural gas detection systems. Dedicated onsite firewater storage and hydrants will also be installed. The fire detection and alarm systems will be connected to the sprinkler and gas suppression systems, and these will be triggered in the event of a fire. Onsite utilities, including the natural gas system and electrical equipment, will be subject to operational controls and routine inspection and monitoring as part of a site wide preventative maintenance programme. All new equipment will be installed in compliance with the latest engineering standards and relevant industry codes.
Additional measures provided for in the RD	Accident prevention and emergency response requirements (Condition 9). Integrity of tanks to be assessed every 3 years and maintenance carried out as required (Condition 6.10). Stormwater discharge points to be monitored daily (Condition 6.11.1). Firewater retention risk assessment (Condition 3.14). Drainage from bunded areas to be treated as contaminated unless it can be demonstrated otherwise (Condition 3.8.4). Contaminated material to be diverted for collection and safe disposal (Condition 3.8.5).

Condition 9 of the RD requires procedures to be put in place to prevent accidents with a possible impact on the environment and to respond to emergencies so as to minimise the impact on the environment.

The proposed installation was assessed for the requirements for Environmental Liabilities Risk Assessment (ELRA), Closure, Restoration and Aftercare Management Plan (CRAMP) and Financial Provision (FP), in accordance with Agency guidance. Under this assessment it has been determined that ELRA, CRAMP and FP were not required.

10. Cessation of Activity

A certain amount of environmental risk is associated with the cessation of any licensable activity (site closure). For this installation, the main risk is to soil and groundwater contamination due to abnormal operations, including accidents and incidents such as fire, spillages / leaks or loss of containment. The applicant has provided a list of measures to be taken in the event of site closure / cessation of activity. These measures are listed Section 3.3.2 of the Baseline Report (Attachment 4.8.3).

Condition 10 of the RD requires the proper closure of the activity with the aim of protecting the environment.

The proposed installation was assessed for the requirements for Environmental Liabilities Risk Assessment (ELRA), Closure, Restoration and Aftercare Management Plan (CRAMP) and Financial Provision (FP), in accordance with Agency guidance. Under this assessment it has been determined that ELRA, CRAMP and FP are not required.

Baseline Report

Where an activity involves the use, production, or release of Relevant Hazardous Substances, and having regard to the possibility of soil and groundwater contamination at the site of the installation, the IED requires operators to prepare a baseline report.

A baseline report was submitted with the application (Attachment 4.8.3). The site is historically a greenfield site and has a number of residential structures (2) and existing structures, which are planned for demolition. Historic maps (Ordnance Survey Ireland) have been provided as part of the baseline report and indicate the greenfield nature at the site. The north-western section of the site has remained undeveloped.

The baseline report documents site investigations conducted in 2020. Four groundwater monitoring wells, 11 trial pits and eight representative soil samples taken from the trial pits were analysed and the results indicated no soil or groundwater contamination across the site.

The Groundwater body underneath the site is the Dublin GWB (European Code: IE_EA__G_008). It is currently under WFD review, but has an overall groundwater status of good.

It is in the applicant's interest to keep detailed records of operational practice such as inspections, maintenance, incidents, accidents and remediation under IED. The Agency's Office of Environmental Enforcement may refuse an application for surrender without detailed assessment and remediation proposals. Upon definitive cessation of the activity (and in accordance with Article 22(3) of the IED) the operator shall assess the state of soil and groundwater contamination by relevant hazardous substances used, produced or released by the installation. Where the installation has caused significant pollution of soil or groundwater by relevant hazardous substances compared to the state established in the baseline report,

the operator shall take the necessary measures to address that pollution so as to return the site to that state, or otherwise to take actions aimed at the removal, control, containment or reduction of hazardous substances so that the site ceases to pose a significant risk to human health or the environment. For that purpose, the technical feasibility of such measures may be taken into account.

The RD requires soil and groundwater monitoring for relevant hazardous substances in accordance with the requirements of the IED (Condition 6.12 and Schedules B.6.2 and B.6.3).

The RD includes a number of conditions to reduce the risk to soil and groundwater, by preventing discharges to ground as follows:

- The provision and maintenance of adequate bunding for all tank, container and drum storage areas (Condition 3.8);
- The requirement to have in storage an adequate supply of containment booms or suitable absorbent material to contain and absorb any spillage at the installation (Condition 3.10.)
- The provision of high-level liquid alarms (or oil detectors as appropriate) in storage areas from which spillage of environmentally significant materials might occur (Condition 3.15);
- The regular integrity testing of bunding structures, tanks, underground pipelines and containers installed on site (Condition 6.10);
- Waste and materials to be stored in designated areas, protected as may be appropriate against spillage and leachate run-off (Conditions 8.4 and 8.5).

11. Fit & Proper Person

Technical Ability

The applicant will carry out the recruitment of key personnel will be carried out in parallel during the construction phase and prior to the commencement of operations, including an experienced energy installation management company to operate the installation, an Energy Centre Manager and an EHS Manager.

Legal Standing

Neither the applicant nor any relevant person has relevant convictions under the EPA Act, or under any other relevant environmental legislation.

ELRA, CRAMP and Financial Provision

The proposed installation was assessed for the requirements of Environmental Liabilities Risk Assessment (ELRA), Closure, Restoration and Aftercare Management Plan (CRAMP) and Financial Provision (FP), in accordance with Agency guidance. Under this assessment it has been determined that ELRA, CRAMP and FP are not required.

Fit & Proper Conclusion

It is my view that the applicant can be deemed a Fit & Proper Person for the purpose of this application.

12. Submissions

While the main points raised in the submissions are briefly summarised in the table below, the original submission should be referred to at all times for greater detail and expansion of particular points.

The issues raised in the submissions are noted and addressed in this Inspector's Report and the submissions were taken into consideration during the preparation of the Recommended Determination (RD).

Submissions	
1.	Submission Ref. No. S010156 Name: Brian & Lorna Mc Nulty Date received: 23rd November 2021 Issue raised. The submission objects to the granting of the licence for a number of reasons, including: 1. The impact of the installations air emissions to the quality of air in the locality; 2. The risk of explosion from a malfunction of the battery storage or overheating at the installation, and 3. The impact of noise emissions (described in the submission as a "continuous low-grade hum") to the quality of life in the locality. Agency response. 1. Air emissions from the installation are dealt with in detail in the air section of this report. Condition 5.1 of the RD requires compliance with the air emission limit values set out in Schedule B.1 of the RD and an ambient air monitoring programme is required under Condition 3.23 of the RD. 2. The controls pertaining to accidents and emergencies are addressed in the Prevention of Accidents section of this report. Condition 2.2.11 of the RD requires a maintenance programme for, inter alia, maintenance of all plant and equipment. Condition 9 of the RD stipulates requirements for accident prevention procedures and emergency response procedures. (Further details addressing these concerns have been submitted by the applicant and are available in the application documents: see "<i>Regulation 10 Reply – Letter</i>", submitted 20/05/2022). 3. Noise emissions from the installation are dealt with in detail in the noise section of this report. Condition 6.13.3 of the RD requires a noise management plan with actions to ensure compliance with the noise limits set out in Schedule B.4 of the RD (which specifies day, evening and nighttime limits to be met at noise-sensitive locations) be put in place within 6 months of date of grant of the licence.
2.	Submission Ref. No. S010155 Name: Martin & Mary McNulty Date Received: 23rd November 2021 Issues raised. The submission objects to the granting of the licence for a number of reasons, including:

	1. The impact from the operation of the installation on the air quality for local residences and businesses (including from nitrogen oxide, nitrogen dioxide, carbon monoxide, sulphur dioxide, particulates, ozone and dust); 2. Disruption to the peace and tranquillity valued by local residences and businesses; 3. A lack of meaningful discussions by the developer, including the implications for the locality and it's residents; 4. The impact to the locality of noise emissions from the operation of the installation, particularly a constant 24hr hum noise; 5. The impacts on the locality associated with the construction phase, including noise, traffic and exhaust emissions of construction vehicles; 6. The risk of a major accident at the installation (<i>e.g gas leaks, "diesel" (HVO) release, turbine disintegration, transformer explosion, fire</i>) with potentially devastating impacts for local residences and businesses; 7. The potential risk of improper materials storage or accidents at the installation which could lead to a release of "<i>diesel</i>" (HVO) or chemicals to the environment; 8. The impact of increased traffic on the air quality of the local area; 9. The impact in the area on local residents and businesses from a build-up of static electricity given off by the installation; 10. The lack of justification or need put forward for the development; 11. Concern that the development/operation of the installation could result in contamination of nearby freshwater wells, and, 12. Regarding the issues listed above, concern overall for the health and safety of their family, neighbours, and the staff and customers of the local golf club and those of other businesses in the locality. Agency response. 1. Air emissions from the installation are dealt with in detail in the air section of this report. Condition 5.1 of the RD requires compliance with the air emission limit values set out in Schedule B.1 of the RD and an ambient air monitoring programme is required under Condition 3.23 of the RD. 2. Air model results show compliance with local air quality standards. Schedule A of the RD stipulates limitations for the operation of the emergency generators. 3. Public engagement at planning stage is a matter for the planning authorities. As per EPA licensing regulations, prior to making the EPA IE licence application, the applicant was required to, and did issue a notice in a newspaper, as well as erecting a site notice at the site, informing the public of their application for a licence, and for the purposes of providing information regarding public participation and the making of submissions. As per the licensing regulations for Industrial Emissions Licence applications, the public have an opportunity to make submissions on the application. Documents relating to the licence application, as well as information on public participation are available on the EPA website. Condition 2.2.10 of the RD requires that a public awareness and communications programme be established, maintained and implemented to ensure that members of the public can obtain information at the installation, at all reasonable times, concerning the environmental performance of the installation. 4. Noise emissions from the installation are dealt with in detail in the noise section of this report. Condition 6.13.3 of the RD requires a noise management plan with actions to ensure compliance with the noise limits set out in Schedule B.4 of the RD (which specifies day, evening and nighttime limits to be met at noise-sensitive locations) be put in place within 6 months of date of grant of the licence. 5. Construction phase related issues are a matter for the planning authorities. 6. The controls pertaining to accidents and emergencies are addressed in the Prevention of Accidents section of this report. Condition 2.2.11 of the RD requires a maintenance programme for, inter alia, maintenance of all plant and equipment. Condition 9 of the RD stipulates requirements for accident prevention procedures and emergency response procedures. (Further details addressing these concerns have been submitted by the
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	applicant and are available in the application documents: see “<i>Regulation 10 Reply – Letter</i>”, submitted 20/05/2022). - The controls pertaining to accidents and emergencies are addressed in the Prevention of Accidents section of this report. Further details pertaining to storage and spillage are also discussed in the Cessation of Activity section of this report. Conditions 3 and 8 of the RD stipulate requirements for the proper storage and management of materials and wastes and Condition 9 of the RD requires accident prevention and emergency response procedures. - This is a matter for planning the planning authorities. - Condition 2.2.11 of the RD requires that a maintenance programme for all plant and equipment based on the instructions issued by the manufacturer, supplier and installer of the equipment is established, maintained and implemented. Condition 2.2.10 of the RD requires that a public awareness and communications programme be established, maintained and implemented to ensure that members of the public can obtain information at the installation, at all reasonable times, concerning the environmental performance of the installation. - This is a matter for the planning authorities, however information provided by the applicant regarding the reasoning and justification for the development is discussed in the ‘Alternatives’ part of the EIA section of this report. - There are no direct emissions to ground from the installation. Conditions 3 and 8 of the RD stipulates requirements for the proper storage and management of materials and waste. - See answers as provided above.
3.	Submission Ref. No. S010154
	Name: Fiona Byrne Organisation: Health Service Executive Date Received: 29th November 2021 Issues raised. - The HSE assessed the noise impact assessment submitted to the EPA. Due to the close proximity of residential properties, it is the opinion of the HSE that additional noise monitoring is carried out at the NSL’s identified in the noise impact assessment, once the proposed development is operational. - The HSE assessed the air emissions impact assessment and is satisfied that there will be no major air emissions during the normal operation of the installation. The main source of air emission from the proposed development will be during the construction phase in the form of dust, and from the 36 standby generators during the operational phase. The HSE is satisfied with the conclusion in the impact assessment that states, impacts on ambient air quality associated with the standby generators at the proposed development site will be in compliance with the ambient air quality standards, which are based on the protection of the environment and human health. Agency response. - Noise emissions from the installation are dealt with in detail in the noise section of this report. Condition 6.13.3 of the RD requires a noise management plan with actions to ensure compliance with the noise limits set out in Schedule B.4 of the RD (which specifies day, evening and nighttime limits to be met at noise-sensitive locations) be put in place within 6 months of date of grant of the licence. - The Agency notes the points raised in the submission regarding emissions to air from the generators.
4.	Submission Ref. No. S011425

	Name: Colin Doyle Date received: 13th December 2023 Issues raised. 1. The power generation installation was not subject to an EIAR at the planning stage, and exceeded the threshold for mandatory EIAR at date of grant of permission, 2. The “cumulative” EIAR does not include GHG emissions from the power generation installation, and the air quality impacts of the power plant are not explicitly stated, 3. Methodology for climate impact assessment in the applicant’s EIARs was inconsistent, flawed and misleading, 4. The implications of CAP 2019 and government policy were not considered as part of the EIAR in assessing the impact - operating within the ETS does not exempt the development from assessment of its impact on national GHG emissions. Agency response. 1. Prior decisions made by the planning authorities are outside the remit of the Agency. The power generation installation has been screened in for EIA for the IE Licence Application, and as such, has been included as part of the Agency’s EIA. Further information relating to this is detailed in the ‘EIA’ Section of this report. 2. The IE Licence application is for <i>Combustion of fuels in installations with a total rated thermal input of 50 MW or more</i> – the power generation installation engines and ICT generators are included in the scope of this as part of the licence application. Emissions from the power generation installation were requested as part of the Agency EIA. GHG emissions are dealt with in the ‘Climate’ section of this report and air quality impacts are dealt with in the ‘Emissions to Air’ sections of this report. 3. A climate impact assessment was carried out by the Agency as part of the Agency’s EIA, this is dealt with in the ‘Climate’ section of this report. 4. The impact of the development on national GHG emissions in the context of CAP 2024 and government policy has been considered as part of the Agency’s EIA. This is dealt with in the ‘Climate’ section of this report.
5.	Submission Ref. No. S010154
	Name: Trish Smullen Organisation: Geological Survey Ireland Date received: 19th November 2021 Issues raised. In its submission GSI has not raised any specific issues, but rather states “Geological Survey Ireland has no specific comment or observations to make on this matter at this time”. Agency response. The Agency notes that no specific concerns have been raised in the submission.

13. Consultations

13.1 Cross Office Consultation

I consulted with Oliver Gray and Ann Lyng in the Office of Environmental Enforcement in relation to the enforcement of this site and the applicable financial charges.

13.2 Transboundary Consultations

There were no transboundary consultations undertaken as there were no transboundary impacts identified.

14. Appropriate Assessment

Appendix 2 lists the European Sites assessed, their associated qualifying interests and conservation objectives.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on any European Site.

In this context, particular attention was paid to the following European Sites: Rye Water Valley/Cartron SAC (Site Code: 001398); Glenasmole Valley SAC (Site Code: 001209); Wicklow Mountains SAC (Site Code: 002122); Red Bog Kildare SAC (Site Code: 000397); South Dublin Bay SAC (Site Code: 000210); North Dublin Bay SAC (Site Code: 000206); Ballynafagh Bog SAC (Site Code: 000391); Wicklow Mountains SPA (Site Code: 004040); Poulaphouca Reservoir SPA (Site Code: 004063); South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024), and North Bull Island SPA (Site Code: 004006).

The activity is not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it can be excluded, on the basis of objective information, that the activity, individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the activity was not required.

This determination has been made in light of the following reasons:

- The installation is not located within a European site.
- Air dispersion modelling submitted by the applicant demonstrates that European Sites and their qualifying interests will not be adversely affected by air emissions arising at the installation, with the closest European Site ~ 5 kms away (Rye Water Valley/Cartron SAC) and the most impacted European Site (per modelling) being ~ 9.5 kms away (Glenasmole Valley SAC) - emissions to air consist of combustion emissions from the installation engines (7 no.) and standby HVO generators (36 no.), and emergency fire pump engines and fuel vapour emissions from the HVO storage tank vents.
- European Sites and their qualifying interests are considered to be outside the zone of influence of noise emissions from the installation.
- Emissions to sewer (other than sanitary effluent) consist of cooling water from the evaporative cooling system in the Information and Communication Technology (ICT) installation. This cooling water will be discharged to sewer and ultimately treated in the EPA licensed Ringsend WWTP (Register Number D0034-01), which is designed to provide secondary treatment with a plant capacity of approximately 1,640,000 population equivalent, which is currently exceeded at the plant. Treated effluent from the Ringsend WWTP is discharged to the Liffey Estuary Lower. According to EPA Maps, the Transitional Waterbody Water Framework Directive (WFD) Status 2016-2021 for Liffey Estuary Lower is Moderate. The Coastal Waterbody WFD Status 2016-2021 for

Dublin Bay is Good. Taking into account the nature and volume of the discharge from the installation, it is considered that it will not indirectly have a significant effect on European Sites in the vicinity of the WWTP Discharge in Dublin Bay.

- There will be no direct process emissions to surface water. The only discharge to water is stormwater runoff from building roofs and hardstanding areas.
- There are no process emissions to ground or groundwater from the installation.
- Given the nature and scale of emissions, it is considered that the activity in combination with other plans or projects will not have a significant effect on European Sites.

15. Environmental Impact Assessment

15.1 EIA Introduction

This assessment is being undertaken in accordance with the requirements of Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. The licence application was accompanied by two Environmental Impact Assessment Reports (EIARs). The EIAR for the ICT installation (SD20A/0324) and the Peamount substation (ABP 309773-21), which is located within the boundary of the installation, were submitted to the relevant planning authority as part of the planning permission process. Whilst an EIAR was not prepared for the power generation installation, it has been cumulatively assessed under both EIARs.

As part of this environmental impact assessment, I have carried out an examination, analysis and evaluation of all the information provided by the applicant (including the two EIARs), information received through consultation, the documents associated with the assessments carried out by South Dublin County Council and An Bord Pleanála and their reasoned conclusion, and the issues that interact with the matters that were considered by those authorities and which relate to the activity, written submissions, as well as considering any supplementary information, where appropriate. All the documentation received was examined and I consider that the EIA documentation complies with the provisions of Article 5 of the 2014 EIA Directive when considered in conjunction with the additional material submitted with the application.

I am satisfied that the environmental effects arising as a consequence of the activity have been satisfactorily identified, described and assessed, and that the information contained in the EIA documentation has been prepared by competent experts.

Having specific regard to EIA, this Inspector's report as a whole is intended to identify, describe and assess for the Agency the likely significant direct and indirect effects of the activity on the environment, as respects the matters that come within the functions of the Agency, for each of the following environmental factors: population and human health, biodiversity, land, soil, water, air and climate, the landscape, material assets and cultural heritage.

This Inspector's report addresses the interaction between those effects. The cumulative effects, with other developments in the vicinity of the activities have also been considered, as regards the combined effects of emissions. In addition, the vulnerability of the activity to risks of major accidents and/or disasters has been considered. The mitigation measures proposed to address the range of predicted significant effects arising from the activity have been outlined. This Inspector's report provides conclusions to the Agency in relation to such effects.

A summary of the submissions made by third parties has been set out above in the

‘Submissions Section’ of this report.

I am satisfied that the public have been given early and effective opportunity to participate in the environmental decision-making process.

15.2 Consultation with Planning Authorities in relation to EIA

Consultation was carried out between the Agency and South Dublin County Council under the relevant section of the EPA Act on 04 November 2021. A reminder issued on 20 January 2022, South Dublin County Council did not provide any observations to the Agency on the licence application and EIA documentation received from the applicant.

Consultation was carried out between the Agency and An Bord Pleanála under the relevant section of the EPA Act on 04 November 2021. A reminder issued on 20 January 2022, An Bord Pleanála did not provide any observations to the Agency on the licence application and EIA documentation received from the applicant.

15.3 Alternatives

The matter of alternatives is addressed in Chapter 4 of both EIARs and in other licence application documents received from the applicant. The EIARs addresses the selection of Ireland (ROI) as the preferred country, which includes the temperate climatic conditions in Ireland being more favourable for installation cooling processes than in hotter countries. In addition, the applicant conveys a need in Ireland for greater levels of energy security, highlighting issues such as import dependency, increasing market demand, and renewable generation intermittency. The applicant explains the increased energy security the proposed power generation installation offers, and to that effect highlights the contract awarded to them by EirGrid as part of the Capacity Market. The applicant also describes their consideration of Ireland to be an emerging “Digital Hub” for Europe and operates a number of similar ICT installations in the country already.

The EIA documentation sets out the key criteria considered by the applicant when assessing the suitability of potential site locations for development. These included local development, environmental, infrastructural, and utility based factors. Peamount (Grange Castle West) was considered the preferred site location by the applicant having met the highest proportion of the necessary criteria identified, including in particular, the size of the site location, it’s immediate or near proximity to necessary infrastructure, and the potential for development under the land-use zoning of the site. In addition, the applicant puts forward that their development of the site location might allow for the phased expansion of the Grange Castle Business Park by facilitating demand for industrial and commercial uses in the area.

The EIA documentation considered alternative building arrangements within the site. Alternative site layouts with respect to spatial distribution and optimal use of the site area were considered as part of the planning process for the site. The documentation describes design and layout considerations made, such as road and site access, emission impacts, receptor locations and distance, landscaping and screening, tree planting and biodiversity corridors, excavation and construction impacts, topography and drainage infrastructure, and transmission line routes and length. The EIA documentation refers to how alternative processes were considered and revised based on impact assessments and improvements in design. These include revisions such as switching to reciprocating internal combustion engines (RICE) instead of open cycle gas turbines (OCGT) and further designs resulting in the specification of engine units with a lower NO_x concentration of 45 mg/Nm³ compared to the original value of 60 mg/m³, enclosing the engines in a clad building, flue numbers and arrangements, secondary fuel switched from diesel to hydrotreated vegetable oil (HVO)

instead, and battery energy storage system (BESS) arrangements. The applicant states the ICT installation will employ the same state of the art data server technology used at other installations, and that the equipment and technology designs for the GIS substation are stipulated by EirGrid. The EIA documentation also makes reference to the scenario if the development did not proceed and that it is a reasonable assumption the land would be subject to future development in accordance with the zoning policy of the lands.

In this regard I consider that the matter of the examination of alternatives has been satisfactorily addressed.

15.4 Likely Significant Direct and Indirect Effects

The likely significant direct and indirect effects of the activities on the following factors as set out in Article 3 of the EIA Directive are considered in this section:

- (a) *population and human health;*
- (b) *biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
- (c) *land, soil, water, air and climate;*
- (d) *material assets, cultural heritage and the landscape;*
- (e) *the interaction between the factors referred to in points (a) to (d).*

15.4.1 Population & Human Health

Identification, Description and Assessment of Effects

Population and human health are addressed in Chapter 5 of both EIARs and in other licence application documents received from the applicant. The site is located on the northern side of the Peamount Road, in the townland of Milltown, near Newcastle, Co. Dublin. The site is largely greenfield except for some agricultural buildings and a residential property (approved for demolition). A transport/logistics company is located immediately to the west of the site. Agricultural lands and buildings and some residential properties are located to the east of the site. Agricultural lands are to the north of the site. The Peamount road runs along the southern boundary of the site. On the other side of the Peamount Road are agricultural lands and a motor company. The nearest residential properties are directly adjacent to the site boundary (one by the south-west and two by the south-east). A halting site is approximately 280 metres to the north-east. Grange Castle Business Park is approximately 400 metres north-east, and Newcastle Golf Centre is approximately 140 metres west. Peamount Healthcare Centre is approximately 600 metres to the west.

The potential direct and indirect effects of the installation on population and human health are associated with emissions to air, noise emissions, emissions to water, and accidental emissions. Should emissions cause an exceedance of environmental quality standards, this could have implications for population and human health.

Noise modelling results submitted by the applicant indicate the predicted noise levels during normal operations and daytime testing of generators will be compliant with the standard daytime, evening and nighttime noise limits at the NSLs. Under the emergency scenario however the installation would not be able to comply with the standard night-time noise limit (45 dB LAeq) and thus has the potential for significant effects on human beings in relation to noise from the installation as detailed in the “Noise” section of this report. Condition 6.13.3 of the RD requires the applicant to prepare and submit a noise management plan with actions to ensure compliance with the specified noise limits of the RD, to be met at noise sensitive locations, at all times including during emergency operations.

There will be main emissions to air from the seven engines and 36 emergency generators when in operation, including NO_x, NO₂, CO, SO₂ and dust as described in the 'Emissions to Air' section of this report. Air dispersion modelling submitted by the applicant as part of an 'Air Impact Assessment Report' assessed the potential effects on air quality arising from the installation alone and as part of a cumulative assessment. The results were compared to relevant air quality standards for the protection of human health and for the protection of vegetation/habitats. For the installation alone, the predicted environmental concentrations from the modelled scenario are below the relevant air quality standards or guideline values.

There will be no direct water emissions to surface waters or ground. Stormwater emissions from the site are directed to the public stormwater sewer which ultimately discharges to the Griffeen River. Foul water and cooling water emissions are discharged to Úisce Éireann's foul sewer. Water emissions from the site are not considered to have a significant effect on the receiving waters and are addressed in the 'Emissions to Water/Sewer/Ground' section of this report.

There is the potential for accidental emissions to the environment, due to fire, explosion, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, oil/lubricants or due to a fire or explosion causing air pollution or soil, groundwater or surface water contamination. Accidental noise emissions could arise due to plant malfunction causing an exceedance of noise limits. These aspects are addressed in the 'Prevention of Accidents' and 'Cessation of Activity' sections of this report.

Cumulative effects of the activity in relation to population and human health have been assessed and it is considered that there is a potential for a significant cumulative effect on air quality.

Condition 3.23 of the RD requires an Ambient Air Quality Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no exceedance of Air Quality Standards. The condition also requires a management programme to ensure that when the installation is operational, the activity and the cumulative operation of nearby installations must not exceed the ambient air quality standards. Condition 3.23.8 of the RD requires the applicant to consult with EirGrid as part of the establishment and implementation of the Ambient Air Quality Monitoring Programme.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to population and human health are detailed in the following sections of this report: 'Emissions to Air', 'Emissions to Water/Sewer/Ground', 'Noise', 'Prevention of Accidents' and 'Cessation of Activity'.

Conclusions

I have examined all the information on population and human health, provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of population and human health.

15.4.2 Biodiversity

Identification, Description and Assessment of Effects

Biodiversity is addressed in Chapter 6 of both EIARs and in other licence application documents received from the applicant. The documentation describes the habitats and species at and in the vicinity of the installation. The site is largely improved agricultural grasslands, bordered by hedgerow on its north and eastern sides. Treelines are located on the western and southern boundaries and surrounding the residential property on site. Areas of ornamental shrubbery are also located on the southern part of the site, around the residential property.

In addition to desktop studies, a number of site visits were carried out between August 2019 and September 2020. Surveys carried out included site-specific habitats, flora, fauna, bats and birds. One non-native habitat species was identified during surveys: black currant *Ribes nigrum*. This species is not subject to restrictions under Regulations 49 and 50 of the *European Communities (EC) (Birds and Natural Habitats) Regulations 2011 to 2015*; and is identified as a medium impact species on Ireland's Biodiversity List. Treelines within the site providing ecological connectivity were identified to be of higher ecological value. Four bat species were recorded: common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), lesser noctule (*Nyctalus leisleri*), and mouse-eared (*Myotis sp.*). In addition, two bat roosts were identified on the site. No evidence of badgers (*Meles meles*), otters (*Lutra lutra*), or any other protected mammal species was identified. Evidence of fox (*Vulpes vulpes*) and rabbit (*Oryctolagus sp.*) activity was recorded. No signs of amphibians or reptiles were noted during surveys. No Amber or Red-listed bird species were recorded. The site has been valued as being of higher ecological value for breeding birds with House Martin (*Delichon urbicum*) nests, Swallow (*Hirundo rustica*) nests, and suitable agricultural fringe habitats such as hedgerows and treelines having been identified. Mitigating planning conditions include requirements for retention and planting of trees and hedgerows belts.

There are no Special Protection Areas, candidate Special Areas of Conservation or proposed Natural Heritage Areas within or immediately adjacent to the proposed development site. The nearest designated site is the Grand Canal pNHA (Site Code: 002104) at c. 800 m north of the proposed development. There is no direct hydrogeological link with the canal. The closest European Site is approximately 4.8 kms away (Rye Water Valley/Cartron SAC, site code 001398) - refer to the 'Appropriate Assessment' section and Appendix 2 of this report in relation to European Sites.

The potential effects on biodiversity are related to direct effects due to air emissions (NO_x/NO_2 , CO, SO_2 and particulate matter), and indirect effects on habitats due to nitrogen deposition and disturbance to fauna (birds and mammals) due to noise and light emissions.

The 'Emissions to Air' section of this report provides details on air dispersion modelling including a summary of potential impacts of air emissions on vegetation/ecosystems. The modelling indicates air emissions from the installation alone will not have a significant effect on biodiversity or ecosystems. Nitrogen deposition flux for the worst-case year is 6.77 kg/ha/yr and is below the range in worst-case critical loads of 10-15 kg/ha/yr (for the habitat types (hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland) in the Grand Canal pNHA.

Noise emissions associated with the operation of the activity are assessed in the 'Noise' section of this report. It is considered that there is no potential for significant effects on fauna (such as mammals and birds) due to noise emissions associated with the operation of the activity.

There are no natural watercourses within the installation boundary. Stormwater from the installation is discharged to the public stormwater sewer drainage network that ultimately discharges to the Griffeen River. All stormwater will be diverted to the onsite attenuation pond. The outfall from the attenuation pond will be equipped with a non-return valve, hydrobrake, and penstock. Stormwater from the attenuation pond will pass through a Class 1 bypass hydrocarbon interceptor, prior to discharge at SW1. It is considered that the stormwater discharges (including evaporative cooling water) are not likely to have a significant effect on the receiving water.

There is also the potential for accidental emissions to the environment due to fire, explosion, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a leak or spillage of gas oil or other fuels, oils, chemicals stored on site or due to a natural gas related fire or explosion causing air pollution, soil, groundwater, or surface water contamination. Condition 9 of the RD requires the applicant to establish accident prevention and emergency response procedures. These aspects are addressed in the 'Prevention of Accidents' and 'Cessation of Activity' sections of this report.

Cumulative effects of the activity in relation to biodiversity have been assessed. Air impact assessment reports submitted by the applicant assessed the potential effects on air quality from the installation alone and as part of a cumulative assessment. It is considered that there is a potential for a significant cumulative effect on air quality. The 'Emissions to Air' section of this report provides details on air dispersion modelling including a summary of potential impacts of air emissions on vegetation/ecosystems. The cumulative assessment result for nitrogen deposition flux for the worst-case year is 9.45 kg/ha/yr and is below the range in worst-case critical loads of 10-15 kg/ha/yr for the habitat types (hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland) in the Grand Canal pNHA. This cumulative assessment did not include the 40 no. additional engines for which Edgeconnex Ireland Limited have been granted planning permission for.

The cumulative assessment result submitted by the applicant shows that the cumulative emissions lead to an ambient NO_x concentration (including background) which is at most 96 % of the annual limit value at the worst-case location within the ecological habitat site where the highest modelled concentrations are predicted (Grand Canal pNHA). This cumulative assessment did not include the additional 40 no. additional engines for which Edgeconnex Ireland Limited have received planning for. Therefore, it is considered that the worst-case scenario is that the NO_x concentration (including background) may be greater than 96 % of the annual limit value for the ecological habitat site where the highest modelled concentrations are predicted (Grand Canal pNHA).

Condition 3.23 of the RD requires an Ambient Air Quality Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no exceedance of Air Quality Standards. The condition also requires a management programme to ensure that when the installation is operational, the activity and the cumulative operation of nearby installations must not exceed the ambient air quality standards. Condition 3.23.8 of the RD requires the applicant to consult with EirGrid as part of the establishment and implementation of the Ambient Air Quality Monitoring Programme.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to biodiversity are detailed in the following sections of this report: 'Emissions to Air', 'Emissions to Water/Sewer/Ground', 'Noise', 'Prevention of Accidents' and 'Cessation of Activity'.

Conclusions

I have examined all the information on biodiversity, provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of biodiversity.

15.4.3 Land and Soil

Identification, Description and Assessment of Effects

Land, Soil, Geology and Hydrogeology are addressed in Chapter 8 of both EIARs and in other licence application documents received from the applicant. The site is largely located on a greenfield site used historically for agriculture. The topography of the site falls generally from south to north. The soil type beneath the site is mainly composed of basic poorly drained soils and deep-well drained soils. The sediments underlying the site are comprised of glacial till and rock. The site is underlain by 20 cm of top soil. This is underlain sandy gravelly clay. This layer is then underlain by coarse gravel. Trial pits were dug for soil and groundwater samples, these were stopped at a shallow depth due to possible bedrock. A review of all soil quality results indicates that there is no contamination across the site and that the site is suitable for development. The results determine the soil to be inert and under residential threshold concentrations. The bedrock geology underlying the site and surrounding area is predominantly carboniferous rock, underlain by the Lucan Formation. The bedrock aquifers underlying the site are classed as Dinantian limestones. The GSI has classified this aquifer as Locally Important and classifies the aquifer vulnerability in the region as 'Extreme'. The groundwater body is classified as 'good' and 'not at risk'. The site is not located near any public groundwater supplies, group schemes or protection zones. No wells or springs were identified at the site or surrounding area. Groundwater flow is assumed to be in a north easterly direction towards the Griffeen River.

A Baseline Report, which describes soil and groundwater conditions in relation to hazardous substances was submitted with the application (Attachment-4-8-3-Complete Baseline Report) and is addressed in the 'Cessation of Activity' section of this report.

The potential direct and indirect effects on land and soil are associated with emissions to air, emissions to sewer and accidental emissions. Should emissions cause an exceedance of environmental quality standards this could have implications for land and soil. The effects identified and described above have been assessed in the following section of this report: 'Emissions to Air', 'Emissions to Water/Ground/Sewer', 'Prevention of Accidents' and 'Cessation of the Activity'.

There is also the potential for accidental emissions to the environment due to fire, explosion, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a leak or spill of chemicals, fuels, oils or lubricants, or due to a fire or explosion causing air pollution, soil, groundwater, and/or surface water contamination. This is addressed in the 'Prevention of Accidents' and 'Cessation of Activity' sections of this report.

Cumulative effects of the activity in relation to land and soil have been assessed and is considered that there is not likely to be a significant cumulative effect from the activity and other activities/developments. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to land and soil are detailed in the following sections of this report: 'Emissions to Air', 'Emissions to Water/Sewer/Ground', 'Noise', 'Prevention of Accidents' and 'Cessation of Activity'.

Conclusion

I have examined all the information on land and soil, provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects on land and soil.

15.4.4 Water (including Waste Water, Emissions to Sewer, Storm Water, Emissions to Ground)

Identification, Description and Assessment of Effects

Water is addressed in Chapter 8 of both EIARs and in other licence application documents received from the applicant. The site is reasonably flat but falls generally from south to north. There are no natural watercourses within the installation boundary. The installation is within the catchment of the River Liffey, and sub catchments of the Griffeen River, Lucan Stream and Baldonnell Stream, which are tributaries of the River Liffey. The Griffeen River is located approximately 140 m south from the site and the Lucan Stream approximately 250 m. Based on the indicative flood mapping, the site is location is within classification Flood Zone C 'Low Probability'.

The potential direct and indirect effects on water relate to discharge of residual cooling water, foul water and stormwater to sewer, and accidental emissions. There are no direct water emissions to ground or surface water. Should discharges or emissions cause an exceedance of Water Quality Standards in receiving waters, this could have potential effects on water quality, aquatic biodiversity, and human health. The effects identified and described above have been assessed in the following section of this report: 'Emissions to Water/Ground/Sewer', 'Storm Water Discharges', 'Prevention of Accidents' and 'Land and Soil'.

There is also the potential for accidental emissions to surface water or groundwater, which could occur in the event of a fuel or chemical spill as a result of a leak, or fire or explosion, with the potential to affect surface water / groundwater quality as well as aquatic habitats and species. However, the likelihood of accidental emissions to water is considered low in light of the measures outlined in the 'Prevention of Accidents' section of this report, and in light of the conditions in the RD. This is addressed in 'Prevention of Accidents' section of this report.

Cumulative effects of the activity in relation to water have been assessed and is considered that there is not likely to be a significant cumulative effect from the activity and other activities/developments. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to water are detailed in the following sections of this report, 'Emissions to Water/Sewer/Ground', 'Prevention of Accidents' and 'Cessation of Activity'.

Conclusions

I have examined all the information on water provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects on water.

15.4.5 Noise and Vibration

Identification, Description and Assessment of Effects

Noise and Vibration is addressed in Chapter 9 of both EIARs and in other licence application documents received from the applicant. The site is located on greenfield lands used for agriculture. Agricultural lands and a number of commercial and residential properties are within the surrounding vicinity of the site. Ambient noise monitoring carried out by the applicant demonstrated that the predominant noise sources in the area were from local and distant road traffic. The nearest noise sensitive locations (NSLs) are two existing single dwellings that are located immediately adjacent to the site boundary – one to the south-east of the site and one to the south-west. Additional NSLs within the vicinity include Newcastle Golf centre 140 metres west, a halting site approximately 280 metres north-east, and a number of dwellings 150 – 400 metres west, of the site.

The primary sources of noise associated with the activity arises from the operation of the ICT installation, which includes the air handling units, chillers and emergency generators, and the operation of the power generation installation (i.e. engines, exhaust flue outlets, air intakes, cooling and ventilation units and gas pressure reducing station). Noise arising from the installation could have the potential to cause nuisance for those living or working near the activity, users of the golf centre, or noise sensitive fauna. The generators will be enclosed in acoustic containers, fully surrounded by proprietary acoustic louvre screens and the engines will be housed internally within the power generation building.

Noise impacts were assessed for a number of scenarios related to the operation of the installation including: normal operations during day/evening/night, emergency operations, and generator testing operations. The modelling results indicated the predicted noise levels during normal operations and daytime testing of generators will be compliant with the standard daytime, evening and nighttime noise limits at the NSLs. Under the emergency scenario however the installation would not be able to comply with the standard night-time noise limit (45 dB LAeq). Accordingly, Condition 6.13.3 of the RD requires the applicant to prepare and submit a noise management plan with actions to ensure compliance with the specified noise limits of the RD, to be met at noise sensitive locations, at all times including during emergency operations. There is no source of vibration associated with the day to day operation of the development that will give rise to impacts at nearby sensitive locations.

There is the potential for accidental noise emissions due to an explosion. Accidental noise/vibration could occur if there was a gas related explosion, causing loud noise and disturbance.

The effects identified and described above are addressed in the 'Noise' and 'Prevention of Accidents' sections of this report.

Cumulative effects of the activity in relation to noise and vibration have been assessed and is considered that there is not likely to be a significant cumulative effect from the activity and

other activities/developments. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to noise and vibration are detailed in the 'Noise' section of this report.

Conclusions

I have examined all the information on noise and vibration provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of noise and vibration.

15.4.6 Air (including Dust and Odour)

Identification, Description and Assessment of Effects

Air and Climate is addressed Chapter 10 of both EIARs and in other licence application documents received from the applicant. The potential direct effects on air are associated with emissions to air (NO_x/NO_2 , CO, SO_2 and particulate matter), from the seven engines and 36 emergency generators. There is also the potential for indirect effects on habitats, due to nitrogen deposition, as a result of NO_x emissions to air and SO_2 deposition. Should emissions cause an exceedance of Air Quality Standards, this could have implications for air quality, population and human health and biodiversity within and beyond the installation boundary. The activity will not be a significant source of odour.

The applicant carried out air dispersion modelling to predict the impact of emissions from the installation on ambient air concentrations. The dispersion modelling submitted assessed potential effects on air quality arising from the installation alone and as part of a cumulative assessment. The modelling was considered sufficiently detailed and conservative to assess the impact of the main emissions to air. The results were compared to relevant air quality standards for the protection of human health and for the protection of vegetation/habitats. For the installation alone, the predicted environmental concentrations from the modelled scenario are below the relevant air quality standards or guideline values.

With regard to nitrogen deposition at receptors, the nitrogen deposition flux from the installation alone, for the worst-case year is 6.77 kg/ha/yr, and is below the range in worst-case critical loads of 10-15 kg/ha/yr for the habitat types "hedgerow", "tall herbs", "calcareous grassland", "reed fringe", "open water", "scrub" and "woodland" in the Grand Canal pNHA, indicating that the effects of nitrogen deposition on ecological habitat sites due to the installation are not significant.

There is also the potential for accidental air emissions to the environment. Accidental emissions to air could occur in the event of a fire or explosion causing air pollution including dust and odour. This is addressed in the 'Prevention of Accidents' section of this report.

Cumulative effects of the activity in relation to air have been assessed under two scenarios. In scenario 1, 'cumulative assessment' the Air Impact Assessment Report submitted by the applicant shows that the cumulative emissions lead to an ambient NO_x concentration (including background) which is at most 96% of the annual limit value at the worst-case location within the ecological habitat site where the highest modelled concentrations are

predicted (Grand Canal pNHA). Scenario 2 'additional cumulative assessment' includes an additional 40 no. combustion plants which have been granted planning permission at the Edgeconnex Ireland Limited installation. Therefore, it is considered that the worst-case scenario is that the NO_x concentration (including background) may be greater than 96% of the annual limit value at the ecological habitat site where the highest modelled concentrations are predicted (Grand Canal pNHA), when the cumulative emissions are taken into account. As detailed in the 'Emissions to Air' section of this report, there is potential for an exceedance of air quality standards for human health when other installations in the area are considered cumulatively with the installation. Therefore, it is considered that there is a potential for a significant cumulative effect from the activity in combination with other activities/developments.

The effects identified and described above have been assessed in the 'Emissions to Air' section of this report. Condition 3.23 of the RD requires an Ambient Air Quality Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no exceedance of Air Quality Standards. The condition also requires a management programme to ensure that when the installation is operational, the activity and the cumulative operation of nearby installations must not exceed the ambient air quality standards. Condition 3.23.8 of the RD requires the applicant to consult with EirGrid as part of the establishment and implementation of the Ambient Air Quality Monitoring Programme.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to air are detailed in the 'Emissions to Air' section of this report.

Conclusions

I have examined all the information on Air (including Dust and Odour) provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of Air (including Dust and Odour).

15.4.7 Climate

Identification, Description and Assessment of Effects

Climatic factors are addressed in Chapter 10 of both EIARs and in other supplementary documentation received from the applicant. Climate change is a significant global issue, which affects weather and environmental conditions (air, water and soil), which consequently affects population and human health, material assets, cultural heritage, the landscape and biodiversity. Climate change is caused by warming of the climate system by enhanced levels of atmospheric greenhouse gases (GHG) due to human activities. GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF₃) and sulphur hexafluoride (SF₆).

The potential effect of the installation on climate stems from the release of CO₂ emissions associated with the activity. Emissions of CO₂ directly from the installation will occur during the combustion of natural gas and HVO in the engines and the emergency generators on site. Indirect emissions of CO₂ may also arise due to the use of electricity from the national grid, if generated from fossil fuels. Certain equipment and systems on site may contain F-gases, such as fire protection equipment. SF₆ can also be used as an insulating gas in switchgear. F-gases

are controlled under the F-Gas regulations (F-Gas Regulation (EU) No. 517/2014) and are not addressed in the RD.

The Climate Action and Low Carbon Development (Amendment) Act 2021 has set legally binding targets of a 51% reduction of greenhouse gas emissions by 2030 compared to 2018 levels and net-zero emissions by 2050. The Climate Action Plan 2024 outlines how these targets are to be met and includes a sectoral based approach that specifies sectoral emissions ceilings. The sectoral emissions ceilings outlined within the plan set out the maximum amount of GHG emissions that are permitted in different sectors of the economy during a carbon budgetary period. The electricity sector emissions ceilings set out by the plan are as follows:

- First carbon budgetary period (2021-2025): 40 MtCO₂eq.
- Second carbon budgetary period (2026-2030): 20 MtCO₂eq.

This equates to a target of approx. 75% reduction of the sector's GHG emissions compared to 2018 levels, averaging a decarbonisation rate of approx. 3 MtCO₂eq. per annum by 2030.

As part of the sectoral pathway to the 2025 and 2030 targets, the CAP 2024 outlines a multifaceted approach, stipulating KPIs in the areas of accelerated renewable energy generation, accelerated flexibility, and demand management. In this regard, one of the 'accelerated flexibility' KPIs set by the CAP 2024 is the development and delivery of 2 GW of new flexible gas-fired generation on the Irish grid. This is in line with previous government policy where in November 2021, the Minister for the Environment, Climate and Communications published a Policy Statement on Security of Electricity Supply² which stated that *"the development of new conventional generation (including gas-fired and gasoil/distillate-fired generation) is a national priority and should be permitted and supported in order to ensure security of electricity supply and support the growth of renewable electricity generation"*.

The installation power generation plant is expected to form part of the 'new flexible gas-fired generation' KPI target set in the CAP 2024, by operating as a peaking plant combusting natural gas at the direction of EirGrid during shortfalls of supply from renewable sources. In addition, the CAP 2024 has assumed the electricity sectors continued growth as "underlying economic activity". The Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy³ recognises data centres as core digital infrastructure for both Ireland's and Europe's digital economies and for strengthening Ireland's position as a strategic international location for IT services. Government policy seeks to facilitate the 'twin transitions' of digitalisation and decarbonisation of economy and society.

GHG emissions from the electricity sector in 2023 were 7.56 MtCO₂e⁴. In May 2024, the EPA published sectoral emissions projections⁵ which have been based on key emissions data, government policy and national climate plans. For the electricity sector, this included emissions calculations from the anticipated development of new flexible gas-fired generation. The projected emissions for the electricity sector are 41 MtCO₂eq. in the first carbon

² Policy Statement on Security of Electricity Supply, Department of the Environment, Climate and Communications, 2021.

³ Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy, 2022.

⁴ Ireland's Provisional Greenhouse Gas Emissions 1990-2023, EPA, 2024.

⁵ Ireland's Greenhouse Gas Emissions Projections 2023 – 2050, EPA, 2024.

budgetary period, and 26 MtCO₂eq. in the second. These levels exceed the sectoral emissions ceilings by 1 MtCO₂eq. and 6 MtCO₂eq., respectively.

Based on the information provided by the applicant as part of the RFI (Regulation 10 Reply – Sept 2024), the worst- case estimate of total GHG emissions from the installation, in 2027, is projected to be 333,168 tonnes CO₂e, of which 129,355 tonnes are expected to be indirect emissions. The direct emissions from the activity will result in a net increase in CO₂ emissions. However, to put this in context, and based on the GHG emissions in 2023, the direct emissions from the installation would have contributed to 2.7% of the total GHG emissions for the Irish electricity sector. The impact of these direct emissions will contribute to climate change and therefore are considered significant.

The indirect emissions will be covered under the EU ETS at the generating plant and Condition 7.2 of the RD also requires the applicant to address electricity usage as part of energy efficiency management. In relation to cumulative effects, any combustion process will inevitably produce quantities of gases, including GHGs, which have the potential to impact on climate. Therefore, impact of the direct emissions from the installation and other sources will have significant cumulative effects on climate. It is considered that the likelihood of accidental emissions occurring, which could affect climate is low considering the measures outlined in the 'Prevention of Accidents' section above and the proposed conditions of the RD.

The electricity sector is projected to potentially exceed the sectoral emissions ceiling; however, the development of flexible gas-fired power generation is a key target and KPI of the CAP 2024 which can support and facilitate Ireland's transition to increased renewables by making up the shortfall when grid demand exceeds available supply from renewables. In relation to cumulative effects, any combustion process will inevitably produce quantities of gases, including greenhouse gases (GHGs), which have the potential to impact on climate. Therefore, impact of the direct emissions from the installation and other sources will have significant cumulative effects on climate. However, any discussion of GHG emissions must be extended to national and global climate impact.

I consider that the impact of direct and indirect CO₂ emissions from the installation are controlled under EU ETS legislation and the sectoral requirements of CAP 2024. The direct, indirect and cumulative effect of CO₂ emissions on climate are significant and mitigation measures are therefore required.

Mitigation and Monitoring

The effects of the emissions from the installation on climate will be mitigated as follows:

- The installation will operate under a GHG Emissions Permit in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012, (SI 490/2012 and amendments). The GHG permit does not cover emissions of gases other than carbon dioxide. The GHG permit does not set a limit on the quantity of CO₂ emitted by the installation. The operator must report each year all CO₂ emitted from the activity listed in the permit and surrender sufficient emissions trading allowances to cover the emissions of the previous calendar year. The quantity of allowances made available on the market or by free allocation is controlled at EU level and is reducing each year to ensure that overall emissions from the ETS sector meet the EU targets. As discussed above since this site is part of the EU ETS, the impact of carbon dioxide emissions is addressed in that market based scheme. A local impact on air quality from CO₂ is not expected and there is therefore no CO₂ limit in the Recommended Determination.

- Indirect emissions arising from the use of electricity from the national grid in the installation are also covered under the EU ETS Directive.
- Condition 7.1 of the RD requires the engines to achieve energy efficiency levels in line with best available techniques (BAT) for large combustion plants.
- Condition 7.2 of the RD requires the applicant to carry out an energy efficiency audit and identify recommendations, for approval by the Agency, on the options to decrease or offset the use (both directly and indirectly) of fossil-fuelled energy within the installation.
- Condition 7.2.4 of the RD requires the applicant to incorporate recommendations from the energy efficiency audit into the Schedule of Environmental Objectives and Targets in Condition 2.2.4 of the RD.
- *Schedule A: Limitations* of the RD imposes limits on the operations of the generators.
- Any leakage of potential F-gases on site will be monitored and controlled under the F-Gas regulations (F-Gas Regulation (EU) No. 517/2014).

Given the installation is subject to EU ETS legislation and the conditions set out in the RD, I consider that the impact of direct and indirect CO₂ emissions from the installation will be controlled.

It is considered that the likelihood of accidental emissions occurring which could affect climate is low, in light of the measures outlined in the 'Prevention of Accidents' section of this report and the proposed conditions in the RD.

Conclusions

I have examined all the information on climatic factors provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the RD. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable effects in terms of climatic factors.

15.4.8 Material Assets, Cultural Heritage and the Landscape

15.4.8.1 Material Assets (including resource use and waste generation)

Identification, Description and Assessment of Effects

Material assets are addressed in Chapter 15 of both EIARs and provides information on utilities, natural resources such as electricity and water, and waste management.

The potential direct and indirect effects on material assets are the consumption of resources in particular natural gas, HVO, and water. The estimated quantities of electricity, natural gas, HVO, and water to be used are provided in the 'Energy Efficiency and Resource Use' section of this report. The generators will operate solely on HVO and only during the circumstances outlined earlier in this report (i.e. during testing and outside of normal operating conditions), and the HVO is stored onsite. Usage will be dictated by the frequency of occurrence of these scenarios. To ensure compliance with the requirements of the Commission for Regulation of Utilities, the installation will have the capacity to store up to 2,292 tonnes of a secondary fuel source for the power plant (i.e., HVO) within the two bulk storage tanks and 36 belly tanks. HVO usage will be dictated by the availability and supply of natural gas to the site. The activity will also generate a certain amount of waste material and the potential amounts to be generated are listed in the licence application.

Material Assets such as land use, roads, traffic and built services are dealt with in the decisions of the Planning authorities (South Dublin County Council)/An Bord Pleanála) to grant permission for the development. The Planning authorities have considered the effect to be acceptable.

No likely significant direct, indirect or cumulative effects on material assets have been identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to material assets are detailed in the following sections of this report: 'Waste Generation', 'Energy Efficiency', and 'Prevention of Accidents'.

Material Assets Conclusions

I have examined all the information on Material Assets provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of Material Assets.

15.4.8.2 Cultural Heritage

Identification, Description and Assessment of Effects

Cultural Heritage is addressed in Chapter 13 of both EIARs. The potential direct and indirect effects on cultural heritage relate mainly to the construction phase of the installation. Any loss of archaeological or architectural heritage could impact negatively on human beings. These matters are dealt with in the decision of the planning authority to grant planning permission for the development on site and the planning authority has considered the effects to be acceptable.

No significant cumulative effects on the cultural heritage have been identified. Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

There are no specific mitigation measures or monitoring proposed in the RD.

Cultural Heritage Conclusions

These matters are dealt with in the decision of the planning authority/An Bord Pleanála to grant planning permission for the developments on site, and considered the effects to be acceptable subject to the following planning condition: *"The applicant/developer shall employ a qualified Archaeologist, licensed to carry out Archaeological Monitoring of all sub-surface works carried out within the proposed development site. This will include the archaeological monitoring of the removal of topsoil, the excavation of trenches for foundations, services, access roadway, etc. associated with the proposed development. Should archaeological material be discovered during the course of Archaeological Monitoring, the applicant shall facilitate the archaeologist in fully recording the material. The applicant shall also be prepared to be advised by the Department with regard to the appropriate course of action, should archaeological material be discovered. REASON: To facilitate the recording and protection of any items of archaeological significance that the site may possess."*

The Recommended Determination does not propose to include any additional mitigation measures in relation to cultural heritage.

15.4.8.3 The Landscape

Identification, Description and Assessment of Effects

Landscape and visual impacts are addressed in Chapter 11 of both EIARs. The site is approximately 8.2 hectares in size. The landscape character of the site is largely that of agricultural fields, with traditional hedgerow boundaries except for the developed area in the eastern corner of the site, which is that of a rural residential landscape typical of the housing distribution in the surrounding local area. The Peamount Road defines the site's southern boundary, timber post and wire mesh fencing forms the south-western boundary that borders commercial properties, and hedgerows and tree-lines largely make up the remaining site boundaries. The landscape surrounding the site is generally flat and is made up of areas of agricultural, residential, and commercial land use in its immediate confines, and includes recreational and industrial land use as well in the wider vicinity.

The potential direct and indirect effects on the landscape are the visual impacts of the 25 m high stacks and associated structures and infrastructure, the two-storey ICT buildings, and the replacement of agricultural lands with built development.

Any disturbance of the landscape has the potential to impact on human beings and their enjoyment of the surrounding area due to visual impacts. These matters are dealt with in the decisions of South Dublin County Council and An Bord Pleanála to grant planning permission for the developments on site and have considered the effects to be acceptable.

Emissions from the operation of the activity will not affect the landscape of the area. No significant cumulative effects on the landscape have been identified. Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

There are no specific mitigation measures or monitoring proposed in the RD.

The Landscape Conclusions

The potential direct and indirect effects on the landscape are visual impact of the data centre buildings, engine/generator stacks, and associated infrastructure.

These matters are dealt with in the decisions of South Dublin County Council and An Bord Pleanála to grant planning permission for the developments on site and who have considered the effects to be acceptable: *“Overall, it is considered that the development would be a significant addition to the landscape and would be visible, given its height and mass, from a number of viewpoints surrounding the site. The applicant has acknowledged within their Visual Impact Assessment that the proposal to replace an agricultural field landscape with built development would be considered a negative impact on the landscape character. However, the applicant has provided mitigation measures including natural screening and the introduction of native woodlands, wetlands and grassland habitats that would have a positive impact on the environment. It is likely that the screening would require time to mature to provide sufficient levels of screening. However, given the other positive aspects of the proposal in terms of landscaping and ecology this is considered to be acceptable. The building itself would be well set back from the main road and with the added screening would only be visible from certain viewpoints and therefore is not considered to be materially visually harmful in the*

context of the site and surrounding area". Conditions have been included in the planning for landscape plans and retention of a landscape architect.

The Recommended Determination does not propose to include any additional mitigation measures in relation to landscape.

Overall Conclusions for Material Assets, Cultural Heritage and the Landscape

I have examined all the information on material assets, cultural heritage and the landscape provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of Material Assets, Cultural Heritage and the Landscape.

15.4.9 Interactions Between Environmental Factors

Interactions of effects are considered in Chapter 16 of both EIARs.

The most significant interactions between the factors as a result of the activity are summarised below:

- Interaction between Air Quality with Population & Human Health and Biodiversity: the installation will generate air pollutants which could have an impact on human health (impact on the air quality) and biodiversity (nitrogen deposition). Such effects are addressed in the 'Emissions to Air' section of this report.
- Interaction between Noise with Population & Human Health and Biodiversity: the activity has the potential to generate noise which could have impacts on human health and cause disturbance to fauna. Such effects are addressed in the 'Noise' section of this report.
- Interaction between Landscape & Visual with Population & Human Health and Biodiversity: the impacts of the landscape and visual changes could have a negative effect on population & human health and biodiversity. The planting of dense belts of native woodland along the site's earth berms and boundaries will offset some of the visual impact on populations and human health once sufficiently matured. The planting of native woodlands along with the development of spaces with wetland and wildflower habitats, will create new ecological corridors and enhance biodiversity.
- Interaction between Climate and all the other environmental factors: the activity will generate GHGs as discussed in the 'Climate' section of this report. The cumulative effects of GHG emissions from the installation will contribute to climate change which in turn will have significant effects on all interrelated environmental factors. Such effects are addressed in the 'Climate' section of this report.

Conclusions

I have considered the interaction between population and human health, biodiversity, land, soil, water, air, climate, landscape, material assets, cultural heritage and the interaction of the likely effects identified throughout this report. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the

operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of the interaction between the foregoing environmental factors.

15.4.10 Vulnerability of the Project to Risks of Major Accidents and or Disasters

Chapter 2 of both EIARs describe the expected effects deriving from the vulnerability of the activity to risks of major accidents and/or disasters that are relevant to the activity. The site location and impact of the activity was assessed for the risk of external disasters, including landslides, seismic activity, volcanic activity, sea level rise and flooding. A “negligible” risk of landslides occurring at the site and in the immediate vicinity was identified due to the topography and soil profile of the site and surrounding areas. No other risks pertaining to external natural disasters were identified.

The potential for major accidents to occur at the installation was considered with regard to the ‘Control of Major Accident Hazards Involving Dangerous Substances Regulations, 2015’ (SI 209/2015). The installation will not be a Seveso site as the quantity of HVO stored on site will not exceed the lowest qualifying threshold of 2,500 tonnes. There is also the potential for accidents at the installation such as leaks, spillages, fire or explosion.

These aspects are addressed in the ‘Prevention of Accidents’ and ‘Cessation of Activity’ sections of this report.

Mitigation and Monitoring

Mitigation and monitoring measures in relation to the vulnerability of the project to risks of major accidents and disasters are outlined in the ‘Prevention of Accidents’ section of this report.

Conclusions

I have examined all the information on major accidents and/or disasters provided by the applicant, received through consultations, written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects as a result of major accidents and/or disasters.

15.5 Reasoned Conclusion on the significant effects

Having regard to the examination of environmental information contained above, and in particular to the content of the EIA documentation and supplementary information provided by the applicant in the course of the application, it is considered that the potential significant direct and indirect effects of the activity on the environment are as follows:

- emissions to air from the combustion of natural gas (NO_x and CO) and emissions to air from the combustion of HVO (NO_x, CO, SO₂ and dust), cumulative effects from air emissions are likely to arise with other existing and/or approved projects,
- noise emissions associated with the operation of the installation,
- accidental emissions to air, surface water, ground or groundwater from fire, explosion, leaks or spillages, and
- effects on climate due to the release of CO₂ emissions to air.

Having assessed those potential effects, I have concluded as follows:

- Emissions to air will be mitigated through;
 - operation of abatement,
 - imposing emission limit values to comply with ambient air quality standards and to comply with the LCP CID, MCP Regulations and LCP Regulations,
 - the requirement to establish an Ambient Air Quality Management Programme, and
 - implementing monitoring, maintenance and control measures.
- Noise emissions will be mitigated by imposing daytime, evening and nighttime noise limits at noise sensitive locations, the requirement to prepare and implement a Noise Management Plan, monitoring, and maintenance and control measures,
- Accidental emissions to air, surface water, ground or groundwater from fire, explosion, leaks or spillages will be prevented and mitigated through accident and emergency requirements, tank, container and drum storage requirements, and inspection and integrity testing of pipes, tanks and bunds,
- Storm water discharges will be mitigated through the requirement for Class I full retention fuel/oil interceptors and silt traps, establishment and maintenance of trigger levels and a response programme to address exceedances and visual inspection of storm water drains, and
- Effects on climate due to release of CO₂ emissions will be mitigated through the limitations on the generators, conditions relating to energy efficiency and alternative energy sources, and through the requirement to participate in the EU Emissions Trading System (ETS).

Having regard to the effects (and interactions) identified, described and assessed throughout this report, I consider that the monitoring, mitigation and preventative measures proposed will enable the activity to operate without causing environmental pollution, subject to compliance with the Recommended Determination. The conditions of the RD and the mitigation measures proposed will significantly reduce the likelihood of accidental emissions occurring and limit the environmental consequences of an accidental emission should one occur.

16. EPA Charges

The annual enforcement charge recommended in the RD is **€14,983**, which reflects the anticipated enforcement effort required and the cost of monitoring.

17. Recommendation

The Agency, in considering an application for a licence or the review of a licence, shall have regard to Section 83 of the EPA Act. The Agency shall not grant a licence or revised licence unless it is satisfied that emissions comply with relevant emission limit values and standards prescribed under regulation. In setting such limits and standards, the Agency must ensure they are established based on the stricter of both the limits and controls required under BAT, and those required to comply with any relevant environmental quality standard. The Agency shall perform its functions in a manner consistent with Section 15 of the Climate Action and Low Carbon Development Act 2015 as amended.

The RD specifies the necessary measures to provide that the installation shall be operated in accordance with the requirements of Section 83(5) of the EPA Act and has regard to the AA Screening and EIA. The assessment is consistent with Section 15 of the Climate Action and Low Carbon Development Act 2015 as amended. The RD gives effect to the requirements of the EPA Act, and has regard to submissions made.

This report was prepared with the assistance of David Matthews, Michelle O'Driscoll, Noelle Crimmins-O'Leary, Naoimh O'Regan and Bríd Horgan.

I recommend that a Proposed Determination be issued subject to the conditions and for the reasons as drafted in the RD.

Signed

A handwritten signature in black ink, appearing to read 'Cian O'Rourke', written over a horizontal line.

Cian O'Rourke

Procedural Note

In the event that no objections are received to the Proposed Determination on the application, a licence will be granted in accordance with Section 87(4) of the EPA Act, as soon as may be after the expiration of the appropriate period.

Appendices

Appendix 1 Site Location & Layout

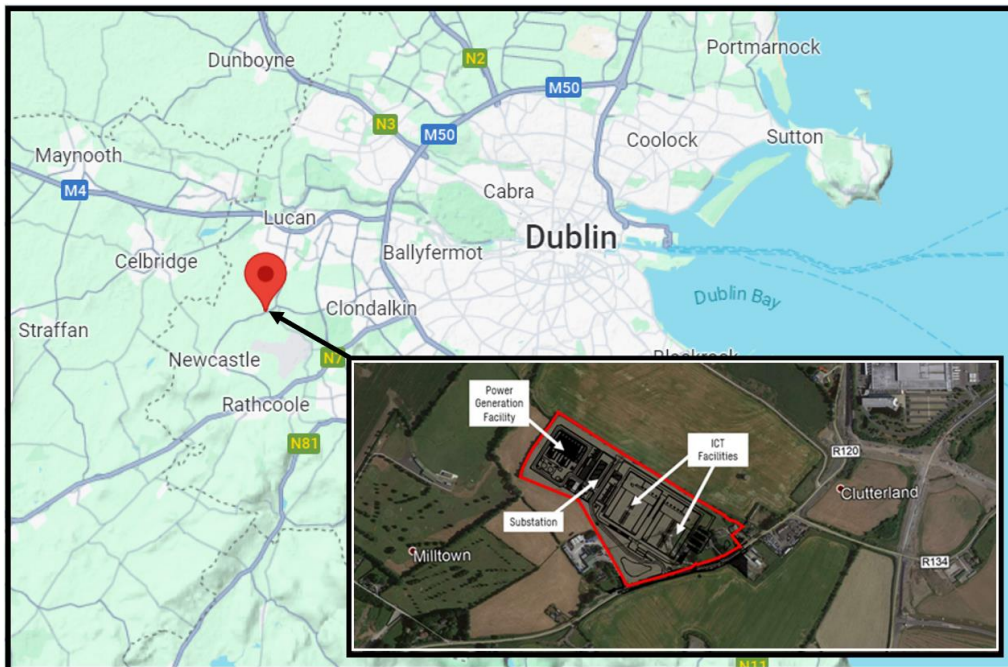


Figure 1: Site Location.

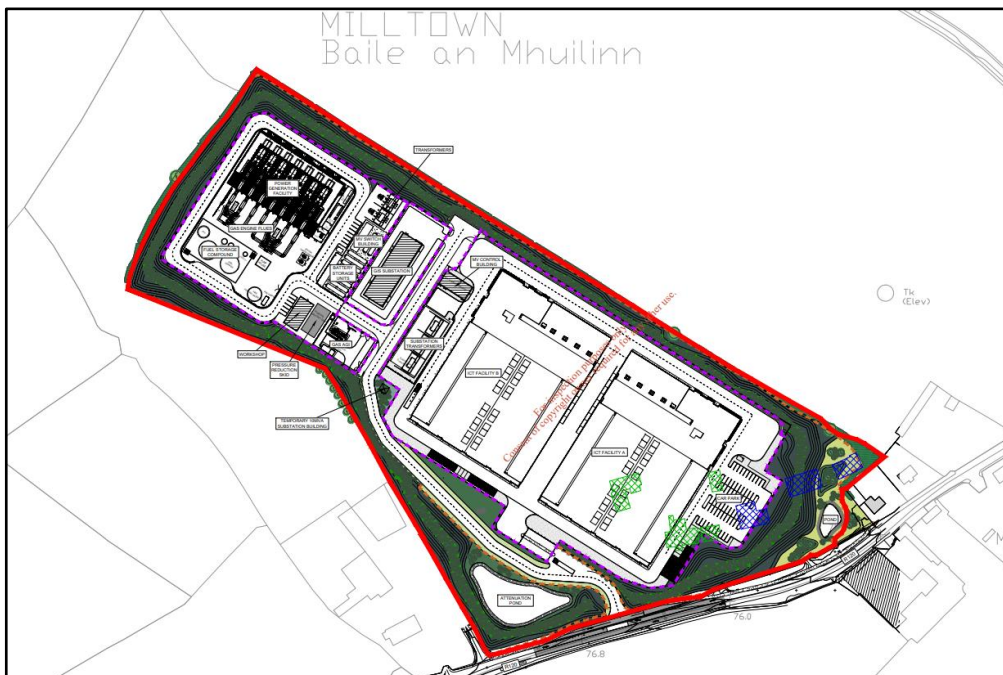


Figure 2: Site Layout (Drawing No: 65201837-SWE-XX-00-DR-J-0003). Installation Boundary outlined in red.

Appendix 2 Appropriate Assessment

Appendix 2: List of European Sites assessed, their associated qualifying interests and conservation objectives.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
001398	Rye Water Valley/Carton SAC	Habitats 7220 Petrifying springs with tufa formation (Cratoneurion)* Species 1014 Narrow-mouthed Whorl Snail (<i>Vertigo angustior</i>) 1016 Desmoulin's Whorl Snail (<i>Vertigo moulinsiana</i>)	NPWS (2021) Conservation Objectives: Rye Water Valley/Carton SAC 001398. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. (NPWS)
001209	Glenasmole Valley SAC	Habitats 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 7220 Petrifying springs with tufa formation (Cratoneurion)*	NPWS (2021) Conservation Objectives: Glenasmole Valley SAC 001209. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. (NPWS)
002122	Wicklow Mountains SAC	Habitats 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with Erica tetralix 4030 European dry heaths 4060 Alpine and Boreal heaths 6130 Calaminarian grasslands of the Violetalia calaminariae 6230 Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)* 7130 Blanket bogs (* if active bog) 8110 Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	NPWS (2017) Conservation Objectives: Wicklow Mountains SAC 002122. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. NPWS

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		8210 Calcareous rocky slopes with chasmophytic vegetation 8220 Siliceous rocky slopes with chasmophytic vegetation 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles Species 1355 Otter (<i>Lutra lutra</i>)	
000397	Red Bog, Kildare SAC	Habitats 7140 Transition mires and quaking bogs	NPWS (2019) Conservation Objectives: Red Bog, Kildare SAC [000397] Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. (NPWS)
000210	South Dublin Bay SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 2110 Embryonic shifting dunes	NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. (NPWS)
000206	North Dublin Bay SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks Species 1395 Petalwort (<i>Petalophyllum ralfsii</i>)	NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. (NPWS)

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
000391	Ballynafagh Bog SAC	Habitats 7110 Active raised bogs* 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion	NPWS (2015) Conservation Objectives: Ballynafagh Bog SAC 000391. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. (NPWS)
004040	Wicklow Mountains SPA	Birds A098 Merlin (<i>Falco columbarius</i>) A103 Peregrine (<i>Falco peregrinus</i>)	NPWS (2024) Conservation Objectives: Wicklow Mountains SPA 004040. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. NPWS
004063	Poulaphouca Reservoir SPA	Birds A043 Greylag Goose (<i>Anser anser</i>) A183 Lesser Black-backed Gull (<i>Larus fuscus</i>)	NPWS (2024) Conservation Objectives: Poulaphouca Reservoir SPA 004063. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage. NPWS
004024	South Dublin Bay and River Tolka Estuary SPA	Birds A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A137 Ringed Plover (<i>Charadrius hiaticula</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A143 Knot (<i>Calidris canutus</i>) A144 Sanderling (<i>Calidris alba</i>) A149 Dunlin (<i>Calidris alpina</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A162 Redshank (<i>Tringa totanus</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A192 Roseate Tern (<i>Sterna dougallii</i>)	NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. NPWS

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		A193 Common Tern (<i>Sterna hirundo</i>) A194 Arctic Tern (<i>Sterna paradisaea</i>) Habitats Wetlands	
004006	North Bull Island SPA	Birds A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A048 Shelduck (<i>Tadorna tadorna</i>) A052 Teal (<i>Anas crecca</i>) A054 Pintail (<i>Anas acuta</i>) A056 Shoveler (<i>Anas clypeata</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A143 Knot (<i>Calidris canutus</i>) A144 Sanderling (<i>Calidris alba</i>) A149 Dunlin (<i>Calidris alpina</i>) A156 Black-tailed Godwit (<i>Limosa limosa</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A160 Curlew (<i>Numenius arquata</i>) A162 Redshank (<i>Tringa totanus</i>) A169 Turnstone (<i>Arenaria interpres</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) Habitats Wetlands	NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. NPWS

Appendix 3 Relevant Legislation

The following European instruments are regarded as relevant to this application assessment and have been considered in the drafting of the Recommended Determination.
Industrial Emissions Directive (IED) (2010/75/EU)
Environmental Impact Assessment (EIA) Directive (2011/92/EU as amended by 2014/52/EU)
Habitats Directive (92/43/EEC) as amended & Birds Directive (2009/147/EC) as amended
Water Framework Directive [2000/60/EC]
Waste Framework Directive (2008/98/EC)
Medium Combustion Plant Directive (EU) 2015/2193
Air Quality Directives (2008/50/EC and 2004/107/EC)
Energy Efficiency Directive (2018/2002/EU)
Environmental Liability Directive (2004/35/CE)
EU Directive 199/32/EC (Relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC)
Groundwater Directive (80/68/EEC) and 2006/118/EC

Appendix 4 Other CIDs/BREF/BAT documents relevant to this assessment

Horizontal BREF	Publication date
Reference Document on the Best Available Techniques on Emissions from Storage	July 2006
Reference Document on the Best Available Techniques for Energy Efficiency	February 2009
Reference Document on the application of Best Available Techniques to Industrial Cooling Systems	December 2001

Appendix 5 Relevant BAT Compliance Conditions

Table 1: BAT Conclusions, specific techniques employed and Condition/Schedule in the RD. BAT requirements not applicable to the site are annotated as N/A.

BAT Conclusions for Large Combustion Plant (CID 2021/2326/EU)			
BAT No.	BAT Requirement	Proposed technique/RD requirements	Relevant Condition/Schedule
1	Environmental Management System	Environmental Management System	Condition 2
2	Determine the net electrical efficiency of the combustion unit	The RD requires the net electrical efficiency of the combustion units to be determined after commissioning.	Condition 7
3	Monitor key process parameters relevant for emissions to air and water	Key process parameters relevant to emissions to air (i.e. flue-gas emissions from the gas engine exhausts) will be monitored routinely during operation of the power generation installation. Continuous monitoring will be carried out for flow, temperature and pressure. The CEMS unit will provide for continuous monitoring of NO _x . There will be no wastewater associated with the flue-gas treatment.	Condition 6 Schedule B.1 Schedule C.1

4	Monitor emissions to air with at least the frequency given in BAT 4 and in accordance with EN standards.	HVO: SO₂, Every three months (HVO), Dust (every six months), Metals and metalloids except mercury - Annual or as agreed with the Agency, TVOC - Every six months (biannual) or as agreed with the Agency. Natural Gas: Continuous monitoring for NO_x, CO and NH₃. Annual monitoring for SO₃, Formaldehyde and Methane as CH₄,	Schedule B.1 Schedule C.1
5	Monitor emissions to water from flue-gas treatment	N/A There will be no process emission i.e. discharge to receiving water or sewer associated with the flue-gas treatment (SCR catalyst evaporated).	N/A
6	Ensure optimised combustion and to use an appropriate combination of the techniques given in BAT 6	The following techniques will be employed: - Fuel blending / mixing - Maintenance of combustion system - An advanced control system, - Good design of the combustion system - Fuel choice (use of natural gas as main fuel source with HVO as a back-up if required)	Condition 2 Condition 3 Condition 6 Schedule C.1
7	To reduce emissions of ammonia to air from the use of selective catalytic	The gas engines exhausts will be equipped with selective catalytic reduction (SCR) abatement in order to	Schedule B.1 Schedule C.1

	reduction (SCR) and/or selective non-catalytic reduction (SNCR)	reduce NO_x emissions as required. SCR design and operation will be optimised to ensure compliance with the BAT-AEL of < 3–10 mg/Nm³ average for ammonia and relevant IE licence limit.	
8	To ensure, by appropriate design, operation and maintenance, that the emission abatement systems are used at optimal capacity and availability	The abatement systems (SCR) to be installed will be new and have been selected on the basis that they are highly efficient and are specified to meet BAT AELs under normal operating conditions. A schedule of preventative maintenance will be in place as specified within the EMS. Operation of the units will be controlled by a dedicated PLC controller which will control the operation of the unit to ensure optimal efficiency at all times. This will be connected to the Building Management System (BMS) with alarms displayed in the central control room.	Condition 2 Condition 3 Condition 6 Schedule C.1
9	Improve the general environmental performance of combustion and/or gasification plants and to reduce emissions to air	The primary fuel used in the gas engines will be natural gas sourced from external mains supply. Gas Networks Ireland will confirm consistency and quality of supply. No additional monitoring is necessary. HVO will be used as a secondary backup fuel in accordance with the secondary fuel obligations specified by the	Condition 2

		Commission for Regulation of Utilities (CRU). Initial full characterisation of the fuel will take place in accordance with EN standards and will include the relevant parameters set out in this BAT. Regular fuel testing will be undertaken to check the quality of fuel.	
10	Implement a management plan (as part of the environmental management system) to reduce emissions to air and/or to water during other than normal operating conditions (OTNOC)	A management plan for OTNOC to be included in EMS.	Condition 2
11	Monitor emissions to air and/or to water during OTNOC	Emissions to air will be monitored by CEMS under OTNOC.	Condition 2 Condition 6
12	In order to increase the energy efficiency of combustion units operated $\geq 1,500$ h/yr BAT is to use an appropriate combination of the techniques given in BAT 12.	The measures that will be used to maximise the energy efficiency include the following techniques: - Combustion optimisation; - Optimisation of the working medium conditions; - Advanced control system; - Use of advanced materials (i.e., new engine design) The EMS will include procedures for the monitoring of the operation of the units in order to	Condition 2 Condition 7

		ensure that there is no material degradation in performance, both in terms of energy efficiency and the emissions to air that will result from the combustion processes. Condition 7 specifies a BAT Associated Energy Efficiency Level (BAT-AEEL).	
13	In order to reduce water usage and the volume of contaminated waste water discharged, BAT is to use the technique given below. Water recycling The degree of recycling is limited by the quality requirements of the recipient water stream	Applicable only to operation of adiabatic cooling technology in evaporative mode, where water is recycled for cooling until the end of the evaporative cooling period of operation. Adiabatic cooling technology will utilise dry cooling (air cooling) for a majority of the year (~96%), with no wastewater generation. When operating in evaporative mode, water that is not evaporated during cooling is recirculated in a closed loop (water recycling) until the end of the evaporative cooling period of operation, For a majority of the year, the ICT facilities will be air cooled with no requirement for water use (water recycling not applicable).	Condition 2 Condition 7
14	To prevent the contamination of uncontaminated waste water and to reduce emissions to water, BAT is to segregate waste water streams and	Storm water and foul water streams will be collected separately and discharged to separate sewer systems. There is no waste water associated with the flue gas treatment.	Condition 2 Condition 3 Condition 6

	to treat them separately		
15	To reduce emissions to water from flue-gas treatment	There will be no waste water associated with the flue-gas treatment (SCR catalyst evaporated).	N/A
16	To reduce the quantity of waste sent for disposal from the combustion process	There will be no waste water stream for disposal associated with the flue-gas treatment (SCR catalyst evaporated). No solid waste is generated by the combustion of natural gas/gas oil.	N/A
17	To reduce noise emissions, BAT is to use one or a combination of the techniques given below - Operational measures - Low-noise equipment - Noise attenuation - Noise-control equipment - Appropriate location of equipment	The following techniques will be applied at the installation in accordance with BAT 17: - Operational measures, - Low noise equipment, - Noise attenuation, - Noise control equipment, - Appropriate location of equipment/building: The RD specifies noise emission limits and annual noise surveys.	Condition 4 Condition 5 Condition 6 Schedule B.4
BAT 18 - 23: Conclusion for the combustion of coal and/or lignite N/A			
BAT 24 - 27: Conclusions for the combustion of solid biomass and/or peat N/A			
BAT 28 - 30: Conclusions for the combustion of HFO and/or gas oil in boilers N/A			
BAT 31 - 35: HFO- and/or gas-oil-fired engines N/A			
BAT 36 - 39: Gas-oil-fired gas turbines N/A			
BAT Conclusions for the Combustion of Gaseous Fuels			
40	To increase the energy efficiency of natural gas combustion, BAT is to use an appropriate combination of the techniques given in BAT 12 and BAT 40.	A combination of techniques will be utilised to increase energy efficiency as described in response to BAT 12 previously. Combined cycle is not applicable to this	Condition 7

		installation, i.e. standalone gas engines. The units proposed will have an efficiency of 44% operating on natural gas and will meet the BAT associated efficiency for gas engines (39.5-44%). BAT Associated Energy Efficiency Level (BAT-AEEL) has been included in the RD.	
41	To prevent or reduce NO _x emissions to air from the combustion of natural gas in boilers, BAT is to use one or more of the techniques in BAT 41.	N/A BAT 41 applies to combustion in boilers. The power generation installation will utilise gas engines (see BAT 43).	N/A
42	To prevent or reduce NO _x emissions to air from the combustion of natural gas in gas turbines, BAT is to use one or more of the techniques in BAT 42.	N/A BAT 42 applies to combustion in turbines. Power generation installation will utilise gas engines (see BAT 43).	N/A
43	To prevent or reduce NO _x emissions to air from the combustion of natural gas in engines, BAT is to use one or more of the techniques in BAT 43.	The following specified techniques will be used to reduce NO_x emissions to air from the combustion of natural gas in the engines: - Advanced control system, - Lean burn concept, - Advanced lean burn concept,	Condition 5 Schedule C.1

		- Selective Catalytic Reduction.	
44	In order to prevent or reduce CO emissions to air from the combustion of natural gas, BAT is to ensure optimised combustion and/or to use oxidation catalysts.	The plant will incorporate an advanced control system to control combustion efficiency and minimise emissions. The design of the engines and associated abatement will ensure compliance with the specified BAT-AEL NO_x ranges (Table 25) i.e. 20-75 mg/Nm³ (yearly average); 55-85 mg/Nm³ (daily average or average over the sampling period). (Annex V, Part 2(6) of the Industrial Emissions Directive (IED) provides for an emission limit value for NO_x of 75 mg/Nm³).	Schedule B.1 Schedule C.1
45	To reduce non-methane volatile organic compounds (NMVOC) and methane (CH ₄) emissions to air from the combustion of natural gas in spark-ignited lean burn gas engines, BAT is to ensure optimised combustion and/or to use oxidation catalyst.	N/A Engine operation based on compression ignition (i.e. engines are not spark-ignited). Limits for formaldehyde and methane contained in Table 26 of the LCP CID are not applicable.	N/A
BAT 46-51: Conclusions for the combustion of iron and steel process gas N/A			
BAT 52-54: Conclusions for the combustion of gaseous and/or liquid fuels on offshore platforms N/A			
BAT 55-59: Combustion of process fuels from the chemical industry N/A			
BAT 60-71: Conclusions for the co-incineration of waste N/A			
BAT 72-75: Conclusions for gasification N/A			