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## Climate Action

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## 2.1 Context

Climate change is the most significant challenge of our time. The cause can be attributed to a growth in the concentration of greenhouse gases (GHGs) in the earth’s atmosphere as a result of human activity. The effect of this is leading to an increase in global mean air and ocean temperatures, widespread melting of snow and ice, rising sea levels and an increase in the frequency, intensity and duration of extreme weather events. The impact of climate change will not be experienced equally and will likely have a disproportionate effect on marginalised communities who do not have the resources to adapt or mitigate the impact of climate change. This coupled with the process of decarbonisation will impact on certain livelihoods and sectors and risk exacerbating inequality. The concept of climate justice is imbedded in national and international climate policy and is defined as ‘safeguarding the rights of the most vulnerable people and sharing the burdens and benefits arising from climate change and its impacts equitably and fairly’. In order to facilitate a just transition globally, Ireland, and other developed nations, will need to both decarbonise locally and support climate action in developing countries.

Analysis of observational data shows that Ireland’s climate is changing, at a scale and rate consistent with regional and global trends including an increase in extreme weather events and temperatures across all seasons. These changes are predicted to continue and intensify with wide ranging consequences for all aspects of life in Ireland. In order to combat climate change, action is required to be taken now to reduce greenhouse gas emissions, adapt to changing climatic conditions and to transition to a low carbon economy and climate resilient society.

In 2019 Ireland became the second country in the world to declare a climate and biodiversity emergency. Since then legislation has been introduced which commits Ireland to becoming carbon neutral by no later than 2050 in line with international commitments. This is now a legally binding target for the country and is in line with EU policy on climate action. To achieve these ambitious targets the government have indicated that a cross sectoral approach will be required as well as the support and cooperation of a wide range of stakeholders.



The City Development Plan recognises the strategic role that land use and spatial planning can play in providing for population growth in a compact, sustainable way that will reduce greenhouse gas emissions, reduce energy demand and address climate change adaptation. The Core Strategy has been developed in line with this approach. It has focused on mitigation and adaptation measures that will reduce the need to travel, enable and support sustainable transport options, protect and enhance the natural environment and deliver compact growth patterns including for the encouraging of regeneration on a number of brownfield sites while also supporting increased use of renewable energy and implementation of flood protection measures. This approach has been further reflected throughout the plan which includes for a series of ambitious policies and objectives designed to address the challenges of climate change and support the transition to a low carbon economy.

The Intergovernmental Panel on Climate Change (IPCC) the world’s leading authority on climate science published a report in August 2021, which affirmed that this generation are the last that can prevent irreparable damage to the planet. They confirmed that only rapid and drastic reductions in greenhouse gases in this decade can prevent climate breakdown with every fraction of a degree of further heating likely to compound the accelerating effects. In this regard implementing measures to achieve national policy and targets over the lifespan of this plan will be critical to addressing the climate and biodiversity crisis.

This chapter in particular focuses on climate actions and environmental measures, however this approach is also well integrated in the Core Strategy and also permeates through all other chapters in the Plan.

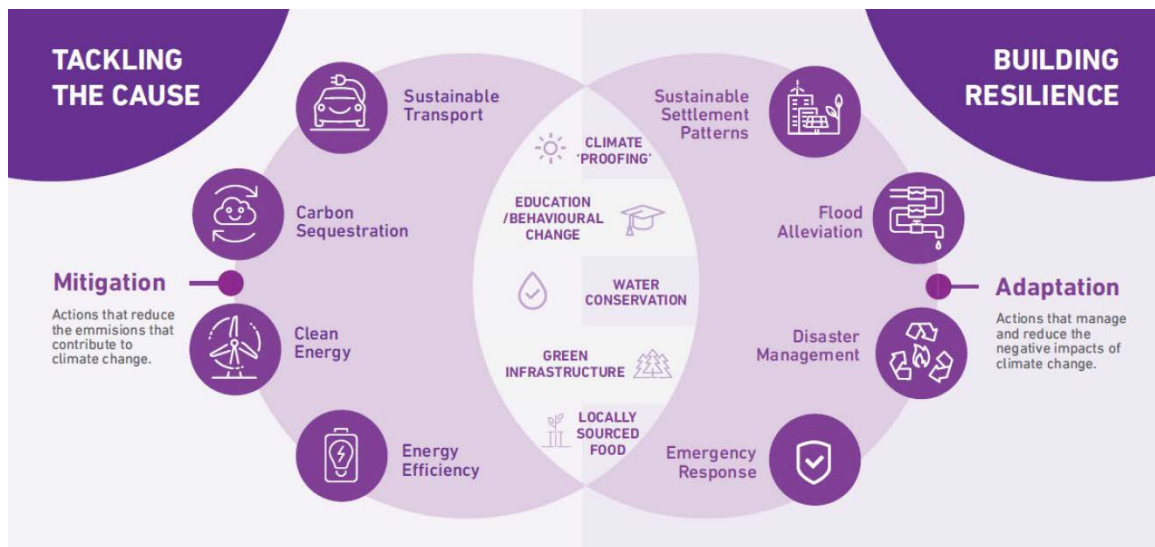


Figure 2.1 - Mitigation and Adaptation - Climate Action Source: CARO

As indicated climate action is a combination of mitigation and adaptation measures to tackle climate change. Mitigation can be defined as an intervention to reduce the flow of greenhouse gases into the atmosphere. This can be achieved by reducing the source of the gases, by reducing energy demand and switching to renewable energy sources or by creating carbon sinks to store greenhouse gases in peatlands, forests or soils. The goal of mitigation is to reduce future climate change by slowing the rate of increase in (or even reducing) greenhouse gas concentrations in the atmosphere. Adaptation focuses on measures that reduce the impact of climate change that is already taking place and planning for adverse effects that will happen in the future as a consequence of greenhouse gases already in the atmosphere. The goal of climate adaptation is to minimise the risk and cost associated with climate change and protect lives and property by building climate resilience into existing systems. Adaptation includes measures such as flood and coastal protection and sustainable urban drainage and nature based solutions.

This chapter considers a number of these measures while the balance of chapters in the plan also include for a range of policies and objectives that contribute to mitigating and adapting climate change.

Taking action to mitigate and adapt to climate change and facilitating a transition towards climate resilience and carbon neutrality will deliver economic, environmental and social co-benefits. These include cleaner air, creation of green jobs, improved public health and support for biodiversity.

In land use planning improved air quality will come about where policies are implemented to promote the use of renewable energy and decarbonisation of energy systems that reduce the use of fossil fuels. Similarly, policies to integrate land use and transport systems will increase accessibility and promote walking and cycling and correspondingly reduce dependence on the private car, benefit social cohesion and community well-being. Where policies support investment and enhancement of green infrastructure this can contribute to biodiversity, carbon sequestration and reduce flood risk and provide for recreation and amenity. Policies and other measures that support energy efficient building design and retrofitting of existing building stock will reduce costs associated with heating and cooling and reduce fuel poverty.

To encourage Galway to become more climate resilient there is a need to have an emphasis on such policy objectives, as these will build climate resilience through a focus on mitigation and adaptation.

In particular these include policies focused on

- a) Nature -Based Solutions (adaptation and mitigation)
- b) Flood risk and water management (adaptation and mitigation).
- c) Renewable energy (mitigation)
- d) Transport (mitigation)
- e) Built environment (adaptation and mitigation)
- f) Overall cross-cutting climate change and environmental policies (adaptation and mitigation sustainability)

## 2.2 Climate Change International and European Context

International climate policy has been informed by the United National Framework Convention on Climate Change (UNFCCC) established in 1992. The most significant global climate agreement produced to date is the Paris Agreement 2015. Ireland ratified the Paris Agreement in November 2016 and is therefore legally bound by its commitments, including limiting the increase in global temperature to under 2 degrees C. above pre-industrial levels and preferably to keeping it below 1.5 degrees C. The agreement also included an aim to be globally carbon neutral by 2050.

In line with global climate commitments the European Union (EU) has set a legally binding target for its member countries to reach climate neutrality or net-zero greenhouse gas emissions by 2050. This target and the framework to achieve it is set out in the European Climate Law which increases these targets in 2020 to require at least a 55% reduction in net emissions of greenhouse gases compared to 1990 levels by 2030. This is supported by the European Green Deal, an action plan to make the EU's economy and society sustainable. It identifies investment and financing options to support a just transition to climate neutrality by 2050 by investing in environmentally friendly technology, supporting the transition to a decarbonised and circular economy, eliminating pollution and restoring biodiversity. The Green Deal also includes a 'Just Transition Mechanism' to provide targeted support to alleviate the socio-economic impact of the transition to climate-neutral economy.

The transition to a low carbon, climate resilient economy and society is considered by the EU to present significant challenges and require fundamental changes to certain industries and livelihoods. Such impacts will be unevenly spread with some regions and communities impacted more than others. The EU Council however underlies that the transition to climate neutrality will also create alternative employment and economic opportunities and benefits through the development and roll out of new technologies, increase in new jobs and markets and the benefits that retrofitting schemes will bring. The EU recognizes the need to put in place an enabling framework to ensure that the transition is cost-effective, as well as socially balanced and fair enabling a just transition so that no region or sector will be disadvantaged through the transition to a low carbon climate resilient economy.

The Irish Government, in line with EU policy and member obligations is committed through national legislation to support climate action and a just transition through funding supports and initiatives that will alleviate the socio-economic impact of the transition to climate-neutral economy.

### National Context and Legislation

The Climate Action and Low Carbon Development (Amendment) Act 2021 aligns with targets set by the EU and supports Ireland's transition to a climate neutral economy by no later than 2050. This Act significantly amends and strengthens the earlier Climate Action and Low Carbon Development Act of 2015. It follows through on Ireland's increasingly ambitious commitments in the area of climate action, which were included for in the Programme for Government and the 2019 Climate Action Plan. It provides for the nationally legally binding framework to enable Ireland to achieve the 'national climate objective' as included in the Act which has a key provision '*to reduce the extent of further global warming, pursue and achieve, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy*'. A climate neutral economy is defined as a sustainable economy and society where greenhouse gas emissions are balanced or exceeded by the removal of greenhouse gases.

The legislation provides for specific mechanisms, plans and strategies that will be used by Government to achieve the national climate objective. These include the preparation of carbon budgets allied to sectoral emission ceilings and other actions that support the

government's policy on climate change. The first two five-year carbon budgets are required to provide for a total reduction of greenhouse gas emissions of 51% over the period to 2030, relative to a baseline of 2018.

The **Climate Action Plan** prepared in 2019 under legislation is now required to be updated annually. The plan is required to set a roadmap of sector specific actions to comply with the carbon budget programme and sectoral emission ceilings and other actions necessary to support government policy on climate change. It currently includes for over 180 actions across a range of sectors including electricity, enterprise, built environment, transport, agriculture, forestry and land use, and waste and the circular economy. The plan also acknowledges the need for a just transition and the need to build climate resilience in all communities.

A **National Long Term Climate Action Strategy** is also a requirement under the legislation and is required to be reviewed every 5 years. The purpose of this strategy is to specify how it is to achieve the 'national objective' consistent with the carbon budget programme. It must also include for the projected reduction in emissions and enhancement of carbon sinks for a minimum period of 30 years.

A **National Adaptation Framework**, which is required to be reviewed every five years was already an obligation since the original Act 2015. It must specify the strategy for the application of adaptation measure in different sectors and by local authorities to reduce vulnerability of the State to the negative effects of climate change. The National Adaptation Framework was published in 2018. It included a requirement for each local authority to make and adopt local adaptation strategies. Galway City Council adopted the Climate Adaptation Strategy 2019-2024 for the city in September 2019. Sectoral adaptation plans are also required to be prepared by seven government departments and to sit under the national framework. Each plan is required to identify the key risks faced across the sector and the approach being taken to address these risks and build climate resilience.

The **National Mitigation Plan**, also an obligation under national climate legislation was published in 2017. This original document included for mitigation responsibilities of a range of government departments relating to topics that included electricity generation, the built environment, transport and agriculture. It included over 100 actions for government and public bodies to implement and begin the process of developing medium to long term mitigation choices for the next decade and beyond. However in 2020 the Supreme Court quashed the National Mitigation Plan deeming it non-compliant with climate legislation. A new national mitigation plan is required to be prepared.

A key addition to the amended climate legislation that will integrate with Development Plans is the obligation for each local authority to prepare five yearly **Local Authority Climate Action Plans**. These will need to specify mitigation and adaptation measures, consistent with the relevant elements of the governance framework. In addition the legislation requires that these Local Authority Climate Action Plans must be taken into account when making a development plan.

The framework for meeting national targets is supported by the Climate Change Advisory Council (CCAC). It functions in advising and making recommendations to the Ministers and the Government, this function and their reporting have been further developed in the recent legislation to match the expanded governance framework.

Planning and plan making is carried out within the framework of planning legislation. The Planning and Development Act 2000 (as amended) includes for mandatory objectives that must be included as a consideration in the making of development plans. In this regard the legislation requires plans to include for objectives relating to climate action and specifically to have sustainable settlement and transport strategies and to promote sustainable energy use, reduction of greenhouse gases and adaptation measure. The legislation also obliges development plans to be in alignment with the policy direction in the National Planning Framework (NPF), the relevant Regional Spatial and Economic Strategies (RSES) and Section 28 Ministerial Guidelines.

Planning legislation in addition to environmental legislation also provides the basis for protecting the natural and built environment and for the carrying out of strategic environmental assessments of both plans and projects where the anticipated environmental effects of objectives and policies in a development plan or a specific development can be measured.

The transition to a **Circular Economy** is an action under the Climate Action Plan 2019 that will form part of Ireland's transition to a climate resilient economy. A strategy is currently being developed to provide a national framework to enable the transition and the ambition of a national rate of circular material use will exceed the EU average by 2030. The strategy will be given statutory footing by the Circular Economy Bill 2021 (draft stage). The goal of a circular economy is to minimise waste and consumption of raw materials through ensuring that the materials remain in use for as long as possible by designing products that are durable and can be repaired and remanufactured. In contrast to the linear economy, which depends on raw materials to produce goods which are disposed of as a waste product at end of life. The circular economy treats waste as a resource that can be reused and recycled. The transition to a circular economy is key to achieving targeted reduction in carbon emissions and the transition to a low carbon, climate resilient economy as the extraction of natural resources and the disposal of waste is a major cause of greenhouse gas emissions and biodiversity and habitat loss globally. The development of the circular economy will also create new opportunities for local economies through reuse and remanufacturing and alternative business models such as sharing and leasing schemes.

The transition to a circular economy is also central to national waste policy, A Waste Action Plan for a Circular Economy (2020-2025) and National Waste Management Plan for a Circular Economy will replace Regional Waste Management Plans and will contain targets for all waste streams to prioritise reuse and repair, reduce resource consumption and reduce contamination of recyclable material.



## Policy 2.1 Circular Economy

1. Support a successful transition to a circular economy where waste and resources are minimised in accordance with emerging legislation and national strategy including the Circular Economy Programme 2021-2027.

### National and Regional Context - Planning Policy

The key role that spatial and land use planning has in relation to Climate Action is reflected at national level in Ireland Project 2040 which includes the National Planning Framework (NPF) and the National Development Plan (NDP). The NPF acknowledges that the planning process provides an established means through which to implement and integrate climate change objectives, including for mitigation and adaptation, at local level and to the transition to a low carbon and climate resilient society. It includes a number of cross-cutting objectives which together, within the broader planning perspective of achieving sustainable development, support the National Strategic Outcome (NSO) 8 which would see Ireland 'Transitioning to a low carbon economy and climate resilient society'.

The NDP outlines how national investment priorities will be delivered in a manner that supports the NPF priorities, the targets in the national Climate Plans and plans for a shift towards a decarbonised society. This investment strategy includes for transformation of the energy systems away from fossil fuels to renewable energy, retrofitting for improved energy efficiency. It also includes for investment in sustainable mobility measures, urban regeneration to support compact growth and for flood relief investment programmes.

The Northern and Western Regional Spatial and Economic Strategy (RSES) incorporates the notion of a low carbon future integrated into five growth ambitions in the regional strategy. The RSES identifies a number of key Regional Policy Objectives (RPOs) related to climate change, energy, renewable energy, transmission network, environmental protection and flooding. These objectives are designed to respond to climate change and to build a climate resilient region that is primed to transition to a low carbon economy and society. The RSES also recognises the significant opportunities that will come with climate action for the region through resource efficiency and the commercial application of technology to existing and emerging energy.

The Plan, framed by the Core Strategy has been prepared in line with climate legislation and national and regional policy guidance and includes for a range of cross-cutting climate and environment policies and objectives which align with national ambitions on climate action. These measures also include support and encouragement for associated appropriate investments and actions by public bodies, the community and business interests.

At regional level local authorities are supported by the Climate Action Regional Offices (CAROs). Galway City is under the remit of the Atlantic Seaboard North CARO. These CAROs are mandated to coordinate climate action at local government level. Their remit is to assist in the preparation of adaptation strategies and support local authorities with the necessary competency and expertise on climate action across all functions and activities.





## Local Context – Galway City

Local authorities, being at a level of government closest to local communities and enterprise are uniquely placed to effect real positive change. In regard to climate change local authorities can both lead and contribute greatly to the delivery of the national transition objective of low carbon, climate resilience in the longer term and also act to improve the ability to plan for and respond to severe weather events in the shorter term. This is recognised in the commitment made by all local authorities to sign up to the Local Authority Climate Action Charter (2019). This charter recognises the capacity for local authorities to provide leadership at the local level around climate action. The charter sets out a number of commitments including to adhere to the UN Sustainable Development Goals (SDGs), to act as advocates for the climate action through policy and practice, in their organisational capacity and through working with local communities.

In light of this commitment and the obligation for all local authorities to make and adopt local adaptation strategies as required under the National Adaptation Framework, Galway City Council commenced preparation of **Climate Resilient Galway City 2019-2024**, an adaptation plan for the city.

The preparation for this plan involved reviewing past climate events and trends over a 30 year period in order to understand the impact of climate change on the city and likely future impacts. Analysis of the data indicated that the city must prepare for an increase in the risk of coastal flooding, tidal surges and coastal erosion due to increased storm activity and projected rises in mean sea levels. The risk of river and surface water flooding was also predicted to increase as a result of patterns of rainfall becoming more intense. The projected increase in rainfall intensity was also identified as likely to lead to an overloading of the surface water networks, leading to more road and street flooding, overland flows and property flooding. The review also concluded that in this context the water network and wastewater treatment facilities will need to adapt to manage increased flows. It showed too that Galway City is also vulnerable to high winds which has potential to damage property and critical infrastructure, cause disruption to transport networks, community and economic activity and increase the risk to resident's health and wellbeing.

With climate science predicting an increase in summer mean temperatures the risk to energy and transport networks as a result of heat related damage is also an issue to be addressed. With an increase in temperatures, offices, homes and commercial premises in the city are likely to be at risk of overheating and requiring additional facilities for cooling.

Galway has a rich natural heritage which is vulnerable to the impacts of climate change and the risks posed in particular by temperature rises and the likelihood of an increase in extreme weather events. Such events are likely to impact negatively on the diverse range of habitats and wildlife which are vulnerable to changes in climatic conditions. Biodiversity is also likely to be impacted due to changes in the timings of seasonal events which may lead to disruption of existing flora and fauna, reducing the range of species and habitats and disrupting ecosystem services.

In the context of climate change Galway City Council adopted a climate adaptation strategy - *Climate Resilient Galway City 2019-2024* in 2019. It sets out Galway City Council's short and medium term objectives for the adaptation to climate change. The strategy is based on four main themes: critical infrastructure and buildings, natural and cultural capital, water resources and flood risk management and community services and sets out specific actions under each.

Other initiatives at city level include the preparation of a pilot **Decarbonisation Zone (DZ)** at Westside. The Government's Climate Action Plan includes for an action for each local authority to identify a Decarbonising Zone. This is a spatial area in which a range of climate mitigation measures are identified to address low carbon energy, greenhouse gas emissions and climate needs to contribute to national climate action targets. The range of policies and projects developed are specific to the energy and climate characteristics of the spatial area covered by the DZ. This can include a range of technologies and measures addressing electricity, heat, transport, building energy efficiency, carbon sequestration and energy storage. The DZ must at a minimum reduce its greenhouse gas emissions by 7% per annum from 2021 to 2030 (a 51% reduction over the decade), in line with targets set out Climate Action and Low Carbon Development (Amendment) Act 2021.

Galway City Council has selected the 'Westside' area of the city as a DZ and will work in partnership with local stakeholders including public bodies, utility providers, community groups, schools, businesses and the established Sustainable Energy Communities including Galway Energy Co-op SEC, NUI Galway SEC and Galway City Council SEC to prepare and deliver an implementation plan for a DZ by the end of 2022. The range of policies and projects that will be developed will be specific to the energy and climate characteristics of Westside DZ. As with the intent for DZ the plans should also address the wider co-benefits which can include air quality, improved health, biodiversity, embodied carbon, lower noise levels, waste, water and also benefits relating to adaptation. Westside DZ will act as a demonstrator area with potential to roll-out the initiatives to other parts of the city and will have an objective to increase citizen awareness and behavioural change in relation to climate action.

The Council will prepare an Energy Master Plan for Galway City which will include a greenhouse gas baseline emissions inventory (BEI), establishing an emissions baseline for the city. The BEI will also provide a baseline of energy use and sources in the city for the baseline year 2018 and estimate the increase in demand for energy in line with the projected growth of the city's population. The Energy Master Plan will provide a register of opportunities for decarbonising projects including energy retrofitting of residential and non-residential buildings, a roadmap for electrification of the heat and transport systems and the identification of viable renewable energy and energy storage projects to target opportunities to achieve the 51% reduction in greenhouse gas emissions required nationally by 2030.

As referenced climate legislation requires each local authority to prepare five yearly Local Authority Climate Action Plans that will be required to integrate with respective development plans. These will need to specify mitigation and adaptation measures, consistent with the relevant elements of the governance framework and relative to the local authority area. The legislation requires these to be prepared within 1 year of the commencement of the Act and supported by government guidelines. It is anticipated with this prescribed timeline that the City Council will commence preparation of the Local Climate Action Plan before the end of 2022.

## Policy 2.2 Climate Action

1. Support the implementation of International, European and National objectives as detailed in the following:
  - EU Climate Adaptation Strategy 2021;
  - the European Green Deal;
  - The Climate Action and Low Carbon Development Acts 2015 to 2021;
  - The Climate Action Plan (2019) and any updated plan;
  - The National Climate Adaptation Framework 2018;
  - The National Climate Change Strategy;
  - EU Biodiversity Strategy for 2030;
  - Sectoral Adaptation Plans and
  - The National Climate Mitigation Plan (when prepared and adopted)
2. Support the implementation of national objectives for climate change adaptation and climate change mitigation to achieve a just transition to a climate resilient, biodiversity rich, environmentally sustainable, carbon neutral economy.
3. Support through plan policy and objectives, the national objective of the legally binding path to net-zero emissions no later than 2050, and to a 51% reduction in emissions by the end of 2030; through implementation of 5 year carbon budgets, by way of reducing greenhouse gases, promotion of sustainable transport, use of renewable resources, improving energy efficiency and supporting nature based solutions.
4. Support, facilitate and advance the implementation of policies and actions set out in the Galway City Council Climate Adaptation Strategy 2019-2024.
5. Prepare and make a five year Local Authority Climate Action Plan in accordance with the Climate Action and Low Carbon Development Amendment Act 2021 and future supporting guidelines and consequently review the Development Plan to ensure alignment.
6. Support national sectoral emissions ceilings and carbon budgets once adopted where applicable.
7. Manage the climate risks associated with climate change through the development of climate adaptation measures and sustainable planning and development, including through the planning, design and implementation of the Coirib go Cósta Galway City Flood Relief Scheme in conjunction with the OPW.
8. Support the implementation of water management measures through mechanisms such as SuDS, rain water harvesting, use of grey water, water storage and nature based solutions to adapt to the impacts of climate change.
9. Support the designated and any future Decarbonising Zone (DZ) in the city and associated implementation plan promoting measures to reduce Greenhouse Gas (GHG) emissions and improve general environmental conditions in this area.
10. Support Energy Master Plans prepared by Sustainable Energy Communities in Galway City in particular to support the recommendations of the Galway City Energy Master Plan and associated Energy Action Plan setting out pathways for reducing greenhouse gas (GHG) emission associated with energy use in Galway City (due to be completed by mid-2022)

11. Support initiatives to advance good soil management, carbon capture and carbon sequestration where feasible in the city.
12. Collaborate with the Climate Action Regional Office (CARO) and any other relevant stakeholder in respect of the implementation of existing and future climate change adaptation and mitigation strategies and climate action policy to support the transition to a low carbon economy.
13. Increase awareness and support behavioural change in relation to climate change, climate resilience and the transition to a low carbon economy.
14. Enable opportunities to activate EC funded projects such as the EU Horizon Europe Missions under the two missions of (i) Climate-Neutral and Smart Cities and (ii) Adaptation to Climate Change, including societal transformation.
15. Require a climate action statement that considers energy, emissions and sustainable transport as part of every Local Area Plan, Masterplan, Spatial Framework, and Regeneration and Opportunity Site.
16. Support measures to reduce the reliance on single use plastics in the city with a particular emphasis on taking single use plastic bottles out of use as a measure to be pro-active in supporting the Climate Action Plan

## 2.3 Planning & Sustainability – Achieving Sustainable Planning Outcomes

Planning and the planning system is a key enabler responding to the challenges posed by climate change and in building climate resilience and supporting the transition to carbon neutrality. Locally, the Development Plan sets out a land use planning framework that integrates climate adaptation, mitigation measures, sustainability and the environment into spatial policy. In particular the Core Strategy, policies and land use zoning objectives can encourage compact growth, support and integrate sustainable mobility with land use, provide for green infrastructure, address flood risk, and provide for renewable energy. This approach directly responds to the need to protect and enhance natural resources, reduce energy demand, reduce greenhouse gas emissions and protect against the risks posed by climate change in the city.

### Green and Blue Infrastructure (Adaption and Mitigation)

Galway City is fortunate to have a rich legacy of natural capital. It includes coastline, woodlands, river, canal system and protected habitats. A fifth of the total land area of Galway City includes areas designated as protected habitats, recreational and amenity lands and lands in agricultural use. This network of spaces constitutes the city’s green and blue infrastructure. It provides a range of benefits including the support of biodiversity, recreation, leisure and sustainable mobility opportunities and general well-being. Good policy support and management of these resources can enable this green and blue infrastructure to deliver benefits to sustain a good standard of natural environment and address climate change impacts.

Through active management these benefits can be deployed as nature based solutions to adapt to climate change. Nature-based solutions are defined by the International Union for Conservation of Nature as “actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human wellbeing and biodiversity benefits”. Green and blue infrastructure can provide significant environmental benefits including flood water storage, urban cooling and improved air quality. They also have an important role in tackling the biodiversity crisis, sequestration of carbon, absorbing filtering and attenuating water, preventing erosion and filtering pollutants from the air and water.



The challenge for this plan is to ensure these spaces are carefully managed and enhanced and a balance sought between providing for recreation and access and maintaining the integrity of the ecosystem. This is especially important in light of the targeted population growth for the city which will require a sufficient scale and quality of open space. The Green Space Strategy that is currently being prepared by the Council will supplement the relevant policies in the plan in this regard.

Sustainable urban drainage systems (SuDS) is another measure promoted in policy and in development design whereby through design, surface water/rainwater is reduced and managed sustainably. This can reduce the risk of local flooding. SuDS can include for nature based solutions where a range of different measures can be used such as green roofs, swales, ponds and tree pits. Where these are incorporated into the design they can improve water quality, prevent flash flooding while contributing to biodiversity and habitat enhancement. The application of SuDS is varied depending on site specific circumstances and can have an application for buildings too where rainwater can be harvested and deliver both sustainable management and conservation of water.

### **Flood Risk (Adaption)**

Due to rising sea levels and more intense rainfall projections, Galway City will face a greater risk of coastal, fluvial, pluvial (urban storm water) flooding. This will pose significant risk to communities and business operating in flood risk areas. A Strategic Flood Risk Assessment (SFRA) has been carried out, as part of the preparation of the Development Plan. This provides information on flood risk in the city and has informed the Core Strategy and guided the drafting of policies and objectives. These will guide future development, restricting certain types of development in flood zones and require design measures where development is acceptable following justification testing. However owing to climate change, existing developments in the city are still at great risk to flooding. The management of this anticipated flooding and all flood risk will require adaptation measures such as specific flood risk relief scheme which is currently under way.

The Western Catchment Flood Risk Assessment and Management (CFRAM) study in 2016 identified Galway City as an Area for Further Assessment (AFA) and concluded that a flood relief scheme would be viable and effective for the community. This project has since commenced and the City Council working with the Office of Public Works (OPW) have commissioned the scheme known as the Coirib go Cósta project to address the sustainable and effective management of flood risk in the city. It is envisaged that this project, including the design, consent and construction will be completed by 2029.



## Renewable Energy (Mitigation)

Renewable energy is a low carbon or zero carbon source of energy produced from sources that are constantly replenished through the cycles of nature. Unlike fossil fuels these sources of energy are not finite. The development of renewable energy resources and the development of low carbon energies is critical to the transition to a low carbon economy and to meet climate targets relating the reduction of greenhouse gas emissions. The development of these are needed to ensure the security of energy supply in the country.

The Development Plan supports the increase in use of renewable energy and development of renewable energy infrastructure and initiatives to provide a viable alternative to the burning of fossil fuels. Sources of renewable energy include solar photovoltaic (PV), solar thermal, geothermal, hydroelectric power, tidal power, renewable gas, green hydrogen, the use of biofuels and onshore and offshore wind turbines. Only some of these present suitable opportunities in the city being an urban area. Potential also exists for examining district centre heating opportunities within the city particularly in newly designated areas such as Ardaun and in some of the regeneration sites.

The development of offshore renewable energy sources is emerging as a critical resource to meet emissions targets. The Western Seaboard is ideally suited to the development of offshore renewable energy and Ireland is currently part of an international initiative to develop and test wave and wind energy converters. The Atlantic Marine Energy Test Site (AMETS) is located west of Bellmullet in Co. Mayo and offers a full scale test facility for wind and wave ocean energy converters, there is also a quarter scale test site in Galway Bay. In the event that large scale off shore renewable energy projects advance Galway Port is ideally placed to provide the onshore support for such development.

The Sustainable Energy Authority of Ireland (SEAI) supports ‘sustainable energy community initiatives’ which assist local communities to develop projects focused on using energy in a more sustainable way through measures to support energy efficiency, the use of renewable energy and smart energy systems. The Council will collaborate with SEAI on these initiatives in the city and will avail of the support and expertise of CARO and other relevant stakeholders.

### Policy 2.3 - Renewable Energy

1. Promote and facilitate the development of renewable sources of energy within the city, and support national initiatives, which offer sustainable alternatives to dependency on fossil fuels and a means of reducing greenhouse gas emissions, subject to the avoidance of unduly negative visual and environmental impacts, or impacts on residential amenity.
2. Support and work in partnership with SEAI, local Sustainable Energy Communities and relevant stakeholders in the development of energy efficient and renewable energy projects and investigate the potential for the use of emerging renewable technologies in the city.
3. Ensure that the development of renewable energy and its associated infrastructure avoids negative impacts on European sites and adhere to the requirements of Article 6 of the Habitats Directive (92/43EEC).
4. Promote small scale, on-site energy development, where energy generated is primarily required to meet the needs of households, communities and businesses to reduce their carbon emissions. Examples could include micro wind/solar energy generation, district heating, geothermal and air to water energy technologies.
5. Support transmission network integration requirements facilitating linkages of renewable energy proposals to the electricity and gas transmission grid, in a sustainable and timely manner, subject to proper planning and environmental considerations.
6. Support the development of appropriate land-based infrastructure at suitable locations in the city to support off- shore renewable energy production subject to adequate visual, environmental and ecological protection.

### Transport (Mitigation)

Transport includes the movement of goods and people and accounted for 20.4% of Ireland’s greenhouse gas emissions in 2019. Transport emissions are closely linked to economic growth, as Ireland’s population is expected to grow by over a million people by 2040 this will create an increase in demand for movement of people and goods and an additional challenge in reducing transport related emissions. In addition transport contributes to air pollution and poor local air quality through the release of micro-particulates and nitrogen oxides which are responsible for respiratory diseases. Transport emissions in Ireland are exacerbated by a dispersed settlement pattern, low population density, high proportion of journeys being taken by private car and inadequate public transport, walking and cycling infrastructure.

Ireland is targeted to reduce transport related emissions by 40-45% by 2030. Policy to reduce emissions in the transport sector are focused on both reducing the transport intensity of growth and the carbon intensity of travel.

For the Development Plan this includes for adopting compact growth polices and regeneration of brownfield sites which is one of the main tenets of the Core Strategy in conjunction with a strategy for transport which promotes sustainable mobility as provided for in the Galway Transport Strategy (GTS). This will encourage sustainable densities, expansion of walking, cycling and public transport networks, encouragement of the neighbourhood concept and supporting infrastructure for the transition to electric vehicles and the use of biofuels.

### **Built Environment (Adaption and Mitigation)**

In 2019 the residential, commercial and public sectors accounted for 13.9% of Ireland's greenhouse gas emissions. These sectors include the emissions from the built environment. Improving the energy efficiency of buildings, through retrofit and higher energy performance standards for new buildings, is necessary to reduce overall energy demand and improve living standards by making buildings healthier, more comfortable and less costly to heat. Improved energy efficiency and performance building is critical to greenhouse gas emission targets. New buildings are required to be nearly Zero Energy Buildings (nZEB) standard through the transposition of the European Energy Performance of Buildings Directive (EPBD) through Part L of the Building Regulations. The EPBD also requires that energy required by the building to be met by a significant extent by energy from renewable sources produced on-site or nearby and is applicable to buildings undergoing a renovation of in excess of 25% of the building envelope.

The Council encourages the design of high energy performance buildings through the siting, layout and design of new developments to make best use of renewable and low carbon energy opportunities. The Council also supports the retrofit and reuse of existing buildings.

#### **Policy 2.4 Sustainable Building Design and Construction**

1. Increase the energy performance of new buildings in the city by encouraging energy efficiency and energy conservation in the siting, layout, design, and construction of development.
2. Encourage new development to limit greenhouse gas (GHG) emissions and make use of opportunities for renewable and low carbon energy including through design, layout, orientation and construction practices.
3. Encourage high standards of energy conservation and improved energy performance in all existing and planned local authority housing and include for a deep retrofit programme of works (currently under the Energy Efficiency Retrofit Programme).
4. Liaise with the SEAI and other agencies to develop standards, procedures and targets for energy conservation in the Council's housing stock.
5. Support the retrofit and reuse of existing buildings in the interests of sustainability and in line with delivery of the proposed National Aggregated Model of Retrofitting.
6. Promote energy efficiency and sustainability in both existing and new buildings and support the implementation of the EU Energy Performance in Buildings Directive and the Building Energy Rating Certification (BER).
7. Support flexibility, accessibility and adaptability in terms of layout and design of new housing.



## 2.4 Integrating Climate Action into the City Development Plan

To address climate change requires a strategic integrated approach to be embedded in the Development Plan. In this regard Table 2.1 shows the key cross-cutting policies that contribute to mitigation and adaptation that have been incorporated into each chapter of the plan.

**Table 2.1: Key policies measures incorporating climate adaptation and mitigation measures**

Chapter	Policies & objectives
<b>1. Introduction, Strategic Context &amp; Core Strategy</b>	<ul style="list-style-type: none"> <li>Identifies climate action and just transition to a climate resilient, biodiversity rich and climate neutral economy as a strategic goal.</li> <li>Identifies the protection and enhancement of the natural environment and the green network as strategic goal.</li> <li>Facilitates compact growth of the city through the integration of land use and sustainable mobility networks and the redevelopment of brownfield and underutilised lands.</li> </ul>
<b>2. Climate Action</b>	<ul style="list-style-type: none"> <li>Supports the just transition to a climate resilient, biodiversity rich, carbon neutral economy.</li> <li>Supports the implementation of all international, European, national and local objectives set out in government and sectoral climate plans and the Galway City Council Climate Adaptation Strategy 2019-2024.</li> <li>Promotes the development of renewable energy infrastructure, green infrastructure and nature based solutions and flood risk management in the city.</li> <li>Supports the delivery of Coirib go Cósta Flood Relief Scheme.</li> <li>Supports the designated Decarbonising Zone (DZ) and actions arising from the Energy Master Plan for Galway City.</li> <li>Supports the transition to a circular economy.</li> </ul>
<b>3. Housing and Sustainable Neighbourhoods</b>	<ul style="list-style-type: none"> <li>Supports the '15-Minute City' concept and the creation of sustainable residential neighbourhoods through the provision of community services and facilities in tandem with residential development.</li> <li>Supports compact growth and higher residential density on strategic Regeneration and Opportunity Sites and sites close to public transport.</li> <li>Supports the integration of green infrastructure, energy efficiency and life time adaptability in the layout of new developments.</li> </ul>

<p><b>4. Sustainable Mobility and Transportation</b></p>	<ul style="list-style-type: none"> <li>• Supports the integration of land use and transportation to encourage compact growth, shift to sustainable mobility and reduction in greenhouse gas emissions.</li> <li>• Supports the '15-Minute City' concept to reduce dependence on car use and encourage sustainable mobility.</li> <li>• Supports the delivery of public transport and sustainable mobility projects in the Galway Transport Strategy (GTS) such as Cross City Link, Bus Connects and the National Greenway Network in the city.</li> <li>• Supports the expansion of the EV charging network</li> </ul>
<p><b>5. Natural Heritage, Recreation and Amenity</b></p>	<ul style="list-style-type: none"> <li>• Promotes nature based solutions to contribute to climate resilience</li> <li>• Supports the implementation of the National Biodiversity Action Plan (2017-2023), All-Ireland Pollinator Plan 2021-2025 and the Galway City Biodiversity Action Plan 2014-2024.</li> <li>• Supports the protection of sites of ecological importance, the protection of wildlife corridors and stepping stones and the restoration of biodiversity through green design features in the city.</li> <li>• Supports the development of a Green and Blue Network.</li> </ul>
<p><b>6. Economy, Enterprise and Retail</b></p>	<ul style="list-style-type: none"> <li>• Supports the transition to a low carbon economy.</li> <li>• Supports new employment which is aligned with climate action and the circular economy.</li> <li>• Supports the integration of employment, housing and sustainable transport modes.</li> <li>• Facilitates the development of vibrant District, Neighbourhood and Local Centres with range of retail, community and leisure services to reduce travel demand and support "15 minute neighbourhood (city) concept".</li> <li>• Supports innovation in the workplace through digitisation, remote &amp; flexible work practices and support hub working.</li> </ul>
<p><b>7. Community and Culture</b></p>	<ul style="list-style-type: none"> <li>• Supports the provision of sustainable communities where local services and community facilities are easily accessible by walking, cycling and public transport.</li> <li>• Ensures that community facilities and services are delivered in tandem with new residential developments.</li> <li>• Ensure that all new community facilities and services including arts and cultural facilities, healthcare facilities and education and childcare facilities are located to be accessible by walking, cycling and public transport.</li> </ul>

<b>8. Built Heritage, Placemaking and Urban Design</b>	<ul style="list-style-type: none"> <li>• Promotes sustainable building design, best conservation practice and the appropriate maintenance, adaption and reuse of historic buildings.</li> <li>• Supports the delivery of high quality urban design, place making and public realm that is resilient to the climate change</li> <li>• Promotes the integration of nature based SuDS solutions in the public realm</li> <li>• Encourages innovation in architecture and promote energy efficiency and green design</li> </ul>
<b>9. Environment and Infrastructure</b>	<ul style="list-style-type: none"> <li>• Protects and promotes the sustainable management of water and water bodies in the city and the use of Sustainable Urban Drainage Systems (SUDS), Strategic Flood Risk Assessment, management and delivery of the Flood Relief Scheme Coirib go Cósta.</li> <li>• Promotes the development of green infrastructure.</li> <li>• Promotes and supports initiatives to reduce air and noise pollution.</li> <li>• Protects against light pollution and requires the design of energy efficient lighting schemes for all new developments.</li> <li>• Supports the development of digital infrastructure and a Smart City.</li> <li>• Supports the delivery of a sustainable electricity system to ensure transition to a low carbon economy.</li> </ul>
<b>10. Compact Growth and Regeneration</b>	<ul style="list-style-type: none"> <li>• Supports measures outlined in the Galway City Urban Density and Building Height Study to facilitate compact development focused on accessible locations and minimisation of travel.</li> <li>• Supports the re-development on regeneration and brownfield sites and measures to address dereliction and vacancy.</li> <li>• Supports the enhancement of the public realm to enhance accessibility and connectivity.</li> </ul>
<b>All Chapters</b>	<p>All chapters are subject to the following as environmental assessments as part of the preparation of the Development Plan.</p> <ul style="list-style-type: none"> <li>- Strategic Environmental Assessment</li> <li>- Appropriate Assessment Screening</li> <li>- Strategic Flood Risk Assessment</li> </ul>