

9 Air Quality and Climate

9.1 Introduction

The likely impact on ambient air quality and climate associated with the proposed 220kV power supply development is assessed in this chapter. The potential impacts during the construction and operational phases of the scheme are considered. Mitigation measures are proposed, where appropriate.

Emissions to atmosphere may arise from:

- Construction activities.
- Operational emissions.

The proposed development will supply power to a large data centre. The data centre project is subject to a separate planning application. The cumulative effects of that project, have also been addressed in this chapter.

9.2 Methodology

9.2.1 Air quality standards

In order to reduce the risk of poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values are set for the protection of human health and ecosystems.

On 12th April 2011, the Air Quality Standards Regulations (AQS) 2011 (S.I. No. 180 of 2011) came into force and transposed EU Directive 2008/50/EC into Irish law. The purpose of the 2011 regulations is to establish limit values and alert thresholds for concentrations of certain pollutants, to provide for the assessment of certain pollutants using methods and criteria common to other European Member States, to ensure that adequate information on certain pollutant concentrations is obtained and made publically available and to provide for the maintenance and improvement of ambient air quality where necessary.

The limit values established under these regulations, relevant to the assessment of impact of traffic on air quality, are included in **Table 9.1**.

Table 9.1 Air Quality Standards

Pollutant	Limit value for the protection of:	Averaging period	Limit value ($\mu\text{g}/\text{m}^3$)	Basis of application of limit value	Limit value attainment date
NO ₂	Human Health	1-hour	200	≤18 exceedances p.a. (99.79 %ile)	1 January 2010
		Calendar year	40	Annual mean	1 January 2010
NO _x	Vegetation	Calendar year	30	Annual mean	1 January 2010
PM ₁₀	Human Health	24-hours	50	≤35 exceedances p.a. (90%ile)	1 January 2005
		Calendar year	40	Annual mean	1 January 2005
PM _{2.5}	Human Health	Calendar year	25 ^{Note 1}	Annual mean	1 January 2010
		Calendar year	20	Annual mean	1 January 2020

Note 1: Target value

9.2.2 Assessment methodology

The construction activities associated with the construction of the proposed power supply development were reviewed, with particular reference to potential impacts on air quality. Potential emissions to air during the operation of the power supply power lines, cables 220kV substation and other components were considered, and the likely impacts on air quality and climate were assessed.

Reference has been made to the document ‘*Air Quality in Ireland 2014 – Key Indicators of Ambient Air Quality*’ (EPA, 2015) and previous EPA air monitoring reports.

In accordance with the TII ‘*Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes*’, 2011, emissions from construction vehicles are assessed where construction traffic results in a significant (considered as more than 10%) increase in AADT (annual average daily traffic) flows near sensitive receptors and where operational traffic results in an increase greater than 5%.

The UK Highways Agency, Design Manual for Roads and Bridges (DMRB) Volume III, Section 3, Part 1 Air Quality provides a Screening Method (Version 1.03c) spreadsheet which is used to calculate the annual average concentrations of NO_x, NO₂ and PM₁₀ at selected receptors. The spreadsheet method computes concentrations of pollutants based on factors including:

- Location and distance of sensitive receptors to road,
- Traffic volumes, Annual Average Daily Traffic (AADT), percentage Heavy Goods Vehicles (HGVs) / Light Goods Vehicles (LGVs) based on details for the do-nothing (without development) and do-something (with development) scenarios provided in Chapter 7: Traffic and Transportation;
- Average speed of traffic;

- Traffic composition;
- Road type and; and
- Background pollutant concentrations.

Table 9.2 outlines the locations of individual receptors considered in the DMRB model.

Table 9.2 Details of Individual Receptor Locations used in the DMRB model

Receptor Location Reference (refer to Figure 9.1)	Location	Grid Reference	
		E	N
R01	R348 at site access route	144573	225936
R02	L3104	146361	226105
R03	R348 East of Moyvilla	146776	226182
R04	R448 west of Derrydonnell	140842	140842



Figure 9.1 Receptors for DMRB modelling (Cumulative Effects with the Operation of the Power Supply) | Not to Scale [Background mapping © Microsoft Corporation ©2016 Bing Maps]

9.3 Existing Environment

The proposed development is located approximately 4km west of Athenry and 12 km east of Galway City, in a zone referred to by the Environmental Protection Agency as Air Quality Zone D – Rural Ireland. Air quality is measured by monitoring the levels of various pollutants. This monitoring checks whether air quality meets standards that are considered adequate for the protection of human health and environment. The air quality monitoring data in Zone D is provided in **Table 9.3**. Data is taken from the most recent EPA Air Quality in Ireland Reports.

Table 9.3 Pollutant background concentrations for Zone D

Background Values	Annual Average NO ₂ (µg/m ³)	Annual Average PM ₁₀ (µg/m ³)	Annual Average PM _{2.5} (µg/m ³)
2012	7.3	10.3	7.5
2013	6.3	13	12.5
2014	6.8	13.3	9
Average	6.8	12.2	9.7
2017 ^{Note 1}	6.0	11.8	9.4
Limits	40	40	25

Note 1: Reduction in future years using correction factors from TII guidance

All background concentrations are in compliance with air quality standards.

9.4 Potential Impacts on Air Quality

9.4.1 General

This section addresses potential impacts on air quality. Potential impacts represent the worst case scenario in the absence of mitigation. Potential cumulative impacts on air quality are addressed in **Section 9.7**.

9.4.2 Do Nothing Impacts

If the proposed power supply development did not go ahead, it is likely that the current uses of the site, forestry and agriculture, would remain unchanged.

9.4.3 Construction Phase Impacts

The primary air quality issues associated with the construction of the proposed power supply development would be short-term dust and exhaust emissions during the construction phase. Dust emissions during the construction phase are likely to result from the following activities:

- Site earthworks
- Handling of construction materials
- Wind blow from temporary stockpiles
- Construction traffic movements
- Tree felling.

There is a potential for short term localised dust nuisance arising from these activities. No significant or longer-term impacts are predicted due to dust emissions.

The traffic impact assessment is presented in Chapter 7. The traffic impact assessment predicted the traffic on the surrounding road network resulting from the construction and operation of the proposed power supply project. As the data centre phase 1 will be under construction at the same time as the power supply project, the construction traffic associated with the two projects was predicted. At one route, the site access route along the R348, an increase of greater than 10% in AADT is predicted to occur during the simultaneous construction of the two projects. An assessment of the air quality at this location is provided in **Table 9.4** below.

Table 9.4 DMRB modelling results for individual receptors for 2017 (for proposed power supply and data centre phase 1)

Receptor	Pollutants	NO ₂ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	PM ₁₀ (Days > 50 µg/m ³)
	<i>Limit Values</i>	40	40	25	35
R01	Without Power Station and Data Centre Phase 1	6.45	11.89	9.48	0
	With Power Station and Data Centre Phase 1	7.51	12.04	9.61	0
	Increase	1.06	0.15	0.13	0
R02	Without Data Centre Phase 1 and Power Station	6.33	11.86	9.46	0
	With Data Centre Phase 1 and Power Station	6.37	11.87	9.46	0
	Increase	0.03	0.01	0.01	0
R03	Without Data Centre Phase 1 and Power Station	6.72	11.96	9.54	0
	With Data Centre Phase 1 and Power Station	7.06	12.00	9.58	0
	Increase	0.34	0.05	0.04	0

The assessment above predicts negligible increases in pollutant concentrations at the receptor locations due to the traffic generated by the simultaneous construction of the proposed power supply project and the proposed data centre phase 1. All air quality standards are complied with.

As the traffic on the road network would be less than that addressed in **Table 9.4**, if the construction of the power supply project was happening on its own, it can be concluded that there will be no impact on air quality as a result of the construction of the power supply project.

9.4.4 Operational Phase Impacts

Once construction is completed, emissions from the proposed power supply development will be limited to the periodic vehicle movements associated with the management and maintenance of the 220kV substation, cables, towers and other components. The increase in traffic on the surrounding road network will be negligible and under TII guidance, an assessment of emissions is not required. No

significant impact on air quality is envisaged due to traffic associated with the operation of the power supply project.

The two emergency generators (one for the Apple part of the 220kV substation and one for the EirGrid part) will be subject to testing on a monthly basis. The generators will not be tested simultaneously and no significant impact on air quality is envisaged.

The switchgear of the proposed 220kV substation will be air-insulated, and therefore will not require the use of sulphur hexafluoride (SF6) gas for insulation.

An assessment of the effects of electromagnetic fields has also been completed for the proposed development. This assessment concludes that there will be no impacts arising from the proposed development. Refer to **Appendix 15.1** for further details.

9.5 Air Quality Mitigation Measures

9.5.1 Construction Phase of the Power Supply Project

Emissions to air during earthmoving and construction will occur. The focus of the control procedures will therefore be to reduce the generation of airborne material.

A dust minimisation plan will be prepared and implemented by the building contractor during the construction phase of the project. Construction activities are likely to generate some dust emissions, particularly during the site clearance and excavation stages.

The following avoidance, remedial or reductive measures will be implemented as part of the dust minimisation plan:

- During very dry periods when dust generation is likely, construction areas will be sprayed with water.
- Exhaust emissions from vehicles operating within the site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor through regular servicing of machinery.
- Vehicle speeds will be limited in the construction site.
- Surrounding roads used by trucks to access to and egress from the site will be cleaned regularly using an approved mechanical road sweeper. Roads will be cleaned subject to local authority requirements. Site roads will be cleaned on a daily basis, or more regularly, as required.
- Wheel-wash facilities will be provided with rumble grids to remove excess mud from wheels. These facilities will be located at the exit from the site and away from sensitive receptors, where possible.
- Internal haul roads will be paved at the earliest possible opportunity and inspected regularly for cleanliness.

The technique adopted for all works shall minimise the release of dust into the atmosphere. The appointed contractor will be required to carry out dust deposition

monitoring at agreed and appropriate locations on the construction site boundary of the development site using the Bergerhoff method (German Standard VD 2119, 1972). The Bergerhoff dust deposition gauges will be deployed on site throughout the construction stage for 30 day periods at a time. Weather conditions such as wind speed and direction, and rainfall frequency and amounts that prevail over the monitoring period will be observed and recorded. Dust deposition will be calculated in a laboratory and will be expressed as $\text{mg}/\text{m}^2/\text{day}$. Results will be compared to the TA Luft guidelines of $350\text{mg}/\text{m}^2/\text{day}$. Should an exceedance of the TA Luft limit occur during the construction phase, additional mitigation measures will be implemented. Daily visual inspections will be carried at locations around the site boundary as required. These inspections will monitor the effectiveness of dust mitigation measures.

9.5.2 Operational Phase

No mitigation measures are necessary for emissions to air for the proposed development in the operational phase.

9.6 Residual Impact

9.6.1 Construction Phase of the Power Supply Project

Following the implementation of the mitigation measures outlined above, no significant impacts on air quality is likely during the construction phase of the power supply project.

9.6.2 Operational Phase

No significant impacts on air quality is likely during the operational phase of the power supply project.

9.7 Cumulative Impacts

The potential for cumulative impacts on air quality and climate is assessed in this section.

9.7.1 Cumulative Impacts Air Quality – Construction Phase

9.7.1.1 Construction traffic

There is the potential for cumulative impacts on air quality due to the simultaneous construction of the proposed power supply project, the adjoining data centre and the M17/M18 motorway.

An air quality assessment of the cumulative construction traffic impacts due the proposed power supply, phase 1 of the proposed data centre and the M17/18 motorway is included in **Table 9.5**. At four locations, AADT volumes are

predicted to increase by at least 10%, requiring a detailed assessment, however only three of these locations have sensitive receptors adjacent to them.

The construction of the remaining phases of the data centre development will not take place until phase 1 of the data centre and the power supply development is operational. The construction traffic associated with the remaining data halls will be less than that associated with the simultaneous construction of phase 1 of the data centre and the power supply development. Therefore the result contained **Table 9.5** is a worst-case cumulative construction traffic impact.

Table 9.5 Cumulative assessment of construction traffic (proposed power supply, data centre phase 1 and M17/M18)

Receptor	Pollutants	NO ₂ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	PM ₁₀ (Days > 50 µg/m ³)
	<i>Limit Values</i>	40	40	25	35
R01	Without Power Supply, Data centre Phase 1 & M17/18	6.83	11.93	9.52	0
	With Power Supply, Data centre Phase 1 & M17/18	7.78	12.07	9.64	0
	Increase	0.95	0.14	0.13	0
R02	Without Power Supply, Data centre Phase 1 & M17/18	6.33	11.86	9.46	0
	With Power Supply, Data centre Phase 1 & M17/18	6.37	11.87	9.46	0
	Increase	0.03	0.01	0.01	0
R03	Without Power Supply, Data centre Phase 1 & M17/18	7.16	12.00	9.58	0
	With Power Supply, Data centre Phase 1 & M17/18	7.39	12.04	9.62	0
	Increase	0.23	0.04	0.04	0

The assessment above predicts negligible increases in pollutant concentrations at the receptor locations. All air quality standards are complied with. Consequently, no cumulative impact on air quality is expected when the M17/M18, phase 1 of the data centre and the power supply development are under construction.

9.7.1.2 Cumulative Impact of Dust Emissions from Construction Activities (power supply, phase 1 of the data centre and M17/M18)

The worst case scenario for potential dust emissions would be the concurrent construction of the proposed power supply development, the proposed Phase 1 of the data centre and the construction of the M17/M18 motorway and interchange (currently under construction). The TII guidelines state that there is a potential for significant dust effects from a major construction site at a maximum of 100m from the source. The M17/M18 construction site is located over 300m from the proposed substation site.

There is the potential for cumulative dust impacts during the construction of the power supply project and Phase 1 of the data centre development due to the

proximity of the two sites. The construction of the power supply will not take place concurrently with the construction of other phases of the data centre development.

Appropriate construction mitigation measures to minimise dust emissions will be implemented during the construction phase (refer to Section 9.5.1 above) of the proposed power supply. Similar measures will be implemented during construction of Phase 1 of the data centre.

It is considered that there will be no significant negative cumulative construction impacts on air quality as a result of the potential simultaneous construction of the above projects. Dust deposition monitoring results will be carried out to ensure compliance with limit values described in Section 9.5.

9.7.2 Cumulative Impacts on Air Quality – Operation Phase

As outlined in Section 9.4.4, the only potential emissions to air from the power supply project are those arising due to the monthly testing of the two emergency generators. There will be very occasional traffic to the 220kV substation and power lines for maintenance and inspection purposes. The impacts on air quality during the operation of the power supply project are not expected to be significant.

Emissions to air during the operational phase of the data centre phase 1 and subsequent phases will mainly comprise low grade hot air exhausted at high level through the roofs of the data halls. This hot air will be as a result of large fans blowing filtered outside ambient air across the areas where the processing equipment will be located. There will be no significant impacts on air quality as a result of these heat emissions to air.

There will be emissions to air during the running of the 18 emergency generators, each of 2.5MW, in each data hall. This will only take place in the rare event of a power failure. At full build out and when fully operational, the proposed data centre will include 144 emergency generators. The generators will be tested monthly for a duration of up to one hour and only one generator at a time will be in operation during testing to minimise the impact on air quality. The cumulative air quality impacts of the data centre at full build out, with eight data halls, and the power supply project are expected not to be significant.

9.7.2.1 Operational Traffic

A cumulative operational air quality assessment, of the impacts due to traffic, for 2022 is outlined in **Table 9.6** below. By 2022, it is envisaged that phase one of the data centre and the power supply will be operational and the second data hall will be under construction. In **Chapter 7** the traffic arising from the operation of the power supply, phase one of the data centre supply and the construction of the second data hall has been predicted. At five locations, AADT volumes are predicted to increase by at least 5%, requiring a detailed assessment. However only four of these locations have sensitive receptors adjacent to them.

Table 9.6 Cumulative assessment of operational traffic – 2022 (phase 1 of data centre and power supply operational, second data hall under construction)

Receptor	Pollutants	NO ₂ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	PM ₁₀ (Days > 50 µg/m ³)
	<i>Limit Values</i>	40	40	25	35
R01	Without power supply, data centre & second data hall	5.66	11.90	8.97	0
	With power supply, data centre & second data hall	6.18	11.98	9.03	0
	Increase	0.52	0.08	0.06	0
R02	Without power supply, data centre & second data hall	7.29	12.36	9.29	0
	With power supply, data centre & second data hall	7.37	12.39	9.31	0
	Increase	0.08	0.03	0.02	0
R03	Without power supply, data centre & second data hall	5.54	11.86	8.95	
	With power supply, data centre & second data hall	5.55	11.87	8.95	0
	Increase	0.01	0.01	0.00	0
R04	Without power supply, data centre & second data hall	5.94	11.96	9.01	0
	With power supply, data centre & second data hall	6.14	12.00	9.04	0
	Increase	0.20	0.03	0.02	0

The assessment above predicts negligible increases in pollutant concentrations at the receptor locations. All air quality standards are complied with. The construction of the additional data halls will not result in any additional traffic. With subsequent data halls under construction, one at a time, and the power supply, phase one of the data centre and other data halls operational, there is expected to be a negligible increase in pollutant concentrations at the receptor locations and all air quality standards are complied with.

By 2033, it is envisaged that no further construction will be ongoing. At no stage will the cumulative effect on air quality due to traffic will be greater than that outlined in **Table 9.6** above. Consequently no significant cumulative effect on air quality is predicted.

9.7.3 Worst Case Cumulative Impact Scenario– Fossil Fuel Power Supply in the Absence of 100% Renewables

9.7.3.1 Introduction

The power supply project will enable operation of the data centre. Since 2012, all of Apple's data centres have been powered by, or offset with, 100% renewable energy. Based on this experience, Apple is confident that it can run the proposed new data centre in Athenry on 100% renewable energy. As discussed in Chapter 13, the power requirement of the first phase of the proposed data centre

development can be readily met by the existing renewable resources and the new renewable resources that are already planned or contracted. The power requirement of the full build-out can be provided by the renewable power resources, which are planned/contracted to be in place by 2024.

However, in its letter dated 14 December 2015, planning reference PL07.245518, An Bord Pleanála directed that the EIS for phase 1 of the data centre should be revised to address direct and indirect effects potentially arising from the power consumption of the data centre if 100% renewables cannot be achieved.

9.7.3.2 Indirect effects on Air Quality

If 100% renewables cannot be achieved, the data centre would be powered by electricity sourced via the grid from the single electricity market, with non-renewable generation supplying whatever deficit there is in renewable generation. Chapter 13 demonstrates that the Irish grid has sufficient capacity to meet the power requirement of phase 1 of the data centre, 6MW increasing to 30MW, and of the full build-out of eight data halls, 240MW, with current generation. The generation surplus projected by EirGrid, to at least 2024, is more than sufficient to cover the demand at full build out. As this electricity would be supplied via the power supply grid connection from the national grid, there would be no direct effects on air quality.

Fossil fuelled power plants would have to generate additional power to supply the data centre, if there is a deficit or absence of renewable energy. The indirect effects, due to the consumption of non-renewable power, with the potential to be significant, are the emissions to air and the carbon dioxide emissions from fossil fuelled power plants which would have to generate the additional power.

The fossil fuel power plants are all existing facilities, operating to industrial emissions licences granted by the EPA. The environmental effects of the operation of each of these facilities has been fully assessed, and is audited on an ongoing basis, by the EPA. In the assessments, the EPA determined that the emissions to air from each plant meet air quality standards and do not cause air pollution. Thus, while there would be additional emissions to air, there is not likely be a significant impact on air quality, if the data centre phase 1 or at full build-out is powered partially or fully by fossil fuel generation.

9.8 Potential Impacts on Climate

9.8.1 General

This section addresses potential impacts on climate. Potential impacts represent the worst case scenario in the absence of mitigation.

9.8.2 Do Nothing Impacts

If the proposed development did not go ahead, the effects on climate would be neutral.

9.8.3 Construction Phase Impacts on Climate

The site of the proposed 220kV substation is within an area which is currently used for commercial forestry and the cable routes and new towers will be located in farmland used for pasture. The commercial forestry involves stands of trees across the wider data centre site to be felled on a cyclical basis as part of the forestry activity. Removal of trees under the footprint of the proposed 220kV substation, cable trenches and other components located within the data centre site will be limited to that required to facilitate the construction of the proposed development. The removal of trees will result in the emission of sequestered carbon to the atmosphere. This will be a short term effect.

However, Coillte is required to undertake compensatory afforestation, for the area of coniferous forestry, removed in order to develop the proposed data centre and power supply. Thus in the longer term, the effect on emissions of sequestered carbon of the removal of trees on the Derrydonnell site will offset by the Coillte's compensatory afforestation.

In addition, significant additional replacement planting of diverse species will take place in tandem with site clearance on the wider data centre site.

There will be no significant impacts on climate as a result of the construction of the proposed development.

9.8.4 Operational Phase Impacts on Climate

The proposed power supply development will not, in itself, have any significant impacts on climate. It comprises electrical infrastructure that will connect a proposed data centre to the national electrical grid, and will not give rise to any micro or macro climate effects. Because the proposed development will facilitate the operation of a significant user of electrical power (the proposed data centre), cumulative effects on climate are a relevant consideration. These are discussed in Section 9.8.6.

9.8.5 Cumulative Operational Phase Impacts on Climate – Construction Phase

As outlined above the trees removed will be offset by compensatory afforestation by Coillte. There will be no significant cumulative impacts on climate during the construction of the proposed power supply project, data centre phase 1 and seven additional data halls.

9.8.6 Cumulative Operational Phase Impacts on Climate – Operation Phase

The proposed development will facilitate the operation of the proposed Apple data centre, which will be a significant power user. The power demand will be up to 30MW for the phase 1 data centre and up to 240MW in the full build out of eight data halls.

Apple has pledged to operate its data centres using renewable energy. Apple's strategy for sourcing renewable energy to power the data centre is described in **Chapter 13 Material Assets**.

Apple's proposed approach will ensure that the power consumption of the proposed data centre Phase 1 and full build out will be from renewable energy or offset by renewable energy. Consequently, the proposed grid connection and proposed data centre is not expected to have a significant effect on climate.

9.8.7 Worst Case Cumulative Impact Scenario– Fossil Fuelled Power Supply in the Absence of 100% Renewables

9.8.7.1 Introduction

As outlined above, Apple proposes to power the data centre phase 1 and at full build out by renewable energy. However, in its letter dated 14 December 2015, planning reference PL07.245518, An Bord Pleanála directed that the EIS for phase 1 of the data centre should be revised to address direct and indirect effects potentially arising from the power consumption of the data centre if 100% renewables cannot be achieved.

If 100% renewables cannot be sourced, the data centre would be powered by electricity sourced via the grid from the single electricity market, with non-renewable generation supplying whatever deficit there is in renewable generation. Fossil fuelled power plants would have to generate additional power to supply the data centre, if there is a deficit or absence of renewable energy. The fossil fuel power plants are all existing facilities.

The average CO₂ emission factor per kilowatt of electricity supplied by Irish power generation in 2013 was 0.47kgCO₂/kWh. (Source *Energy in Ireland 1990 – 2013 Report*, SEAI 2014). The long term trend has been that the average CO₂ emission factor has reduced. It is conservative to use the 2013 figure and assume that it will not continue to reduce over the lifetime of the eight data halls.

The peak power consumption of phase 1 of the data centre will increase from 6MW to 30MW over five years. The peak consumption of the data centre at full build out, which is expected to take 15 years, will be 240MW. Using Apple's utilisation factor of 88% and 8760 hours per annum of operation, the annual power consumption of phase 1 will be 46GWh increasing to 231GWh. The annual power consumption of the data centre at full build out will be 1850GWh. The CO₂ emissions from phase 1, if powered by the grid average renewable generation, rather than 100% renewable, would be 21,740t increasing to 108,698t after 5 years. The CO₂ emissions from the data centre at full build out would be 869,958t.

The EPA estimated that Ireland's greenhouse gas emissions for 2014 was 58.21 million tonnes CO₂ equivalent. (Source EPA website:

http://www.epa.ie/pubs/reports/air/airemissions/GHG_1990-2014_Provisional_11122015.pdf, (accessed January 2016.)

Thus the initial operation of phase 1, assuming the Irish average power generation, rather than 100% renewable, would result in CO₂ emissions equal to 0.037% of Ireland's total estimated CO₂ equivalent emissions for 2014. This would increase over five years to 0.187% of Ireland's total estimated CO₂ equivalent emissions for 2014. The CO₂ emissions from the data centre at full build out of 240MW would be 1.49% of Ireland's total estimated CO₂ equivalent emissions for 2014. Thus, based on conservative assumptions, if the data centre was powered by the Irish grid average power generation, rather than 100% renewables, the impact on Ireland's total CO₂ emissions, even at full build out of eight data halls, would not be significant.

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