4 Human Beings and Material Assets

4.1 Introduction

This chapter of the Environmental Impact Statement describes the existing environment in relation to Human Beings and Material Assets in the area of the proposed development, predicts the impacts on same arising from the proposed development and, where considered appropriate, mitigation measures have been specified. It is divided into the following sub-sections;

4.1 Introduction

4.2 Methodology

- *Desk-based Review*
- *Consultation*
- *Site Field Investigation*

4.3 Receiving Environment

- *Policy Context*
- *Land use*
- *Utilities*
- *Road, Rail and Other Public Transport*
- *Tourism, Amenities and Recreation*
- *Population*
- *Age Structure*
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- *Employment*

4.4 Impact Assessment

- *Construction Phase Impacts*
- *Operational Phase Impacts*

4.5 Mitigation Measures

- *Construction Phase*
- *Operational Phase*

4.6 Residual Impacts

4.2 Methodology

4.2.1 Desk-based Review

In order to provide the background for the assessment of the impact of the proposed development on human beings, the socio-economic context was reviewed. A desk based review was undertaken to evaluate information regarding population and economic trends, employment, transport, tourism, amenities, land use and public utilities within the vicinity of the proposed development site. The aim of the study was to assess the positive and negative impacts of the proposed development on human beings and material assets. Publications and other data sources that guided the preparation of this chapter are listed hereunder:

- Offaly County Council, *Draft Offaly County Development Plan 2009-2015*, February 2008;
- Offaly County Council, *Offaly County Development Plan 2003-2009*, October 2003;
- Westmeath County Council, *Westmeath County Development Plan 2008-2014*;
- Central Statistics Office, *Census 2006;Population Classified by Area*, April 2007;
- Central Statistics Office, *Census 2006; Ages and Marital Status*, May 2007;
- Central Statistics Office, *Census 2006; Usual Residence, Migration, Birthplaces and Nationalities*, July 2007;
- Central Statistics Office, *Census 2006, Principal Economic Status and Industries*, September 2007;
- Central Statistics Office, *Live Register September 2008,* September 2008;
- Midlands Regional Authority, *Regional Planning Guidelines,* May 2004;
- *National Development Plan 2007-2013, Transforming Ireland, A Better Quality of Life for All*, January 2007;
- Department of Environment, Heritage and Local Government, *The National Spatial Strategy (NSS) 2002-2020,* November 2002; and
- Department of Communications, Marine and Natural Resources, *Delivering a Sustainable Energy Future for Ireland (Energy Policy Framework 2007 – 2020)*, March 2007.

4.2.2 Consultation

Statutory and non statutory consultation was conducted as described in Chapter 1 *Introduction,* of this report. The various utility and service providers, including Bord Gáis, the Electricity Supply Board (ESB), and Eircom, were contacted regarding the location of gas mains, electricity cables and communication cables within the development area.

4.2.3 Site Field Investigation

The proposed development site was visited by environmental scientists from Mott MacDonald Pettit in June 2008. A windscreen survey was also undertaken of the surrounding area. The purpose of the site walkover and the windscreen survey was to assist in the characterisation of landuse in the local and broader context, in addition to identifying neighbouring structures and dwellings.

4.3 Receiving Environment

4.3.1 Policy Context

(i) National

European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2006

The quantity of distillate to be stored on site accords a lower tier Seveso designation under the *European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2006,* (which give effect to *Council Directives 96/82/EC* and *2003/105/EC*, the "Seveso II" Directive). In accordance with the regulations, Bord na Móna is required to conduct risk assessments and develop comprehensive plans and systems to ensure high levels of protection are implemented to prevent the occurrence of major accidents and to limit the consequences of any such accidents for people and the environment.

The Health and Safety Authority (HSA) is the Central Competent Authority under the Seveso Regulations. As such, it is empowered to issue land use planning advice with respect to Seveso sites. The planning authority must seek technical advice from the HSA if a third party applies for planning permission for a development, within a prescribed radius of the site. The proposed OCGT and CCGT units are specified developments in the *Planning and Development Regulations, 2001-2008,* for which the Planning Authority is obliged to seek technical advice from the HSA.

A Major Accidents Report has been prepared and submitted to the HSA. The report details the dangerous substances that are to be stored on site and the Major Accident Hazards (MAHs) that could occur. The report includes measures to be taken to prevent their occurrence. The report is included as Appendix 2A *Major Accident Hazards Report*.

National Development Plan 2007-2013

The National Development Plan 2007-2013 sets out the economic and social investment priorities for the next seven years, to deliver on the overall vision of a better quality of life for all. The National Development Plan is regarded as a major milestone in building a prosperous Ireland for all its people, characterised by sustainable economic growth, greater social inclusion and balanced regional development. The Plan acknowledges the strategic role of energy in achieving the overall economic and social objectives.

The Energy Programme will encompass approximately €8.5 billion of investment in energy over the period of the National Development Plan. The primary objective of the Energy Programme will be to ensure the security of energy supply both nationally and regionally.

The Plan highlights the significance of investing in energy infrastructure to ensure security of energy supply and overall economic sustainability.

National Spatial Strategy 2002 - 2020

The *National Spatial Strategy (NSS) 2002 - 2020* is the national planning framework for Ireland, which aims to achieve a better balance of social, economic and physical development. In short, the plan promotes balanced regional development. It also specifies the need for improved capacity and identifies the need for strengthening of electricity supply networks.

The National Spatial Strategy for Ireland 2002 – 2020 identified a number of "Gateways", primarily existing large urban centres with enhanced development potential; and "Linked Gateways" in which two or more strong towns work in partnership to promote economic and social development in their region. One such Linked Gateway was Athlone-Tullamore-Mullingar in the Midlands region.

The proposed development at Derrygreenagh is located to the east of the Athlone-Tullamore-Mullingar Linked Gateway. The possibility was considered of locating the proposed power plant development at other locations more central to the Athlone - Tullamore - Mullingar Gateway as designated under the National Spatial Strategy 2002 - 2020. However, Bord na Móna does not own suitable landholdings to accommodate the proposed power plant development within the geographic triangle formed by the Midlands Gateway. The proposed development site at Derrygreenagh, which lies just 10 km to the east of the triangle, is considered the most suitable site owned by Bord na Móna in close proximity to the Midlands Gateway identified in the National Spatial Strategy.

Sustainable Development

Sustainable development, defined by the Brundtland Commission, is *"development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs".* Sustainable development relates to the balance between economic growth and preserving the natural environment. It aims to improve the quality of life through sustained economic growth, while supporting social progress and protecting the environment.

The Government White Paper, *"Delivering a Sustainable Energy Future for Ireland - The Energy Policy Framework 2007 - 2020",* highlights the need for additional electricity generating capacity and improved availability of existing power generating plants in Ireland. The paper highlights the need for robust electricity networks and electricity generating capacity to ensure consistent and competitive supply of energy. The Government endorses the case for a process of structural change in the energy market; a key policy objective is the enabling of competition and delivery of consumer choice through structural change. The primary objectives of the White Paper are security of supply, environmental sustainability and economic competitiveness.

The Government's White Paper indicated a target of 33% Electricity from Renewable Energy Sources (RES-E) by 2020. This renewable target has just been increased to 40% of the electricity consumed in 2020 by the Minister for the Environment, Heritage and Local Government in his Second Carbon Budget delivered to the Oireachtais on 15 October 2008. The bulk of this renewable generation capacity will be provided by wind, perhaps as much as 90%.

While the increasing levels of wind penetration will make a valuable contribution to fuel diversity, sustainability and emissions reduction, there are issues surrounding the security of supply from wind generated electricity. It is anticipated that up to 6,000 MW of wind capacity may be installed on the

grid by 2020. This level of installed wind generating capacity will require a considerable amount of conventional thermal generating plant as backup. This is necessary to provide system reserve capacity for periods of low output from wind generators, in order to maintain an adequate security of supply standard.

The thermal plant will be required to be flexible in nature, to complement the intermittent and variable nature of wind, thus allowing the Government's RES-E target of 40% to be achieved by 2020. Gas fired generating plant provides the level of flexibility required to ensure system security standards are met where high levels of wind generation are connected to the system. The continued role for gas in electricity supply, as the lowest greenhouse gas emitting thermal generation technology, is recognised in the Government White Paper, due to the lack of further large scale hydroelectric development potential and the prohibition on nuclear energy.

(ii) Regional

Midland Regional Authority, Regional Planning Guidelines

The Midland Regional Authority is one of eight Regional Authorities established with effect from 1st January 1994, under the provisions of the *Local Government Act, 1991 (Regional Authorities) (Establishment) Order, 1993*. This Establishment Order was made by the Minister for the Environment with the consent of the Minister for Finance under Sections 3 and 43 of the Local Government Act, 1991.

The Midlands Regional Planning Guidelines were prepared to implement the National Spatial Strategy (NSS) at regional level. The regional planning guidelines emphasise the central location of the midlands region, located on strategic national infrastructure, which justifies the location of large-scale development that would replace the need for longer distance commuting across all regions.

Draft County Development Plan 2009 – 2015

The *Draft County Development Plan for County Offaly 2009 - 2015* acknowledges that County Offaly has a long tradition of power generation. The plan states that the development of power generating stations within the county will be considered on a case-by-case basis. Policy P08-06 states that it is Offaly County Council's policy "to facilitate the continuance of power generating stations within the county, as appropriate including the consideration of co-fuelling". Employment creation in County Offaly is a key objective of the plan and Policy P06-05 specifies that "it is Council policy to support employment creation including where it can mitigate against long distance commuting". Furthermore, Policy P06-10 identifies that:

"it is Council policy to actively encourage the redevelopment of brownfield sites for enterprise and employment creation throughout the county, in particular, disused sites which were formerly ESB plants and Bord na Móna works".

4.3.2 Land Use

The proposed development site is located in a predominantly rural area, in the townland of Derrygreenagh, Co. Offaly, close to the border with County Westmeath. The proposed site is situated within Knockdrin Electoral Division (ED), Co. Offaly. The development site is located in close proximity to the M6 motorway, approximately 2.2 km south of junction 3 for Rhode and Rochfortbridge, on the R400 road - Refer to Figure 1.1 *Site Location*. In terms of proximity to settlements in the region, the proposed site is located approximately 4 km south east of Rochfortbridge, 6 km north west of Rhode, approximately 18 km south east of Mullingar, 17.5 km north west of Edenderry and 20.5km north east of Tullamore.

The proposed development occupies a total area of 25.4 ha. The site occupies an area of 22.8 ha with the main site occupying an area of 17.5 ha and the adjacent switchyard site on the western side of the R400 roadway, occupying 5.3 ha. The proposed discharge pipeline to the Yellow occupies an area of 2.6 ha. Refer to Figure 3.2 a-f *Site Layout* for the extent of the development area. The site is located on a "mineral island" with the Drumman and Derryarkin cut away bogs to the east and west, respectively. The mineral island consists primarily of the existing Bord Na Móna Derrygreenagh works and Bord Na Móna Energy Headquarters, with a small area of privately owned agricultural land at the southern extent of the mineral island. The Bord Na Móna Works operations consist primarily of the repair and maintenance of machinery used for the harvesting and transport of peat from the nearby bogs to Edenderry Power Station. There is also a narrow gauge railway that traverses the site. The existing Bord na Móna Works has significantly scaled back its operations in recent years due to reduced peat production in the areas around the works following the closure of Rhode peat fired power station. Within the next number of years, the activities at Derrygreenagh will be moved to an alternative location. Also, to the west of the R400 there is currently a pilot bio-fuel processing facility, which will be removed prior to the commencement of the proposed development. All existing buildings on the site will be removed prior to the construction of the proposed power plant.

The proposed development site consists of a "mineral island" and is slightly elevated over the levels of the surrounding cutaway peatland areas. The site for the proposed development is gently sloping from the north eastern extent of the site, from *c.* 82 metres OD (Ordnance Datum Malin Head) to *c.* 87 metres OD at the south western edge of the site. Just to the south of the proposed development site there is a further elevated area consisting of agricultural land which slopes up to a maximum height of 92 metres OD. The adjacent site on the opposite side of the R400 roadway, to be used for the switchyard, is slightly lower than the main site area with a minimum level of *c.* 79 metres OD increasing to a level of *c.* 84 metres OD. The majority of the site is comprised of made ground with sections of mixed acid grassland at the southern and western side of the site. The north-east corner of the site is the only significant area of peat where the ground is very soft.

All land to be used for the proposed development is in the full ownership of Bord Na Móna. All the significant elements of the proposed power plant will occur on the site to the east of the R400 road, with the exception of the proposed switchyard which will be located just to the west of the R400.

Derrygreenagh and the surrounding areas are characterised by very low density residential development mainly comprising of scattered one off housing and farmhouses. The main businesses in the vicinity of the proposed development are peat harvesting, which currently occurs to a limited extent on the bogs surrounding Derrygreenagh. Three quarries occur within 2 km of the Bord na Móna site. Cement Roadstone Provinces and Bord na Móna have a joint venture company which operates a gravel quarry to the northwest and a sand quarry to the northeast of the site. The other quarry to the southwest of the site is privately owned. Coillte has leased a number of areas of cutaway peatlands from Bord na Móna which are planted with coniferous forestry. The other primary economic activity in the area is grazing based agriculture, which occurs to the immediate south of the site and further afield on mineral based soils beyond the extent of the peat lands. Land uses within the vicinity of the development site are shown on Figure 3.4 *Land Use in the Vicinity of the Proposed Development Site.*

4.3.3 Utilities

There are no existing public utilities running through the proposed development site. However, the development site is located in reasonable proximity to the Dublin-Galway gas ring main, which lies just to the north of Rochfortbridge. There is also electricity infrastructure in the area, including the 110 kV substation at Derryiron, adjacent to the Rhode Peaking Power Plant, approximately 5 km south of the site, a 220 kV line running to the north (Maynooth-Shannonbridge branch) and a 400 kV line (Oldstreet-Woodland branch) running to the south of the site.

Water will be provided to the development site from the aquifer underlying the site via a well, as both the Mongagh River and the Yellow River have fairly low levels of flow and it is not expected that they could supply sufficient water to support a wet or hybrid cooling system for the proposed development. Natural gas supplied from the Bord Gais Eireann network will be the main fuel for the proposed power plant. This will be supplied via a spur from the nearby gas pipeline running through the area. The electricity generated will be fed to a generator transformer where the voltage will be stepped up to transmission voltage levels as required.

There is a mobile phone mast on the site and this comprises a 30m high antenna support structure, carrying four GSM antennas and five 6 metre diameter link dish antennas. The mast has associated telecommunications equipment and is surrounded by security fencing.

Any service connections required will be carried out at low demand periods in order to minimise disruption to local supplies.

4.3.4 Roads, Rail and other Public Transport

According to the *Draft Offaly County Development Plan 2009-2015,* County Offaly contains approximately 2,000 km of roads, 18 km of which are National Primary Roads, 123 km are National Secondary Roads, 344 km are Regional Roads and 1,524 km are County Roads. The proposed development site is located approximately 2.2 km south from the M6 Dublin-Galway motorway and is accessed by the R400 Regional Road.

Bus Eireann services Rhode providing transport to Dublin, via Edenderry, on a daily basis from 06.45 to 18.15. A daily bus service for National University of Ireland (NUI) Maynooth also stops in Rhode. On a daily basis, the Bus Eireann and City Link Dublin to Galway bus services pass through Rochfortbridge hourly on request. The closest railway station to the proposed development site is located in Mullingar. The closest commercial airport is Dublin airport, located approximately 90 km northeast of the proposed site.

4.3.5 Tourism, Amenities and Recreation

Offaly's landscapes, cultural heritage and environment all have an inherent value. The natural environment of Co. Offaly is unique and includes a variety of natural and semi-natural habitats. These include wetlands, bogs, lakes, eskers, rivers and upland habitats that support a wide range of wild plant and animal species. Westmeath is known as a county of lakes, but like Offaly, the county offers a diverse natural environment.

The area surrounding the development site has a wide diversity of recreational and sporting activities available to tourists in a landscape dominated by flat boglands and agricultural land. The area surrounding Derrygreenagh contains significant natural and cultural heritage attractions in its landscape, most notably boglands, the Grand Canal and numerous historical artefacts. The Grand Canal is a popular destination for recreational activities such as walking and fishing.

The development site is located 6 km north west of Rhode Village. The parish of Rhode contains the ruins of castles, most notably the ruins of Toberdaly Castle, once the demesne of the Nesbitt family. Ballybrittan Castle is also located in the Rhode area and comprises a well preserved castle tower. Rhode GAA pitch, situated west of the village, and St. Pat's football grounds, situated in the north of the village, are both valuable amenity areas serving the local community.

The development site is located approximately 4 km south east of Rochfortbridge, in Co. Westmeath. Rochfortbridge offers numerous recreation and amenity facilities and these include St. Mary's GAA sports facilities, a pitch and putt golf course and playing fields at St. Josephs Secondary School. Two prominent hills are also located close to the development site, namely Croghan Hill and Clonin Hill. Croghan Hill is the remains of an extinct volcano and rises from the Bog of Allen. The hill offers extensive views of the surrounding midland counties and the mound at the summit is thought to be a Bronze Age burial place.

The proposed development site is also located in proximity to a number of larger settlements, including Mullingar, Edenderry and Tullamore. These settlements, particularly the larger towns, have an important role within a tourism context by supporting and sustaining tourism services.

4.3.6 Population

The three most recent censuses of population were undertaken in 1996, 2002 and 2006. This section outlines the population statistics in County Offaly and County Westmeath on a county and local area basis.

In the overall national context, Census 2006 (*Preliminary Report*, CSO 2006) recorded that population figures for Ireland have increased by 8.2% from 3,917,203 in 2002 to 4,239,848 in 2006, representing an actual increase of 322,645 persons.

(i) Regional

County Offaly and County Westmeath are located in the midlands of Ireland and are part of the Midlands Regional Authority. County Offaly covers an area of approximately 493,985 acres (199,981 hectares) and is bordered by the counties Westmeath, Meath, Kildare, Laois, Tipperary, Galway and Roscommon. Tullamore is the county town of Offaly and other major towns within the county include Birr, Edenderry, Clara and Portarlington. County Westmeath covers an area of approximately 472,276 acres (191,121 Hectares). Mullingar and Athlone are the primary commercial centres within County Westmeath. The Midlands Regional Planning Guidelines (2004) predict that the population of the Midlands Region will increase to 325,000 persons by the year 2020.

The National Spatial Strategy for Ireland 2002 - 2020 aims to achieve balanced regional development throughout Ireland. To achieve this, the National Spatial Strategy identified a number of "Gateways", which are primarily existing large urban centres, to promote economic and social development in their region. County Offaly's and County Westmeath's strategic location within the Midlands region, and the role of the Athlone-Tullamore-Mullingar Midlands Linked Gateway, indicates that both counties have a central role in achieving the development aspirations of the region.

According to Census 2006, the recorded population of County Offaly was 70,868 persons, having increased from 59,117 in 1996 and 63,663 in 2002. A large proportion of this population, approximately 40%, is concentrated within the larger towns of the county including Tullamore, Birr, Edenderry, Clara and Portarlington. However, County Offaly remains predominantly rural in nature with approximately 60% of its population living in rural areas. The population of County Westmeath increased by 10.4% from 71,858 in 2002 to 79,346 in 2006, as recorded by Census 2006.

(ii) Local

The smallest geographical units distinguished in the Census are Electoral Divisions (ED). The proposed development site is located in the townland of Derrygreenagh in the Electoral Division (ED) of Knockdrin, Co. Offaly. Rhode is part of Ballyburly ED. The closest Electoral Division in County Westmeath to the proposed development site is Castlelost ED, which includes Rochfortbridge.

As illustrated in Table 4.1 *Population Trends,* County Offaly's, Knockdrin ED's and Ballyburly ED's population growth during the period 2002 to 2006, at 11.3%, 11.3% and 12.5% respectively, have been greater than the national average of 8.2%. A review of census data indicates that the population of County Westmeath has been increasing steadily since 1996. Census 2006 shows that the rate of growth has slowed in the county, down to 10.4% in 2006 compared with 13.5% in 2002. Castlelost ED experienced a profound increase in population between the years 1996 and 2002, growing by 73.3%, as presented in Table 4.1 *Population Trends.* The population of Castlelost ED increased by 6% between the years 2002 and 2006.

Table 4.1: Population Trends

Location	1996 Persons	2002 Persons	2006 Persons	% Change 1996-2002	% Change 2002-2006
State	3,626,087	3,917,203	4,239, 848	8.0	8.2
Offaly	59,117	63,663	70,868	7.7	11.3
Knockdrin ED	113	141	157	24.8	11.3
Ballyburly ED	861	1,148	1,291	33.3	12.5
Westmeath	63,314	71,858	79,346	13.5	10.4
Castlelost ED	920	1,594	1,690	73.3	6

Table 4.2 *Population Increases,* indicates that the average estimated net migration per 1000 of population was 19.2 in Offaly and 15.9 in Westmeath, compared with 11.7 nationally, as recorded by Census 2006. This implies that migration is a contributing factor in population growth in Co. Offaly and Co. Westmeath.

Table 4.2: Population Increases

Location	Natural Increase	Change in Population	Net Migration	Average Annual Rates Per 1000 of Population		
				Birth	Death	Estimated Net Migration
State	131, 314	322,645	191,331	15.0	7.0	11.7
Offaly	2,026	7,205	5,179	14.7	7.2	19.2
Westmeath	2,684	7,488	4,804	16.2	7.4	15.9

Population growth in Offaly and Westmeath is partially commuter based. Large scale residential development has occurred in Rochfortbridge, Co. Westmeath in recent years. Many of the residents living in these new housing estates are commuters, who work outside the Rochfortbridge area. However, the same level of residential development has not occurred in Rhode and the resident population is more localised.

4.3.7 Age Structure

According to Census 2006, County Offaly and County Westmeath exhibit a similar population structure with a high proportion of persons in the 25 - 44 year age group, representing 30.6% and 31% of the population respectively. There is also a high proportion of persons within the 0 - 14 age group in both counties, 22.5% in Offaly compared with 22.2% in Westmeath. Consequently, Offaly and Westmeath can be seen as generally having quite a young population. This situation may be indicative of the influx of a largely working age commuter population to this part of the country.

4.3.8 Household Size

By comparing the absolute population figures divided by the number of private households recorded in Offaly, Westmeath and Ireland, it appears that the average household size in Offaly and Westmeath, at 2.92 and 2.85 respectively is slightly higher than the state average of 2.81 According to the National Spatial Strategy 2002 - 2020, in the long term, the average household size in Ireland will continue to fall towards the EU average of 2.63 persons per household.

4.3.9 Employment

Information on economic activity was obtained primarily from the Offaly County Development Plan 2003 - 2009, the Draft Offaly County Development Plan 2009 - 2015, Westmeath County Development Plan 2008 – 2014, and the CSO document, Principal Economic Status and Industries (2006).

County Offaly is strategically located and its accessibility to Dublin is significant in attracting industry and commerce to the county. Policy P06-05 of the Draft Offaly Development Plan 2009-2015 states that *"it is Council policy to support employment creation including where it can mitigate against long distance commuting*".

The proposed development site is located in east Offaly. Traditionally, the economy of east Offaly was dependent on agriculture and peat production. However, in recent years, employment in these sectors of the economy has diminished.

Co. Westmeath is predominantly rural in character with a large rural population. However, due to a decline in agricultural activity, it is the secondary and tertiary sectors that play a significant role in the economy of Westmeath, in the form of manufacturing and internationally traded services. Athlone and Mullingar are the primary centres for employment in County Westmeath. According to the *Westmeath County Development Plan 2008 - 2014,* population growth in the county indicates that there will be a significant challenge to provide employment in line with the enlarged workforce. It is recognised in the plan that commuter driven growth is not sustainable growth and provision for employment should be encouraged. Policy P-EY-1 of the Council is to "*facilitate enterprise and employment, and to cooperate with other agencies including the private sector in order to provide employment, support opportunities and in the promotion of the County as an attractive location for business which operates in a manner consistent with the NSS and the County Development Board Strategy"*.

Census 2006 recorded that counties Offaly and Westmeath have experienced a steady population growth, increasing to 70,868 persons in Offaly and 79,346 in Westmeath. Consequently, the total number of persons at work increased up to 2006, with 56.9% of the population in Offaly at work and 57.5% in Westmeath. However, the percentage of persons at work in Offaly is marginally lower than the State average, which is 57.2%.

Secondary and tertiary activities define the economies of County Offaly and County Westmeath, according to Census 2006. Manufacturing industries, the construction industry and the wholesale and retail trade are the largest sectors of the economy in Offaly and Westmeath. The agricultural sector is stronger in County Offaly and Westmeath at 6.9% and 5.1% respectively, when compared with the State average of 4.6%. This indicates the rural character of both counties. Mining, quarrying and turf production, along with electricity, gas and water supply, are the lowest employment sectors in Offaly, Westmeath and the State.

Bord na Móna was traditionally to the forefront in local employment generation in Co. Offaly primarily due to peat harvesting works. Bord na Móna plc currently owns 80,000 ha of peatlands in Ireland, and employs approximately 1,800 people at 30 localities mainly in Ireland, but also in the United Kingdom and the United States. The proposed development presents an opportunity to create employment locally in Co. Offaly. During the peak construction period it is anticipated that *c.* 450 construction workers will be employed on site. Prior to commencement of operations, a suitably qualified and technically competent operations and maintenance team will be recruited and trained. This team will have responsibility for the manning and day to day operation and maintenance of the power plant, as well as monitoring and reporting of emissions.

Bord na Móna currently employs more than 600 people in Co. Offaly. This is inclusive of employees of peat works in Boora, Blackwater and Derrygreenagh, the briquette factory at Derrinlough the Edenderry Power Station and the AES Waste Collection and Recycling centre in Tullamore.

Unemployment

The percentage of persons unemployed in County Offaly and County Westmeath in 2006, at 4.4% and 4.2% is slightly below the state average of 4.5%. According to the Live Register, 4,598 people were claiming unemployment benefit in September 2008 in County Offaly. This represented a significant increase on the same period in 2007, when 3,066 people were in receipt of benefits. In County Westmeath, 5,817 persons were claiming unemployment in September 2008, compared with 4,001 in September 2007. It is of importance to note that the live register is not the official measure of unemployment, as it includes persons in receipt of benefits who are in part time or casual employment. However, the live register is the most up to date information available and is indicative of the current unemployment situation.

The *Quarterly National Household Survey* is a national survey of households in the Republic of Ireland that produces quarterly labour force estimates that include the official measure of unemployment in the State. The results for the second quarter of 2008 indicate that the unemployment rate in the midlands region, which is inclusive of County Offaly and County Westmeath, was 6.1% compared with 4.4% for the same period in 2007.

4.4 Impact Assessment

4.4.1 Construction Phase Impacts

- During the peak construction period, which is expected to last for 10 months from Jan 2011 to Oct 2011, the proposed development will employ up to 450 workers. This is a significant positive short-term impact for the local economy of the area.

- The proposed development will potentially increase the population of the area during the construction phase, as it is probable that there will be an influx of construction workers to the area. Construction workers will positively impact on businesses in surrounding settlements that will provide workers with services including accomodation, food, and entertainment. This will create employment opportunities in the local service industry. This will be a significant positive short-term impact on the local economy.

- Construction activities have the potential to cause a nuisance to the local environment and result in disruption. However, it is important to note that these impacts, outlined below, will be short-term in nature and will cease upon completion of construction.

- Negative landscape and visual impacts will occur, arising from the construction plant and activities on site including the following; site compounds, temporary fencing, material storage, plant and machinery, vegetation and topsoil stripping, road works, generation of dust and vehicle movements. Views into the site will be disrupted especially to visual receptors in surrounding residential properties. However, these impacts will be short term and restricted to the construction period. Refer to Chapter 10 *Landscape and Visual.*

- Increased traffic and heavy goods vehicle movements during the construction phase will have a negative short term impact on the local community, primarily due to potential traffic disruption on local roads. Refer to Chapter 11 *Roads and Traffic*.

- The construction phase will have a temporary negative impact on the local population as a result of noise, vibration and dust during working hours. Normal working hours during the construction period are expected to be Monday to Friday 07:00 – 19:00 and Saturday 08:00 – 16:30. It is predicted that noise levels due to construction traffic will not significantly increase on the local roads. No significant night-time works are scheduled for the construction phase. Refer to Chapter 9 *Noise and Vibration* and Chapter 8 *Air Quality and Climate* for further information.

- Many substances used on construction sites, such as lubricants, fuels and oils are harmful to the environment and to human health. Accidents and contamination could occur from re-fuelling of vehicles or inadequate storage of fuels. However, there will be a requirement that all potentially harmful materials are carefully handled and stored to avoid spillages. Good housekeeping on site and the proper use, storage and disposal of substances and their containers, can prevent contamination.

Overall, it is considered that construction phase impacts will be slight and temporary in nature in terms of any impact on the socio-economic environment.

4.4.2 Operational Phase Impacts

The proposed development will offer numerous positive benefits to the local area and economy. The most significant positive impacts are the employment opportunities that will be created by operating the power plant, and the improvement to public utilities which will result.

- Regarding employment during the operational phase, the impact is anticipated to be positive as full time long-term employment will be created. The operational and maintenance staff will be sourced locally, where possible.

- The power plant will provide a significant positive impact on the national economy during the operational phase of the development, by improving the public utilities infrastructure, generating additional electricity and supporting the increased penetration of renewable electricity – See Chapter 2 *Background to the Project*.

- The proposed development will result in the loss of small areas of trees, hedgerows, shrubs and scrub within the site boundary. The sensitivity of the vegetation to be removed is low, as there is abundant such vegetation elsewhere in the study area. The impact of the proposed development on landscape character areas in Offaly, Westmeath and Kildare is not considered to be significant. Refer to Chapter 10 *Landscape and Visual.*

- The maximum predicted number of arrivals to and departures from the site during its operational phase are 52 arrivals and 7 departures during the morning peak hour and vice versa during the evening peak hour. No growth in either staffing levels or delivery requirements to the power plant is predicted over the course of its life cycle. The impact of the development during the operational phase is not considered to be extensively inhibitive on through traffic and local traffic from a capacity point of view. Refer to Chapter 11 *Roads and Traffic*.

- No significant noise impacts are predicted to occur at the noise sensitive receptors during the operational phase of the project. Predicted noise levels at the noise sensitive receptors during the operation of the CCGT unit alone are below the assessment criteria. Even during the occasional circumstance when both the CCGT unit and the OCGT unit operate at night, the predicted levels are sufficiently close to the stringent assessment criteria used in the assessment that a significant noise impact is not likely. Predicted noise levels are also lower than the WHO guidance for sleep disturbance, and the normal IPPC licence noise levels that are set by the EPA. Refer to Chapter 9 *Noise and Vibration.*

- The impact on air quality, as a result of traffic accessing the proposed development, was assessed. It was determined that the impact of background concentrations, and the additional concentration due to site traffic, will lead to levels which are still significantly below the specified ambient air quality limit values. The impact of the proposed power plant development on air quality was also assessed. It was determined that predicted levels of NO_2, SO_2 and PM_{10} are well below their ambient EU air quality limit values, using either distillate or natural gas, coupled with a stack height of 50m for the CCGT unit and 40m for the OCGT unit. Refer to Chapter 8 *Air Quality and Climate.*

- The potential exists for leakages and spillages to occur during the operational phase of the development. All potentially polluting substances, including waste, will be stored in designated areas in appropriate containers within bunds, drip trays or spill pallets, in accordance with the relevant conditions of the site IPPC licence. In the event of a major leak from the gas pipeline there will be a large number of pressure and temperature alarms on the compressors and generators, which will warn of the event, and shut down the compressor and gas turbine generators. The gas supply can be isolated either by a manual valve on site or by a remotely operated valve on the Bord Gáis Network.

- The impacts of the proposed power plant on the property market were considered. Power plants have been a significant feature in a number of locations in Co. Offaly, such as those located in the towns of Rhode, Portarlington and Shannonbridge, and the recently constructed Edenderry power plant, in close proximity to the village of Clonbulloge. There is no evidence to suggest that the presence of a power plant has adversely affected the property market in these locations, over and above the normal property market trends. In the case of the rurally located Edenderry power plant, which commenced operation in 2000, a number of new dwellings have been constructed in close proximity to the power plant since operations have commenced. A number of existing houses in the locality have been traded on the market in the same period, with no obvious distortion of the market value of the property.

  House prices in an area are influenced by market conditions, and it is considered that the generation of employment during both the construction phase and the operational phase will lead to an increased demand for property in the area. This increased demand is likely to positively influence property prices in the short-term, medium-term and long-term, due to the necessity to house employees over the same period. The closest residential property to the proposed development site is approximately 1.1 km from the site. The nearest population centre is Rochfortbridge *c.* 4 km to the north of the site and Rhode which is located *c.* 6 km south of the proposed development site. In total there are 19 residential houses within 2 km of the proposed development site. This EIS has adequately assessed the impact of the development on the environment and recommended appropriate mitigation measures where necessary. Given the low density residential development that occurs in this area, it is considered that the impact of the proposed development on the property market will be insignificant. There is a positive perception of power generation in this area and, during the public consultation for the proposed development, the response from the local community was positive.

- The quantity of distillate to be stored at the site results in the site being considered a lower tier Seveso site as defined under the *European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2006.* As a result of the above mentioned designation there was a requirement to generate a Major Accidents Hazards Report and submit the same to the Health and Safety Authority (HSA). The required report has been generated and submitted to the HSA. The report (See Appendix 2A *Major Accident Hazards Report)* identifies the potential major accident hazards arising due to the proposed development and specifies the risk from these hazards, whilst identifying design features and operational arrangements which will minimise the risks arising from any such hazards. The worst case potential accidents have been modelled, using pessimistic modelling assumptions. It was concluded that, given the significant distance of the site from sensitive receptors, there is no appreciable risk to the general public from the activities on the site.

4.5 Mitigation Measures

The mitigation measures proposed for the construction and operational phases of the development are described hereunder.

4.5.1 Construction Phase

In order to control potential negative impacts during construction, a *Construction Environmental Management Plan* (CEMP) will be developed and implemented by the nominated Contractor during the construction phase of the project.

Specific mitigation measures include:

- Connection to services will be carried out during low demand periods in order to minimise any potential disruption to services in the area.
- Use of artificial lighting will be restricted to the minimum required for safety and security.
- Large plant will be located as far away as possible from local residences to minimise the visual impact of construction activities.
- Mitigation measures relating to noise and vibration, dust and visual impacts are discussed in Chapter 8 *Air Quality and Climate*, Chapter 9 *Noise and Vibration* and Chapter 10 *Landscape and Visual.*
- Following the implementation of mitigation measures as detailed for the construction phase, the impact of the proposed development is not considered to be significant.

4.5.2 Operational Phase

It is not anticipated that any specific mitigation is required regarding the socio-economic context discussed in this chapter.

Other relevant mitigation measures required for the operational phase of the proposed development are discussed in Chapter 8 *Air Quality and Climate*, Chapter 9 *Noise and Vibration* and Chapter 10 *Landscape and Visual.*

4.6 Residual Impacts

The residual impacts are the final or intended impacts which occur after the proposed mitigation measures have been implemented. Residual impacts in relation to the proposed development are those that could arise as a result of the operation of the electricity generating plant once the proposed mitigation measures are in place. The residual impact of the proposed development is considered to be significant, positive and long-term due to the provision of long term employment opportunities, improved infrastructure and the support provided by the development for the increased penetration of renewable electricity sources onto the Irish system.

4 Human Beings and Material Assets

4.1 Introduction

This chapter of the Environmental Impact Statement describes the existing environment in relation to Human Beings and Material Assets in the area of the proposed development, predicts the impacts on same arising from the proposed development and, where considered appropriate, mitigation measures have been specified. It is divided into the following sub-sections;

4.1 Introduction

4.2 Methodology

- *Desk-based Review*
- *Consultation*
- *Site Field Investigation*

4.3 Receiving Environment

- *Policy Context*
- *Land use*
- *Utilities*
- *Road, Rail and Other Public Transport*
- *Tourism, Amenities and Recreation*
- *Population*
- *Age Structure*
- *Household Size*
- *Employment*

4.4 Impact Assessment

- *Construction Phase Impacts*
- *Operational Phase Impacts*

4.5 Mitigation Measures

- *Construction Phase*
- *Operational Phase*

4.6 Residual Impacts

4.2 Methodology

4.2.1 Desk-based Review

In order to provide the background for the assessment of the impact of the proposed development on human beings, the socio-economic context was reviewed. A desk based review was undertaken to evaluate information regarding population and economic trends, employment, transport, tourism, amenities, land use and public utilities within the vicinity of the proposed development site. The aim of the study was to assess the positive and negative impacts of the proposed development on human beings and material assets. Publications and other data sources that guided the preparation of this chapter are listed hereunder:

- Offaly County Council, *Draft Offaly County Development Plan 2009-2015*, February 2008;
- Offaly County Council, *Offaly County Development Plan 2003-2009*, October 2003;
- Westmeath County Council, *Westmeath County Development Plan 2008-2014*;
- Central Statistics Office, *Census 2006;Population Classified by Area*, April 2007;
- Central Statistics Office, *Census 2006; Ages and Marital Status*, May 2007;
- Central Statistics Office, *Census 2006; Usual Residence, Migration, Birthplaces and Nationalities*, July 2007;
- Central Statistics Office, *Census 2006, Principal Economic Status and Industries*, September 2007;
- Central Statistics Office, *Live Register September 2008,* September 2008;
- Midlands Regional Authority, *Regional Planning Guidelines,* May 2004;
- *National Development Plan 2007-2013, Transforming Ireland, A Better Quality of Life for All*, January 2007;
- Department of Environment, Heritage and Local Government, *The National Spatial Strategy (NSS) 2002-2020,* November 2002; and
- Department of Communications, Marine and Natural Resources, *Delivering a Sustainable Energy Future for Ireland (Energy Policy Framework 2007 – 2020)*, March 2007.

4.2.2 Consultation

Statutory and non statutory consultation was conducted as described in Chapter 1 *Introduction,* of this report. The various utility and service providers, including Bord Gáis, the Electricity Supply Board (ESB), and Eircom, were contacted regarding the location of gas mains, electricity cables and communication cables within the development area.

4.2.3 Site Field Investigation

The proposed development site was visited by environmental scientists from Mott MacDonald Pettit in June 2008. A windscreen survey was also undertaken of the surrounding area. The purpose of the site walkover and the windscreen survey was to assist in the characterisation of landuse in the local and broader context, in addition to identifying neighbouring structures and dwellings.

4.3 Receiving Environment

4.3.1 Policy Context

(i) National

European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2006

The quantity of distillate to be stored on site accords a lower tier Seveso designation under the *European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2006,* (which give effect to *Council Directives 96/82/EC* and *2003/105/EC*, the "Seveso II" Directive). In accordance with the regulations, Bord na Móna is required to conduct risk assessments and develop comprehensive plans and systems to ensure high levels of protection are implemented to prevent the occurrence of major accidents and to limit the consequences of any such accidents for people and the environment.

The Health and Safety Authority (HSA) is the Central Competent Authority under the Seveso Regulations. As such, it is empowered to issue land use planning advice with respect to Seveso sites. The planning authority must seek technical advice from the HSA if a third party applies for planning permission for a development, within a prescribed radius of the site. The proposed OCGT and CCGT units are specified developments in the *Planning and Development Regulations, 2001-2008,* for which the Planning Authority is obliged to seek technical advice from the HSA.

A Major Accidents Report has been prepared and submitted to the HSA. The report details the dangerous substances that are to be stored on site and the Major Accident Hazards (MAHs) that could occur. The report includes measures to be taken to prevent their occurrence. The report is included as Appendix 2A *Major Accident Hazards Report*.

National Development Plan 2007-2013

The National Development Plan 2007-2013 sets out the economic and social investment priorities for the next seven years, to deliver on the overall vision of a better quality of life for all. The National Development Plan is regarded as a major milestone in building a prosperous Ireland for all its people, characterised by sustainable economic growth, greater social inclusion and balanced regional development. The Plan acknowledges the strategic role of energy in achieving the overall economic and social objectives.

The Energy Programme will encompass approximately €8.5 billion of investment in energy over the period of the National Development Plan. The primary objective of the Energy Programme will be to ensure the security of energy supply both nationally and regionally.

The Plan highlights the significance of investing in energy infrastructure to ensure security of energy supply and overall economic sustainability.

National Spatial Strategy 2002 - 2020

The *National Spatial Strategy (NSS) 2002 - 2020* is the national planning framework for Ireland, which aims to achieve a better balance of social, economic and physical development. In short, the plan promotes balanced regional development. It also specifies the need for improved capacity and identifies the need for strengthening of electricity supply networks.

The National Spatial Strategy for Ireland 2002 – 2020 identified a number of "Gateways", primarily existing large urban centres with enhanced development potential; and "Linked Gateways" in which two or more strong towns work in partnership to promote economic and social development in their region. One such Linked Gateway was Athlone-Tullamore-Mullingar in the Midlands region.

The proposed development at Derrygreenagh is located to the east of the Athlone-Tullamore-Mullingar Linked Gateway. The possibility was considered of locating the proposed power plant development at other locations more central to the Athlone - Tullamore - Mullingar Gateway as designated under the National Spatial Strategy 2002 - 2020. However, Bord na Móna does not own suitable landholdings to accommodate the proposed power plant development within the geographic triangle formed by the Midlands Gateway. The proposed development site at Derrygreenagh, which lies just 10 km to the east of the triangle, is considered the most suitable site owned by Bord na Móna in close proximity to the Midlands Gateway identified in the National Spatial Strategy.

Sustainable Development

Sustainable development, defined by the Brundtland Commission, is *"development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs".* Sustainable development relates to the balance between economic growth and preserving the natural environment. It aims to improve the quality of life through sustained economic growth, while supporting social progress and protecting the environment.

The Government White Paper, *"Delivering a Sustainable Energy Future for Ireland - The Energy Policy Framework 2007 - 2020",* highlights the need for additional electricity generating capacity and improved availability of existing power generating plants in Ireland. The paper highlights the need for robust electricity networks and electricity generating capacity to ensure consistent and competitive supply of energy. The Government endorses the case for a process of structural change in the energy market; a key policy objective is the enabling of competition and delivery of consumer choice through structural change. The primary objectives of the White Paper are security of supply, environmental sustainability and economic competitiveness.

The Government's White Paper indicated a target of 33% Electricity from Renewable Energy Sources (RES-E) by 2020. This renewable target has just been increased to 40% of the electricity consumed in 2020 by the Minister for the Environment, Heritage and Local Government in his Second Carbon Budget delivered to the Oireachtais on 15 October 2008. The bulk of this renewable generation capacity will be provided by wind, perhaps as much as 90%.

While the increasing levels of wind penetration will make a valuable contribution to fuel diversity, sustainability and emissions reduction, there are issues surrounding the security of supply from wind generated electricity. It is anticipated that up to 6,000 MW of wind capacity may be installed on the

grid by 2020. This level of installed wind generating capacity will require a considerable amount of conventional thermal generating plant as backup. This is necessary to provide system reserve capacity for periods of low output from wind generators, in order to maintain an adequate security of supply standard.

The thermal plant will be required to be flexible in nature, to complement the intermittent and variable nature of wind, thus allowing the Government's RES-E target of 40% to be achieved by 2020. Gas fired generating plant provides the level of flexibility required to ensure system security standards are met where high levels of wind generation are connected to the system. The continued role for gas in electricity supply, as the lowest greenhouse gas emitting thermal generation technology, is recognised in the Government White Paper, due to the lack of further large scale hydroelectric development potential and the prohibition on nuclear energy.

(ii) Regional

Midland Regional Authority, Regional Planning Guidelines

The Midland Regional Authority is one of eight Regional Authorities established with effect from 1st January 1994, under the provisions of the *Local Government Act, 1991 (Regional Authorities) (Establishment) Order, 1993*. This Establishment Order was made by the Minister for the Environment with the consent of the Minister for Finance under Sections 3 and 43 of the Local Government Act, 1991.

The Midlands Regional Planning Guidelines were prepared to implement the National Spatial Strategy (NSS) at regional level. The regional planning guidelines emphasise the central location of the midlands region, located on strategic national infrastructure, which justifies the location of large-scale development that would replace the need for longer distance commuting across all regions.

Draft County Development Plan 2009 – 2015

The *Draft County Development Plan for County Offaly 2009 - 2015* acknowledges that County Offaly has a long tradition of power generation. The plan states that the development of power generating stations within the county will be considered on a case-by-case basis. Policy P08-06 states that it is Offaly County Council's policy "to facilitate the continuance of power generating stations within the county, as appropriate including the consideration of co-fuelling". Employment creation in County Offaly is a key objective of the plan and Policy P06-05 specifies that "it is Council policy to support employment creation including where it can mitigate against long distance commuting". Furthermore, Policy P06-10 identifies that:

"it is Council policy to actively encourage the redevelopment of brownfield sites for enterprise and employment creation throughout the county, in particular, disused sites which were formerly ESB plants and Bord na Móna works".

4.3.2 Land Use

The proposed development site is located in a predominantly rural area, in the townland of Derrygreenagh, Co. Offaly, close to the border with County Westmeath. The proposed site is situated within Knockdrin Electoral Division (ED), Co. Offaly. The development site is located in close proximity to the M6 motorway, approximately 2.2 km south of junction 3 for Rhode and Rochfortbridge, on the R400 road - Refer to Figure 1.1 *Site Location*. In terms of proximity to settlements in the region, the proposed site is located approximately 4 km south east of Rochfortbridge, 6 km north west of Rhode, approximately 18 km south east of Mullingar, 17.5 km north west of Edenderry and 20.5km north east of Tullamore.

The proposed development occupies a total area of 25.4 ha. The site occupies an area of 22.8 ha with the main site occupying an area of 17.5 ha and the adjacent switchyard site on the western side of the R400 roadway, occupying 5.3 ha. The proposed discharge pipeline to the Yellow occupies an area of 2.6 ha. Refer to Figure 3.2 a-f *Site Layout* for the extent of the development area. The site is located on a "mineral island" with the Drumman and Derryarkin cut away bogs to the east and west, respectively. The mineral island consists primarily of the existing Bord Na Móna Derrygreenagh works and Bord Na Móna Energy Headquarters, with a small area of privately owned agricultural land at the southern extent of the mineral island. The Bord Na Móna Works operations consist primarily of the repair and maintenance of machinery used for the harvesting and transport of peat from the nearby bogs to Edenderry Power Station. There is also a narrow gauge railway that traverses the site. The existing Bord na Móna Works has significantly scaled back its operations in recent years due to reduced peat production in the areas around the works following the closure of Rhode peat fired power station. Within the next number of years, the activities at Derrygreenagh will be moved to an alternative location. Also, to the west of the R400 there is currently a pilot bio-fuel processing facility, which will be removed prior to the commencement of the proposed development. All existing buildings on the site will be removed prior to the construction of the proposed power plant.

The proposed development site consists of a "mineral island" and is slightly elevated over the levels of the surrounding cutaway peatland areas. The site for the proposed development is gently sloping from the north eastern extent of the site, from *c.* 82 metres OD (Ordnance Datum Malin Head) to *c.* 87 metres OD at the south western edge of the site. Just to the south of the proposed development site there is a further elevated area consisting of agricultural land which slopes up to a maximum height of 92 metres OD. The adjacent site on the opposite side of the R400 roadway, to be used for the switchyard, is slightly lower than the main site area with a minimum level of *c.* 79 metres OD increasing to a level of *c.* 84 metres OD. The majority of the site is comprised of made ground with sections of mixed acid grassland at the southern and western side of the site. The north-east corner of the site is the only significant area of peat where the ground is very soft.

All land to be used for the proposed development is in the full ownership of Bord Na Móna. All the significant elements of the proposed power plant will occur on the site to the east of the R400 road, with the exception of the proposed switchyard which will be located just to the west of the R400.

Derrygreenagh and the surrounding areas are characterised by very low density residential development mainly comprising of scattered one off housing and farmhouses. The main businesses in the vicinity of the proposed development are peat harvesting, which currently occurs to a limited extent on the bogs surrounding Derrygreenagh. Three quarries occur within 2 km of the Bord na Móna site. Cement Roadstone Provinces and Bord na Móna have a joint venture company which operates a gravel quarry to the northwest and a sand quarry to the northeast of the site. The other quarry to the southwest of the site is privately owned. Coillte has leased a number of areas of cutaway peatlands from Bord na Móna which are planted with coniferous forestry. The other primary economic activity in the area is grazing based agriculture, which occurs to the immediate south of the site and further afield on mineral based soils beyond the extent of the peat lands. Land uses within the vicinity of the development site are shown on Figure 3.4 *Land Use in the Vicinity of the Proposed Development Site.*

4.3.3 Utilities

There are no existing public utilities running through the proposed development site. However, the development site is located in reasonable proximity to the Dublin-Galway gas ring main, which lies just to the north of Rochfortbridge. There is also electricity infrastructure in the area, including the 110 kV substation at Derryiron, adjacent to the Rhode Peaking Power Plant, approximately 5 km south of the site, a 220 kV line running to the north (Maynooth-Shannonbridge branch) and a 400 kV line (Oldstreet-Woodland branch) running to the south of the site.

Water will be provided to the development site from the aquifer underlying the site via a well, as both the Mongagh River and the Yellow River have fairly low levels of flow and it is not expected that they could supply sufficient water to support a wet or hybrid cooling system for the proposed development. Natural gas supplied from the Bord Gais Eireann network will be the main fuel for the proposed power plant. This will be supplied via a spur from the nearby gas pipeline running through the area. The electricity generated will be fed to a generator transformer where the voltage will be stepped up to transmission voltage levels as required.

There is a mobile phone mast on the site and this comprises a 30m high antenna support structure, carrying four GSM antennas and five 6 metre diameter link dish antennas. The mast has associated telecommunications equipment and is surrounded by security fencing.

Any service connections required will be carried out at low demand periods in order to minimise disruption to local supplies.

4.3.4 Roads, Rail and other Public Transport

According to the *Draft Offaly County Development Plan 2009-2015,* County Offaly contains approximately 2,000 km of roads, 18 km of which are National Primary Roads, 123 km are National Secondary Roads, 344 km are Regional Roads and 1,524 km are County Roads. The proposed development site is located approximately 2.2 km south from the M6 Dublin-Galway motorway and is accessed by the R400 Regional Road.

Bus Eireann services Rhode providing transport to Dublin, via Edenderry, on a daily basis from 06.45 to 18.15. A daily bus service for National University of Ireland (NUI) Maynooth also stops in Rhode. On a daily basis, the Bus Eireann and City Link Dublin to Galway bus services pass through Rochfortbridge hourly on request. The closest railway station to the proposed development site is located in Mullingar. The closest commercial airport is Dublin airport, located approximately 90 km northeast of the proposed site.

4.3.5 Tourism, Amenities and Recreation

Offaly's landscapes, cultural heritage and environment all have an inherent value. The natural environment of Co. Offaly is unique and includes a variety of natural and semi-natural habitats. These include wetlands, bogs, lakes, eskers, rivers and upland habitats that support a wide range of wild plant and animal species. Westmeath is known as a county of lakes, but like Offaly, the county offers a diverse natural environment.

The area surrounding the development site has a wide diversity of recreational and sporting activities available to tourists in a landscape dominated by flat boglands and agricultural land. The area surrounding Derrygreenagh contains significant natural and cultural heritage attractions in its landscape, most notably boglands, the Grand Canal and numerous historical artefacts. The Grand Canal is a popular destination for recreational activities such as walking and fishing.

The development site is located 6 km north west of Rhode Village. The parish of Rhode contains the ruins of castles, most notably the ruins of Toberdaly Castle, once the demesne of the Nesbitt family. Ballybrittan Castle is also located in the Rhode area and comprises a well preserved castle tower. Rhode GAA pitch, situated west of the village, and St. Pat's football grounds, situated in the north of the village, are both valuable amenity areas serving the local community.

The development site is located approximately 4 km south east of Rochfortbridge, in Co. Westmeath. Rochfortbridge offers numerous recreation and amenity facilities and these include St. Mary's GAA sports facilities, a pitch and putt golf course and playing fields at St. Josephs Secondary School. Two prominent hills are also located close to the development site, namely Croghan Hill and Clonin Hill. Croghan Hill is the remains of an extinct volcano and rises from the Bog of Allen. The hill offers extensive views of the surrounding midland counties and the mound at the summit is thought to be a Bronze Age burial place.

The proposed development site is also located in proximity to a number of larger settlements, including Mullingar, Edenderry and Tullamore. These settlements, particularly the larger towns, have an important role within a tourism context by supporting and sustaining tourism services.

4.3.6 Population

The three most recent censuses of population were undertaken in 1996, 2002 and 2006. This section outlines the population statistics in County Offaly and County Westmeath on a county and local area basis.

In the overall national context, Census 2006 (*Preliminary Report*, CSO 2006) recorded that population figures for Ireland have increased by 8.2% from 3,917,203 in 2002 to 4,239,848 in 2006, representing an actual increase of 322,645 persons.

(i) Regional

County Offaly and County Westmeath are located in the midlands of Ireland and are part of the Midlands Regional Authority. County Offaly covers an area of approximately 493,985 acres (199,981 hectares) and is bordered by the counties Westmeath, Meath, Kildare, Laois, Tipperary, Galway and Roscommon. Tullamore is the county town of Offaly and other major towns within the county include Birr, Edenderry, Clara and Portarlington. County Westmeath covers an area of approximately 472,276 acres (191,121 Hectares). Mullingar and Athlone are the primary commercial centres within County Westmeath. The Midlands Regional Planning Guidelines (2004) predict that the population of the Midlands Region will increase to 325,000 persons by the year 2020.

The National Spatial Strategy for Ireland 2002 - 2020 aims to achieve balanced regional development throughout Ireland. To achieve this, the National Spatial Strategy identified a number of "Gateways", which are primarily existing large urban centres, to promote economic and social development in their region. County Offaly's and County Westmeath's strategic location within the Midlands region, and the role of the Athlone-Tullamore-Mullingar Midlands Linked Gateway, indicates that both counties have a central role in achieving the development aspirations of the region.

According to Census 2006, the recorded population of County Offaly was 70,868 persons, having increased from 59,117 in 1996 and 63,663 in 2002. A large proportion of this population, approximately 40%, is concentrated within the larger towns of the county including Tullamore, Birr, Edenderry, Clara and Portarlington. However, County Offaly remains predominantly rural in nature with approximately 60% of its population living in rural areas. The population of County Westmeath increased by 10.4% from 71,858 in 2002 to 79,346 in 2006, as recorded by Census 2006.

(ii) Local

The smallest geographical units distinguished in the Census are Electoral Divisions (ED). The proposed development site is located in the townland of Derrygreenagh in the Electoral Division (ED) of Knockdrin, Co. Offaly. Rhode is part of Ballyburly ED. The closest Electoral Division in County Westmeath to the proposed development site is Castlelost ED, which includes Rochfortbridge.

As illustrated in Table 4.1 *Population Trends,* County Offaly's, Knockdrin ED's and Ballyburly ED's population growth during the period 2002 to 2006, at 11.3%, 11.3% and 12.5% respectively, have been greater than the national average of 8.2%. A review of census data indicates that the population of County Westmeath has been increasing steadily since 1996. Census 2006 shows that the rate of growth has slowed in the county, down to 10.4% in 2006 compared with 13.5% in 2002. Castlelost ED experienced a profound increase in population between the years 1996 and 2002, growing by 73.3%, as presented in Table 4.1 *Population Trends.* The population of Castlelost ED increased by 6% between the years 2002 and 2006.

Table 4.1: Population Trends

Location	1996 Persons	2002 Persons	2006 Persons	% Change 1996-2002	% Change 2002-2006
State	3,626,087	3,917,203	4,239, 848	8.0	8.2
Offaly	59,117	63,663	70,868	7.7	11.3
Knockdrin ED	113	141	157	24.8	11.3
Ballyburly ED	861	1,148	1,291	33.3	12.5
Westmeath	63,314	71,858	79,346	13.5	10.4
Castlelost ED	920	1,594	1,690	73.3	6

Table 4.2 *Population Increases,* indicates that the average estimated net migration per 1000 of population was 19.2 in Offaly and 15.9 in Westmeath, compared with 11.7 nationally, as recorded by Census 2006. This implies that migration is a contributing factor in population growth in Co. Offaly and Co. Westmeath.

Table 4.2: Population Increases

Location	Natural Increase	Change in Population	Net Migration	Average Annual Rates Per 1000 of Population		
				Birth	Death	Estimated Net Migration
State	131, 314	322,645	191,331	15.0	7.0	11.7
Offaly	2,026	7,205	5,179	14.7	7.2	19.2
Westmeath	2,684	7,488	4,804	16.2	7.4	15.9

Population growth in Offaly and Westmeath is partially commuter based. Large scale residential development has occurred in Rochfortbridge, Co. Westmeath in recent years. Many of the residents living in these new housing estates are commuters, who work outside the Rochfortbridge area. However, the same level of residential development has not occurred in Rhode and the resident population is more localised.

4.3.7 Age Structure

According to Census 2006, County Offaly and County Westmeath exhibit a similar population structure with a high proportion of persons in the 25 - 44 year age group, representing 30.6% and 31% of the population respectively. There is also a high proportion of persons within the 0 - 14 age group in both counties, 22.5% in Offaly compared with 22.2% in Westmeath. Consequently, Offaly and Westmeath can be seen as generally having quite a young population. This situation may be indicative of the influx of a largely working age commuter population to this part of the country.

4.3.8 Household Size

By comparing the absolute population figures divided by the number of private households recorded in Offaly, Westmeath and Ireland, it appears that the average household size in Offaly and Westmeath, at 2.92 and 2.85 respectively is slightly higher than the state average of 2.81 According to the National Spatial Strategy 2002 - 2020, in the long term, the average household size in Ireland will continue to fall towards the EU average of 2.63 persons per household.

4.3.9 Employment

Information on economic activity was obtained primarily from the Offaly County Development Plan 2003 - 2009, the Draft Offaly County Development Plan 2009 - 2015, Westmeath County Development Plan 2008 – 2014, and the CSO document, Principal Economic Status and Industries (2006).

County Offaly is strategically located and its accessibility to Dublin is significant in attracting industry and commerce to the county. Policy P06-05 of the Draft Offaly Development Plan 2009-2015 states that *"it is Council policy to support employment creation including where it can mitigate against long distance commuting*".

The proposed development site is located in east Offaly. Traditionally, the economy of east Offaly was dependent on agriculture and peat production. However, in recent years, employment in these sectors of the economy has diminished.

Co. Westmeath is predominantly rural in character with a large rural population. However, due to a decline in agricultural activity, it is the secondary and tertiary sectors that play a significant role in the economy of Westmeath, in the form of manufacturing and internationally traded services. Athlone and Mullingar are the primary centres for employment in County Westmeath. According to the *Westmeath County Development Plan 2008 - 2014,* population growth in the county indicates that there will be a significant challenge to provide employment in line with the enlarged workforce. It is recognised in the plan that commuter driven growth is not sustainable growth and provision for employment should be encouraged. Policy P-EY-1 of the Council is to "*facilitate enterprise and employment, and to cooperate with other agencies including the private sector in order to provide employment, support opportunities and in the promotion of the County as an attractive location for business which operates in a manner consistent with the NSS and the County Development Board Strategy"*.

Census 2006 recorded that counties Offaly and Westmeath have experienced a steady population growth, increasing to 70,868 persons in Offaly and 79,346 in Westmeath. Consequently, the total number of persons at work increased up to 2006, with 56.9% of the population in Offaly at work and 57.5% in Westmeath. However, the percentage of persons at work in Offaly is marginally lower than the State average, which is 57.2%.

Secondary and tertiary activities define the economies of County Offaly and County Westmeath, according to Census 2006. Manufacturing industries, the construction industry and the wholesale and retail trade are the largest sectors of the economy in Offaly and Westmeath. The agricultural sector is stronger in County Offaly and Westmeath at 6.9% and 5.1% respectively, when compared with the State average of 4.6%. This indicates the rural character of both counties. Mining, quarrying and turf production, along with electricity, gas and water supply, are the lowest employment sectors in Offaly, Westmeath and the State.

Bord na Móna was traditionally to the forefront in local employment generation in Co. Offaly primarily due to peat harvesting works. Bord na Móna plc currently owns 80,000 ha of peatlands in Ireland, and employs approximately 1,800 people at 30 localities mainly in Ireland, but also in the United Kingdom and the United States. The proposed development presents an opportunity to create employment locally in Co. Offaly. During the peak construction period it is anticipated that *c.* 450 construction workers will be employed on site. Prior to commencement of operations, a suitably qualified and technically competent operations and maintenance team will be recruited and trained. This team will have responsibility for the manning and day to day operation and maintenance of the power plant, as well as monitoring and reporting of emissions.

Bord na Móna currently employs more than 600 people in Co. Offaly. This is inclusive of employees of peat works in Boora, Blackwater and Derrygreenagh, the briquette factory at Derrinlough the Edenderry Power Station and the AES Waste Collection and Recycling centre in Tullamore.

Unemployment

The percentage of persons unemployed in County Offaly and County Westmeath in 2006, at 4.4% and 4.2% is slightly below the state average of 4.5%. According to the Live Register, 4,598 people were claiming unemployment benefit in September 2008 in County Offaly. This represented a significant increase on the same period in 2007, when 3,066 people were in receipt of benefits. In County Westmeath, 5,817 persons were claiming unemployment in September 2008, compared with 4,001 in September 2007. It is of importance to note that the live register is not the official measure of unemployment, as it includes persons in receipt of benefits who are in part time or casual employment. However, the live register is the most up to date information available and is indicative of the current unemployment situation.

The *Quarterly National Household Survey* is a national survey of households in the Republic of Ireland that produces quarterly labour force estimates that include the official measure of unemployment in the State. The results for the second quarter of 2008 indicate that the unemployment rate in the midlands region, which is inclusive of County Offaly and County Westmeath, was 6.1% compared with 4.4% for the same period in 2007.

4.4 Impact Assessment

4.4.1 Construction Phase Impacts

- During the peak construction period, which is expected to last for 10 months from Jan 2011 to Oct 2011, the proposed development will employ up to 450 workers. This is a significant positive short-term impact for the local economy of the area.

- The proposed development will potentially increase the population of the area during the construction phase, as it is probable that there will be an influx of construction workers to the area. Construction workers will positively impact on businesses in surrounding settlements that will provide workers with services including accomodation, food, and entertainment. This will create employment opportunities in the local service industry. This will be a significant positive short-term impact on the local economy.

- Construction activities have the potential to cause a nuisance to the local environment and result in disruption. However, it is important to note that these impacts, outlined below, will be short-term in nature and will cease upon completion of construction.

- Negative landscape and visual impacts will occur, arising from the construction plant and activities on site including the following; site compounds, temporary fencing, material storage, plant and machinery, vegetation and topsoil stripping, road works, generation of dust and vehicle movements. Views into the site will be disrupted especially to visual receptors in surrounding residential properties. However, these impacts will be short term and restricted to the construction period. Refer to Chapter 10 *Landscape and Visual.*

- Increased traffic and heavy goods vehicle movements during the construction phase will have a negative short term impact on the local community, primarily due to potential traffic disruption on local roads. Refer to Chapter 11 *Roads and Traffic*.

- The construction phase will have a temporary negative impact on the local population as a result of noise, vibration and dust during working hours. Normal working hours during the construction period are expected to be Monday to Friday 07:00 – 19:00 and Saturday 08:00 – 16:30. It is predicted that noise levels due to construction traffic will not significantly increase on the local roads. No significant night-time works are scheduled for the construction phase. Refer to Chapter 9 *Noise and Vibration* and Chapter 8 *Air Quality and Climate* for further information.

- Many substances used on construction sites, such as lubricants, fuels and oils are harmful to the environment and to human health. Accidents and contamination could occur from re-fuelling of vehicles or inadequate storage of fuels. However, there will be a requirement that all potentially harmful materials are carefully handled and stored to avoid spillages. Good housekeeping on site and the proper use, storage and disposal of substances and their containers, can prevent contamination.

Overall, it is considered that construction phase impacts will be slight and temporary in nature in terms of any impact on the socio-economic environment.

4.4.2 Operational Phase Impacts

The proposed development will offer numerous positive benefits to the local area and economy. The most significant positive impacts are the employment opportunities that will be created by operating the power plant, and the improvement to public utilities which will result.

- Regarding employment during the operational phase, the impact is anticipated to be positive as full time long-term employment will be created. The operational and maintenance staff will be sourced locally, where possible.

- The power plant will provide a significant positive impact on the national economy during the operational phase of the development, by improving the public utilities infrastructure, generating additional electricity and supporting the increased penetration of renewable electricity – See Chapter 2 *Background to the Project*.

- The proposed development will result in the loss of small areas of trees, hedgerows, shrubs and scrub within the site boundary. The sensitivity of the vegetation to be removed is low, as there is abundant such vegetation elsewhere in the study area. The impact of the proposed development on landscape character areas in Offaly, Westmeath and Kildare is not considered to be significant. Refer to Chapter 10 *Landscape and Visual.*

- The maximum predicted number of arrivals to and departures from the site during its operational phase are 52 arrivals and 7 departures during the morning peak hour and vice versa during the evening peak hour. No growth in either staffing levels or delivery requirements to the power plant is predicted over the course of its life cycle. The impact of the development during the operational phase is not considered to be extensively inhibitive on through traffic and local traffic from a capacity point of view. Refer to Chapter 11 *Roads and Traffic*.

- No significant noise impacts are predicted to occur at the noise sensitive receptors during the operational phase of the project. Predicted noise levels at the noise sensitive receptors during the operation of the CCGT unit alone are below the assessment criteria. Even during the occasional circumstance when both the CCGT unit and the OCGT unit operate at night, the predicted levels are sufficiently close to the stringent assessment criteria used in the assessment that a significant noise impact is not likely. Predicted noise levels are also lower than the WHO guidance for sleep disturbance, and the normal IPPC licence noise levels that are set by the EPA. Refer to Chapter 9 *Noise and Vibration.*

- The impact on air quality, as a result of traffic accessing the proposed development, was assessed. It was determined that the impact of background concentrations, and the additional concentration due to site traffic, will lead to levels which are still significantly below the specified ambient air quality limit values. The impact of the proposed power plant development on air quality was also assessed. It was determined that predicted levels of NO_2, SO_2 and PM_{10} are well below their ambient EU air quality limit values, using either distillate or natural gas, coupled with a stack height of 50m for the CCGT unit and 40m for the OCGT unit. Refer to Chapter 8 *Air Quality and Climate.*

- The potential exists for leakages and spillages to occur during the operational phase of the development. All potentially polluting substances, including waste, will be stored in designated areas in appropriate containers within bunds, drip trays or spill pallets, in accordance with the relevant conditions of the site IPPC licence. In the event of a major leak from the gas pipeline there will be a large number of pressure and temperature alarms on the compressors and generators, which will warn of the event, and shut down the compressor and gas turbine generators. The gas supply can be isolated either by a manual valve on site or by a remotely operated valve on the Bord Gáis Network.

- The impacts of the proposed power plant on the property market were considered. Power plants have been a significant feature in a number of locations in Co. Offaly, such as those located in the towns of Rhode, Portarlington and Shannonbridge, and the recently constructed Edenderry power plant, in close proximity to the village of Clonbulloge. There is no evidence to suggest that the presence of a power plant has adversely affected the property market in these locations, over and above the normal property market trends. In the case of the rurally located Edenderry power plant, which commenced operation in 2000, a number of new dwellings have been constructed in close proximity to the power plant since operations have commenced. A number of existing houses in the locality have been traded on the market in the same period, with no obvious distortion of the market value of the property.

  House prices in an area are influenced by market conditions, and it is considered that the generation of employment during both the construction phase and the operational phase will lead to an increased demand for property in the area. This increased demand is likely to positively influence property prices in the short-term, medium-term and long-term, due to the necessity to house employees over the same period. The closest residential property to the proposed development site is approximately 1.1 km from the site. The nearest population centre is Rochfortbridge *c.* 4 km to the north of the site and Rhode which is located *c.* 6 km south of the proposed development site. In total there are 19 residential houses within 2 km of the proposed development site. This EIS has adequately assessed the impact of the development on the environment and recommended appropriate mitigation measures where necessary. Given the low density residential development that occurs in this area, it is considered that the impact of the proposed development on the property market will be insignificant. There is a positive perception of power generation in this area and, during the public consultation for the proposed development, the response from the local community was positive.

- The quantity of distillate to be stored at the site results in the site being considered a lower tier Seveso site as defined under the *European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2006.* As a result of the above mentioned designation there was a requirement to generate a Major Accidents Hazards Report and submit the same to the Health and Safety Authority (HSA). The required report has been generated and submitted to the HSA. The report (See Appendix 2A *Major Accident Hazards Report)* identifies the potential major accident hazards arising due to the proposed development and specifies the risk from these hazards, whilst identifying design features and operational arrangements which will minimise the risks arising from any such hazards. The worst case potential accidents have been modelled, using pessimistic modelling assumptions. It was concluded that, given the significant distance of the site from sensitive receptors, there is no appreciable risk to the general public from the activities on the site.

4.5 Mitigation Measures

The mitigation measures proposed for the construction and operational phases of the development are described hereunder.

4.5.1 Construction Phase

In order to control potential negative impacts during construction, a *Construction Environmental Management Plan* (CEMP) will be developed and implemented by the nominated Contractor during the construction phase of the project.

Specific mitigation measures include:

- Connection to services will be carried out during low demand periods in order to minimise any potential disruption to services in the area.
- Use of artificial lighting will be restricted to the minimum required for safety and security.
- Large plant will be located as far away as possible from local residences to minimise the visual impact of construction activities.
- Mitigation measures relating to noise and vibration, dust and visual impacts are discussed in Chapter 8 *Air Quality and Climate*, Chapter 9 *Noise and Vibration* and Chapter 10 *Landscape and Visual.*
- Following the implementation of mitigation measures as detailed for the construction phase, the impact of the proposed development is not considered to be significant.

4.5.2 Operational Phase

It is not anticipated that any specific mitigation is required regarding the socio-economic context discussed in this chapter.

Other relevant mitigation measures required for the operational phase of the proposed development are discussed in Chapter 8 *Air Quality and Climate*, Chapter 9 *Noise and Vibration* and Chapter 10 *Landscape and Visual.*

4.6 Residual Impacts

The residual impacts are the final or intended impacts which occur after the proposed mitigation measures have been implemented. Residual impacts in relation to the proposed development are those that could arise as a result of the operation of the electricity generating plant once the proposed mitigation measures are in place. The residual impact of the proposed development is considered to be significant, positive and long-term due to the provision of long term employment opportunities, improved infrastructure and the support provided by the development for the increased penetration of renewable electricity sources onto the Irish system.