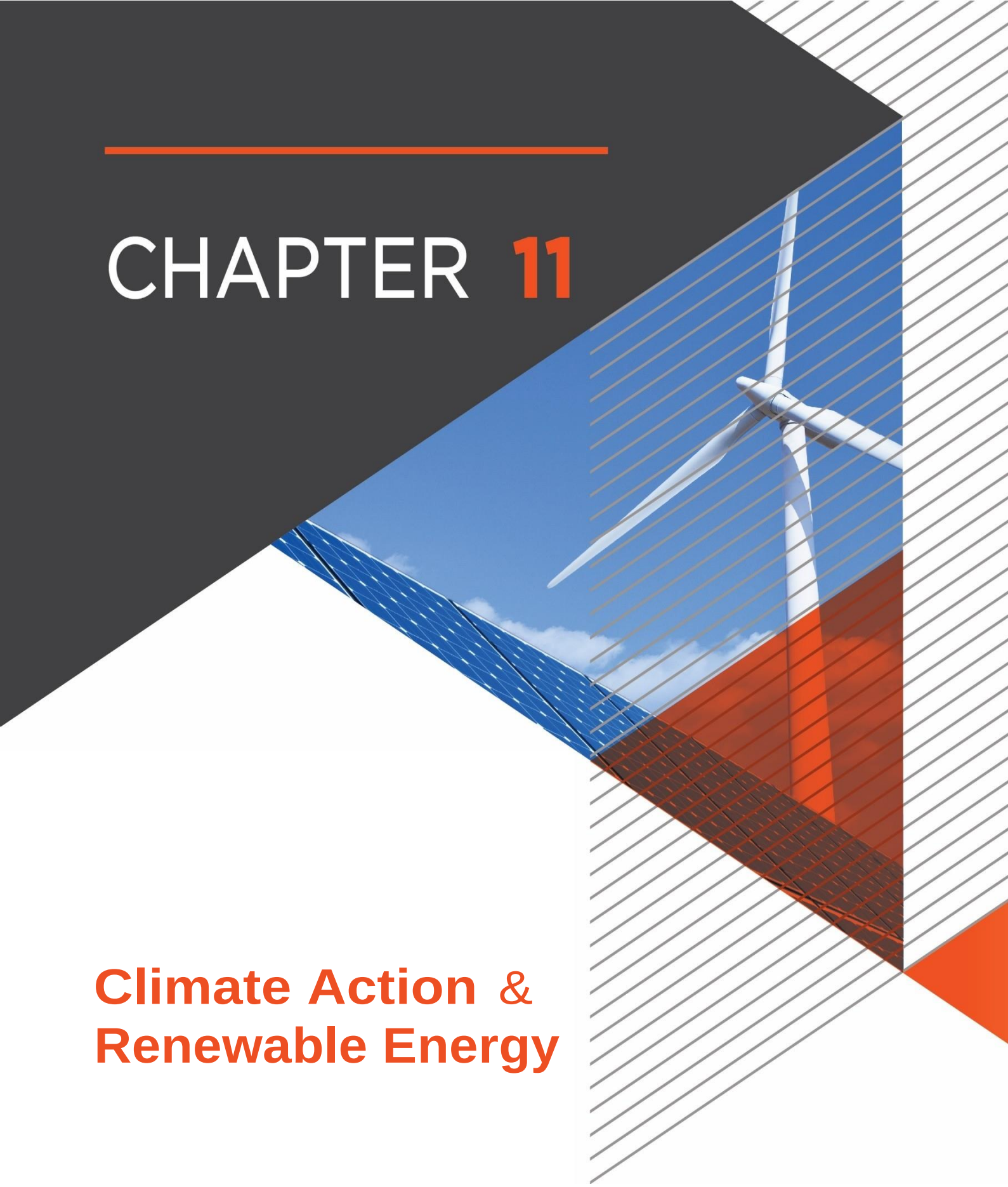
CHAPTER 11



Climate Action & Renewable Energy

Comhairle Contae Mhaigh Eo
Mayo County Council

CHAPTER 11 CLIMATE ACTION AND RENEWABLE ENERGY

11.1 Strategic Aim

The strategic aim of this chapter is to transition to a low carbon and climate resilient county, with an emphasis on reduction in energy demand and greenhouse gas emissions, through a combination of effective mitigation and adaptation responses to climate change; in addition to maximising the opportunities to become a national leader in renewable energy generation, whilst increasing the resilience of our Natural and Cultural Capital to climate change by planning and implementing appropriate adaptation measures.

Related UN Sustainable Development Goals

Related NPF National Strategic Outcomes

Related RSES Regional Growth Ambitions

11.2 Introduction

This chapter has been guided by the strategic aim, sustainable development goals, national strategic objectives and regional growth ambitions to ensure a low carbon, climate resilient and renewably energised Mayo. The chapter has also considered the key legislative and policy documents set out in Appendix III, including the NPF and RSES for the Northern and Western region.

11.3 National and Regional Planning Position

The National Policy Position on Climate Action and Low Carbon Development establishes the national objective of achieving transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. In order to achieve this objective, the NPF identifies planning as an established means to implement and integrate climate action at regional and local level. In response, the RSES pursues regional growth ambitions, which will help the Northern and Western region develop sustainably towards a low carbon and climate resilient future. The NPF and RSES seeks to ensure a reduction in our carbon footprint, through the delivery of sustainable, land use patterns, sustainable transportation initiatives, protection and enhancement of the green network and enhancement of biodiversity, approach to conservation, promotion of renewable energy technologies and Sustainable Urban Drainage Systems.

The NPF and RSES acknowledge that our international, European and national climate change commitments mean that power generation, transport and heat, increasingly have to be produced from sustainably produced electricity. Therefore, the NPF and RSES places a strong emphasis on the need for new energy systems and transmission grids. This is in order to facilitate increased renewables-focused energy generation systems, 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. The RSES seeks to identify renewable energy sites of scale in the region to help meet Ireland's renewable energy targets. The RSES acknowledges the renewable wave energy potential from the Atlantic Marine Energy Test Site (AMETS) located off Annagh Head, west of Béal an Mhuirthead (Belmullet). The test site is an integral component of Ireland's Ocean Energy Strategy and is being developed in accordance with the national Offshore Renewable Energy Development Plan (OREDP).

11.4 International and European Policy Position

Ireland is a party to both the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, which together provide a legal framework for addressing climate change. In December 2015 Ireland, as part of the European Union (EU), was a signatory to the Paris Agreement, which aims to restrict global temperature rise to well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C. A key European objective is to reduce greenhouse gases (GHG) emissions by 80-95% by 2050 compared to 1990 levels. In March 2007, the European Council adopted an objective to reduce GHG emissions by 20% by 2020, compared to 1990 levels. Under the Climate Policy Framework for 2020 to 2030, the EU agreed to further reduce GHG by at least 40% by 2030, as compared with 1990.

11.5 National Policy Position

The Government declared a Climate and Biodiversity Emergency in May 2019, only the second country in the world to pass such a declaration. Ireland's national transition objective, as defined in the National Policy Position and the Climate Action and Low Carbon Development Act 2015, is to transition to a low-carbon, climate-resilient and environmentally sustainable economy by 2050. The National Policy Position recognises the importance of reducing carbon dioxide emissions that will continue to warm the planet long into the future and adversely impact on humanity. In terms of mitigation, it has two components. The first aims to reduce emissions of carbon dioxide in three key sectors – electricity generation, the built environment and transport – by 80% by 2050, relative to 1990 levels. The second is related to agriculture, land use and forestry. It identifies 'an approach to carbon neutrality' without compromising sustainable food production as its primary objective. The Climate Action and Low Carbon Development Act 2015 also contains a number of legal obligations, including the preparation of National Mitigation Plans (NMP), a National Adaptation Framework (NAF) and Annual Transition Statements (ATS).

11.6 Climate Action

11.6.1 Mayo Context

Mayo County Council recognises that climate change is one of the greatest global challenges and that continual action is needed for Mayo to become a low carbon and climate resilient county. The Council has been proactive in climate action measures in the county to date. Mayo County Council were the first local authority to employ a Climate Action Officer and host to the Climate Action Regional Office (CARO) for the Atlantic Seaboard North Region. The Council, along with all 34 local authorities, has signed the Climate Action Charter committing to build climate resilience into every aspect of the work we do. The Climate Action Charter, a key measure in the Climate Action Plan (2019), commits the Council to deliver a 50% improvement in energy efficiency by 2030. The Charter requires local authorities to put in place a process for carbon-proofing major decisions, programmes and projects, including investments in transport and energy, as well as in procurement. Going forward, Mayo County Council intend to establish a carbon emissions baseline for the county over the lifetime of the plan, to help the county measure the effectiveness of the county development plan in lowering carbon emissions.

11.6.2 Climate Change

Climate change can result from natural processes and factors and more recently due to human activities, through emissions of greenhouse gases (GHG). For the past 200 years, the burning of fossil fuels, such as coal and oil and deforestation have caused the concentrations of heat-trapping greenhouse gases to increase significantly in the atmosphere. Global average temperatures have increased by almost 1˚C since preindustrial times, causing changes to the climate system. The impacts of climate change are diverse and wide ranging. In Ireland, predicted impacts include sea level rise; more intense storms and rainfall; increased likelihood and magnitude of river and coastal flooding; water shortages in summer; increased risk of new pests and diseases; adverse impacts on water quality; and changes in distribution and time of lifecycle events of plant and animal species on land and in the oceans. International, European and national measures and targets have been introduced

with the aim of improving adaptation to the adverse impacts of climate change, fostering climate resilience and supporting low GHG emissions development.

11.6.3 Integrating Climate Action into the County Development Plan

Climate Action is the response to reduce global warming and adjust to the consequences of climate change. Climate Action comprises of climate mitigation and adaptation measures to tackle climate change. *Climate Mitigation* refers to efforts that will reduce current and future greenhouse gas emissions, including reductions in energy use, switching to renewable energy sources and carbon sinks. *Climate adaptation* consists of actions that will reduce the impacts that are already happening and those that are projected to happen in the future. These include flood protection, reduced impact of rising sea levels, increased resilience of infrastructure and emergency response planning.

The overall vision and strategic aims of the county development plan have been influenced by climate action. Table 11.1 below demonstrates how climate action provisions have been incorporated into the county development plan. The table lists climate mitigation and adaption policies and objectives included in each chapter.

Climate Action (Mitigation/Adaptation)	
Chapters	**Mitigation & Adaptation Policies/Objectives**
Chapter 2 (Core Strategy & Settlement Strategy)	**CSP 3 - CSP 4, CSO 1 - CSO 9** **SSP 1 - SSP 8, SSO 1 - SSO 10, SSO 12, SSO 14, SS0 15**
Chapter 3 (Housing)	**HSP 4, HSP 5, HSO 4, HSO 5, RHP 2, RHP 6, RHP 8, RHO, 7, RHO 8, RHO 9, RHO 10, TVHP 3-7, TVHO 4 - 6, TVHO 9, TVHO 10, TVHO 13**
Chapter 4 (Economic Development)	**EDP 12, EDP 14, EDP 33, EDP 34** **EDO 5, EDO 9, EDO 10 – 16, EDO 22-23, EDO 34, EDO 50, EDO 54, EDO 64, EDO 64- 69**
Chapter 5 (Tourism and Recreation)	**TRP 6, TRP 8, TRP 9, TRP 12, TRP 23,** **TRP 25 – 28, TRO 3, TRO 4, TRO 13 TRO 14-16, TRO 18**
Chapter 6 (Movement and Transport)	**MTP 1 – 11, MTO 3 – 17**
Chapter 7 (Infrastructure)	**INP 10 – INP15,** **INO 14 - INO 25, INO 28**
Chapter 8 (Sustainable Communities)	**SCP 3, SCP 10, SCO 1, SCO 7, SCO 13,** **SCO 15**

Chapter 9 (Built Environment)	**BEP 1, BEP 3, BEP 4, BEP 5, BEP 6, BEO 1, BEO 2, BEO 3, BEO 4, BEO 5, BEO 6**
Chapter 10 (Natural Environment)	**NEP 1 – NEP 5, NEP 9 – NEP 13, NEP 16, NEP 23-24, NEO 2, NEO 4, NEO 6 – NEO 9, NEO 13, NEO 15 – 33, NEO 43-45**
Chapter 11 (Climate Action & Renewable Energy)	**CAP 1 – 9, CAO 1 –8, REP 1 – 7, REO 1-23**
Chapter 12 (Settlement Plans)	**GSP 3, GSP 7, GSP 8, BRP 4, BRP 5, BSP 4, CMP 3 – 5, SDP 2, CNP 3, KTP 1, NTP 3, NTO 2, RSVP 4-5, RSVP 11, BSO 4, BSO 5, CMO 6, CMO7, CRO 4, FDO 3**

Table 11.1 Climate Action Policies and Objectives incorporated into the County Development Plan

11.6.4 Climate Ready Mayo

The National Adaptation Framework (NAF) identifies the critical role to be played by local authorities in addressing climate change adaptation, through the establishment of four Climate Action Regional Offices (CAROs). County Mayo is situated in the Atlantic Seaboard North Climate Action Region. The main climatic risks associated with the Atlantic Seaboard North Climate Action Region include fluvial flooding, pluvial flooding, groundwater flooding and coastal flooding.

Mayo County Council has developed its Climate Adaptation Strategy - Climate Ready Mayo (2019). This strategy sets out a vision for a county that will be climate ready, a county that understands how climate change will affect our communities and businesses and a county that works together to reduce the risk and avail of the opportunities that climate change will bring. Climate Ready Mayo sets out the strategic goals, objectives and actions for adaptation in Mayo across five operational themes: governance; critical infrastructure and buildings; natural and cultural capital; water resources and flood management; and community services. The most immediate risks to Mayo are those which are due to changes in extremes such as floods, precipitation, storms and higher sea levels. Sea levels are predicted to rise by 0.55m by 2050.

11.6.4.1 Decarbonising Zone (DZ)

Mayo County Council supports the implementation of the Climate Action Plan (2019). Action 165 requires Decarbonising Zones (DZ) to be identified and developed by all local authorities. A DZ is an area identified by a local authority in a rural or urban context, in which a range of appropriate climate mitigation measures are established to address local low carbon energy, greenhouse gas emissions and climate needs. Energy baselines are established, heat maps are used to identify energy loss and a range of technologies and measures used to mitigate emissions from buildings. These zones may also include a range of local climate adaptation measures, such as climate proofing, green/blue infrastructure, citizen awareness and behavioural change. County Decarbonising Zones are also required to address the wider co-benefits of air quality, improved health, biodiversity, embodied

carbon, agricultural practices, sustainable land management, lower noise levels, waste, water, circular economy, etc. The Council will establish a Decarbonising Zone in Mayo as an exemplar for best practice within the county.

11.6.4.2 Climate Action Checklists

To support local authorities and sectors in performing risk assessments, Climate Ireland in collaboration with the Climate Action Regional Officers propose the development of a Risk Identification and Assessment Tool. This tool is envisioned to be an online portal allowing users to access, view and examine spatial datasets within a risk assessment framework. The development of this portal will assist in the development of a Climate Change Risk and Vulnerability Toolkit for local authorities. The toolkit will assist with the implementation of many of the actions in the Mayo Climate Adaptation Strategy.

Mayo County Council will develop and implement a climate change screening checklist and guidance document to ensure new developments take account of climate change over the lifetime of a development, especially with regard to its location, site layout, building, ventilation and cooling, drainage, water, outdoor spaces and connectivity.

11.6.5 Decarbonising Mayo

The Plan examines the following main sectors, which set Ireland on a pathway to decarbonising the economy:

- *Electricity Generation*
- *Built Environment*
- *Transport*
- *Agriculture*
- *Land Use*
- *Forestry*
- *Nature Based Solutions*

These measures lay the foundations for transitioning Mayo to a low carbon, climate resilient and environmentally sustainable economy by 2050 and are discussed further below.

11.6.5.1 Electricity Generation

The provision of a safe, secure and reliable electricity supply is a critical component necessary to sustain economic growth in Ireland. To this end, Ireland in recent years has been phasing out the use of fossil fuels, such as oil, natural gas, coal and peat to generate electricity, in favour of renewable energy sources. Ireland's Transition to a Low Carbon Energy Future 2015-2030, the Government's White Paper on Energy, sets out a roadmap for a low carbon energy system to 2030. The White Paper acknowledges in the short to medium-term, the mix of non-renewables will shift away from more carbon-intensive fuels, like peat and coal, to lower-carbon fuels like natural gas. The Climate Action Plan (2019) targets that 70% of electricity must come from renewables by 2030. In 2018, 22% of all energy inputs to electricity generation were from renewable sources, whereas coal and peat accounted for 21% of fuel inputs. Mayo County Council will endeavour to plays its part in promoting

more sustainable renewable electricity generation, which are the multiple forms of renewable energy discussed further in the chapter.

11.6.5.2 Built Environment

The built environment sector includes residential, commercial and public buildings which generate emissions, primarily as a result of energy demand for space and water heating. Energy efficiency in the built environment sector is crucial to decarbonisation. New building regulations in the residential and commercial sectors have led to significant improvements in the efficiency of new building stock and will improve with the uptake of renewables. According to the CSO, 9.1% of domestic Building Energy Rating's (BER) in County Mayo in 2018 were Grade B and above. More stringent building regulations were introduced in 2019, requiring all new buildings to be *Near Zero Energy Building (NZEB)* and all existing dwellings undergoing major renovations to meet a minimum *Building Energy Rating (BER)* of B2. These regulations will be progressively extended to improve energy efficiency performance, including phasing out the installation of oil boilers. Increased progress in both energy efficiency upgrades and switching to renewable energy sources will be important to achieve low-carbon transition in this sector.

Mayo County Council has been proactive in reducing emissions, for example the installation of an 84kW solar photovoltaic (PV) array on Aras an Chontae, Castlebar, the largest Local Authority solar PV array in the country. The PV solar panels will provide over 11% of Aras an Chontae's electricity usage and will offset over 30,000kg of CO2 per year. Other projects include the retrofitting of public lighting to LEDs and installation of Electric Vehicle (EV) charge points in council carparks. The Council is working towards ISO 50001 Energy Management certification, with the aim of establishing systems and processes necessary to improve energy performance, including energy efficiency, use, and consumption.

Greening Built Environments

The greening of built environments can also contribute to climate change adaptation and mitigation, by cooling the surrounding area and providing homes for wildlife, as well as ecosystem services. It also boosts property values and adds to the quality of life by filtering the air, reducing noise and creating attractive places where people can live or spend time. The greening of built environments can also help prevent flooding and pollution, damaging wildlife and habitats. The hard surfaces typically created in built environments can contribute to flooding, as rainwater runs off more quickly than from natural land. In relation to a changing climate and more intense storms, it is essential that built environments incorporate sustainable drainage systems (SuDs) to reduce the rate of runoff and contribute towards the greening of towns and village throughout the county.

11.6.5.3 Transport

Transport is the second largest emitter of GHG in Ireland, behind agriculture, at 19.8% of the national total emissions in 2018. The transport sector is the biggest contributor of GHG emissions in County Mayo. Economic growth, higher levels of activity, past policies on investment, infrastructure and spatial planning have caused high levels of emissions, air pollution and congestion on roads. Dispersed settlement patterns between where people live and work implicitly increases mobility demand. This has resulted in the long-term trends in Ireland towards more private and motorised transport, which has resulted in the decline in the active modes of travel, such as walking and cycling. To reverse the

current trends, the NPF and RSES advocates reducing the distance between where people live and work, which will reduce commuting distances and GHG emissions. Effective land use management will play a major role, by pursing sustainable options such as compact growth of urban and rural settlements for housing. Given Mayo is predominantly a rural based county with a dispersed settlement pattern, rural travel initiatives such as Local Link Mayo and renewable powered transport will low GHG emissions from transport.

The Climate Action Plan (2019) seeks to reach 100% ownership of Electronic Vehicles (EV) by 2030, therefore achieving the national target of 950,000 EVs on the road in 2030. Mayo County Council purchased its first fleet of fully electronic vehicles in 2019 and has provided numerous EV charging points at Council premises to help reduce emissions.

11.6.5.4 Agriculture

The agricultural sector was the highest emitter of GHG in Ireland in 2018 at 33.9%. The increase in GHG's is primarily attributed to an increase in animal stock numbers and the resultant increased levels of methane. In the livestock sector, improved feed and animal management has considerable potential to reduce methane emissions. The agricultural sector also has the potential to absorb emissions through effective land-use management. Semi-natural and managed ecosystems within farms provide for active carbon sequestration and reduction of emissions. A range of adjustment measures can also be undertaken relating to farming practices to combat climate change, for example planting, harvesting and watering/fertilising existing crops, using different varieties, diversifying crops, and implementing management practices. The long-term challenge for the agriculture sector is to meet the National Policy Position on Climate Action, which sets a national objective to an achieve carbon neutrality, without compromising the capacity for sustainable food production.

Mayo County Council's *'A Sustainable Agricultural Strategy for Mayo'* provides a roadmap for the future sustainable development of the agriculture industry in Mayo. It sets out a series of actions that will guide the sector, capitalise on its opportunities and overcome the barriers to developing this significant component of the Mayo economy in an environmentally friendly manner.

Furthermore, a greater focus is required on the interactions of agriculture/forestry with climate and potential impacts on biodiversity. Most of the Irish land cover is directly shaped by humans (e.g. pastureland, cropland, forestry) with substantial implications for carbon budgets, climate resilience and biodiversity. In addition, grasslands and forests with a large number of plant species are more productive, capture more carbon and therefore have a higher potential to mitigate against climate change.

11.6.5.5 Nature Based Solutions

The concept of nature-based solutions is one of several concepts that promote the maintenance, enhancement and restoration of biodiversity and ecosystems to combat climate change. Nature-based solutions harness the power of nature to reduce green-house gas emissions. Solutions include but are not limited to the provision/restoration of natural habitat, ecological corridors, increased biodiversity, water treatment and retention, local amenity provision, air quality improvement, cultural and heritage preservation and flood mitigation. Nature-based solutions in towns and villages such as tree canopies, green infrastructure and sustainable urban drainage (SuDS) help to prevent flooding and erosion, regulate temperatures, absorb carbon and filter pollutants from the air.

Some of these important functions and benefits that nature-based solutions provide include:

- Vegetation, particularly trees through photosynthesis which stores carbon as it grows, while it can also reduce air pollution through filtration.
- During storm events with high winds, trees act as a natural barrier to reduce wind speed and provide shelter.
- Plants in wetland areas attenuate, filtrate and purify water.
- Trees and plants reduce water run-off in extreme rain events, taking pressure off the urban drainage system, while also preventing soil erosion.c

At local authority level, nature-based solutions and green infrastructure offers an opportunity to develop integrated strategies around economic development, placemaking and rural development. These policies also achieve other social objectives, for example, safe cycling options are beneficial for enhancing human health and the mobility of young people, while local food sourcing can provide an opportunity for the kind of community engagement that the localism and health agendas are seeking to foster. Linking strategic natural assets with cultural and heritage assets further enhances the opportunities for green infrastructure strategies and nature-based solutions to drive recreation and tourism benefits, while building resilience to climate change.

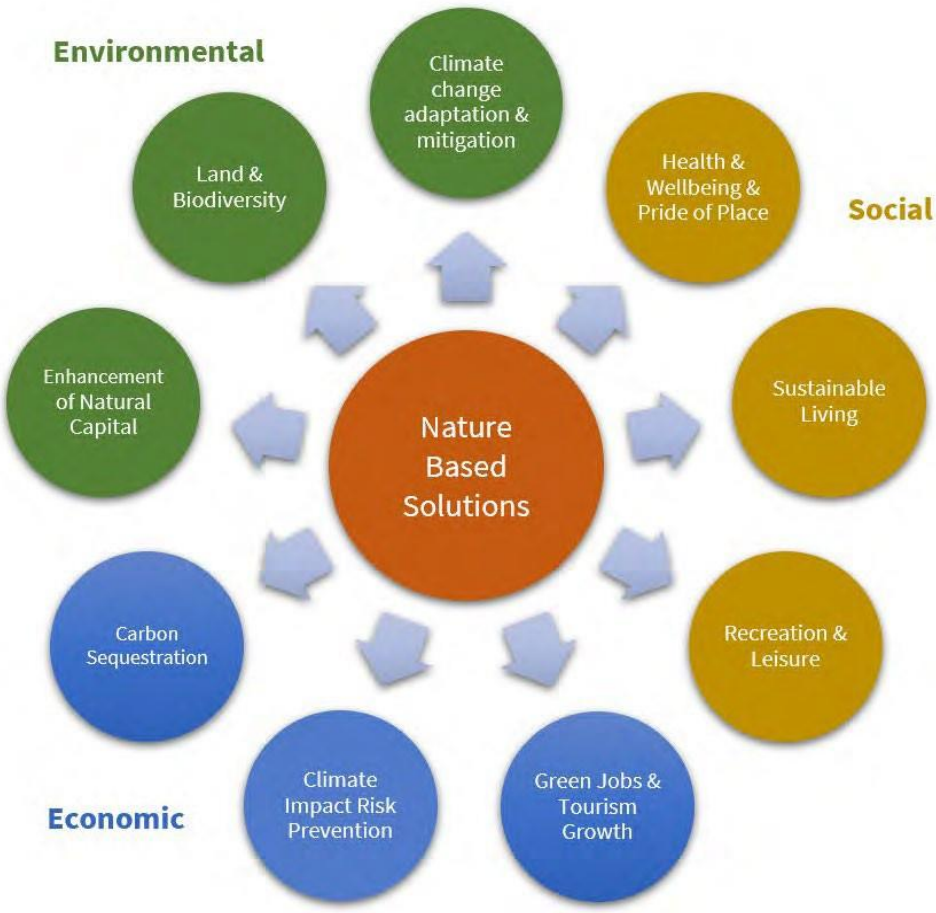


Figure 11.1 Nature Based Solutions

11.6.5.6 Land use

Land use and land-use change contribute substantially to global greenhouse gas emissions; however, they also offer significant potential to reduce emissions. The natural environment plays a crucial role in absorbing and storing carbon. Mayo County Council recognises the significant potential for cutting future emissions of greenhouse gases through maintaining healthy ecosystems and restoring degraded environments. The Council supports the preservation and restoration of degraded land, forests, peatlands, organic soils, wetlands, reduction in conversion of pastureland, improved grassland management, replanting forests and reducing other pressures on nature.

Peatlands and Wetlands

Peatlands and wetlands are not as extensive as forests and grasslands, in terms of land use, but on a per unit-area basis, they hold the greatest volume of carbon and therefore are an important nature-based solution. When peatlands and wetlands are drained and damaged, carbon is realised into the atmosphere. The rewetting and restoration of peatlands and wetlands has the capacity to secure existing carbon stock and reinitiate the carbon sequestration capacity of degraded peatlands. Mayo County Council will prepare a peatlands strategy for County Mayo over the lifetime of the Plan.

Forestry

Forests are probably the most familiar, nature-based solution for climate change and can contribute both by reducing emission sources and increasing carbon sinks. Globally, forestry and soils absorb about 30% of atmospheric carbon emissions, partially through forest productivity and restoration. Forestry offers the greatest amounts of cost-effective mitigation opportunities, comprising of about two thirds of all nature-based climate solutions. The NPF recognises that forestry plays an important role in helping with climate change mitigation, through carbon sequestration in forests and the provision of renewable fuels and raw materials. Afforestation is the most significant mitigation option that is available to Ireland's land use sector, followed by avoided deforestation and improved forest management. In addition, forests have an important role in flood risk management, as they soak up water, store it and release it gradually, limiting floods when it rains and storing water for dry periods.

Mayo County Council recognise that forestry, trees and woodlands play an important role in the removal of carbon dioxide from the atmosphere and supports afforestation. According to the National Forest Inventory (2017), 51,330 hectares of land in Mayo comprises of forestry and 508,440 hectares of land is categorised as non-forestry woodland. 55.5% of the forestry lands is publicly owned by bodies such as Coillte and National Parks and Wildlife, with 44.5% privately owned. To meet the required level of CO2 reductions, the Climate Action Plan 2019 targets national afforestation rates of an average of 8,000 hectares per year, in order to reach a national forestry land-cover target of 18% by the second half of this century.

Climate Action Policies

CAP 1	To support and enable the implementation and achievement of European and national objectives for climate adaptation and mitigation as detailed in the following documents, taking into account other provisions of the Plan (including those relating to land use planning, energy, sustainable mobility, flood risk management and drainage); Climate Action Plan (2019 and any subsequent versions); • National Climate Change Adaptation Framework (2018 and any subsequent versions). • Relevant provisions of any Sectoral Adaptation Plans prepared to comply with the requirements of the Climate Action and Low Carbon Development Act 2015, including those seeking to contribute towards the National Transition Objective, to pursue, and achieve, the transition to a low carbon, climate resilient and environmentally sustainable economy by the end of the year 2050; and Mayo Council Climate Change Adaptation Strategy (2019-2024 and any subsequent versions).
CAP 2	To support the National Climate Change Strategy and methods of reducing anthropogenic greenhouse gases on an ongoing basis through implementation of supporting objectives in this Plan, particularly those supporting use of alternative and renewable energy sources, sustainable transport, air quality, coastal zone management, flooding and soil erosion and promotion of the retention of, and planting of trees, hedgerows and afforestation, subject to no significant adverse effects on the environment including the integrity of the Natura 2000 network.
CAP 3	To support, promote and facilitate the advancement of climate action at the local and community level in County Mayo and to raise general awareness of issues associated with climate action and climate change mitigation and adaptation.
CAP 4	To support local, regional, national and international initiatives for climate adaptation and mitigation and to limit emissions of greenhouse gases through energy efficiency and the development of renewable energy sources, which make use of all natural resources, including publicly owned lands, in an environmentally acceptable manner.
CAP 5	To support the National Dialogue on Climate Action, in an effort to increase awareness of climate change, behavioural change and adaptation actions and in doing so provide an ongoing platform for planning climate resilience with a focus on personal responsibility at all levels.

CAP 6	To support the transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050, by way of reducing greenhouse gases, increasing renewable energy, and improving energy efficiency and supporting nature-based solutions to climate adaptation and mitigation that provides co benefits.
CAP 7	To support and promote the enhancement of carbon sinks such as peatlands, appropriate afforestation and permanent grasslands, with consideration of afforestation or rewetting on cut away peatlands.
CAP 8	To cooperate with the Climate Action Regional Office (CARO) in respect of the implementation of existing and future climate change adaption and mitigation strategies.
CAP 9	To support Ireland's renewable energy commitments outlined in national policy by facilitating the development and exploitation of all appropriate renewable energy sources at suitable locations within the county, where such development does not have a negative impact on the surrounding environment (including water quality), landscape, biodiversity or local amenities, so as to provide for further residential and enterprise development within the county.

Climate Action Objectives

CAO 1	To support and advance the provision of renewable energy resources and programmes in line with the Government's National Renewable Energy Action Plan (NREAP), the Governments' Energy White Paper "Irelands Transition to a Low Carbon Energy Future" (2015-2030) and any other relevant policy adopted during the lifetime of this plan.
CAO 2	To support, facilitate and advance the achievement of the goals, objectives and actions of Climate Ready Mayo, the Climate Change Adaptation Strategy for County Mayo.
CAO 3	To carry out a carbon emissions baseline for County Mayo over the lifetime of the plan.
CAO 4	To develop and implement a climate change screening checklist and guidance document over the lifetime of the plan, to ensure new development takes account of climate change over the lifetime of a development, in particular with regard to its location, site layout, building, ventilation and cooling, drainage, water, outdoor spaces and connectivity.
CAO 5	To identify and develop Decarbonising Zone(s) in Mayo, as per Action 165 of the Climate Action Plan 2019 and to promote the use of the Decarbonisation Zone(s) as an exemplary example for best practice within the county.

CAO 5	To identify and develop Decarbonising Zone(s) in Mayo, as per Action 165 of the Climate Action Plan 2019 and to promote the use of the Decarbonisation Zone(s) as an exemplar for best practice within the county.
CAO 6	To increase the resilience of Natural and Cultural Capital, as per Goal 3 of Climate Ready Mayo, by: (a) Building awareness of Nature Based Adaptation Solutions and Green Infrastructure. (b) Support biodiversity for its intrinsic value within the natural environment and its importance in climate change adaptation. (c) Develop a database of impacts of climate change on Mayo's Natural Environment. (d) Identify Cultural and Heritage Sites vulnerable to climate change and develop adaptation and management policies. (e) Encourage adaptation in Agriculture and Local Food Supply.
CAO 7	To recognise, support and facilitate Ballina to become Ireland's Greenest Town by 2025.
CAO 8	To support and facilitate Westport to become Ireland's first '15 Minute Town' - a sustainable town where a modal shift towards sustainable transport is actively promoted and facilitated.

11.7 Renewable Energy

11.7.1 Renewable Energy

The EU Renewable Energy Directive defines renewable energy as renewable non-fossil energy sources such as, but not limited to wind, solar, geothermal, wave, tidal, hydropower, bioenergy, landfill gas, sewage treatment plant gas, biogas and bio-char. Ireland has committed to generate at least 16% of all energy consumed by 2020 from renewable sources under the Directive, compared to 1990 levels. The EU's Climate and Energy Framework 2030 has also increased the minimum energy target from renewable sources to at least 32% for Member States.

Ireland currently has over 3,000 MW of installed renewable energy. The Climate Action Plan (2019) includes targets to increase the capacity of renewable energy in Ireland by four-fold. Ireland has a target of 70% of electricity sourced from renewables by 2030, comprising of up to 8.2 GW onshore wind, 3.5 GW offshore wind and up to 1.5GW of solar, with a view to having a net zero energy system by 2050.

11.7.2 National Energy Policy

Ireland's national energy policy is focused on three pillars: (1) sustainability, (2) security of supply and (3) competitiveness. 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 development of the Wind Energy Guidelines and the Renewable Electricity Development Plan will also facilitate informed decision-making in relation to onshore renewable energy infrastructure.

Local Authorities must also be consistent with the following national plans, policies and strategies when considering proposals for renewable energy:

- The National Renewable Energy Action Plan 2010 (Irish Government submission to the European Commission).
- The Government's Strategy for Renewable Energy 2012 – 2020 (DCENR).
- The Government's White Paper on Energy Policy - Ireland's Transition to a Low Carbon Energy Future 2015-2030 (DCENR).
- Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change (July 2017).
- Wind Energy Development Guidelines, Planning Guidelines (2006), as amended or replaced.
- National Mitigation Plans (compliant with the Climate Action and Low Carbon Development Act, 2015).

11.7.3 Mayo Context

Mayo County Council is a leader in the development of renewable energy, with Ireland's first commercial wind farm at Bellacorick, Co Mayo in 1992. The Council recognises that a safe, secure, sustainable and affordable supply of energy is of central importance to the economic and social wellbeing of County Mayo. Continued development of renewable energy sources in Mayo will help Ireland achieve our national targets. Mayo has an enormous wind resource with the potential to underpin an entire new economy in the county. The county generates 266MW (Q1 2020) from 15 wind farms, which is approximately 6% of Ireland's overall wind energy production. The development of the extant permissions for wind and solar energy projects in the county will significantly add to Mayo's renewable energy output.

11.7.4 County Mayo Renewable Energy Target

The development of renewable energy sources is central to the overall energy policy in Ireland. The 2017 '*Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change*' requires local authorities to indicate how development plans will contribute to realising overall national targets on renewable energy. Research carried out on behalf of the Irish Wind Energy Association (IWEA) indicates that 400 square kilometres of suitable land is available for onshore wind energy in Mayo. This figure accounts for environmental sensitivities, grid connection potential, compliance with the wind energy guidelines and other relevant planning and infrastructural considerations. Current best practice in the wind energy industry would suggest that an area of 400 square kilometres can generate a maximum potential of 10,000 MW.

In setting a realistic deliverable target for a county with a high wind potential like Mayo, a minimum target of 600MW over the plan period is considered achievable. The target would meet the energy demands of existing households in Mayo, as well as the proposed additional households for the county set out in the Core Strategy Table (Chapter 2). This renewable energy target for Mayo may need to be revised over the lifetime of the Plan to ensure alignment with the Northern and Western Regional Assembly's forthcoming Renewable Energy Strategy.

11.7.5 Mayo Renewable Energy Strategy 2011-2020

The Mayo Renewable Energy Strategy (RES) 2011-2020 outlines the potential for County Mayo and how it can capitalise on a range of renewable resources, including onshore and offshore wind, wave and tidal energy, solar and other renewable energy forms. The RES acknowledges the significant contribution renewables can make to County Mayo, by providing more secure energy, reducing reliance on traditional fossil fuels, enabling future energy export and meeting energy targets. The strategy also identifies areas most suitable for renewable energy developments in a tier system. Mayo County Council will commence the review and update the Mayo Renewable Energy Strategy within one year of adopting this plan.

11.7.6 Wind Energy

Mayo County Council recognises the importance of onshore and offshore wind energy as a renewable energy source and its role in meeting Ireland's national energy targets. The Council will endeavour to continue to facilitate wind energy projects that accord with the Mayo RES, the Landscape Appraisal of County Mayo and relevant Section 28 ministerial guidelines. The Council recognises that improvements are required in the existing transmission network to fully harness the County's

renewable energy potential. There is also real potential for Mayo to maximise the potential by-products that can be created using wind energy such as hydrogen, agricultural fertilizer and synthetic green fuels. The Plan supports maximizing the potential of accessing new, emerging by-product markets to advance the socio-economic growth of Mayo and to help transition to a low carbon county.

Wind energy is Ireland's largest and cheapest renewable electricity resource and is the second greatest source of electricity generation after natural gas. In 2018, wind energy provided 85% of Ireland's renewable electricity and 30% of our total electricity demand. Mayo has a strong wind resource and a rich history of wind generation. In 1992, Ireland's first commercial wind farm came into operation at Bellacorick. The capacity of the Oweninny wind farm at Bellacorick has recently been upgraded and will be further increased to 172MW, following completion of Oweninny Phase 2. The Oweninny wind farm will generate sufficient electricity to power around 100,000 households per annum.

Mayo County Council recognises that community ownership of wind energy projects enables local communities to benefit directly from local wind energy resources being developed in their local areas, ensuring long-term income for rural communities. The Killala Community Wind Farm project in North Mayo involves a direct community investment in partnership with a private development company. The Killala Community Wind Farm, comprising of five turbines, generates 17MW of renewable power. The Council encourages community ownership of wind energy projects in Mayo.

11.7.7 Solar Energy

Mayo County Council recognises the importance of solar energy as a renewable energy resource. Solar energy is any type of energy generated by the sun. There are a range of technologies available to exploit the benefits of the sun including solar panels, solar farms and solar energy storage facilities, all of which contribute to a reduction in energy demand. Solar technologies can be designed into buildings or retro fitted. The three basic approaches used to harness and gain maximum benefit of solar energy in buildings, include passive solar; active solar heating; and solar photovoltaic (PV) systems.

Larger solar farms have potential to be built on agricultural land, whilst also accommodating the continued use of the land for grazing. These projects are much less visually intrusive than wind and some other forms of energy generation. Mayo County Council encourages community ownership of solar energy projects, for example the community-led solar project by Claremorris and Western District Energy Co-Op approved in Claremorris, which can generate sufficient renewable energy capable of meeting the town's energy needs.

11.7.8 Hydro-electricity

Mayo County Council encourages the use of rivers, where suitable, within the county for the development of hydro energy. For any such proposals, the Council will consult with the National Parks and Wildlife Section (NPWS) of the Department of Culture, Heritage and the Gaeltacht and Inland Fisheries Ireland, with regard to the impact of such proposals for the free passage of fish, salmonid qualities of the river and ecological impact of any sites of E.U. or national designation.

11.7.9 Tidal/Wave Energy

Tidal stream technologies aim to capture the kinetic energy of the currents flowing in and out of the tidal areas. Since the relative positions of the sun and moon can be predicted with complete accuracy, so can the resultant tide. It is this predictability that makes tidal energy such a valuable resource. The best wave resources in Europe occur along the western seaboard of Ireland. The Atlantic Marine Energy Test Site (AMETS), off Annagh Head on the Mullet Peninsula, is being developed by Sustainable Energy Authority of Ireland (SEAI) to carry out full-scale wave energy testing. It is envisaged that the renewable power energy generated at AMETS will be directed into the national grid. The test site is an integral component of Ireland's Ocean Energy Strategy and is being developed in accordance with the national Offshore Renewable Energy Development Plan (OREDP).

11.7.10 Micro Renewable Energy

Certain energy installations that qualify as being micro-generators constitute exempted development under planning legislation. These planning exemptions apply to residential scale and some commercial scale wind turbine, solar arrays, heat pumps and biomass boilers, subject to meeting certain conditions. The Council encourages small scale generation of heat and electricity by individuals, small businesses and communities to meet their own needs and as an alternative to or to supplement grid connected power.

11.7.11 Low Carbon District Heating

District heating is one of the most efficient and cost-effective ways to heat apartments, homes and mixed-use developments. It involves delivering heat rather than fuel to buildings. District heating networks can be based on a variety of technologies and renewable energy sources, such as combined heat and power (CHP), geothermal or energy from waste. Such schemes work particularly well in built-up urban areas where there is a near constant demand. For the system to work, water is heated using a boiler located in a central heating plant. The heat is distributed to the individual houses via an underground network of insulated pipes. The water in the network is continually circulating and always available. Immersion heaters, boilers and hot water storage tanks are not required, which frees up space for other purposes. The use of a renewable energy solution to provide heating and hot water to houses and businesses contributes to improved sustainability, as it reduces demand for and consumption of energy while using a renewable form of fuel.

11.7.12 Other forms of Renewable Energy Sources

Mayo County Council is fully supportive of all types of renewable energy resources and emerging technologies, all of which will help Mayo transition to a low carbon county. Some notable renewable resources include geothermal energy (from heat below the surface of the earth), biomass (wood, biodegradable waste and energy crops) and green hydrogen (electrical current to separate the hydrogen from the oxygen in water and can be use as transport fuel).

Renewable Energy Policies

REP 1	To support Ireland's renewable energy commitments outlined in national policy by facilitating the development and exploitation of a range of renewable energy sources at suitable locations within the county, where such development does not have a negative impact on the surrounding environment (including water quality), landscape, biodiversity or local amenities to ensure the long-term sustainable growth of the county.
REP 2	To support, within the context of the Offshore Renewable Energy Development Plan (OREDP) and its successors, the progressive development of Ireland's offshore renewable energy potential, including domestic and international grid connectivity enhancements.
REP 3	To actively encourage and support the sustainable development, renewal and maintenance of energy generation infrastructure in order to maintain a secure energy supply, while protecting the landscape, archaeological and built heritage and having regard to the provisions of the Habitats Directive.
REP 4	To ensure that developers of proposed large-scale renewable energy projects carry out community consultation in accordance with best practice and commence the consultation at the initiation of project planning.
REP 5	To promote the use of efficient energy storage systems and infrastructure that supports energy efficiency and renewable energy system optimisation, subject to the proper planning and sustainable development of the area and consideration of environmental and ecological sensitivities.
REP 6	To work with relevant stakeholders and industry to establish Mayo as a centre of excellence for renewable energy research and development activities.
REP 7	To promote the harnessing of wind energy to contribute toward decarbonising County Mayo, including new emerging by-product markets.

Renewable Energy Objectives

REO 1	To co-operate with the Northern and Western Regional Assembly in identifying Strategic Energy Zones as areas suitable for larger, energy generating projects, community and micro energy production, whilst ensuring environmental constraints and a regional landscape strategy are considered.

REO 2	To examine options to ensure that community benefits are derived from renewable energy development in the County.
REO 3	To encourage and facilitate, where possible, the production of energy from established and emerging renewable technologies.
REO 4	To support and implement the recording and monitoring of renewable energy potential in the county in partnership with other stakeholders including the Sustainable Energy Authority of Ireland (SEAI).
REO 5	To support and work in partnership with local communities in the development of energy efficient and renewable energy projects.
REO 6	To ensure all renewable energy proposal comply with the provisions of the Mayo County Council Renewable Energy Strategy 2011-2022 (or as updated).
REO 7	To commence the review of the Mayo County Renewable Energy Strategy 2011-2022 within one year of adopting this plan and update as required in accordance with future legislative guidelines and consistency with the provisions of RPO 4.16 and RPO 5.2(b) of the RSES, 2020-2032.
REO 8	To encourage the development of wind energy, in accordance with Government policy, and having regard to the *Landscape Appraisal of County Mayo* and the Wind Energy Development Guidelines (2006) and Mayo Renewable Energy Strategy, or any revisions there of or future guidelines, and ensure consistency with the provisions of RPO 4.16 and RPO 5.2(b) of the RSES (2020-2032).
REO 9	To support Ireland's renewable energy commitments outlined in national policy by promoting the development of solar energy.
REO 10	To encourage solar energy in commercial and residential development, subject to the proper planning and sustainable development of the area and consideration of environmental and ecological sensitivities.
REO 11	To ensure that solar farm development proposals in the vicinity of major road networks & transport nodes, such as Ireland West Airport Knock (15km Radius), do not create a traffic hazard or endanger aircraft safety by reason of glint and glare.
REO 12	To support offshore and tidal renewable energy developments subject to environmental considerations and the protection of commercial fishing and the amenities of the surrounding areas in accordance with the OREDP, subject to proper planning and environmental considerations.

REO 13	To recognise the important role of the Atlantic Marine Energy Test Site (AMETS) tidal wave test site off Beal an Mhuirthead (Belmullet).
REO 14	To support the development of appropriate land-based infrastructure at suitable locations, in order to facilitate the transition between the land and sea necessary for off-shore renewable energy projects.
REO 15	To facilitate large and smaller scale geothermal energy generating developments both standalone and in conjunction with other renewable energy projects.
REO 16	To promote the use of geothermal heat pumps for space heating and cooling as well as water heating in domestic, commercial and recreational buildings.
REO 17	To promote on-site wind/solar energy development or other emerging energy technologies, where energy generated is primarily required to meet the needs of households, communities, agriculture and other businesses to reduce their carbon emissions.
REO 18	Support, promote and facilitate community energy-based initiatives such as the Sustainable Energy Authority of Ireland's (SEAI) 'Sustainable Community Energy' scheme or similar community energy initiatives to help achieve low carbon communities.
REO 19	To support Ireland's renewable energy commitments outlined in national policy by promoting the use of district heating systems in new residential and commercial developments.
REO 20	To consider using heat mapping to support developments which deliver energy efficiency and the recovery of energy that would otherwise be wasted.
REO 21	To carry out a feasibility assessment for district heating in County Mayo and identify local waste heat sources or renewable energy sources.
REO 22	To promote the use of efficient energy storage systems and infrastructure that supports energy efficiency and renewable energy system optimisation, in accordance with proper planning and sustainable development.
REO 23	To support and facilitate the achievement of the minimum renewable energy target of 600MW for County Mayo over the plan, and to review/revise this target to ensure consistency with any future renewable energy strategies for the Northern and Western Region.