

7.7 Climate

7.7.1 Introduction

This section describes and assesses the impact of the proposed N9 Kilcullen to Powerstown Scheme in terms of climate. Attention is focused on overall climatic impact in both the presence and absence of the proposed scheme. Ireland's obligations under the Kyoto Protocol and the effect of the scheme on the total national anthropogenic emissions of carbon dioxide and other greenhouse gases (GHGs) are also discussed.

Climate Agreements

Ireland ratified the United Nations Framework Convention on Climate Change (UNFCCC) in April 1994 and the Kyoto Protocol in principle in 1997 and formally in May 2002. For the purposes of the EU burden sharing agreement under Article 4 of the Kyoto Protocol, in June 1998, Ireland agreed to limit the net growth of the 6 GHGs under the Kyoto Protocol to 13% above the 1990 level over the period 2008 to 2012. In order to meet the ultimate objective of the Convention to prevent dangerous anthropogenic interference in the climate system, cuts of up to 70% in this century are expected to be required. The UNFCCC is continuing detailed negotiations in relation to GHG reductions and in relation to technical issues such as Emission Trading and burden sharing.

National Climate Change Strategy

The National Climate Change Strategy (NCCS), published in October 2000, is based on sectoral equity, in relation to meeting the targets set down in the Kyoto Protocol. Whilst GHG emissions are currently running at 24% above 1990 levels (2000 data), full implementation of the NCCS will lead to compliance with the Kyoto Protocol.

In terms of meeting the Kyoto targets, as outlined in the NCCS, the key transportation measure will be fuel measures to displace bunkering which will lead to a saving of 0.9Mt CO₂ by 2010. Currently, HGV's engaged in international transport are bunkering in Ireland to take advantage of the relatively low cost of fuel. This practice will be phased out by 2008 by setting excise duty on transport fuel at appropriate levels.

In addition, vehicle efficiency improvements will lead to a saving of 0.77Mt CO₂ by 2010. In contrast, it is envisaged that Public Transport Measures and Traffic Management measures will lead to relatively small savings of 0.15Mt and 0.2Mt per annum by 2010 and thus each will account for less than 1% of the overall reduction aimed for in the NCCS.

7.7.2 Characteristics of the Proposed Scheme

Forecasting Methods

The impact on climate as a result of the proposed road scheme has been determined using the procedures given in Annex 2 in the UK Dept. of Transport Design Manual for Roads and Bridges (Revised May 1999), Volume 11, Section 3, Part 1, Air Quality. The Annex provides a method for the prediction of the regional impact of CO₂ emissions from road schemes.

Construction

There is the potential for a number of emissions to atmosphere during the construction of the scheme. Construction vehicles, generators etc., may give rise to CO₂ and N₂O emissions.

Road Traffic

Road traffic would be expected to be the dominant source of greenhouse gas emissions as a result of the scheme. Vehicles will give rise to CO₂ and N₂O emissions along the proposed route.

7.7.3 Impact of Scheme on Climate

Construction

The effect of construction on climate will not be significant.

Road Traffic

In relation to the proposed scheme, the impact of the scheme on greenhouse gas emissions has been assessed. The existing baseline conditions have been assessed over the course of 15 years from the opening year (Year 2007) to the design year (Year 2022).

The predictions for GHG emissions from the proposed scheme indicate that there will be an insignificant increase in the levels of CO₂ emissions as a result of the scheme (see Table 7.7.2), with the impact of the order of 0.00001% of total emissions in Ireland over the period 2007 – 2022. For the "do minimum" scenario, the emissions of GHG will amount to 0.00098%, whilst the "do something" scenario will amount to 0.00099% of the total emissions in Ireland over the period 2007-2022. With reference to the relevant evaluation criteria such as the Kyoto Protocol, which has set objectives to be achieved by 2008 – 12, GHG emissions, as a result of this scheme, will be insignificant.

7.7.4 Description of Mitigation Measures

No mitigation measures will be necessary.

7.7.5 Residual Impacts

The residual impact on climate from the operation of the scheme will be insignificant.

Table 7.7.2 Greenhouse Gas Emissions As A Result of The Proposed Scheme

Year	Do Minimum	Do Something	Average CO ₂ Emission ⁽²⁾	CO ₂ Emissions – for Ireland ⁽³⁾	CO ₂ Emissions – Do Minimum		CO ₂ Emissions – Do Something		
	Vehicle x Km ⁽¹⁾	Vehicle x Km ⁽¹⁾	(g/km)	(Tonnes)	(Tonnes)	% of CO ₂ for Ireland	(Tonnes)	% of CO ₂ for Ireland	Impact as a % of national CO ₂ emissions
2007	2.17E+06	2.20E+06	261	62,000,000	566	0.00091	573	0.00092	0.000012
2008	2.21E+06	2.24E+06	256	61,000,000	565	0.00093	572	0.00094	0.000012
2009	2.25E+06	2.28E+06	250	60,000,000	562	0.00094	569	0.00095	0.000012
2010	2.29E+06	2.32E+06	244	59,000,000	558	0.00095	565	0.00096	0.000012
2011	2.33E+06	2.36E+06	238	58,000,000	554	0.00095	561	0.00097	0.000012
2012	2.37E+06	2.40E+06	232	57,000,000	549	0.00096	556	0.00098	0.000012
2013	2.41E+06	2.44E+06	227	56,000,000	546	0.00098	553	0.00099	0.000012
2014	2.45E+06	2.48E+06	222	55,000,000	543	0.00099	550	0.00100	0.000012
2015	2.48E+06	2.52E+06	217	54,000,000	539	0.00100	546	0.00101	0.000013
2016	2.52E+06	2.56E+06	210	53,000,000	530	0.00100	537	0.00101	0.000013
2017	2.56E+06	2.60E+06	205	52,000,000	526	0.00101	532	0.00102	0.000013
2018	2.60E+06	2.64E+06	199	51,000,000	518	0.00102	525	0.00103	0.000013
2019	2.64E+06	2.68E+06	193	50,000,000	510	0.00102	516	0.00103	0.000013
2020	2.68E+06	2.72E+06	188	49,000,000	504	0.00103	511	0.00104	0.000013
2021	2.72E+06	2.76E+06	182	48,000,000	495	0.00103	502	0.00104	0.000013
2022	2.76E+06	2.80E+06	176	47,000,000	486	0.00103	492	0.00105	0.000013
Total	3.94E+07	3.99E+07		870,000,000	8,551		8,659		
% of Total				100	0.00098		0.00099		

- (1) Based on 2007 and 2022 data for do minimum and do something scenarios traffic flows for the scheme and assuming a linear annual increase.
- (2) Based on the UK DETR emission factors for 2004 and factoring the new EU standard of 120 g/km by 2012 for cars.
- (3) Based on the likely reductions in GHG emissions based on the National Climate Change Strategy.

7.7 Appendix I: References

During the course of this study the following documents were consulted and information extracted from these documents is included in this section:

- (1) Framework Convention On Climate Change Ireland – Report On The In-Depth Review Of The Second National Communication Of Ireland (1999)
- (2) Framework Convention On Climate Change Kyoto Protocol To The United Nations Framework Convention On Climate Change (1997)
- (3) EPA Environment In Focus (2002)
- (4) ERM Limitation and Reduction of CO₂ and Other Greenhouse Gas Emissions in Ireland (1998)
- (5) Department on Environment & Local Government Report on the Options For Greenhouse Gas Emission Trading (1999)
- (6) IPCC Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (1996)
- (7) Department of Environment & Local Government National Climate Change Strategy (2000)
- (8) Department of Environment & Local Government Progress Report On The Implementation of The National Climate Change Strategy (2002)
- (9) Dublin Transportation Office A Platform For Change (2000)
- (10) UK DETR DMRB, Volume 11 Section 3 Environmental Assessment Techniques (1999)