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Wicklow County Council

Summary Report

May 2023

Contents

KPMG supported the development of this summary report and both the Baseline Emissions Inventory and Climate Risk Assessment. Wicklow County Council would like to acknowledge their support in this work.

Overview and Purpose

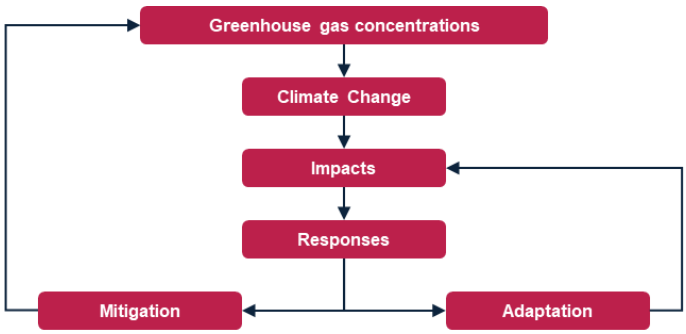
Climate change has become one of the most pressing public policy challenges facing governments today. International organisations, national and local governments are increasingly compelled to take ambitious action to decrease greenhouse gas emissions that cause climate change (mitigation) and enhance resilience to climate change impacts and risks (adaptation).

Overview

To deliver effective climate action at local and community levels, Ireland's Local Authorities are developing Local Authority Climate Action Plans (LACAPs) which will define a clear pathway to reduce greenhouse gas emissions at the local level through mitigation measures and reduce the risks posed by climate change through adaptation measures. In doing so, the LACAP will strengthen the alignment between national climate policy and the delivery of effective local climate action to meet Ireland's climate targets and ambitions.

Purpose

This report has been developed to open and support stakeholder dialogue and discussions on the development of the LACAP and provides a summary of the evidence that will be used to inform the development of the LACAP for Wicklow County Council. This evidence includes an assessment of the key sources of emissions for County Wicklow and the Arklow Decarbonisation Zone and an assessment of current and future climate risks for County Wicklow. In addition, the report provides an indicative Vision and Mission for the LACAP.



Mitigation is related to making the impacts of climate change less severe by preventing or reducing the emission of greenhouse gases (GHGs) into the atmosphere and is achieved either by reducing the sources of these gases (e.g., by retrofitting buildings to improve their efficiency, increasing the share of renewable energies or establishing a cleaner mobility system) or by enhancing the storage of these gases (e.g., by increasing levels of afforestation). In short, mitigation is a human intervention that reduces the sources of GHG emissions and/or enhances GHG sinks.

Adaptation is related to anticipating the adverse impacts of climate change and taking appropriate action to prevent or minimise the damage they can cause or taking advantage of opportunities that may arise. Examples of adaptation measures include large-scale infrastructure changes, such as building defences to protect against sea-level rise, planning development away from flood risk, sustainable urban drainage systems and nature-based solutions. Certain behavioural shifts represent additional essential adaptation measures, including the reduction of food waste and the elimination of peat product usage to protect bogland habitats. In essence, adaptation can be understood as the process of adjusting to the current and future effects of climate change.

Figure 1: An overview of the role of mitigation and adaptation actions in reducing the impacts of climate change. Based on European Environment Agency.

Introduction

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The Challenges of Climate Change

In the latest assessment report, the International Panel on Climate Change (IPCC) states that it is unequivocal that human influence has warmed the atmosphere, land and ocean since pre-industrial times. As a result of climate change, extreme weather and climate events are increasing in frequency and severity across the globe, impacting upon people, businesses and the environment incurring huge economic and social costs.

The impact of the Earth's changing climate is becoming more evident, with accelerated melting of ice caps and retreat of glaciers, rising sea levels and extensive changes in global and regional weather patterns. Ireland's climate is also changing in line with global trends, annual average temperature has increased by 0.9°C since 1900, this increase is accompanied by an increase in the number of warm spells. Patterns of precipitation across Ireland are also changing, with evidence of an increasing amounts of winter rainfall and increasing sea levels. Climate change projections for Ireland indicate that these changes will continue and intensify into the future.

To meet the challenge of climate change, it is essential that we transition to a low-carbon, climate-resilient and environmentally sustainable economy and society. Achieving effective and lasting sustainable development will require unprecedented levels of collaboration and coordination throughout our governments, economies and communities.

For climate action to be effective it must follow a place-based approach that is underpinned by an understanding of the sources of greenhouse gas emissions and climate-related risks at the local level. Climate actions can then be developed that are tailored to the local context while also strengthening the alignment with national climate policy.

Some climate actions will contribute to both mitigation and adaptation objectives, such as planting and maintaining of trees, which can contribute to removal of the greenhouse gas (mitigation) while also acting as shading which can reduce temperatures during heatwave events (adaptation). Climate actions can also lead to a range of co-benefits such as cleaner air, creation of green jobs, improved public health from active travel, and support for biodiversity due to the expansion of green space.

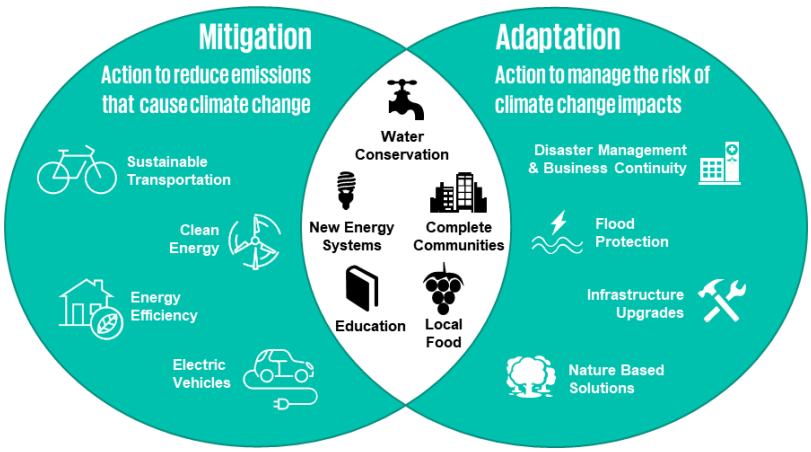

Figure 2: Example of mitigation (left) and adaptation (right) actions. Some actions are beneficial across both mitigation and potential objectives (centre).

International and National Response

Global responses to climate change are accelerating as demonstrated by the signing of the Conference of Parties (COP) 21 Paris Agreement signed by 195 countries in 2015 which aims to limit global warming to less than 2°C above pre-industrial levels by 2050, while pursuing efforts to limit increases to 1.5°C.

Responding to climate change is a now an urgent priority for governments globally. The COP21 Paris Agreement signed by 195 countries aims to limit global warming by reducing greenhouse gas emissions and to build resilience to climate change by significantly strengthening adaptation efforts. Reflecting the aims to the Paris Agreement, The European Climate Law (2021) set the goal of achieving climate neutrality across the European Union (EU) by 2050, with a reduction of net greenhouse gas emissions of at least 55% by 2030.

In Ireland, climate policy is aligned with the EU's ambitions to combat climate change. The Climate Action and Low Carbon Development (Amendment) Act 2021 enshrines the National Climate Objective to "***pursue and achieve, by no later than the end of 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy***." The Act commits Ireland to:

- a 51% reduction in overall greenhouse gas emission by 2031 (compared to 2018 levels) and to achieve carbon neutrality by 2050 at the latest.

The importance of place-based approaches and the role of the local authority is highlighted in the Act, which stipulates that local authorities ***need to prepare a local authority Climate Action Plan (LACAP) that specifies the mitigation and adaptation measures to be adopted by the local authority***. This means that Wicklow County Council must devise a LACAP towards achieving the mitigation of greenhouse gas emissions, climate change adaptation and strengthening the alignment between national climate policy and the delivery of effective local climate action. These plans will be updated not less than once in a five-year period. Figure 3 shows examples of relevant global, national and local climate change related policies and plans.

Global	• Paris Agreement (COP21) • UN Sustainable Development Goals (SDGs)
European Union	• Climate & Energy Framework • EU Adaptation Policy • EU Covenant of Mayors for Climate & Energy
Ireland	• Climate Action and Low Carbon Development (Amendment) Act 2021 • Local Authority Climate Action Charter • Delivering Effective Climate Action 2030 • Climate Action Plan 2023
Wicklow County Council	• Climate Change Adaptation Plan (2019) • Local Authority Climate Action Plan (in preparation)

Figure 3: Examples of climate change related policies at the global, EU, Ireland and Wicklow County Council level.

The Role of Local Authorities

Local authorities are at the forefront of climate action in Ireland and are already playing a significant role in delivering adaptation and mitigation measures. Through national policy, local authorities are entrusted to operationalise Ireland's ambitious national climate targets and policy at local levels, to assist in the delivery of the National Climate Objective.

The LACAP will specify the actions that Wicklow County Council will take across its services to meet national greenhouse gas emissions targets and to increase the resilience of its human and infrastructural assets. The LACAP will also specify how Wicklow County Council will work with its communities to advocate for change and with national government and state agencies to deliver climate action. Through the LACAP, Local Authorities will seek to deliver climate by:

1) **Taking full accountability** for climate action within the local authority, which includes tracking and reporting on the reduction of emissions from their own internal operations, buildings and facilities in addition to building resilience to the negative impacts of climate change, within the organisation.
2) **Influencing** sectors, business, communities and individuals in the delivery of local climate action through the various functions and services provided, as well as using regulatory levers and the sector's broader remit to enable, facilitate and support action.
3) **Co-ordinating and facilitating** action by working with and bringing together key stakeholders, engaging in partnerships to maximise efforts and creating interactions that will yield successful initiatives and projects which may not otherwise occur.
4) **Advocating** on climate action by raising awareness, communicating, informing and engaging in open dialogues on climate related issues and responses.

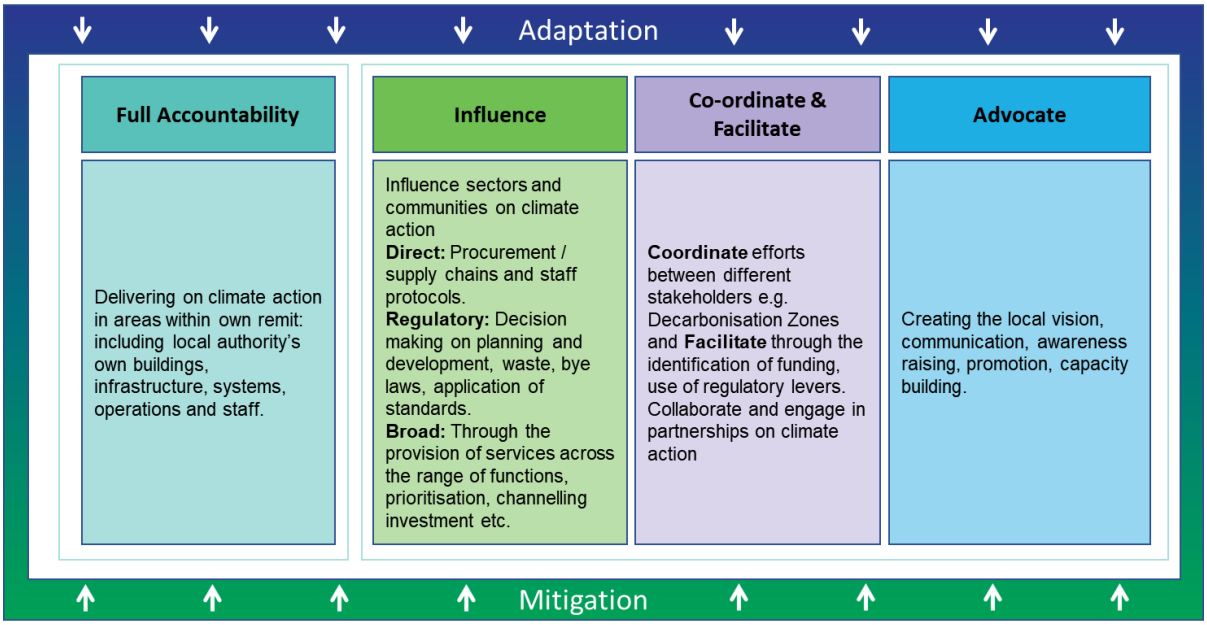

Figure 4: An overview of the scope of local authorities on climate action.

Wicklow's Context for Climate Action

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Wicklow's Context for Climate Action

County Wicklow is characterised by a rich and diverse geography from the uplands, through rolling hills and its coastal landscapes with numerous environmentally sensitive sites. There is a growing and ageing population across the County, with people employed in a range of industries and professions. Dublin provides a key region of employment for County Wicklow with a substantial commuting population. Within the county there are two nationally important transport networks, the DART and the M11. Climate action planning and implementation will therefore have to consider a wide range of local, regional and national factors.

County Wicklow is referred to as the 'Garden County' and consists of a varied mix of mountains, foothills, beaches, forests and lakes. The Wicklow Mountains are the largest mountain area and national park in Ireland and Wicklow has over 60 km of coastline. Poulaphouca Reservoir is the largest manmade lake in Ireland and a major water source for Dublin

According to the 2022 Census, County Wicklow has a population of 155,485 people, which has increased by 9.2% since 2016. The population of County Wicklow is expected to continue to grow with 5000 to 9000 more people expected to be living in the county by 2031. The proportion of those aged 65 and over is also expected to increase on a national and county basis. On a national basis, the population of those aged 65 and over is projected to double by 2051.

Wicklow's population has become more urbanised in recent decades particular in the northern and eastern parts of the county. Wicklow has a commuting population of 65,759 (workers and students) with 68% of these travelling by car and more than half leaving the county for work. The Dublin-Rosslare Main Train Line and the Dublin Area Rapid Transit (DART) run along the Wicklow coast providing a key public transport mode while the M11 and N81 traverse the county north-south, with regional and local roads generally providing routes east-west.

The county's main industries of employment include Commerce and Trade (26%), Professional Services (23%), Other (18%), Manufacturing (10%), Transport and communications (9%) and Building and Construction (6%), with most firms in County Wicklow classed as SMEs. The county's tourism sector is an important component and driver of the economy, with 275,000 overseas tourists visiting the county in 2017, generating over €73 million for the local economy. A further 319,000 domestic visitors generating an estimated €49 million.

Challenges and Opportunities for Climate Action

- Spatial planning that incorporates adaptation and mitigation into their management objectives will be essential to manage climate risk and sustainable development across Wicklow's diverse landscape.
- Compact development with access to services nearby will be essential to support the resilience of the County and to remain an attractive area for Foreign Direct Investment.
- Sustainable transport options will be essential to support County Wicklow's population in changing transport modes.
- For County Wicklow to become a great location for net zero economic activity and as a resilient sustainable destination for tourism and businesses.

County Wicklow's Greenhouse Gas Emissions

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Greenhouse Gas Emissions

An assessment of County Wicklow's emission sources has been undertaken which, provides a basis against which targeted actions and measures can be identified, measured and monitored.

In 2018, the baseline year, Ireland's national Greenhouse Gas (GHG) emissions were approximately 70,235[1] ktonnes CO_2eq. GHG emissions within the Wicklow County Council area are estimated to have been 1,101 ktonnes CO_2e. in 2018. Figure 5 shows the main sources of emissions within the Wicklow County Council boundary area. The agriculture sector accounts for 40% of total GHG emissions, with the residential sector contributing 25%. The transport sector is responsible for 24%, while Waste, Municipal and Commercial and Public Sector account for the remain 11%.

For the transport sector, it has been identified that 65% of GHG emissions originate from private car use, with 32% coming from road freight and light goods vehicles and 3% coming from public transport (Figure 6). These emissions are strongly associated with the M11, a key transport route for the County.

Within the Wicklow County Council area, there are a range of fuel types used within the central heating of residential properties. Oil and natural gas are the primary fuels used by 81% of households. Coal, peat, and wood are used by 10% of households in the county, whereas only 1% use renewable sources (Figure 7). Of residential properties, detached houses are the highest energy consumers and GHG emitters with oil being the primary fuel consumed.

[1]According to the EPA's Ireland's Provisional Greenhouse Gas Emissions, July 2022.

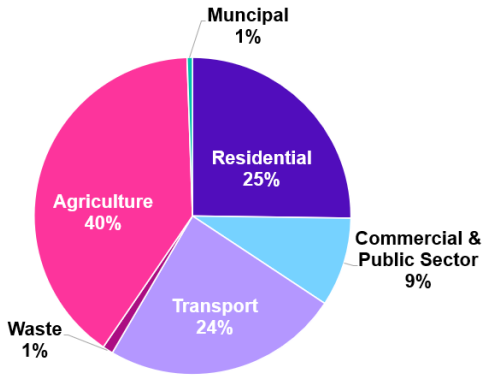

Figure 5: The main sources of emissions within the Wicklow County Council boundary.

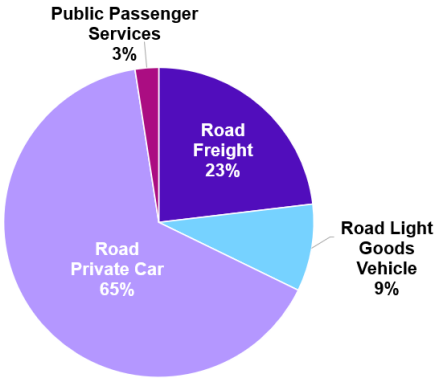

Figure 6: Greenhouse gas emissions by transport mode within the Wicklow County Council boundary.

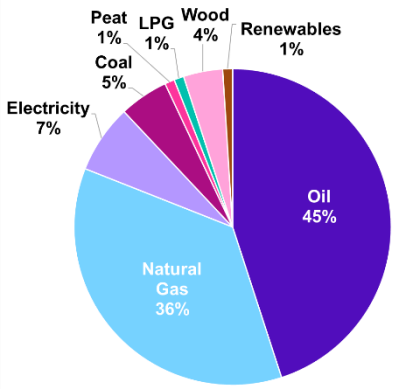

Figure 7: The central heating energy source split of private households within the Wicklow County Council boundary.

Methane emissions produced by livestock is one of the main contributors to agricultural sector emissions. In County Wicklow, dairy and beef cattle produce the majority of methane emissions (Figure 8). For energy related GHG emissions arising from the agriculture sector it has been estimated that 24% of these emissions originate from electricity use, with 76% coming from mobile machinery and <1% from heating.

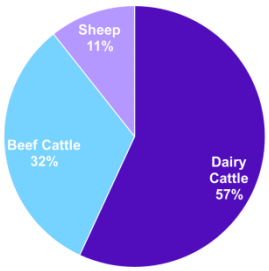

Figure 8: The proportion of emissions associated with livestock type within the Wicklow County Council boundary.

Challenges for Emission Reduction

The assessment of the emission sources provides valuable information on which to create relevant and targeted actions for Wicklow County Council to reduce emissions within the region. Possible actions could include:

Action Type	Action
Full Accountability	• Ensuring green energy sources for council buildings • Ensuring energy efficiency measure all council buildings • Expansion of the council's Green Fleet • Increasing the use of renewables across the council estate
Influence	• Integrating climate action into the planning system in support of mitigation and adaptation objectives. • Promoting the use of active travel (e.g., walking and cycling) by providing infrastructure • Facilitate sustainable and climate resilient economic development • Provide grants towards funding and supporting communities to identify, develop and implement projects to improve quality of life in the county.
Co-ordinate	• Support and connect local sustainable community networks. (e.g. Sustainable Energy Communities, Tidy Towns) • Facilitate sustainable and climate resilient economic development • Encourage best practice sustainable management of Wicklow's uplands, natural heritage, habitats, and landscapes • Support the development of agriculture that is compatible with the sustainable development of the county and farming community
Advocate	• Leveraging the council's leadership role within the community to influence residents to switch to lower greenhouse gas emitting energy sources within their homes • Raising awareness amongst the community of greener energy sources, transport options, circular economy and sustainable consumption initiatives

Case Study Mitigation

Wicklow County Council is planning for ambitious action to reduce emissions; however, a range of actions have already been taken to decrease emissions and towards achieving its 2020 energy reduction obligations - a 33% reduction in energy usage relative to 2009. In 2020, Wicklow County Council used 13.8 % less energy in

As an example of the energy reductions measures put in place by Wicklow County Council, a 300kW solar car park canopy, covering c.1,600 m^2 or c.140 parking bays has been constructed (Figure 8). The canopy provides approximately 285,000 kWh/year of 100% renewable energy and is equipped with guttering that reduces surface water flooding in the carpark. The amount of renewable energy is equivalent to 40% of County Buildings' requirement, saving an estimated €40,000/year in energy costs.

Figure 8: The solar panel covered car park facility in Wicklow that provides 300kW of renewable energy.

Figure 9: Retrofitting of housing with improved insultation, doors, windows, and heat pumps to improve energy efficiency

In Carrig Glen, Blessington, Wicklow County Council housing has been retrofitted with attic insultation, external wall insulation, new windows, new doors and heat pumps (Figure 9), which has resulted in an increase in their Building Energy Rating (BER) from E1 and D1 to B1.

Arklow Decarbonisation Zone

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Arklow Decarbonisation Zone

A Decarbonisation Zone (DZ) is a spatial area identified by the local authority, in which a range of climate mitigation, adaptation and biodiversity measures and action owners are identified to address local low carbon energy, greenhouse gas emissions and climate needs to contribute to national climate action targets.

The town of Arklow has been selected as the 'Decarbonisation Zone' for County Wicklow. The vision is for Arklow to become a vibrant coastal town, rich in renewable resources, and with low-carbon living at its core. The Arklow Decarbonisation Zone will be one of a small number of communities leading the way in achieving a 51% reduction in GHG emissions by 2030 through a 7% annual reduction in emissions. Arklow is poised for regeneration and improvement, with three major infrastructure projects underway or planned in the immediate future. The impetus from these projects can be captured to create momentum for decarbonisation.

Total GHG emissions equate to approximately 75,266 tCO_2e. This translates to 5.7 tCO_2e per capita based on 2016 census population data. In 2018, Ireland's national GHG emissions equated to approximately 12.6 tCO_2e per capita. Ireland's average is significantly higher than the EU28 average of 8.2 tCO_2e per capita. Whilst the Decarbonisation Zone emissions per capita is lower than the national equivalent due to an absence of emissions relating to agriculture.

These results illustrate the sectors that need to be targeted as a priority for the largest benefits to take place over the shortest amount of time. The top three categories are:

- **Residential:** emissions from use of energy in the home: space heating, hot water, and electricity use (lighting, appliances etc.)
- **Commercial**: energy used to heat business, operate machinery and equipment, and other electricity use.
- **Transport**: the baseline includes all trips made by various types of vehicles (cars, commercial vehicles, buses) and is dominated by emissions from petrol and diesel engines.

Figure 10: The boundary of the Arklow Decarbonisation Zone. Basemap from OpenStreetMap.

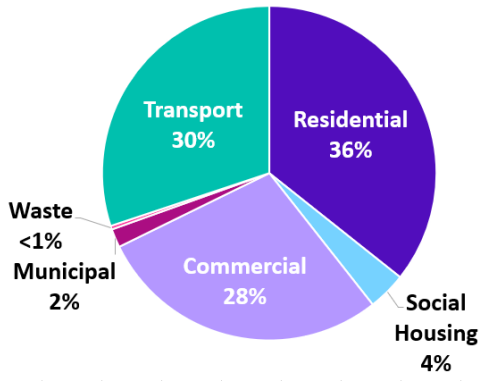

Figure 11: Arklow's Baseline Carbon Emissions in 2018.

Arklow Decarbonisation Zone Themes

There are eight key themes that Wicklow County Council set out when selecting Arklow as the community that would lead the way for climate action.

1. To build on Arklow's status as leader in offshore renewables as a centre of innovation for decarbonisation

2. To work with the industrial and business sector on developing a resource efficient economy

3. To work on retrofitting buildings in the town, decarbonising our homes, workplaces and community facilities

4. To develop active travel for getting around town and between services along with better public transport options

5. To create a strong, dynamic town centre resilient for the future

6. To harness the potential of biodiversity in building a more resilient environment

7. To raise citizen awareness and achieve behaviour change across the community

8. To create a network of towns and communities in County Wicklow implementing decarbonisation opportunities

County Wicklow's Climate Risks

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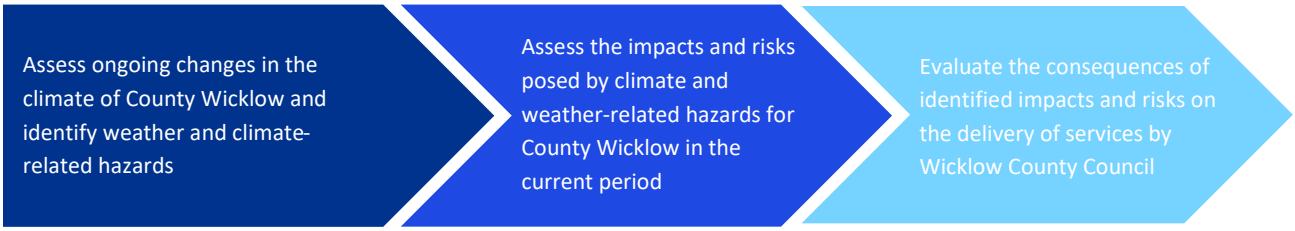
Climate Change Risk Assessment Method

For Wicklow County Council to develop effective and efficient adaptation actions in response to current and projected climate change impacts and risks, developing an understanding of the risks posed by climate climate is an essential first step. This is fundamental for informing the prioritisation of climate action and investment in climate action.

The aim of adaptation is to reduce the risks posed by climate change for County Wicklow and increase resilience. However, before adaptation can take place it is important to develop an understanding of the risks posed by climate change for the region and the implications of these for the delivery of services by Wicklow County Council. To do this, a Climate Change Risk Assessment (CCRA) has been undertaken, in accordance with 'Technical Annex B: Climate Change Risk Assessment (Draft)' of the 'Local Authorities Climate Action Planning Guidelines' and provides a qualitative CCRA. A qualitative CCRA supports the identification and prioritisation of potential future climate risks for more detailed analysis and provides a broad understanding of where adaptation actions could be required. The approach is built of two phases, where both current and future risks and impacts were assessed.

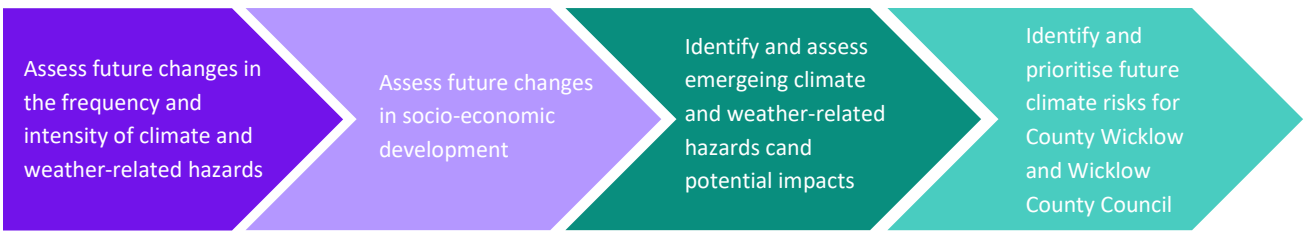
Phase 1: Assessment of Current Climate Risks and Impacts

Understanding the current impacts of climate and weather-related hazards is an essential first step in developing an understanding of future climate risk. Phase 1 involves identifying the range of climate and weather-related hazards currently impacting County Wicklow and the implications of these for the delivery of services by Wicklow County Council.



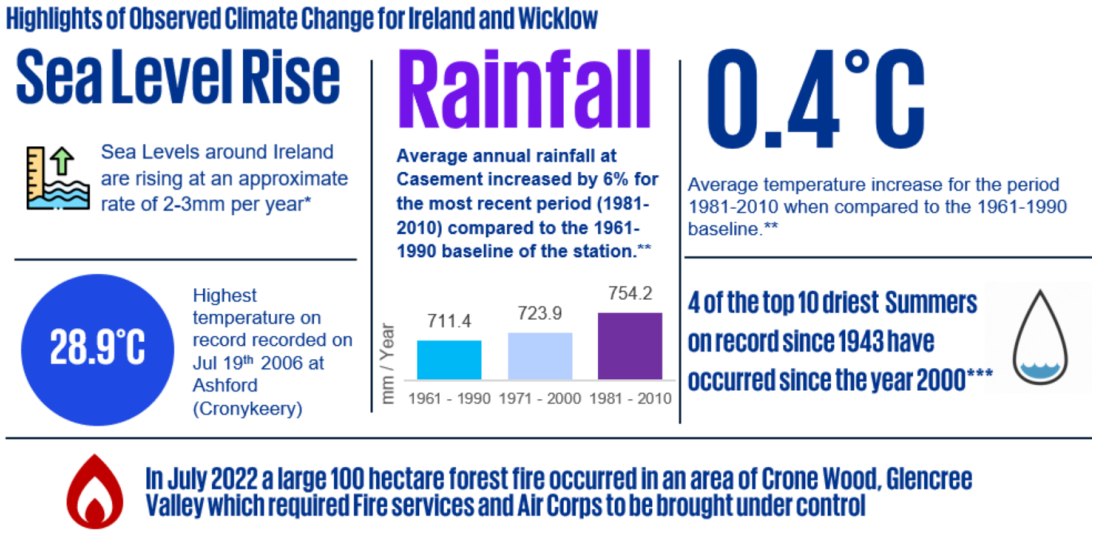
Phase 2: Assessment of Future Climate Risks and Impacts

Building on the Phase 1 assessment, Phase 2 considers how climate and weather-related hazards currently experienced are projected to change into the future accounting for projected climate changes and projected change in socio-economic development (e.g., projected increases in population). In addition, Phase 2 is identifying any new or emerging climate and weather-related risk for County Wicklow. For example, projections indicated that heatwaves will become more frequent and intense in the future meaning that heat-related risk will increase in the future.



County Wicklow's Changing Climate

In line with global trends, the climate of Ireland and Wicklow is changing, temperatures are increasing, sea levels are rising, and patterns of precipitation are changing. These changes are projected to continue and intensify with a wide range of impacts for Wicklow and Wicklow County Council. A summary of key climate and weather-related changes already observed for Wicklow County are detailed below.



Extreme Heat: High temperatures and dry conditions, often compounded by high levels of ignitions activity, resulted in uncontrolled fires. In June 2018 it is estimated that fires cost Wicklow County Council an additional €170,000.

Surface Water Flooding: Extreme precipitation on Christmas Day 2021 caused disruption for many road users in Wicklow. The M11 at Junction 23/24, the R747 (Woodenbridge to Aughrim) and the Avoca Road in Rathdrum were closed due to road flooding

Snow and Ice: Heavy snowfall associated with Storm Emma in 2018 left the N81 and roads around Wicklow town, Arklow and Baltinglass areas impassable with metres of snow accumulating in some areas.

Windstorms: A severe windstorm in January 2023 left almost 2,000 ESB customers without power. Winds of over 50 km/h caused damage to energy supply.

Coastal Flooding (Storm Ellen, Aug 20): There was traffic disruption by the South Beach in Greystones after extreme precipitation overnight led to flash flooding in the area in October 2022.

Coastal erosion: In March 2018, Storm Emma resulted in the erosion of large swathes of the Murrough.

Climate Hazards

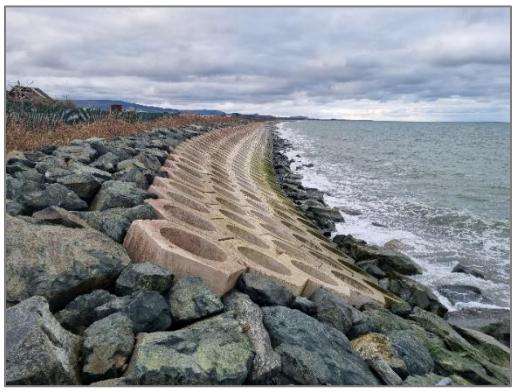
Extreme weather events and hazards have had significant impacts on the citizens, communities, businesses and assets of County WIcklow.Below are some examples of how these hazards have affected Wicklow in the recent past.

Severe Windstorm

Windstorm storms cause damage across Wicklow including loss of power, accidents due to falling trees and flying debris, and coastal flooding. Storm Barney blew a large section of the Coral Leisure Centre roof off in November 2015. This resulted in the closure of the leisure centre for ten weeks while repairs were undertaken at a cost of €190,000.

River Flooding

Due to heavy rainfall and river flooding, there was significant damage to roads and bridge collapses in west Wicklow in 2011. The equivalent of one month's rainfall 95 mm fell in 24 hours with 65 mm falling in a four-hour period. The resulting flooding washed away sections of road alongside a river and badly damaged 12 km of road in total including one collapsed bridge.



Coastal Erosion

County Wicklow has a coastline which is subject to coastal erosion which impacts upon coastal habitats and the coastal railway. Consequently, there has been repeated closure of the cliff coastal walk, most recently in 2022 and on into 2023 due to rock falls near Bray and a land slide at the Greystones end of the walk. Coastal erosion is also occurring in The Murrough, Wicklow Town which has led to the loss of coastal meadow. This threatens the eastern railway corridor which required urgent works in 2016 and again in 2023, resulting in the development of coastal defences to reduce the coastal erosion risk.

Extreme Weather Events in County Wicklow

To understand the range of extreme weather events currently impacting on County Wicklow, recent experiences of extreme weather for County Wicklow have been examined.

The table below shows a summary of key extreme weather events, identifying the type of event, the date of its occurrence and a brief description of the event and its impacts.

Event	Date	Description
Heatwave	October 2022	An Garda Siochana advised the public to avoid the Bray to Greystones following a rock slide.
Coastal Flooding	September 2022	In 2018, Storm Emma removed some rock armour in the coastal defence of the railway line.
River Flooding	December 2021	Damage to the road network during Storm Emma due to freeze thaw was the largest cost following the cold spell. The total cost estimate across the county was approx. €6 million.
River Flooding	December 2021	A number of premises were flooded in Baltinglass following the river Slaney bursting its banks.
Coastal Erosion	February 2021	Two cliff collapses occurred along the popular Bray to Greystones cliff walk.
Storm Francis	August 2020	Due to Storm Francis, homes were without power across Wicklow with Arklow, Rathdrum, Greystones, Kilcoole and Baltinglass all experiencing outages.
Surface Water Flooding	October 2019	Houses were flooded in Wicklow Town in September 2019 following flooding caused by heavy rainfall.
Drought	August 2018	A drought in 2018, impacted fodder production, with farmers having to graze livestock on lands intended for silage production.
Surface Water Flooding	March 2018	A number of houses were flooded in the Rathdrum and Kilmacanogue areas following heavy rainfall
Heavy Snowfall	March 2018	In March 2018, more than 800 homes were without power around Wicklow town, Rathnew and Ashford due to heavy snow.
Cold Spell	March 2018	In Arklow, Kilcarra Rd (R747) from Arklow to Kilcarra was impassable due to very icy conditions.
Storm Emma	March 2018	Approximately 5 metres of the Turlough Wetlands (a Special Area of Conservation) were washed away due to Storm Emma.
Heavy Snowfall	March 2018	Public transport services were impacted by adverse weather conditions (heavy snow showers) in a number of areas, particularly in the east. A status orange snow-ice warning covered Wicklow.
Extreme Temperature	Summer 2018	Seven significant fires were reported. Some of the fires, namely in Liffey Head and Lough Bray, lasted for weeks and were fought by hand, with water tankers, and by helicopters
Drought	Summer 2018	Low levels were reported in the Vartry Reservoir during the Summer of 2018.

Projected Climate Changes

Changes have occurred to the current climate of County Wicklow, however, the climate is projected to continue to change in the future. These changes are expected to exacerbate climate hazards, such as increasing the frequency of heatwaves, droughts and flooding, but potentially decrease the frequency of cold spells and heavy snow.

As a result of climate change, the frequency of extreme weather events is projected to change. For County Wicklow, this means that some hazards may occur more often while others may reduce. Below is an overview of projected changes in the frequency of climate hazards for County Wicklow by 2050.

Hazard	Projected Change in Frequency	Climate Projections
Heatwaves	Increase ↑	• Projections indicate an overall increase in average temperature of between 1.2 and 1.6°C for County Wicklow. • Under a high emission scenario, projections indicate that heatwaves will become more frequent by mid-century and on an almost annual basis for some parts of County Wicklow.
Droughts	Increase ↑	• Summer rainfall is expected to reduce in the future when compared with the baseline period of 1981 to 2000, contributing to a potential increase in frequency of drought conditions.
Cold Spell	Decrease ↓	• As a consequence of the increasing temperatures, a decrease in the number of frost days, ice days, and snowfall is projected for the period 2041-2060 when compared with the baseline period of 1981 to 2000. • The annual snowfall in the region is projected to decrease substantially by the middle of the century.
Heavy Snowfall	Decrease ↓	
Severe Windstorms	No Change –	• Projections of storms are subject to a high level of uncertainty. By mid-century, projections indicate that average wind speed will remain similar to those currently experienced. However, some projections indicate an increase in the frequency of the most intense storms which are currently rare events.
Coastal Flooding	Increase ↑	• Rising sea levels projections under a high emissions scenario indicate an increase of up to 0.24 m by 2050 which will increase the frequency of coastal flooding for County Wicklow.
Coastal Erosion	Increase ↑	• Rising sea level is strongly linked with increases in rates and extents of coastal erosion.
River Flooding	Increase ↑	• Projections indicate an increase in the frequency of heavy rainfall days (days with precipitation >30mm) for County Wicklow with some areas projected to see increase of up to 90%. This will likely result in an increased frequency of associated river and surface water flooding.
Surface Water Flooding	Increase ↑	
Groundwater Flooding	No Change –	• Projections of changes in groundwater flooding are currently not available, therefore there is uncertainty in the change in groundwater flooding frequency that can be expected in the future.

Future Climate Risks

The potential impacts of future risks from climate hazards will be increased by the socioeconomic and demographic growth that County Wicklow is expected to undergo in the future. The increasing risk from hazards will have an impact on County Clare in terms of people and communities affected and damage and disruption to assets and the economy.

As a result of both the projected changes in Wicklow's climate and in Wicklow's population and development, levels of climate risk are projected to change in the future. Figure 12 shows the change in climate risks for each of the hazards experienced with key risks for County Wicklow highlighted.

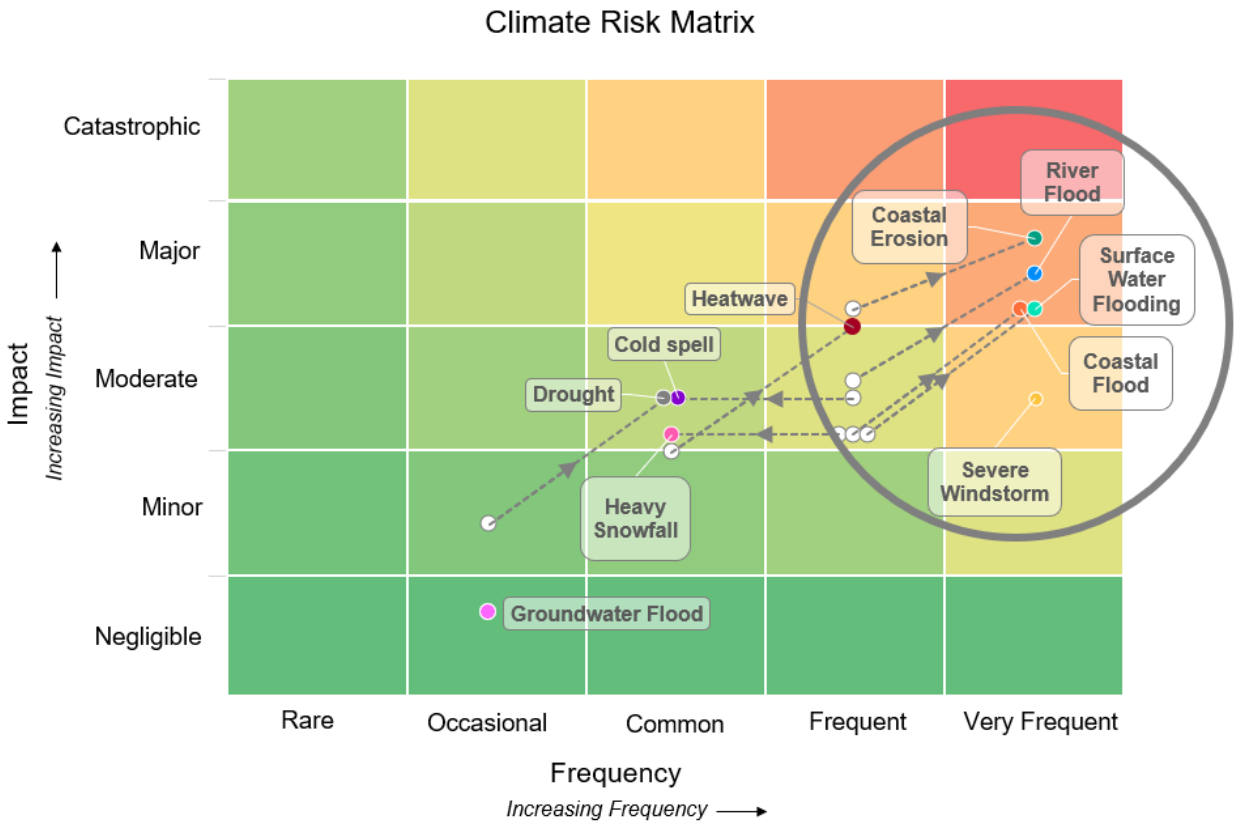


Figure 12: The future changes in risk for the identified hazards within County Wicklow with the key risks circled. For each hazard there is a solid marker, which identifies the future risk, and a white marker showing the current risk. The dotted line in between these markers shows the change between the current and future risk.

The **risk** of existing hazards such as **river, surface water, and coastal flooding and coastal erosion** is projected to **increase** in the future. This could impact upon people and cause damage and disruption to key transport infrastructure and an increase in the financial costs associated with managing these hazards and impacts.

Heatwaves and droughts are expected to occur more frequently resulting in an **increased** risk due to impacts on health and wellbeing, damage to transport infrastructure, and harm to the environment, such as reduced water quality.

Although the frequency and impact of **severe windstorms** is thought to be **unchanged in the future**, these events will remain a risk for County Wicklow, with the potential to result in asset damage, transport disruption, and increased pressure on emergency response services. The risk of **groundwater flooding** is also unchanged in the future, however, there is uncertainty associated with how climate change will impact the occurrence of this hazard.

The impact of **heavy snowfall and cold spells** on County Wicklow remains similar to those experienced today with impacts such as asset damage, transport disruption, social isolation, and increased pressure on emergency response services. However, due to the potential decrease in hazard frequency, the overall risk of these hazards is likely to **reduce** in the future, resulting in a lower level of risk.

Challenges for Adaptation

The assessment of climate risk provides valuable information on which to create relevant and targeted actions for Wicklow County Council to reduce climate risks within the region. Possible actions could include:

Action Type	Action
Full Accountability	• Account for climate change in the development and maintenance of surface drainage • Alterations to road and infrastructure maintenance approaches due to climate change • Increased emergency response to weather events
Influence	• Harness the County Development Plan and the Regional Spatial and Economic Strategy to deliver compact development and sustainable development for communities and enterprise. • Ensure compliance with the building regulations • Leverage better sustainability practice in the awarding of community grants
Co-ordinate	• In collaboration/partnership with LAWPRO deliver river basin management actions which deliver cross cutting benefit on water quality, biodiversity, and flood prevention. • Work with stakeholders on the planning and development of flood defence works and use of nature-based solutions to reduce risk. • Work with stakeholders on the development of coastal protection measures.
Advocate	• Focus on climate awareness and action in education and awareness activities across all community sectors. • Protect the county's heritage from the impact of climate. • Harness the potential of biodiversity to build resilience to a changing climate and ensure that the LACAP works with the Biodiversity Plan to protect and restore biodiversity.

Wicklow County Council Vision and Mission

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ENDLESS OPPORTUNITIES

Wicklow County Council Vision and Mission

Local authorities have already undertaken extensive work in the area of climate action and have ambitious plans to capitalise on their unique position to advance climate action across their own organisations and counties. The LACAP will specify actions that the local authority will take across its own services to meet national emissions targets and to increase the resilience of its human and infrastructural assets against climate change impacts. The LACAP will also specify how the local authority will work with its communities to advocate for change and with national government and state agencies to deliver climate action.

The most effective way of reaching our goals is to make sure 'everyone rows in the same direction', and this destination is summarised in a unified vision of the future, which supports ambitious climate action. Given the wide role that Wicklow County Council has it is important to have a unifying vision reflects a desired and shared perspective of the future in a climate resilient and climate neutral society, that will unite all key stakeholders and inspire action.

The indicative **Vision** for Wicklow County Council is:

Leverage the capability, operations and resources of Wicklow County Council to effectively lead and coordinate climate mitigation and adaptation to develop a vibrant decarbonized future for communities with resilient and regenerative natural systems throughout County Wicklow.

While Wicklow County Council's Vision Statement defines where it would like to lead the County, its mission statement speaks to its grounded purpose in delivering and mainstreaming effective climate action across all services and functions. This action-oriented mission statement helps guide representatives and stakeholders of Wicklow County Council in coordinating their work towards the defined Vision.

The indicative **Mission** for Wicklow County Council is:

Deliver transformative change and measurable climate action in the operation of our services for the people of Wicklow, through leadership and example. Mobilise action on mitigation and adaptation through partnership with communities, enterprise and other stakeholders at regional and local level. Create a low carbon, climate resilient future, for the county.

Strategic goals set the context for mitigation and adaptations actions in service of Wicklow County Council's climate Vision and Mission. The identification and development of such goals establishes a structured approach to the arrangement of climate actions to be addressed. These goals are informed by the key themes that emerged from the issues collated as part of the evidence base. The indicative strategic goals are:

1. Adopt climate focused governance, provide leadership, and build partnerships for climate action.
2. Achieve carbon emissions reduction of 51% and energy efficiency improvement of 50% in our operations by 2030, creating a pathway to net zero by 2050.
3. Deliver on climate adaptation, biodiversity resilience and enhanced capacity for our environment to adapt to changing conditions.
4. Mobilise and empower climate action in local communities.
5. Mobilise climate action in enterprise and agriculture supporting the transition to an inclusive, net zero and circular economy.
6. Achieve a 'just transition' particularly for communities that may be economically disadvantaged by decarbonising projects or impacted by climate change.
7. Support decarbonisation of transport and modal shift from cars to active travel and public transport.
8. Test the scope and scale of decarbonisation in Arklow with the aim of creating a vibrant town which has low carbon living at its core.