1.0 INTRODUCTION

1.1 SCOPE

This Environmental Impact Statement (EIS) has been compiled to accompany an application for planning permission for development of a 32 turbine wind farm, on a site, in the townlands of Derryarkin, Derryiron, Coolcor, Coolville, Ballyburly, Greenhills, Bunsallagh, Derrygreenagh, Knockdrin, Wood, Killowen, Corbetstown, Carrick, Garr and Dunville, in a location just north of Rhode, on a relatively flat area of predominantly improved grasslands.

The site is located entirely within County Offaly, however, it is approximately 275m from the County Westmeath border, approximately 60m from County Meath and approximately 4,500m from County Kildare. Please refer to Figure 1.1 - Site Location Map.

The development will comprise thirty-two (32) electricity generating wind turbines with a hub height of up to 110 metres and a rotor diameter of up to 113 metres giving an overall height of up to 166 m, hardstandings, a 110 kV substation containing two (2) control buildings, an electrical compound and a wastewater holding tank, nine (9) watercourse crossings, temporary construction compound, a permanent meteorological mast, a new access road off the R400 Roundabout at Rhode and upgraded access roads, associated site roads, drainage and site works.

Environmental Impact Assessment is a process for anticipating the effects on the environment caused by a development. Where unacceptable effects are identified, these can then be avoided or reduced. It forms an interactive part of the design process, with the design being continually modified so as to mitigate negative impacts and to promote positive impacts. The Environmental Impact Statement (EIS) is a written statement of the effects, if any, which a proposed development, if carried out, would have on the environment.

1.2 NEED FOR THE DEVELOPMENT

In this context, security of energy supply is particularly important due to Ireland’s lack of indigenous fossil fuel resources and we rely heavily on fuel imports. We are

vulnerable to volatile fossil fuel prices. The Yellow River Wind Farm project will provide a sustainable reliable power supply for the region.

The development will contribute towards the actions and targets for the energy policy framework up to 2020 as outlined in the White Paper entitled "Delivering a Sustainable Energy Future for Ireland" published by the Department of Communications, Marine and Natural Resources in 2007. The Paper sets a clear path for meeting the Government's goals of ensuring safe and secure energy supplies, promoting a sustainable energy future, and supporting competitiveness. Section 3.9.5 of the Paper states that 33% of all electrical consumption will be generated from renewable energy sources by 2020. This target has since been increased to 40% from renewable energy sources (Dáil Statement, Budget 2009).

The amount of wind farm capacity connected to the Irish power system now totals 1,763 MW as of March 2013[1]. The peak amount of electricity generated by wind power reached 1,540 MW for the first time on March 21st 2013[2]. However, it is estimated that approximately 6,000 MW of installed renewable capacity will be required to meet the 2020 target. Ireland National Renewable Energy Targets and Greenhouse Gas Emission obligations are discussed in detail in Section 1.6.3 and 1.6.4 of this chapter.

1.3 THE DEVELOPER

Green Wind Energy (Wexford) Limited (GWE) is an Irish owned commercial company operating in the renewable energy business for over 10 years. The five directors have extensive experience and track record in the energy industry, land acquisition and the planning process. In addition to the Yellow River site, GWE has been involved in the preliminary development of sites in Wexford, West Cork, East Cork, Sligo and other sites in the midlands.

GWE has been engaged with the Yellow River Wind Farm for over 3 years and has acquired the necessary legal options from the 22 separate landowners of the site.

GWE applied for a grid connection for the Yellow River Wind Farm in April 2012.

[1] (IWEA http://www.iwea.com/index.cfm/page/windenergyfacts)
[2] (EirGrid, http://www.eirgrid.com/operations/systemperformancedata/electricitystatistics/

1.4 PLANNING HISTORY

1.4.1 Yellow River Site

There have been no previous applications in respect of wind energy generation at the proposed Yellow River Wind Farm site. However, there have been applications in respect of quarrying and afforestation of areas of the site. Planning permissions in the vicinity of the site include: quarries, piggeries, 15 MW willow generating plant at Coolcor, waste management facility, dwellings - new builds and extension / renovations; septic tanks and percolation areas; agricultural buildings including a slurry tank and milking parlour.

1.4.2 Wind Farms in the Vicinity

The closest operating wind farms to the proposed Yellow River Wind Farm site are located at Carrig and Skehanagh in Co. Tipperary, approximately 65km south west of the proposed site. The existing wind farm at Carrig has been operational since 2006 and consists of 3 Vestas V52 850kW turbines with an output capacity of 2.55 MW. The wind farm at Skehanagh has been operational since 2006 and consists of 5 Vestas V52 850kW turbines with an output capacity of 4.25 MW.

Mount Lucas Wind Farm, consisting of 28 turbines, is currently under construction since December 2012 and is located approximately 10 km south of the proposed site. The maximum output capacity for Mount Lucas is 79.2MW.

Leabeg Wind Farm, with a maximum export capacity of 4.25 MW, has planning permission consented, however, construction of this wind farm has not, as yet, commenced. Leabeg Wind Farm lies approximately 36 km south west of the proposed development.

A conditional grant of planning permission was issued to Cloghan Wind Farm in July 2013. This wind farm is located approximately 42km southwest of the proposed development. Cloghan Wind Farm comprises of 10 wind turbines with a maximum output capacity of 25MW.

Wind Farm	Status	Output (MW)	Direction from the Site	Distance (km)
Mount Lucas	Construction	79.2MW	South	10
Leabeg	Consented	4.25MW	South West	36
Cloghan	Consented	25MW	South West	42
Carrig/ Skehanagh	Operational	6.8MW	South West	65

Table 1.1 Closest Wind Farms to Yellow River site

Please refer to **Figure 1.2** for details of closest Wind Farms to Yellow River site.

1.4.3 Power Plants in the Vicinity

This area of County Offaly has a history of industrial power production dating back to the 1950's. There are a number of power plants currently in operation in the region. These are Rhode Peaking Power Plant, Edenderry Independent Power Plant and Coola Mills Power Plant.

The Rhode Peaking Power Plant was commissioned in 2004 and has a nominal capacity of 104 MW, delivered from two generators each driven by two combustion turbines. Endesa Ltd. purchased the site from the ESB and the takeover date was January 2009. This plant has now been bought by SSE Renewables. This power plant is located approximately 50m south of the proposed substation for Yellow River Wind Farm and approximately 1.4km west of the nearest wind turbine.

Edenderry Power was commissioned in 2000. Edenderry Power station is a 128 MW (gross) baseload plant. It consumes just over 1 million tonnes (7.7PJ) of fuel each year. The station uses modern bubbling fluidised bed boiler capacity, which allows a multi-fuel capability**.** The station is capable of burning a wide range of 'clean' biomass materials. These include: woody materials from Irish forests, which may be supplied directly by forestry contractors or indirectly as residues from sawmills; purpose grown energy crops such as willow or Miscanthus; dry materials such as wood pellets or imported agro-industrial residues such as palm kernel or almond shells. The co-firing of biomass with peat commenced in 2008, with over 19,000 energy tonnes (ET) of peat displaced in the first year, and the co-firing rate has increased year-on-year.

Cushaling Power Plant is a new 116 MW peaking plant located approximately 6km south of Edenderry and approximately 11km south east of the proposed site. It consists of two open cycle gas turbine (OCGT) units. Cushaling Power Plant entered commercial operation in September 2010. This Power Plant can start up and reach full power output in less than ten minutes. It acts primarily as reserve capacity on the grid, and is only expected to operate for a few hundred hours per annum.

Coola Mills Power Plant is a small hydro power plant with a capacity of approximately 0.11MW. It is located in Kilbeggan in Co. Westmeath, approximately 20km west of the site.

1.4.4 Consented Wind Farms in the Vicinity

Mountlucas Wind Farm is the closest of the consented wind farms, and is located approximately 10 km south of the proposed development. Mountlucas Wind Farm (Planning Ref. 09/453) received a conditional planning grant in July 2010 for 32 3MW turbines with a hub height of up to 100 m and rotor diameter of 112m.

This decision by Offaly County Council to grant planning permission was appealed to An Bord Pleanála (Case Reference PL19.237263). The Board decided to grant permission in December 2010, subject to compliance with 22 conditions. The reasons for conditional grant are as follows:

- National policy with regard to the development of alternative and indigenous energy resources and the minimisation of greenhouse gas emissions.
- The guidelines issued by the Department of the Environment and Local Government on Wind Farm Development.
- The provisions of the current Offaly County Development Plan, including the County Offaly Wind Energy Strategy to 2015.
- The location of the proposed development on a cut away bog site, which does not come within the scope of specific restrictions with regard to development in scenic areas as set out in the current development plan for the area.
- The general topography and landscape features in the vicinity of the site.
- The existing pattern of development in the vicinity.

A conditional grant of planning permission was issued to Cloghan Wind Farm in July 2013 (Planning Ref. 12/293). This wind farm is located approximately 42km southwest of the proposed development. Cloghan Wind Farm comprises of 10 wind turbines, hub height of up to 110m and rotor diameter of up to 120m, with a maximum output capacity of 25MW.

1.4.5 Consented Renewable Generation in the Vicinity

Biotricity Ltd were granted planning permission in 2010 for a biomass processing combined heat and power (CHP) facility which includes the processing of raw biomass sourced from renewable forestry and agricultural crops into refined solid biofuel for commercial use, and as part of the process, the production of circa 15MW of renewable electricity for export to the national grid at Coolcor, Rhode, Co Offaly. (Planning Reference No.: 09537).

Bord na Mona Energy Ltd were granted planning permission in 2010 for an Electricity generating power station, comprising of two generating units and ancillary development, summarised as follows; Combined cycle gas turbine unit (CCGT) of c. 430MW and Reserve/peaking open cycle gas turbine unit (OCGT) of c. 170MW. An Bord Pleanála granted permission as Strategic Infrastructure Development in the townland of Dreeygreenagh, Co. Offaly. (ABP Planning Reference No.: PA0011).

1.4.6 Consented Waste Facility in the Vicinity

Bord na Mona were granted planning permission in 2011 for a Materials recycling and waste transfer facility at Drumman, Derrygreenagh, Co. Offaly by An Bord Pleanála. (Planning Reference No.: 2/10/93 and ABP Reference 19.237717). This facility will accept up to 99,000 tonnes per annum of non-hazardous municipal solid waste, construction & demolition waste and a small amount of hazardous household waste.

1.4.7 Cumulative Impact of Surrounding Infrastructure Developments

It is envisaged that the cumulative impact of the surrounding infrastructure developments, including the wind farm developments, electricity generating plants and waste facility, will be to enhance Rhode's economic regeneration and sustain it's strategic location as an energy producing hub.

1.5 APPLICABLE LEGISLATION AND REGULATIONS

The European Communities (Environmental Impact Assessment) (Amendment) Regulations, 1999, First Schedule, Part II, Paragraph 3, subsection (i) requires that an Environmental Impact Assessment be carried out for:

"*Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output of greater than 5MW*".

The Planning and Development Regulations, 2001, SI No. 600 of 2001 Schedule 5, describes the developments which require an Environmental Impact Assessment and uses the same threshold for this type of development. It also requires that the relevant selection criteria introduced in Annex III of the Directive, in respect of location and its environmental sensitivity, be taken into account.

The proposed 32 turbine development exceeds the threshold levels as described above and, consequently, the project is subject to an Environmental Impact Assessment.

The Planning and Development (Amendment) Bill, 2009 - Strategic Infrastructure: Section 70 amends the Seventh Schedule of the Planning and Development Act, 2000. Specifics include the reduction of the threshold of the Strategic Infrastructure Assessment (SIA) of wind farms from 50 turbines / 100MW to 25 turbines / 50 MW. This section of the Planning and Development Bill, 2010 was enacted on the 5th of October 2010.

The proposed development consists of 32 turbines with a potential combined output of 96 MW; it therefore exceeds the thresholds as defined in the Seventh Schedule of the Planning and Development (Strategic Infrastructure) Act, 2006 (the 2006 Act) and the revised thresholds under Section 70 of the Planning and Development (Amendment) Bill, 2009.

An Bord Pleanála were consulted in relation to the suitability of the proposed Yellow River Wind Farm development to enter into the Strategic Infrastructure Development Planning Process. Please refer to Section 1.11.3 for details.

It was considered that the proposed development could be put forward as strategic infrastructure development, as it satisfies criteria (a), (b) and (c) of section 37A (2) of the 2006 Act for the reasons set out hereunder:

(a) The development would be of strategic economic or social importance to the State or the region in which it would be situate.

The development will generate 252,288 MWh of sustainable, reliable energy each year on average. This would be enough to supply up to 50,297 [3] *households. It will indirectly, benefit the region by virtue of providing a power supply platform on which to develop industrial sectors. By displacing fossil fuel generation, the wind farm would avoid the following annual discharges of 123,369 tonnes of carbon dioxide. This is the equivalent energy production from 53760 tonnes of oil each year.*

(b) The development would contribute substantially to the fulfilment of any of the objectives in the National Spatial Strategy or in any regional planning guidelines in force in respect of the area or areas in which it would be situate.

The development will contribute towards the actions and targets for the energy policy framework up to 2020 as outlined in the White Paper entitled "Delivering a Sustainable Energy Future for Ireland" published by the Department of Communications, Marine and Natural Resources. The Paper sets a clear path for meeting the Government's goals of ensuring safe and secure energy supplies, promoting a sustainable energy future, and supporting competitiveness. Section 3.9.5 of the Paper states that 33% of all electrical consumption will be generated from renewable energy sources by 2020. This target has since been increased to 40% from renewable energy sources (Dáil Statement, Budget 2009).

(c) The development would have a significant effect on the area of more than one planning authority.

[3] http://www.seai.ie/Renewables/Wind_Energy/Wind_Farms/Wind_Farms_and_the_Environment/

While the site is located entirely within County Offaly, the centre of the nearest turbine is some 275m from the County Westmeath border, some 60m from County Meath and some 4,500m from County Kildare.

An Bord Pleanála issued a formal decision stating that the development was Strategic Infrastructure on November 4th 2013. Please refer to **Appendix A** for a copy of this correspondence.

1.6 RENEWABLE ENERGY POLICY

1.6.1 Climate Change

The global demand for energy is increasing, linked to growing populations and the associated increase in urbanisation and industrial development. The primary source of energy remains non-renewable fossil fuels. Energy is produced by combustion of these fuels. This thermal energy is either used directly as an energy form or is used in the production of secondary energy forms, (e.g. transport, electricity). This energy production process results in the atmospheric emission of various gaseous compounds, such as carbon dioxide (CO_2), and various compounds of sulphur oxides (SO_X) and nitric oxides (NO_X). The latter compounds SO_X and NO_X have been identified as contributing to acid rain, which results in damage to forestry, watercourses and associated ecology.

Carbon dioxide (CO_2) is a greenhouse gas. The emissions of greenhouse gases are now recognised as having serious damaging effects on the environment. The effects of the gases result in increased global temperatures with consequent effects on sea levels due to ice-cap melting and altered weather patterns.

The UN sponsored Intergovernmental Panel on Climate Change (IPCC) has projected increases in sea levels leading to severe flooding and IPCC scientists expect major ecological changes to occur as a result. The IPCC has also estimated that the average global temperature will increase by up to 5.8°C over the next 100 years. The initial effects of these changes are considered by experts to be already manifesting themselves.

1.6.2 Global & EU Energy Policy

A number of international conferences have been held in order to agree limits for the emissions of CO_2. At the Rio de Janeiro conference in 1992, 154 governments agreed to adopt measures to reduce greenhouse gas emissions and combat climate change. Subsequently, at the Kyoto conference in 1997 a specific reduction of 5.2% in global greenhouse gas emissions, by the period 2008 – 2012, was agreed. This led the EU to limit maximum greenhouse gas output by the year 2010 and to source 22% of electricity consumed in the EU from renewable sources, including wind farms, also by 2010 (Renewable Energy Directive, 2001).

In turn, individual national targets for electricity supply from renewable sources were agreed and, in the case of Ireland, a target of 13.2% of energy from renewable sources was set.

At the Johannesburg summit in 2002, the general commitment to develop renewable energy was re-iterated. Russia and the EU re-affirmed their commitment to reach their emissions targets.

The Kyoto Protocol came into force on February 16th 2005 following ratification by Russia in November 2004. As of December 2006, 169 countries, including Ireland, have ratified the agreement.

In 2005, the emissions data estimated that Ireland was 25.4% above the level for 1990. The most recent emissions data shows that in 2007 we were 24.6% above the level for 1990, (the base year for Kyoto targets). Ireland's target is to limit the growth of emissions to 13% by 2007 so we were still a considerable way off the target (EPA, Annual Highlights, 2008).

In February 2008, the EU Commission imposed targets on Ireland's emissions and energy which is to come from renewables. The Commission's proposals require Ireland to reduce its greenhouse gas emissions by 20% by 2020, using 2005 figures as a base. It also dictated that 16% of all Irish energy is to come from renewables.

On the 6th of December 2009, diplomats from 192 nations assembled in Copenhagen, Denmark to discuss measures to protect the world from global warming. The aim of the conference was to reach global agreement on emissions caps and contributions of

funding for new technologies. Discussions to this effect continued at Cancun in Mexico in November 2010.

1.6.3 National Energy Policy

In the light of Ireland's commitment to reduce emissions from energy and in the context of increasing national demand for electricity, the Government introduced a number of measures. These include the efficient use of electricity and the production of electricity from non-fossil renewable sources, in particular wind energy.

On March 12th 2007, the White Paper entitled "Delivering a Sustainable Energy Future for Ireland" was launched by the Department of Communications, Marine and Natural Resources. This policy document describes the actions and targets for the energy policy framework up to 2020. The Paper sets a clear path for meeting the Government's goals of ensuring safe and secure energy supplies, promoting a sustainable energy future, and supporting competitiveness. Section 3.9.5 of the Paper states that 33% of all electrical consumption will be generated from renewable energy sources by 2020 with a 15% target for 2010. The bulk is again expected to come from wind energy.

Furthermore, in the 2009 Budget announced on October 15th 2008, the Minister for the Environment, Heritage and Local Government stated *'Today I can confirm that the Government has now agreed, on the recommendation of my colleague, the Minister for Communications, Energy and Natural Resources, to increase this target to 40%'* (Dáil Statement, Budget 2009). The bulk is expected to come from wind energy.

The amount of wind farm capacity connected to the Irish power system now totals 1,763 MW as of March 2013[4]. The peak amount of electricity generated by wind power reached 1,540 MW for the first time on March 21st 2013[5]. However, it is estimated that approximately 6,000 MW of installed renewable capacity will be required to meet the 2020 target.

With regard to wind energy, the Government initiated a scheme, Alternative Energy Requirement, AER I, to develop specific quantities of wind energy by specific

[4] (IWEA http://www.iwea.com/index.cfm/page/windenergyfacts)
[5] (EirGrid, http://www.eirgrid.com/operations/systemperformancedata/electricitystatistics/

timeframes. The AER Programme was continued and the last AER programme was AER V1.

In May 2006, the Minister for Communications, Marine and Natural Resources, announced details of a new Government support mechanism for renewable energy projects. The programme is called REFIT (Renewable Energy Feed in Tariff). This superseded the AER programme to a fixed price tariff system.

The Electricity Regulation Act 1999 provided for obligations on the ESB to purchase up until December 2019 the output of certain peat and renewable sustainable or alternative electricity generating stations in the interests of security of supply and environmental protection.

1.6.4 Emissions Targets

A decision was taken by the Irish Minister for the Environment in 1997 making a legally binding commitment, as part of an EU-wide agreement, to limit greenhouse gas emissions in the period 2008-2012 to no more than 13% above the 1990 base level. Ireland's limit in terms of the Kyoto Protocol has been set as 314.184272 million tonnes Carbon dioxide equivalent (Mt CO_2eq) of greenhouse gases for the entire five-year period 2008-2012. This equates to an average of 62.837 Mt CO_2eq per annum over the period (i.e. 13% above the baseline estimate). Ireland will face penalties if our emissions exceed the target level.

Ireland's emissions in 2007 were 6.368 Mt CO_2eq higher than the limit as an annual average, while offsets from forest sinks were 1.36 Mt CO_2eq resulting in a "current" annual distance from target of 5.008 Mt CO_2eq, (6.368 – 1.36).

The EU commission's target for 2020 imposes an emissions limit of 59Mt CO_2eq on Ireland. This is a 20% reduction on our 2005 emissions figures.

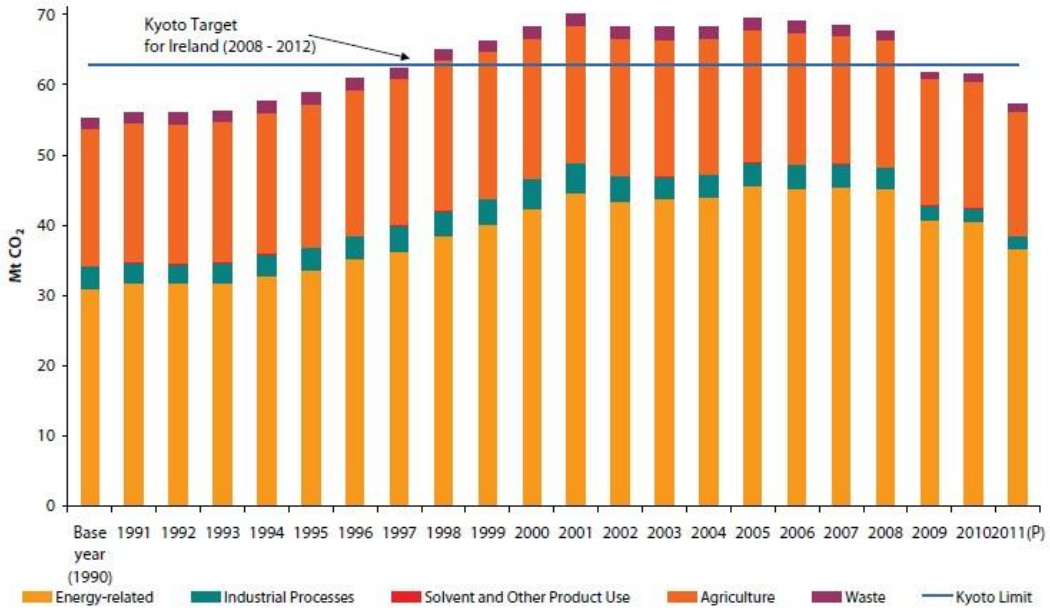
According to a report titled "Irelands's Greenhouse Gas Emission Projections, 2012-2030" published by the EPA, 25th April 2013, Ireland is on track to meet its commitment under the Kyoto Protocol. This is in marked contrast to the projection in Ireland's 2007 National Climate Change Strategy. Although the reduction in the distance to target for the Kyoto Protocol period is a positive outcome in terms of compliance, its occurrence is, primarily, a direct result of the current economic

recession and economic outlook for the future. In order to meet future targets, Ireland cannot rely on a recession and needs to develop as a low carbon economy going forward.

In October 2010, the EPA published their estimation of the total emission figure for 2009 of 62.32 Mt CO2eq. This is 7.9% lower than the level of emissions in 2008 and was the first year when total greenhouse gas emissions (GHG) were below the Kyoto target.

The 2013 Report also states that there continues to be a significant risk that Ireland will not meet its 2020 EU targets even under the most ambitious emission reduction scenario. There is projected to be a cumulative distance to target of 7 – 24 Mtonnes for the period 2013-2020 with Ireland breaching its annual limits in 2015-2016. Strong projected growth in emissions from transport and agriculture are the key contributors to this trend.

Updated data is contained within the SEAI's "Energy in Ireland 1990 – 2011", 2012 Report. Figure 1.3 shows the trend in greenhouse gas emissions between 1990 and 2011. The figures used in that report are sourced from the EPA.



Source: Based on Environmental Protection Agency (EPA) data.

Figure 1.3 – Greenhouse Gas Emissions by Source 1990 – 2011 (SEAI Energy in Ireland 1990 – 2011)

The figure shows that Ireland's Kyoto target for the period 2008 – 2012 was first breached in 1998. By 2001, annual GHG emissions peaked at 27% above 1990 levels. In 2002, there was a reversal in the upward trend for the first time with GHG emissions dropping to 24% above 1990 levels. This downward trend continued and by 2008 there was a 3.6% reduction on the peak 2001 emissions. Between 2008 and 2011, there was an acceleration in the rate of reduction in emissions due in large part to the economic downturn, with emissions falling by 15.2% between 2008 and 2011

Provisional figures from the Environmental Protection Agency (EPA) show that total GHG emissions fell in 2011 by 6.7% to 57.34 million tonnes. As in 2010, most of the reduction in 2011 came from energy-related emissions, falling by 3.8 Mt CO2eq. While the reduction in emissions brings Ireland below the Kyoto limit of 62.84 Mt CO2eq, it is necessary to consider both the emissions-trading and non-emissions trading sectors in order to assess the current distance to target. The EPA estimates, based on the first four years of the Kyoto period (i.e. 2008 to 2011), that Ireland's distance to target is 1.77 Mt CO2eq (cumulative of the four years) when the impact of forest sinks and the emissions-trading scheme are included.

As part of the study within the report titled "Irelands's Greenhouse Gas Emission Projections, 2012-2030" published by the EPA, 25th April 2013, Greenhouse gas emissions are projected to 2020 using two scenarios. The 'worst case scenario' assumes that no additional policies and measures, beyond those already in place by December 2011, are implemented (With Measures projection). Under this scenario, emissions are projected to increase by 9% by 2020. The 'best case' scenario assumes that Government targets for 2020, for example renewables targets, will be fully achieved (With Additional Measures projection). Under this scenario, emissions are projected to increase by 1% by 2020. Therefore, assuming that these two scenarios represent two possible pathways for greenhouse gas emissions in Ireland to 2020, emissions are projected to be 1-9% higher in 2020 when compared to current levels.

Figure 1.4 shows emissions for the period 1990 to 2012 for both a With Measures scenario and a With Additional Measures scenario and compares with the Kyoto Protocol limit for the period between 2008 and 2012.

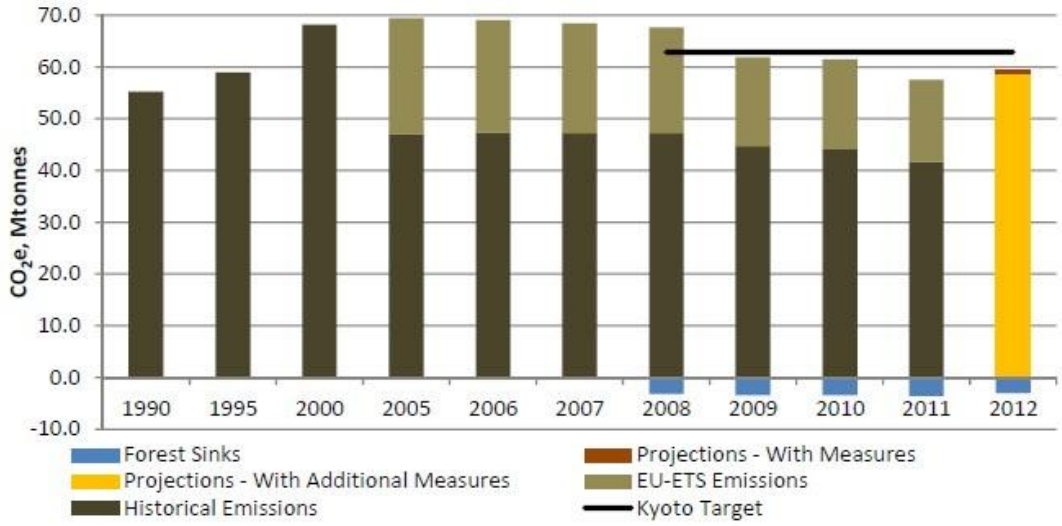


Figure 1.4 Historical and projected greenhouse gas emissions (including forest sinks) for the 2008 – 2012 period for each scenario and the Kyoto Protocol Target. (EPA, 2013)

The reduced distance to target is partly as a result of reductions in energy demand in the residential, industrial, commercial and energy industries sectors. In addition, improvements to the calculation methodologies for forest sinks resulted in an increase in the estimates of the carbon sink available for each year of the commitment period 2008-2012.

The distance to target is determined by considering the relative contributions of the ETS and non-ETS sector emissions to total national emissions. Ireland's National Allocation Plan (2008-2012) allocates 22.3 Mtonnes of CO_2 annually to those installations covered by the EU Emissions Trading Scheme. The remainder (i.e. 62.8-22.3 = 40.6 Mtonnes of CO_2eq) is compared with projected non-ETS sector emissions (including the impact of forest sinks) to assess the distance to target.

Sustainable Energy Ireland predict that 2008 levels of energy demand will be established by 2014 therefore it is essential that Ireland continue to reduce its greenhouse gas emissions to avoid future penalties.

Under the EU Commission's Climate and Energy Package, Ireland is required to deliver a 20% reduction in non-ETS greenhouse gas emissions by 2020 (relative to 2005 levels). In addition, Ireland also has binding annual emission limits for the period 2013-2020 to ensure a gradual move towards the 2020 target. The non-ETS sectors cover those sectors that are outside the EU Emissions Trading Scheme and

include agriculture, transport, energy, residential and waste sectors. The target for Ireland's non-ETS sectors is to reduce emissions by 20% in 2020 relative to 2005 levels. This limit was set in 2012 following a review of Ireland's national greenhouse gas inventory at 37.5 Mtonnes of CO_2eq4. It is estimated that Ireland will exceed its 2020 limit by 5 – 8 Mtonnes of CO_2eq. This is 3% – 10% below 2005 levels compared with a limit of 20%. In addition, the projections indicate that Ireland will exceed its binding annual limit in 2015-2016 and will exceed its obligations over the 2013-2020 period, cumulatively, by 7 – 24 Mtonnes of CO_2eq. The impact of forest sinks are not included in this assessment in line with EU accounting rules which stipulate that forest sinks may not be used for compliance towards EU 2020 targets.

The key contributors to emissions in the non-ETS sectors are transport and agriculture. Agriculture emissions are projected to grow on an annual basis out to 2020, which reflects the impact of Food Harvest 2020 and removal of milk quota. In total, agriculture emissions are projected to increase by 12% by 2020 on current levels. Transport emissions are also projected to show strong growth over the period to 2020 with a 12-22% increase on current levels depending on the level of policy implementation.

Figure 1.5 shows projected emission levels for non-ETS sector emissions under the With Measures and With Additional Measures scenarios. In addition, it shows the annual compliance/non-compliance in relation to the annual binding emission limits.

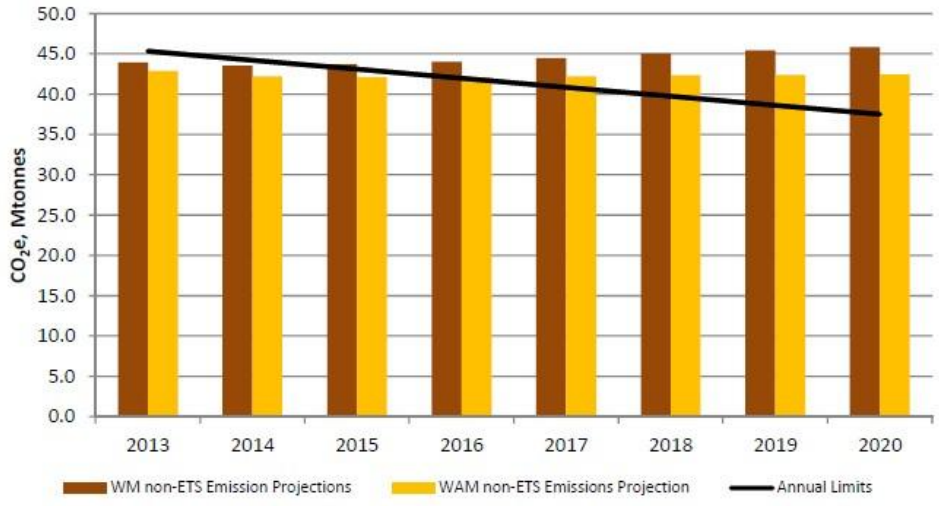


Figure 1.5 With Measures and With Additional Measures Greenhouse Gas Emissions projections and comparison with the linear reduction pathway required between 2013 and 2020. (EPA, 2013)

It is important to note that the With Additional Measures scenario assumes that all targets in Government policy documents such as the NEEAP and NREAP are met. The difficulties associated with meeting these targets should not, however, be underestimated. Failure to meet these targets will result in higher emissions levels than those projected under this scenario and result in Ireland's emission levels moving even further from its emission reduction targets.

Energy sector emissions comprise emissions from power generation, oil refining, peat briquetting and fugitive emissions. Emissions from power generation accounted for 97% of energy sector emissions in 2011 and are responsible for a similar share of emissions over the projection period.

Under the With Measures scenario, total energy sector emissions are projected to increase by 11% over the period 2011 – 2020 to 13 Mtonnes of CO_2eq. The increase in emissions is caused by a projected increase in the use of coal and reduction in the use of gas as a fuel for electricity generation. This is as a result of the current and projected low coal price (relative to gas). Renewables penetration in 2020 is projected to be 24% under this scenario.

Under the With Additional Measures scenario, total energy sector emissions are projected to increase by 1% over the period 2011 – 2020 to 12 Mtonnes of CO_2eq. In this scenario, it is assumed that renewable energy reaches 40% penetration by 2020 with the largest contribution coming from wind. It is envisaged there will be an additional expansion of renewable electricity generation (from 56 MW currently to 285 MW in 2020) from co-firing biomass, the construction of an additional waste to energy plant and the continued development of landfill gas electricity generation and biomass CHP. In addition, the construction of at least 25 MW of wave energy is included in the forecast.

In conclusion, it is essential that Ireland continues to develop its renewable energy industry so as to attain the EU 2020 targets.

1.7 WIND RESOURCES

Ireland has one of the best wind resources in Europe. The availability of high wind speeds in particular locations means that a level of power output can be achieved with a reduced number of wind turbines than would otherwise be the case. The Southwestern and Northwestern regions have been to the forefront in the development of wind energy. In particular, Counties Donegal, Cork and Kerry already have a number of operational wind farms producing electricity because of the high quality wind resource. Plans are now underway to harness wind energy from the central plains of Ireland.

Wind farms generally comprise several wind turbines. A wind turbine consists of a steel tower or steel/concrete tower, upon which a three-bladed rotor connected to a generator is mounted. At sufficiently high wind speeds the rotor will turn, resulting in electrical power output from the generator. The turbines are connected via an underground electricity cable to a substation for transfer to the National Grid.

A significant factor in locating wind farms is the prevailing wind speed pattern of the location and a mean speed of ≈ 8 m/s. The relatively uninterrupted distance over which wind travels in the central plains of Ireland gives mean speeds suitable for wind energy generation.

The conversion of wind power to electrical power is achieved without the large intermediate production process involving the thermal conversion stage needed with fossil fuels. Thus a turbine produces a fraction of the emissions associated with conventional power stations and the environmental damage caused by fossil fuel energy production is avoided.

1.8 PROJECT PREDICTIONS

Wind studies indicate that the capacity factor of the site for a range of turbine models will be greater or equal to 30% taking account of the full range of wind speeds likely to be experienced at the site. This means that the output from the proposed project will be equivalent to the turbines being at full production for greater or equal to 30% of the time.

For 32 No. ≈ 3MW turbines, the total annual output will be at least 252,288MWh (32x3x24x365x0.3) or 252,288,000kWh.

Reference is made to the SEAI Report, 2012 titled "Energy in Ireland 1990 – 2011". According to Figure 15, Section 2.8 of that report, the carbon intensification of electricity has dropped to a new low of 489g CO_2/kWh in 2011.

The reasons given in the report for the increase in generating efficiency and decrease in carbon intensity of electricity in 2011 are:

- A 56% increase in wind generation
- A 18% increase in hydro generation
- A 4.2% increase in electricity imports
- A 17% decrease in gas generation
- A 60% decrease in oil and 2.1% decrease in peat generation.

Thus, the positive contribution of increased wind energy generation to decreasing carbon intensity is evident.

In Section 4.3.1 of the same report, in 2011, the "average" dwelling consumed a total of 19,875kWh of energy based on climate corrected data. This was 14,858kWh in the form of direct fossil fuels and 5,016kWh as electricity.

Using this data, the proposed Yellow River Wind Farm will generate enough electricity to supply up to **50,297** households (252,288,000/5,016) and will save the discharge of some **123,369** tonnes of carbon dioxide (CO_2) per year (252,288,000 x 489/1,000,000).

A carbon sequestrian calculation has been undertaken for the proposed development. This spreadsheet calculates the payback time for the wind farms i.e, compares the carbon dioxide savings from the renewable electricity against the carbon dioxide losses from the construction of the wind farm. The calculation uses methods given in Nayak et al, 2008. The spreadsheet can be found in **Appendix B**.

Calculation input data included: wind farm characteristics; in-situ peatland / bog plant characteristics; forestry characteristics; counterfactual emissions factors; and the characteristics of the overall infrastructural footprint.

1.9 FORMAT OF EIS AND METHODOLOGY

The EIS reflects the Guidelines on the Information to be contained in Environmental Impact Statements (2002) and the Advice Notes on Current Practice in the preparation of Environmental Impact Statements (2003), issued by the Environmental Protection Agency (EPA).

The proposed project is described in Chapter 2 with reference to:

- The project background.
- A description of the characteristics of the project.
- Alternative processes, locations and components investigated.
- Construction programme.

Potential impacts to the environment resulting from the proposed project are examined under the following topics:

- Human beings
- Flora and Fauna
- Soils and Geology, including Slope Stability
- Hydrology
- Air and Climate
- Noise
- Shadow Flicker & Electromagnetic Impact Assessment
- Landscape and Visual Assessment
- Material Assets
- Cultural Heritage
- The Interaction of the Foregoing

Each of these topics is discussed, with sections detailing:

- The existing environment.

- Potential impacts of the proposed development.
- Mitigation measures.
- Monitoring.

When considering the characteristics of the proposed development, reference is made to layout, design, size and scale so that projections of the likely levels of impact on any particular environmental sector can be made.

The potential impact of the proposed development allows for a description of the specific, direct and indirect impacts, which the proposed development may have. This is achieved by reference to the existing environment, the characteristics of the proposed development together with the magnitude, duration, consequences and significance of the development.

Where potential impacts are envisaged, remedial and/or mitigation measures that are practical and reasonable are recommended. Where there is a requirement for environmental monitoring during the construction and/or operational phases, such requirements are described together with the proposed methods for carrying out such monitoring.

All prescribed topics have been covered. The level of treatment for some of the topics differs depending on the likelihood of impacts when assessed in the context of the nature of the proposed development and the site.

1.10 PREPARATION

Overall responsibility for the preparation of the Environmental Impact Statement is assumed by Jennings O'Donovan & Partners (JOD), Consulting Engineers, Finisklin Business Park, Sligo. Please refer to **Table 1.3** for information on the project team.

Discipline	Team Member	Key Area
Lead Project Manager	David Kiely (JOD)	Project Manager
Project Co-ordinator	James Conlon (JOD)	Overall Co-ordinator
EIA Manager	Nuala Carr (JOD)	Management and co-ordination of Environmental Impact Assessment
Environmental Services	Conor Mc Carthy (JOD)	QA; Team Leader,
	Nuala Carr (JOD)	Senior Environmental Scientist
	James Conlon (JOD)	Civil / Environmental Engineer
	Eila McTernan (JOD)	Environmental Scientist
	Sean Molloy (JOD)	Civil / Environmental Engineer
	Senior Technician (JOD)	Survey & Drawings
Civil/Structural Engineering Services	Mel Gavin (JOD)	Team Leader / Structural
	John Doogan (JOD)	Roads / Transportation
	James Conlon (JOD)	Civil / Environmental Engineer
Electrical Engineering Services	D. Curtin (GWE) J. Hickey (GWE)	Team Leader – Electrical
	Sean Gilmartin (JOD)	Mechanical Engineer
Specialist - Wind	M. Middleton (WP) N. Hill (WP) P. Kavanagh (WPI)	Team Leader Specialist Consultant
Specialist - Grid	J. Hickey (PC)	Team Leader
	P. O'Donoghue (PC)	Electrical

Table 1.3 - Project Team

Specialist contributions were also provided by the following:

Human Beings	Jennings O'Donovan & Partners, Finisklin Business Park, Sligo.
Flora & Fauna	BES, Greystones, Co. Wicklow
	Conservation Services, Killarney, Co. Kerry
	Aardwolf Wildlife Surveys, Macroom, Co. Cork.

Soils / Geology	Whiteford Geoservices, Ballyclare, Co. Antrim
Hydrology	HydroEnvironmental Services, Dungarvan, Co. Waterford
Air Quality	Jennings O'Donovan & Partners, Finisklin Business Park, Sligo.
Noise	Noise & Vibration Consultants Ltd., Navan, Co. Meath.
Shadow Flicker	Jennings O'Donovan & Partners, Finisklin Business Park, Sligo.
Landscape & Visual	Jennings O'Donovan & Partners, Finisklin Business Park, Sligo. MosArtMosArt Ltd., Architecture Landscape Urban Design, Block 6, Broomhall Business Park, Wicklow, Co. Wicklow, Ireland
Material Assets	Jennings O'Donovan & Partners, Finisklin Business Park, Sligo.
Cultural Heritage	Irish Archaeological Consultancy, Bray, Co Wicklow
Public Affairs	Green Wind Energy (Wexford) Ltd.
Grid Connection	Power Connections Ltd, Edenderry, Co Offaly
Wake Analysis	Wind Prospect Ireland, Malahide, Co Dublin.

No difficulties, such as technical deficiencies, lack of information or knowledge, were encountered in compiling any specific information of the EIS.

1.11 CONSULTATION

1.11.1 Public Consultation

During the initial stages of the EIA process, a public consultation was held in Rhode Community Centre between 12pm and 7.30pm on December 10th 2012. Notification of this event was given in the local press and in the parish notes.

Invitations were issued to Offaly County Council, Meath County Council, Kildare County Council, An Bord Pleanála, An Táisce and National Parks and Wildlife Service. The evening was attended by those interested in the project including: the local community, elected members and the press.

A total of 66 people signed in at the consultation evening, and a number of others attended but did not sign in. Four representatives from Jennings O'Donovan & Partners Ltd and three directors from Green Wind Energy were present.

The principal elements of the project were explained by Green Wind Energy, and by members of the environmental / engineering team from Jennings O'Donovan & Partners Ltd.

Written submissions were invited from the public. A total of 20 feedback sheets were returned following the consultation. Eighteen feedback sheets contained positive information, 1 feedback sheet had concerns about proximity to residence and requested information on micrositing and 1 feedback sheet requested further information on noise. A summary of the feedback forms is set out in **Table 1.4**. A synopsis of the First Public Consultation and a copy of all feedback forms returned are included in **Appendix C.**

Response No.	**Response Content**	**Action**
1. – 20 (except 5 & 7). Local residents / business people Rhode, Enfield, Rochfortbridge and Edenderry	This is a very worthwhile project and I welcome it strongly. Development is positive in terms of employment. Energy from wind is total progress. Worthwhile consultation. Positive in terms of employment during construction / operational phase. Good presentation.	
5. Mary Dillon, Local Resident	T13 approximately 500m from house. Send on details of micrositing	T13 was moved further from resident's home.
7. Laura Lenihan, Local Resident	I live in Ballyburley and would like to know about the noise from 14+15.	GWE met to discuss concerns.

Table 1.4 - Summary of Public Consultation Feedback Forms

Apart from the open public consultation day referred to above, on an on-going basis, on request, meetings are held by GWE on an individual basis with interested parties,

eg, an informal meeting was held on June 13th, 2013, in Ballyburly, with several concerned locals. Representatives of Green Wind Energy and Jennings O'Donovan & Partners Ltd gave details of the project, showed the up-to-date layout proposal and clarified GWE processes in relation to distance from dwellings; noise; shadow flicker and access.

1.11.2 Local Authority

A scoping report was issued in January 2013, which contained information on Wind Energy Generation; Development Control; Visual Constraints; Environmental Constraints; Site Layout; Existing Access; Settlement Patterns; Tourism & Amenity; Grid Connection and Planning History. Following a number of pre-planning meetings, a formal pre-planning meeting was held with Offaly County Council on May 21st 2013. Prior to this meeting, updated information was forwarded, including draft site layout maps of the proposed development.

The following attendees were present: Mr Ed Kelly (Senior Executive Planner); Mr Joe Coleman (Senior Roads Engineer); Mr Damien Grennan (Area Engineer) Representatives from Green Wind Energy and Jennings O'Donovan & Partners. Topics discussed included: Planning & Development (Amendment) Bill 2010; Consultation process; Visual Impact; Access Roads; and EIA findings. The minutes of this meeting as recorded by Jennings O'Donovan & Partners are included in **Appendix D**. A programme of on-going meetings was conducted with Offaly County Council.

A follow-up meeting was held with Offaly County Council Senior Roads Engineer, Mr Joe Coleman and Senior Executive Planner, Lorraine Mitchell, on July 24th 2013, to discuss the final layout and related road issues. The minutes of this meeting as recorded by Jennings O'Donovan & Partners are included in **Appendix D**.

A further meeting was held with Offaly County Council Senior Executive Planner, Mr Ed Kelly, on July 31st 2013, to discuss the final layout and the photomontages taken to assess the visual impact.

A final meeting was held with Offaly County Council Mr Joe Coleman (Senior Roads Engineer) and Mr Damien Grennan (Area Engineer) on November 11th 2013, to discuss the final haul route and all related roads issues.

1.11.3 An Bord Pleanála

The first pre-application consultation meeting was held with An Bord Pleanála on September 17th 2012. The following attendees were present: Mr Des Johnson (Director of Planning); Ms Karla McBride (Senior Planning Inspector); Marcella Doyle (Senior Executive Officer); Ms Sinéad McInerney (Executive Officer); Representatives from Green Wind Energy and Jennings O'Donovan & Partners. A presentation was made to the meeting which included the following content: Introduction / Project Team; Scoping & Consultation Process; Preliminary Site Layout; Constraints; Environmental Impact topics including Noise, Shadow Flicker; Ecology, Appropriate Assessment, Hydrology, Geology and Visuals; Mitigation Measures; Substation, Turbines and Grid Connection. The minutes of this meeting as recorded by An Bord Pleanála are included in **Appendix A**.

The second pre-application consultation meeting was held with An Bord Pleanála on June 10th 2013. The following attendees were present: Mr Philip Green (Assistant Director of Planning); Ms Karla McBride (Senior Planning Inspector); Marcella Doyle (Senior Executive Officer); Ms Sinéad McInerney (Executive Officer); Representatives from Green Wind Energy and Jennings O'Donovan & Partners. A second presentation was made to the meeting which included the following content: Scoping & Consultation Process and Final Responses; EIA Findings & Constraints, EIA Mitigation Measures; Final Site Layout. Topics discussed included: meeting with Offaly County Council; Grid connection. The minutes of this meeting as recorded by An Bord Pleanála are included in **Appendix A**.

The final pre-application consultation meeting was held with An Bord Pleanála on September 4th 2013. The following attendees were present: Mr Philip Green (Assistant Director of Planning); Ms Karla McBride (Senior Planning Inspector); Diarmuid Collins (Senior Administration Officer); Mr Kieran Doherty (Executive Officer); Representatives from Green Wind Energy and Jennings O'Donovan & Partners. Items discussed included the record of a meeting, in relation to Yellow River Wind Farm, held between Offaly County Council and An Bord Pleanála on July 18th 2013. The procedures involved in a Strategic Infrastructure application were presented. The minutes of this meeting as recorded by An Bord Pleanála are included in **Appendix A**.

1.11.4 NPWS

A pre-application consultation meeting was held with the National Parks and Wildlife Service (NPWS) on April 16th, 2013. Project information including the scoping pack and a summary of the findings of the wintering bird survey and habitat survey was issued prior to the meeting.

The following attendees were present: Ms Linda Patton (NPWS); Ms Ciara Flynn (NPWS); Mr Brian Madden (Biosphere Environmental Services); Mr Don Curtin (Green Wind Energy); and Ms Nuala Carr (Jennings O'Donovan & Partners Ltd). Topics discussed included: Project Background, Project Description, findings of the ecological surveys and potential mitigation measures. The minutes of this meeting are included in **Appendix E**.

1.11.5 Statutory and Non-Statutory Consultees

A consultation letter and scoping document/feasibility report were sent to all relevant statutory and non-statutory consultees during the scoping process. A full list of the bodies consulted, the consultation letters sent and the corresponding responses can be found in **Appendix F**.

Of the 30 bodies consulted, 13 responses were received. A summary schedule of the consultees and responses received is set out in **Table 1.5.**

Follow up calls were made to all no response consultees in May 2013.

The purpose of this scoping process was to provide a focus for the Environmental Assessment of the project by identifying the key issues of relevance and to agree the scope and approach. As such, the scoping process aims to inform the various organisations of the existence of the project, thereby providing an early opportunity to submit comments and to offer information relevant to the preparation of the EIS.

All comments have been addressed within the Environmental Impact Statement, in so far as is practical.

1.12 AVAILABILITY OF DATA

Copies of this document may be viewed by contacting the following during office hours:

- The Offices of An Bord Pleanála, 64 Marlborough Street, Dublin 1.
- The Offices of Offaly County Council, Áras an Chontae, Charleville Road, Tullamore, Co. Offaly.
- Edenderry Area Office, Edenderry Town Hall, Edenderry, Co. Offaly.
- The Offices of Jennings O'Donovan & Partners Consulting Engineers, Finisklin Business Park, Sligo, Co. Sligo.

The application may also be viewed / downloaded on the following website: http://www.yellowriverwind farm.com/

NAME	DATE CONSULTED	RESPONDED	COMMENT
Johnny Evans Head of Projects & Coverage Planning 2RN, Block B, Cookstown Court, Old Belgard Road, Tallaght, Dublin 24, Ireland Phone: + 353 (0) 1 2082680 Mobile: + 353 (0) 86 8255653 Johnny.Evans@rte.ie	January 2013	October 2013	A protocol agreement has been signed by both 2RN and Green Wind Energy (Wexford) Ltd should any impacts arise as a result of the wind farm.
Louis Whelan, Civil Operations, Chorus NTL., UPC Communications Ireland Ltd., Unit 7 Broomhill Business Park, Broomhill Road, Tallaght, Dublin 24. t (01) 245 8699 f (01) 245 8681 m: (086) 254 5576 ocleary@upc.ie	January 2013	June 2013	UPC does not have any record of underground services in these locations as indicated in your drawings and UPC has no issue with the turbine locations.
Mr. John Tyrell, Radio Planning Dept., Vodaphone, Mountain View, Leopardstown, Dublin 18 1800 30 80 20	January 2013	April 2013	The revised location of the wind turbine will not affect existing Vodafone transmission.

NAME	DATE CONSULTED	RESPONDED	COMMENT
Transmission Department O2 Ireland Sir John Rogerson's Quay Dublin 2 E: silvia.martinleon@o2.com T: +353 (0)86 8145590	January 2013		
Meteor Mobile Communications, 4030 Kingswood Ave., Citywest Business Park, Naas Road, Dublin 24 Email: windfarms@meteor.ie (email correspondence preferred)	January 2013 & September 2013	February 2013 & September 2013	Meteor confirmed that this proposal will have no impact on the meteor network. Based on the co-ordinates sent, there should be no issues with the Meteor TXN Network.
Corporate Affairs Division Irish Aviation Authority (IAA) The Times Building, 11-12 D'Olier Street, Dublin 2 Tel: (01) 671 8655 Fax: (01) 679 2934 www.iaa.iec	January 2013	March 2013	It is unlikely that the plan would have any adverse consequences for the safety of air navigation provided it complies with any aeronautical lighting and positional data required by IAA at the planning application stage.
The Manager, Development Applications Unit, National Parks and Wildlife Service, Department Arts, Heritage & the Gaeltacht, Newtown Road, Wexford	January 2013		

NAME	DATE CONSULTED	RESPONDED	COMMENT
Tony Smyth Director of Engineering Services, Office of Public Works, 51 St. Stephens Green, Dublin 2	January 2013	April 2013	OPW drainage channels require a 10m maintenance strip along the edge of the channel. This strip should not be planted or paved in any way, which would prevent access for maintenance. This requirement should be applied for all drainage channels where possible to assist in the prevention of flooding. New culvert/bridges on any watercourses or changes to existing structures will require Section 50 consent from The Office of Public Works.
ESB Networks Dublin North Division, Rahan Road, Tullamore, Co. Offaly.	January 2013		
Noel McGloin Inland Fisheries Ireland, 15A Main Street, Blackrock, Co. Dublin Email:noel.mcgloin@fisheriesireland.ie	January 2013	March 2013	All the sites are located in the sub-catchment of the Yellow River and its tributary the Mongagh/Castlejordan River. The Yellow River itself is a tributary of the River Boyne (a cSAC). Both rivers contain stocks of salmon and trout. IFI are anxious that stocks would be protected from the negative effects of in-stream works associated with this project (turbines, buildings, cabling, roads, ect) and that an adequate buffer zone would be set around watercourses. Please note that no in-stream works should be carried out in the closed season i.e. October to April. The main document we want you to adhere to at this stage is our guidelines *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (*as attached).

NAME	DATE CONSULTED	RESPONDED	COMMENT
Planning Section, Offaly County Council, Áras an Chontae, Charleville Road, Tullamore, Co. Offaly.	January 2013	February 2013	This project is under the remit of Startegic Infrastructure Development (SID) and is dealt with by An Bord Pleanala as outlined in Section 37(d) of the Planning Acts.
Ian Lumley, An Taisce, Tailors Hall, Back Lane, Dublin 8. 01 4541786	January 2013		
Sustainable Energy Authority of Ireland Wilton Park House Wilton Place Dublin 2	January 2013		
Mr Paddy Mathews Manager Environment & Planning Fáilte Ireland 88-95 Amiens Street Dublin 1 Tel: 01 8847202 Jill.Stewart@failteireland.ie	January 2013	February 2013	A copy of the Fáilte Ireland Guidelines for the treatment of tourism in an EIS was forwarded, which we recommend should be taken into account in preparing the EIS.

NAME	DATE CONSULTED	RESPONDED	COMMENT
Joanne Pender, Development Officer, Irish Wildlife Trust, Sigmund Business Centre, 93A Lagan Rd. Dublin Industrial Estate, Glasnevin, Dublin 11	January 2013		

NAME	DATE CONSULTED	RESPONDED	COMMENT
Noel O'Connor, Climate Change Section, Department of Agriculture, Food and the Marine, Environment Department, Johnstown Castle, Co Wexford. 053 9163467 Fax 053 9143965	January 2013	February 2013	If the proposed development will involve the felling or removal of trees, the developer must obtain a Felling License from this Dept, before trees are felled or removed. The following information should be provided in the EIS: • Reasons and rationale for all proposed felling (including timing and extent of felling) and any subsequent replanting, including pre-mature felling, where proposed, in comparison with accepted rotation lengths for species and yield classes. • Total proposed felling associated with the project to include total area (ha) to be felled, tree species, yield class, age at proposed felling and normal rotation length of crop. Maps showing all known monuments, Natura 2000 sites (including candidate and proposed sites), pNHAs and NHAs in the locality should also be included. • Total proposed forest area to be deforested (ie clearfelled and not replanted) including species, yield class, soil type, age at proposed felling time, normal rotation length of crop. The total areas proposed for deforestation in respect of (i) turbine footprints and associated infrastructure, and (ii) turbulence felling, should be detailed separately. • The developer's proposals for compensatory afforestation at alternative site/s, should be outlined in the EIS, species proposed, yield class, soil type, ground preparation, fertilizer application and normal rotation length of proposed crop. • The potential impacts of proposed tree felling operations and proposed mitigation and monitoring measures to be adopted, in respect of: (a) Soil stability (including landslides) (b) Water Quality (sedimentation and eutrophication) (c) Landscape (d) Ecology/habitats (e) Monuments The likely impact on agriculture/agricultural activities in the locality should also be assessed in the EIA, including, site separation, excavation and erection phases (examples of impacts include water quality, risk to soil stability, noise, shadow flicker).

NAME	DATE CONSULTED	RESPONDED	COMMENT
Department of Communications, Energy and Natural Resources, 29-31 Adelaide Road, Dublin 2, Ireland 01 678 2000	January 2013		
Ms Siobhan Egan, Birdwatch Ireland, P.O Box 12, Greystones, Co. Wicklow 01 2819878	January 2013		
Mr Tadhg O'Corcoran, Irish Peatland Conservation Council, Bog of Allen Nature Centre, Lullymore, Rathangan, Co. Kildare 045 860133	January 2013		
Sophie Préteseille, Geographical Survey of Ireland, Beggars Bush, Haddington Rd., Dublin 4. Email: Sophie.Preteseille@gsi.ie 01 6782000	January 2013	March 2013	The closest sites of geological interest are as follow: - **Croghan Hill** for its unique volcanic geology; it is recommended for NHA designation under the IGH 11 Igneous Intrusions and IGH 8 Lower Carboniferous themes. Croghan Hill lies at about 2km south west of the closest landholding; - **Toberdaly** (251700, 231700) comprising a warm spring is recommended for County Geolgicla Site (CGS) under the IGH 16 Hydrogeology Theme. The spring lies at about 4km south of the closest landholdings; Both sites are unlikely to be affected by the wind farm development, should it be given planning permission.

NAME	DATE CONSULTED	RESPONDED	COMMENT
EPA Headquarters PO Box 3000 Johnstown Castle Estate Co. Wexford 053 9160600 Fax:053 9160699	January 2013		
Eircom Radio Division, 1st Floor NMC Building, Bianconi Avenue, Citywest, Dublin 24. Email: wind farms@meteor.ie 01 413 4032 / 087 412 8846.	August 2012	February 2013	Eircom confirmed that this proposal will have no impact on the eircom radio network.
Bat Conservation Ireland Ulex House, Drumheel, Lisduff, Virginia, Co. Cavan.	January 2013		
Ollwen Doyle, Eirgrid, The Oval, 160 Shelbourne Road, Ballsbridge, Dublin 4.	January 2013		

NAME	DATE CONSULTED	RESPONDED	COMMENT
Amanda Pedlow, Heritage Officer, Offaly County Council, Áras an Chontae, Tullamore, Co Offaly.	January 2013		
Senior Engineer, Environmental Department, Offaly County Council, Áras an Chontae, Tullamore, Co Offaly.	January 2013		
Senior Engineer, Roads Department, Offaly County Council, Áras an Chontae, Tullamore, Co Offaly.	January 2013		
Planning Section, Westmeath County Council, County Buildings, Mount Street, Mullingar, Co. Westmeath.	January 2013		

NAME	DATE CONSULTED	RESPONDED	COMMENT
Planning Section, Meath County Council, County Hall, Navan, Co. Meath.	January 2013	March 2013	The proposed wind farm is located 8.5km NW of Mount Heavey Special Area of Conservation and lies within the catchment of the Yellow River a tributary of the River Boyne and River Blackwater Special Area of Conservation and River Boyne and River Blackwater Special Protection Area. Meath County Council welcomes that it is proposed to carry out a full ecological impact assessment in accordance with EPA guidelines. In accordance with Article 6(3) of the Habitats Directive, it should be determined by an appropriate assessment whether the proposed development, either alone or in combination with other plans or projects, will have a significant impact on the conservation objectives of Natura 2000 sites (including those within Co. Meath). There will no impact on any Protected Structure or Architectural Conservation Areas in County Meath. It is unlikely that the site will have a major impact on of any protected view in the south-western area of the County. There is a possibility that there may be some impact on important long distance views from Sliabh na Calliaghe and Tara, and it is recommended that the applicant should determine if this is the case.
Irish Parachute Club Clonbulloge Airfield Edenderry Co Offaly	May 2013		

Table 1.5 - Summary of Statutory and Non-Statutory Consultation Response