Galway Harbour Company

Galway Harbour Extension

Response to An Bord Pleanála Sept. 2024

EIS Addendum Chapter 11

Climatic Factors

An Bord Pleanála (Ref: 61.PA 0033)

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11. Climate

11.1. Introduction

Chapter 11 of the Environmental Impact Statement ("EIS") as submitted in January 2014 relates to the Climatic Factors of the proposed Galway Harbour Extension. The chapter outlines the methodology & sources of information, climatic conditions, potential significant impacts and microclimate.

AXIS environmental services were commissioned to review the EIS and associated documents from An Bord Pleanála for the preparation of this addendum. This was carried out together with TOBIN who produced a Carbon Life Cycle Assessment Report, included in Appendix 11-1 of this report.

Mark Mc Garry BSc has over 25 years working in the field of environmental consultancy and field measurement. Mark began his career in a laboratory and consultancy where he developed his foundation in environmental monitoring and field work before moving on and opening his own consultancy, AXIS Environmental Services Ltd., in 2008. Mark has acted as lead environmental consultant on many projects, liaising with management, EPA, and Planning authorities to investigate and report on environmental issues.

A review of current legislation, agreements and guidance have been carried out to determine if any information in the original EIS had become outdated as well as a review of any new information that could add to the data already submitted.

11.2. Report Format

The purpose of this report is to bring the EIS up to date. There are no changes to the proposed development and so the purpose of this section of the EIS Addendum 2024 is to outline the overall approach to the EIS addendum in relation to Chapter 11 including Appendix 11-1 of this EIS Addendum Chapter 11. The addenda to Chapters 2 and 9 are also of relevance in this regard.

11.3. Review Of Chapter 11 of the EIS

The previous EIS Chapter 11 outlines the climatic factors associated with the proposed development of Galway Harbour. The chapter notes that the proposed development is not of a scale to influence global climate.

The chapter also notes that the optimum design has been proposed for Galway Harbour Extension i.e. beneficial re-use of dredging material etc. The previous chapter makes references to Chapter 9 and therefore the corresponding EIS addendum for Chapter 9 is relevant. EIS addendum Chapter 2 in relation to Planning Policy provides an update on the current Climate Action Plan.

An assessment of the carbon footprint of the proposed development entitled "Carbon Life Cycle Assessment Report" is included in Appendix 11-1 of this EIS Chapter 11 Addendum.

Climatic data for long term assessment of rainfall and temperatures for Galway is obtained from the nearest weather station between the period 1991 – 2024 which is provided by Met Éireann. The most suitable Met Eireann station to the proposed development is Shannon Airport, located 66km south of the target area.

https://www.met.ie/cms/assets/uploads/2023/09/www_met_ie_shannon_airport_9120.htm.

The baseline data used in the EIS has been reviewed and has not changed significantly between the original report and this assessment.

11.4. Summary of previous conclusions of the EIS Chapter

The chapter includes a section on construction emissions. This analysis is brought up to date using current calculation methods and the Carbon Life Cycle Assessment Report is included in Appendix 11-1. This report includes both operational and construction emissions.

In relation to operational impacts, as noted in the original chapter, transport of freight by sea has a significantly lower carbon footprint than other means. The overall proposal will reduce CO_2 emissions below projected emissions from overall transport of materials into the region if Galway Harbour Extension was not to proceed. In line with CO_2 emissions, other airborne pollutants will also reduce and the overall climatic impact of the proposed development is positive. When aligned with the rail proposal at the new port, when same is viable, there may be further reductions possible.

The Galway Harbour Extension will reduce CO_2 emission levels below current levels by enabling larger vessels with lower specific emission levels to access the Port. As noted in the original EIS, the quantity of CO_2 emitted from Port operations has been outlined in Chapter 9 Air Quality (2014). By utilising the regional Port of Galway and transporting goods by sea to the region, the carbon footprint of those goods is considerably reduced.

As outlined in EIS Chapter 9 (2014), Do-Nothing Scenario, the alternative transportation of goods by road from Foynes, Cork or Dublin would result in significantly higher CO_2 emissions. The Global Warming Potential "GWP" and potential carbon emissions have been updated in the Carbon Life Cycle Assessment report which validates this statement.

As discussed in EIS Chapter 9 (2014) the option of diverting freight to other ports is a complex issue requiring full origin-destination datasets to carry out a detailed analysis. What is beyond question, however, is that the option of having a regional port with 24-hour marine access and both rail and road links to the region has the potential to significantly reduce CO_2 emissions in the longer term.

11.5. Additional Surveys and Up to Date Data

Ireland's greenhouse gas emissions decreased by 6.8 per cent (4.0 Mt CO_2eq) in 2023 with reductions in almost all sectors. The EPA have calculated greenhouse gas emissions to be approximately 55.01 million tonnes carbon dioxide equivalent ($MtCO_2e$), excluding emissions from Land Use, Land Use Change and Forestry (LULUCF).

In 2023, Ireland's Emissions data show the largest single year reductions in the energy and agriculture sectors and the lowest level of residential emissions since 1990, while transport emissions were below pre-Covid levels.

- Power generation emissions decreased by 21.6 per cent (2.2 Mt CO_2e)
- Agriculture emissions decreased by 4.6 per cent (1.0 Mt CO_2e)
- Residential emissions decreased by 7.1 per cent (0.4 Mt CO_2e)
- Transport emissions increased marginally by 0.3 per cent (0.03 Mt CO_2e)
- Emissions per capita decreased from 11.4 tonnes CO_2e/person in 2022 to 10.4 tonnes CO_2e/person in 2023.

The latest Environmental Protection Agency ("EPA") projections show that currently implemented policies and measures (With Existing Measures) will achieve a reduction of 10% on 2005 levels by 2030. EPA projections show that almost all sectors are on a trajectory to exceed their national sectoral emissions ceilings for 2025 and 2030. However, if policies and measures in the higher ambition (With Additional Measures) scenario are implemented, Ireland can achieve a reduction of 29% by 2030 compared to 2018 if planned climate polices and measures are fully implemented.

A Carbon Life Cycle Assessment has projected carbon emissions from construction and operation of the installation in Appendix 11-1. This additional analysis brings Chapter 11 up to date using current and proposed emissions.

The Carbon Life Cycle Assessment updated emissions in line with current scientific knowledge and methodologies using OneClick LCA® Software. The carbon footprint of the proposed site is summarised as follows:

Table 11-1 Carbon Life Cycle Emissions from the Proposed Installation

Life Cycle Stage	GWP (tCO_2e)
Construction and End of Life Stage	
Product stage	60,931
Transport materials	513
Transport – mass hauling	5,863
Construction process	1,730
End of life	2,073
Waste transport	1,950
Subtotal	73,060
Operational Stage	
Operational transport	299,907
Operational energy use	7,695
Operational water use	72
Subtotal	307,674
Total Carbon Emissions over 30 year life cycle	**380,735**

Given Ireland emitted c. 55 million tonnes of CO_2 in 2023, the impact from development at this location will not have a significant impact on climate change. The "Do-Nothing" scenario as outlined in the Carbon Life Cycle Assessment Report has projected carbon emissions for the same period of 424,464 tCO_2e, 11% higher emissions of CO_{2e}.

The operational stage of the proposed development is projected to generate c.10.26 kt CO_2e per annum, equating to c.0.02% of the 2023 national emissions.

Since the original EIS was submitted in 2014, there has been agreement for annual greenhouse gas emission reductions to be achieved by Member States from 2021 to 2030 contributing to climate action under the Paris Agreement and amending Regulation (EU) No 525/2013. The impact of the proposed development in relation to the total national emissions outlined for Ireland under EU Regulation 2018/842 will not be significant (0.03%), as demonstrated in Table 11-2. The proposed development will reduce its climate impact when compared with the "Do-Nothing" scenario.

Table 11-2 Carbon Dioxide Impact on 2030 Targets

Scenario	% tCO_2e of 2030 Target
Annual Average Operational Emissions from the proposed Harbour Extension	0.03%
Do Nothing (Existing Harbour + transport emissions from Dublin / Foynes to Galway)	0.05%

The proposed development is not considered to be of sufficient scale to have the potential to impact on regional or global climate in any significant manner.

The nature of the proposed development is such that it will have a long-term positive impact on climate compared with the "Do-Nothing" scenario. By utilising this regional port and transporting goods by sea in larger vessels, the carbon footprint of goods delivered to the region will be reduced.

The "Do-Nothing" scenario would result in goods required by the Galway Region being shipped to alternative ports, i.e. Shannon Foynes and Dublin Port. The Cabon Life Cycle Assessment Report calculated that greenhouse emissions associated with transporting these goods to the Galway region from these ports would be c. 425,000 tCO_2e. This is 11.5% higher than what would be emitted from development of this port. This GWP is based on the following assumptions over a 30 year life cycle:

Table 11-3 Mass Balance of Carbon Emissions (30 Year Life Cycle)

Proposed Port Activity	Tonnes of CO_2e	Alternative Emissions[1]	Tonnes of CO_2e
Embodied Carbon	73,060	Baseline Emissons[2]	97,272
Operational Carbon	307,674	Transport Emissions[3]	327,191
Total Carbon Emissions	380,734	Total Carbon Emissions	424,463
Projected Carbon Savings by Upgrading Galway Port			**11.5%**

Note 1: Alternative Emissions: Galway port would operate as normal but projected additional goods would be transported from Dublin / Foynes Port
Note 2: Baseline carbon emissions are calculated on current tonnage of goods received at Galway port projected over 30 years.
Note 3: Assuming 50% each of the balance of projected shipping tonnages diverted from Galway Port to Shannon Foynes and Dublin Port

11.6. Assessment of EIS Conclusions

There are no changes to the EIS conclusions due to the passage of time and the chapter is now updated using up to date analysis, modelling and scientific knowledge.

The "Do-Nothing" scenario would result in higher CO_2 emissions from increased road traffic hauliers than the emissions scenario for the proposed development.

The previous EIS conclusion remains valid, and this addendum is providing more up to date analysis and information on the potential impact of the installation.

11.7. Cumulative Impact Assessment

The Galway City Council Climate Action Plan 2024 – 2029 estimated the greenhouse gas emissions for Galway City totalled c. 493,503 tonnes in 2018 of carbon dioxide equivalent, equating to approximately 0.6% of the national total.

The Carbon Life Cycle Assessment Report conducted as part of this Addendum, Appendix 11-1, predicts the emissions from the Galway Harbour Extension over a 30-year period. Proposed emissions of carbon dioxide from the installation have been determined at c. 380,735 tCO_2e over the assessment period. The largest contributor to the global warming potential of the project is during the operational stage. This is from a combination of goods transport, energy use and water use.

It is estimated that during the operational stage, the average annual emissions of CO_2e would be c. 10,255 tonnes/year. The operational phase of this proposed development will contribute c.2.1% of Galway City's emissions on an annual basis.

A comprehensive review of existing activities and planning permissions with 15km of the installation has been assessed to determine if there are any significant developments in the region that would have a major cumulative impact as outlined in Chapter 2 and Appendix 2.1. A summary of the major projects reviewed, and EPA licenced Industries is summarised in the following tables.

Table 11-4 Summary of Proposed Major Projects

Proposed Major Projects	Case/ID No.
Original N6 GCRR	HC07.HC0002
N6 GCRR	318217
Galway Harbour	PA61.PA0033
Cross City Link	314597
Bonham Quay	1783
Ceannt Station Original	1418
Ceannt Station Amendment	2287
Augustine Hill	2047
UG Goldcrest Village	15221
Salmon Weir Bridge (new one)	308783
Learning Commons	23104
Dexcom Stadium	18402
Large Scale Residential Dwellings	
Letteragh Road, Rahoon	23129
Gort na Bró, Rahoon	233
Cartron and Garraun South, Oranmore	2460733
Strategic Housing Developments	
Burkeway Bearna	308431
Burkeway Letteragh	304345
Westside Shopping SHD	313286
King Lakeview	312191
Coolough Student Accommodation	306403
Westwood Student Accom	301693
NUIG Student Accom 2 (Dunlin)	303846
Arlum, Moneyduff Oranmore,	304203
O'Malley Ballymoneen Road	304762
Cuirt na Coiribe, Headford Rd.	307344
Crown Square	310348
Rosshill Manor	310797
Sathel Ballybrit	310575

Table 11-5 Summary of Existing Significant Industry

Industry	Type
Colas Atlantic Bitumen	Engineering & Construction
Topaz Oil Depot	Engineering & Construction
Hazel Mountain Chocolate	Chocolate
Galway	Waste Water Treatment Plants
Sleepless Data Centre	MKO Data Centres
Trane Technologies International Limited	Manufacturing
Nellcor Puritan Bennett Ireland Ltd	EPA Licenced Facilities IE
Irish Finishing Technologies	EPA Licenced Facilities IE
Micil Distillery	MKO Distilleries
Boston Scientific Limited	EPA Licensed Facilities IPC
Aerogen	Life Sciences
Medtronic Vascular Galway Unlimited Company	Manufacturing
Colas Bitumen Emulsions (West) Limited	Manufacturing
Coen Steel	Manufacturing
CMLS	MKO Cold Storage
Hygeia Chemicals Limited	Manufacturing
Java Republic	Food & Beverage
Divilly Meats	Food & Beverage
Claregalway	Waste Water Treatment Plants
Moycullen	Waste Water Treatment Plants
Ward and Burke Construction Ltd	Engineering & Construction
Kinvara	Waste Water Treatment Plants
City Bin Co Ltd	EPA Licensed Activity
Carrowbrowne Landfill Site	EPA Licensed Activity
Galway Corporation Depot	EPA Licensed Activity
Chemoran	Seveso upper Tier
Circle K OIL Depot	Seveso upper Tier
Cold Chon Galway Ltd	Seveso upper Tier

During the construction phase of the proposed development and other permitted proposed projects / existing projects, there will be greenhouse gas emissions arising from production of construction materials and operation of construction vehicles and plant. This would be restricted to the duration of the construction project and would not have a significant impact on national emissions. It would have a slight imperceivable negative but short-term impact on climate.

The operational phase will contribute c. 10.3kt CO_2e to the national emissions on an annual basis. This is negligible in the context of current national emissions and also proposed emissions under Climate Action Plan 2024. The impact from the proposed development was projected to decrease emissions of CO_2 by c. 11.5% over a do-nothing scenario.

11.8. Conclusion

The EIS Addendum has comprehensively reviewed the original environmental impact assessment and would concur with its findings that the climate will not be adversely impacted significantly by the construction or operation of the improved Galway Harbour facility. A comprehensive review of the existing sources of emissions and proposed projects for the area was carried out. The Institute of Environmental Management and Assessment guidance note on “Assessing Greenhouse Gas Emissions and Evaluating the Significance” consider any increase in carbon emissions to be significant.

The proposed development is not considered to be of sufficient scale to have the potential to impact on regional or local climate in any significant manner. The operational stage of this installation is projected under the Carbon Life Cycle Assessment Report to generate approximately 10.3 kt CO_2e per annum, equating to approximately 0.018% of the 2023 national emissions and 0.03% of the 2023 target emissions for 2030.

From review of existing and planned development in the Galway City Region, all developments will generate emissions during construction and in operational stages. The operational stage of the Galway Port would contribute approximately 2.5% of Galway City’s annual Carbon Dioxide emissions. Most proposed projects are large scale residential estates, strategic housing developments and infrastructural developments of roads and bridges.

The findings in the EIS have determined that the development of this project would reduce CO_2 emissions over a “Do-Nothing” scenario. By assessment of a 30-year life cycle, it is projected that there will be an overall carbon savings of 11.5% by upgrading Galway Port in comparison to the “Do-Nothing” scenario. The “Do-Nothing” scenario would require Galway Port continuing to operate as is, and road transport from alternative Ports (Shannon / Foynes and Dublin Ports) used to deliver goods required by Galway region.

11.9. References

Met Éireann (2024) Met Eireann website: https://www.met.ie/;

Climate Action and Low Carbon Development Act 2015;

Climate Action and Low Carbon Development (Amendment) Act 2021;

Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013;

Environmental Protection Agency (2024) EPA website Available at: http://www.epa.ie/whatwedo/monitoring/air/

Environmental Protection Agency (2024) EPA website Available at: https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/

National Policy Position on Climate Action and Low Carbon Development, Department of Communications, Climate Action and Environment, (2017).

Galway City Council Local Authority Climate Action Plan (2024 – 2029)