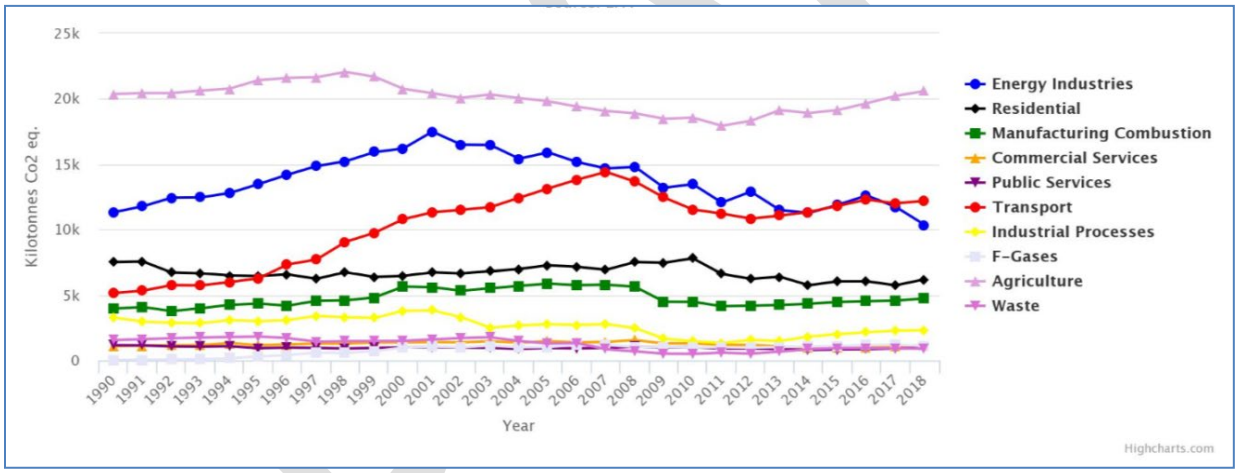
CHAPTER 3: CLIMATE ACTION & ENERGY

Aim: ***To reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions.***

3.1 WHAT IS CLIMATE CHANGE

Climate change refers to a long term, large scale change in global or regional climate patterns. In recent years, global temperatures have been rising. Changes observed in our climate since the early 20th century are primarily driven by human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere, raising the average surface temperature and creating a shift in global atmospheric pressure. Many human activities generate these gases such as the production of electricity, transportation, industrial and agricultural activity which contribute to high quantities of these emissions. As can be seen in the chart below, agriculture is the highest producer of greenhouse gas emissions in the country, followed by transport and energy industries.

Fig 3.1 Greenhouse Gas Emissions by Sector



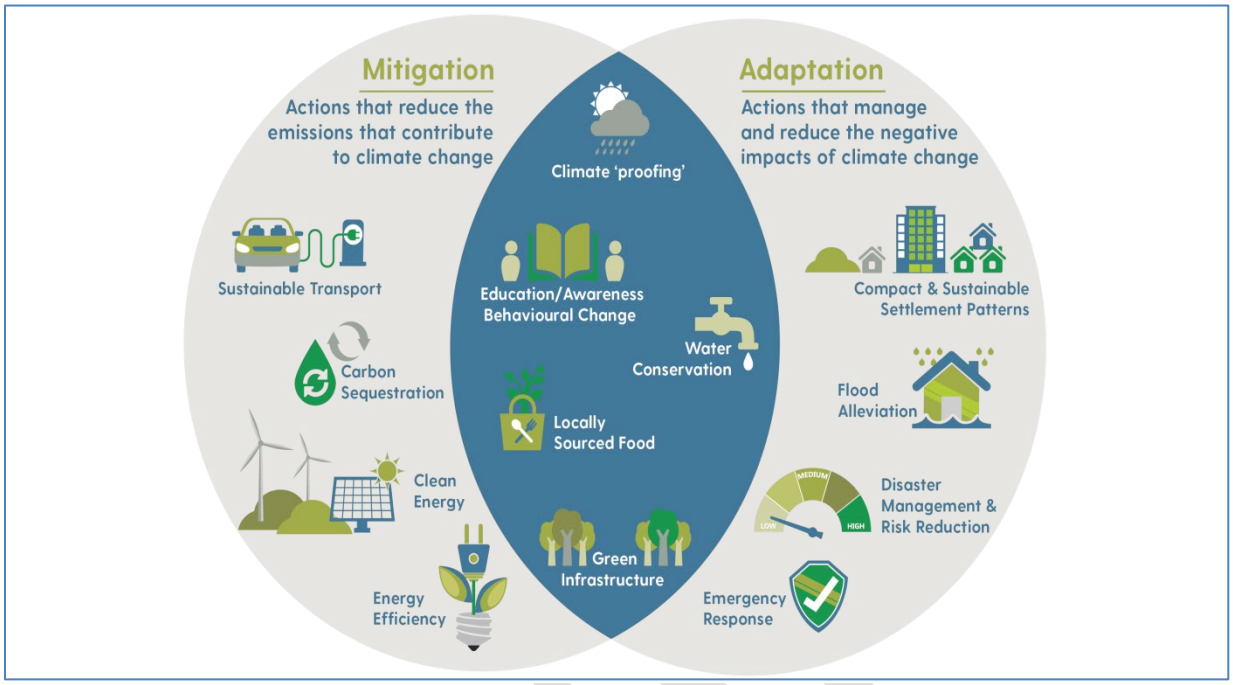
Source: EPA Environmental Indicator

3.1.1 CLIMATE ACTION = MITIGATION + ADAPTATION

Climate change is now recognised as the most significant global threat and its impacts are already having far-reaching economic, social and environmental consequences which can be seen in our rising sea levels, higher average temperatures, frequent weather extremes and flooding. 'Climate Action' includes the two approaches necessary to tackle climate change – Mitigation and Adaptation. 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.

Fig 3.2 Climate Mitigation and Adaptation Measures



Source: Climate Action Regional Office

3.2 CLIMATE CHANGE LEGISLATIVE BACKGROUND

3.2.1 INTERNATIONAL

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty adopted in May 1992, with an objective "to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The framework outlined how specific international treaties may negotiate further action towards its key objective. Most recently, the Paris Agreement 2015 is a protocol set within the context of the UNFCCC and was ratified by Ireland on 4th November 2016 and it is aimed at limiting global warming to less than 2.0°C above pre-industrial level and pursue efforts to limit the temperature increase to 1.50°C along with building resilience and increasing the ability to mitigate the impacts of climate change.

3.2.2 EUROPEAN

The European Union published a Strategy on Adapting to Climate Change in April 2013 the main focus of which was to build a more climate resilient Europe. The EU Covenant of Mayors for Climate and Energy is the mainstream European voluntary movement involving local authorities in the development and implementation of sustainable energy and climate policies. Laois County Council is working towards becoming a party to the Covenant of Mayors.

3.2.3 NATIONAL

Ireland's first national policy to address the impacts of climate change was introduced in 2012 with National Climate Change Adaptation Framework (NCCAF) with the National Policy Position on Climate Action and Low Carbon Development 2014 reiterating the policy position. The National Policy Position 42 establishes the fundamental national objective of achieving transition to a competitive, low carbon, climate resilient and environmentally sustainable economy by 2050, guided by a long-term vision based on:

- an aggregate reduction in carbon dioxide (CO2) emissions of at least 80% (compared to 1990 levels) by 2050 across the electricity generation, built environment and transport sectors; and
- in parallel, an approach to carbon neutrality in the agriculture and land-use sector, including forestry, which does not compromise capacity for sustainable food production.

Subsequently, the Climate Action and Low Carbon Development Act, 2015, provide the statutory basis for the national transition to a low carbon society by 2050 - the objective laid out in the National Policy Position. It also made provision for and gave statutory authority to both the National Mitigation Plan (NMP), published in 2017 and the National Adaptation Framework (NAF) published in 2018. Furthermore, the Government's 2019 Climate Action Plan sets out clear 2030 targets for each sector and the expected emissions savings that will result.

3.2.3.1 National Mitigation Plan (NMP) 2017 And National Adaptation Framework (NAF) 2018

The NMP will lay the foundations for transitioning Ireland to a low carbon, climate resilient and environmentally sustainable economy by 2050. It is a whole of government plan, providing a central role for key Ministers responsible for the sectors covered by the Plan – Electricity Generation, the Built Environment, Transport and Agriculture, as well as drawing on the perspectives and responsibilities of a range of other Government Departments.

The NAF sets out the national strategy to reduce the vulnerability of the country to the negative effects of climate change and outlines a whole of government and society approach to climate adaptation in Ireland. Under the NAF a number of Government Departments are required to prepare sectoral adaptation plans in relation to the priority area that they are responsible for. Local authorities are also required to prepare local adaptation strategies, of which Laois County Council prepared the Laois Climate Adaptation Strategy in August 2019.

3.2.3.2 Laois County Council Climate Adaptation Strategy 2019 - 2024

The Laois County Council Climate Change Adaptation Strategy 2019-2024 features a range of actions across six thematic areas, including: Local Adaptation Governance and Business Operations; Infrastructure and Built Environment; Land Use and Development; Drainage and Flood Management; Natural Resources and Cultural Infrastructure; and Community Health and Wellbeing. The Strategy sets out a number of 'Adaptation Actions' including:

- To ensure that 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.
- To build capacity and resilience within Laois County Council to respond to climate change and climate change/severe weather events.

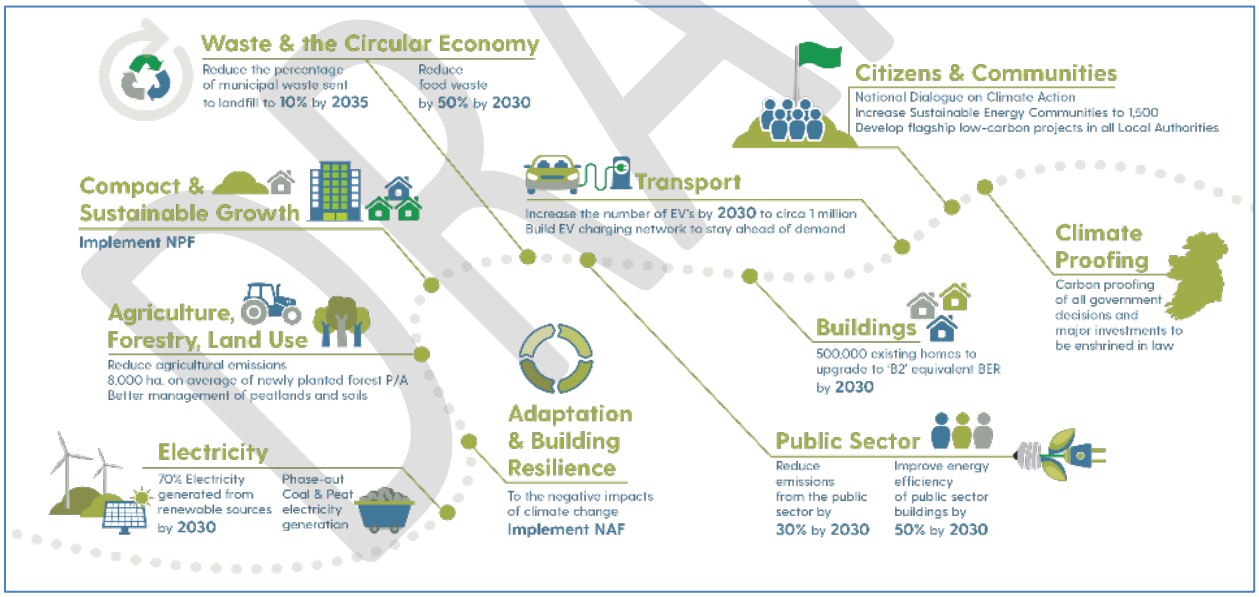
- To ensure and increase the resilience of infrastructural assets and the built environment, informing investment decisions.
- To Integrate climate action considerations into land use planning policy and influence positive behaviour.
- To manage the risk of flooding through a variety of responses.
- To provide for enhancement of natural environment to work positively towards climate action.
- To promote effective bio-diversity management and enhance protection of natural habitats and landscapes.
- To build capacity and resilience within communities.

In this regard, the Laois's Climate Adaptation Strategy 2019-2024 has provided a critical point of reference in preparing this plan.

3.2.3.3 Climate Action Plan 2019

The Climate Action Plan identifies the nature and scale of the climate challenge and sets the course of action and carbon proof polices over the coming years to address climate change. This Plan clearly recognises that Ireland must significantly step up its commitments to tackle climate disruption. The leadership role both the Government and public bodies can play in taking early action on climate is fundamental to achieving our decarbonisation goals. The infographic below provides an overview of targets set.

Fig 3.4 Climate Action Plan



Source: Climate Action Regional Office

3.2.3.4 National Planning Framework (NPF)

The NPF identifies planning as a means to implement and integrate climate change objectives at local level and recognises that in order to meet this national target, it will be necessary to make choices about how we balance growth with more sustainable approaches to development and land use. The NPF sets out 10 National Strategic Outcomes to guide the future

development of Ireland over the next 20 years, of which 2 are related specifically to addressing climate action - NSO 8 'Transition TO A LOW CARBON AND CLIMATE RESILIENT SOCIETY' and NSO 9 'Sustainable Management of Water, Waste and other Environmental Resources'. It is stated that these objectives will shape investment choices over the coming decades in line with the National Mitigation Plan and the National Adaptation Framework and how the country will adapt to a new renewables focused energy production system such as from wind and solar sources.

There are further National Policy Objectives noted within the theme of climate change and how mitigation and adaption measures are required. Of particular note, Laois County Council must demonstrate compliance with NPOs in areas such as densification, NPO 3 (C) 30% brownfield (role of URDF in consolidation) integrating transport links, increasing permeability (both pedestrian and cycling) and connection to public transport (15min walk).

3.2.3.5 Regional and Spatial Economic Strategy (RSES)

Aligning with the National Policy Objectives of the NPF, the RSES sets out 16 Regional Strategic Outcomes (RSOs) which set the framework for City and County Development Plans to build climate resilience into their policies and objectives and to support the transition to a low carbon economy by 2050. The Strategy identifies the following RSOs in relation to climate action:

- RPO 6. Integrated Transport and Land Use
- RPO 7. Sustainable Management of Water, Waste and other Environmental Resources
- RPO 8. Build Climate Resilience
- RPO 9 Support the Transition to Low Carbon and Clean Energy
- RPO 10. Enhanced Green Infrastructure
- RPO 11. Biodiversity and Natural Heritage

Climate Action Policy Objectives	
CA 1	Support and facilitate 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 Mitigation Plan (2017 and any subsequent versions); • National Climate Change Adaptation Framework (2018 and any subsequent versions); • Any Regional Decarbonisation Plan prepared on foot of commitments included in the emerging Regional Spatial and Economic Strategy for the Eastern and Midland Region; • Relevant provisions of any Sectoral Adaptation Plans prepared to comply 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 • Laois Climate Change Adaptation Strategy 2019-2024.

3.4 INTEGRATING CLIMATE ACTION INTO THE PLAN

One of the cross-cutting principles of this Plan is to support a transition to a low carbon and climate resilient society, a necessary measure that is supported by the aforementioned comprehensive legislative and policy framework relating to climate action. The Development Plan seeks to simultaneously address issues of climate change, energy supply and sustainability through the adoption and implementation of policy at a local level.

Aligning with the Climate Strategy of the RSES, the following key actions areas, along with the following section on energy (Section 3.5), will focus on how Laois County Council will respond to climate change to reduce greenhouse gas emissions, to make Laois a more climate resilient county. Furthermore, specific climate adaptation and mitigation objectives have been integrated into each chapter where appropriate.

ACTION AREA 1 – SUSTAINABLE TRANSPORT		
COMMENTARY	**NATIONAL TARGET**	**LOCAL COUNTY TARGET**
The transport sector is one of the biggest contributor of GHG emissions in the County where the predominant mode of transport is the private car. This is evident in the number of commuters leaving the county for work purposes which equates to 12,000 per day. How we travel between places will also need to be addressed, promoting a modal shift away from car dependency for more sustainable and active transport modes.	• Reduce CO2 eq. Emissions From The Sector By 45 % To 50 % Pre NDP Projections • Increase the no of EV to 936,000 • Build the EV charging network to support the growth of EVS at the rate required	• Delivery of a public transportation hub in the key town of Portlaoise by 2027; • The prioritization and delivery of Public bus measures in the key towns of Portlaoise and Graiguecullen by 2027; • The prioritisation of pedestrian linkages and creation of blueways / Greenways in the key town of Portlaoise/ Graiguecullen and Portarlington • Additional 30 EV charge Points in Portlaoise by 2027

CLIMATE MITIGATION OBJECTIVES	
CM ST 1	Support construction of green routes/cycleways/pedestrian routes throughout the County;

CM ST 2	To support and facilitate the integration of land use with transportation infrastructure, through the development of sustainable compact settlements which are well served by public transport;
CM ST 3	To promote higher residential development densities in settlement centres along public transport corridors, that are not located in areas sensitive to flooding, or will increase temperatures of urban areas;
CM ST 4	Strengthen public transport linkages and promote their use;
CM ST 5	Support localisation of jobs/shops/services to minimise the need for most common travel patterns;
CM ST 6	Support the provision of electricity charging infrastructure for electrical vehicles both on street and in new developments in accordance with car parking standards and best practice.
CM ST 7	Promote and support the provision of Park-and-Ride facilities which improve public transport accessibility without exacerbating road congestion, or which cause increased car travel distances, at appropriate locations within the County
CM ST 8	Deliver, in conjunction with the NTA and the Department of Transport, Tourism and Sport a Public Transportation Hub in Portlaoise to accommodate national, commuter, regional and local bus services
CLIMATE ADAPTATION OBJECTIVES	
CA ST 1	Protect and enhance the County's floodplains subject to flooding as "green infrastructure" where appropriate and subject to compliance with the Habitats Directive;
CA ST 2	Support low emission vehicle development, infrastructure and use through improving the resilience of County's transport network to the impacts of climate change, in the areas connectivity and movement and concentrating on land use planning and a reduction in single occupancy vehicles, ensuring sustainability is a key consideration of future development;
CA ST 3	Ensure that existing Council critical infrastructure and services (particularly emergency services) are resilient to new climatic conditions;
CA ST 4	Ensure that applications for new critical infrastructure demonstrate resilience to new climatic conditions.

ACTION AREA 2 – BUILT ENVIRONMENT

COMMENTARY	NATIONAL TARGET	LOCAL COUNTY TARGET
How we plan for different landuses and subsequently design our buildings will have significant impact on addressing climate change. Communities must become less dependent on fossil fuels in an emerging low or zero-carbon world by promoting more sustainable forms of travel and renewable energy sources. Residential, commercial, industrial and public buildings will also need to maximise their energy efficiency and move to more sustainable and renewable energy sources. **Adapting the built environment through the use of green infrastructure such as sustainable urban drainage systems, living roofs and other innovations helps to alleviate the effects of climate change. Greening of buildings can also help with insulation against heat and cold, as well as offering new habitats to wildlife. Street trees and other vegetation also absorb air pollution and help with shading and cooling.** **Considerable emphasis has been placed in the Regional and Spatial Strategy on the regeneration of vacant buildings and Brownfield sites in order to rejuvenate towns and villages.**	• Reduce CO2 eq. Emmissions From The Sector By 45 % To 50 % Pre NDP Projections; • Reduce fossil fuel use and transition from reliance on gas, coal, oil and peat; • Increase the no of Sustainable energy Communities to 1,500; • Complete the rollout of the support system for Renewable Heat , including the support of biomass and anaerobic digestion heating systems ; • Enterprise must contribute to the more ambitious targets for buildings (20-25%) and transport (45%-50%)	• Implement the **2040 and Beyond: Is a Vision for Portlaoise'** strategy to re-examines and re-purposes the Town Centre of Portlaoise to a low carbon town; • In addition to the SEC established in Abbeyleix, Establish an SEC's in Portlaoise by 2021, Graiguecullen by 2023 and Portarlington by 2023 • Complete the Carbon Footprint measure for Portlaoise by Q1 2021; • Introduce a Decarbonisation Zone1 within Portlaoise Town which will seek to boost energy efficiency and reduce fossil energy use as this is vital to manage rapidly growing energy consumption in urban areas; • Carry out Retrofit projects for Public Housing estates in Co Laois - 160 No of units by end of 2021

[1] *Is a zone which achieves the reduction of carbon dioxide emissions through the use of low carbon power sources, achieving a lower output of greenhouse gasses into the atmosphere.*

RPO 3.2 of the RSES requires that at least 30% of future homes are targeted in settlements located within the existing built-up footprint of these settlements in an effort address compact development and reduce unsustainable urban sprawl. **Laois County Council has already began significant steps to transform Portlaoise into the Country's first low carbon town and has secured funding under the Urban and Regeneration Development Fund (URDF).**		

CLIMATE ADAPTATION OBJECTIVES	
CA BE 1	Consider the effects of building density and mixed developments on energy consumption when preparing applications for development;
CA BE 2	Promote the repair and reuse of existing buildings particularly of underused upper floors in urban areas;
CA BE 3	Encourage the use of Green Roof technology particularly on apartment, commercial, leisure and educational buildings;
CA BE 4	Support enhancement of flood resilience of buildings, e.g. elevated work surfaces and storage facilities, raised sockets and electrical infrastructure, enhanced flood boards;
CA BE 5	Assess existing Council infrastructure for "fitness for purpose" under new climatic conditions;
CA BE 6	Promote the use of permeable surfaces to decrease run-off rates;
CA BE 7	Support grey-water recycling schemes that seek to decrease abstraction of potable surface water resources, thus reducing water stress during periods of low rainfall;
CA BE 8	Support efforts to maximise water conservation – i.e rainwater harvesting, etc
CA BE 9	Require the use of SuDS in accordance with the Greater Dublin Regional Code of Practice for Drainage Works for new developments (including extensions);
CA BE 10	Plant drought-resistant plants/ trees in public amenity areas to provide shade and increase green infrastructure linkages;

CLIMATE MITIGATION OBJECTIVES	
CM BE 1	Achieve more compact growth by promoting the development of infill and brownfield/ regeneration sites and the redevelopment of underutilised land within and close to the existing built up footprint of existing settlements in preference to edge of centre locations;
CM BE 2	Ensure that new developments in Key Towns, Self-Sustaining Growth Towns and Self-Sustaining Towns are laid out so as to facilitate the provision of public transport;
CM BE 3	Support energy-efficient building design and promote building of energy efficient smaller homes/higher density homes appropriate to demographics and with greatest infrastructure available;
CM BE 4	Promote sustainable land use planning measures which facilitate transportation efficiency, economic returns on transport investment, minimisation of environmental impacts and a general shift towards the greater use of public transportation throughout the County;

ACTION AREA 3 –LAND USE (INCLUDING AGRICULTURE / FORESTRY / GI)

COMMENTARY	NATIONAL TARGET	LOCAL COUNTY TARGET
Agriculture is the highest producer of greenhouse gas emissions in the country[2], both through intensive agriculture activity and through land use changes. Intensive agricultural practices such as land clearing can lead to essential loss of vegetation, soil cover and forestry that act as a carbon sink, storing carbon dioxide. **The main direct agricultural GHG emissions are nitrous oxide emissions from fertilizers and methane production from**	• Deliver 16.5 -18.52 MtCO2eq. Cumulative abatement • Achieve 26.8 Mtco2eq abatmenet through LULUCF actions over the period 2021-2030 comprised of : • An average of 8,000 ha per annum of newly planted forest and sustainable forest management of exisiting forests (21	• Increase the Public Open space provision in the Town of Portlaoise through the Open space and amenity at Tyrrells Land / The ridge Portlaoise • The greening of James Fintain Lalor Avenue • Progress the "Neighbourwood" project in Balladine , Abbeyleix which will hopefully see 1.5 Ha of

[2] *EPA Environmental Indicators*

ruminant animals. **Climate change will affect the natural environment as weather patterns change, temperatures rise and species relocate. However, the natural environment, greenspaces and green infrastructure also have an essential role in offsetting some of the predicted impacts of climate change. There are many risks to the natural environment from climate change, including biodiversity change and loss, environmental degradation, longer growing seasons, increased incidence of pests and disease, and flooding.** **Green infrastructure provides a wide range of adaptive benefits, including providing shade and cooling for urban centres, reducing the impact of heavy rain by absorbing water and slowing run-off, improving air and water quality by absorbing pollutants. Well connected green networks aid species movement and dispersal, therefore integrated habitat networks form a key component of this Plan.**	MtCO2eq. • Cumulative abatement) at least 40,000 ha per annum of reduced management intensity of grasslands on drained organic soils (4.4 MtCO2eq. Cumulative abatement)	native woodland established in the estate - carbon sink etc. • Support Abbeyleix Bog Conservation Group to progress actions in relation to biodiversity on the bog and green infrastructure through the bog

NOTE:
The Plan is informed by a Strategic Flood Risk Assessment (SFRA). The Draft Plan complies with OPW Guidance on climate change and flood risk management and has embedded the requirements for assessment within the key flood risk and surface water management policies identified in Section 10.3.2 of this Plan. Land use zonings and climate change have been informed by incorporating flood extent data within the plan on a settlement by settlement basis. The impacts of climate change are addressed in the SFRA incorporating a series of adaptation actions that will influence development through appropriate planning strategy/policy.

CLIMATE MITIGATION OBJECTIVES

CM LU 1	Maintain a vibrant and healthy agricultural sector based on the principles of sustainable development whilst at the same time finding alternative employment in or close to rural areas to sustain rural communities;

CM LU 2	Ensure that peatland areas which are designated (or proposed for designation) as NHAs, SACs or SPAs are conserved for their ecological, climate regulation, archaeological, cultural and educational significance;
CM LU 3	Support the fulfilment of the vision of carbon neutrality in the agriculture, forest and land use sector through better sustainable agricultural, land management and resource efficiency;

CLIMATE ADAPTATION OBJECTIVES	
CA LU 1	Support diversification of the rural economy to promote crop viability options;
CA LU 2	Encourage afforestation (where environmentally appropriate) to enhance interception and infiltration of precipitation within river basin catchments;
CA LU 3	Support restoration of peat bogs when turf cutting has ceased and take into account relevant recommendations from the National Peatlands Strategy when implementing the Plan.
CA LU 4	Support the creation and enhancement of ecological linkages and buffer zones from development;
CA LU 5	Support the creation and protection of ecological resilient and varied landscapes to help support a wide range of species;
CA LU 6	Increase the climate resilience of the built environment through natural greening infrastructure in new developments, such as the use of natural features (e.g. street trees, green roofs, rain gardens etc) and other materials such as permeable paving;

ACTION AREA 4 – ENERGY (refer to Section 3.5 for further policy objectives on renewable energy)

COMMENTARY	NATIONAL TARGET	LOCAL COUNTY TARGET
Improving Ireland's energy efficiency to address climate change is a fundamental part of Ireland's energy policy. The Government, through the EU's Energy Efficiency Directive 2012/27/EU, has	• Reduce CO2 eq. Emmissions From The Sector By 45 % To 50 % Pre NDP Projections • Deliver an early and complete phase out of coal and peat fired electricity generation	• 1,500 LED Public lights have been upgraded within the Key town of Portlaoise, 1,200 in housing estates with a further 1,000 planned to be replaced by 2022, which will produce

committed itself to achieving a 20% reduction in energy demand across the whole of the economy by 2020 through energy efficiency measures and also set a more challenging target of achieving a 33% improvement on energy efficiency levels in the public sectors.	• Increase electricity generated from renewable resources to 70%- indicatively comprised of • Up to 1.5 GW OF Grid scale solar energy • up to 8.2 GW total of increased onshore wind capacity	an energy saving of 60%. • 50 additional solar powered compactor bins within the county by 2027; • Support the development of **solar energy** that has been permitted to date within the county by 2030 • Support the development of **wind energy** that has been permitted to date within the county by 2030

CLIMATE MITIGATION OBJECTIVES

CM RE 1	Prepare a Local Authority Renewable Energy Strategy (LARES) for County Laois during the lifetime of the Plan
CM RE 2	Promote and encourage the development of energy from renewable sources such as hydro, bio-energy, wind, solar, geothermal and landfill gas subject to compliance with normal planning and environmental criteria in co-operation with statutory and other energy providers
CM RE 3	Promote County Laois as a low carbon county as a means of attracting inward investment and to facilitate the development of energy sources which will achieve low carbon outputs
CM RE 4	Protect areas of recognised landscape importance and significant landscape views from construction of large scale visually intrusive energy transmission infrastructure, alternative routing or transmission methods shall be used in this instance Ensure that the assessment of energy development proposals will have regard to the impacts on public rights of way and walking routes
CM RE 5	Promote and facilitate wind energy development in accordance with the Guidelines for Planning Authorities on Wind Energy Development (Department of Housing, Planning and Local Government) and the Appendix 5 Wind Energy Strategy of this Plan, and subject to compliance with normal planning and environmental criteria
CM RE 6	Ensure a setback distance for Wind turbines from schools, dwellings, community centres and all public roads in all areas open for consideration for wind farm development as per the Guidelines for Planning Authorities on Wind Energy Development (Department of Housing, Planning and Local Government).
CM RE 7	Promote the location of wind farms and wind energy infrastructure in the

	'preferred areas' as outlined on Map 3.2 to prohibit such infrastructure in areas identified as ' Areas not open for consideration' and to consider, subject to appropriate assessment, the location of wind generating infrastructure in areas 'open for consideration' and as per the Laois Wind Energy Strategy 2021-2027.
CM RE 8	Promote solar energy projects at appropriate locations
CM RE 9	Promote the application and uptake of technologies and solutions that utilise grass for energy extraction such as anaerobic digestion, subject to proper planning and environmental considerations.
CM RE 10	Promote and prioritise utilisation of existing waste streams from agricultural and forestry sectors for renewable energy projects including anaerobic digestion, subject to proper planning and environmental considerations.
CM RE 11	Support the development of a Low Carbon Transportation Hub at Midway, Portlaoise to consist of a Compressed Natural Gas ('CNG') hub and Electric Vehicle fast-charging hub along with other national level pilot projects for other alternative and sustainable fuels e.g. Hydrogen facilities for the larger HGV's etc.
CM RE 12	Development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process.
CM RE 13	Development proposals should evaluate the feasibility of Combined Heat and Power (CHP) systems, and where a new CHP system is appropriate also examine opportunities to extend the system beyond the site boundary to adjacent sites.

3.5 RENEWABLE ENERGY

Renewable energy comes from natural sources that are continuously replenished by nature. The main sources of renewable energy are the wind, the sun (solar energy), water (hydropower), heat below the surface of the earth (geothermal energy) and biomass (wood, biodegradable waste and energy crops). Renewable energy options for the County include, but are not limited to a balance of the following.

3.5.1 HYDRO ENERGY

Hydroelectricity is electricity derived from the power harnessed from the flow of falling water, typically from fast-flowing streams and rivers. Small-scale micro hydro power is both an efficient and reliable form of energy. With the right site it is a viable way of providing power to houses, workshops or businesses that need an independent supply. The Council will seek to respond positively to applications in the context of a sustainable energy policy. In responding to applications, the Council will seek to ensure that the free passage of fish is provided for by incorporating a fish pass where considered necessary in consultation with the relevant Fisheries Board and the Department of Communications, Energy and Natural Resources

3.5.2 BIOENERGY

Bioenergy is energy extracted from biomass which includes biological material such as plants and animals, wood and waste. Bioenergy is produced through many different processes: combustion and anaerobic digestion being the most common and widely used. Combustion is the process whereby biomass (for example wood chips) is burned to produce process heat or to heat space or hot water.

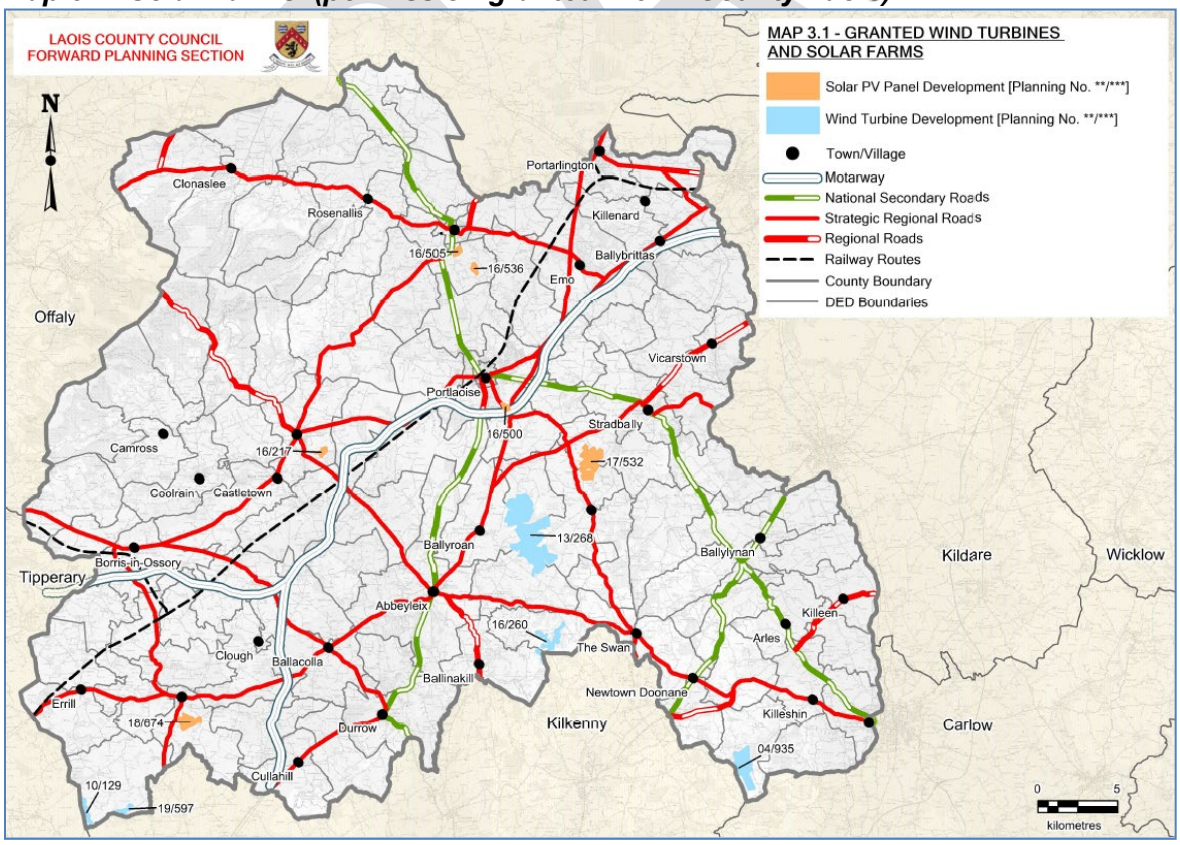
Anaerobic digestion involves the bacterial transformation of biomass (for example animal manure) to methane gas or biogas. The biogas can be used to fuel a stationary gas engine or gas turbine to produce electricity, or burned in a boiler to provide heat or to raise steam. Biogas can also be compressed and used as a transport fuel. The majority of current biomass derived energy comes from wood combustion to produce heat.

The Council supports the potential of growing biomass crops on cutaway bogs and at other suitable locations. The Council supports the use of Combined Heat and Power (CHP) Plants which would be fired by environmentally friendly low carbon fuels such as biomass.

3.5.3 SOLAR POWER

There are a range of technologies available to exploit the benefits of harnessing energy of the sun, including solar panels, solar farms, solar energy storage facilities all of which contribute to a reduction in energy demand. Solar technologies can be designed into buildings or retrofitted. Large scale solar farms have been granted planning permission across the County, however none have commenced development. The map below indicates the areas in question:-

Map 3.1: Solar Farms (permission granted within County Laois)



As they are relatively new, solar farms are not specifically identified in the classes of Environmental Impact Assessment (EIA) development listed either in the EIA Directive or in Schedule 5 to the Planning and Development Regulations 2001 as amended.

3.5.4 LANDFILL GAS

Laois County Council recognises the potential of the former local authority land fill site at Kyletalesha [between Portlaoise and Mountmellick] for the development of a gas utilisation project. Landfill gas utilization is a process of gathering, processing, and treating the methane gas emitted from decomposing waste to produce electricity, heat, fuels, and various chemical compounds.

Methane is highly flammable and is one of the major greenhouse gases responsible for climatic change. However, landfill gas (LFG) emissions can be minimized through effective recovery systems, which harness the gas and use it as a renewable and valuable fuel. In addition to electrical power generation, LFG can also be used for combined heat and power (CHP), kiln firing and as a heating or vehicle fuel. LFG is similar to natural or fossil gas and can be fed into the natural gas network.

There is potential to produce renewable gas from anaerobic digestion of organic wastes and residues from the agriculture sector and also from commercial food waste.

Renewable gas is carbon neutral and identical in function to natural gas so the existing network can be used and gas customers do not need to change their boilers or gas powered appliances.

There will be a presumption in favour of applications for anaerobic digestion plants, provided planning and environmental criteria are satisfied.

3.5.5 WIND ENERGY

The National Climate Action Plan (CAP) 2019 has sets out to deliver 70% of Ireland's electricity from renewable energy by 2030. The development of wind power has accelerated over the last few years to 2,851MW across Ireland[3]. IN order for Ireland to need renewable energy electricity targets, onshore wind farm must produce at least 250MW per year[4]. The Council seeks to achieve a reasonable balance between an overall positive attitude to renewable energy and enabling the wind energy resources of the county to be harnessed in a manner that is consistent with proper planning and sustainable development and will play a vital role in achieving this target.

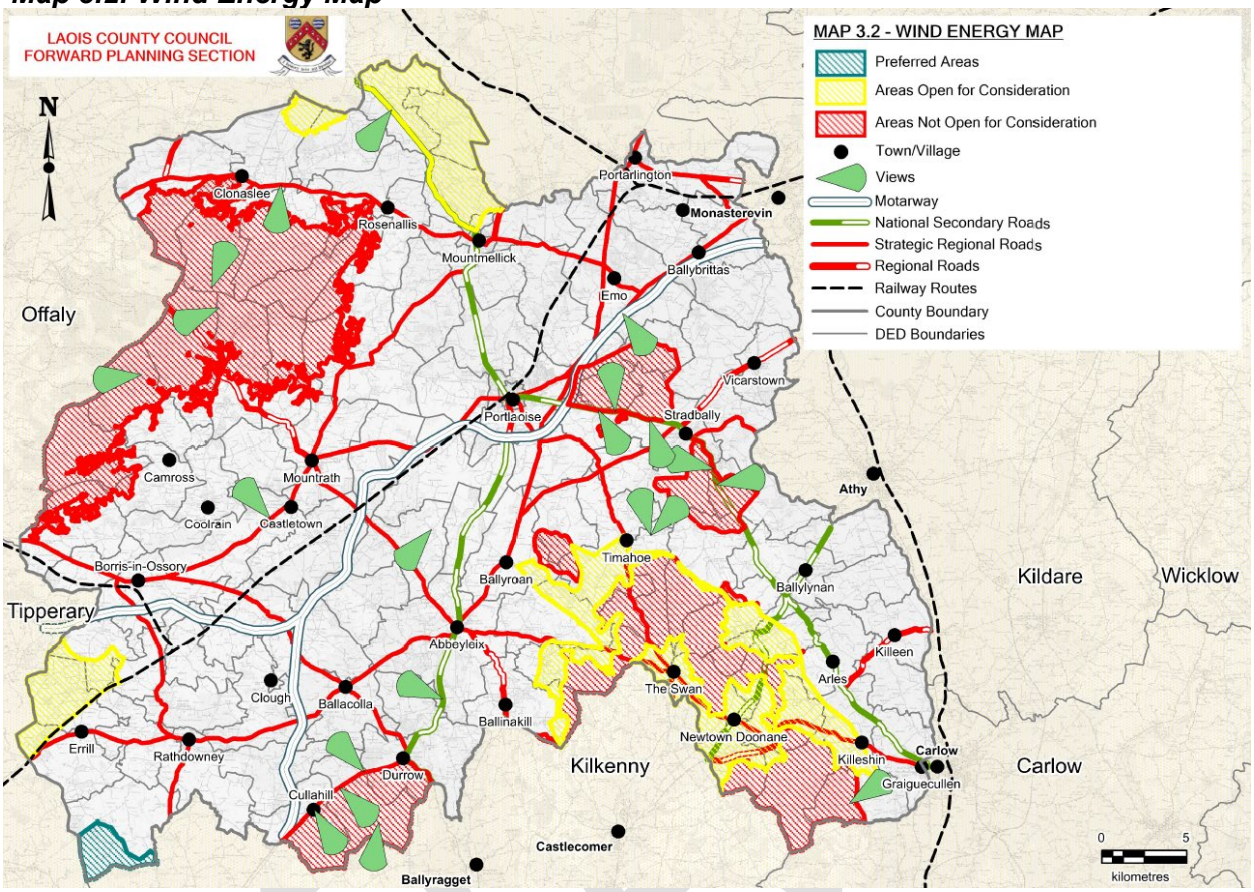
There are a number of issues which must be taken into consideration when dealing with applications for wind energy development. These include visual impact, landscape protection, impacts on residential amenity, impact on wildlife and habitats, connections to the national grid and impact of construction and ancillary infrastructure including access roads and grid connections. The Council will have regard to the Draft Wind Energy Development Guidelines for Planning Authorities (DHPLG, 2019) in relation to the siting and development of wind turbines and the information required as part of a planning application.

Further regard shall also be had to Appendix 6 Renewable Energy Strategy and Appendix 5 Landscape Character Assessment of this Plan and the policy objectives therein.

[3] DCCAE

[4] DCCAE

Map 3.2: Wind Energy Map



3.5.6 GEOTHERMAL ENERGY

Geothermal energy refers to heat energy stored in the ground. Solar thermal radiation is absorbed by the surface of the earth each day. This heat can be extracted by using a ground source heat pump which transfers the heat stored in the earth or in ground water to buildings in winter and the opposite in summer for cooling. The Council will encourage the provision of ground source heat pumps, also known as geothermal heat pumps. These are used for space heating and cooling, as well as water heating for both residential and commercial developments.

3.5.7 COMPRESSED NATURAL GAS (CNG) INFRASTRUCTURE

Decarbonisation of HGVs and buses is particularly challenging as electricity is currently not a viable alternative to diesel. Compressed Natural Gas (CNG) has the potential to address these transport emissions with reduced carbon emissions relative to diesel. When the production of renewable gas is increased on the gas network, and this gas is utilised by CNG vehicles as bio-CNG, which is carbon neutral. The development of CNG Infrastructure would enable fuel switching from diesel to CNG for heavy goods vehicles (HGVs) and buses. This would lead to a reduction in carbon emissions along with air quality benefits for vehicles where currently electricity is not a viable alternative to diesel.

3.5.8 MICRO RENEWABLE ENERGY

The Planning and Development Regulations 2001 (as amended) provide exemptions from planning permission for domestic wind turbines, solar panels and heat pumps within the curtilage of a house, subject to certain conditions. The Regulations also provide exemptions for micro renewable generators

within the curtilage of industrial buildings, business premises and agricultural holdings including CHP plants, wind turbines, solar panels, heat pumps and biomass boiler units.

Development Management Standards for Renewable Energy Installations

DM RE 1	**SOLAR FARMS** The following factors will be used to assess applications for Solar Farm Development within the county: a) Preference for use of brownfield sites/ contaminated land and non productive agricultural land versus productive agricultural lands; b) Proximity to electricity infrastructure c) Effect of glint and glare d) The extent to which there may be additional impacts of solar rays follow the daily movement of the sun; e) Need for security measures – lights fencing etc ; f) Visual impact on heritage assets , designated sites , views and prospects; g) Impact on ecology of the site – An ecological Impact Assessment will be required in relation to the site as part of any application; h) Landscape/ Biodiversity Plan - Potential to mitigate landscape and visual impacts through appropriate siting , design and screening with native hedges; i) The cumulate impacts of the propose with other renewable energy installations in the area; j) An appraisal of the existing roads infrastructure and the potential impact of the proposed development including - Traffic numbers and movements to and from site during construction, operation and decommissioning phases of the proposal shall be undertaken; k) Proposals to adequately deal with drainage, surface water runoff flooding; l) Preparation of a Construction Environmental Management Plan; m) Restoration plan
DM RE 2	**WIND ENERGY DEVELOPMENT** ***Refer to Section 6 and Section 7 of Appendix 5 Wind Energy Strategy for the full suite of Development Management Standards*** When assessing planning applications for wind energy developments the council will have regard to a) The wind energy development guidelines for planning authorities; b) The wind energy strategy designations map for Laois showing areas (a) Area open for consideration and (b) Areas not deemed suitable In addition to the above, the following considerations will also be taken into account (i) Impact on visual amenity; (ii) Impact on residential amenities; (iii) Scale and layout of the project and the cumulative effects due to other projects and the extent to which the impacts are visible across the local landscape; (iv) Visual impact of the proposal on the protected views and aspects; (v) Impact on nature conservation , ecology, soil, hydrology;

	(vi) Impact on ground conditions and geology; (vii) Impact on the road network; Impact on human health in relation to noise disturbance (including consistency with the WHO 2018 Environmental Noise Guidelines for the European Region , showdown flicker and air quality; Other considerations may be taken into account depending on the site and on a case by case basis.

3.6 NON - RENEWABLE ENERGY

3.6.1 ELECTRICITY AND GAS

The two main energy sources currently serving the County are electricity and gas. Eirgrid is the national body responsible for the management of the electricity transmission network. EirGrid's Grid Development Strategy (2017) sets out to ensure that the transmission network has the capacity to provide for growth in electricity demand between now and 2025, with the Implementation Plan 2017 – 2022 and Transmission Development Plan 2016 directing investing to upgrading and reinforcement of the transmission network. Relevant to County Laois, the Laois-Kilkenny Reinforcement Project proposes a new 400/110kV substation situated to the south east of Portlaoise at Coolnabacky. RPO 10.23 of the RSES recognises the important of supporting the timely delivery of such major investment projects to strengthen the network in the midlands region.

The present gas infrastructure in County Laois is available in Ballylinan, Portarlington, Portlaoise and Stradbally. The Bord Gáis customer base in the county comprises of domestic, commercial and industrial users.

Non-Renewable Energy Policy Objectives	
NRE 1	Support the reinforcement of the electricity transmission grid to improve energy supply to the county. Where strategic route corridors have been identified, the Council will support the statutory providers of national grid infrastructure by safeguarding such corridors from encroachment provided these corridors do not have adverse impacts on residential amenity or the environment.
NRE 2	Support the Laois-Kilkenny Reinforcement Project to strengthen the network in large parts of the Midlands and provide additional capacity for potential demand growth in the wider region and strengthen the Region's transmission network by improving security and quality of supply and ensuring there is the potential for demand growth
NRE 3	Ensure the provision, where feasible, of electricity cables been located underground, especially in the urban environment, and generally within areas of public open space. Where undergrounding of cables is being pursued, proposals should demonstrate that environmental impacts including the following are minimised: • Habitat loss as a result of removal of field boundaries and hedgerows (right

	of way preparation) followed by topsoil stripping (to ensure machinery does not destroy soil structure and drainage properties); • Short to medium term impacts on the landscape where, for example, hedgerows are encountered; • Impacts on underground archaeology; • Impacts on soil structure and drainage; and • Impacts on surface waters as a result of sedimentation.
NRE 4	Facilitate the provision of and improvements to energy networks in principle, provided that it can be demonstrated that: I. The development is required in order to facilitate the provision or retention of significant economic or social infrastructure; II. The route proposed has been identified with due consideration for social, environmental and cultural impacts; III. The design is such that will achieve least environmental impact consistent with not incurring excessive cost; IV. Where impacts are inevitable mitigation features have been included; **V.** Proposals for energy infrastructure should be assessed in accordance with the requirements of Article 6 of the Habitats Directive. VI. Ensure that the ability of the area to absorb overhead transmission lines is considered with reference to the National Landscape Strategy 2015. VII. Cognisance will be taken of the Code of Practice between the DoECLG and Eirgrid(2009). Ensure that landscape and visual assessment of planning application shall focus on the potential to impact upon landscape designations and important designated sites.
NRE 5	Support and facilitate the development of enhance gas supplies and associated networks, to serve the residential, commercial, industrial and social needs of the county

Development Management Standards

DM NRE 1	**POWER LINES AND OVERHEAD CABLES** Applicants shall ensure that planning applications involving the siting of power lines and other overhead cables fully consider the following : i. Impacts on the landscape, national monuments, archaeology and views of special amenity value. Where impacts are inevitable, mitigation measures to minimise such impact must be provided. ii. Impacts on Ecology – An ecological Impact assessment shall be submitted to inform the decision making process; iii. Development shall be consistent with best practice, with regard to siting and design

3.7 ENERGY EFFICIENCY AND ENERGY PERFORMANCE FOR BUILDINGS

Maximising Ireland's Energy Efficiency: The National Energy Efficiency Action Plan 2009-2020 (NEEAP) (Department of Communications, Energy and Natural Resources, 2009) recognises that energy efficiency is the most cost effective means of reducing dependence on fossil fuels and abating GHG emissions. Saving energy is the easiest, quickest and most effective way to answer the challenge of society's growing energy dependence, while helping to reduce damage to the environment. By using less energy, we reduce the need to generate energy from any source, fossil or renewable. Improving energy efficiency also provides economic opportunities through the development of new markets for green technologies and services and security of supply.

Laois County Council is committed to developing sustainable building practices in terms of energy efficiency and low environmental impact in County Laois. The following legislation has been adopted to help progress sustainable construction and energy efficiency within our building stock:

- **Building Energy Rating**: As part of the Energy Performance of Buildings Directive (2002/91/EC) Directive, a Building Energy Rating (BER) certificate is required once a building is offered for rental or sale. The BER measures the energy performance of a building and provides homeowners with the information required in order to improve the thermal efficiency of their dwelling.

- **Part L of the Building Regulations**: Part L of the Building Regulations deals with the conservation of fuel and energy in buildings. The Regulations state that a building shall be designed and constructed so as to ensure that the energy performance of the building is such as to limit the amount of energy required for the operation of the building and the amount of carbon dioxide (CO2) emissions associated with this energy use insofar as is reasonably practicable. This can be achieved using a combination of measures including the use of renewable energy sources, limiting heat loss and availing of heat gain through the fabric of the dwelling and using energy efficient space and water heating systems.

- **Nearly Zero Energy Buildings**: Arising from the Recast of the European Performance of Buildings Directive 2010/30/EU, from 1 January 2019, every new public building and from 1 January 2021 all other new buildings will have to be designed to nearly zero energy building (NZEB) standards. The Council will have regard to the DoEHLG publication Towards Nearly Zero Energy Buildings in Ireland Planning for 2020 and Beyond and the EU Energy Performance of Buildings Directive (2010/31/EU) which promote the increase in nearly Zero Energy Buildings (nZEB).

Energy Efficient for Buildings Policy Objectives	
EEB 1	Require all new building developments to meet low energy performance targets. Each building's energy performance, as calculated by the Building Energy Rating (BER), will have a minimum energy efficiency that meets the requirements of Part L of the Building Regulations and Nearly Zero Energy Building standard. New

	buildings should incorporate renewable energy technologies in order to help achieve the rating required
EEB 2	Inform and encourage new developments to mitigate against, and adapt to, where possible the impacts of climate change through the location, layout and design of the development
EEB 3	Encourage improved energy efficiency of existing building stock and to promote energy efficiency and conservation in the design and development of all new buildings, including Local Authority dwelling
EEB 4	Develop guidelines and standards to assist property owners in respect of energy retrofitting and planning considerations
EEB 5	Encourage the integration of micro renewable energy sources into the design and construction of single and multiple housing developments