

13 SUSTAINABLE DEVELOPMENT

13.1 Introduction

Section 13 of the 2001 Offshore EIS identified and assessed the sources and potential impacts of substances affecting climatic change released from the offshore development. The assessment was based on emissions of greenhouse gases from the offshore development as calculated in the air quality assessment. The assessment has been updated below based on the updated information presented in Section 10 of this report.

In this section, climate change has also been addressed as part of the wider concept of sustainable development. Sustainable development is a global concept that requires a balance between economic prosperity, social development and environmental protection. Sustainable development was defined in 1987 by the Brundtland Commission report as:

'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'

Agenda 21, as adopted at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, sets out a blueprint for sustainable development into the 21st century and sets out actions to be undertaken globally, nationally and locally by organisations of the United Nations System, governments and major groups in every area in which humans impact on the environment.

It is important that the principles of sustainable development are incorporated into new developments to ensure that they support long-term environmental, economic and social sustainability goals.

13.2 Climate Change

As stated in the 2001 Offshore EIS, the only greenhouse gases that are anticipated to be emitted from offshore operations in significant quantities are carbon dioxide and methane. Greenhouse gas emissions associated with the project are summarised in Table 13-1.

Table 13-1: Reflection of Greenhouse Gas Emissions (CO₂ Equivalents) based on one Years Worth of Construction and Installation Activity at Glengad

Source	Emission (tonnes)		GWP (tonne CO ₂ equivalent)
	CO ₂	CH ₄	
Drilling	43,396	4	43,480
Completion	25,698	2	25,740
Testing	49,688	592	62,120
Field installation	24,812	2	24,854
Offshore pipeline and umbilical installation	5773	0	5773
Near-shore pipeline and umbilical installation	2034	0	2034
Onshore works associated with pipeline and umbilical	498	0	498
Total	151,899	600	164,499

Note: CH₄ has 21x GWP of CO₂

To place the total greenhouse gas emissions (164 kilotonnes of CO₂ equivalent) into perspective, Table 13-2 compares the predicted greenhouse gas emissions with those of other industrial sources.

Table 13-2: Comparison of Greenhouse Gas Emissions with Other Industrial Sources

Source	Emission (tonnes)		GWP (tonne CO ₂ equivalent)	Time span of emissions data
	CO ₂	CH ₄		
Drilling, completion, installation and operations				
Corrib offshore activities ¹	151,899 ²	600	164,499	Predicted total over 5-6 years
Operations				
Bellanaboy Bridge Gas Terminal	33,499 ³	210	37,912	1 year
Large gas terminal, UK	190,000	1000	211,000	1 year (2006)
240MW oil-fired power station, IRL	476,000	No data	>476,000	1 year (2004)
915MW coal-fired power station, IRL	5,550,000	No data	>5,550,000	1 year (2004)
360 MW CCGT power station, UK	369,074	41	369,935	1 year (2005)

¹The majority of emissions arise from the drilling and installation, not operation

² Equates to 25–30 kT/yr over 5-6 years

³ Reduced CO₂ emissions are due to the introduction of waste heat recovery and the cold venting of gas

Overall, as discussed in further detail below, the project will support a strategic fuel switch from solid fuel and oil to natural gas and renewables, and so contribute to a reduction in national greenhouse gas emissions.

13.3 Sustainable Development in Ireland

National

Ireland's approach towards the promotion and achievement of sustainable development and, in particular, towards the implementation of Agenda 21 is reflected in a range of national policy plans/statements and practical measures that together provide a framework for action across major areas of the economy and within both governmental and non-governmental sectors.

Ireland's National Sustainable Development Strategy (Sustainable Development: A Strategy for Ireland, 1997) aims 'to ensure that the economy and society in Ireland can develop to their full potential within a well protected environment, without compromising the quality of that environment and with responsibility towards present and future generations and the wider international community'. The Strategy provides a framework to allow sustainable development to be taken forward in a systematic manner in Ireland. It includes:

- an analysis of the relationship between economic activities and the environment, and an agenda to reinforce and deepen integration of environmental concerns;
- a strategic framework of priorities;
- action in strategic sectors (agriculture, forestry, marine resources, energy, industry, transport, tourism and trade);
- measures in supporting sectors (environmental quality, settlement and land use planning, the built environment, public action and awareness, and Ireland's international role); and
- arrangements for implementation and monitoring.

The Strategy is founded on the principles of precautionary action, integration of environmental considerations into other policies, and shared responsibility for the environment. It is focused primarily on policy issues that affect the environment to give appropriate weighting to such issues in the development process. It recognises that

economic growth and social development cannot be to the detriment of environmental quality.

Various strategic actions are identified in the Strategy. Those actions that are relevant to energy and industry include:

- Promotion of energy efficiency in industry;
- 14% of energy supply from renewables by 2010;
- Total national greenhouse gas emissions limited to 15% above 1990 levels by 2010 – measures introduced to reduce greenhouse gas emissions;
- Continued reduction of NO_x and SO_x emissions (e.g. through fuel substitution, energy conservation and installation of low-NO_x burners);
- Integrated Pollution Control licensing introduced;
- Increased focus on waste prevention and minimisation;
- Producer responsibility to encourage reuse and recycling of wastes; and
- Development of a materials and energy balance for industry to determine the full extent of industry's environmental/natural resource impacts and advise on targets for greater eco-efficiency.

In February 1999, the Minister for the Environment and Local Government officially launched Comhar, the National Sustainable Development Partnership, to promote consensus on sustainable development issues. Its terms of reference are to advance the national agenda for sustainable development, to evaluate progress in this regard, to assist in devising suitable mechanisms and advising on their implementation, and to contribute to the formation of a national consensus on these issues. Comhar's membership includes both State and non-governmental representation.

In 2002, a review of the National Sustainable Development Strategy was undertaken to assess progress made and to set out directions for future action. The findings of the review are reported in 'Making Ireland's Development Sustainable, 2002'. This document does not replace the National Sustainable Development Strategy but builds on the Strategy by placing it more fully in the context of recent environmental challenges.

Further enforcing the Government's commitment to sustainable development, the Government published the 'National Development Plan 2007–2013: Transforming Ireland – A Better Quality of Life for All', in 2007. The Plan sets out an investment plan for Ireland over the Plan period. The Plan focuses on five key areas: economic infrastructure; enterprise, science and innovation; human capital; social infrastructure; and social inclusion. In terms of sustainability, investment priorities include:

- Environment services and waste management investment;
- Climate change strategy – through investment in public transport, for example;
- Promotion of renewable energy, with a 15% commitment to use of renewables in electricity production by 2010;
- Agriculture;
- Built and natural heritage preservation; and
- Environmental research.

In terms of energy, in 2007 the Department of Communications Marine and Natural Resources published an Energy White Paper: Delivering a Sustainable Energy Future for Ireland: The Energy Policy Framework 2007–2020. The White Paper sets a clear path for meeting the Government's goals of ensuring safe and secure energy supplies, promoting a sustainable energy future and supporting competitiveness. The White

Paper enforces the Government's commitment to sustainable development as set out in the National Development Plan 2007–2013. Key actions and strategic goals identified in the White Paper are presented in Table 13-3.

Table 13-3: Energy White Paper – Key Actions and Strategic Goals

Action	Strategic Goal
Actions to ensure security of energy supply	<ul style="list-style-type: none"> Ensuring that electricity supply consistently meets demand Ensuring the physical security and reliability of gas supplies to Ireland Enhancing the diversity of fuels used for power generation Delivering electricity and gas to homes and businesses over efficient, reliable and secure networks Creating a stable attractive environment for hydrocarbon exploration and production Being prepared for energy supply disruptions
Actions to promote the sustainability of energy supply and use	<ul style="list-style-type: none"> Addressing climate change by reducing energy related greenhouse gas emissions Accelerating the growth of renewable energy sources Promoting the sustainable use of energy in transport Delivering an integrated approach to the sustainable development and use of bioenergy resources Maximising Energy Efficiency and energy savings across the economy Accelerating Energy Research Development and Innovation Programmes in support of sustainable energy goals
Actions to enhance the competitiveness of energy supply	<ul style="list-style-type: none"> Delivering competition and consumer choice in the energy market Delivering the All-Island Energy Market Framework Ensuring that the regulatory framework meets the evolving energy policy challenges Ensuring a sustainable future for Semi-State Energy Enterprises Ensuring affordable energy for everyone Creating jobs, growth and innovation in the energy sector

In terms of construction projects, the Department of Finance and Personnel (DFP) established a Sustainable Construction Group in December 2004 to issue guidance on sustainable construction for Government construction projects. A Sustainability Action Plan sets targets to be achieved to accomplish sustainable construction through procurement. The keys themes for which indicators are set include:

- Reuse Existing Building Assets;
- Design for Minimum Waste;
- Minimise Energy in Construction and Use;
- Do Not Pollute;
- Preserve and Enhance Biodiversity;
- Conserve Water Resources;
- Respect for People; and
- Set Targets (i.e. monitor and report to benchmark performance).

Local

The Local Government (Planning and Development) Act, 2000-2005 restricts a planning authority, when making a decision in relation to a planning application, to consideration of the proper planning and sustainable development of the area.

The Mayo County Development Plan, 2008-2014 has been prepared in accordance with the Local Government (Planning and Development) Act, 2000-2005 and will form the basis for the progressive and sustainable planning of the county for the next six years and beyond. The Mayo County Development Plan embraces the principles of sustainability in addressing future growth and development. In terms of economic and infrastructure development, key objectives of the Plan include:

- To promote development of all sections of the Mayo economy and optimise the contribution of the county's natural resource base to balanced, sustainable development and ensure that the availability of infrastructure facilities is not a limiting factor;
- To optimise the development of appropriate renewable energy sources, which make use of the natural resources of the area concerned in an environmentally acceptable and sustainable manner;
- To ensure the county's natural resources are managed and developed in a sustainable manner that will ensure they can be enjoyed by future generations; and
- To ensure that the energy supply and distribution throughout Mayo is expanded and upgraded sufficiently to enable economic, enterprise and other developments to locate in the County.

Key issues for natural resources include the sustainable development of valuable natural resources to their full potential in a manner that has due regard to environmental protection, biodiversity conservation and the preservation of visual, scenic and residential amenities.

13.4 Shell Group Sustainable Development Policy

As well as complying with national and local goals through the planning process, Shell aims to contribute to sustainable development in its activities in Ireland in full compliance with the requirements of the Shell Group Sustainable Development Principles (July 1999). These principles are as follows:

- Respect and safeguard people;
- Engage and work with stakeholders;
- Deliver value to customers;
- Minimise impact on the environment;
- Use resources effectively;
- Maximise profitability; and
- Maximise benefits to the community.

13.5 Contribution to National Sustainable Development Strategy Priorities

An assessment of the extent to which the project complies with strategic actions that are relevant to energy and industry as defined in the National Sustainable Development Strategy, has been carried out as follows:

Promotion of energy efficiency in industry

The availability of an alternative gas supply via the pipeline may encourage the development of combined cycle electrical generation plants and combined heat and power plants that are more energy efficient than conventional power plants and steam generation plants.

Total national greenhouse gas emissions limited to 15% above 1990 levels by 2010 – measures introduced to reduce greenhouse gas emissions

The overall project supports Ireland's proposed national strategic fuel switch from solid fuel and oil to natural gas and renewables, and so contributes to Ireland's target to limit national greenhouse gas emissions while ensuring security of energy supply.

Reduction in NO_x and SO_x emissions

As the overall project will serve to encourage a national fuel switch from oil and coal towards gas, this is likely to result in lower NO_x and SO_x levels nationally.

Increased focus on waste prevention and minimisation

A waste management plan has been developed for pipeline construction and operation phases, implementing Shell's waste hierarchy policy.

In terms of the overall project, the gas from Corrib provides the opportunity to displace the combustion of coal and peat, which produce solid residues requiring disposal.

Producer responsibility to encourage reuse and recycling of wastes

The project will reuse excavated peat to regenerate a cutover peat land where it will stabilise and integrate into new wetland habitats.

Maximum reuse of excavated material will be made on site as fill or for landscaping.

13.6 Contribution to Other National Priorities Related to Energy

An assessment of the extent to which the project complies with key actions and strategic goals as defined in the Energy White Paper has been carried out as follows:

Ensure security of energy supply

The overall project will help ensure security of gas supply for Ireland throughout the life of the field, as the project will provide an alternative supply of gas should the interconnector supply from the UK be interrupted.

By increasing competitiveness in the domestic energy market, this may serve to displace gas imports, further securing long-term energy supply.

Promote the sustainability of energy supply and use

The overall project will contribute to Ireland's target to limit national greenhouse gas emissions while ensuring security of energy supply.

Enhance the competitiveness of energy supply

The overall project will increase competitiveness in the domestic energy market. The overall project will also provide employment during construction and operation as well as providing a demand for local and regional services during construction and operation.

13.7 Assessment of Project vs. 'No Project' Scenario

An assessment of the extent to which the project and the 'no project' scenario complies with the following priorities has been carried out:

- Strategic actions relevant to energy and industry as defined in the National Sustainable Development Strategy;

- Key actions and strategic goals as defined in the Energy White Paper;
- Sustainable Construction Group themes; and
- Shell Group Sustainable Development Principles.

The findings of the assessment are presented in Table 13-4. The assessment indicates that the project complies more favourably with the sustainable development principles compared with the 'no project' scenario. Furthermore, the project contributes positively to Ireland's national sustainable development objectives.

Table 13-4: Comparison of “Project” vs. “No Project” Scenarios against Sustainable Development Priorities

National Sustainable Development Strategy/Energy White Paper/Shell SD Priorities	Scenario 1 Project - Gas produced locally; local terminal.	Scenario 2 No Project - Gas imported via interconnector from UK. Gas produced either in UK, Europe or non-EU countries. The latter will involve LNG conversion.
Ensure security of energy supply	<p>The overall project will help ensure security of gas supply for Ireland throughout the life of the field, as the project will provide an alternative supply of gas should the interconnector supply from the UK be interrupted.</p> <p>By increasing competitiveness in the domestic energy market, this may serve to displace gas imports, further securing long-term energy supply.</p>	<p>Ireland is at the very end of the European gas grid, which is supplied to a large extent from Algeria and Siberia.</p> <p>There is risk of interruption of gas supply to Irish customers as Ireland is extremely dependent on imported gas.</p>
Promote the sustainability of energy supply and use/promotion of energy efficiency in industry/minimise energy in construction and use	<p>Although the overall project involves the exploitation of local finite gas resource, it will discourage the use of more carbon intensive fuels and is in line with the national energy switch from solid fuel to gas to renewables. The provision of gas infrastructure will discourage future investment in alternative coal or oil infrastructure. In terms of greenhouse gas emissions, the terminal has a lower global warming potential (GWP) than the average GWP for other terminals shown in Table 13-2. The overall project will therefore contribute to Ireland’s target to limit national greenhouse gas emissions.</p> <p>Use of gas close to its source rather than gas transported thousands of kilometres will be more energy-efficient.</p> <p>The availability of an alternative gas supply via the pipeline may encourage the development of combined cycle electrical generation plants and combined heat and power plants, which are more energy efficient than conventional power plants and steam generation plants.</p> <p>The gas pipeline from the Bellanaboy Bridge terminal created the opportunity for the Bord Gáis to build a distribution system to supply gas to towns and industries along the route of the pipeline. The availability of natural gas could serve to make these towns more attractive for inward investment and boost the economy of the region by</p>	<p>The “no project” option will still involve exploitation of a finite gas resource.</p> <p>Importation of gas from Europe and non-EU countries could lead to greater environmental impacts as follows:</p> <ul style="list-style-type: none"> • Some non-EU countries have less stringent environmental legislation compared to EU • Introduction of further processing through LNG conversion • Added energy loss impacts associated with long distance transport <p>Long-distance gas transport and LNG conversion/storage will involve added fossil fuel resource use.</p>

National Sustainable Development Strategy/Energy White Paper/Shell SD Priorities	Scenario 1 Project - Gas produced locally; local terminal.	Scenario 2 No Project - Gas imported via interconnector from UK. Gas produced either in UK, Europe or non-EU countries. The latter will involve LNG conversion.
	<p>providing a supply of clean, relatively cheap fuel. These towns and industries do not have sufficient demand to justify the cost of construction of a gas pipeline in the absence of the Corrib project.</p> <p>Where Bord Gáis Éireann decides to supply local towns with gas, this could result in a shift from peat/coal/oil/LPG to natural gas to meet energy needs in NW Ireland. Since gas is a cleaner fuel, this will result in lower environmental impacts.</p> <p>Overall, the local production of gas has a lower environmental impact compared to importation, due to lower transmission energy losses</p>	
Enhance the competitiveness of energy supply	<p>The overall project will also increase competitiveness in the domestic energy market, which may keep costs lower than they would be in the absence of such competition.</p> <p>The local community will realise both temporary and sustained benefits of increased employment during construction and operation of the overall project.</p> <p>The employment created during the operation of the project will provide the opportunity for some local people to remain in the area rather than have to move to other parts of Ireland or overseas for employment. It is possible that local people will not fill all of the jobs created. These jobs will be filled by people who will move into the area, augmenting the local communities and increasing the support for local schools, shops, other local businesses, sports clubs and other community activities. The influx of temporary workers during construction may have a negative impact on the Gaeltacht nature of the area.</p>	<p>If the project does not go ahead, there will be no opportunity to supply gas to local towns in N & NW Ireland and therefore no potential inward investment locally. Thus, lagging economic development will continue in the area.</p> <p>There will also be no temporary employment opportunities and no incoming families to augment the local community.</p> <p>All other localised social benefits and impacts will be avoided.</p> <p>Natural gas needs will rely solely on gas imports, with less security of supply. An interruption to supply would result in significant socio-economic impact both for customers and for Ireland.</p> <p>No impact on the Gaeltacht status.</p>

National Sustainable Development Strategy/Energy White Paper/Shell SD Priorities	Scenario 1 Project - Gas produced locally; local terminal.	Scenario 2 No Project - Gas imported via interconnector from UK. Gas produced either in UK, Europe or non-EU countries. The latter will involve LNG conversion.
Reduction in NO _x and SO _x emissions	As the overall project will serve to encourage a national fuel switch from oil and coal towards gas, this is likely to result in lower NO _x and SO _x levels nationally.	The "no project" option will still encourage a national fuel switch from oil and coal towards gas.
Increased focus on waste prevention and minimisation	<p>A Waste Management Plan has been developed for the pipeline construction and operation phases, implementing Shell's waste hierarchy policy.</p> <p>In terms of the overall project, the gas from Corrib provides the opportunity to displace the combustion of coal and peat, which produce solid residues requiring disposal.</p>	Importation of gas from Europe and non-EU countries could lead to greater environmental impacts as some non-EU countries have less stringent environmental legislation compared to EU.
Producer responsibility to encourage reuse and recycling of wastes/design for minimum waste/reuse existing building assets	<p>The project will reuse excavated peat to regenerate a cutover peat land, where it will stabilise and integrate into new wetland habitats.</p> <p>Maximum reuse of excavated material will be made on site as fill or for landscaping.</p>	Importation of gas from Europe and non-EU countries may not achieve the same levels of reuse and recycling.
Do not pollute/preserve and enhance biodiversity/conservate water resources	<p>Many potential environmental impacts have been avoided by sensitive routing and/or by commitment to the use of particular construction and restoration techniques and mitigation measures.</p> <p>An Environmental Management Plan has been developed for the offshore pipeline construction to ensure that legislative and contractual requirements and environmental best practice are implemented.</p> <p>Replanting of trees, including native species, will compensate for local habitats and ecosystems loss along the onshore pipeline route and on the terminal site.</p>	Importation of gas from Europe and non-EU countries could lead to greater environmental impacts as some non-EU countries have less stringent environmental legislation compared to EU.
Respect for people	<p>A risk-based approach will be applied to health and safety. In order to manage safety risks, a Major Accident Prevention Policy (MAPP) will be prepared for operation of the terminal.</p> <p>Use of local contractors: EU legislation requires large projects to be advertised across Europe, which restricts the</p>	<p>The safety risks associated with gas supplied via the interconnector from the UK will be similar to those associated with the project.</p> <p>Risks may be higher for gas imported from non-EU countries due to the possibility of less stringent H&S</p>

National Sustainable Development Strategy/Energy White Paper/Shell SD Priorities	Scenario 1 Project - Gas produced locally; local terminal.	Scenario 2 No Project - Gas imported via interconnector from UK. Gas produced either in UK, Europe or non-EU countries. The latter will involve LNG conversion.
	<p>sole use of Irish contractors.</p> <p>Community consultation: since the beginning of the project, the project team has carried out ongoing consultations with the local community in the form of public exhibitions, group meetings and individual consultations where local people were invited to express their views and key concerns relating to the project. Such concerns have been incorporated into the EIS. The project has gained widespread community support in the locality and the north-west region.</p> <p>An environmental monitoring group has been established to continue consultation during the construction and operation phases.</p> <p>Engaging the supply chain: the project team has made efforts to integrate HSE awareness into the supply chain by issuing HSE questionnaires as part of the supplier selection process.</p>	<p>legislation.</p>
Set Targets	The Environmental Management Plan for the project will include a requirement for monitoring of activities. Targets will be set for specific environmental parameters to check compliance and assess progress.	Not applicable

Key:

Better performance against SD principle or priority		Lower performance against SD principle or priority		Insufficient data to compare performance	
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