- Ireland's Energy Policy Framework 2007-2020,
- National Renewable Energy Action Plan,
- Strategy for Renewable Energy 2012-2020
- White Paper on Energy Policy in Ireland 2015-2030,
- Ireland's Transition to a Low Carbon Energy Future 2015-2030
- Electricity Support Schemes: I-SEM Arrangements Decision Paper, 2017
- Draft National Energy & Climate Plan 2021-2030

Renewable Electricity Support Scheme RESS 2020, February 2020 National policy has developed in line with European and International policies, targets and commitments, in that the importance and urgency of decarbonising the energy generation sector, the economy in general and reducing greenhouse gas emissions has become increasingly more apparent. The proposed development complies with the nationally stated need to provide a greater amount of renewable energy onto the national grid and will further reduce the national reliance on fossil fuels for electricity generation.

2.2.3.2 Ireland's Energy Policy Framework 2007-2020

A Government White Paper entitled *'Delivering a Sustainable Energy Future for Ireland: The Energy Policy Framework 2007 – 2020'* was published by the Department for Communications, Marine and Natural Resources in 2007. Combined with our peripheral location and the fact that the majority of Irish energy requirements are imported, leaves Ireland vulnerable to supply disruption and imported price volatility, as stated in the White Paper. The primary objectives of the Government's energy policy as set out in the Paper are security of supply, environmental sustainability and economic competitiveness. The Energy Policy Framework 2007 – 2020 sets out clear actions, targets and timeframes for meeting these interlinked objectives.

Ireland's energy policy priorities are framed in the context of the European Union. Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources sets a target for Ireland for 16% of energy consumption to come from renewable sources by 2020. The 2007 Government White Paper sets a more ambitious target of 33% for energy consumption from renewable sources by 2020. This target was further increased to 40% by the Minister for Communications, Energy and Natural Resources, in 2008 as part of the Government's strategy to make the "green economy" a core component of its economic recovery plan.

In Ireland, it is widely acknowledged that the vast majority of the renewable electricity requirement is expected to be met through the development of indigenous wind power, as Ireland has a strong wind resource potential, with one of the best onshore wind speed averages in Europe ('The Value of Wind Energy to Ireland', Pőyry, 2014). In 2015, wind energy accounted for 84% of renewable electricity generation. 2016 was less windy than 2015 and electricity generated from wind fell by 6.5% but still accounted for 82% of renewable electricity ('Energy in Ireland 1990 – 2016', Sustainable Energy Authority of Ireland, 2017). Further, the SEAI Energy In Ireland 2019 Report (December 2019) confirms that most of the growth in renewable energy has come from wind. Wind provided 84% of all renewable energy generated in 2018.

The Energy White Paper 2007 states that renewable energy will be a critical and growing component of Irish energy supply to 2020 and beyond. The Government's strategic goals for sustainable energy include addressing climate change by reducing energy-related greenhouse gas emissions and accelerating the growth of renewable energy sources. Renewable energy and enhanced efficiency in power generation are integral to the Government's strategy to deliver Ireland's climate change targets under the Kyoto Protocol. The Paper states:

> *"Renewable energy is an integral part of our climate change strategy and sustainability objectives. The additional diversity which renewables bring to Ireland's energy demand will also make a direct contribution to our goal of ensuring secure and reliable energy supplies."*

2.2.3.3 National Renewable Energy Action Plan, 2010

Article 4 of Directive 2009/28/EC on the promotion of the use of energy from renewable sources required each Member State to adopt a national renewable energy action plan (NREAP) to be submitted to the European Commission. The NREAP sets out the Member State's national targets for the share of energy from renewable sources to be consumed in transport, electricity and heating and cooling in 2020, and demonstrates how the Member State will meet its overall national target established under the Directive.

Ireland's National Renewable Energy Action Plan (NREAP) sets out the Government's strategic approach and planned measures to deliver on Ireland's 16% target under Directive 2009/28/EC. In relation to wind energy, the NREAP states:

> *"It is noted that as a country, Ireland has immense potential for the development of renewable energy particularly wind energy, both on and offshore and wave energy. The development and expansion of the use of renewable energy, together with measures aimed at a reduction and more efficient use of energy are important as regards meeting our climate change objectives and priorities, both nationally and at European level. At a high level a significant increase in renewable energy and the protection of the environment are thus mutually reinforcing goals."*

2.2.3.4 Strategy for Renewable Energy 2012-2020

The then Department of Communications, Energy and Natural Resources publication, *Strategy for Renewable Energy 2012 – 2020*, outlines the strategic goals which underpin the Government's energy and policy objectives. The Strategy articulates the key actions to be undertaken to support the development of each of the renewable energy sectors to deliver on Ireland's binding 2020 targets under the Renewable Energy Directive. It acknowledges the national importance of developing renewable energy and confirms the Government's commitment to this.

The Strategy sets out 5 no. strategic goals, the first of which is as follows:

> *"Strategic Goal 1 - Progressively more renewable electricity from onshore and offshore wind power for the domestic and export markets."*

The proposed wind farm will produce electricity for the domestic market and have the possibility of connecting to wider markets via the existing and planned interconnectors to the UK and France.

In order to achieve Strategic Goal 1 of the Strategy sets out a number of key actions, including the following:

- Support delivery of the 40% target for renewable electricity through the existing GATE processes. A further targeted Gate may be developed, if necessary, following a review of the take-up of Gate 3 offers, while developing a next phase plan led approach for additional onshore capacity in future.
- Review with the Department of Environment and CER the scope for further streamlining authorisation and planning processes for renewable energy projects.
- Implement REFIT 2 for onshore renewable energy and maintain a predictable and transparent REFIT support framework for onshore wind which is cost competitive.

The Strategy highlights the economic benefits onshore wind projects can have on the Irish economy:

> *"Further strategic deployment of onshore wind projects will develop a base of indigenous and foreign companies and create employment in the short-term in wind farm construction, possible turbine component manufacturing and servicing, the opportunity to capture*

international supply chain opportunities and the manufacture of niche onshore renewable energy generating equipment".

2.2.3.5 White Paper on Energy Policy in Ireland 2015-2030

On 12th May 2014, *'The Green Paper on Energy Policy in Ireland'* was launched, opening the way for a public consultation process on the future of energy policy in Ireland for the medium to long-term. The paper acknowledged that energy is an integral part of Ireland's economic and social landscape; and that a secure, sustainable and competitive energy sector is central to Ireland's ability to attract and retain Foreign Direct Investment and sustain Irish enterprise. The three key pillars of energy policy are to focus on security, sustainability and competitiveness.

A Government White Paper entitled *'Ireland's Transition to a Low Carbon Energy Future 2015-2030'* was published in December 2015 by the Department of Communications, Energy and Natural Resources. This Paper provides a complete energy update and a framework to guide policy up to 2030. The Paper builds upon the White Paper published in 2007 and takes into account the changes that have taken place in the energy sector since 2007.

The policy framework sets out a vision for a low carbon future that maintains Ireland's competitiveness and ensures a supply of affordable energy. The paper advises that a range of policy measures will be employed to achieve this vision and will involve amongst many things, generating electricity from renewable sources of which there are plentiful indigenous supplies and increasing the use of electricity and bio energy to heat homes and fuel transport.

In this White Paper the DCENR confirmed that onshore wind is the cheapest form of renewable energy in Ireland:

> *(Onshore Wind) "is a proven technology and Ireland's abundant wind resources means that a wind generator in Ireland generates more electricity than similar installations in other countries. This results in a lower cost of support."*

2.2.3.6 Ireland's Transition to a Low Carbon Energy Future 2015-2030

As discussed above a Government White Paper entitled 'Ireland's Transition to a Low Carbon Energy Future 2015-2030' was published in December 2015 by the Department of Communications, Energy and Natural Resources. This Paper provides a complete energy update and a framework to guide policy up to 2030. The Paper builds upon the White Paper published in 2007 and takes into account the changes that have taken place in the energy sector since 2007.

The policy framework was developed to guide policy and actions that the Irish Government intends to take in the energy sector up to 2030 and also reaching out to 2050 to ensure a low carbon future that maintains Ireland's competitiveness and ensures a supply of affordable energy. The Energy Vision 2050, as established in the White Paper, describes a 'radical transformation' of Ireland's energy system which will result in greenhouse gas (GHG) emissions from the energy sector reducing by between 80% and 95%, compared to 1990 levels. The paper advises that a range of policy measures will be employed to achieve this vision and will involve amongst many things, generating electricity from renewable sources of which there are plentiful indigenous supplies and increasing the use of electricity and bio energy to heat homes and fuel transport.

In this White Paper, the then DCENR confirmed that onshore wind is the cheapest form of renewable energy in Ireland, stating:

> *"Onshore wind continues to be the main contributor (18.2% of total generation and 81% of RES-E in 2014). It is a proven technology and Ireland's abundant wind resource means that a*

wind generator in Ireland generates more electricity than similar installations in other countries. This results in a lower cost of support."

2.2.3.7 Electricity Support Schemes: I-SEM Arrangements Decision Paper, 2017

The Department of Communications, Climate Action and Environment (DCCAE) has updated its existing electricity support schemes supported by the Public Service Obligation (PSO) Levy (primarily for renewable energy). In May 2017, DCCAE published an information paper which outlined a number of options being considered as part of this decision-making process and set out the Department's emerging thinking on the optimal outcome. Having sought stakeholder views in relation to the options being considered (as set out in the May 2017 document) and drawing on the supporting analysis provided by the EirGrid modelling, the DCCAE published its final decisions on these matters in June 2018. The three published decisions are set out below, however, it should be noted that the DCCAE has reserved the right to periodically review the impact of the decisions.

- Decision 1: The market revenue calculation for the purposes of calculating the PSO levy for supported wind generation (Alternative Energy Requirement (AER), Renewable Energy Feed In Tariff (REFIT) 1 and 2) will be amended to adapt to the Integrated Single Electricity Market (ISEM). The market revenue calculation for wind generators will, for the energy component, be based on the lower of a blend of 80% of the Day Ahead Market Price and 20% of the Balancing Market Price, and the Day Ahead Market Price for all supported wind generators above 5MW capacity. For supported wind generators below 5 MW, the market revenue calculation will, for the energy component, be based on the lower of a blend of 70% of the Day Ahead Market Price and 30% of the Balancing Market Price, and the Day Ahead Market Price.
- Decision 2: The market revenue calculation for the purposes of calculating the PSO levy for other supported generation (under REFIT 1, REFIT 2, REFIT 3 and the Peat PSO Scheme) will be amended to adapt to the Integrated Single Electricity Market. For these generators (peat, hydro and biomass) supported under the PSO levy, the market revenue calculation for the energy component will be based on the Day Ahead Market Price.
- Decision 3: The market revenue calculations for the purposes of calculating the PSO levy for all supported generation will take into account only capacity market revenues and not capacity market costs.

2.2.3.8 Draft National Energy & Climate Plan (NECP) 2021-2030, December 2018

The Draft National Energy & Climate Plan (NECP) 2021-2023 was published by the Government of Ireland in December 2018. The NECP has been prepared in accordance with the Governance of the Energy Union and Climate Action Regulation. This first draft takes into account energy and climate policies developed to date, the levels of demographic and economic growth identified in the Project 2040 process and includes all of the climate and energy measures set out in the National Development Plan 2018-2027.

The NECP sets out how EU Countries (including Ireland) intend to address energy and climate related issues[3]:

- energy efficiency
- renewables
- greenhouse gas

[3] *https://ec.europa.eu/info/energy-climate-change-environment/overall-targets/national-energy-and-climate-plans-necps_en*

- emissions reductions
- interconnections
- research and innovation

Furthermore a progress report must be prepared by each country within the EU every 2 years. The consultation period for the NECP closed in February 2019, it was expected that a final version of the NECP was to be submitted in December 2019 however it appears that this deadline has been missed.

2.2.3.9 Renewable Electricity Support Scheme RESS 2020, February 2020

In February 2020 the Government of Ireland published the *'Terms and Conditions for the First Competition Under the Renewable Electricity Support Scheme RESS 2020'*. It is an aim of the RESS to promote the generation of electricity from renewable sources. The Renewable Electricity Support Scheme (RESS) is an auction scheme in which renewable energy projects bid for grid capacity. The noted document sets out the terms and conditions that will apply to the first competition to be conducted under the RESS and to the ongoing administration of awards made in the RESS 1 Auction.

The RESS lists the following points as key elements within the document:

- It has been designed to promote investment in renewable energy generation to contribute toward Ireland's ambition of 70% renewable electricity, and an EU-wide renewable energy target of 32%, by 2030, within a competitive auction based, cost effective framework.
- It has been designed to deliver on a broader range of policy objectives including:
  - the provision of pathways and supports for communities to participate directly in renewable energy projects
  - broadening the renewable electricity technology mix (the diversity of technologies);and
  - increasing energy security, energy sustainability and ensuring the cost effectiveness of energy policy.

The first auction which will take place under the RESS will be RESS1, under this eligible renewable electricity projects will compete within an auction. Eligible projects include onshore wind, offshore wind, solar, hydro along with many other renewable generation methods. Should an applicant be successful under this system they will be invited to submit an offer price on their RESS project. Following on from this stage the RESS1 auction will be conducted where the potential winning projects will be determined.

The first auction is expected to deliver up to an increase of 3,000GWh in renewable electricity generation by the end of 2022

2.2.4 Summary of Compliance with Renewable Energy Policy and Targets

Ireland faces significant challenges to meet its current 2020 targets, EU targets for renewable energy by 2030, and its commitment to transition to a low carbon economy by 2050. It is now clear that Ireland is unlikely to meet its 2020 target (all predictions and modelling point towards this fact albeit that no data analysis is yet available for 2020) as well as the longer-term movement away from fossil fuels. Furthermore, the severity of the situation was highlighted by the Irish Government, who, in 2019 declared a climate emergency. The proposed Croagh Wind Farm will help Ireland address these challenges as well as addressing the country's over-dependence on imported fossil fuels.

2.3 Climate Change Policy and Targets

2.3.1 Introduction

This section of the EIAR presents the various policies and targets which relate to climate change. The below headings and sub-headings explore climate change in the context of EU and national policy and are broken down into the following sections:

- Impacts on Climate Change
- International Policy
  - United Nations Framework Convention on Climate Change
- Kyoto Protocol Targets
  - Doha Amendment to the Kyoto Protocol
  - COP21 Paris Agreement
  - COP25 Madrid- Current Progress
  - Progress on Targets
  - Emissions Projections
- National Policy
  - National Climate Change Adaptation Framework 2012
  - National Adaptation Framework - Planning for a Climate Resilient Ireland 2018
  - National Policy Position on Climate Action and Low Carbon Development, 2014
  - Climate Action and Low Carbon Development Act 2015
  - National Mitigation Plan 2017
  - Report of the Joint Committee on Climate Action Climate Change: A Cross-Party Consensus for Action, March 2019
  - Climate Action Plan, 2019

International and national policy consistently identifies the need to reduce greenhouse gas (GHG) emissions and stresses the importance of reducing global warming. The context of international policy has altered over the last 30 years from being of a warning nature to the current almost universally accepted belief that we are in a climate crisis. The current proposed development at Croagh, as a generator of renewable energy, will contribute to the decarbonisation of the energy sector and reduce harmful emissions. In this regard, it is in broad compliance with national and international climate change policy and targets.

2.3.2 Impacts on Climate Change

Climate change, in the context of EU and national policy, refers to the change in climate that is attributable to human activity arising from the release of greenhouse gases into the atmosphere and which is additional to natural climate variability (Department of the Environment, Heritage and Local Government, 2006).

In 2008, the Environmental Protection Agency (EPA) published the results of a study entitled 'Climate Change – Refining the Impacts for Ireland', as part of the STRIVE (Science, Technology, Research and Innovation) Programme 2007 – 2013. This report stated that mean annual temperatures in Ireland have risen by 0.7° Celsius (C) over the past century. Mean temperatures in Ireland relative to the 1961 to 1990 averages are likely to rise by 1.4 to 1.8°C by the 2050's and by more than 2°C by the end of the century due to climate change.

Under a report published by the EPA titled *"Irish Climate Futures: Data for Decision-making"* (June 2019) the following is acknowledged:

> *"That the world has warmed since the 19th century is unequivocal. Evidence for warming includes changes in surface, atmospheric and oceanic temperatures; glaciers; snow cover; sea ice; and sea level and atmospheric water vapour."*

The report continues to note that should business as usual continue the Earth's average temperature is likely to increase by between 2.6°C and 4.8°C above today's levels, for Ireland, the changes listed (extreme events and sea level rise) would probably mean more frequent wet winters, dry summers and hot summers. It is acknowledged that this would pose challenges for water and flood risk management, agriculture and tourism.

Future precipitation changes are less certain to project than temperature but constitute the most important aspect of future climate change for Ireland. The study projects that winter rainfall in Ireland by the 2050's will increase by approximately 10%, while summer rainfalls will reduce by 12 – 17%. Lengthier heatwaves, much reduced number of frost days, lengthier rainfall events in winter and more intense downpours and an increased propensity for drought in summer are also projected. The STRIVE report on climate change impacts states that Ireland can and must adapt to the challenge of climate change. It notes that:

> *"Barriers to this, both scientific and socio-economic, are required to be identified and addressed in order that Ireland can be optimally positioned to thrive in a changing world."*

2.3.3 International Policy

2.3.3.1 United Nations Framework Convention on Climate Change

In 1992, countries joined an international treaty, the United Nations Framework Convention on Climate Change (UNFCCC), as a framework for international efforts to combat the challenge posed by climate change. The UNFCCC seeks to limit average global temperature increases and the resulting climate change. In addition, the UNFCCC seeks to cope with impacts that are already inevitable. It recognises that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The framework set no binding limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. Instead, the framework outlines how specific international treaties (called "Protocols" or "Agreements") may be negotiated to set binding limits on greenhouse gases.

Ireland is a Party to the Kyoto Protocol, which is a protocol to the UNFCCC. The Kyoto Protocol is an international agreement that sets limitations and reduction targets for greenhouse gases for developed countries. It came into effect in 2005, as a result of which, emission reduction targets agreed by developed countries, including Ireland, are now binding. Further details on Ireland's obligations under the Kyoto Protocol are presented below.

2.3.4 Kyoto Protocol Targets

Under the Kyoto Protocol, the EU agreed to achieve a significant reduction in total greenhouse gas emissions of 8% below 1990 levels in the period 2008 to 2012. Ireland's contribution to the EU commitment for the period 2008 – 2012 was to limit its greenhouse gas emissions to no more than 13% above 1990 levels.

2.3.4.1 Doha Amendment to the Kyoto Protocol

In Doha, Qatar, on 8th December 2012, the "Doha Amendment to the Kyoto Protocol" was adopted. The amendment includes:

- New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1 January 2013 to 31 December 2020;
- A revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and
- Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

During the first commitment period, 37 industrialised countries and the European Community committed to reduce GHG emissions to an average of 5% against 1990 levels. During the second commitment period, over 130 Parties committed to reduce GHG emissions by at least 18% below 1990 levels in the eight-year period from 2013 to 2020; however, the composition of Parties in the second commitment period is different from the first.

Under the protocol, countries must meet their targets primarily through national measures, although market-based mechanisms (such as international emissions trading) can also be utilised.

2.3.4.2 COP21 Paris Agreement

COP21 was the 21st session of the Conference of the Parties (COP) to the UNFCCC. Every year since 1995, the COP has gathered the 196 Parties (195 countries and the European Union) that have ratified the Convention in a different country, to evaluate its implementation and negotiate new commitments. COP21 was organised by the United Nations in Paris and held from 30th November to 12th December 2015.

COP21 closed on 12th December 2015 with the adoption of the first international climate agreement (concluded by 195 countries and applicable to all). The Agreement provides for a limitation of the global average temperature rise to well below 2°C above pre-industrial levels and to limit the increase to 1.5°C. It is flexible and takes into account the needs and capacities of each country. It is balanced as regards adaptation and mitigation, and durable, with a periodical ratcheting-up of ambitions.

An article published by the IPCC (Intergovernmental Panel on Climate Change) on the 6th October 2018 titled 'Global Warming of 1.5oC'. The article details the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways; in the context of mitigation pathways, strengthening of the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. This report is part of an invitation contained in the Decision of the 21st Conference of Parties of the United Nations Framework Convention on Climate Change to adopt the Paris Agreement, and provides an update on the impact of climate change if emissions are not reduced.

2.3.4.3 COP25 Madrid- Current Progress

COP25, the 25th session of the COP, was held between the 2nd and 13th of December 2019 in Madrid. The conference was characterised by repeated warnings from civil society (NGOs and corporates) on emerging evidence and scientific consensus on climate change risk. Specifically, it is noted that there are only '10 years left' before the opportunity of limiting global warming to 1.5°C is no long feasible. As such, the only scenario that makes it possible is a '7.6% reduction of global GHG emissions every year between 2020 and 2030, and to reach net zero emissions by 2050'. However, there was no consensus achieved between States to finalise the operating rules of the Paris Agreement and ensure that it became operational by 2020. Three issues which emerged between States from the COP25 are summarised below:

- There was no uniform consensus between States to raise countries' climate ambitions, e.g. to make increased commitments in light of growing climate change data. Some

States were opposed to imposing any obligation on countries to submit enhanced pledges next year, arguing it should be each country's own decision. All states must submit a review of their commitments for COP 26 in 2020. At the current level of climate targets, within a decade, the objective of the Paris Agreement will no longer be achievable;

- There was no agreement on finalising Article 6, the foundations for international cooperation to combat climate change. The aim was to establish the rules for new international mechanisms for financing and transferring GHG emission reductions; and
- There was no agreement on financing (Green Climate Fund); specifically, relating to both loss and damage caused by climate change.

Despite the lack of consensus to the above challenges, the COP25 did achieve more limited success in the introduction of the *"San Jose Principles for High Ambition and Integrity of International Carbon Markets*", which sets out the framework on which a robust carbon market should be built. These 12 no. principles include, but are not limited to:

- Ensures environmental integrity and enables the highest possible mitigation ambition;
- Delivers an overall mitigation in global emissions, moving beyond zero-sum offsetting approaches to help accelerate the reduction of global greenhouse gas emissions;
- Prohibits the use of pre-2020 units, Kyoto units and allowances, and any underlying reductions toward Paris Agreement and other international goals; and
- Ensures that double counting is avoided and that all use of markets toward international climate goals is subject to corresponding adjustments.

These principles were supported by 23 EU, including Ireland, and Latin American countries, 5 pacific islands and 2 countries in the Caribbean.

In addition, the European Union's Green Pact was introduced on the 11th of December with agreement of the European Council and all Member States (except Poland)on the ambition of climate neutrality in 2050, supported by a financing plan of €1,000 billion over 10 years.

2.3.4.4 Progress on Targets

The *'Europe 2020 Strategy'* is the EU's agenda for growth and jobs for the current decade. The Europe 2020 Strategy targets on climate change and energy include:

- Reducing GHG emissions by at least 20% compared with 1990 levels;
- Increasing the share of renewable energy in final energy consumption to 20%; and
- Moving towards a 20% increase in energy efficiency.

The 'Europe 2020 indicators – climate change and energy' report[4] provides a summary of recent statistics on climate change and energy in the EU, with reference to the progress of Member States in meeting the required targets. In 2016, EU greenhouse gas emissions, including emissions from international aviation and indirect carbon dioxide (CO_2) emissions, were down by 22.4% when compared with 1990 levels. The EU is therefore expected to exceed its Europe 2020 target of reducing GHG emissions by 20% by 2020. In 2016, renewable energy provided 17.0% of gross final energy consumption in the EU, up from 9 % in 2005.

However, regarding the progress of individual Member States, and Ireland in particular, the Europe 2020 indicators include the following statements:

[4] (http://ec.europa.eu/eurostat/statistics-explained/index.php/Europe_2020_indicators_-_climate_change_and_energy)

- 24 countries are on track to meet their GHG targets, except Austria, Belgium, Ireland and Luxembourg;
- Luxembourg emitted the most GHG per capita in the EU in 2014 followed by Estonia, Ireland, the Czech Republic and the Netherlands; and
- All EU countries have increased their renewable energy share between 2005 and 2014. Twelve have more than doubled their share, albeit from a low base. Nine have already met their 2020 targets. In 2014, France, the Netherlands, the United Kingdom and Ireland were farthest from reaching their national targets.

While the EU as a whole is projected to exceed its 2020 target of reducing GHG emissions by 20%. The Europe 2020 report emphasises the importance of continued action on climate change:

> *"Despite the EU's shrinking share in global CO2 emissions, recent findings on the potentially catastrophic impacts of climate change confirm the ongoing importance of its climate and energy goals. EU emission cuts alone cannot halt climate change, but if it can show that a low-carbon economy is feasible, and can even increase innovation and employment, it will serve as a role model to other regions. Continuous investment in advanced low-carbon technologies can also help the EU uphold technological leadership and secure export markets. A successful transformation of the energy sector ... is pivotal in this respect."*

The European Commission report *'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions'* was published in February 2017. This report provides a comprehensive overview of renewable energy deployment in the EU and progress towards meeting the 2020 targets. The report states that the vast majority of Member States are *"well on track in terms of renewable energy deployment"*. Four Member States –Ireland, Luxembourg, the Netherlands and the United Kingdom are currently projected not to meet their national binding targets. The United Kingdom's expected gap is however very short (approximately 0.2%) so it is expected that Ireland will be one of only three Member States projected to not meet their national binding 2020 targets.

While official figures for 2020 have not been released to date, the 2019 SEAI National Energy Projections Report, published last year (2019) acknowledges that Ireland will fall short of its 2020 targets, it states "...it is expected that Ireland will fall short of its mandatory European target for an overall 16% renewable energy share by 2020, with overall achievement approximately 13%.", The report goes on to confirm *"Compared with other European Countries Ireland was 22nd out of the EU28 for overall renewable energy share and 26th out of the EU-28 for progress towards overall 2020 renewable energy target."*

2.3.4.5 Emissions Projections

In June 2019, the EPA published an update on Ireland's Greenhouse Gas Emission Projections 2018-2040. The report provides an assessment of Ireland's progress towards achieving its emission reduction targets set under the EU Effort Sharing Decision (Decision No 406/2009/EU) – i.e. to achieve a 20% reduction of non-Emission Trading Scheme (non-ETS) sector emissions, i.e. agriculture, transport, residential, commercial, non-energy intensive industry and waste, on 2005 levels, with annual binding limits set for each year over the 2013-2020 period.

Greenhouse gas emissions are projected to 2020 using two scenarios; 'With Existing Measures' and 'With Additional Measures'. The 'With Existing Measures' scenario assumes that no additional policies and measures, beyond those already in place by the end of 2017 are implemented. The 'With Additional Measures' scenario assumes implementation of the 'With Existing Measures' scenario in addition to further implementation of Government renewable and energy efficiency policies and measures, as set out in the NREAP and the National Energy Efficiency Action Plan (NEEAP).

The EPA Emission Projections Update notes the following key trends:

- 2019 greenhouse gas emission projections show total emission increasing from current levels by 1% and 6% by 2020 and 2030, respectively, under the 'With Existing Measures' scenario. Under 'With Additional Measures', emissions are estimated to decrease by 0.4% and 10% by 2020 and 2030, respectively;
- Under the 'With Existing Measures', emissions from Energy Industries are projected to increase by 31% between 2018 and 2030 to 15.4 Mt CO2eq. Under the 'With Additional Measures', emissions between 2018 and 2030 are predicted to decrease by 27% to 8.6 Mt CO_2eq;
- Under 'With Existing Measures', approximately 41% of electricity generation is projected to come from renewable energy sources by 2030. In the 'With Additional Measures' scenario, it is estimated that renewable energy generation increases to approximately 54% of electricity consumption;
- Agriculture and transport dominate non-ETS sector emissions accounting for 75% and 80% of emissions in 2020 and 2030, respectively. In 2020, the sectors with the largest contribution of emissions are Agriculture, Transport and Energy Industries with 34%, 21% and 20% share in total emissions, respectively, under the With Additional Measures scenario. In 2030, this is projected to change to 38%, 22% and 16% for these sectors, respectively, which reflects the growth in emissions from agriculture and reduction of emissions from power generation; and
- Ireland has exceeded its annual binding limits in 2016 and 2017. However, even using this mechanism, Ireland will still be in non-compliance according to the latest projections.

The 2019 EPA report states that "A significant reduction in emissions over the longer term is projected as a result of the expansion of renewables (e.g. wind), assumed to reach 41-54% by 2030, with a move away from coal and peat". Over the period 2013 – 2020, Ireland is projected to cumulatively exceed its compliance obligations by approximately 10.3 Mt CO2 (metric tonnes of Carbon Dioxide) under the "With Existing Measures" scenario and 9.2 Mt CO_2 under the "With Additional Measures" scenario.

2.3.5 National Climate Change Policy

2.3.5.1 National Climate Change Adaptation Framework 2012

Ireland's first National Climate Change Adaptation Framework (NCCAF), which was published in December 2012, aims to ensure that adaptation actions are taken across key sectors and also at local level to reduce Ireland's vulnerability to climate change. The NCCAF requires the development and implementation of sectoral and local adaptation plans which will form part of the national response to the impacts of climate change. Each relevant Government Department (or State Agency, where appropriate) are required to prepare adaptation plans for their sectors. Twelve sectors were identified in total including Transport, Flood Defence, Agriculture and Energy. The Climate Action and Low Carbon Development Act 2015 (see Section 2.3.1.2) puts the development of National Climate Change Adaptation Frameworks and Sectoral Adaptation Plans on a statutory basis.

The Climate Action and Low Carbon Development Act 2015 states that following Government approval of the first statutory National Climate Change Adaptation Framework it must be reviewed at least every 5 years after that.

Following approval of the statutory National Adaptation Framework, Section 6 of the Act requires the Government to request all relevant Government Ministers to prepare sectoral adaptation plans covering the relevant sectors under their remit within a specified period. The National Adaptation Framework Plan was published on the 19th January 2018 and is discussed below at Section 2.3.5.5.

2.3.5.2 National Policy Position on Climate Action and Low Carbon Development 2014

The National Policy Position on Climate Action and Low Carbon Development, published by the Department of Environment, Community and Local Government in April 2014, provides a high-level policy direction for the adoption and implementation by Government of plans to enable the State to move to a low-carbon economy by 2050. The position paper acknowledges that the evolution of climate policy in Ireland will be an iterative process, based on the adoption by Government of a series of national plans over the period to 2050. Statutory authority for the plans is set out in the Climate Action and Low Carbon Development Act 2015.

2.3.5.3 Climate Action and Low Carbon Development Act 2015

The Climate Action and Low Carbon Development Act 2015 was signed into law on 10th December 2015. The Climate Action and Low Carbon Act 2015 provides for the establishment of a national framework with the aim of achieving a low carbon, climate resilient, and environmentally sustainable economy by 2050, referred to in the Act as the "national transition objective".

The Act provides the tools and structures to transition towards a low carbon economy and it anticipates that it will be achieved through a combination of:

- A National Mitigation Plan (to lower Ireland's greenhouse gas emissions levels); - see below
- A National Adaptation Framework (to provide for responses to changes caused by climate change);
- Tailored sectoral plans (to specify the adaptation measures to be taken by each Government ministry); and
- Establishment of the Climate Change Advisory Council to advise Ministers and the Government on climate change matters.

2.3.5.4 National Mitigation Plan 2017

Ireland's first statutory National Mitigation Plan (NMP), published in July 2017, gives effect to the provisions of the Climate Action and Low Carbon Development Act 2015, and represents a landmark national milestone in the evolution of climate change policy in Ireland and provides for the statutory basis for the transition to a low carbon, climate resilient and environmentally sustainable economy by 2050.

The NMP reaffirms Ireland's commitment to concerted and multilateral action to tackle climate change following the adoption of the legally-binding Paris Agreement of which Ireland is a co-signatory. Under the Paris Agreement, the EU is committed to reducing greenhouse gas emissions by at least 40% by 2030, compared with 1990 levels. The Paris Agreement represents a landmark accord in tackling climate change, which is recognised by all parties as the defining global issue of this generation.

The NMP outlines a range of measures to lay the foundations for transitioning Ireland to a low-carbon, climate-resilient and environmentally sustainable economy by 2050.

The NMP reiterates that the objective of a low-carbon future will involve radically changing our behaviour as citizens, industry and Government and becoming significantly more energy-efficient. In this regard, the NMP has made it clear that Ireland has abundant, diverse and indigenous renewable energy resources, which will be critical to decarbonising our energy system, including electricity generation. The NMP confirms that "Onshore wind has, to date, been the most cost-competitive renewable electricity technology in Ireland, accounting for 22.8% of overall electricity generation in 2015."

The NMP addresses the role of local authorities in facilitating the transition towards a low-carbon economy and recognises that this requires engagement from all levels of Government and that a bottom-up approach is also essential to promote awareness and engagement within individual communities across Ireland.

The NMP further states that there "is also recognition within the Local Authority sector of the need for the sector to assume a leadership role within their local communities to encourage appropriate behavioural change". Moreover, the Plan emphasises that local authorities also have a key role to play "in addressing climate change mitigation action and are well placed to assess, exploit and support opportunities within their administrative areas, in cooperation with each other and with national bodies, and through the involvement and support of local communities".

Specifically, in relation to wind energy the National Mitigation Plan notes the following:

> *"To date, wind energy has been the largest driver of growth in renewable electricity. The total amount of renewable generation connected to the grid at December 2016 was 3,120MW, of which wind generation was approximately 2,796MW, hydro was 238MW and biomass was 86MW19. Eirgrid estimates that a total of between 3,900MW and 4,300MW of onshore renewable generation capacity will be required to allow Ireland to achieve 40% renewable electricity by 2020. This leaves a further requirement of between 780MW and 1,180MW to be installed by 2020 if the 2020 electricity target is to be reached, requiring an increased rate of installation."*

2.3.5.5 National Adaptation Framework- Planning for a Climate Resilient Ireland 2018

Ireland's first statutory National Adaptation Framework (NAF) was published on 19th January 2018. The NAF sets out the national strategy to reduce the vulnerability of the country to the negative effects of climate change and to avail of positive impacts. The NAF was developed under the Climate Action and Low Carbon Development Act 2015. The NAF builds on the work already carried out under the National Climate Change Adaptation Framework (NCCAF, 2012). It is detailed that under the NAF a number of Government Departments will be required to prepare sectoral adaptation plans and strategies in relation to climate change. The NAF can be broken down as follows:

Chapter 1 provides a summary of observed and projected global climate change and the international and European policy drivers for adaptation to climate change. It also contains a summary of observed and projected climate change impacts in Ireland. The following Key Messages are set out in the NAF:

- "Warming of the global climate system is unequivocal and it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century.
- Observations show that global average temperatures have increased by 0.85℃ (in the range 0.65 to 1.06°C) since 1850.
- In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans.
- Increasing magnitudes of warming increase the likelihood of severe, pervasive and irreversible impacts.
- Uncertainties exist in relation to the extent and rate of future climate change. Addressing uncertainties is a challenge, but should not be read as an excuse for inaction as there is overall agreement on the robustness of trends and projections.
- The impacts and risks of climate change can be reduced and managed through mitigation and adaptation actions.
- Changes in Ireland's climate are in line with global trends. Temperatures have increased by about 0.8°C since 1900, an average of about 0.07°C per decade over that

period, and changes in precipitation regimes, sea level rise and extreme events (storms, flooding, sea surges and flash floods) are also being observed.
- Climate change will have diverse and wide ranging impacts on Ireland's environment, society, economic development, including managed and natural ecosystems, water resources, agriculture and food security, human health and coastal infrastructures and zones.
- The overall trend in Ireland is consistent with global patterns of change, with a high degree of climate variability and associated uncertainties in relation to extreme events."

The Framework quotes the Intergovernmental Panel on Climate Change (IPCC, 2013) in which it was concluded that there is 95% probability that the global warming of the last 50 years is a result of human activities, with the main contribution to this warming coming from the burning of fossil fuels.

Chapter 2 sets out the progress to date on climate change adaptation planning in Ireland, including work undertaken at sectoral and local government level and initiatives involving civil society and the research community.

Chapter 3 provides a number of guiding principles for adaptation at national level. It includes steps for creating an enabling environment for adaptation planning. It sets out the sectors for which adaptation plans under the NAF are to be prepared, along with proposals for local authority or regional level adaptation strategies. Chapter 3 of the framework includes the guiding principles for adaptation, regardless of how successful efforts to mitigate GHG emissions prove to be, the impact of climate change will continue over the coming decades because of the delayed impacts of past and current emissions. There is no choice, therefore, but to take adaptation measures to deal with the unavoidable impacts of climate change and associated economic, environmental and social costs. This is recognised at international, European Union and national level. The NAF states that:

> *"Adaptation not only depends on action by all levels of government but also on the active and sustained engagement of all stakeholders, including sectoral interests, the private sector, communities and individuals. Everybody has a role to play in making sure Ireland is taking appropriate adaptation action to achieve a climate resilient future. This is a joint responsibility where "climate proofing" our country is an undertaking for which all of society is responsible and everyone has a role to play."*

Furthermore under chapter 3 it is noted that each local authority should make and adopt local adaptation under the Low Carbon Act 2015. The local authority adaptation plans are discussed further in the below sections.

Chapter 4 outlines how the Framework will be implemented with revised Governance and reporting arrangements as well as actions and supporting objectives that are to be progressed.

2.3.5.6 Report of the Joint Committee on Climate Action Climate Change 2019

In March 2019 the Joint Committee on Climate Action Change released a report detailing a cross-party consensus for action. The report in its introduction notes that "Irelands performance in meeting international obligations has to date been poor". The Committee places concern that predictions of emissions indicate that the state is off track in meeting its 2020 and 2030 targets under the Kyoto protocol and the EU Directives.

The committee recommended that new climate change legislation be enacted by the Oireachtas in 2019. The following recommendations have been listed:

1. *A target of net zero economy-wide Green House Gas (GHG) emissions by 2050;*
2. *A provision for a 2030 target, consistent with the GHG emissions reduction pathway to 2050 to be set by 2020 by Statutory Instrument requiring the formal approval of both Houses of the Oireachtas following receipt of advice from the Climate Action Council;*
3. *Provision for five-yearly carbon budgets, consistent with the emissions reduction pathway to 2030 and 2050 targets, to be set by Statutory Instrument requiring the formal approval of both Houses of the Oireachtas following receipt of advice from the Climate Action Council;*
4. *A target for the renewable share of electricity generation of 70% by 2030.*

Further to this, the committee acknowledge that the measures which are currently in place along with the measures suggested within the report will not be sufficient in meeting Irelands targets.

Chapter 7 of the report outlines the committee's recommendations for developing Ireland's capacity in renewable energies and renewable electricity in particular. It is noted that the transformation of Ireland's energy system will be required for the country to meet its GHG emission targets. To reach net zero emissions by 2050 the report recognises that the country will be required to fully decarbonize electricity generation. Section 7.5 relates to onshore renewable energy generation, it is acknowledged that onshore wind energy is currently the primary source of renewable electricity within Ireland, accounting for 84% of renewable power generated in 2017, it is also detailed that, *'onshore wind alone will not supply Ireland with sufficient electricity to become self-sufficient, it is evident that it must be used alongside other sources of renewable energy'.*

Under its recommendations the Committee encourages the upgrading of existing onshore wind turbines where this will yield additional potential. While acknowledging that there are challenges in relation to securing additional on-shore wind generated renewable energy.

The Report fully supports the increased provision of on-shore wind farm development at appropriate locations (such as that of the current proposal) and acknowledges that on-shore wind has a pivotal role to play in achieving climate action targets.

2.3.5.7 Climate Action Plan 2019

The Climate Action Plan 2019 (CAP) was published on the 1st of August 2019 by the Department of Communications, Climate Action and Environment. The CAP sets out an ambitious course of action over the coming years to address the impacts which climate may have on Ireland's environment, society, economic and natural resources. This Plan clearly recognises that Ireland must significantly step up its commitments to tackle climate disruption.

Chapter 1 of the CAP sets out the nature of the challenge which Ireland faces over the coming years. The CAP notes that the evidence for warming of our climate system is beyond dispute with observations showing that global average temperatures have increased by more than 1°C since pre-industrial times. These changes will cause extensive direct and indirect harm to Ireland and its people, as well as to other countries more exposed and less able than we are to withstand the associated impacts, which are predicted to include:

- Rising sea-levels threatening habitable land and particularly coastal infrastructure,
- Extreme weather, including more intense storms and rainfall affecting our land, coastline and seas,
- Further pressure on our water resources and food production systems with associated impacts on fluvial and coastal ecosystems,
- Increased chance and scale of river and coastal flooding,
- Greater political and security instability,

- Displacement of population and climate refugees,
- Heightened risk of the arrival of new pests and diseases,
- Poorer water quality,
- Changes in the distribution and time of lifecycle events of plant and animal species on land and in the oceans.

It is also recognised within the Plan that in addition to the above many of the pollutants associated with climate change are also damaging to human health.

It is the ambition of the CAP to deliver a step-change in our emissions performance over the coming decade, so that we will not only meet our EU targets for 2030 but will also be well placed to meet our mid-century decarbonisation objectives. The proposed development through the generation of renewable energy can aid in delivering this ambition both for the 2030 target and the ongoing 2050 target.

Plate 2.2 below depicts Irelands decarbonisation pathway up to the year 2030. The below will be used to manage Ireland's decarbonisation pathway and details the path for the various sectors:

	Technology	NDP 2030	Uptake to meet 2030 targets (Based on MACC analysis) 2025	2030
Electricity	**Total RES in Generation mix[4], %**	**55**	**52**	**70**
	• Onshore wind, GW	~7	~6.5	~8.2
	• Offshore wind, GW	1.8	~1.0	~3.5
	• Solar PV, GW	1.5	~0.2	~0.4
Transport	**Electric Vehicles, #**	**498,000**	**181,500**	**936,000**
	• Passenger EVs, #	355,000	57,000	550,000
	• Passenger PHEVs, #	118,000	94,000	290,000
	• Electric delivery vans, #	19,000	30,000	61,000
	• Electric trucks, #	n.a	0	34,000
	• Electric buses, #	1,250	500-600	1,000-1,200
	Bioethanol blend, Volume	**E10**	**E10**	**E10**
	Biodiesel blend, Volume	**B12**	**B12**	**B12**
Built Environment	**Retrofitted homes[1], cumulative 2021-30, #**	**450,000**	**300,000**	**500,000**
	Electric heating sources, total residential, #	**370,000**	**350,000**	**600,000**
	• New buildings, #	200,000	50,000	200,000
	• Existing buildings, #	170,000	300,000	400,000
	Electric heating sources, total commercial, #	**15,000[3]**	**15,000**	**25,000**
Enterprise	**Emissions, $MtCO_2eq.$**	**9**	**8**	**8**
	• Alternative fuels in cement fuel mix, %	N/A	65%	80%
	• CO2-neutral heat generation in food industry[2], %	N/A	~70%	~80%
Agriculture	**Emissions, $MtCO_2eq.$**	**21**	**19**	**18**
	• Fertilizers CAN replacement, %	N/A	40%	50%
	• Trailing-shoe slurry spreading, %	N/A	30%	50%
Other (e.g. waste)	**Emissions, $MtCO_2eq.$**	**3.2**	**3.2**	**3.2**

Solar PV, some electrification of buses, and biofuel blending are identified in 2030 the NDP scenario but are not showing as cost-effective in MACC. Despite MACC analysis these technologies may remain in plan given other factors (e.g., exchequer cost, ease of implementation, need for public sector leadership)

1 Retrofit to B2 BER fabric equivalent
2 Includes biomass and electricity
3 Not specified in NDP, estimated based on residential ratio
4 RESS competitive auction determines the final mix

Plate 2.2 Irelands Decarbonisation Pathway Dashboard to 2030 [Source: CAP, 2019]

Chapter 7 of the CAP details the plans considerations, state of play and actions in relation to electricity. Within Ireland electricity accounting for 19.3% of Ireland's greenhouse gases in 2017, the following is noted:

> *"It is important that we decarbonise the electricity that we consume by harnessing our significant renewable energy resources by doing this we will also become less dependent on imported fossil fuels."*

In 2017 within Ireland a total of 30.1% of electricity produced came from renewable sources, the target to be achieved by 2020 is set at 40%. The CAP goes on to note that 'given our 40% target is based on a percentage of total energy demand, this rising demand makes meeting our 2020 target even more challenging and latest forecasts indicate we may miss this target by 3 to 4 percentage points'. Further to

this while decarbonising electricity is a key aspect of the strategy it is noted that this is against the background of rapid projected growth in electricity demand. It is expected that demand for electricity is forecast to increase by 50% above existing capacity in the next decade. Generation electricity builds of a renewable nature rather than fossil fuels has been marked as essential.

The CAP goes on to note that with regards to policy measures to date that they will not achieve the level of decarbonisation required in the electricity sector to meet the 2030 emissions reduction targets, as such it is listed that 'we must 'reduce our electricity sector emissions to 4-5 Mt in 2030'. In relation to emissions the following is noted:

> *"In 2017, emissions from electricity were 12 Mt and in 2030, despite implementation of Project Ireland 2040 measures, emissions are projected to be 8 Mt. This clearly demonstrates the need for a significant step-up in ambition over existing policy, not only to meet our 2030 targets, but to set us on course to deliver substantive decarbonisation of our economy and society by 2050."*

In the electricity sector, reaching a 70% share of renewable electricity would require 50-55% emissions reduction by 2030.

Under section 7.2 the following targets have been set out:

- Reduce CO2 eq. emissions from the sector by 50–55% relative to 2030 Pre-NDP projections
- Deliver an early and complete phase-out of coal- and peat-fired electricity generation
- Increase electricity generated from renewable sources to 70%, indicatively comprised of:
  - at least 3.5 GW of offshore renewable energy
  - up to 1.5 GW of grid-scale solar energy
  - up to 8.2 GW total of increased onshore wind capacity
- Meet 15% of electricity demand by renewable sources contracted under Corporate Power Purchase Agreements (PPAs)

Achieving 70% renewable electricity by 2030 will involve phasing out coal- and peat-fired electricity generation plants, increasing our renewable electricity, reinforcing our grid (including greater interconnection to allow electricity to flow between Ireland and other countries), and putting systems in place to manage intermittent sources of power, especially from wind.

Section 7.2 of the CAP notes the 'Measures to deliver targets' in which efforts to meet the 2030 ambitions includes increased harnessing of renewable energy. CAP identifies a need for 8.2GW of onshore wind generation and states that in 2017 there was 3.3GW in place, therefore Ireland needs to more than double its installed capacity of wind generation. Accordingly, the CAP presents clear and unequivocal support for the provision of additional renewable energy generation, and presents yet further policy support for increased wind energy.

The proposed Croagh Wind Farm is in line with the overall provisions handed down within the CAP. The proposed development through the production of renewable energy will aid in Ireland meeting its binding targets. The development can also aid to contribute to the above referred target of '8.2GW total of increased onshore wind capacity'. Furthermore the proposed development will contribute in the following:

- Provide renewable energy which will connect to the national grid (Target- 8.2 GW total of increased onshore wind capacity),
- Aid in the decarbonisation of the energy system (Target- Reduce CO2 eq. emissions from the sector by 50–55% relative to 2030),
- The proposed development can contribute toward achieving 70% renewable electricity by 2030.

2.3.6 The proposed development will aid in reinforcing grid infrastructure and greater interconnection. Strategic Planning Policy Context

2.3.6.1 Introduction

This section of the EIAR provides the strategic planning context of the proposed development. As is examined below, the proposed development is in line with national, regional and local policies, frameworks, guidelines and plans. This section has been broken down to the following sections:

- National Planning Framework 2018,
  - Key Sustainability Elements of National Planning Framework
- Draft Renewable Electricity Policy and Development Framework, 2016
- Regional Policy
  - Regional Policy - Regional Spatial and Economic Strategy, Northern and Western Region, 2018
- Local Policy
  - Leitrim County Development Plan 2015-2021
  - Leitrim County Council Climate Adaptation Strategy 2019-2024
  - Sligo County Development Plan 2017 – 2023
  - Sligo County Council Draft Climate Adaption Strategy 2019-2024
- Material Considerations
  - Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change 2017
  - DoEHLG Wind Energy Guidelines 2006
  - Draft Revised Wind Energy Development Guidelines 2019
  - Department Circular PL5/2017
  - IWEA Best Practice Guidelines for the Irish Wind Energy Industry 2012
  - IWEA Best Practice Principles in Community Engagement and Community Commitment 2013
  - Code of Practice for Wind Energy Development in Ireland - Guidelines for Community Engagement 2016
  - IWEA Community Engagement Strategy 2018
  - Renewable Energy Support Scheme (RESS)
  - Forest Service Guidelines

As a renewable energy project the current proposal is broadly consistent with the overall national policy objectives to increase penetration and deployment of renewable energy resources and has been designed in the context of the relevant wind energy and other guidelines. The specific compliance with the County Development Plan provisions are dealt with in detail in the County Development Plan section below.

2.3.6.2 National Policy

2.3.6.2.1 *National Planning Framework 2018 - 2040*

The National Planning Framework (NPF), published in February of 2018, aims to shape and guide the future growth and development of Ireland up to 2040. The NPF forms the top tier of the national planning policy structure, accordingly establishing the policy context for the forthcoming Regional Spatial and Economic Strategies and local level development plans. In an effort to move away from developer led development to one informed by the needs and requirements of society, a number of objectives and policies have been put in place in order for the country to grow and develop in a sustainable manner.

The NPF notes that the population of Ireland is projected to increase by approximately 1 million people by 2040 which will result in a population of roughly 5.7 million. This population growth will place further demand on both the built and natural environment. In order to strengthen and facilitate more environmentally focused planning at the local level, the NPF states that future planning and development will need to

> "*Tackle Ireland's higher than average carbon-intensity per capita and enable a national transition to a competitive low carbon, climate resilient and environmentally sustainable economy by 2050, through harnessing our country's prodigious renewable energy potential.*"

The NPF notes that while the overall quality of the country's environment is good it is not without challenges. Furthermore they note that the manner in which we plan for the potential issues is important.

> *"While the overall quality of our environment is good, this masks some of the threats we now face. Key national environmental challenges include the need to accelerate action on climate change, health risks to drinking water, treating urban waste water, protecting important and vulnerable habitats as well as diminishing wild countryside and dealing with air quality problems in urban areas. It is also important to make space for nature into the future, as our population increases."*

The NPF seeks to achieve ten strategic priorities surrounding:

1. Compact Growth
2. Enhanced Regional Accessibility
3. Strengthened Rural Economies and Communities
4. Sustainable Mobility
5. A Strong Economy, supported by Enterprise, Innovation and Skills
6. High-Quality International Connectivity
7. Enhanced Amenity and Heritage
8. Transition to a Low Carbon and Climate Resilient Society
9. Sustainable Management of Water and other Environmental Resources
10. Access to Quality Childcare, Education and Health Services

Relevant to the proposed development, **National Strategic Priority No. 8** – (Transition to a Low Carbon and Climate Resilient Society) seeks to achieve this transition by 2050. The transition will *"shape investment choices over the coming decades in line with the National Mitigation Plan and the National Adaptation Framework. New energy systems and transmission grids will be necessary for a more distributed, renewables-focused energy generation system, harnessing both the considerable on-shore and off-shore potential from energy sources such as wind, wave and solar and connecting the richest sources of that energy to the major sources of demand."*

A key aspect of the NPF surrounds the long-term sustainability of the environment, it aims to ensure that decisions that are made today meet our future needs in a sustainable manner.

> *"The manner in which we plan is important for the sustainability of our environment. Our planning system has influence across a wide range of sectors, both directly and indirectly and interacts with many common issues related to effective environmental management, including water services, landscape, flood risk planning, protection of designated sites and species, coastal and marine management, climate mitigation and adaptation, and land use change."*

The Government will address environmental and climate challenges through the following overarching aims as listed under 'Resource Efficiency and Transition to a Low Carbon Economy':

- Sustainable Land Management and Resource Efficiency
- Low Carbon Economy

- Renewable Energy
- Managing Waste

In order to meet legally binding targets agreed at EU level, it is a national objective for Ireland to make a transition and become a competitive low carbon economy by the year 2050. To aid in meeting these targets the National Planning Framework notes that the Government will aim to support the following objectives:

- Integrating climate considerations into statutory plans and guidelines. In order to reduce vulnerability to negative effects and avoid inappropriate forms of development in vulnerable areas.
- More energy efficient development through the location of housing and employment along public transport corridors, where people can choose to use less energy intensive public transport, rather than being dependent on the car.

The NPF highlights that Ireland's national energy policy is focused on three pillars: (1) sustainability, (2) security of supply and (3) competitiveness. Furthermore it is noted that *"The Government recognise that Ireland must reduce greenhouse gas emissions from the energy sector by at least 80% by 2050, compared to 1990 levels, while at the same time ensuring security of supply of competitive energy sources to our citizens and businesses."* The NPF notes that our transition to a low carbon energy future requires:

- A shift from predominantly fossil fuels to predominantly renewable energy sources
- Increasing efficiency and upgrades to appliances, buildings and systems
- Decisions around development and deployment of new technologies relating to areas such as wind, smartgrids, electric vehicles, buildings, ocean energy and bio energy
- Legal and regulatory frameworks to meet demands and challenges in transitioning to a low carbon society

National Policy Objective 55 of the NPF specifically relates to renewable energy, it states that it is an objective to:

> *"Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050".*

Section 10 of the NPF sets out a series of desired National Strategic Outcomes, underpinned by the national planning objectives set out in the NPF in combination with governance arrangements and aligned with capital investment. The transition towards a low carbon and climate resilient society is identified as one of the national strategic outcomes to guide the implementation of the NPF.

The NPF further emphasises that new energy systems and transmission grids will be necessary for a more distributed, more renewables focused energy generation system to harness the considerable on-shore and off-shore potential from energy sources such as wind, wave and solar and "connecting the richest sources of that energy to the major sources of demand". The NPF recognises that the development of on-shore and off-shore renewable energy is critically dependent on the development of enabling infrastructure including grid facilities to connect to major sources of energy demand.

In achieving this desired National Strategic Outcome of a transition to sustainable energy, the NPF re-emphasises the following national policy target of delivering "40% of our electricity needs from renewable sources by 2020 with a strategic aim of in excess of 50% by 2030 and more by 2040 and beyond using wind, wave, solar, biomass and hydro sources".

2.3.6.3 Draft Renewable Electricity Policy and Development Framework (DCCAE)

The Draft Renewable Electricity Policy and Development Framework has been formulated to ensure Ireland meets its future needs for renewable electricity in a sustainable manner compatible with environmental and cultural heritage, landscape and amenity considerations.

The Framework will contribute toward meeting Ireland's future energy needs, particularly up to 2030 and beyond, as informed by national and European policy, and be reviewed at five-yearly intervals. The Policy and Development Framework will be primarily for the guidance of An Bord Pleanála, planning authorities, other statutory authorities, the general public and persons seeking development consent in relation to large scale projects for the generation of renewable electricity on land. It will set out policy in respect of environmental considerations, community engagement and in relation to potential, future export of renewable electricity. It will seek to broadly identify suitable areas in the State, where large-scale renewable electricity projects can be developed in a sustainable manner. The existing system for planning permission applications to local authorities or An Bord Pleanála will remain unchanged in respect of renewable electricity projects. These will still require planning permission, including environmental impact assessment where appropriate. It is proposed that the Policy and Development Framework will be focused on providing for renewable electricity projects of large scale.

The most recent publicly circulated documentation in relation to the REPDF (July 2018) has indicated that the updated REPDF will have the following objectives:

- To maximise the sustainable use of renewable electricity resources in order to develop progressively more renewable electricity for the domestic and potentially, for future export markets.
- To assist in the achievement of targets for renewable energy, enhance security of supply and foster economic growth and employment opportunities. It will identify appropriate parts of the country for large renewable electricity projects and will assess the environmental impact of renewable electricity projects at various scales at a national level.
- To identify strategic areas on land for large scale renewable energy generation and this analysis will include a spatial component.
- In addition, the amended scope will include renewable electricity projects below this threshold (including wind and solar PV) at a national level.

The updated scope will also include an assessment of available grid capacity in relation to the location of large and medium-scale renewable electricity generation plants. This analysis will support the strategic planning and location decision making process for Data Centres in Ireland.

2.3.6.4 Regional Policy

2.3.6.4.1 *Regional Policy- Regional Spatial and Economic Strategy, Northern and Western Region 2020*

The Regional Spatial and Economic Strategy (RSES) came into effect in January 2020 to provide a high-level development framework for the Northern and Western Region that supports the implementation of the National Planning Framework (NPF) and the relevant economic policies and objectives of Government. It provides a 12-year strategy to deliver the transformational change that is necessary to achieve the objectives and vision of the Assembly.

A key issue for the strategy is how climate change will impact on land-use change and increasing demands on natural resources into the future. The strategy recognises that:

> *"There is marked evidence that Ireland's climate is changing with projections for Ireland indicating that there is a likelihood of a rise in sea levels, changes in rainfall events, increased frequency of storm events, changes to air and soil temperate and periods of increased drought."*

Furthermore it is also recognised that climate change commitments and EU targets mean that power generation, transport and heat increasingly have to be produced from sustainably produced electricity. As an EU member state, as well as a signatory to the UN Paris Agreement, Ireland has committed itself to a reduction of greenhouse gases along with a multitude of other sustainability-related measures. The strategy notes that how we produce our energy is going to play a major role in determining how successful the country is in tackling climate change targets, especially GHG emissions.

Section 4.5.2 of the RSES lists the strategy surrounding '*renewable energy and low carbon future*'. The section opens with the following statement:

> *"Energy is needed for economic growth, and access to affordable, reliable energy is an essential development objective. Historically most incremental energy demand has been met through fossil fuels, however in future that energy will have to be low-carbon and ultimately zero-carbon. Decarbonisation can and needs to happen and it is an objective of the NPF that Ireland becomes a Low Carbon Economy by 2050. This reflects the Government's 2014 National Policy Position on Climate Action and Low Carbon Development and is also a binding EU requirement."*

The RSES defines renewable energy as energy developed from sources that are constantly replenished through the cycles of nature and, unlike fossil fuels, are not finite. It is regarded as important that the region sets out its ambitions concerning renewable energy in this context and shows its ability to help contribute to achieving national targets. This will build on the present provision of renewable energy success from sources including hydropower and onshore wind energy infrastructure. The RSES considers the region to have a unique natural endowment of ample carbon-neutral, energy supplies that gives an opportunity of forging and leading the new clean economy of the future. To achieve the noted policies and targets the strategy noted that the following must be encouraged:

- Practices to reduce the production of CO_2
- Increase in our energy security
- Reduced cost of electrical power for domestic purposes, and regional development of value-adding of primary production
- Increased industry development of modern high-efficiency building materials
- Increased efficiency in the development of renewable energy production
- Improved efficiency of freight and passenger transport systems
- Greater protection of areas of high primary production value
- Greater protection of environmentally sensitive areas
- Increase cluster of R&D focused on technological application to renewable energy

The following regional policy objectives have been included under this section:

- **RPO 4.19:** The NWRA shall co-ordinate the identification of potential renewable energy sites of scale in collaboration with Local Authorities and other stakeholders within 3 years of the adoption of the RSES. The identification of such sites (which may extend to include energy storage solutions) will be based on numerous site selection criteria including environmental matters, and potential grid connections.
- **RPO 4.17**: To position the region to avail of the emerging global market in renewable energy by: [inter alia]
  - stimulating the development and deployment of the most advantageous renewable energy systems" ....

- **RPO 4.18**- Support the development of secure, reliable and safe supplies of renewable energy, to maximise their value, maintain the inward investment, support indigenous industry and create jobs.

Section 8.2 of the RSES notes the strategy surrounding the electricity grid network, again it is recognised that the West region is particularly rich in renewable energy resources. Within the region it is noted that the existing transmission network is predominantly lower capacity in this regard developing the grid will enable the transmission system to safely accommodate more diverse power flows from surplus regional generation and also to facilitate future growth in electricity demand. The following relevant regional policy objectives are listed:

- **RPO 8.1**- The Assembly support the development of a safe, secure and reliable electricity network, and the transition towards a low carbon economy centred on energy efficiency and the growth projects outlined and described in this strategy.
- **RPO 8.3**- The Assembly support the necessary integration of the transmission network requirements to allow linkages with renewable energy proposals at all levels to the electricity transmission grid in a sustainable and timely manner.
- **RPO 8.4**- That reinforcements and new electricity transmission infrastructure are put in place and their provision is supported, to ensure the energy needs of future population and economic expansion within designated growth areas and across the Region can be delivered in a sustainable and timely manner and that capacity is available at local and regional scale to meet future needs. Ensure that development minimises impacts on designated areas.

2.3.6.5 Local Policy

The site of the proposed development occurs along the Leitrim – Sligo border, with some of the proposed renewable energy infrastructure located in each of the two counties. In this regard two turbines and their associated works (incl. access roads, cabling and drainage etc.) are located in County Sligo and the remainder of the project works are located in County Leitrim.

As the proposed development will occur within the functional area of two local authorities it is necessary to submit two separate planning applications, one to each of the relevant authorities for that portion of the development which occurs in their functional area. In this regard please note that this EIAR assesses the entirety of the proposed development, and as such the same document is being submitted to each local authority so that they are aware of the full details of the project to allow each consenting authority to complete its own comprehensive EIA in relation to the project.

2.3.6.5.1 *Leitrim County Development Plan 2015-2021*

The Leitrim County Development Plan 2015-2021 (LCDP) is the principal instrument that is used to manage change in land use in the County. The CDP sets out the Council's strategic land use objectives and policies for the overall development of the County up to 2021. The Plan seeks to develop and improve, in a sustainable manner, the social, economic, cultural and environmental assets of the County.

At the time of writing Leitrim County Council have begun commencing the review of the existing Leitrim County Development Plan 2015-2021 and preparing the new Leitrim County Development Plan for the period 2022-2028. As of June 2020 Leitrim County Council were at the pre-draft stage.

Under the County Development Plan the following strategic goals have been set under Section 2.2.1 'Resources' with regards to energy/renewable energy:

- "To support energy generation from renewable resources where practicable and appropriate";

- "To ensure an adequate supply of energy, including renewable energy, is available to meet the social, commercial and economic needs of the entire County;"

The LCDP states that

> *"The Council recognises the potential of the County for generating electricity by means of windfarms and is favourably disposed towards their development subject to the protection of the environment and visual amenity"* (Page 198 LCDC refers)

Under Section 3.4 of the LCDP it is detailed that Leitrim County Council will support development and expansion of the County's Green Infrastructure.

Section 4.11.5 of the CDP notes the council's vision for wind farms within the county over the lifetime of the plan. The Council acknowledges the role which wind energy has, mainly in reducing the reliance on non-renewable sources of energy, reducing the dependency on imported fuels and in moving towards a 'low carbon' society.

In deciding on the suitability of an area to accommodate windfarm development, the Council will be guided by the Department of Environment, Heritage and Local Government Wind Energy Guidelines 2006 or any updated version of the Guidelines.

Environmentally sensitive areas have been identified in the Plan. These include:-

- The Natura 2000 network (cSAC's and SPA's)
- Special Areas of Protection
- Natural Heritage Areas
- Proposed Natural Heritage Areas
- Areas of Outstanding Natural Beauty
- Areas of High Visually Amenity
- Outstanding Views and Prospects
- Areas of Archaeological Importance including those recorded on the list of Protected Monuments
- Areas of Geological Importance including those established under the Irish Geological Heritage (IGH) Programme.

With regards to the above the following can be noted in relation to the current proposed development:

- In relation to the Natura 2000 network and potential for ecological impacts arising these have been fully assessed within the Natura Impact Statement (NIS)/Appropriate Assessment Screening Report (AASR) prepared in relation to the proposed development and the Biodiversity and Birds Chapter of this EIAR. The comprehensive documentation that has been prepared demonstrates beyond reasonable scientific doubt that, in view of best scientific knowledge and on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the proposed development, individually or in combination with other plans and projects, will not adversely affect the integrity of the sites.

- The potential impact of the proposed development on landscape is discussed further below, a comprehensive visual and landscape analysis is also presented in Chapter 12 of this EIAR.

- The proposed development site is neither in an 'Area of Outstanding Natural Beauty' or 'High Visual Amenity Area' as per the LCDP.

- In relation to archaeology and cultural heritage Chapter 13 of this EIAR (which provides a comprehensive analysis of Heritage and Cultural Heritage in the context of

the proposed development) notes that no recorded monuments, National Monuments, Record of Protected Structures, items identified in the National Inventory of Architectural Heritage (NIAH) or newly identified archaeological sites are located within or in the vicinity of the proposed development footprint.

In relation to natural heritage areas a comprehensive analysis is provided under Chapter 6 of this EIAR. Further to the above the following criteria which must be considered for the accommodation of wind farms has also been included within the LCDP:

- Ground conditions, including peat stability (Chapter 8 of this EIAR);
- Site drainage and hydrological effects, such as water supply and quality and watercourse crossings (Chapter 9 of this EIAR);
- Size, scale and layout and the degree to which the wind energy project is visible over certain areas (Chapter 12 of this EIAR);
- Potential impact of the project on natural heritage, to include direct and indirect effects on protected sites, on habitats of ecological sensitivity and biodiversity value and, where necessary, management plans to deal with the satisfactory co-existence of the wind energy development and the particular species/habitat identified (Chapter 13 of this EIAR);
- Assessment of all noise and shadow flicker etc (Chapters 11 and 5 of this EIAR);
- Potential impact on habitable dwellings. All habitable dwellings within 750m radius of all turbines should be plotted and shown (Chapter 5 of this EIAR);
- Potential impact of the project on the built heritage including archaeological heritage (Chapter 13 of this EIAR);
- Potential visual impact on the Landscape and Rural Character (Chapter 12 of this EIAR);
- Impact of ancillary development, such as connection to the electrical grid or access roads (Chapter 4 of this EIAR);
- Local environmental impacts including noise, shadow flicker, electromagnetic interference, etc; (Chapters 11, 5 and 4 of this EIAR)
- Adequacy of local access road network to facilitate construction of the project and transportation of large machinery and turbine parts to site (Chapter 14 of this EIAR);
- Information on any cumulative effects due to other projects, including effects on natural heritage and visual effects (Various chapter of this EIAR);
- Information on the location of quarries to be used or borrow pits proposed during the construction phase and associated remedial works thereafter (Chapter 4 of this EIAR);
- Disposal or elimination of waste/surplus material from construction/site clearance, particularly significant for peatland sites (Included in the Construction Environmental Management Plan and Chapter 14 of this EIAR);
- Decommissioning and site restoration, including details of the financial costs involved (Chapter 4); and
- Aircraft safety and navigation (Chapter 2 and Chapter 14 of this EIAR).

The above criteria have all been considered during the design period of the proposed development and comprehensive detail and analysis in relation to the above has been incorporated and presented throughout the relevant Sections of this EIAR. It should be noted in the context of the above that there is a 850 meter separation from dwellings. Furthermore the project documentation includes a detailed Construction and Environmental Management Plan (CEMP) which demonstrates how all construction activities will be carried out in an appropriate manner, and a comprehensive suite of mitigation measures that have been incorporated to minimise any impacts that could potentially arise.

The LCDC also states that if a development *"can clearly demonstrate to the satisfaction of the Planning Authority that it would not have a significant adverse impact on the amenities of a dwelling or a building occupied, or capable of being occupied by people, or would not compromise the integrity of an environmentally sensitive area"*, it will be deemed as 'Open to Consideration" to wind farm development. In this regard it should be noted that there is a separation distance of 850m from the

nearest dwelling. With the proposed mitigation measures put forward and as demonstrated within this EIAR there will be no adverse impact on the amenities of any residential amenity.

Policy 128 of the Leitrim County Development Plan states:

- It is the policy of the Council that all wind farm applications will be assessed on the full range of criteria including those mentioned herein and those identified in the Wind Farm Development Guidelines, 2006 (or any subsequent update) published by the Department of Environment, Heritage and Local Government.

Section 4.11.9 details the Council's plans with regards to renewable energy, the Council recognise that Ireland is legally obliged to ensure that by 2020, at least 16% of all energy consumed in the state is from renewable sources, in this regard the following policy has been listed:

- **Policy 135:**
  It is the policy of the Council to support national policy on reducing carbon emissions and increasing energy generation from renewable sources.

Section 4.8.7 of the Development Plan refers to landscape designations including Areas of Outstanding Natural Beauty (AONB) and Areas of High Visual Amenity (HVA). Outstanding views and prospects are also identified. These designations are shown on Map 4.12 of the Development Plan. Neither of these landscape designations apply to the proposed development site and those falling within the study area are outlined in detail and any potential impact assessed under Chapter 12 of the EIAR.

The proposed development site is neither in an AONB or an HVA, the closest AONB is A6 - O'Donnell's Rock and Boleybrack, 8.1 kilometres north-east. The closest HVA is B7 - Corry Mountain, 1.2 kilometres east of the proposed development site.

The two nearest 'Outstanding Views or Prospects' to the proposed development site are located 2.3 kilometres west (View 20: View from Gleaghnafarnagh from Local Road LT42533) and 2.2 kilometres northeast (View 19: View towards Bellhavel Lake from Local Road LT42461) of the site respectively. Neither view is directed towards the proposed wind farm site.

The 'Landscape Assessment of County Leitrim' was published by Leitrim County Council in 2002 and identifies 14 Landscape Character Areas (LCAs) within Co. Leitrim. The proposed development site is located within the Corry Mountain LCA, the key characteristics of which are described as follows:

- Extensive, mountainous uplands bordering Lough Allen.
- Rough grazing on moorland hills and plateau.
- Extensive areas of coniferous forestry.
- Sparsely populated. Small houses associated with outbuildings are evident across many of the lower, gentler farmed slopes.
- Impressive views from higher ground.
- Moorland plateau retains sense of isolation despite access roads and infrastructure.
- Field boundaries create strong patterns on lower hill slopes but show signs of dereliction in places.
- Distinctive upland valleys sheltering small farming communities.
- Semi-natural woodlands on steeper slopes and around farms.

Wind farms are listed as one of three Key Issues for Corry Mountain and one of the Principles for Landscape Management states that *"site new wind farms/ communication masts close to existing development on the plateau to minimise impact on more remote areas of upland".* The proposed development is located in a contiguous way to the existing wind turbines in the vicinity and it represents what is essentially the last potential wind farm site along this ridge. Furthermore, there are existing wind turbines in the landscape in the vicinity of the proposed development and accordingly the proposed development will not be introducing a new feature within the wider landscape.

In summary the County Development Plan acknowledges the importance of combating climate change and deriving more energy from renewable sources. As noted in the above it is an aim of Leitrim County Council to support energy generation from renewable resources as well as ensuring that there is an adequate supply of energy (including renewable energy). Leitrim County Council also recognise the potential of the County for generating electricity by means of wind farms and is 'favourably disposed towards their development subject to the protection of the environment and visual amenity'.. Furthermore, there is a range of policy in place which supports the development of renewable energy. The Biodiversity and Landscape sections of this EIAR demonstrate that the proposal will not give rise to significant impacts on natural heritage, landscape or visual amenity. The Noise and Shadow flicker assessments also show that the proposed development will not give rise to significant adverse impacts on residential amenity. Accordingly the proposed development is compliant with the relevant provisions of the Leitrim County Development Plan 2015-2021.

2.3.6.5.2 *Leitrim County Council Climate Adaptation Strategy 2019-2024*

The Leitrim County Council Climate Adaptation Strategy 2019-2024 (the adaptation strategy) forms part of the National Adaptation Framework (NAF) which was published in response to the provisions of the Climate Action and Low Carbon Development Act 2015. Within the foreword it is noted that 'climate change is now recognised as a global challenge with policy responses required in terms of both mitigating the causes of climate change and in adapting to the now inevitable consequences of our changing climate'.

The local authority adaptation strategy takes on the role as the primary instrument at local level to:

i. ensure a proper comprehension of the key risks and vulnerabilities of climate change
ii. bring forward the implementation of climate resilient actions in a planned and proactive manner
iii. ensure that climate adaptation considerations are mainstreamed into all plans and policies and integrated into all operations and functions of the local authority

The adaptation strategy noted that there is evidence that Ireland's climate is changing in line with global trends of climate change. Climate change has diverse and wide ranging impacts on Ireland's economic and natural resources including:

- More intense storms and rainfall events giving rise to disruption to society
- Increased river and coastal flooding
- Water shortages in summer
- Increased risk of new pests and diseases
- Adverse impacts on water quality
- Changes in the distribution and phenology of plant and animal species on land and in the oceans

With regards to climate adaptation the strategy describes it in this context as:

> *"planning proactively to take action and make adjustments to minimise or avoid the existing and anticipated impacts from climate change."*

It is a noted aim to build climate resilient communities, to protect people, ecosystems, businesses, infrastructure, and buildings from the negative impacts of climate change.

This Climate Change Adaptation Strategy is based around seven thematic areas that are developed further as high levels goals. These goals identify the desired outcomes anticipated through the effective implementation of the Climate Change Adaptation Strategy.

- **Theme 1: Local Adaptation Governance and Business Operations: Goal:**

Climate Change adaptation considerations are mainstreamed and integrated successfully into all functions and activities of the local authority, ensuring operational protocols, procedures and policies, implement an appropriate response in addressing the diversity of impacts associated with climate change.

- **Theme 2: Infrastructure and Built Environment:**
  Goal: Increased capacity for climate resilient structural infrastructure is centred around the effective management of climate risk, informed investment decisions and positive contribution towards a low carbon society.
- **Theme 3: Land-use and Development:**
  Goal: Sustainable policies and measures are devised influencing positive behavioural changes, supporting climate adaptation actions and endorsing approaches for successful transition to low carbon and climate resilient society.
- **Theme 4: Drainage and Flood Management:**
  Goal: Greater understanding of risks and consequences of flooding and successful management of a co-ordinated approach to drainage and flooding
- **Theme 5: Natural Resources and Cultural Infrastructure:**
  Goal: Fostering meaningful approaches to protecting natural and key cultural assets through an appreciation for the adaptive capacity of the natural environment to absorb the impacts of climate change.
- **Theme 6: Community Health and Wellbeing:**
  Goal: Empowered and cohesive communities with strong understanding of climate risks, increased resilience to impacts of climate change with capacity to champion climate action at local level.
- **Theme 7: Economic Development:**
  Goal: Promote projects and business opportunities that will contribute economically towards a climate resilient community in County Leitrim.

2.3.6.5.3 *Sligo County Development Plan 2017-2023*

The Sligo County Development Plan 2017 – 2023 (SCDP) was adopted in July 2017 and came into operation in August 2017. Section 10.6 of the SCDP examines climate change within the county, it is noted that:

> *"It is widely accepted that climate change is a reality which is happening on an ongoing basis"*

Further it is noted that the burning of fossil fuels for energy has contributed significantly to the build-up of greenhouse gases (GHGs) and the resulting increase in global warming. The SCDP acknowledges that energy efficiency and the use of renewable energy help to reduce GHG emissions and therefore play a key role in tackling climate change. The following policies are listed under the climate section:

- **P-CAM-1**
  "Support the implementation of the National Climate Change Adaptation Framework 2012, by including relevant measures in any forthcoming adaptation plans. Such plans shall be in accordance with national guidance issued by the DoECLG and EPA and undertaken in collaboration with the Northern and Western Regional Assembly, Mayo County Council, Roscommon County Council, Leitrim County Council and Donegal County Council."
- **P-CAM-4**
  "Raise public awareness and build local resilience in relation to climate adaptation."
- **P-CAM-4**
  "Facilitate and assist County Sligo's transition to a low-carbon economy and society."
- **P-CAM-5**
  Promote, support and implement measures that reduce man-made GHGs, including energy management, energy efficiency, compact development patterns, low-carbon buildings and sustainable transport
- **P-CAM-8**

"Promote and support the use of renewable energy in all sectors."

- **P-CAM-9**
  "Support community participation in, and benefit from, renewable energy and energy efficiency projects."

Chapter 11 indicates the Council's views surrounding energy within the county over the lifetime of the plan. It is recognised that the availability of suitable and adequate energy is of critical importance to social and economic development. Furthermore, being rich in renewable energy resources, County Sligo is well-placed to lay solid foundations for a sustainable energy future. Sligo County Council will promote and support the development and diversification of the local energy sector in accordance with EU, national and regional policy.

Section 11.1.2 notes the Council's considerations on wind energy, the plan acknowledges that Sligo's mountainous landscape and exposed location on the western seaboard combine to create good conditions for the generation of wind power. It is a challenge for the Council to achieve a reasonable balance between:

a) responding to government policy on renewable energy; and
b) enabling the wind energy resources of the County to be harnessed in an environmentally sustainable manner.

The policies of Sligo County Council in relation to wind energy include:

- **Policy SP-EN-1**: *"Support the sustainable development, upgrading and maintenance of energy generation, transmission, storage and distribution infrastructure, to ensure the security of energy supply and provide for future needs, as well as protection of the landscape, natural, archaeological and built heritage, and residential amenity and subject to compliance with the Habitats Directive."*
- **Policy SP-EN-2**: "*Facilitate the sustainable production of energy from renewable sources, energy conversion and capture in forms such as wind power, hydro-power, wave-generated energy, bioenergy, solar technology and the development of Waste to Energy/Combined Heat and Power schemes at appropriate locations and subject to compliance with the Habitats Directive. All such development proposals will be assessed for their potential impact on urban and rural communities, Natura 2000 sites, designated Sensitive Rural Landscapes, Visually Vulnerable Areas, Scenic Routes and scenic views, as well as in accordance with strict location, siting and design criteria."*
- **Policy SP-EN-6***: "Support the implementation of relevant programmes arising from the Government's Energy White Paper 'Ireland's Transition to a Low Carbon Energy Future 2015-2030' (or any successor document)."*
- **Policy SP-EN-7**: *"Protect significant landscapes from the visual intrusion of large-scale energy infrastructure."*

It is an objective of Sligo County Council to:

- **Objective SO-EN-2**: "Undertake an analysis of suitable areas for wind energy and prepare a map showing County Sligo's Landscape Suitability for Wind Energy Developments, in accordance with Section 3.5 of the Wind Energy Guidelines (2006) and any subsequent revisions."

The Development Plan will have regard to the DoEHLG's Wind Energy Development Guidelines (June 2006) and any revised guidelines, when considering wind energy applications. The Plan also states that *"In assessing proposals for wind farms, the Council will require detailed information to Environmental Impact Assessment (EIA) standards. Assessment in accordance with government guidelines will have regard to visual impact...noise, electro-magnetic interference, ecological impact, safety...and land use implications."*

Furthermore *"Proposals will generally be discouraged in or close to pNHA's, cSAC's, SPA's, designated Sensitive Rural Landscapes, Visually Vulnerable Areas, Scenic Routes, protected view, Zones of Archaeological Potential."*

The Sligo Development Plan includes a range of policies in relation to natural heritage as follows:

- **Policy P-DSNC-1 which is to:**
  "Protect and maintain the favourable conservation status and conservation value of all natural heritage sites designated or proposed for designation in accordance with European and national legislation and agreements. These include Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs), Ramsar Sites, Statutory Nature Reserves. In addition, the Council will identify, maintain and develop non-designated areas of high nature conservation value which serve as linkages or 'stepping stones' between protected sites in accordance with Article 10 of the Habitats Directive."
- **Policy P-DSNC-4:**
  "Consider development within, or with the potential to affect, Natural Heritage Areas or proposed Natural Heritage Areas, where it is shown that such development, activities or works will not have significant negative impacts on such sites or features, or in circumstances where impacts can be appropriately mitigated"
- **Policy P-DSNC-3 is also relevant, stating:**
  "Carry out an appropriate level of assessment for all development plans, land-use plans and projects that the Council authorises or proposes to undertake or adopt, to determine the potential for these plans or projects to impact on designated sites, proposed designated sites or associated ecological corridors and linkages in accordance with the Habitats Directive, All appropriate assessments shall be in compliance with the provisions of Part XAB of the Planning and Development Act 2000."

The application site is located to the north of Carrane Hill Bog Natura Heritage Area ('NHA'). The project team are aware of the proposed development's proximity to the NHA and have considered this in this EIAR, specifically at Chapter 5: Biodiversity, Flora and Fauna. Ultimately it is concluded that the NHA will not be impacted upon.

Section 7.4 of the Sligo County Development Plan 2017 – 2023 sets out the policies in regard to landscape character. The Landscape Characterisation Map classifies the county according to its visual sensitivity and capacity to absorb new development without compromising the scenic character of certain areas, and includes the following designations: Normal Rural Landscape, Sensitive Rural Landscape, Visually

Vulnerable Areas and Scenic Routes

The southwestern boundary of the proposed development site adjoins but is not within an area of Sensitive Rural Landscape for approximately 53 metres. These areas are defined in the Sligo County Development Plan as*:*

> *"areas that tend to be open in character, highly visible, with intrinsic scenic qualities and a low capacity to absorb new development – e.g. Knocknarea, the Dartry Mountains, the Ox Mountains, Aughris Head, Mullaghmore Head etc.".*

Part of the proposed development site and the two turbines within County Sligo are within an area of '*Normal Rural Landscape'*. However, for approximately 53 metres the southwestern boundary of the proposed development site adjoins but is not within an area of *'Sensitive Rural Landscape'*. The ridgeline along the peak of Carrane Hill is also marked as a Visually Vulnerable Area in the Landscape Characterisation Map. Proposals in these areas, which include coastlines, lakeshores, ridgelines and hill/mountain tops, must demonstrate that the development will not to impinge in any significant way on the integrity, distinctiveness and unique visual character of the area when viewed from the

surroundings, especially from designated Scenic Routes and the environs of archaeological and historical sites. This is dealt with in full under Chapter 12 and Chapter 14 of this EIAR.

The Carrane Hill Landscape Character Area includes the upland area surrounding Carrane Hill and its south-western slopes. There are extensive mountain moorland areas covering the summit. While it is apparent that Carrane Hill Bog has been subject to turf-cutting there are large areas of undisturbed moorland. Commercial conifer plantation is spread throughout this LCA, wind turbines are also an established feature at this location. Assessment of the LCAs included at Chapter 12 of this EIAR concludes that in the Carrane Hill LCA, the magnitude of change arising as a result of the proposals is slight, and the significance of the landscape character effect is moderate. The assessment further concludes that only Leitrim's LCA 11 Corry Mountain and the provisional LCA for Sligo LCA1 Carrane Hill, in which the proposed turbines are located, would experience direct effects on landscape character as a result of the proposed development. Any other effects on other LCAs would be indirect, as the proposed development might be visible within the LCAs but located outside those other LCAs.

The greatest landscape effects ("Significant") will be experienced in Co. Leitrim's *LCA 11 Corry Mountain*, where the majority of the turbines will be located. However, and as noted in Chapter 12 of this EIAR extensive tree cover will greatly contributes to screening the proposed turbines from a large part of this LCA and thus mitigating the landscape effects.

The Sligo County Development Plan acknowledges that energy efficiency and the use of renewable energy help to reduce GHG emissions and therefore play a key role in tackling climate change. As is clear within this section there is a vast range of supporting policies and objectives which demonstrate that the proposed development is acceptable in principle. The Biodiversity and Landscape sections of this EIAR demonstrate that the proposal will not give rise to significant adverse impacts on natural heritage, landscape or visual amenity. The Noise and Shadow flicker assessments also show that the proposed development will not give rise to significant adverse impacts on residential amenity. Accordingly the proposed development is compliant with the relevant provisions of the Sligo County Development Plan 2017-2023.

2.3.6.5.4 *Sligo County Council Draft Climate Adaptation Strategy 2019-2024*

Sligo County Council recognises the risks associated with the increased frequency of climate change related events such as flooding, wind & rain storms and extended periods of warm or cold weather. The Adaptation Strategy sets out the strategic priorities, measures and responses for adaptation in County Sligo over the next five years; as required by the Climate Action and Low Carbon Development Act 2015.

The strategy notes that Ireland's climate is changing in line with global patterns. The following observed changes are listed:

- Temperatures are rising across all seasons.
- The timing and spatial distributions of precipitation is changing.
- Sea levels are rising.
- The frequency and intensity of extreme weather events are changing.

The strategy further notes that these changes are expected to continue and intensify into the future with a wide range of economic, environmental and social impacts. For Ireland, the key long-term climate change trends are:

- Temperatures are increasing and are expected to continue to increase everywhere and across all seasons.
- When compared with temperature, projections of precipitation are less certain. However, significant reductions in levels of average precipitation are expected in Summer and Autumn while projections indicate the increased occurrence of extreme precipitation events, particularly during winter.

- Projections show little change in average wind speed and direction. However the frequency of extreme wind conditions are expected to increase, particularly during winter.
- Sea levels will continue to increase by up to 0.81m by 2100.

The strategy notes that While working to reduce GHG emissions the County must also prepare for the unavoidable impacts of climate change. The overall mission of Sligo County Council as is set out in the Corporate Plan, is

> *"to improve the quality of life for people living in Sligo and enhance the attractiveness of the County as a place to live in, work, enjoy and invest"*

The preparation of this Climate Adaptation Strategy is noted as the start of process to deliver a wide range of actions and measures to adapt County Sligo to the impacts of climate change. Sligo's adaption journey is a flexible process and subject to regular reviews in terms of the appropriateness of projects, policies and programmes, as well as climate projections. The following is noted under the strategy:

> *"To ensure the integration of climate adaptation actions listed in this strategy, it is imperative that all strategic documents including the County Development Plan, Corporate Plan, Local Economic Community Plan, Operational Policies and Procedures be reviewed."*

2.3.7 Other Relevant Guidelines

2.3.7.1 DoHPCLG Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change 2017

In July 2017, the Department of Housing, Planning, Community and Local Government (DoHPCLG) published 'Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change' under Section 28 of the Planning and Development Act 2000. Planning authorities are obliged to have regard to guidelines issued pursuant to Section 28 in the performance of their functions under the Planning and Development Act 2000 (as amended).

The guidelines state that it is a specific planning policy requirement under Section 28(1C) of the Act, that in making a development plan with policies or objectives that relate to wind energy developments that a Planning Authority must:

1. *"Ensure that overall national policy on renewable energy as contained in documents such as the Government's 'White Paper on Energy Policy - Ireland's Transition to a Low Carbon Future', as well as the 'National Renewable Energy Action Plan', the 'Strategy for Renewable Energy' and the 'National Mitigation Plan', is acknowledged and documented in the relevant development plan or local area plan;*
2. *Indicate how the implementation of the relevant development plan or local area plan over its effective period will contribute to realising overall national targets on renewable energy and climate change mitigation, and in particular wind energy production and the potential wind energy resource (in megawatts); and*
3. *Demonstrate detailed compliance with item number (2) above in any proposal by them to introduce or vary a mandatory setback distance or distances for wind turbines from specified land uses or classes of land use into their development plan or local area plan. Such a proposal shall be subject to environmental assessment requirements, for example under the SEA and Habitats Directives. It shall also be a material consideration in SEA, when taking into account likely significant effects on climatic factors, in addition to other factors such as landscape and air, if a mandatory setback or variation to a mandatory setback proposed by a planning authority in a development plan or local area plan would create a significant limitation or constraint on renewable energy projects, including wind turbines, within the administrative area of the plan."*

2.3.7.2 DoEHLG Wind Energy Guidelines 2006

In June 2006, the then Department of Environment, Heritage and Local Government (DoEHLG) published 'Wind Energy Development Guidelines for Planning Authorities' (the Guidelines) under Section 28 of the Planning and Development Act, 2000. The aim of these guidelines was to assist the proper planning of wind power projects in appropriate locations around Ireland. The Guidelines highlight general considerations in the assessment of all planning applications for wind energy. They set out advice to planning authorities on planning for wind energy through the development plan process and in determining applications for planning permission. They contain guidelines to ensure consistency of approach throughout the country in the identification of suitable locations for wind energy development.

Each wind project has its own characteristics and defining features, and it is therefore impossible to write specifications for universal use. Guidelines should be applied practically and do not replace existing national energy, environmental and planning policy. The Department of the Environment, Community and Local Government published proposed revisions to the guidelines in December 2013 as part of a targeted review relating to Noise, Proximity and Shadow Flicker for discussion. The Department is continuing this review, and the draft updated Guidelines have now been published and are discussed in more detail below.

2.3.7.2.1 *Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change 2017*

In July 2017, the Department of Housing, Planning, Community and Local Government (DoHPCLG) published '*Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change'* under Section 28 of the Planning and Development Act 2000. Planning Authorities are obliged to have regard to guidelines issued pursuant to Section 28 in the performance of their functions under the Planning and Development Act 2000 (as amended).

The guidelines state that it is a specific planning policy requirement under Section 28(1C) of the Act, that in making a development plan with policies or objectives that relate to wind energy developments that a Planning Authority must:

1. "Ensure that overall national policy on renewable energy as contained in documents such as the Government's 'White Paper on Energy Policy - Ireland's Transition to a Low Carbon Future', as well as the 'National Renewable Energy Action Plan', the 'Strategy for Renewable Energy' and the 'National Mitigation Plan', is acknowledged and documented in the relevant development plan or local area plan;
2. Indicate how the implementation of the relevant development plan or local area plan over its effective period will contribute to realising overall national targets on renewable energy and climate change mitigation, and in particular wind energy production and the potential wind energy resource (in megawatts); and
3. Demonstrate detailed compliance with item number (2) above in any proposal by them to introduce or vary a mandatory setback distance or distances for wind turbines from specified land uses or classes of land use into their development plan or local area plan. Such a proposal shall be subject to environmental assessment requirements, for example under the SEA and Habitats Directives. It shall also be a material consideration in SEA, when taking into account likely significant effects on climatic factors, in addition to other factors such as landscape and air, if a mandatory setback or variation to a mandatory setback proposed by a planning authority in a development plan or local area plan would create a significant limitation or constraint on renewable energy projects, including wind turbines, within the administrative area of the plan."

2.3.7.3 Department Circular PL5/2017

On the 3rd of August 2017, the Department of Housing, Planning and Local Government issued Circular PL5/2017 to provide an update on the review of the wind energy and renewable policies in development plans, and the advice contained within a previous Departmental Circular PL20-13. Circular PL20-13 advised that local authorities should defer amending their existing Development Plan policies in relation to wind energy and renewable energy generally as part of either the normal cyclical six-yearly review or plan variation processes and should instead operate their existing development plan policies and objectives until the completion of a focused review of the Wind Energy Development Guidelines 2006. The new circular (PL05/2017) reconfirms that this continues to be the advice of the Department.

The Department circular also sets out the four key aspects of the preferred draft approach being developed to address the key aspects of the review of the 2006 Wind Energy guidelines as follows:

- The application of a more stringent noise limit, consistent with World Health Organisation noise standards, in tandem with a new robust noise monitoring regime, to ensure compliance with noise standards;
- A visual amenity setback of 4 times the turbine height between a wind turbine and the nearest residential property, subject to a mandatory minimum distance of 500 metres between a wind turbine and the nearest residential property;
- The elimination of shadow flicker; and
- The introduction of new obligations in relation to engagement with local communities by wind farm developers along with the provision of community benefit measures.

The release of Circular Letter PL05/2017 and the Interim Guidelines coincide with the publication of Irelands first statutory National Mitigation Plan (previously discussed above).

2.3.7.4 Draft Revised Wind Energy Guidelines December 2019

The Department of Housing, Planning and Local Government published the Draft Wind Energy Guidelines (referred to as the Draft Revised Guidelines) in December 2019. The draft Guidelines were open to public submissions up until the 19th of February 2020. These submissions are now being considered by the Department. At time of writing the guidelines in place remain the 2006 guidelines pending the Department publishing a final version of any revised guidance.

The Draft Revised Guidelines clearly sets out the recognition that the proper planning and sustainable development of areas and regions must be taken into account when local authorities prepare their development plans and assess planning applications, irrespective of the significant role renewable energy has to play in tackling climate change.

The Draft Revised Guidelines note that potential impacts of wind energy development proposals on the landscape, including the natural and built environment, must be considered along with the legitimate concerns of local communities. With this in mind, and in line with the previously stated “preferred draft approach”, the 2019 Draft Guidelines primarily focus on addressing a number of key aspects including, but not limited to:

- Acceptable noise thresholds and monitoring frameworks;
- Visual amenity setback;
- Control of shadow flicker;
- Compliance with Community consultation and dividend requirements, as included within the obligatory Community Report; and
- Consideration of the siting, route and design of the proposed grid connection as part of the whole project.

The design of the proposed project has taken account of the *"preferred draft approach"* as articulated by the Department in June 2017, and accordingly, has been developed with the provisions of the Draft 2019? guidelines in mind(for example in relation to set back from dwellings and layout).

The submission period for the Draft Revised Guidelines closed in February 2020. Under the consultation it was evident that a number of submissions made appeared to have observations surrounding similar points, these include but are not limited to themes such as noise, visual amenity set back and shadow flicker. With regards to noise a number of the received submissions noted that the provisions put forward in the Draft Revised Guidelines were unworkable, as such it was considered that should the noise measures be implemented there is the potential for an on-going impact on the development onshore wind energy in the future. In relation to set back distances there was strong criticism with regards to this distance being measured to the curtilage of a property, it was strongly considered that this measurement was ambiguous and difficult to implement. The measurement of a set back distance to the curtilage of a property was also deemed to be ambiguous. Furthermore questions were raised surrounding the strict measures which have been put in place surrounding shadow flicker, the Draft Revised Guidelines put forward the provision that 'there will be no shadow flicker at any existing nearby dwelling or other relevant existing affected sensitive property'. While the overall provision is possible a number of clarification where sought to ensure that this provision could be implemented in a reasonable manner.

At time of writing the Draft Guidelines are not yet in force, and the relevant guidelines remain those published in 2006. Notwithstanding this, however, due to the timelines associated with the planning process for renewable energy projects it is possible that a version of the draft guidelines may be finalised during the consideration period for the current proposed development. Towards this end it is anticipated that the Project will be capable of adhering to the relevant noise and shadow flicker standards, and furthermore detailed community consultations have been carried out.

2.3.7.5 IWEA Best Practice Guidelines for the Irish Wind Energy Industry 2012

The Irish Wind Energy Association (IWEA) published updated Wind Energy Best Practice Guidelines for the Irish Wind Industry in 2012. The guidelines aim to encourage and define best practice development in the wind energy industry, acting as a reference document and guide to the main issues relating to wind energy developments. The purpose of the guidelines is to encourage responsible and sensitive wind farm development, which takes into consideration the concerns of local communities, planners, and other interested groups. The guidelines outline the main aspects of wind energy development with emphasis on responsible and sustainable design and environmental practices, on aspects of development which affect external stakeholders, and on good community engagement practices. In approaching the development of IWEA's guidelines the aim was to be complementary to the Department of the Environment Heritage and Local Government's 'Wind Energy Development Guidelines' (2006).

2.3.7.6 IWEA Best Practice Principles in Community Engagement and Community Commitment 2013

Following on from the IWEA published Best Practice Guidelines in March 2012, the Association extended its guidance with the publication of this Best Practice in Community Engagement and Commitment. IWEA and its members support the provision of financial contributions by wind farm operators to local communities and have sought to formulate best practice principles for the provision of a community commitment. The document sets out IWEA's best practice principles for delivering extended benefits to local communities for wind farm developments of 5 Megawatts (MW) or above. Best Practice Principles of community engagement when planning the engagement strategy and preparing associated literature are also outlined in the document. The aim of these guidelines is to ensure that the views of local communities are taken into account at all stages of a development and that local communities can share in the benefits.

Further details on the community engagement that has been undertaken as part of the proposed development are presented in Section 2.6.1 below.

2.3.7.7 DCCAE Code of Practice for Wind Energy Development Ireland- Guidelines for Community Engagement 2016

In December 2016, the Department of Communications, Climate Action and Environment (DCCAE) issued a Code of Practice for wind energy development in relation to community engagement. The Code of Good Practice is intended to ensure that wind energy development in Ireland is undertaken in adherence with the best industry practices, and with the full engagement of local communities. Community engagement is required through the different stages of a project, from the initial scoping, feasibility and concept stages, right through construction to the operational phase. The methods of engagement should reflect the nature of the project and the potential level of impact that it could have on a community. The guidelines advise that ignoring or poorly managing community concerns can have long-term negative impacts on a community's economic, environmental or social situation. Not involving communities in the project development process has the potential to impose costly time and financial delays for projects or prevent the realisation of projects in their entirety.

2.3.7.8 Renewable Energy Support Scheme (RESS)

The Climate Action Plan, published in June 2019, is the Government's plan to give Irish people a cleaner, safer and more sustainable future. The Plan sets out actions across every sector which will ensure we meet our future climate commitments. A key part of the Plan is a move to 70% renewable electricity by 2030, a measure which will be driven by the introduction of the Renewable Electricity Support Scheme ('RESS').

The RESS is an auction-based scheme which invites renewable electricity projects to bid for capacity and receive a guaranteed price for the electricity they generate and replaces the previous "Gate" scheme of securing grid connection offers. The Terms and Conditions for the first competition (RESS 1:2020) were published in February 2020 and will provide support to renewable electricity projects in Ireland. The RESS will deliver, amongst other policy objectives:

> *"An ambitious renewable electricity policy to 2030 increasing energy security, energy sustainability and ensuring the cost effectiveness of energy policy"*

The Scheme will provide for a renewable electricity (RES-E) ambition of up to 70% by 2030, subject to determining the cost-effective level which will be set out in the draft National Energy and Climate Plan (NECP). The first RESS-1 auction will take place within the timelines set out in the Climate Action Plan. All projects looking for support under the new RESS will need to meet pre-qualification criteria and qualified applicants that submit eligible Offers will compete against each other on the basis of three Preference Categories, namely: (i) the Community Preference Category; (ii) the Solar Preference Category; and (iii) the All Projects Preference Category. As noted in Section 2.2.3.8 'Terms and Conditions for Participation in the First Auction Under the Renewable Electricity Support Scheme the first auction is expected to deliver up to an increase of 3,000GWh in renewable electricity generation by the end of 2022.

2.3.7.9 Forest Service Guidelines

The Forest Service is responsible for ensuring the development of Forestry within Ireland in a manner and to a scale that maximises its contribution to national socio-economic well-being on a sustainable basis that is compatible with the protection of the environment. The forestry works (felling/planting) associated with the proposed development will be carried out under the relevant licence and guidance from the Forest Service. All proposed forestry developments where the area involved is greater than 0.1 hectare must receive the prior written approval of the Forest Service.

2.4 Site of the Proposed Development

2.4.1 Site Location

The proposed development site is located in an upland area on the north-eastern slopes of Carrane Hill on the boundary of Counties Leitrim and Sligo. The core of the site is located approximately 5 kilometres west of Drumkeeran and approximately 7.5 kilometres southeast of Dromahair. The Grid Reference coordinates for the approximate centre of the site are E 584840 N 823450.

2.4.2 Access

The site is accessed via a number of local roads and Coillte forestry roads, including the L4282 local road from the east and the L8281 from the north. These local roads adjoin the R280 Regional Road which travels through Drumkeeran, east of the site. To provide access within the site and to deliver the turbines and associated infrastructure, existing tracks will need to be upgraded and new access roads will require to be constructed.

2.4.3 Physical Characteristics of the Study Area and Surrounding Lands

The site covers an area of approximately 604hectares, and ranges in elevation from approximately 200 metres above ordnance datum (mOD) to 325 m OD and is located within both counties Leitrim and Sligo. The peak of Carran Hill is located approximately 1.7 kilometres southwest of the site, at 458 m OD.

The proposed development site lies within the northwest part of the Lough Allen Upland, which typically comprises plateaux and ridges with steep sides separated by valleys. The site is covered in blanket peat with undulating terrain. Peat depths vary across the site depending mainly on topography.

The site lies on the watershed divide between the Arigna River to the southeast and the Bonet River to the northwest. Lough Nacroagh is located within the site boundary. The Arigna River rises on the site and flows to the southeast. A number of streams drain the northern portion of the site. Beyond the site, the streams pass across drumlinised terrain and enter the Bonet River some 5 kilometres to the northwest of the site. The Bonet River flows into Lough Gill.

The proposed development site is used for commercial forestry, with widespread young to mature forestry coverage. Wind energy is also a significant land-use in the vicinity, and includes the operating Garvagh Glebe, Black Banks, Carran Hill and Geevagh wind farms. The Garvagh Glebe wind farm is located adjacent to the boundary of the proposed development site. In addition to forestry and wind energy, other land-uses in the surrounding area include agriculture, peat-cutting and low-density residential. Grid infrastructure in the area includes the 110kV overhead line between the Garvagh and Corderry 110 kV substations.

2.5 Planning History

This section of the EIAR sets out the planning history of the study area and other wind farm sites within the wider area. It also describes other infrastructure projects which are existing or proposed within the wider area.

2.5.1 Planning History in Vicinity of the Application Site

A review of the Planning Registers for both Leitrim (LCC), Roscommon (RCC) and Sligo (SCC) County Council's shows that there has been a number of renewable energy and energy infrastructure planning applications within the vicinity of the application site.

Table 2-1 below sets out the planning applications identified in relation to wind energy (and associated works) within approximately 5 kilometres of the proposed development site:

Table 2-1 Applications Within 5km of the Proposed Wind Farm

Planning Ref:	Name/Location	Description	Status
LCC 95/12501	Spion Kop, Co. Leitrim	2 x 600 kW wind turbines 40 meters in height with blade diameter of 40 meters, and all associated works	Grant 13/06/1996
LCC 96/12794	Corry Mountain, Co. Leitrim	Erect 8 wind turbines 42 metres high to the Nacelle with rotor blades of 42 metres making a total height of 63 metres at Seltannasaggart Townland and Liscuillew Upper Townland, Co Leitrim	Grant 25/10/1996
LCC 97/13602	Boleymaguire and Seltan Tds, Co. Leitrim	Erect 12 Wind Turbines with towers of a height not exceeding 50 metres and rotor diameter not exceeding 48 metres with control building and ancillary equipment at Boleymaguire and Seltan Townlands, Co. Leitrim	Grant 27/01/1999
SCC 98/533	Carrane Hill, Co. Sligo	Extension of Duration application - erection of 4 no. wind turbines with towers not exceeding 46 metres in height and rotor diameter not exceeding 54.25 metres with control building and ancillary equipment for generation of electricity.	Refused SCC 11/02/1999; Granted by ABP Ref: 21.110572 07/10/1999
SCC 98/861	Geevagh, Co. Sligo	Extension of Duration application – erection of 6 no. wind turbines, 45-50m in height with rotor diameter not exceeding 55m and a wind measuring mast, height not exceeding 50m, site roads, notice boards, control building, ancillary equipment etc	Grant 24/02/2000
LCC 98/14248	Seltannasaggart, (Corry Mountain), Co Leitrim	Erection of 2 No. Monitoring Wind Masts close to an existing turbine each to a maximum height of 54.75 metres.	Grant 28/07/1999
LCC 00/7	Moneenatieve, Co. Leitrim	Extend existing windfarm by installing 6 wind turbines, 1 substation, 1 - 40 metre monitoring mast and associated equipment on Moneenatieve Td, Co Leitrim .	Grant by LCC which was upheld by An Bord

Planning Ref:	Name/Location	Description	Status
			Pleanála on the 28/11/2000
RCC 00/1979	Altagowlan, Arigna, Carrick-On-Shannon, Co. Roscommon	To extend an existing windfarm by installing 9 wind turbines, 1 sub-station, 1 - 45 metre monitoring mast and associated equipment	Grant 21/09/2001
RCC 02/1374	S.H.H., Convent, Co. Roscommon.	The development of one wind turbine, a site entrance and a site access road	Grant 23/04/2003
RCC 03/1486	Tullynahaw Arigna, Co. Roscommon	For a wind energy project comprising 11 wind turbines and all associated works.	Grant, 14/06/2004
LCC 03/257	Garvagh Glebe, Co. Leitrim	The development of a Wind Energy Project comprising thirteen wind turbines, and all associated works.	Grant 11/08/2003
RCC 03/1486	Tullynahaw Arigna, Co. Roscommon	For a wind energy project comprising 11 wind turbines and all associated works.	Grant, 14/06/2004
SCC 04/1315	Carrane Hill, Co. Sligo	Retention and completion of all works (670 metres of road) under Pl.Ref.98/533 and permission for the erection of 4 wind turbines and ancillary equipment for the generation of electricity	Granted by SCC 23/06/2005
SCC 06/136	Carrane Hill, Co. Sligo	Erection of 2 wind turbines with towers 44 metres in height and rotor diameter of 52 metres and ancillary equipment for the generation of electricity (being an extension to the wind farm referred to in planning ref no. 04/1315.	Grant 22/05/2006
LCC 07/498	Seltan, Co Leitrim	Erect a 70m anemometer mast for the measurement of wind speed and directions for the lifetime of the wind farm already permitted	Grant 27/07/2007
RCC 08/430	Seltannaveeney, Co. Roscommon	To erect 1 no. wind turbine generator; with onsite underground electrical cabling and ancillary works	Grant 19/01/2009
RCC 08/466	Seltannaveeny, Co. Roscommon	To construct 1 no. electricity sub-station; with onsite underground electrical cabling and ancillary works.	Grant 26/11/2008
LCC 08/602	Garvagh Glebe, Co. Leitrim	Extension of Duration (for Pl.Ref.03/257) application - wind energy project of 13no. wind turbines.	Granted 25/07/2008

Planning Ref:	Name/Location	Description	Status
LCC 09/76	Seltan, Arigna, Co. Leitrim	Alter Garvagh Gleve 110kV/MV Substation (Planning Ref. PL12.VA0001) to include a sewage treatment system and raised percolation area	Grant 19/05/2009
LCC 09/378	Boleymaguire, Arigna, Co. Leitrim	Alter Garvagh Glebe Wind Farm (Planning Ref. No. 03/257) to install a 67 metre high guyed lattice anemometer mast in substitution for a previously approved 50 metre high guyed pole anemometer mast	Grant 03/12/2009
RCC 09/451	Tullynahaw, Arigna, Carrick-On-Shan, Co. Roscommon	The development will consist of alteration to Tullynahaw Wind Farm (Planning Ref . PD/03/1486) to install a 67 metre high guyed lattice anemometer mast in substitution for a previously approved 50 metre high guyed pole anemometer mast	Grant 23/10/2009
LCC 15/35	Garvagh Glebe, Garvagh, Co. Leitrim	Construction of an extension to the existing Garvagh Glebe 110kV substation, comprising of the construction of a 110kV grid connection substation compound with switchgear housing, equipment plinths, bunds and fencing, oil interceptor and associated site development works	Grant 14/01/2016
LCC 18/45	Seltan and Boleymaguire, Co. Leitrm	The installation of approximately 0.46km of underground cable ducting, 1 no. joint bay and ancillary development laid primarily within the public road corridor, with a section of circa. 0.07km within private lands at Seltan.	Refused 05/08/2018; Granted by ABP (Ref: 301812-18) 18/06/2018
LCC 19/230	Spion Kop, Co. Leitrim	(a) decommissioning and removal from site of 2 no. existing wind turbines and associated ancillary infrastructure (95/12501); and (b) the erection of 1 no. wind turbine with an overall tip height of up to 125 metres and all associated site development/works.	Granted 19/06/2020
ABP PL21 .300811	Counties Leitrim, Roscommon and Sligo	Substitute Consent Application for installed portion of grid connection from consented Derrysallagh Windfarm Substation to Garvagh Glebe Substation, through townlands of Seltan, Boleymaguire, Leitrim, Gubbaruddda (Roscommon), Carrowcashel, Tulllynure, Straduff, Glen, and Ballynashee, Co. Sligo.	ABP Granted Permission 05/02/2019

Table 2-2 below lists planning applications relating to wind energy developments which are located outside of the approximate 5km distance surrounding the proposed site. The below table captures applications between a 5-20km distance of the proposed development:

Table 2-2 Applications Within a 5-20km radius of the Proposed Wind Farm

Planning Ref:	Name/Location	Description	Status
RCC 94/582	Largan, Co. Roscommon	Erect 10 wind turbines, substation, roads, car park and meteorological mast	Grant by RCC 06/03/1994
RCC 02/1094	Seltenaveeny, Co. Roscommon	Development to consist of two wind turbines, electrical sub-station, site entrance and access roads	Grant, 28/01/2003
LCC 03/301	Lackagh, Killarga, Leitrim	Construct a windfarm consisting of 25 wind turbines of 60m hub height with associated transformers and associated works. This application is accompanied by an Environmental Impact Statement (EIS).	Grant by LCC, Refused by ABP 02/06/2004.
LCC 03/331	Tullynamoyle, Killarga, Co Leitrim	Develop an electricity generating windfarm consisting of twelve (12) wind turbines	Granted by LCC, Refused by ABP on the 02/06/2004
LCC 05/691	Tullynamoyle, Co. Leitrim	Erect an electricity generating windfarm consisting of six (6) wind and site works	Grant by LCC, upheld by ABP on the 14/05/2008
LCC 10/152	Carrickheeney, Co. Leitrim	Windfarm comprising 4 wind turbines, 20Kv substation building.	Refused LCC; 24/10/2011; ABP Grant (PL12.239133) 24/10/2011
SCC 12/133	Derrysallagh, Co. Sligo.	A 10 year permission for construction of a wind farm consisting of 12 wind turbines, a sub-station including a control building and associated equipment, new internal access roads, and the upgrading of an existing road.	Grant 26/04/2013
LCC 13/52	Tullynamovle Extension 1, Co. Leitrim	Ten year planning permission for an extension to an existing wind farm development permitted under planning reference 05/691. The development will consist of six (6) electricity generating wind turbines and all site works.	Grant 12/08/2013
LCC 15/93	Tullynamoyle Td, Killaraga, Co. Leitrim	Development at existing wind farm for the erection of 2 turbines previously granted permission under Leitrim County Council	Grant 31/08/2015

Planning Ref:	Name/Location	Description	Status
		Planning Ref. 05/691 and An Bord Pleanála Ref: PL 12.218384, as part of a 6 turbine wind farm (4 turbines already commissioned) and upgrade of an existing forest track.	
LCC 15/164	Tullynamovle Extension 2, Co. Leitrim	Development consisting of twelve (12) electricity generating wind turbines (4 operational, 6 under construction and two permitted). The overall development will consist of 15 turbines	Grant 01/02/2016
SCC 17/93	Tawnaghmore, Co. Sligo	A ten year permission for erection of four wind turbines and associated works.	Grant 03/06/2017
LCC 19/26	Tullynamoyle, Killarga, Co. Leitrim	A thirty year planning permission for an additional four (4) wind turbines to an existing fifteen (15) turbine windfarm.	Grant 18/05/2020
LCC 20/20	Corderry, Co. Leitrim	Installation of battery arrays located within container units (16 no.), control building, transformer and new site entrance.	Ongoing

The existing and permitted wind energy developments located within 20km of the Croagh Wind Farm site are shown in Figure 2-1.

A range of other (non-renewable energy related) planning applications exist within 2km of the proposed wind farm development site and in the vicinity of the access road works. Many of the noted applications relate to agricultural developments and/or signal residential developments. Table 2-3 below lists the planning applications identified within the vicinity of the development site are provided in Table 2-3 below:

Table 2-3 Other Applications in the Vicinity of the Proposed Wind Farm

Planning Ref:	Description	Status
LCC 01/699	Renovate and extend existing public bar and private living accommodation, demolish existing storage area to rear and replace with natural stone boundary wall connect to mains sewer including all ancillary works	Grant 30/11/2001
LCC 01/760	Provide septic tank and percolation area.	Grant 07/01/2002
LCC 01/795	Erect single storey extension to existing dwelling house and connect to mains sewer at No. 6a, Sheena Td., Drumkeeran	Grant 14/01/2002
LCC 01/1001	Erect a house on site at Sheena Td., Drumkeeran.	Grant 15/10/2002

Map Legend

- Corrie Mountain Turbines - Existing
- Spion Kop Turbines - Existing
- Garvagh Tullyhaw Turbines - Existing
- Atlagowlan Turbines - Existing
- Faughary Turbines - Existing
- Carrickheeney Turbines - Existing
- Monaneenatieve Turbines - Existing
- BlackBanks Turbines - Existing
- Kilronan Turbines - Existing
- Caranne Hill Turbine - Existing
- Geevaghs Turbine - Existing
- Derrysallagh Turbines - Existing
- Tullynamoyle Turbines - Existing
- Seltannaveeny Turbines - Existing
- Garvagh Glebe Turbines - Existing
- Tullynamoyle Ext. Turbines - Permitted
- Croagh Turbines - Proposed
- Distance from Proposed Croagh Wind Turbines
- County Boundary

Fermanagh
Leitrim
Sligo
Cavan
Roscommon
5 km
10 km
20 km
N
W
E
S

MAP TITLE: **Other Wind Farms**		MAP NO.: **Figure 2.1**	SCALE: **1:150,000**
PROJECT TITLE: **180511 - Croagh Wind Farm**			DATE: **05-06-2019**
DRAWING BY: **Lorraine Meehan**	CHECKED BY: **Michael Watson**		ISSUE NO.: **180511-2020.06.05-F**

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Planning Ref:	Description	Status
02/951	Change of use from a holiday house to a dwelling house	Grant 15/07/2002
02/976	Erect a bungalow type dwelling, septic tank, percolation area, provide new site entrance, connection to existing group water scheme and associated site works.	Grant 15/10/2002
LCC 04/484	Elevational alterations including alterations to site boundaries to previously granted development under Planning Reference P00/01243 to erect 4 no. two storey semi detached dwellinghouses , connect to mains sewer, provide new site entrances including all ancillary works	Grant 14/07/2004
LCC 04/979	(1) construct 2 storey residential group home, consisting of 20 No. single bedroom apartments, 1 No. caretakers apartment, kitchen with dining hall and daycare facilities (total floor area 1528.7sq.m) (2)connect to public utilities (3) to carry out all ancillary site works	Grant 07/04/2005
LCC 04/1912	(1) construct 6 no. 3 bed townhouses, connect to public utilities and carry out ancillary works	Grant 14/12/2005
LCC 04/207	Erect 1 one and a half storey dwelling house, domestic garage, mechanical effluent treatment unit and percolation area to E.P.A Guidelines 2000, provide new site and access road.	Grant 27/05/2004
LCC 04/431	Erect dwelling house, domestic garage, proprietary effluent treatment system and constructed wetland	Grant 06/10/2004
LCC 05/175	Convert part of existing bedroom to bathroom and install treatment unit and polishing filter	Grant 06/07/2005
LCC 05/765	Erect one number single storey dwelling, proprietary effluent treatment system, entrance piers, gates, new site access and all associated ancillary works	Grant 21/08/2006
LCC 06/787	Erect one no. single storey type dwelling, garage, proprietary sewerage treatment system, entrance piers, new site access and all associated ancillary works	Grant 19/09/2006
LCC 06/798	Construct a dwelling house with sewage treatment system and percolation area and all associated site works	Grant 19/09/2006
LCC 06/827	Construct a proprietary sewerage treatment system and all associated ancillary works	Grant 11/08/2006

Planning Ref:	Description	Status
LCC 06/1205	Erect one number single storey type dwelling, proprietary sewerage treatment system, entrance piers, new site access and all associated ancillary works	Grant 27/03/2007
LCC 06/1231	Erect one number dormer type dwelling, proprietary sewerage treatment system, entrance piers, new site access and all associated ancillary works	Grant 28/03/2007
LCC 07/140	Construct a proprietary sewerage treatment system at an existing dwelling and all associated ancillary works	Grant 19/07/2007
LCC 07/170	Erect 11 No. dwelling houses consisting of the following: 7 No. two-storey detached, 4 No. two-storey semi detached, provide new site entrance and access road, connect to public services including all ancillary works necessary to complete the development in lieu of 15 dwellinghouses	Grant 08/01/2008
LCC 07/265	Erect one number single storey type dwelling, proprietary sewerage treatment system, entrance piers, new site access and all associated ancillary works	Grant 25/07/2007
LCC 07/282	Retain disabled bathroom extension with effluent treatment unit and percolation on site	Grant 10/09/2007
LCC 07/374	Retain existing shop front facade and all associated ancillary works	Grant 22/06/2007
LCC 07/498	Erect a 70m anemometer mast for the measurement of wind speed and directions for the lifetime of the wind farm already permitted	Grant 27/07/2007
SCC 07/502	Continued operation of existing quarry within an overall site of 287 hectares.	Grant 12/05/2009
LCC 07/601	Restore and extend the existing School House	Grant 08/01/2008
LCC 07/773	Erect one number slatted agricultural livestock storage shed, concrete yard and all associated ancillary works	Grant 07/05/2008
LCC 07/776	Erect one number dry bedded agricultural livestock storage shed, sheep dipping unit, new site entrance, concrete yard and all associated ancillary works	Grant 15/04/2008
LCC 08/223	1. carry out alterations to elevations 2. revise internal floor layouts 3. provide an additional 1 bedroom residential unit,. 4. revise ancillary site works to include pumping station for foul	Grant 06/06/2008

Planning Ref:	Description	Status
	drainage and internal parking and road layout. All proposals refer to previous grant of planning permission ref: P04/979 for residential group home	
LCC 08/227	Carry out development which will consist of 1. The material change of use of 2 no. dwelling houses to commercial units at ground floor level, consisting of 1 no. off licence (36.38m2) and 1 no. take away (100m2), each with new shop front and 2. The provision of 1 no. 3 bed apartment (107m2) at first floor level and 3. Carry out all ancillary site works	Refused 07/05/2008
LCC 08/230	Construct a 15 metre support pole to carry 3 no. radio aerials (3.9m) for use by the Emergency Services (Garda, Ambulance and Fire Brigade) together with associated equipment, fencing, cabling and a GPS timing antenna for a new National Digital Radio Service	Granted 22/07/2008
LCC 08/475	Erect one number dormer type dwelling, one domestic garage, proprietary sewerage treatment system, entrance piers, new site access and all associated ancillary works	Grant 14/08/2008
LCC 09/323	Retain modifications to existing house and garage previously granted under P.04/1048	Grant 06/11/2009
LCC 09/483	(a) Retain and complete residential group home (Revisions made to previous planning permissions P04/979 and P08/223) total floor area 1731.47sqm, (b) to retain the retaining wall altered from P08/223 and (c) planning permission to provide a door at level 1 to laundry room	Grant 22/03/2010
LCC 11/140	Erect an extension to side of existing dwelling and all associated works	Grant 08/09/2011
LCC 13/5	Extend duration of Planning Permission 07-170 for a period of five years	Refused 21/03/2013
LCC 13/100	Continued use of an existing 15 metre telecommunications monopole and antennae used by the Emergency Services (Garda, Ambulance and Fire Brigade) together with associated equipment, previously granted under Planning Ref. No P08-230	Granted 29/07/2013
LCC 18/45	The installation of approximately 0.46km of underground cable ducting, 1 no. joint bay and ancillary development laid primarily within the public road corridor, with a section of circa. 0.07km within private lands at Seltan.	Refused LCC 05/08/2018; Granted by ABP (Ref: 301812-18) 18/06/2018

Planning Ref:	Description	Status
LCC 19/246	Construct a new entrance lobby/seating area on the east elevation and to carry out all ancillary site works (Previous Plannings 09/483, 08/223 and 04/979 refer)	Grant 24/02/2020
LCC 20/2	Retention of extension to the rear of existing house,	Granted 09/03/2020
20/13	(a) demolish 1 number existing derelict dwelling and adjacent out-building; (b) to construct 9 number 3 storey type domestic dwellings, new site entrance, connection to the public services and all ancillary works	Ongoing

2.6 Scoping and Consultations

Scoping is the process of determining the content, depth and extent of topics to be covered in the environmental information to be submitted to a competent authority for projects that are subject to Environmental Impact Assessment (EIA). This process is conducted by contacting the relevant authorities and Non-Governmental Organisations (NGOs) with interest in the specific aspects of the environment with the potential to be affected by the proposal. These organisations are invited to submit comments on the scope of the EIAR and the specific standards of information they require. Comprehensive and timely scoping helps ensure that the EIAR refers to all relevant aspects of the proposed development and its potential effects on the environment and provides initial feedback in the early stages of the project, when alterations are still easily incorporated into the design. In this way scoping not only informs the content and scope of the EIAR, it also provides a feedback mechanism for the proposed design itself.

A scoping report, providing details of the application site and the proposed development, was prepared by MKO and circulated in December 2018. MKO requested the comments from relevant personnel/bodies in their respective capacities as consultees with regards to the EIAR process.

Furthermore the scoping consultee list was also circulated to near neighbours for their review of the consultees. This process resulted in two further local tourism organisations being included on the scoping list. The scoping report when complete was then issued to the near neighbours in February 2019.

2.6.1 Scoping Replies

Table 4-1 lists the responses received to the scoping document circulated. Telecommunications operators were scoped at an earlier stage for the purposes of constraints mapping. Copies of all scoping responses received as of June 2020 are included in Appendix 2-1 of this EIAR. The recommendations of the consultees have informed the scope of the assessments undertaken and the contents of the EIAR. Those bodies engaged with at scoping stage are set out below in Tables 2-4 and 2-5.

Table 2-4 Scoping Consultees and Scoping Replies

Ref	Consultee	Date of Response
1	An Taisce	05/04/19

Ref	Consultee	Date of Response
2	Bat Conservation Ireland	No response received as of June 2020
3	BirdWatch Ireland	14/12/18
4	Commission for Regulation of Utilities	No response received as of June 2020
5	Department of Agriculture, Food and the Marine	22/01/19
6	Department of Communications, Climate Action and the Environment	No response received as of June 2020
7	Department of Defence	06/02/19
8	Department of Culture, Heritage and the Gaeltacht	30/01/19
9	Department of Transport, Tourism & Sport	No response received as of June 2020
10	EirGrid	No response received as of June 2020
11	Failte Ireland	11/01/19
12	Forest Service	No response received as of June 2020
13	Geological Survey of Ireland	15/01/19
14	Health Service Executive	10/01/19
15	Inland Fisheries Ireland - Shannon Region & Western Region	12/02/19
16	Irish Aviation Authority	04/01/19
17	Irish Peatland Conservation Council	21/01/19
18	Irish Red Grouse Association	No response received as of June 2020
19	Irish Raptor Study Group	No response received as of June 2020

Ref	Consultee	Date of Response
20	Irish Water	No response received as of June 2020
21	Irish Wildlife Trust	No response received as of June 2020
22	Leitrim County Council – Planning	No response received as of June 2020
23	Leitrim County Council – Roads	No response received as of June 2020
24	Leitrim County Council - Env.	No response received as of June 2020
25	Leitrim County Council – Heritage	No response received as of June 2020
26	Leitrim Tourism	No response received as of June 2020
27	Leitrim Tourism Network	No response received as of June 2020
28	Office of Public Works	11/01/19
29	Roscommon County Council – Planning	28/02/19
30	Roscommon County Council – Roads	07/03/19
31	Roscommon County Council - Env.	28/02/19
32	Roscommon County Council – Heritage	No response received as of June 2020
33	Sligo County Council – Planning	07/01/19
34	Sligo County Council – Roads	No response received as of June 2020

Ref	Consultee	Date of Response
35	Sligo County Council – Environment	No response received as of June 2020
36	Sligo County Council – Heritage	No response received as of June 2020
37	The Heritage Council	No response received as of June 2020
38	Transport Infrastructure Ireland	25/01/19
39	Waterways Ireland	04/04/19

A separate scoping exercise was undertaken with telecoms operators in August 2018. Those engaged with as part of this scoping exercise are listed below in Table 2-5:

Table 2-5 Scoping Replies – Telecoms Operators

Ref	Consultee	Date of Response
1	Airspeed Communications	-
2	BT Communications Ireland	15/08/18
3	ESB Telecoms	20/09/18
4	Eir and Meteor (formerly Eircom)	09/11/18
5	Imagine Group	15/08/18
6	Ripplecom	16/08/18
7	2rn (RTE Transmission Network)	20/08/18
8	Tetra Ireland Communications Ltd.	22/08/18
9	Three Ireland Ltd. (Hutchison)	16/08/18
10	Towercom	22/08/18
11	Virgin Media	16/08/18
12	Vodafone Ireland Ltd.	16/08/18
13	ComReg	

Table 2-6 sets out the detail of consultation responses received from those bodies as relevant and notes where they have been addressed in this EIAR. The responses received were fully considered and issues

raised were followed up through contact with the respondent where clarification was necessary and addressed throughout the EIAR.

Table 2-6 Expanded Consultee Responses

No.	Consultee	Comment	EIAR Reference
1	An Taisce	Address cumulative effects, impacts on birds since construction of other wind farms in the area	Refer to Section 2.8 of this EIAR for details on cumulative assessment. Refer to Chapter 7: Ornithology for the assessment of the potential for impacts on birds.
2	Bat Conservation Ireland	N/A	N/A
3	BirdWatch Ireland	Acknowledgement email - has forwarded to Policy & Advocacy officer for comment	N/A
4	Commission for Regulation of Utilities	N/A	N/A
5	Department of Agriculture, Food and the Marine	Felling licence requirements, felling impacts to be assessed	Refer to Chapter 4: Description of the Proposed Development for details in relation to felling.
6	Department of Communications, Climate Action and the Environment	N/A	N/A
7	Department of Defence	Standard lighting requirements	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
8	Department of Culture, Heritage and the Gaeltacht	Nature conservation comments re EIAR and AA. Requirements re ecological surveys on biodiversity, flora, fauna (incl birds, bats), habitats (incl aquatic), Construction Management Plan, cumulative impacts, post-construction monitoring	Refer to Chapter 6: Biodiversity and Chapter 7: Ornithology Refer to Appendix 4.4: Construction and Environmental Management Plan
9	Department of Transport, Tourism & Sport	N/A	N/A

No.	Consultee	Comment	EIAR Reference
10	EirGrid	N/A	N/A
11	Fáilte Ireland	General response, sent copy of EIS & Tourism Guidelines	Refer to Chapter 5: Population and Human Health for an assessment of the potential impacts on tourism
12	Forest Service	No direct response - but see Dept of Agriculture response for Forest Service requirements	Refer to Chapter 4: Description of the Proposed Development for details in relation to felling.
13	Geological Survey of Ireland	List of GSI resources, EIAR to address County Geological Sites (no envisaged impact), address area landslides/peat stability	Refer to Chapter 8: Land, Soil & Geology
14	Health Service Executive	Items to be addressed incl. ground & surface water quality and protection at all stages, air pollution mitigation, noise and vibration surveys, cumulative noise impact, peat stability, staff facilities onsite	Refer to Chapter 9: Water for details in relation to ground and surface water quality Refer to Chapter 10: Air and Climate for details in relation to air quality Refer to Chapter 11: Noise and Vibration for details in relation noise surveys
15	Inland Fisheries Ireland - Shannon Region & Western Region	Requirements regarding items to be addressed in surveys & assessment, re protection of aquatic habitat. Refer to Section 2.6.1.1 below for further detail in relation to response.	Refer to Section 2.6.1.1 below for further detail in relation to response.
16	Irish Aviation Authority	Standard lighting & as-constructed turbine coordinates requirement	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
17	Irish Peatland Conservation Council	Concerns re loss of blanket bog, impacts on designated sites, birds (Curlew), water quality, peat stability, visual amenity/views.	Refer to Chapter 6: Biodiversity for assessment of potential impacts on blanket bog Refer to Chapter 7: Ornithology for details in relation to bird species assessed as part of this EIAR Refer to Chapter 8: Land, Soil & Geology for details in relation to peat stability

No.	Consultee	Comment	EIAR Reference
			Refer to Chapter 9: Water for details in relation to ground and surface water quality Refer to Chapter 11 for details in relation to the assessment of visual amenity and scenic views
18	Irish Red Grouse Association	N/A	N/A
19	Irish Raptor Study Group	N/A	N/A
20	Irish Water	N/A	N/A
21	Irish Wildlife Trust	N/A	N/A
22	Leitrim County Council – Planning	N/A Refer to Section 2.7.2 below for further detail on engagements with Leitrim County Council.	Refer to Section 2.7.2 below for further detail on engagements with Leitrim County Council.
23	Leitrim County Council – Roads	N/A	N/A
24	Leitrim County Council - Env.	N/A	N/A
25	Leitrim County Council – Heritage	N/A	N/A
26	Leitrim Tourism	N/A	N/A
27	Leitrim Tourism Network	N/A	N/A
28	Office of Public Works	WF boundary is outside boundary of Bonet Catchment Drainage Scheme, does not interfere with scheme channels. No records of flooding. Section 50 consent will be required for any new bridge or alterations to existing bridges	Refer to Chapter 4: Description of the Proposed Development for details in relation to watercourse crossings.
29	Roscommon County Council - Planning	Refer to Roscommon Renewable Energy Strategy in relation to assessing potential environmental impacts	N/A
30	Roscommon County Council - Roads	Heavy loads/abnormal plant not to adversely impact public roads, bridges,	Refer to Chapter 14, Section 14.1: Roads and Traffic

No.	Consultee	Comment	EIAR Reference
		culverts. Assess drainage works & potential for flooding issues	Refer to Chapter 9: Water for assessment of drainage works and potential for flooding issues
31	Roscommon County Council - Env.	N/A	N/A
32	Roscommon County Council – Heritage	N/A	N/A
33	Sligo County Council – Planning	Comments re NIS and list of items to be included in EIAR; site selection & cumulative, grid connection, ECoW, Flora & Fauna and Cultural Heritage studies.	Refer to Section 2.7.2 for further detail on engagements with Sligo County Council
34	Sligo County Council – Roads	N/A	N/A
35	Sligo County Council - Env.	N/A	N/A
36	Sligo County Council – Heritage	N/A	N/A
37	The Heritage Council	N/A	N/A
38	Transport Infrastructure Ireland	General response referring to TII guidelines. Identify haul routes, grid connection routes, consult with Local Authority roads office	Refer to Chapter 14, Section 14.1: Roads and Traffic
39	Waterways Ireland	Area is outside WWI jurisdiction, no comments to make	N/A
40	Airspeed Communications	N/A	N/A
41	BT Communications Ireland	No impact	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
42	ESB Telecoms	No impact on telecoms network	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation

No.	Consultee	Comment	EIAR Reference
43	Eir and Meteor (formerly Eircom)	Eir Link on western side of site. Apply 100m buffer. Link is 270m west of current T1.	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
44	Imagine Group	No links in area	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
45	Ripplecom	No links in area	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
46	2rn (RTE Transmission Network)	Telcoms link unaffected.	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
47	Tetra Ireland Communications Ltd.	Risk of disruption to viewers south of the area; recommend protocol document to be in place"	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
48	Three Ireland Ltd. (Hutchison)	No network/coverage concerns	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
49	Towercom	Link on western side of site. Applied 100m buffer. Link is 270m west of current T1.	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
50	Virgin Media	Review of turbine layout when available	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
51	Vodafone Ireland Ltd.	Doesn't appear to have significant impact, but send on turbine layout when available	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation
52	ComReg	No links in area. Let him know if site area changes	Refer to Chapter 14, Section 14.2 Telecommunication and Aviation

2.6.1.1 Inland Fisheries Ireland

MKO received a detailed, formal scoping response letter from Inland Fisheries Ireland – Shannon Region and Western Region (IFI) on the 12th February 2019. In the letter, the IFI outlined the hydrological setting of the area of the proposed Croagh Wind Farm and also provided information on the aquatic species of the waterbodies with which the site of the proposed development would potentially be hydrologically linked.

The letter also provided details in relation to the severe pollution, in September 2008, of the Owengar River that occurred as a result of a landslide event, caused by construction activities at an existing, neighbouring wind farm. The volume of peat material that entered the watercourse caused the destruction of fisheries habitat within the Owengar River. Thus, the IFI have serious concerns regarding

the potential for landslides within the site of the proposed development and given numerous landslide events recorded within the local area, two of which occurred during the construction of the neighbouring Garvagh Glebe Wind Farm.

The IFI requested that the EIAR consider and include the following:

- Description and assessment of the aquatic biodiversity of watercourses that would potentially have a direct hydrological link to the drainage network of the proposed wind farm development and also local watercourses that would not have a direct hydrological link. (Refer to Appendix 6-3: Aquatic and fisheries assessment of Croagh Wind Farm)
- Electrofishing of all watercourses with the potential to be impacted by the proposed development. (Refer to Appendix 6-5: Aquatic and fisheries assessment of Croagh Wind Farm)
- A detailed geotechnical survey to assess the potential impact of the construction of the wind farm infrastructure on the stability of peat on the site, especially areas with steep slopes. (Refer to Chapter 8: Land, Soils and Geology and Appendix 8.1: Geotechnical and Peat Stability Assessment Report)
- Avoidance of alternation of the natural flowpaths of watercourses during the construction of the development, which could lead to erosion of instability of peat. (Refer to Chapter 9: Water)
- Development of a drainage plan for the proposed development and ensuring that the collected waters from works areas are returned to their original catchment. Maintenance of drainage controls during the operational phase and careful siting of silt traps to allow for easy access for monitoring, sampling and maintenance. (Refer to Chapter 4: Description of the Proposed Development and Appendix 4.5: Drainage Layout Drawings)
- Ensuring the careful placement of excavated peat and spoil in designated areas that have been subject of a detailed risk assessment and careful drainage design. (Refer to Appendix 4.2: Peat and Spoil Management Plan)
- Details of the location of site offices and associated services to be included in addition to details relating to the management of potential pollutants such as fuels, oils and cement. (Refer to Chapter 4: Description of the Proposed Development)
- Fully detailed assessment of the cabling works required for the connection of the proposed wind farm to the national electricity grid. (Refer to Chapter 4: Description of the Proposed Development)
- Use of specialist expertise to inform the type of material to be used for the construction of roads and ensuring the avoidance of pollution of watercourses from sediment being washed from the road structures into the drainage network. (Refer to Chapter 4: Description of the Proposed Development and Chapter 9: Water)
- Minimising the number of proposed new watercourse crossing to be required and the use of clear span crossings here necessary. (Refer to Chapter 4: Description of the Proposed Development)
- Proposals for the monitoring of all watercourses within the site and provision of a response plan in the event that environmental damage is caused to the aquatic habitat and associated riparian zone. (Refer to Chapter 4: Description of the Proposed Development)
- Provision of a Construction and Environmental Monitoring Plan that includes strict control measures for the prevention of pollution of aquatic environment during the construction phase. (Refer to Appendix 4.4: Construction and Enviornmental Management Plan)

In February 2019, MKO offered to meet the IFI on site to provide an overview of the proposed infrastructure locations and to discuss how it was intended to address the concerns of the IFI as part of the EIAR. In response to the offer, the IFI requested further details in relation to surveys to be carried

out as part of the EIAR ahead of any meeting. On the 17th May 2019, MKO issued a letter to the IFI that provided detailed further information on the following:

- Site Location and Context
  - Catchments and Water Quality
  - Site Overview
- Site Design Principles and Methodology
- Aquatic Biodiversity
  - Aquatic Surveys
  - Electrofishing and Crayfishing
  - Invasive Species
- Site Investigations
  - Geotechnical Survey and Peat Stability Assessment
  - Geotechnical Walkover Survey
  - Peat Stability Report
  - Land, Soils & Geology and Hydrology and Hydrogeology Assessments
- Peat and Spoil Management
- Drainage Design
- Road Construction
- Watercourse Crossings
- Grid Connection
- Environmental Management of Site Activities

The IFI indicated that a site visit could be facilitated in July and on the 9th July 2019 MKO also issued a summary of the findings of the geotechnical site investigations carried out on site in lieu of the detailed peat stability assessment report which was being finalised at the time. However, a date for a site visit was not agreed.

MKO sent numerous follow up requests to the IFI, between August 2019 and March 2020, in relation to an on site meeting, however, no such meeting could be arranged. Details in relation to the final development layout arrangement were issued to IFI on 25th June 2020.

2.7 Other Consultation

2.7.1 Community Engagement

Coillte has undertaken a comprehensive community engagement programme over the 2018/2019 period, liaising with near neighbours and those in the wider area with regard to the proposed wind farm. Coillte has a long history of working with communities and their experience around the country has generated an inherent understanding of the communities in which they operate.

Community engagement commenced in June 2018 with the appointment of a community liaison officer (CLO) for the proposed project. Coillte placed a focus on the residents within 2 km of the proposed site, in this regard residential dwellings within the 2km were identified.

The applicant's team carried out individual house to house engagements to gather the views of those within the area. As part of this process, a low-call number and project email address were created to aid communication. All those who expressed an interest agreed to their inclusion in an email group for two way traffic such as raising queries and receipt of answers in addition to facilitating updates and circulation of information to all parties.

As the engagement continued, the list extended as other interested near neighbours, some from outside the 2 km area who agreed to be added. To those who were not on the email list all information was circulated in a print form from the CLO.

Through the dual email and delivery approach, Coillte were able to engage with all neighbours within the immediate zone and were very available for any queries.

Furthermore, the following were also carried out to engage with the community:

- Small group meetings commenced in September 2018.
- A site visit for near neighbours
- Larger group meetings (January 2019 - August 2019) throughout the investigative and design phase of the project
- Circulation of newsletters which included updates on the overall project,
- A number of workshops were carried out (discussions surrounding noise, archaeology, cultural heritage and property value)
- Discussions surrounding visual impact and impact on the landscape including the preparation of a number of photomontages and visibility maps were presented.

In early 2020 a list of all community groups within 10km of the proposed site was compiled, once identified an invitation to engage was issued along with a booklet containing information surrounding the proposed development.

Following the community engagement effort to date, it is considered that many of the near neighbours are supportive of the project. Much has been achieved in terms of making the proposed project a better project for all through the community engagement process. Further engagement is required in order to get to a point where a full stakeholder group is formed and working on the Community Benefit Fund and Community Investment work-streams. Coillte recognise that development of a proposed wind farm is a long and complex process and that there is ample time to jointly develop our community offerings with our near neighbours and other stakeholders, and they will be progressing these throughout the planning adjudication and decision phases as well as in the pre-construction phase should the project receive planning consent.

It is the intention of the applicant to adhere to this community report for the lifetime of the development, in compliance with the Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement issued by the Department of Communications, Climate Action and Environment (December 2016) or updated revision.

The associated Community Engagement Report has been included under Appendix 2-2 of this EIAR.

2.7.2 Pre-Planning Meetings

2.7.2.1 Leitrim County Council Meeting 1

The project team (Coillte and MKO) met with representatives of Leitrim County Council on the 10th of June 2019. During the meeting the overall project was introduced to Leitrim County Council and detailed discussions were held. As per the meeting agenda prepared by the project team discussions were held surrounding the following topics:

- Introductions
- Project Background & History
- Constraints Mapping Process, Proposed Layout Design, Turbine Dimensions
- Potential Turbine Delivery and Grid Connection Routes
- Peat Stability
- Noise
- Landscape & Visual: Zone of Theoretical Visibility (ZTV) & Photomontages
- Community Engagement
- Scoping and Consultation
- Environmental Impact Assessment Report (EIAR):

- Other Surveys / Studies completed and underway
- Development Plan Provisions and Wind Energy Guidelines
- Next Steps & Proposed Planning Application Process
- AOB

At the meeting MKO presented information and mapping in relation to the proposed wind farm layout, the design methodology, and an overview of the EIAR surveys carried out to date. The team also updated the Council on consultations underway, such as with Inland Fisheries Ireland and the National Parks & Wildlife Service.

2.7.2.2 Leitrim County Council Meeting 2

A second pre-application meeting was held with Leitrim County Council on the 15th of May 2020. The meeting was attended by representatives of Coillte, MKO and Leitrim County Council. Discussions were held surrounding the following topics:

- Introductions
- Site Location & Site Context
- Site Selection & Site Constraints
- Wind Farm Design Process and Emergence of Optimal Layout
- EIAR Update
- Landscape and Visual Impact Assessment
- Public and Community Consultation
- Policy Context (Potential Plan Updates), Planning Context.
- Drawing Scales, Validation Process, Application Procedures

2.7.2.3 Sligo County Council Meeting 1

The project team (Coillte and MKO) met with representatives of Sligo County Council on the 21st of June 2019. In the first meeting the overall project was introduced to the Sligo County Council and discussions were facilitated. As per the meeting agenda circulated discussions were held surrounding the following topics:

- Introductions
- Proposed Layouts and Alternatives
- Cumulative Assessments
- Site Design and Consultation
- Proposed Grid Connection and Turbine Delivery Routes
- Planning Application and EIA/AA Procedures
- Community Engagement
- Landscape and Visual
- AOB

MKO at the meeting presented information with regards to the proposed wind farm layout, the design methodology, and an overview of the EIAR surveys carried out to date. The team also updated Sligo County Council on consultations underway.

2.7.2.4 Sligo County Council Meeting 2

A second pre-application meeting was held with Sligo County Council on the 21st of May 2020. The meeting as attended by representatives of Coillte, MKO and Sligo County Council. MKO and Coillte reintroduced the project and the various updates that have occurred following the initial meeting with SCC. The various elements discussed included the following:

- Updates on the design process and the emergence of the optimal layout,

- Updates on the EIAR (including on site assessments, high level findings and scoping)
- Various consultations,
- Policy,
- Discussions surrounding planning drawings (scales and validation) and the application.
- Detailed discussions were also had surrounding landscape and any potential impacts it might have. Further discussions were also held surrounding any potential visual impacts.

2.8 Cumulative Impact Assessment

The EIAR Directive and associated guidance documents state that as well as considering any indirect, secondary, transboundary, short-, medium-, and long-term, permanent and temporary, positive and negative effects of the project (all of which are considered in the various chapters of this EIAR), the description of likely significant effects should include an assessment of cumulative impacts that may arise. The factors to be considered in relation to cumulative effects include population and human health, biodiversity, land, soil, water, air, climate, material assets, landscape, and cultural heritage as well as the interactions between these factors. To gather a comprehensive view of cumulative impacts on these environmental considerations and to inform the EIAR process being undertaken by the consenting authority, each relevant chapter within this EIAR includes a cumulative impact assessment where appropriate.

The potential for cumulative impacts arising from other projects has therefore been fully considered within this EIAR.

2.8.1 Methodology for Cumulative Assessment of Projects

The potential cumulative impact of the proposed wind farm development combined with the potential impact of other projects has been carried out with the purpose of identifying what influence the proposed development will have on the surrounding environment when considered collectively with approved and existing projects in the vicinity of the proposed site location.

The Cumulative Impact Assessments (CIA) of projects has three principle aims:

1. To establish the range and nature of existing and/or approved projects within the cumulative impact study area of the proposed development.
2. To summarise the relevant projects which have a potential to create cumulative impacts.
3. To identify the projects that hold the potential for cumulative interaction within the context of the proposed development and discard projects that will neither directly or indirectly contribute to cumulative impacts.

Assessment material for the Cumulative Impact Assessments carried out within this EIAR was compiled in relation to the relevant infrastructure developments within the vicinity of the proposed development from which there may be potential for cumulative impacts to arise. The material gathered comprised EIAR's (/EIS's), planning application details and planning drawings and served to identify past and future projects, their activities and their environmental impacts.

2.8.1.1 Projects Considered in Cumulative Assessment

The projects considered in relation to the potential for cumulative impacts and for which all relevant data was reviewed (e.g. individual EIS/EIAR's, layouts, drawings etc) include those listed previously above in Section 2.5 (i.e. wind farms and renewable energy infrastructure within 20 kilometres of the site, smaller scale projects (i.e. agricultural, residential and other developments within approximately 2 kilometres of the site) and all relevant associated works. Other developments considered within the cumulative assessment include land uses and the categories of works listed below. This EIAR therefore

considers the full range of projects that could potentially have a cumulative effect with the current proposed development.

2.8.1.1.1 Forestry and Replanting

The proposed development site is used for commercial forestry. This land-use will continue in conjunction with the proposed wind farm. The potential for cumulative effects during the construction, operational and decommissioning phases of the proposed wind farm have therefore been assessed.

The Forest Service is responsible for ensuring the development of Forestry within Ireland occurs in a manner and to a scale that maximises its contribution to national socio-economic well-being on a sustainable basis that is compatible with the protection of the environment. The forestry works (felling/planting) associated with the proposed development will be carried out under the relevant guidance and under licence from the Forest Service and full details are set out in Section 4.3.10 of this EIAR in conjunction with the replanting assessment included as Appendix 4-3. Forestry replacement lands are located in the following areas:

- Stranamart, Co. Cavan
- Ballard, Co. Wicklow
- Brackloon, Co. Roscommon

2.8.1.1.2 Other Wind Turbines

There are a number of wind farms located within a 20-kilometre radius of the proposed development site, as identified previously above in this Chapter. Any cumulative affects arising are considered in the relevant chapters of this EIAR.

2.8.1.1.3 Other Developments/Land uses

In preparing this EIAR the planning register has been reviewed and all relevant general development planning applications/permissions and projects in the vicinity of the proposed development have been noted and considered as well as other existing projects/development. As discussed previously the majority of applications in the vicinity relate to the provision of wind farm infrastructure and/or alteration of one-off rural housing and agriculture-related structures, as described previously above. These applications and land uses (which include those listed previously above in Section 2.5) have also been taken into account in describing the baseline environment and in the relevant assessments.

Furthermore, the cumulative impact assessments carried out in each of the subsequent chapters of this EIAR consider all potential significant cumulative effects arising from all land uses in the vicinity of the proposed development. These include ongoing agricultural practices.

Overall the proposed development has been designed to mitigate impacts on the environment, and a suite of mitigation measures is set out within the EIAR. The mitigation measures set out in this EIAR have been developed to ensure that significant cumulative affects do not arise during construction, operational or decommissioning phases of the proposed development.

Additional detail in relation to the potential significant cumulative effects arising and, where appropriate, the specific suite of relevant mitigation measures proposed are set out within each of the relevant chapters of this EIAR.

3. CONSIDERATION OF REASONABLE ALTERNATIVES

3.1 Introduction

Article 5(1)(d) of Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification) as amended by Directive 2014/52/EU (the EIA Directive) requires that the EIAR prepared by the developer contains *"a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment."*

Article 5(1)(f) of the EIA Directive requires that the EIAR contains *"any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected."*

Annex IV of the EIA Directive states that the information provided in an Environmental Impact Assessment Report (EIAR) should include a *"description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."*

This section of the EIAR contains a description of the reasonable alternatives that were studied by the developer, which are relevant to the proposed project and its specific characteristics, in terms of site location and other renewable energy technologies as well as site layout incorporating size and scale of the project, connection to the national grid and transport route options to the site. This section also outlines the design considerations in relation to the wind farm, including the associated substation, construction compound and borrow pits. It provides an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

The consideration of alternatives is an effective means of avoiding environmental impacts. As set out in the '*Draft Guidelines on The Information to be Contained in Environmental Impact Assessment Reports' (Environmental Protection Agency, 2017),* the presentation and consideration of reasonable alternatives investigated is an important part of the overall EIA process.

Hierarchy

EIA is concerned with projects. The Environmental Protection Agency's draft guidelines (EPA, 2017) state that in some instances neither the applicant nor the competent authority can be realistically expected to examine options that have already been previously determined by a higher authority, such as a national plan or regional programme for infrastructure which are examined by means of a Strategic Environmental Assessment, the higher tier form of environmental assessment.

Non-environmental Factors

EIA is confined to the potential significant environmental effects that influence consideration of alternatives. However, other non-environmental factors may have equal or overriding importance to the developer of a project, for example project economics, land availability, engineering feasibility or planning considerations.

Site-specific Issues

The EPA guidelines state that the consideration of alternatives also needs to be set within the parameters of the availability of the land, i.e. the site may be the only suitable land available to the developer, or the need for the project to accommodate demands or opportunities that are site-specific. Such considerations should be on the basis of alternatives within a site, for example design and layout.

3.1.2 Methodology

The EU Guidance Document (EU, 2017) on the preparation of EIAR outlines the requirements of the EIA Directive and states that, in order to address the assessment of reasonable alternatives, the Developer needs to provide the following:

- A description of the reasonable alternatives studied; and
- An indication of the main reasons for selecting the chosen option with regards to their environmental impacts.

There is limited European and National guidance on what constitutes a 'reasonable alternative' however the EU Guidance Document (EU, 2017) states that reasonable alternatives "*must be relevant to the proposed project and its specific characteristics, and resources should only be spent assessing these alternatives*".

The guidance also acknowledges that "*the selection of alternatives is limited in terms of feasibility. On the one hand, an alternative should not be ruled out simply because it would cause inconvenience or cost to the Developer. At the same time, if an alternative is very expensive or technically or legally difficult, it would be unreasonable to consider it to be a feasible alternative*".

The current Draft EPA Guidelines (EPA, 2017) state that "*It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account is deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required.*"

Consequently, taking consideration of the legislation and guidance requirements into account, this chapter addresses alternatives under the following headings:

- 'Do Nothing' Alternative;
- Alternative Locations;
- Alternative Technologies;
- Alternative Turbine Layouts and Development Design; and,
- Alternative Mitigation Measures.

Each of these is addressed in the following sections.

When considering a wind farm development, given the intrinsic link between layout and design, the two will be considered together in this chapter.

While environmental considerations have been at the core of the decision-making process for all of the project processes and infrastructure components, it should be noted that the majority of alternative options considered under the headings listed above are unlikely to have had significantly, greater environmental effects than the chosen option.

3.2 'Do-Nothing' Alternative

Article IV, Part 3 of the EIA Directive states that the EIAR should include "*an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline*

scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge." This is referred to as the "do nothing" alternative. EU guidance (EU, 2017) states that this should involve the assessment of "an outline of what is likely to happen to the environment should the Project not be implemented – the so-called 'do-nothing' scenario."

An alternative land-use option to the development of a renewable energy project at the proposed development site would be to leave the site as it is, with no changes made to existing land-use practices. Commercial forestry operations would continue at the site.

In implementing the 'Do-Nothing' alternative, however, the opportunity to capture a significant part of the countries renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. The opportunity to generate local employment, development contributions, rates and investment in the local area would also be lost. Also, the proposed amenity walkways and associated carpark would not be constructed and therefore this recreational opportunity would be lost. On the basis of the positive environmental effects arising from the project, when compared to the do-nothing scenario, therefore the do–nothing scenario was not the chosen option.

The existing commercial forestry operations can and will continue in conjunction with this proposed use of the site.

A comparison of the potential environmental effects of the 'Do-Nothing' Alternative when compared against the chosen option of developing a renewable energy project at this site are presented in Table 3-1 below.

Table 3-1 Comparison of environmental effects when compared against the chosen option (developing the proposed wind farm at this site)

Environmental Consideration	Do Nothing Alternative
Population & Human Health (incl. Shadow Flicker)	No increase in local employment and no long-term financial contributions towards the local community. No potential for shadow flicker to affect sensitive receptors.
Biodiversity & Ornithology	No habitat loss
Land, Soils & Geology	Neutral
Geotechnical	Neutral
Water	Neutral
Air & Climate	Will not provide the opportunity for an overall increase in air quality or reduction of greenhouse gasses. Will not assist in achieving the renewable energy targets set out in the Climate Action Plan.
Noise & Vibration	No potential for noise impacts on nearby sensitive receptors
Landscape & Visual	Neutral
Cultural Heritage & Archaeology	No potential for impacts on unrecorded, subsurface archaeology.

Material Assets	Neutral

3.3 Alternative Locations

3.3.1 Strategic Site Screening

In 2014, Coillte's Renewable Energy Development Team undertook a detailed screening process, through Geographical Information Spatial software (GIS), using a number of criteria and stages to assess the potential of a large number of possible sites, on lands within its stewardship (c. 441,000 hectares), suitable to accommodate a wind energy development. The GIS database drew upon a wide array of key spatial datasets such as forestry data, ordnance survey land data, house location data, transport, existing wind energy and grid infrastructure data and environmental data such as ecological designations, landscape designations and wind energy strategy designations available at the time.

The following is a summary of the methodology used in the screening process.

3.3.1.1 Phase 1 – Initial Screening

This stage in the selection process discounted lands that were not available for development under a number of criteria, as follows:

- Committed Lands for other developments
- Millennium Sites (This is a Coillte environmental designation – these sites were planted and managed for provision of a tree for every household in the country as part of the Millieneum tree planting project)
- Life Site (This is a Coillte environmental designation – these former forested sites were cleared and are managed for biodiversity)
- Wild Nephin Properties (This is a Coillte designation. Since 2014 these properties have been incorporated into National parks)
- Farm Partnerships and Leased Lands
- National Parks
- Natura 2000 and Nationally Designated Sites (SAC, SPA, NHA, pNHA)

Coillte also reviewed the relevant local authority's County Development Plan (CDP) and/or Renewable Energy Strategy (RES) provisions and did not proceed with further analysis where the policy context was not supportive of wind farm development. In this regard, areas were not brought forward for further analysis if they were not identified as being at least "open for consideration" for wind farm development.

Lands where the average wind speed at 80 metres above ground level is less than 7 m/s and, therefore, potentially not suitable for a commercially viable wind energy development were also discounted at this stage. In addition, sites with a contiguous area of less than 300 hectares were discounted.

3.3.1.2 Phase 2 – Grid Constraints

As part of the site selection process, it was necessary to consider the potential for grid connection, including in terms of distance to potential connection nodes and the grid capacity at the nodes, in the local area, to accommodate the connection.

3.3.1.3 Phase 3 – Screening

The next stage of screening out lands from further analysis was due to the presence of the following:

- Sensitive Amenity or Scenic Areas designation in CDPs (at the time of the screening process)
- Tourist areas/sites/trails
- Lands utilised for other wind farm developments
- Telecommunications masts and links
- Sensitive habitat/species of bird
- Land Ownership title Issues,
- Relatively high residential density in vicinity
- Unfavourable slopes and ground conditions

This stage of screening was generally applied using Coillte's in-house expertise and local knowledge, and was subsequently validated by MKO in terms of the engineering considerations and the likelihood of obtaining a successful grant of planning permission based on industry trends in 2014.

3.3.2 Results of the Screening Process

The application of the above criteria to identify a site relevant to the project and its specific characteristics, resulted in the selection of a site known as Croagh, located on the northwestern slopes of Carran Hill as a candidate site to be brought forward for more detailed analysis. Figure 3-1 shows the initial boundary of the Croagh site.

Sites that also emerged from the site selection process, outlined above, for which Coillte are in the process of preparing separate planning applications are::

- Carrownagowan, Co. Clare
- Glenard, Co. Donegal
- Bottlehill, Co. Cork
- Castlebanny, Co. Kilkenny

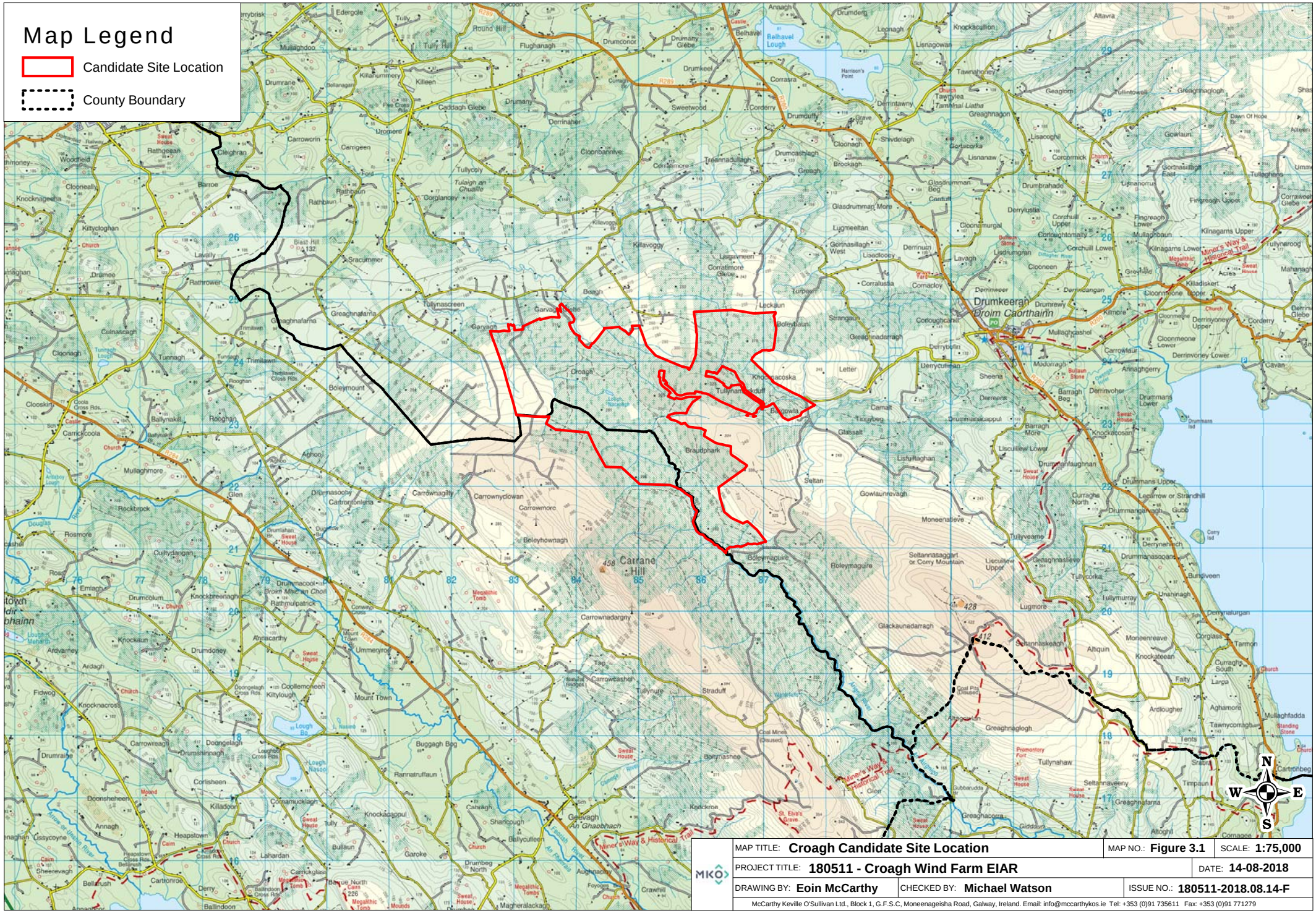
Coillte intend to bring forward all of these landholdings for wind energy development as all were considered by Coillte to be viable sites for a wind energy project. Each are projects in their own right which will be subject to EIA. As such a description of the reasonable alternatives studied which are relevant to each project and its specific characteristics, together with an indication of the main reasons for selecting the chosen option with regards to their environmental impacts will be provided in the EIAR accompanying the applications for same.

The alternative would be to bring forward a site that did not pass one or all of the above phases of the screening process. In that instance, there would be the potential for the construction and operation of a wind energy development to have an adverse effect on ecologically designated or sensitive areas and visually sensitive (scenic) or amenity areas. There would also be the potential for greater shadow flicker, noise and traffic impacts if the candidate site was located in an area with a higher number of residential dwellings. Numerous third party land agreements would also be required to ensure a site of adequate size, (ie. a 300ha contiguous site area). In addition, a site with an average wind speed less than 7m/s (at 80m above ground level) and/or not located within practical proximity of existing grid infrastructure may not be economically viable.

3.3.3 Suitability of the Candidate Site

Croagh, as a candidate site, was further examined under the following headings in order to confirm its suitability for wind energy development.

- Planning Policy
- Proximity of Existing Grid Infrastructure
- Designated Sites
- Average Wind Speeds



MAP TITLE: **Croagh Candidate Site Location**		MAP NO.: **Figure 3.1**	SCALE: **1:75,000**
PROJECT TITLE: **180511 - Croagh Wind Farm EIAR**			DATE: **14-08-2018**
DRAWING BY: **Eoin McCarthy**	CHECKED BY: **Michael Watson**		ISSUE NO.: **180511-2018.08.14-F**

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- Population Density

3.3.3.1 Planning Policy

The Croagh site straddles the boundary separating two planning authorities – Leitrim and Sligo County Councils.

County Leitrim

Leitrim County Council does not have a Wind Energy Strategy; however, Section 4.11.5 of Chapter 4: Policies and Objectives of the Leitrim County Development Plan (CDP) 2015-2021 sets out the sole objective of the CDP in relation to wind energy.

> **Policy 128** "*It is the policy of the Council that all wind farm applications will be assessed on the full range of criteria including those identified in the Wind Farm Development Guidelines 2006 (or any subsequent update) published by the Department of Environment, Heritage and Local Government.*"

Section 4.11.5 of the CDP states that,

> *"...development that can clearly demonstrate, to the satisfaction of the Planning Authority, that [it] would not have a significant adverse impact on the amenities of a dwelling or a building occupied, or capable of being occupied, by people, or would not compromise the integrity of an environmentally sensitive area will be 'open to consideration'."*

Section 4.11.5 also states,

> *"The location of the development within easy access of the electrical grid and having suitable windspeeds, will be important factors in determining the suitability of a site to accommodate a Windfarm."*

The environmentally sensitive areas that have been identified by the CDP include:

- Natura 2000 sites i.e. Special Areas of Conservation (SAC) and Special Protection Areas (SPA)
- Natural Heritage Areas (NHA)
- Areas of Outstanding Natural Beauty (AONB)
- Areas of High Visual Amenity
- Outstanding Views and Prospects
- Areas of Archaeological Importance
- Areas of Geological Importance.

The Croagh site is capable of accommodating a wind farm development that is compliant with the requirements of the Wind Energy Development Guidelines 2006. Furthermore, this area is also capable of accommodating a wind farm development that can be brought in line with the requirements of the Draft Wind Energy Development Guidelines, prepared by the Department of Housing, Planning and Local Government in December 2019, should these guidelines be adopted while the proposed wind farm development is in the planning system.

The Croagh site is not located within any SACs, SPAs, NHAs, proposed NHAs, or Areas of Archaeological or Geological Importance as listed in the Leitrim CDP.

County Sligo

The current Sligo County Development Plan 2017-2023, similar to the Leitrim CDP, does not contain a wind energy strategy.

Sligo County Council fully supports the move from fossil fuels to cleaner renewable energy and technologies in order to achieve local and national emissions targets. Sligo County Council recognise the county's ideal geographical and topographical compatibility with wind energy generation and aim to balance the county's favourability for this type of development with careful site selection to minimise visual impact. Policies which relate to Renewable Energy include:

> **Policy SP-EN-1:** "*Support the sustainable development, upgrading and maintenance of energy generation, transmission, storage and distribution infrastructure, to ensure the security of energy supply and provide for future needs, as well as protection of the landscape, natural, archaeological and built heritage, and residential amenity and subject to compliance with the Habitats Directive.*"
>
> **Policy SP-EN-2**: "*Facilitate the sustainable production of energy from renewable sources, energy conversion and capture in forms such as wind power, hydro-power, wave-generated energy, bioenergy, solar technology and the development of Waste to Energy/Combined Heat and Power schemes at appropriate locations and subject to compliance with the Habitats Directive. All such development proposals will be assessed for their potential impact on urban and rural communities, Natura 2000 sites, designated Sensitive Rural Landscapes, Visually Vulnerable Areas, Scenic Routes and scenic views, as well as in accordance with strict location, siting and design criteria.*"
>
> **Policy SP-EN-7**: "*Protect significant landscapes from the visual intrusion of large-scale energy infrastructure."*

All renewable energy applications submitted to Sligo County Council will be assessed against the following:

- visual impact on surrounding landscape;
- impact on designated sites, natural and built heritage, water bodies, groundwater, soils and air;
- impact on settlements or individual rural dwellings;
- impact on existing walking routes / rights-of-way / public access to the countryside.

Wind energy developments in particular are assessed following the recommendations set out in the DOEHLG's Wind Energy Development Guidelines 2006 (and any future adopted guidelines). Particular guidelines such as the following will be reviewed:

- environmental impact – effects on landscape (including the scarring effect of access roads), natural and archaeological heritage;
- seeking visual harmony and balance – choice of turbines, towers, colour and siting;
- keeping secondary structures to a minimum – buried on-site cabling, minimal fencing, transformers placed inside towers where possible;
- keeping access roads to a minimum – using established roads where possible and following natural contours if roads are necessary;
- managing the building site – removing waste, avoiding erosion, replanting the land
- noise, electro-magnetic interference, ecological impact, safety (including aircraft safety and navigation) and land use implications.

As discussed above, the Croagh site complies with the DOEHLG guidelines 2006 as outlined above. It is not located within any SACs, SPAs, NHAs or pNHAs, nor is it sited within archaeological heritage areas. The portion of the candidate site within the Sligo county border falls within the 'Normal Rural

Landscape', avoiding 'Sensitive Rural Landscape Areas', 'Scenic Routes' and Visually Vulnerable Areas' as illustrated on the Landscape Character Map of the Sligo CDP 2017-2023.

3.3.3.2 Existing Grid Infrastructure

The Croagh site is located within close proximity of 3 no. existing electricity substations and therefore a wind energy development at this location has multiple options for connection to the national electricity grid. The 110kV Garvagh substation is located 670m south of the candidate site boundary at its closest point. The 110kV Shranangh is located 7.7km northwest of the Croagh candidate site and the 110kV Corderry substation is located 2.7km to the northeast.

3.3.3.3 Designated Sites

The proposed development site is not located within any area designated for ecological protection. The nearest Natura 2000 site, i.e. Special Area of Conservation (SAC) or Special Protection Area (SPA) is the Lough Gill SAC located approximately 4.4km north of the site at its nearest point.

The nearest national designated site, i.e. Natural Heritage Area (NHA) or proposed Natural Heritage Area (pNHA) is the Corry Mountain Bog NHA [002321], which adjoins the eastern boundary of the site.

3.3.3.4 Average Wind Speeds

The Irish Wind Atlas produced by Sustainable Energy Authority of Ireland (SEAI) shows average wind speeds for the country. With the upland nature of the landscape, the Wind Atlas shows that wind speeds on the proposed development site range from 8.8m/s to 9.1m/s at a 100m elevation. Such wind speeds indicate that this site is viable for commercial wind energy development. On-site monitoring of the wind resource, which is ongoing, will further verify that with a sufficient turbine height and blade diameter, the wind resource of the site is commercially viable.

3.3.3.5 Population Density

The Applicant sought to identify an area with a relatively low population density. Having reviewed the settlement patterns in the vicinity, the study area has emerged as suitable to accommodate the proposal. The population density of the *Population Study Area* as described in Chapter 5 of this EIAR is 8.9 persons per square kilometre. This is significantly lower than the average national population density of 68.1 persons per square kilometre.

3.3.3.6 Summary

The Croagh site is located within an existing commercial forestry property which allows the site to take advantage of existing access roads. This, when combined with the proximity to three existing substations, further highlights the suitability of the site as it can make further sustainable use of these established items of infrastructure.

The Croagh site does not overlap with any environmental designations and is also located in an area with a very low population density, relative to the national average, with appropriate annual wind speeds.

The purpose of the site screening exercise in 2014 outlined in Section 3.4, above, was to identify areas within Coillte's nationwide portfolio, that would be capable of accommodating a wind farm development while minimising the potential for adverse impact on the environment. In order to satisfy this requirement, significant landholdings that would yield a sufficient viable area for the siting of each

element of the proposed development was required (ie. sites with a contiguous area of less than 300 hectares as described in Stage 1 of the screening process).

While the outcome of the site screening process has identified the site of the current proposal as a suitable location for a wind farm development of the nature proposed, it does not preclude other sites within Coillte's portfolio being brought forward for consideration in the future. Coillte continuously examines the lands under its stewardship for further candidate sites for wind energy development.

3.4 Alternative Renewable Energy Technologies

Although the 2014 screening exercise was based on identifying lands for wind development; a reasonable alternative source of renewable electricity generation namely solar was considered based on the scale and current land-use of the Croagh site that emerged.

Commercial solar energy production is the harnessing and conversion of sunlight into electricity using photovoltaic arrays (panels). To achieve the same electricity output, as is expected from the proposed wind energy development (c.48MW), from solar energy would require a significantly larger development footprint. In this instance, the proposed wind energy development requires 54.2 hectares of commercial forestry to be permanently felled. A solar PV array of the scale necessary to provide the same electricity output would require the permanent felling of approximately 96 hectares of commercial forestry. In addition, a solar development would have a higher potential environmental effect on Hydrology and Hydrogeology, Traffic and Transport (construction phase) and Biodiversity and Birds (habitat loss, glint and glare) at the site.

For the reasons set out above, the proposal for a wind energy development at this site is considered to be the most efficient method of electricity production with the lesser potential for significant, adverse environmental effects.

A comparison of the potential environmental effects of the development of a solar PV array when compared against the chosen option of developing the proposed wind farm at this site are presented in Table 3-2 below.

Table 3-2 Comparison of environmental effects when compared against the chosen option (wind turbines)

Environmental Consideration	Solar PV Array (with a 48MW output)
Population & Human Health (incl. Shadow Flicker)	No long-term financial contributions towards the local community (i.e. community benefit fund). No potential for shadow flicker to affect sensitive receptors. Potential for glint and glare impacts on local road users
Biodiversity & Ornithology	Larger development footprint would result in greater habitat loss. Potential for glint and glare impacts on birds.
Land, Soils & Geology	Larger development footprint would result in greater volumes of peat and spoil to be excavated.
Geotechnical	Shallower excavations involved in solar PV array developments would decrease the potential for peat instability.

Water	A solar PV array development would require a significantly larger area of forestry to be felled therefore increasing the potential for silt laden runoff to enter receiving watercourses.
Air & Climate	Reduced capacity factor of solar PV array technology would result in a longer carbon payback period.
Noise & Vibration	No potential for noise impacts on nearby sensitive receptors.
Landscape & Visual	Potentially less visible from surrounding area due to screening from forestry and topography.
Cultural Heritage & Archaeology	Neutral
Material Assets	Potential for greater traffic volumes during construction phase due to the number of solar panels required to achieve the same output.

3.4.1 Alternative Turbine Numbers and Turbine Models

The proposed wind turbines will have a potential power output in the 3-5 megawatt (MW) range. It is proposed to install 10 turbines at the site which could achieve an approximate 48MW output. Such a wind farm could also be achieved on the proposed site by using smaller turbine technology (for example 2.5 MW machines). However, this would necessitate the installation of 19 turbines to achieve a similar output. Furthermore, the use of smaller turbines would not make efficient use of the wind resource available having regard to the nature of the site.

A larger number of smaller turbines would result in the wind farm occupying a greater footprint within the site, with a larger amount of supporting infrastructure being required (i.e. roads etc.) and increasing the potential for negative environmental impacts to occur on biodiversity, hydrology and traffic and transportation.

The use of alternative smaller turbines at this site would not be appropriate as they would fail to make the most efficient use of the wind resource passing over the site. Furthermore, the increased use of materials, excavation and movement of peat and increase in visual impact associated with a larger number of smaller turbines would result in a higher level of negative environmental effects than the chosen option.

It should be noted that the turbine model to be installed on the site will be the subject of a competitive tendering process. The maximum height of the turbines that will be selected for construction on the site will not exceed 170 metres when measured from ground level to blade tip. For the purposes of this EIAR a range of turbines within this size envelope has been assessed (e.g. tallest turbine within defined range has been assessed for visual impact, widest rotor diameter within the defined range has been assessed for shadow flicker etc.). The EIAR therefore provides a robust assessment of the turbines that could be considered within the overall development description.

A comparison of the potential environmental effects of the installation of a larger number of smaller wind turbines when compared against the chosen option of installing a smaller number of larger wind turbines are presented in Table 3-3 below.

Table 3-3 Comparison of environmental effects when compared against the chosen option (larger wind turbines)

Environmental Consideration	Larger number of smaller turbine models
Population & Human Health (incl. Shadow Flicker)	Greater potential for shadow flicker impacts on nearby sensitive receptors due to the increased number of turbines.
Biodiversity & Ornithology	Larger development footprint would result in greater habitat loss. Greater potential collision risk for birds due to the presence of more turbines
Land, Soils & Geology	Larger development footprint would result in greater volumes of peat and spoil to be excavated and stored.
Geotechnical	Neutral
Water	Larger development footprint, therefore, increasing the potential for silt laden runoff to enter receiving watercourses.
Air & Climate	Increased potential for vehicle emissions and dust emissions due to an increased volume of construction material and turbine component deliveries to the site.
Noise & Vibration	Potential for increased noise impacts on nearby sensitive receptors.
Landscape & Visual	A larger number of turbines would have a greater visual impact.
Cultural Heritage & Archaeology	Larger development footprint would increase the potential for impacts on unrecorded, subsurface archaeology.
Material Assets	Potential for greater traffic volumes during construction phase due to larger development footprint and requirement for more construction materials and turbine components.

3.5 Alternative Turbine Layout and Development Design

The design of the proposed development has been an informed and collaborative process from the outset, involving the designers, developers, engineers, environmental, hydrological and geotechnical, archaeological specialists and traffic consultants. The aim of the process being to reduce the potential for environmental effects while designing a project capable of being constructed and viable.

Throughout the preparation of the EIAR, the layout of the proposed development has been revised and refined to take account of the findings of all site investigations and baseline assessments, which have brought the design from its first initial layout to the current proposed layout. The design process has also taken account of the recommendations and comments of the relevant statutory and non-statutory organisations, near neighbours / the local community and local authorities as detailed in Section 2.7 of Chapter 2.

3.5.1 Detailed Constraints Mapping

The design and layout of the proposed wind energy development follows the recommendations and guidelines set out in the 'Wind Energy Development Guidelines' (Department of the Environment, Heritage and Local Government, 2006) and the 'Best Practice Guidelines for the Irish Wind Energy Industry' (Irish Wind Energy Association, 2008).

The 'Wind Energy Development Guidelines for Planning Authorities' (DoEHLG, 2006) are currently the subject of a targeted review. The proposed changes to the assessment of impacts associated with onshore wind energy developments are outlined in the Draft Revised Wind Energy Development Guidelines, December 2019.

The constraints mapping process involves the placing of buffers around different types of constraints so as to identify clearly the areas within which no development works will take place if possible. The size of the buffer zone for each constraint has been assigned using guidance presented in the wind energy guidance documents listed above. The constraints maps for the site encompasses the following constraints and associated buffers:

- Residential dwellings plus a minimum 800 metre buffer (exceeding the requirement of 4 x tip height separation distance);
- Designated sites plus 100 metre buffer;
- Rivers plus 100 metre buffer, streams plus 50 metre buffer and lakes plus 50m buffer;
- Recorded Archaeological Sites and Monuments plus 50 metres buffer.
- Telecommunications buffer plus operator-specific buffer;
- Overhead Electricity Transmission Line plus 420 metre buffer (Eirgrid requirement of 3.5 x rotor diameter setback from overhead transmission lines);
- Existing wind turbines plus 4 x rotor diameter buffer.

For clarity, the constraints map is presented in two parts. Residential and environmental constraints are presented in Figure 3-2a and telecommunications and infrastructure constraints are presented in Figure 3-2b.

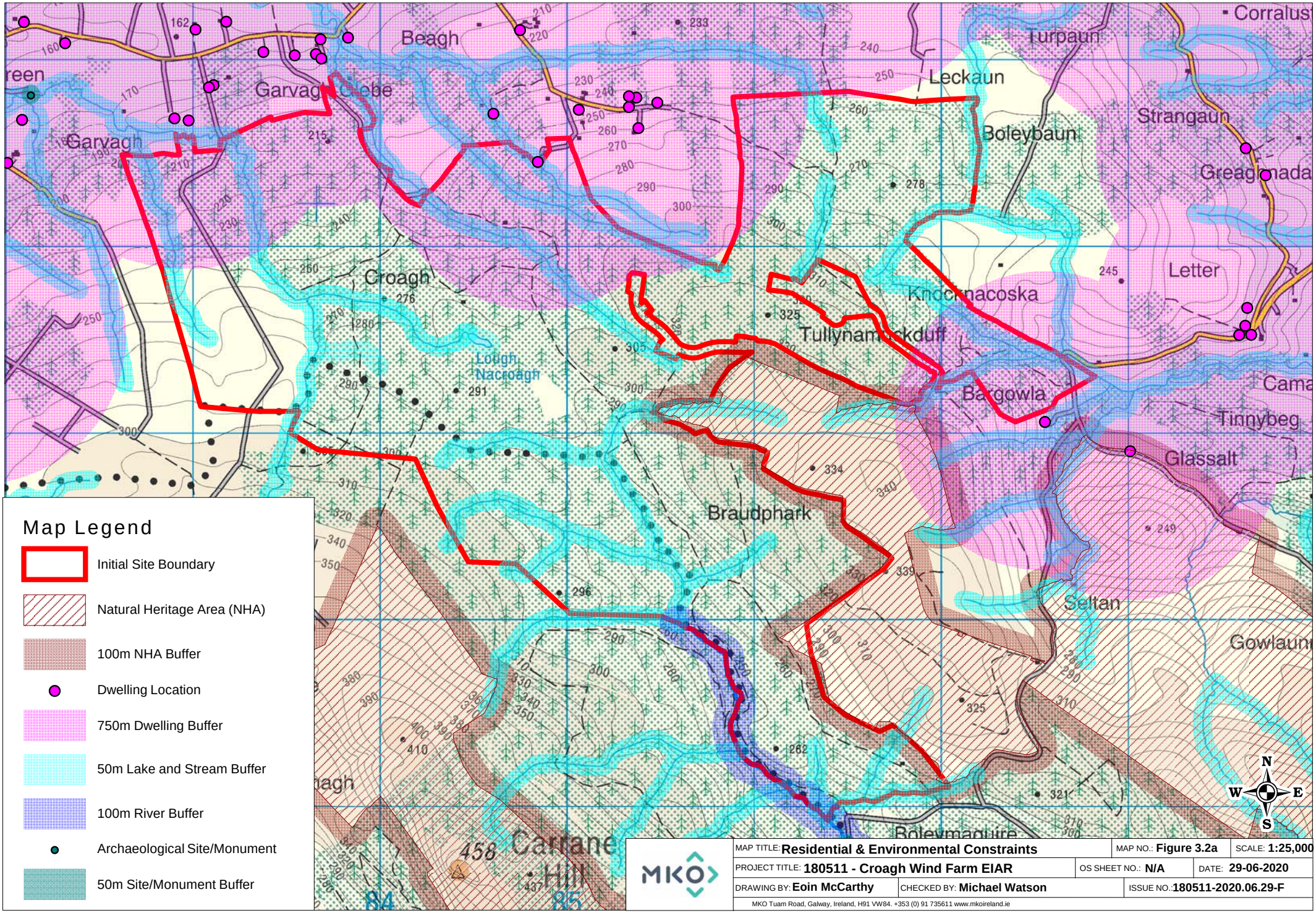
Facilitators at the site build on the existing advantages and include the following:

- Available lands for development;
- Separation distance from neighbouring landowners;
- Good wind resource;
- Existing access points and general accessibility of all areas of the site due to existing road infrastructure; and
- Limited extent of constraints.

The inclusion of the detailed, combined constraints on a map of the EIAR Site Boundary allows for a viable area to be identified as shown in Figure 3-3.

An initial turbine layout was then developed to take account of all the constraints mentioned above including their associated buffer zones and the separation distance required between them.

Following the mapping of all known constraints described above, detailed site investigations were carried out by the project team. The ecological assessment of the site encompassed habitat mapping and extensive surveying of birds and other fauna. These assessments, as described in Chapters 6 and 7 of this EIAR, informed the decision on the siting of turbines and the carrying out of any development works, such as the construction of roads. The hydrological and geotechnical investigations of the site examined the proposed locations for turbines, roads and other components of the proposed development, such as the substation and the construction compound. Where specific areas were deemed as being unsuitable for the siting of turbines or roads, etc., alternative infrastructure locations within the Croagh site were proposed and assessed, taking into account the areas that were already



MAP TITLE: **Residential & Environmental Constraints**		MAP NO.: **Figure 3.2a**	SCALE: **1:25,000**
PROJECT TITLE: **180511 - Croagh Wind Farm EIAR**		OS SHEET NO.: **N/A**	DATE: **29-06-2020**
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