

# BASELINE EVIDENCE SUMMARY REPORT



# LOCAL AUTHORITY CLIMATE ACTION PLAN



Comhairle Contae Chorcaí  
Cork County Council

# CONTENTS

<b>REPORT OVERVIEW</b>	<b>3</b>
<b>INTRODUCTION</b>	<b>4</b>
CHALLENGES OF CLIMATE CHANGE	5
INTERNATIONAL AND NATIONAL RESPONSE	6
THE ROLE OF LOCAL AUTHORITIES	7
<b>PROFILE OF CORK COUNTY</b>	<b>8</b>
CORK'S CONTEXT FOR CLIMATE ACTION	9
<b>BASELINE EMISSIONS INVENTORY</b>	<b>10</b>
BASELINE EMISSIONS INVENTORY METHOD	11
SOURCES OF EMISSIONS IN CORK COUNTY	12
<b>DECARBONISATION ZONE</b>	<b>15</b>
DECARBONISATION ZONE OVERVIEW & METHOD	16
<b>CLIMATE CHANGE RISK ASSESSMENT</b>	<b>20</b>
CLIMATE CHANGE RISK ASSESSMENT METHOD	21
CORK COUNTY'S CHANGING CLIMATE	22
EXTREME WEATHER EVENTS IN CORK COUNTY	23
PROJECTED CLIMATE CHANGES FOR CORK COUNTY	24
FUTURE CLIMATE RISKS	25
<b>A VISION AND MISSION FOR CORK COUNTY COUNCIL</b>	<b>26</b>
CORK COUNTY COUNCIL VISION AND MISSION	27
<b>APPENDIX</b>	<b>28</b>

# REPORT OVERVIEW

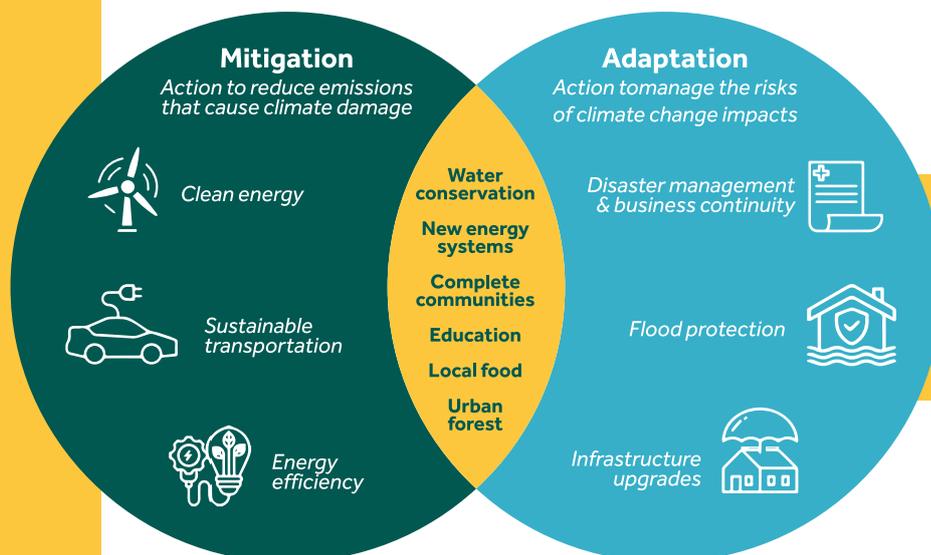
Climate change has become one of the most pressing global public policy challenges facing governments today. International organisations, national and local governments are increasingly compelled to take ambitious action through mitigation (decreasing emissions that cause climate change) and adaptation (enhancing resilience to climate change impacts and risks). Ireland's Local Authorities are developing Local Authority Climate Action Plans (LACAPs) to play their part in meeting national emissions objectives and to transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy. These plans need to be underpinned by a robust evidence base detailing sources of emissions as well as the current and future climate-related risks faced by the local authority. This report provides a summary of the evidence base developed in preparation of the LACAP for Cork County Council.

Ireland's Climate Action and Low Carbon Development (Amendment) Act (2021) requires local authorities to prepare a Local Authority Climate Action Plan (LACAP). To ensure the development of a robust and evidence-based plan, a considerable amount of baseline information is required to inform the development of the LACAP, which are grouped into the following three key areas:

- A Baseline Emissions Inventory (BEI) that assesses the current source of Greenhouse Gas (GHG) emissions within the local authority boundary;
- A BEI for the Decarbonisation Zone (DZ) identified for the local authority. The DZ is defined as a spatial area in which a range of climate mitigation, adaptation and biodiversity measures are identified. These measures aim to address local low carbon energy, greenhouse gas emissions and climate needs to contribute to national climate action targets; and
- A qualitative Climate Change Risk Assessment (CCRA) that evaluates the current and future climate-related impacts and risks faced by the local authority and the local community.

Guidance for the preparation of the LACAP has been developed by the Climate Action Regional Offices (CAROs) to outline the approach in conducting these assessments. Employing this guidance, KPMG was mandated to undertake development of the evidence base for Cork County Council. In addition and to support Cork County Council in meeting the challenges posed by climate change, KPMG have developed indicative vision and mission statements in consultation with Cork County Council, along with high level strategic goals and objectives that will steer the identification and development of climate action measures.

This report outlines the challenges posed by climate change for Cork County and the national and local policy context; presents key findings of the BEI, DZ and CCRA assessments; and outlines the indicative vision, mission, strategic goals and objectives for Cork County Council. The Technical Report contains the detailed data and results for the baseline assessments are included within the appendix.



## EXAMPLE OF MITIGATION AND ADAPTATION ACTIONS

Figure 1 shows examples of mitigation and adaptation actions with some actions overlapping addressing both mitigation and adaptation considerations.

# INTRODUCTION



# CHALLENGES OF CLIMATE CHANGE

It is unequivocal that human influence has warmed the atmosphere, land and ocean since pre-industrial times, affecting many weather and climate extremes in every region across the globe. Each of the last four decades have been successively warmer than any decade preceding it since 1850. By now, climate change has become one of the most pressing global public policy challenges facing governments today.

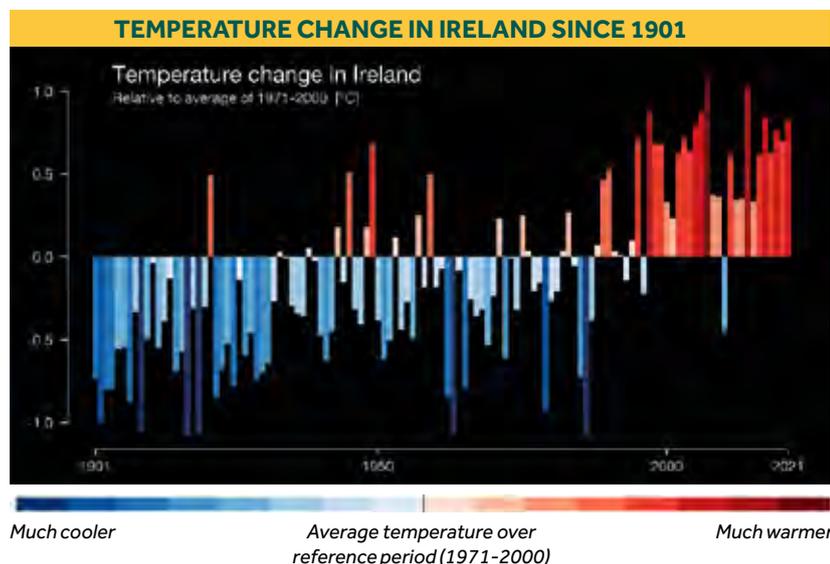
The Earth's climate is changing, and the impact of these changes are becoming more evident. Such visible climate changes include variations in air and ocean temperatures, accelerated melting snow and ice caps, widespread retreat of glaciers, rising sea levels and extensive changes in weather patterns on a global basis. These changes are already having significant economic, environmental and social impacts.

Ireland's climate is changing in line with global trends. Recent assessments indicate an increase in average annual temperatures of 0.9°C since 1900 with an increase in the number of warm spells; patterns of precipitation are changing with evidence of an increasing trend in winter rainfall<sup>1</sup>; and sea levels are rising with recent estimates indicating the sea levels are rising at double the global rate in Dublin and Cork<sup>2,3</sup>. These changes are already being reflected in changes in the frequency and intensity of extreme weather events. In 2021, the World Meteorological Organization identified five extreme weather events in 2021 for Ireland that were considered unusual and made more likely by climate change<sup>4</sup>.

Climate change projections for Ireland indicate that these changes will continue and intensify into the future. For Ireland, projections indicate that:

- Sea levels will continue to rise and by up to 0.9m in the seas around Ireland by 2100<sup>5</sup>;
- Average temperature will continue to increase with heatwaves such as those experienced in 2018 and 2022 becoming more frequent<sup>6</sup>;
- Extreme precipitation events and associated flooding will become more frequent and intense<sup>5</sup>; and
- The seas around Ireland will continue to warm while the chemistry and salinity of our seas will change, impacting on marine ecosystems and commercial fish stocks<sup>5</sup>.

The impacts of these changes will be felt across Ireland's communities and environment, incurring huge costs to our economy and society.



Each column represents the average temperature for a single year, relative to the average temperature over the period as a whole. Shades of blue indicate cooler-than-average years, while red shows years that were hotter than average

(Source: <https://showyourstripes.info/s/europe/Ireland>, Ed Hawkins, National Centre for Atmospheric Science, University of Reading).

# INTERNATIONAL AND NATIONAL RESPONSE

**Global responses to climate change is accelerating as exemplified by the signing of the COP21 Paris Agreement by 195 countries in 2015. Ireland’s climate policies are evolving in line with national and international requirements and aims 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.”**

Responding to climate change is now a pressing priority for governments on a global basis and this was reflected by the signing of the COP21 Paris Agreement by 195 countries which aims to limit global warming to less than 2°C above pre-industrial levels, pursue efforts to limit increases to 1.5°C, build resilience and reduce vulnerability 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 EU by 2050, with an intermediate reduction of net GHG emissions by at least 55% by 2030.

Climate policy in Ireland 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 (when compared to 2018) and 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 all local authorities need to prepare a LACAP that specifies the mitigation and adaptation measures to be adopted by the local authority. These plans will be updated not less than once in a five-year period.

<b>GLOBAL</b>	<ul style="list-style-type: none"> <li>• Paris Agreement (COP21)</li> <li>• UN Sustainable Development Goals (SDGs)</li> </ul>
<b>EUROPEAN UNION</b>	<ul style="list-style-type: none"> <li>• Climate &amp; Energy Framework</li> <li>• EU Adaptation Policy</li> <li>• EU Covenant of Mayors for Climate &amp; Energy</li> <li>• Related Directives</li> </ul>
<b>IRELAND</b>	<ul style="list-style-type: none"> <li>• National Climate Policy (2014)</li> <li>• Climate Action and Low Carbon Development (Amendment) Act 2021</li> <li>• National Mitigation Plan (2017)</li> <li>• National Adaptation Framework (2018)</li> <li>• Climate Action Plan (2019)</li> <li>• Climate Action and Low Carbon Development (Amendment) Act 2021</li> </ul>
<b>CORK COUNTY COUNCIL</b>	<ul style="list-style-type: none"> <li>• Regional Spatial &amp; Economic Strategy</li> <li>• Regional Waste Management Plan</li> <li>• Corporate Strategy</li> <li>• Development Plans</li> <li>• Annual Service Delivery Plans</li> <li>• Local Economic &amp; Community Plans</li> <li>• Climate Change Adaptation Plans</li> </ul>

# THE ROLE OF LOCAL AUTHORITIES

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.

Local Authorities stand ready to lead on climate action and have huge ambition for what the local authority can achieve with government support. Through the LACAP, local authorities will seek to deliver climate action across three key areas:

- Delivering climate action across local authority functions and services: Local authorities are responsible for approximately 11% of all public sector emissions. Local authorities are accountable for and have authority over the management and reduction of these emissions. In addition, protecting and enhancing the resilience of the human and infrastructural assets against the negative impacts of climate change while ensuring essential functions and services are delivered, is also the responsibility of the local authority.
- Influencing and leading climate action across its communities: The local authority plays a leadership role to drive climate action at the local and community levels. Through this leadership role the local authority takes on the responsibility to address the unprecedented challenges of climate change in the many distinct and diverse ways available to them.
- Co-ordinating, facilitating and advocating for climate action: Local authorities also have significant scope to maximise their regulatory and strategic functions such as spatial planning, infrastructural provision and local economic and community development to prompt and promote local responses and influence and support the reduction of emissions across all sectors of society at local level, while supporting communities to adapt and build resilience to the impacts of a changing climate. In addition, local authorities can secure elevated protection and enhancement of the natural environment and biodiversity, continue their proactive engagement on flood risk management, source funding and investment, as well as coordinate and work in partnership with other stakeholders to facilitate and enable the delivery of appropriate climate initiatives and infrastructure.

As a result of these many roles of the local authority, when developing their LACAP, Cork County Council will have to apply an organisational and community focus on building resilience to the negative impacts of climate change (adaptation) and in tackling the causes of climate change (mitigation).

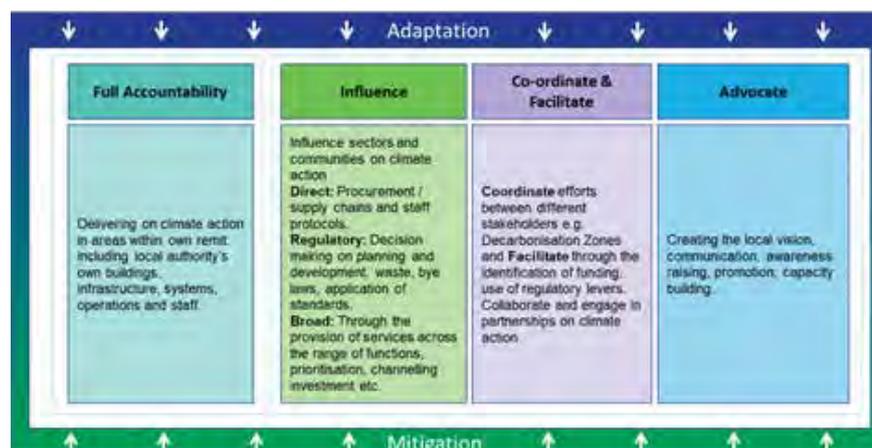


Figure 4: An overview of the scope of local authorities on climate action.

# PROFILE OF CORK COUNTY



# CORK'S CONTEXT FOR CLIMATE ACTION

Cork County Council is Ireland's second largest local authority and the largest, based on geographic size. County Cork is characterised by rich and diverse inland and coastal landscapes, numerous environmentally sensitive sites, and a growing population. To prepare for its future growth, Cork County is already investing in renewable energy resources, upgrading its infrastructure and piloting sustainable living projects.

## CORK COUNTY – "TODAY"

Cork County is the largest county in Ireland, with a total administrative area of 7,457 km<sup>2</sup>; characterised by a diverse inland and coastal landscape, a wealth of natural resources and providing home to a rich array of biodiversity. The county is rich in natural capital along its 1,118 km coastline, natural harbour, 125 rivers, lakes, forests and woodlands. Cork County is home to numerous protected species and environmentally sensitive sites, including 30 Special Areas of Conservation (SACs), 18 Special Protection Areas, and 8 Natural Heritage Areas.

Cork County's population is 358,898 (CSO, 2022) which represents an 8% increase compared to 2016. The household median gross income (CSO, 2016) is €49,489, 9% higher than the median income across the state. The main industries of employment within the region include Professional Services (22.7%), Commerce & Trade (21.3%), Manufacturing Industries (16.2%), and Agriculture/Forestry/Fishing (8.3%). The County is also home to Ireland's largest hydro power schemes in Inniscarra and Carrigadrohid. The County's total agricultural land area is 530,000 hectares, which includes the highly productive Golden Vale dairy farmland.

## CORK COUNTY – "TOMORROW"

The population of Cork County is expected to continue to increase with 66,000 more people by 2031, and the County will require more housing and infrastructure to accommodate this growing population. Cork County recognises this need and the requirement to plan sustainably by putting in place sustainable development strategies and actively planning for and investing in the transition to a low carbon climate resilient society and economy.

**66,000 more people**  
in Cork County by 2031



**22,600**  
new housing units required by 2028




## Planning for adaptation

**Flood Defence Schemes**, e.g. Castlemartyr, Innishannon, Macroom, Midleton and Ballinacurra

**Road infrastructure**, e.g. N22 Upgrade, M20 Cork-Limerick, Ringaskiddy, Carrigtwohill-Midleton, Carrigaline, Macroom

**648 hectares**  
of land zoned for residential and mixed use

## Planning for mitigation

Key renewable energy projects include:

- 38 wind farms
- 43 solar farms



Long-term and Strategic

## SUSTAINABLE SITES

in Cobh, Carrigtwohill and Monard (SDZ)



Source: emaofrob.com

## Urban Planning: Water Rock Urban Expansion Area (Midleton)

- Local Infrastructure Housing Activation Fund Initiative
- 2,500 residential units, schools, amenities, services and infrastructure
- Green roofs, roof-mounted solar panels and facilities to harvest rainwater
- With Irish Water investing €12 million



Source: Cork County Council (2021)

# BASELINE EMISSIONS INVENTORY METHOD

Cork County Council's Baseline Emissions Inventory (BEI) is informed by the guidance document 'Technical Annex C: Climate Mitigation Assessment', ensuring a robust and consistent approach across all local authorities to the development of their BEIs. As per the guidance, Cork County Council adopted both Tier 1 and Tier 2 approaches to produce a BEI.

## 1

### TIER 1 "TOP-DOWN" ASSESSMENT

- The Tier 1 approach is the simplest and quickest approach to estimate carbon emissions at the County Council level.
- The approach is informed by publicly available data, including the Environmental Protection Agency's (EPA) MapEire database as well as the Central Statistics Office (CSO).

## 2

### TIER 2 "BOTTOM-UP" ASSESSMENT

- The Tier 2 approach allows for a more detailed look at drivers and hotspots of carbon emissions through use of more detailed datasets.
- This approach is informed predominantly by publicly available data, including Central Statistics Office (CSO), Transport Omnibus and the Environmental Protection Agency (EPA).

Cork County Council's Baseline Emissions Inventory (BEI) includes the impact of the following sectors, aligning with the National Emissions Inventory:

- Energy Industries
- Residential
- Commercial & Manufacturing
- Industrial processes
- Agriculture
- Transport
- Land Use, Land Use Change & Forestry (LULUCF)
- Waste

2018 is used as the baseline year for the BEI assessment. This year has been purposefully chosen to align with Ireland's national targets which are set against a 2018 baseline year. This BEI assessment provides a snapshot in time of the carbon emissions across all identified sectors of the economy within the boundaries of a specific local authority. The baseline covers both direct and indirect emission sources within the administrative area, as well as the level of control and influence a local authority has over these emissions.

The boundary of Cork County Council's BEI reflects the post 2019 boundary change of the administrative area of Cork County. This boundary has been used to allow for comparison of future year carbon emissions to a comparable baseline.

# SOURCES OF EMISSIONS IN CORK COUNTY

A summary of the Tier-1 'Top-down' assessment is shown below. It provides a 'snapshot' in time of the Cork County's emissions sources, providing a basis for which targeted actions and measures can be identified, measured and monitored against.

## BEI TIER 1 OVERVIEW

In 2018, the baseline year, Ireland's national carbon emissions were approximately 70,235 ktonnes carbon dioxide equivalent (CO<sub>2</sub>e). On the basis of the BEI Tier 1 approach, carbon emissions from Cork County are estimated to account for approximately 12% of national carbon emissions in the baseline year. The results of the BEI Tier 1 approach (Figure 5) show that the majority of carbon emissions arise from the agriculture and the energy industries sectors, which together, contribute to 60% of the total carbon emissions in the Cork County area.

## AGRICULTURE

The agriculture sector's impact on emissions of carbon amounts to 38%. This figure captures both methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions which are important greenhouse gases associated with the agriculture sector. Methane emissions arise from fermentation that takes place in the digestive systems of animals (enteric fermentation), while nitrous oxide emissions arise from fertiliser use. For Cork County, the agriculture sector accounts for 90% of total methane emissions and 89% of total nitrous oxide emissions.

## ENERGY INDUSTRIES

Energy Industries are accountable for 24% of carbon emissions within the Cork County area. However, this proportion reflects emissions from electricity generation plants rather than from where the electricity is consumed both within and outside Cork County. To address this issue, Figure 6 focuses on just the sectors that consume energy within the boundary of Cork County, which will allow for appropriate and specific mitigation actions to be considered and developed. This shows a slightly different breakdown of sectoral emissions with the addition of the residential and commercial & manufacturing sectors (accounting for 11% and 12% of total carbon emissions, respectively).

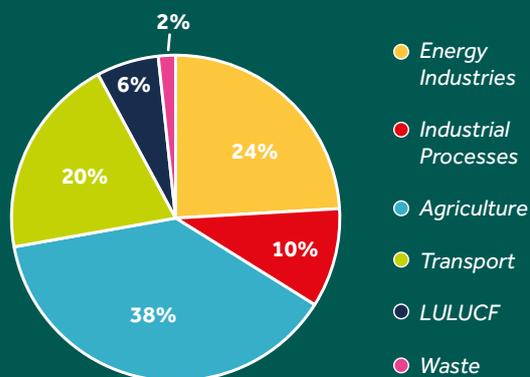


Figure 5: Total carbon emissions by sector including Energy Industries using the Tier 1 'Top-down' approach.

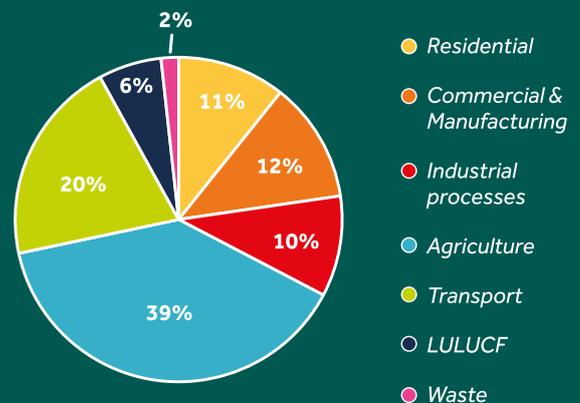


Figure 6: Total carbon emissions for sectors that consume electricity using the Tier 1 'Top-down' approach.

## Methodology Note

The results of the BEI Tier 1 approach are presented in the chart. This provides a breakdown of carbon emissions (CO<sub>2</sub> equivalent) across each relevant sector of the economy within the scope and boundary of Cork County Council. Carbon emissions are representative of the baseline year – 2018. A sectoral breakdown by greenhouse gas, i.e. carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) and mapping of emissions are included in the Technical Report.

# SOURCES OF EMISSIONS IN CORK COUNTY

To further develop the understanding of emissions in Cork County, a BEI Tier 2 'Bottom-up' approach has also been developed. A BEI Tier 2 assessment allows for a more detailed look at the drivers and hotspots of carbon emissions within the county.

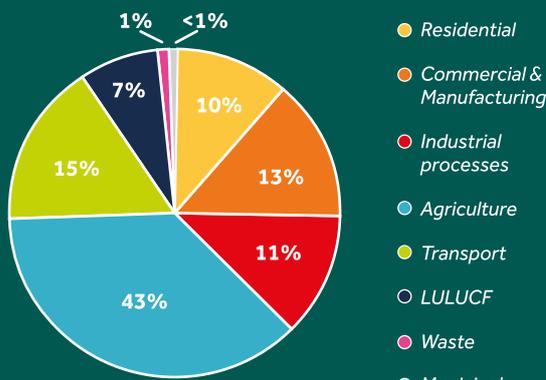


Figure 7: Total carbon emissions by sector using the Tier 2 'Bottom up' approach.

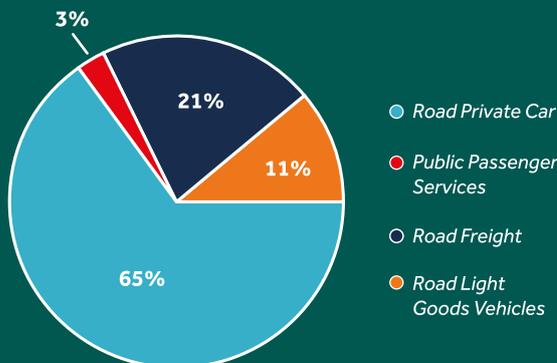


Figure 8: Summary of carbon emissions associated with the Transport sector by transport type.

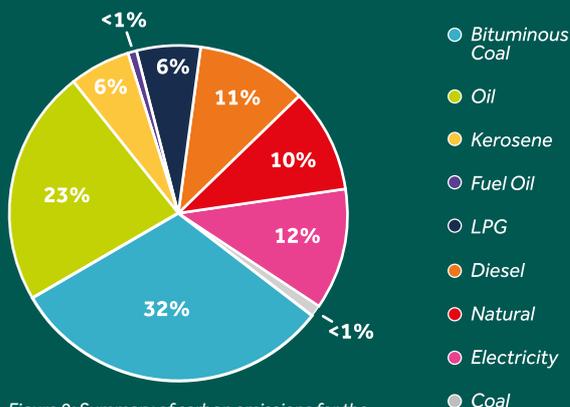


Figure 9: Summary of carbon emissions for the Commercial and Manufacturing sector by energy source.

## BEI TIER 2 OVERVIEW

The overall results of the BEI Tier 2 'bottom-up' assessment are presented in Figure 7. It shows that agriculture accounts for the largest share of emissions in County Cork accounting for 43% of total carbon emissions. Transport, commercial and manufacturing, industrial processes, and residential sectors each contribute approximately 15%, 13%, 11%, and 10% respectively. The remaining proportion of emissions are attributed to Land Use, Land-use Change and Forestry (LULUCF), waste and municipal sector emissions.

## TRANSPORT

Transport accounts for 15% of the total carbon emissions within Cork County. Of this proportion, 65% of the carbon emissions originate from private car use, with 32% coming from road freight and light goods vehicles (Figure 8). Only 3% of carbon emissions are associated with public transport. These results reflect the transport modes used within the county and the dependency on the use of the private car.

## COMMERCIAL AND MANUFACTURING

The Commercial and Manufacturing sector is responsible for 11% of the total carbon emissions within Cork County (Figure 7). However, there are a number of different sources that contribute to these emissions across Cork County (Figure 9). The analysis of this sector shows that 32% of carbon emissions result from the use of electricity, while 23% stem from oil use. The use of electricity represents 12%, while diesel use represents 11%. Natural gas use accounts for 10% of emissions and the remaining 12% are attributable to liquefied petroleum gas (LPG) and kerosene use.

### Methodology Note

For the BEI Tier 2 'bottom-up' assessment, estimates of a number of sector's total carbon emissions has not been possible ('Commercial & Manufacturing', 'Industrial Processes' and 'LULUCF'). For these sectors, results of the Tier 1 assessment have been included and are shown on Figure 7.

# SOURCES OF EMISSIONS IN CORK COUNTY

The Tier 2 approach also allows for a greater understanding of the different sources of emissions associated with residential properties and as a result of activities of Cork County Council. This information can be used to create relevant and targeted actions by Cork County Council to reduce emissions within the region.

## RESIDENTIAL

Figure 10 shows the carbon emissions associated with the energy used within residential properties according to fuel type. The results show that oil and electricity are the main sources of emissions within residential properties at 69%, with natural gas use equating to 14% of emissions. A total of 17% of residential emissions originate from coal and peat use.

The total energy consumed for the residential sector is 2,630 GWh, of which only 2.3% is derived from renewable energy sources, with detached houses being the largest users of renewable energy.

## CORK COUNTY COUNCIL

Cork County Council are responsible and have control over the types of energy they use in their buildings, their fleet of vehicles, as well as the public lighting within their area. The carbon emissions produced by Cork County Council are summarised in Figure 11, with electricity use the largest source of carbon emissions (65%), transport and the use of vehicles accounts for 23% and the heating of buildings is responsible for 12%.

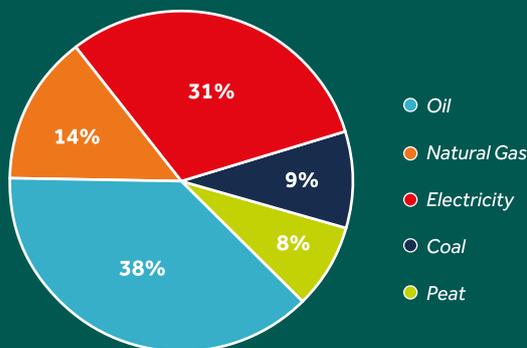


Figure 10: Summary of carbon emissions for the residential sector by fuel type.

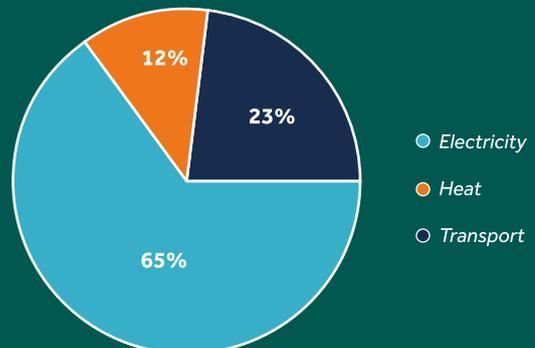


Figure 11: Summary of carbon emissions for Cork County Council by source.

## EMISSIONS REDUCTION

The Tier 1 and Tier 2 assessments provide valuable information on which to create relevant and targeted actions by Cork County Council to reduce emissions within the region. Possible actions that will support emissions reduction by Cork County Council across the County include:

- Ensuring a switch to green energy sources within the social housing stock, for which Cork County Council are responsible.
- Leveraging their leadership role within the community to influence residents to switch to lower greenhouse gas emitting energy sources within their homes.
- Reducing the amount of private car use by improving availability and access to public transport options.
- Increasing the use of active travel, such as walking and cycling, by providing suitable infrastructure.
- Raising awareness amongst the community of greener energy sources and transport options.

# DECARBON- ISATION ZONE



# DECARBONISATION ZONE OVERVIEW & METHOD

A Decarbonisation Zone (DZ) is a spatial area, identified by each local authority in Ireland, in which a range of climate change mitigation, adaptation and biodiversity measures are identified to address local low carbon energy, greenhouse gas emissions and climate needs to contribute to national climate action targets. DZs are a demonstration and testbed of what is possible for decarbonisation and climate action at a local and community level. Through a feedback loop of experimentation and evaluation, the DZ enables a flexible, incremental and community-driven approach to ensure that its objectives are delivered.



Macroom has been designated as the DZ for Cork County Council based on its socioeconomic and physical environmental characteristics which have been deemed an appropriate fit against a set of defined DZ criteria as shown to the right. The DZ area is shown on the map below; land area is 530,000 hectares, which includes the highly productive Golden Vale dairy farmland.

Once a DZ area is identified and the associated overarching vision and objectives are set, each local authority must kickstart the next stage of the DZ - the development

of the DZ area's Baseline Emissions Inventory (BEI). The BEI is an overview of the area's total carbon emissions at a point in time and is a key instrument to support and enable a local authority to measure the impact of planned actions relating to emission reductions across its own operations as well as relevant sectors of society.

Development of Cork County Council's BEI for the DZ area is informed by the guidance document Technical Annex C: Climate Mitigation Assessment and Technical Annex D Decarbonising Zones and follows a Tier 3 approach, i.e., a 'bottom-up, spatially led' approach, with 2018 used as the baseline year. This year has been purposefully chosen to align with Ireland's national targets which are set against a 2018 baseline year. Emissions associated with the following sectors are considered in this BEI assessment due to their relevance in the DZ area: Residential, Commercial & Public Sector, Transport, and Waste.

Cork County Council's DZ has been undertaken in two steps to inform understanding of the energy and carbon emissions within the DZ area. A 'top-down' overview of carbon emissions within the DZ area has first been developed, allowing for a 'helicopter' overview of the magnitude of emissions within the area and the sectoral hotspots. This 'top-down' overview is followed by the Tier 3 'Bottom-Up' assessment approach, allowing for the mapping of data and information within the DZ area.

*The Macroom DZ is considered to be an appropriate demonstration area and testbed for urban decarbonisation measures to be adopted in other urban areas as well as scaled up across Cork County and wider.*

**ZONING** The total population of the Macroom area is estimated at 3,961 (2016 Central Statistics Office (CSO) data).

**LAND AREA** The Macroom DZ has a total land area of approximately 3.3 km<sup>2</sup>.

**SCALABILITY** The Macroom DZ intersects with 19 small areas under 2 Electoral Divisions (EDs) (as shown within the red line boundary on the left).

# DECARBONISATION ZONE BEI RESULTS

The Tier 3 assessment of the Macroom Decarbonisation Zone provides a detailed overview of the area's total carbon emissions associated with residential properties, transportation, waste and the commercial and public sector.

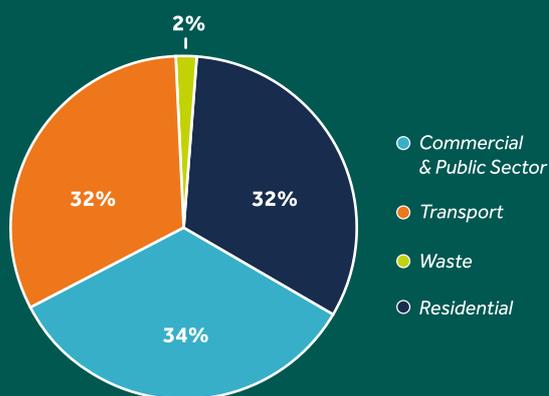


Figure 12: Macroom's baseline carbon emissions by category in 2018.

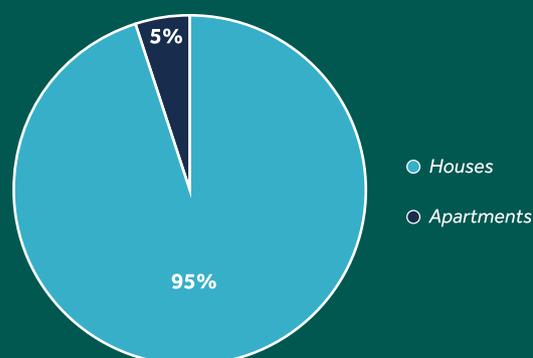


Figure 13: Residential carbon emissions within the DZ, split by dwelling type.

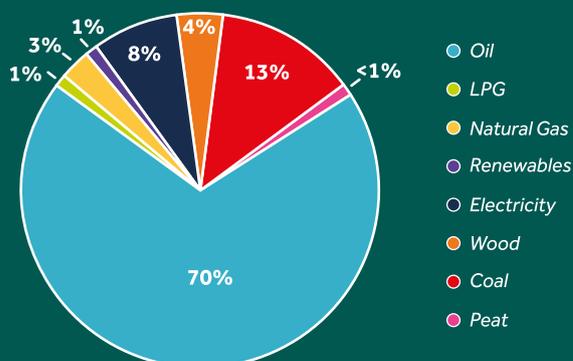


Figure 15: Total residential sector energy consumption by fuel type within the Macroom area.

Macroom has a population of 3,961 according to the 2016 census, with a population density of 1,200 people per km<sup>2</sup>, which is significantly higher than the national average of 72 people per km<sup>2</sup>. The overall results of the 'bottom-up' Tier 3 assessment are presented in Figure 12. Total carbon emissions for the year 2018 in the DZ area equate to approximately 33,966 tCO<sub>2</sub>e. This translates to 8.58 tCO<sub>2</sub>e per capita based on 2016 census population data. The results show that carbon emissions within the DZ are almost evenly split between the residential, transport, and commercial and public sector, with the waste sector responsible for 2% of total carbon emissions.

The residential sector is accountable for 32% of carbon emissions within the Macroom DZ area, equating to approximately 10,869 tCO<sub>2</sub>e. The 'Houses' within the DZ area account for 95% of the sector's total carbon emissions, with 'Apartments' within the DZ area, accounting for the remaining 5% (Figure 13). Figure 14 shows the carbon emissions associated with the residential sector across the DZ area, presented by Electoral District.

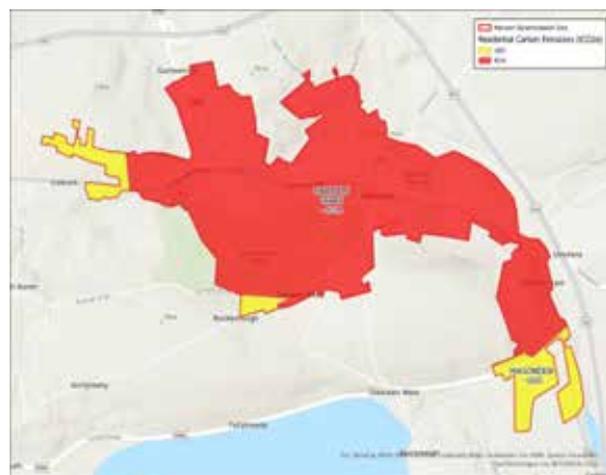
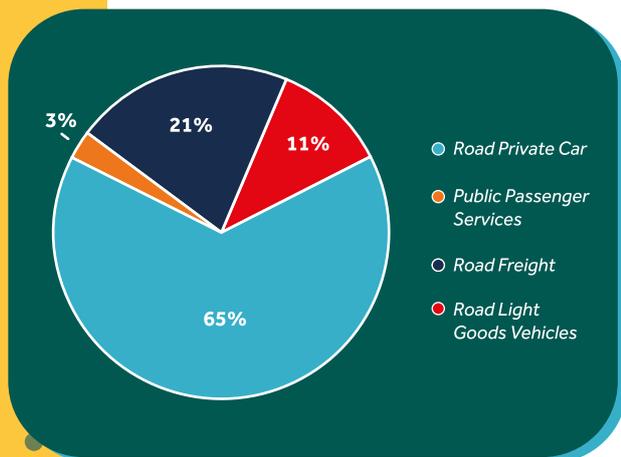


Figure 14: Macroom's Baseline Carbon Emissions by category in 2018.

Within the Macroom DZ area, there are a range of fuel types used within the central heating of properties (Figure 15). Oil is the most prominent fuel source, used by 71% of households. Coal, electricity, and wood are used by 24% of households, with 4% of households using Natural Gas, LPG, and Peat. Whereas only 1% of households use Renewables.

# DECARBONISATION ZONE BEI RESULTS

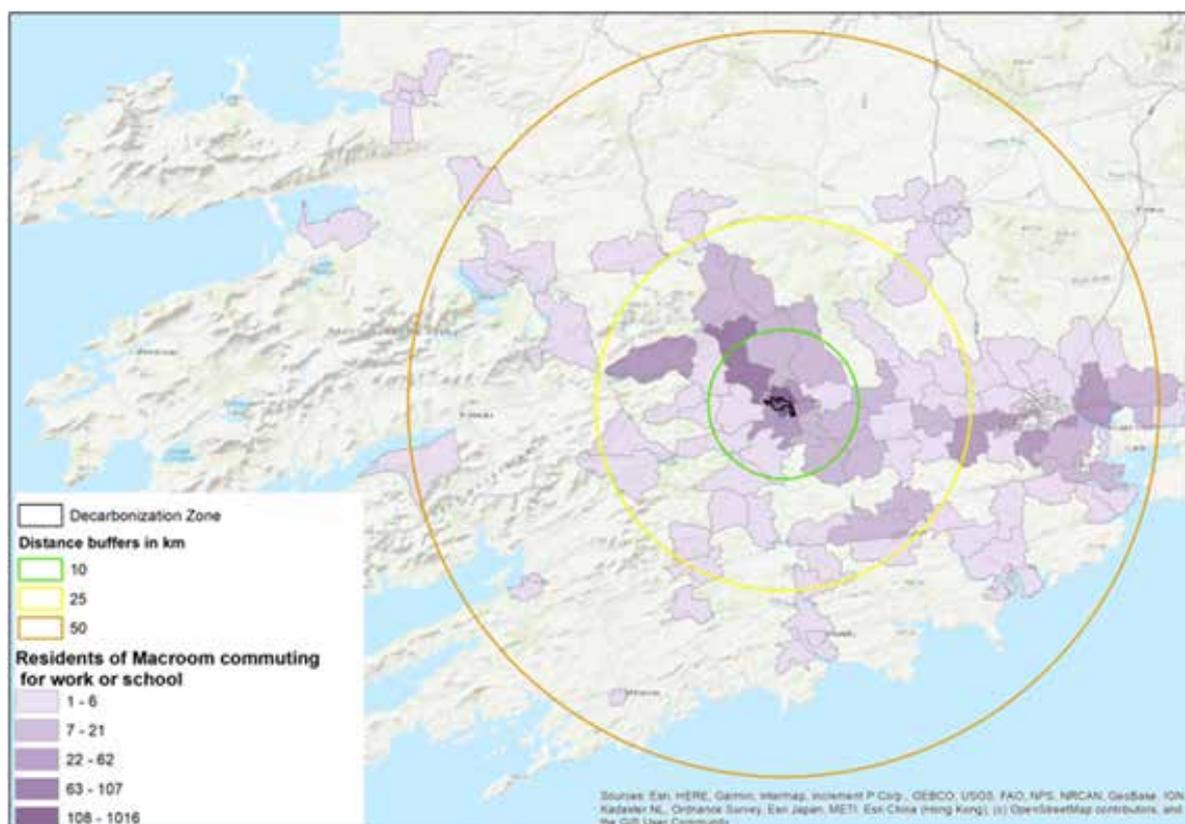
A summary of the emissions from transport sector within the DZ are presented below. By transport mode, private cars account for the highest proportion of carbon emissions within the DZ. A visual representation of the commuting patterns within the DZ is also presented below.



The total carbon emissions of the transport sector within the DZ area equate to approximately 10,747 tCO<sub>2</sub>e. For the sector, it has been identified that 65% of carbon emissions originate from private car use, with 32% coming from road freight and light goods vehicles and 3% coming from public transport (Figure 16). Petrol and diesel are the most common sources of fuel for transport with just a small proportion relying on electricity.

Using 2016 Census data, commuters leaving and entering the DZ area to attend work, college or school on a daily basis has been explored (Figure 17). It is estimated that the commuter trips leaving and entering the DZ area, contribute to emissions of 2,926 tCO<sub>2</sub>e and 2,435 tCO<sub>2</sub>e, respectively. Although these commuting patterns focus on commuters

travelling in and out of the DZ area, the impact of these are not entirely associated with the DZ area boundary itself. Therefore, this data is not included in the assessment of total transport emissions for the DZ.



# DECARBONISATION ZONE BEI RESULTS

The section below outlines a summary of the Macrooom DZ's carbon emissions associated with the commercial & public sector, presented by building type and fuel type. The waste related carbon emissions of the DZ are also shown, along with possible actions that will support emission reduction across the DZ.

The commercial & public sector accounts for 34% of the DZ's carbon emissions, equating to approximately 11,518 tCO<sub>2</sub>e. The results of the commercial and public sector assessment are presented by building type in Figure 18. The 65 'commercial' buildings within the DZ area account for 55% of carbon emissions while the 582 'Other' buildings account for 35% and the 7 'Mixed Use' buildings account of 10% of carbon emissions.

The total carbon emissions of the commercial and public sector are also presented by fuel type in Figure 19. Electricity is the primary fuel source used in the DZ area, powering approximately 58% of commercial and public buildings in the DZ area.

The waste sector accounts for approximately 2% of the Macrooom DZ's carbon emissions. A waste facility (Macrooom Civic Amenity Site) and an Urban Wastewater Treatment plant (Macrooom WWTP) are located within the DZ area. However, these sites also manage waste from populations outside of the DZ boundary. Therefore, to calculate waste-related emissions from within the DZ boundary, a benchmark for waste related carbon emissions of 0.21 tCO<sub>2</sub>e/head of population has been used. On this basis, it can be estimated that waste related carbon emissions within the boundary of DZ area is approximately 832 tCO<sub>2</sub>e.

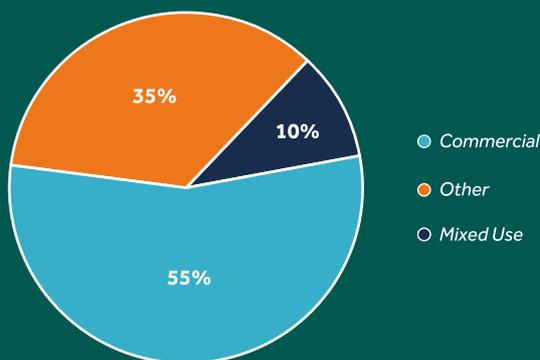


Figure 18: Total carbon emissions associated with the commercial and public sector within the DZ, by building type.

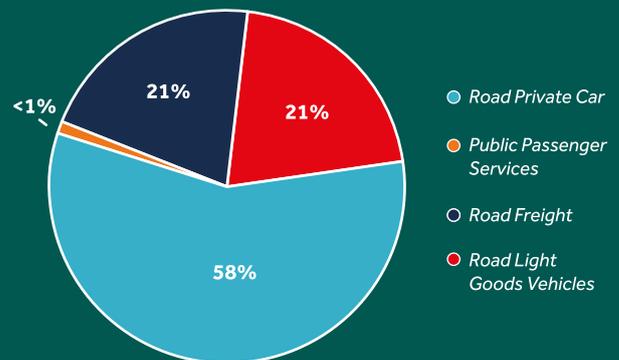


Figure 19: Total carbon emissions associated with commercial and public sector activities within the Decarbonisation Zone, by fuel type.

## EMISSIONS REDUCTION

- The Tier 3 assessment of the DZ highlights the carbon hotspots within the Macrooom area, providing valuable information to Cork County Council to enable decarbonisation and climate action at a local and community level to reduce emissions within Macrooom. Possible actions that will support emissions reduction across the DZ include:
  - Achieving a low carbon housing stock through suitable measures including roll-out of energy management systems and smart meters.
  - Optimising the energy efficiency of existing commercial and public sector buildings.
  - Increasing the use of active travel, by providing suitable infrastructure and increasing the availability of EV charging facilities.
  - Promoting trials for better public recycling opportunities.

# CLIMATE CHANGE RISK ASSESSMENT



# CLIMATE CHANGE RISK ASSESSMENT METHOD

Understanding the risks posed by climate is an essential first step for Cork County Council to develop effective and efficient adaptation actions in response to current and projected climate change. Climate change risk assessments identify the likelihood of future climate hazards and their potential impacts. 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 Cork County and increase its 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 Cork County Council. To do this, a Climate Change Risk Assessment (CCRA) has been undertaken, in accordance with 'Technical Annex B: Climate Change Risk Assessment' 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 Cork and the implications of these for the delivery of services by Cork County Council.

Assess ongoing changes in the climate of County Cork and identify weather and climate-related hazards

Assess the impacts and risks posed by climate and weather-related hazards for County Cork in the current period

Evaluate the consequences of identified impacts and risks on the delivery of services by Cork 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 identifies any new or emerging climate and weather-related risk for County Cork. 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.

Assess future changes in the frequency and intensity of climate and weather-related hazards

Assess future changes in socio-economic development

Identify and assess emerging climate and weather-related hazards and potential impacts

Identify and prioritise future climate risks for County Cork and Cork County Council

# CLIMATE CHANGE RISK ASSESSMENT METHOD

In line with global trends, the climate of Ireland and Cork 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 Cork and Cork County Council. A summary of key climate and weather-related changes and hazards already observed for Cork County are detailed below.

## Sea Level Rise



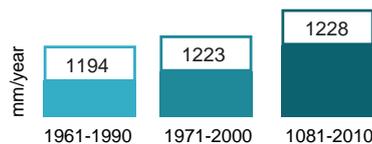
Sea levels in the Cork Harbour area have risen by approximately 40cm since 1942\*



Highest temperature on record recorded on June 18<sup>th</sup> 2018 at Glengarrif, linacullin.

## RAINFALL

Average annual rainfall at Cork Airport increased by 3% for the most recent period (1981-2010) when compared to the 1961-1990 baseline\*\*



# 0.5°C

Average temperature increase for the period 1981-2010 when compared to 1961-1990 baseline

For Cork Airport, 4 of the hottest summers recorded were in the last 10 years based on records extending back to 1961\*\*

**230mm of rain fell during the 2020 Roscarberry flood (highest recorded since 1961)\*\*\***

### EXTREME HEAT (SUMMER 2018):

A temperature of 30.1°C was recorded at Moore Park, Co Cork during the heatwave of Summer 2018 and it was the driest summer on record (record length 56 years). The unusually hot weather which continued into July caused drought conditions resulting in the imposition of water restrictions.

### SURFACE WATER FLOODING (AUGUST 2020):

230 mm of rain fell in Roscarberry in August 2020 (Highest recorded since 1961). This resulted in extensive flash flooding on the N-71 at Roscarberry, R-597 at Roury bridge and other roads around the Clonakilty, Dunmanway, Bantry & Sheep's Head areas. It resulted in damage to roads and properties which incurred heavy repair costs for the council.

### SNOW & ICE (BEAST FROM EAST, MAR 18):

15cm of snow fell at Cork Airport with a minimum temperature of -7°C recorded on March 1st Cork County was one of the worst affected areas. Cork Airport was forced to close with almost 400 people having to bed down at the airport overnight with forced cancellations. Poor road conditions were reported, with the N27 to Cork Airport and N28 to Ringaskiddy, in particular, badly affected.

### WIND (STORM BARRA, DEC 21):

120km/hr wind speeds were recorded at Roches Point County Cork. Over 3,000 homes were left without power and disruption to water supply also affected several hundred homes. Coastal flooding impacted 23 premises in Bantry, roads were in a treacherous condition with over 100 fallen trees reported and surface water flooding at multiple locations. Due to the high winds a truck was overturned and a section of the M8 was closed for 24 hours. Flights were cancelled and health services disrupted.

### COASTAL FLOODING (STORM ELLEN, AUG 20):

Wind speeds of 143km/hr were recorded at Roches Point, the highest on record for August since at least 1942. The ESB reported that 40,000 premises across County Cork were left without power, particularly around Schull, Bantry, Skibereen, Clonakilty, Dunmanway. Damaged boats and facilities at the newly opened Cobh Marina in Cork Harbour were also reported. Water supply was disrupted while flooding was reported in Skibbereen, Kinsale, Middleton and Bantry.

# EXTREME WEATHER EVENTS IN CORK COUNTY

Extreme weather events have had significant impacts on the communities, businesses and citizens of Cork County. To understand the range of extreme weather events currently impacting on Cork County, recent experiences of extreme weather for Cork County have been examined for the period 1985 to 2022.

For the period 1985 to 2022, Cork County has been affected most frequently by severe windstorms and flooding events (coastal, fluvial and pluvial) and this is particularly the case for estuarine areas such as Bantry. Heatwaves have also had significant impacts on the County, with impacts primarily associated with deformation of road surfaces and the increased frequency of uncontrolled fires while snowfall and freezing events have resulted in disruption of transportation, energy and water supply networks across the county. 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. The table is an extension of the analysis included in the Cork County Council Adaptation Strategy, to include the period 2018-2022.

EVENT	DATE	DESCRIPTION
Heatwave	Aug 2022	High rail temperatures, reduction of speed limit of 50mph between Port Arlington and Tullamore. Deformation of road surfaces across the County.
Storm Eunice	Feb 2022	Approx. 17 council offices & amenity sites closed due to storm risks. Approx. 22 incidents of fallen trees and road disruption. Highest gust observed at Roches Point, Co. Cork at 137 km/h (74 kt).
Storm Barra	De 2021	Tidal flooding of 23 premises in Bantry. Over 3,000 power outages, disruption to water supply affected several hundred homes.
Heatwave	No 2021	Estimated 80,000 farmed salmon worth up to €2.4m wiped out by toxic plankton bloom off Cork.
Heatwave	Aug 2021	Changes in oceanic conditions (increase in sea surface temperatures and frequency of jellyfish). Approx. 14 beaches across the county were issued warnings.
Heavy winds & heavy rainfall	Oct 2020	Heavy winds, heavy rainfall, and a coastal surge caused 15 properties in Bantry to flood.
Storm Ellen	Aug 2020	ESB reported 40,000 premises lost power in Cork, including Schull, Bantry, Skibereen, Clonakilty, Dunmanway. Damaged boats and facilities at the new Cobh Marina in Cork Harbour.
Storm Francis	Aug 2020	Heavy rainfall during Storm Francis caused roads to become dangerous, with debris and surface flood water along with a risk of falling trees.
Rosscarbery Flood	Aug 2020	230 mm of rain fell during the 2020 Rosscarbery flood (highest recorded since 1961). Damages to road (Rosscarbery to Glandore road and the R597 at Roury Bridge) and property.
Storm Atiyah	Dec 2019	Peak sustained wind speed was 91 km/h at Sherkin Island. Roads closed due to fallen trees and other debris. Flights cancelled at Cork Airport.
Heatwave	Summer 2018	High temperature & drought conditions. 30.1°C recorded at Moore Park. Driest summer on record in 56 years.
Heatwave	Jul 2018	Uncontrolled gorse fires experienced throughout the county.
Storm Emma & Beast from East	Mar 2018	Disruption to transport network; deep drifting of snow on roads caused cars to be abandoned. 15 cm of snow recorded at Cork Airport with minimum temperature of -7°C on March 1st.
Storm Eleanor	Jan 2018	Storm force winds caused coastal flooding of Bantry town square.
Hurricane Ophelia	Oct 2017	Hurricane Ophelia was the easternmost Atlantic major hurricane on record. When it arrived in Ireland, it was characterised as an extra-tropical storm with wind speeds of up to 156 km/h recorded at Roche's Point. Storm Ophelia led to widespread damage to buildings and infrastructure across Cork County and significant disruption to transport, energy and communications networks.
Groundwater flooding	Jan 2016	N25 flooded between Killeagh and Castlemartyr.
Freezing conditions	Dec 2010	Severe Cold spell with temperatures of -7.2°C recorded for Cork County. Widespread closure of business and significant damage to water and energy networks and infrastructure.
Extreme heat	Summer 2006	Warmest, driest and sunniest weather since 1995. Hottest day of the season on 5th August in Cork Co. Sunniest summer for cca. 40 years at both Cork Airport and Valentia Observatory.
Coastal flooding	Feb 2002	Exceptionally high tides led to coastal flooding.

# PROJECTED CLIMATE CHANGES FOR CORK COUNTY

In line with global and national projections of climate change, the climate of Cork County is projected to change. The frequency of heatwaves, droughts and flooding are expected to increase while projections indicate a decrease in the frequency of cold spells and heavy snowfall.

As a result of climate change, the frequency of extreme weather events is projected to change. For Cork County, 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 Cork County by 2050.

HAZARD	PROJECTED CHANGE IN FREQUENCY	CLIMATE PROJECTIONS
Heatwaves	Increase 	<ul style="list-style-type: none"> <li>Projections indicate an overall increase in average temperature of between 1.1 and 1.5°C for County Cork.</li> <li>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 Cork.</li> </ul>
Droughts	Increase 	<ul style="list-style-type: none"> <li>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.</li> </ul>
Cold Spell	Decrease 	<ul style="list-style-type: none"> <li>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.</li> </ul>
Heavy Snowfall	Decrease 	<ul style="list-style-type: none"> <li>The annual snowfall in the region is projected to decrease substantially by the middle of the century.</li> </ul>
Severe Wind-storms	No Change 	<ul style="list-style-type: none"> <li>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</li> </ul>
Coastal Flooding	Increase 	<ul style="list-style-type: none"> <li>Rising sea levels projections under a high emissions scenario indicate an increase of up to 0.26 m by 2050 which will increase the frequency of coastal flooding for County Cork.</li> </ul>
Coastal Erosion	Increase 	<ul style="list-style-type: none"> <li>Rising sea level is strongly linked with increases in rates and extents of coastal erosion.</li> </ul>
River Flooding	Increase 	<ul style="list-style-type: none"> <li>Projections indicate an increase in the frequency of heavy rainfall days (days with precipitation &gt;30mm) for County Cork with some areas projected to see increase of up to 52%. This will likely result in an increased frequency of associated river and surface water flooding.</li> </ul>
Surface Water Flooding	Increase 	
Groundwater Flooding	No Change 	<ul style="list-style-type: none"> <li>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.</li> </ul>

#### Methodology Note

In assessing climate change risk, we employ climate information derived from Nolan and Flanagan (2020) accessed through Climate Ireland for two climate scenarios.

# FUTURE CLIMATE RISKS

In determining future climate risks for Cork County, projected changes in the frequency of climate hazards are assessed in combination with projected changes in socio-economic development and population change. The population of Cork County is expected to continue to grow into the future. As a result, an increasing population will be exposed to climate hazards resulting in a growing level of impact on Cork County both in terms of people affected and economic value of damages created.

In addition to changes in climate conditions, Cork County will also change in terms of its population demographics and developments by 2050. This will affect the number of people and assets that will be exposed and affected by hazard events when they occur. For example, Cork County's population is expected to increase by 66,000 by 2031, and the number of people over 65 is expected to increase to over 93,000 by 2041. As a result, projections of future climate risk, projected changes in the frequency and severity of climate hazards are considered in combination with projected changes in population and socio-economic development.

The risk of existing hazards such as river, surface water and coastal flooding and coastal erosion is likely to increase as hazard events occur more frequently and increase number of assets are exposed to these events.

Heatwaves and droughts are expected to occur more frequently due to climate change and with potential for a greater impact on Cork County than experienced currently, as an increasing proportion of the population will be elderly, who are less able to cope with heatwave and drought conditions. Although the frequency and impact of severe windstorms is thought to be unchanged in the future, these events will remain a risk for Cork County. The future impact and frequency of groundwater flooding is also unchanged, meaning the future risk remains low.

The impact of heavy snowfall and cold spells on Cork County remains constant, however, due to the potential decrease in hazard frequency, the overall risk of these hazards is likely to reduce in the future, resulting in less risk.

With reference to the current level of risk, projected changes in levels of risk levels associated with climate hazards are shown in figure 20 below:

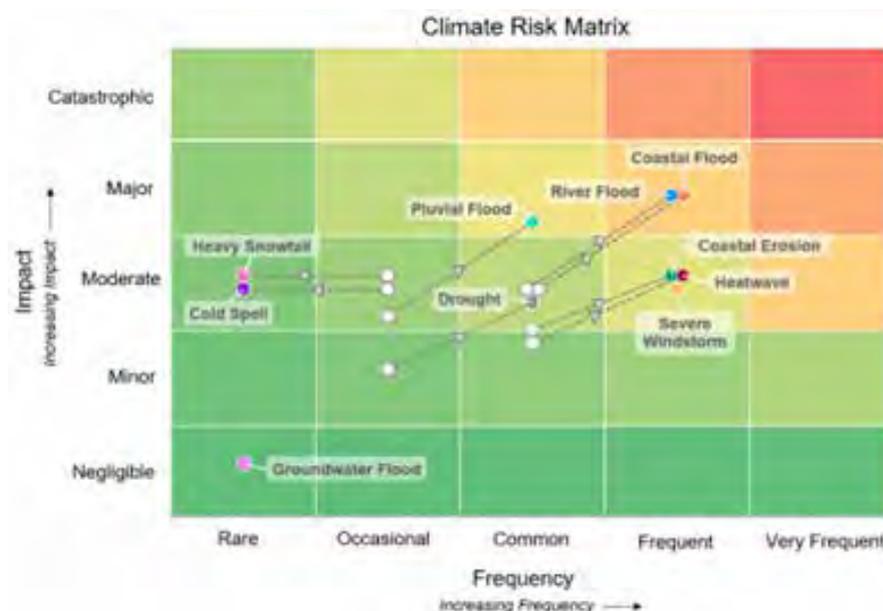


Figure 20: Total carbon emissions of the commercial & public sector activities within the DZ, by fuel type. The risk matrix above shows the future changes in risk for the identified hazards within County Cork. For each hazard there is a solid marker, which identifies the future risk, and a hollow marker showing the current risk. The dotted line in between these markers shows the projected change.

# A VISION AND MISSION FOR CORK COUNTY COUNCIL



# FUTURE CLIMATE RISKS

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 local authorities goals and the 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 goals of the LACAP 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 Cork County Council has it is important to have a unifying vision, which 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 proposed Vision for Cork County Council is:

***To be a climate resilient and low carbon organisation that inspires, leads and supports ambitious and just climate action across the county.***

While Cork 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 Cork County Council in coordinating their work towards the defined Vision.

The proposed Mission for Cork County Council is:

***To lead by example, support and inspire climate action amongst its citizens to ensure Cork remains an attractive, competitive and sustainable place to live, visit and do business.***

Strategic goals set the context for mitigation and adaptations actions in service of Cork 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 proposed Goals and the associated Objectives for Cork County Council are:

<p><b>1. Built Environment an Infrastructure</b></p> <p>1.1 To reduce the council's impact on climate change</p> <p>1.2. To enhance the resilience of transport infrastructure, council assets and housing stock</p>	<p><b>2. Community Resilience and Transition</b></p> <p>2.1 To build capacity within communities to deliver climate action</p> <p>2.2 To integrate climate action considerations in land use planning</p>
<p><b>3. Governance</b></p> <p>3.1 To support the development and implementation of climate action across all council activities and operations</p> <p>3.2. To work and collaborate with other sectors and agencies to deliver programmes that support climate action</p>	<p><b>4. Natural Environment and Green Infrastructure</b></p> <p>4.1 To maintain and enhance the natural assets of Cork County</p> <p>4.2 To harness Cork County's natural assets to contribute to resilience and low carbon</p>

# APPENDIX



# SOURCES OF INFORMATION

## BASELINE EMISSIONS INVENTORY

1. MapEire database, Environmental Protection Agency (EPA)
2. Corine database, Environmental Protection Agency (EPA)
3. Waste License database, Environmental Protection Agency (EPA)
4. Pollutant Release and Transport Register (PRTR), Environmental Protection Agency (EPA)
5. Metered Electricity Consumption 2020, Central Statistics Office (CSO)
6. Household Environmental Behaviours - Energy Use, Q3 2021, Central Statistics Office (CSO)
7. Non-Domestic Building Energy Ratings, Q3 2018, Central Statistics Office (CSO)
8. Transport Omnibus 2018, Central Statistics Office (CSO)
9. Energy in Ireland, 2019 Report, Sustainable Energy Authority of Ireland (SEAI)
10. National BER Research Tool, Sustainable Energy Authority of Ireland (SEAI)
11. National Energy Balance, Sustainable Energy Authority of Ireland (SEAI)
12. Conversion Factors, Sustainable Energy Authority of Ireland (SEAI)
13. Energy Benchmarking Tool, Chartered Institution of Building Services Engineers (CIBSE)
14. Teagasc, Department for Environment, Food & Rural Affairs (DEFRA)

## CLIMATE CHANGE RISK ASSESSMENT

1. Environmental Protection Agency (EPA)
2. Catchments.ie (EPA)
3. Floodinfo.ie (Office of Public Works)
4. Data.gov.ie
5. Cork County Council website
6. Cork Economic and Community Data Monitor
7. Cork County Council Adaptation Strategy 2019-2024
8. Sectoral Climate Change Adaptation Strategies (2018)
9. Cork County Corporate Plan (2019-2024)
10. Stakeholder workshop
11. Met Éireann
12. Donegal Weather Channel website
13. afloat.ie (Sailing, Boating and Maritime Magazine)
14. RTE News
15. Independent.ie
16. Irish Examiner
17. The Irish Times
18. Southern Star
19. Cork Beo
20. The Echo
21. High-resolution Climate Projections for Ireland – A Multi-model Ensemble Approach (Nolan and Flanagan, 2020) accessed via Climate Ireland
22. IPCC AR6 Sea Level Projection Tool
23. Cork County Council Development Plan 2022-2028
24. Regional Spatial & Economic Strategy for the Southern Region

# BASELINE EVIDENCE SUMMARY REPORT



# LOCAL AUTHORITY CLIMATE ACTION PLAN



Comhairle Contae Chorcaí  
Cork County Council