

CAVAN COUNTY COUNCIL BASELINE EVIDENCE SUMMARY REPORT



Local Authority Climate Action Plan
October 2023

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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 carbon neutral economy.

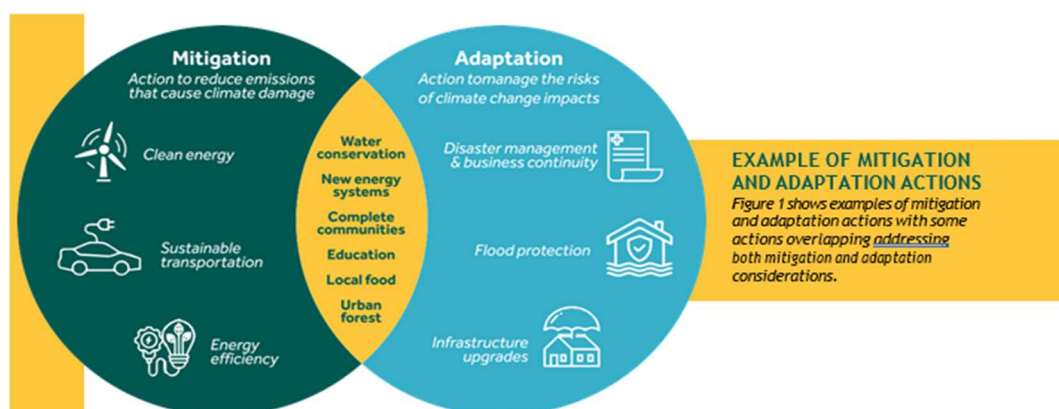
These plans need to be underpinned by a robust evidence base detailing sources of emissions as well as the current and future climate-related risks faced by the local authority. This report provides a summary of the evidence base developed in preparation of the LACAP for Cavan County Council.

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;
- 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. In addition to support Cavan County Council in meeting the challenges posed by climate change, they have developed indicative vision and mission statements 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 Cavan 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 Cavan County Council. The Technical Report contains the detailed data and results for the baseline assessments which is included within the Annex C & D of the LACAP.



1.0 INTRODUCTION

1.1 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, Figure 1. Patterns of precipitation are changing with evidence of an increasing trend in winter rainfall. Sea levels are rising with recent estimates indicating the sea levels are rising at double the global rate in Dublin and Cork. 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.

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 by up to 0.9m in the seas around Ireland by 2100.
- Average temperature will continue to increase with heatwaves such as those experienced in 2018 and 2022 becoming more frequent.
- Extreme precipitation events and associated flooding will become more frequent and intense.
- 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.

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

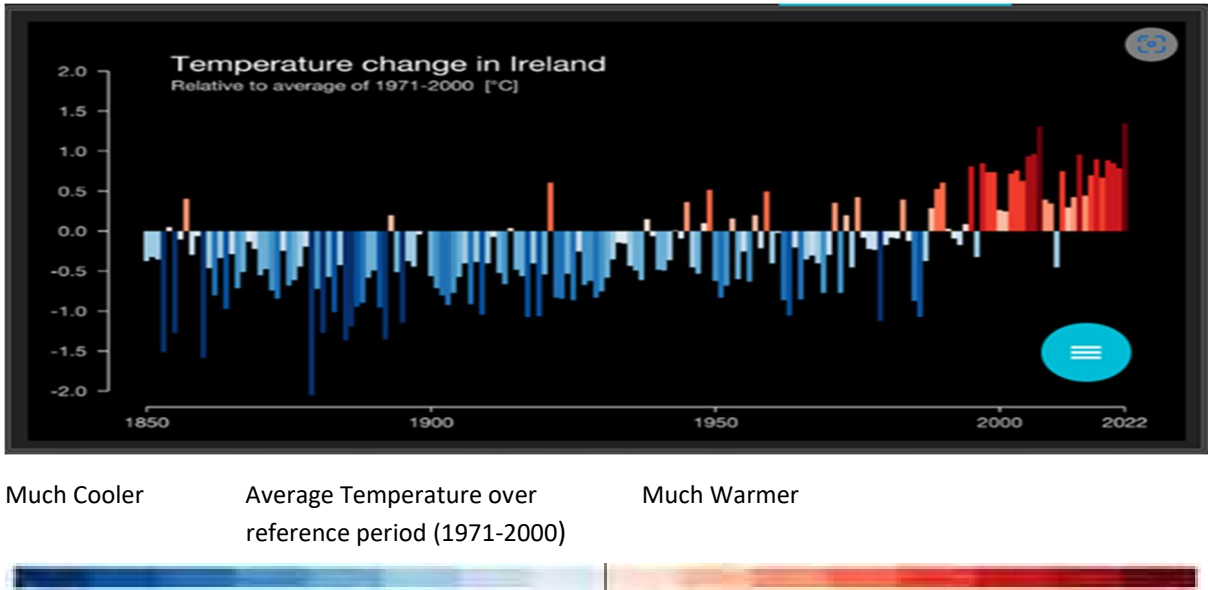


Figure 1: Average Temperature 1971 - 2000

1.2 INTERNATIONAL AND NATIONAL RESPONSE

Global responses to climate change are 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 a 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 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.

Table 1: Climate Policies

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

1.3 THE ROLE OF LOCAL AUTHORITIES

Local authorities have already undertaken extensive work around 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 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, Cavan 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).

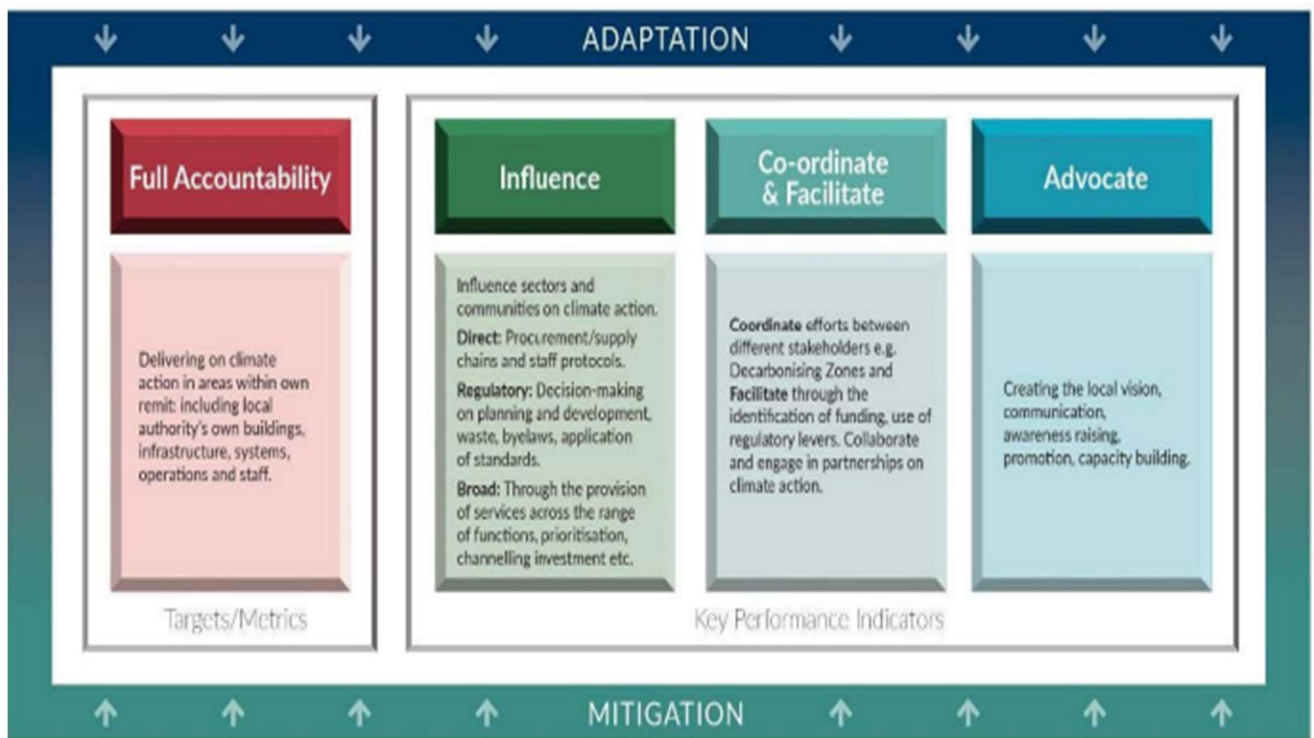


Figure 2: An overview of the scope of local authorities on climate action

2.0 PROFILE OF CAVAN COUNTY

2.1 CAVAN'S CONTEXT FOR CLIMATE ACTION

Cavan County Council is located within the Eastern and Midlands Climate Action Region (CARO). County Cavan is approximately 1,932km² making it the 19th largest of Ireland's thirty-two counties. Cavan is bounded by six counties Monaghan, Leitrim, Meath, Westmeath, Longford, and Fermanagh.

County Cavan is characterised by a drumlin landscape dotted with many lakes and small hills, though the north-west of the County is mountainous with several highly scenic areas. There are several designated sites within the county and the three SPAs are Lough Oughter, Lough Kinale and Lough Sheelin. To prepare for its future growth, Cavan County is already investing in renewable energy resources, upgrading its infrastructure and piloting sustainable living projects.

CAVAN COUNTY – “TODAY”

Cavan County's population is 81,201 people (CSO,2022) which represents an 7% increase compared to 2016. County Cavan is a largely rural county, agriculture is the primary land use and remains a crucial part of the economy of the county. Reflective of the county's rural nature and historic economic trends, “agriculture, forestry and fishing” industry is particularly strong, employing 11% of the working population in County Cavan, compared to a national average of 4%. Primary Agricultural activities include dairying, cattle rearing, pig production, mushroom growing and poultry production. C.7,000 herd owners farming average 50 acres. Almost 57% of farms located on drumlin soils. There is a total farmed area of 144,269 hectares in the county.

Agricultural processing (meat, milk, and broiler) has combined turnover in excess of €300 million annually. This represents 40% of total manufacturing employment in county. Pig production accounts for £52 million annually in farm sales. The household median gross income for County Cavan is €38,889 (CSO,2022). The main industries of employment within the region include Professional Services (21%), Commerce & Trade (19%), Manufacturing Industries (16.65%), and Agriculture/Forestry/Fishing (11.32%) (CSO, 2016)

Cavan County has a varied landscape with the highlands of western Cavan including the UNESCO Global Geopark which covers Cavan town westwards, taking in the towns of Killeshandra, Milltown, Belturbet, Ballyconnell, Swanlinbar, Glangevlin and Blacklion.

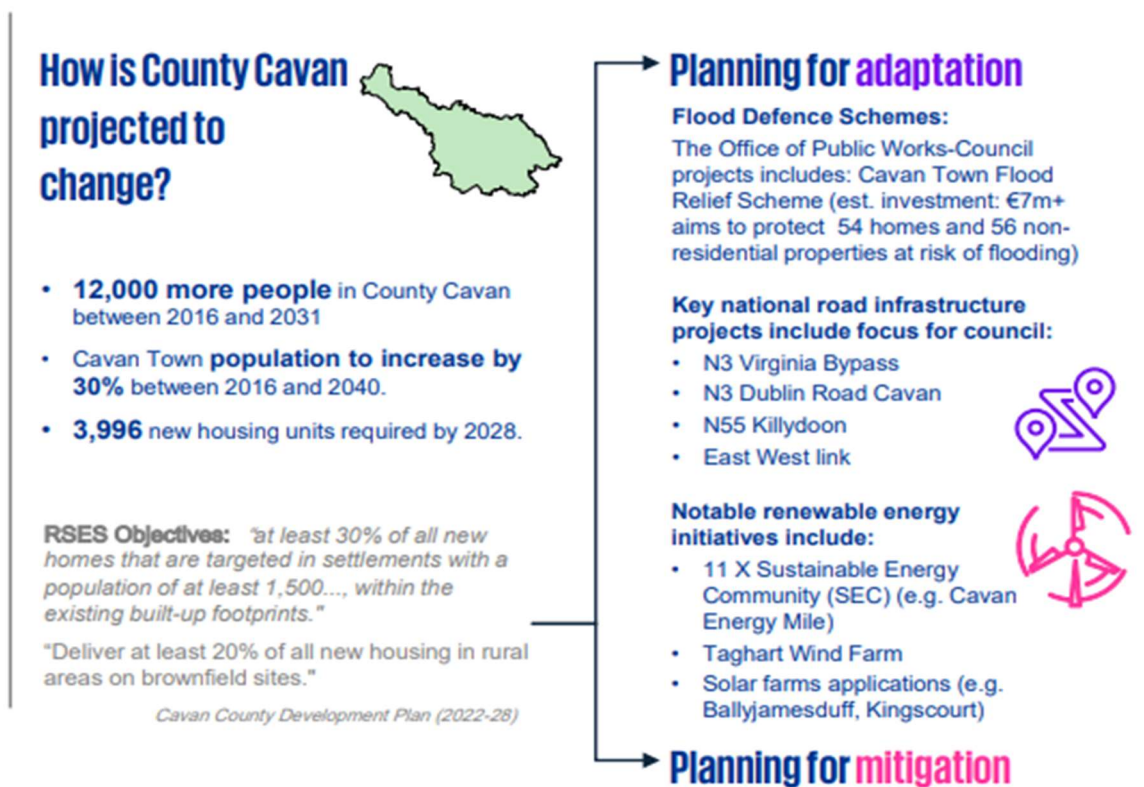
The River Shannon rises in West Cavan at the Shannon Pot. The Eastern parts of the county include the Lakeland areas of Lough Oughter and the Southeast of the County as well as the predominately drumlin landscape of this area with highlands around Bailieboro and Kingscourt. The River Erne also rises in Gowna and flows through Belturbet.

CAVAN COUNTY – “TOMORROW”

The population of Cavan County is expected to continue to increase with 12,000 more people by 2031, and the County will require more housing and infrastructure to accommodate this growing population.

Cavan County Council Housing Strategy 2022-2028 forecasts a population increase of 4,730 in County Cavan. This in turn indicates a total projected population of 85,900 in 2028 and a total estimated housing requirement for Cavan of 3,996 units over the plan period 2022-2028, the equivalent of 666 units per annum.

Cavan 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.



3.0 BASELINE EMISSIONS

3.1 BASELINE EMISSIONS INVENTORY METHOD

Cavan 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, Cavan 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).

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

- Residential
- Commercial & Industrial
- Agriculture
- Transport
- Land Use, Land Use Change & Forestry (LULUCF)
- Waste and Wastewater

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.

3.2 SOURCES OF EMISSIONS IN CAVAN COUNTY

The primary objective of this report is the generation of a BEI for the local authority functional area of County Cavan. This BEI is a snapshot in time of GHG emissions in County Cavan and will act as a reference point on which specific county wide and/or sectoral targets can be established to manage and reduce GHG emissions. Specifically, the BEI will serve to inform the development of the LACAP for the county.

BEI TIER 1 OVERVIEW

In 2018, the baseline year, Ireland's national carbon emissions were approximately 70,235k tonnes carbon dioxide equivalent (CO₂eq). While a Tier 1 approach requires the most basic and straightforward BEI calculation, the Tier 2 approach requires a greater degree of literature review, data collation, manipulation and data generation and subsequently more detailed outputs than the Tier 1 method.

The Baseline Emission report carried out for County Cavan presents the findings of a 'Tier 2' Baseline Emission Inventory (BEI).

BEI TIER 2 OVERVIEW

A BEI Tier 2 assessment allows for a more detailed look at the drivers and hotspots of carbon emissions within the county. A 'Tier 2' Baseline Emission Inventory (BEI) study was carried out on behalf of Cavan County Council.

This baseline report aims to raise awareness of climate change and the impact that different sectors in the north-east region have on Ireland's overall carbon emissions. It provides Cavan County Council with the necessary information to make informed decisions on climate change actions to lower the county's carbon emissions.

Baseline emissions inventories were prepared for the following sectors: residential, commercial and industrial, agriculture, transport, waste and wastewater, and land use, and land use change and forestry (LULUCF).

The overall results of the BEI Tier 2 'bottom-up' assessment are presented in Table 2.

The total emissions generated from all analysed sectors equates to 2,513.590 tCO₂-eq for the baseline year. An overall emission reduction of 1,281,931 tCO₂-eq is required for the county to achieve the GHG emissions reduction target of 51% by 2030.

In 2018, the top three sectors contributing to GHG emissions were Commercial and Industrial, Agriculture and Transport, producing 37%, 29% and 15% of tCO₂-eq respectively. From this analysis, these sectors should be the main targets of energy and emission initiatives.

Table 2 : Breakdown of Emissions per Sector in County Cavan

Sector	Emissions 2018 tCO ₂ -eq	SEC Reduction Required	Target Emissions 2030 tCO ₂ -eq
Residential	305,646.6	40%	183,388
Commercial and Industrial	925,934.0	45%	509,264
Agriculture	725,409.5	25%	544,057
Transport	366,362.0	50%	183,181
Waste and Wastewater	10,795.0	50%	5,398
LULUCF*	179,442.8	-	-
Total	2,513,589.9		1,425,287

A percentage breakdown of sectoral GHG emissions within the County for the baseline year is provided in the figure 3 below:

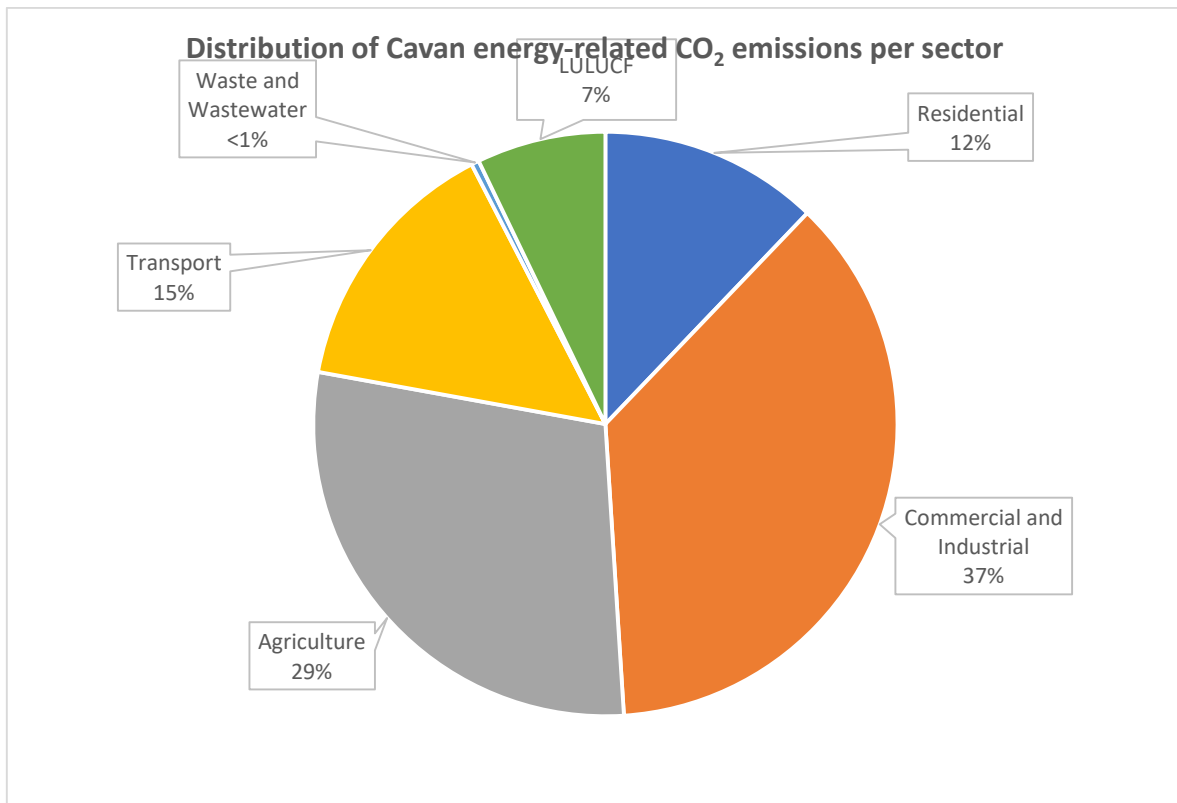


Figure 3: Summary of Emissions within the County, 2018 using the Tier 2 'Bottom up' approach.

COMMERICAL AND INDUSTRIAL

The Commercial and Industrial sector is responsible for **37%** of the total carbon emissions within the County (Figure 3). The analysis of this sector shows that there were 6,070 commercial and industrial properties in the county, divided into 11 categories. (Figure 4)

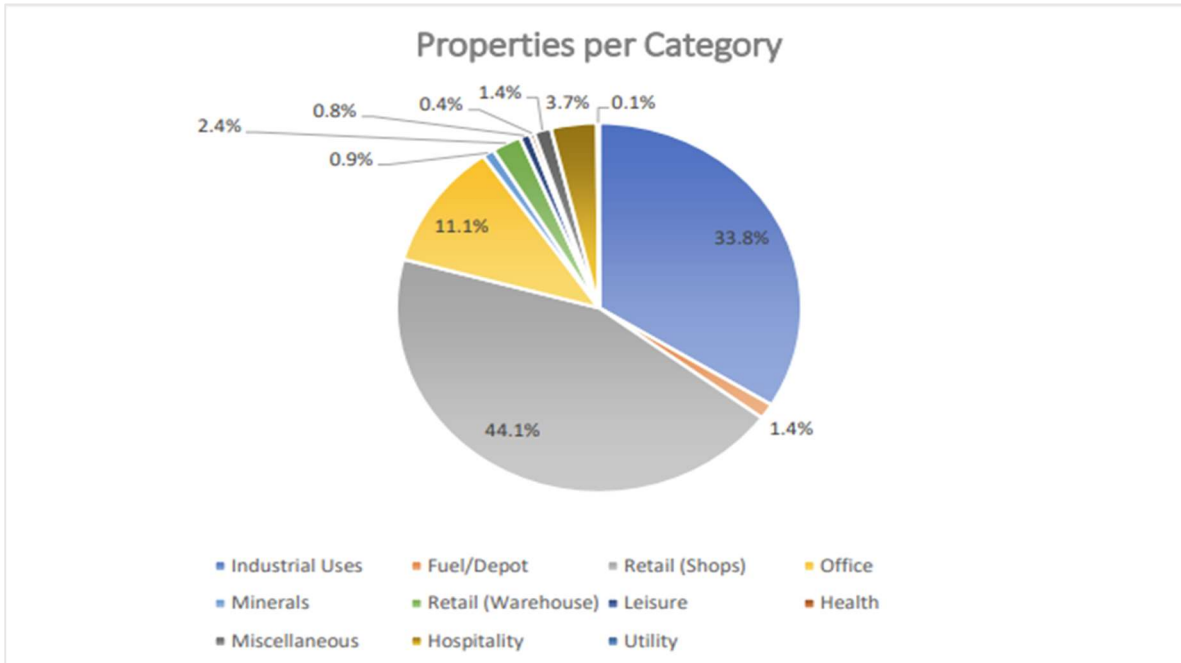


Figure 4:Percentage Breakdown of properties in County Cavan

As outlined in Figure 5, the data shows that the ‘Industrial Uses’ Category generates the most CO₂ emissions (68.37%), followed by fuel depots (27.17%).

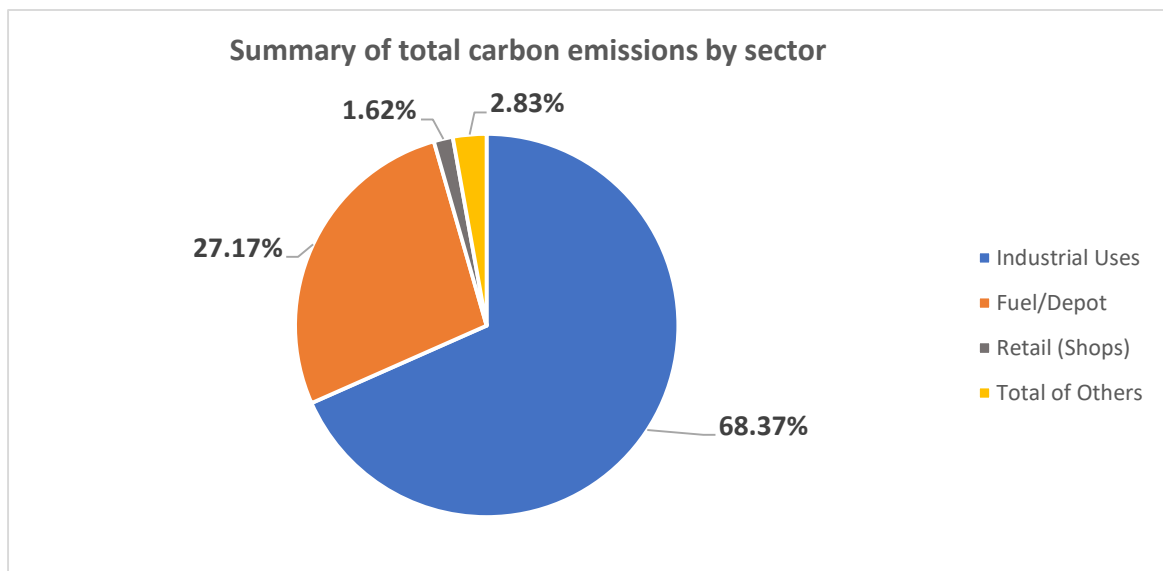


Figure 5: Summary of Carbon Emissions for each sector in the Commercial/Industrial Sector.

Within the 'Industrial Uses' category, the 'Use' that generates the highest level of CO₂ emissions is 'Factory (Milk),' 457,841 tCO₂/year (50%). Within the 'Fuel/Depot' category, 'Motor Fuel Sales' generates the highest level of CO₂ emissions, 133,250 tCO₂/year (14%).

However, when the average emissions are calculated for the number of properties in each category the results show that 'Fuel/Depot' properties represent only 1.4% of the total properties in the county and emit 10 times more CO₂ than the 'Industrial Uses' properties, which represent 33.8% of the total number of properties (3,068 tCO₂/year and 309 tCO₂/year, respectively).

'Retail (Shops)' is the category with the highest percentage of properties (44.1%); however, its emissions is over 60% less than the emissions for 'Industrial Uses.'

The level of commercial and industrial emissions is relatively high in comparison to other counties, including more urban counties such as Dublin City or Fingal, which one would believe would have a higher level of Commercial and Industrial related emissions. From an analysis of the 'Uses' contained in each of the above categories, it is observed that this is mainly due to the level of food and drink manufacturing, general manufacturing, concrete manufacturing, fuel / oil depots and warehousing in the county.

AGRICULTURE

Agriculture accounts for **29%** of the total carbon emissions within Cavan County and is the second highest sector of GHG emissions.

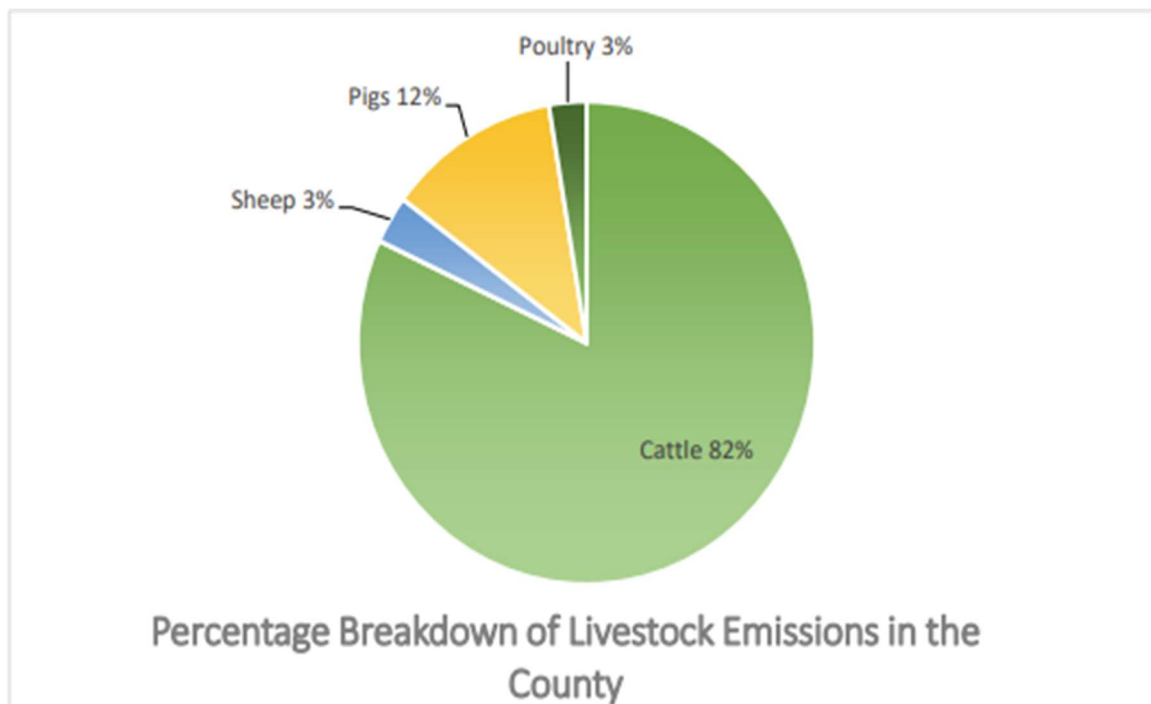


Figure 6 :Carbon Emission Breakdown of all Livestock in the County

Emissions from cattle (beef and dairy cows) combined contribute the most in terms of livestock related emissions by far, accounting for 82% (418,376 tCO₂) of CO₂-eq emissions from agriculture in the county.

Cattle produce much more methane emissions than poultry, and due to the higher global warming potential of methane, their impact is much larger on the environment. Emissions associated with sheep and poultry farming are relatively low, yet still significant. Emissions from pigs are significant given the relatively high number of pigs in the county compared to national pig numbers.

Cereal farming in the county generated just 8,528 tCO₂-eq emissions in the baseline year.

A percentage breakdown of emissions from the Other Crops, Fruit and Horticulture category in the baseline year is presented in Figure 7.

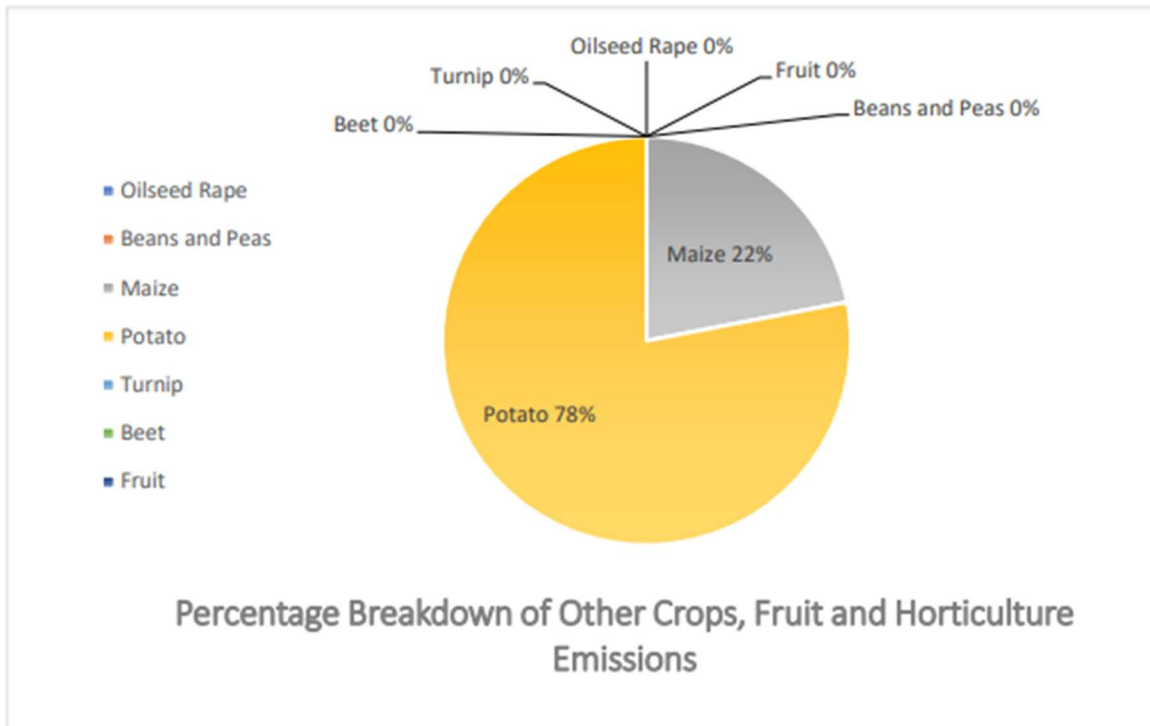


Figure 7: Percentage breakdown of Emissions from other crops, fruit and horticulture

TRANSPORT

Transport accounts for **15%** of the total carbon emissions within the County of Cavan. Of this proportion, private cars account for most of the mileage travelled in the County, followed by goods vehicles and tractors and machinery. This reflects the rural nature of the county, the lack of public transportation and the size of the haulage industry in the county.

Diesel accounts for the vast majority of fuel use in the county, followed by petrol, then other fuels (e.g., biofuel, electricity). Significantly, a relatively large number of private cars in the county use diesel.

There is a relatively small public transport sector in the county. This is due to the county being rural in nature and having a sparse, dispersed population compared to counties that have a great population density and more urban settlement.

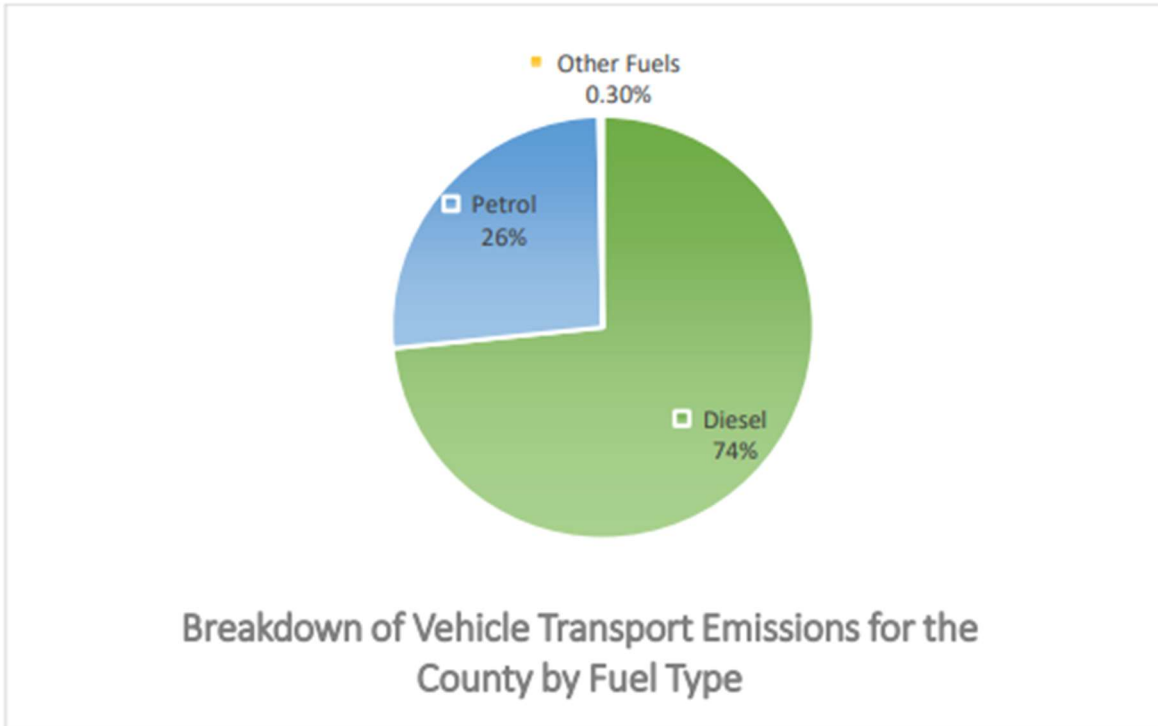


Figure 8: Breakdown of vehicle related emissions by fuel type

RESIDENTIAL

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

A total of 38,761 dwellings were recorded in Cavan County. The types of dwelling are detached (17,772) semi-detached (15,094) terraced (4,763) and apartments (1,132). The prevalence of detached housing reflects the level of one-off housing in rural parts of the county.

Figure 9 outlines the total carbon emissions from dwellings in the county while figure 10 outlines the number of dwellings versus the total CO2 emissions from dwelling types within the County.

Dwelling Type	Average CO ₂ -eq Emissions from this Dwelling Type (kgCO ₂)	Number of Dwelling Type in the County	Total CO ₂ -eq Emissions from Dwelling Type in the County (tCO ₂)	CO ₂ -eq Emissions per Dwelling Type unit in the County (tCO ₂)
Detached	10,400.79	17,772	184,843	10.40
Semi-detached	5,988.63	15,094	90,392	5.99
Terraced	5,147.57	4,763	24,518	5.15
Apartments	5,206.27	1,132	5,893	5.21
Total Residential Sector Emissions (tCO₂)			305,647	

Figure 9 GHG Emissions from Dwellings in the County

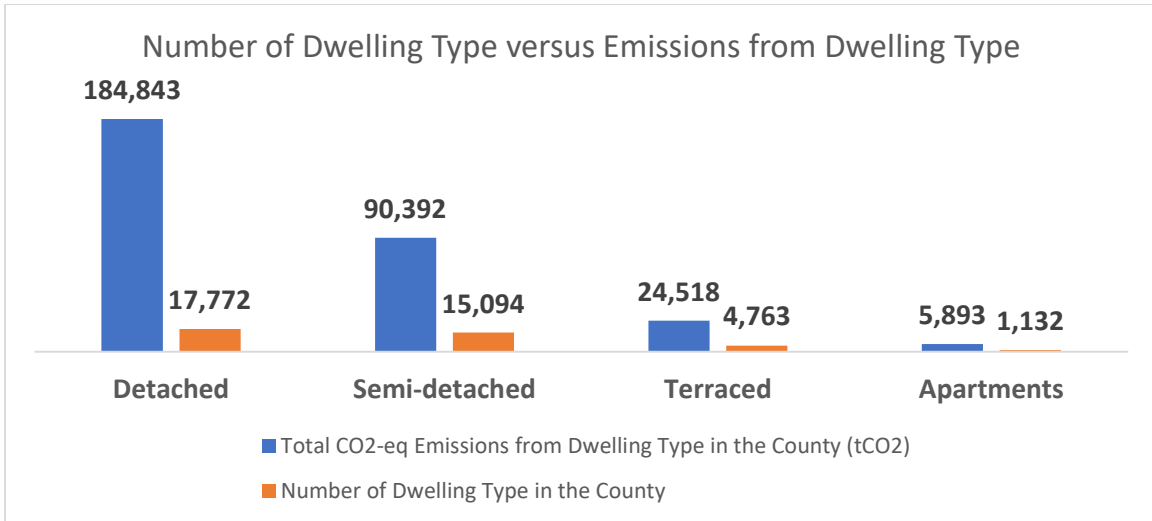


Figure 10: Number of Dwelling Type in the County versus Total Emissions from Dwelling Type in the County

Detached dwellings contribute the most emissions by far. This reflects the relatively high numbers of detached dwellings in the county, and the higher level of space heating requirements and heat loss associated with these dwellings, which are generally larger than other dwelling types which have four sides in which heat may be lost from the dwelling. This is followed by semi-detached dwellings, terraced housing and apartments. Noteworthy is the low level of apartments within the county.

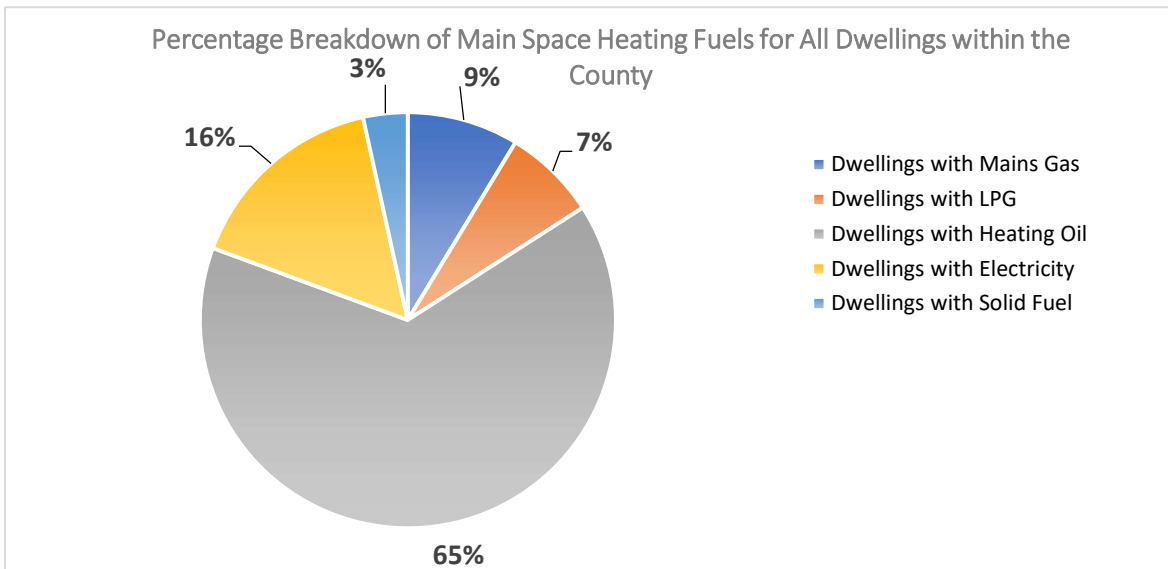


Figure 11: Breakdown of Main Space Heating Fuels for All Dwellings in the County

Figure 11 outlines the carbon emissions from the residential sector by fuel type. Again, dwellings heated by oil account for a total of 65% of total carbon emissions, followed by electricity and mains gas.

The BEI report highlights that:

- Heating oil is the primary source of main space heating fuel in the county and is particularly prominent in detached, semi-detached and terraced dwellings.
- The combustion of heating oil generates a higher level of emissions per unit of energy compared to the combustion of many other heating fuels such as gas or LPG.
- The predominant use of heating oil in detached dwellings is likely to account in part for the relatively higher emissions from this dwelling type.
- A relatively higher level of gas is used as a main heating fuel at semi-detached and terraced dwellings. This reflects parts of the county having access to the mains gas network.
- Electricity is the primary source of main space heating fuel in the county for apartments.
- Very low levels of solid fuels are used for main space heating in the county.

CAVAN COUNTY COUNCIL

Cavan County Council is responsible and has control over the types of energy used in its buildings, fleet of vehicles and public lighting.

Cavan County Councils energy consumption for the year 2022 is summarised in Figure 12 with transport use being the largest energy consumer at (38%), followed by public lighting at (35%) and electricity and heating of buildings at (27%).

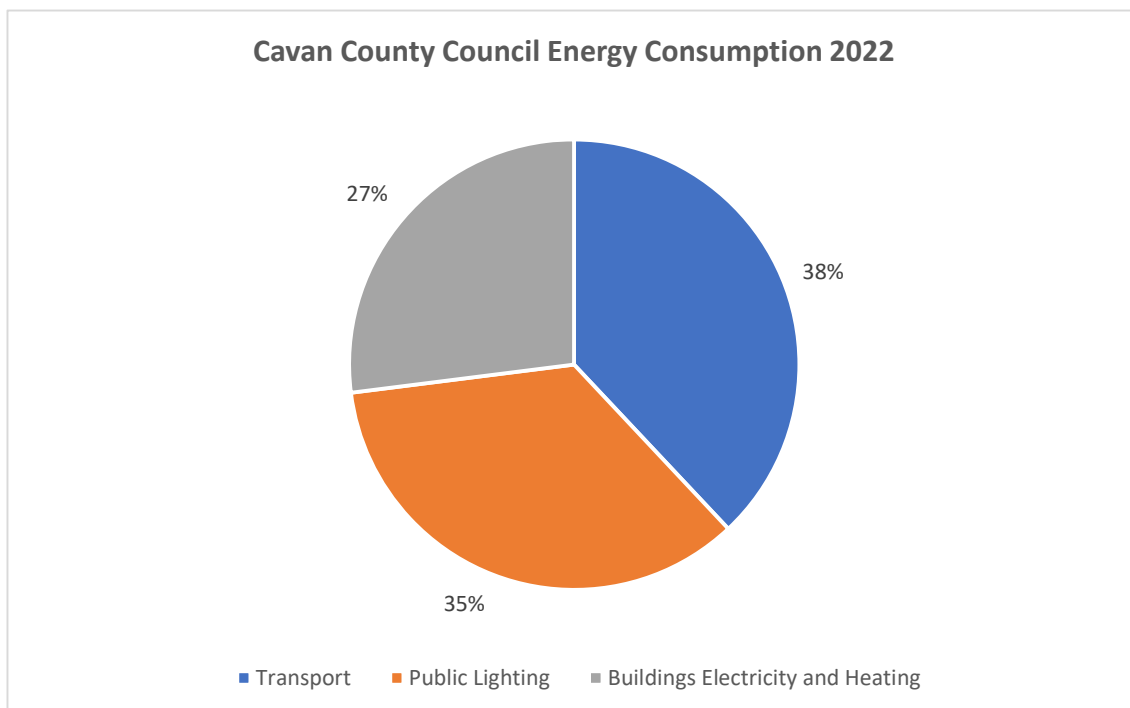


Figure 12: Cavan County Council Energy Consumption 2022

The carbon emissions produced by Cavan County Council are summarised in Figure 13, with electricity use the largest source of carbon emissions at (63%), followed by transport at (32%) and thermal and heating of buildings at (5%).

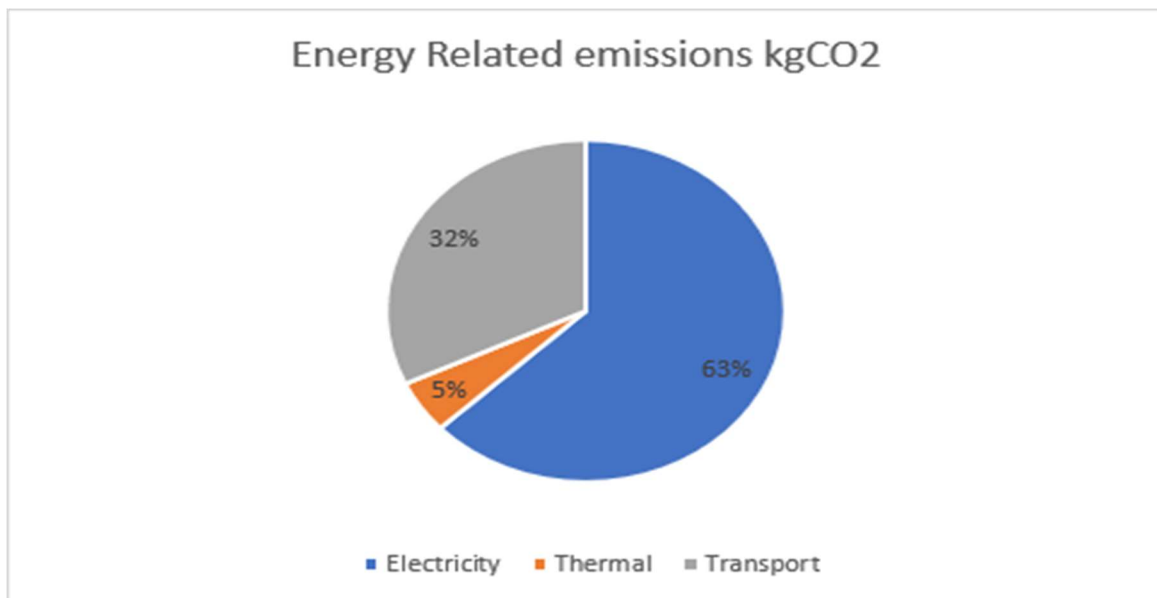


Figure 13 Energy Related Emissions 2022

EMISSIONS REDUCTION

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

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

A full comprehensive Baseline Emissions Inventory Report for the County Cavan is presented in Appendix C.

4.0 DECARBONISATION ZONE

4.1 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.

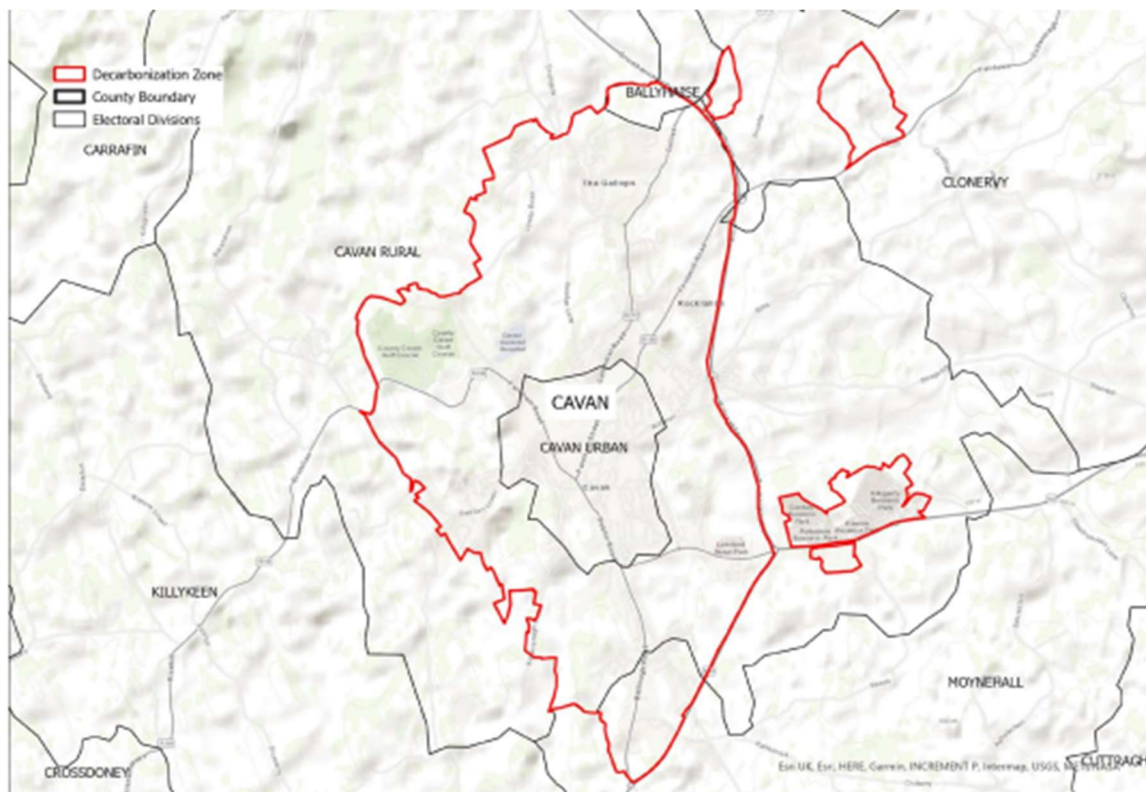


Figure 14: Map of Cavan Town with Decarbonisation Zone indicated.

Cavan Town has been designated as the DZ for Cavan County Council based, on its socioeconomic and physical environmental characteristics which have been deemed an appropriate fit against a set of defined DZ criteria. The DZ area is shown on the map above (Figure 14). The land area is approximately 14.9 km².

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 – 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 Cavan County Council’s BEI for the DZ area was 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, Waste and Agriculture**

Cavan 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.

CAVAN DZ - is considered to be an appropriate demonstration area and test bed for urban decarbonisation measures to be adopted in other urban areas as well as scaled up across Cavan County and wider.

ZONING The total population of Cavan town Area is 12,455 (CSO, 2022)

LAND AREA The Cavan Town DZ has a total land area of approximately 14.9 km²

SCALABILITY The Cavan DA intersects with 47 small areas under 4 Electoral Divisions (EDs).

4.2 DECARBONISATION ZONE BEI RESULTS

The Tier 3 assessment of the Cavan 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.

Cavan town has a population of 12,455 (CSO ,2022) with a population density of 835 people per km² which is significantly higher than the national average of 72 people per km².

The overall results of the ‘bottom-up’ Tier 3 assessment are presented in Figure 15 below. Total carbon emissions for the year 2018 in the DZ area equate to approximately **71,398 tCO₂e** (tonnes of carbon dioxide equivalent).

This translates to **5.85 tCO₂e per capita** based on 2016 census population data. Ireland’s national carbon emissions equated to approximately 12.6 tCO₂e/capita.

While the DZ’s carbon emissions per capita is lower than the national equivalent, Ireland is higher than the EU average of 8.2 tCO₂e/capita.

The data shows that the largest carbon emissions within the DZ are:

- Commercial and Public Sector 29,642 tCO₂e (**41%**),
- Residential 22,669 tCO₂e (**32%**) a close second.
- Agriculture produces 10,002 tCO₂e (**14%**) and
- Transport and Waste contributing 6,523 tCO₂e (**9%**) and 2,562 tCO₂e (**4%**) respectively.

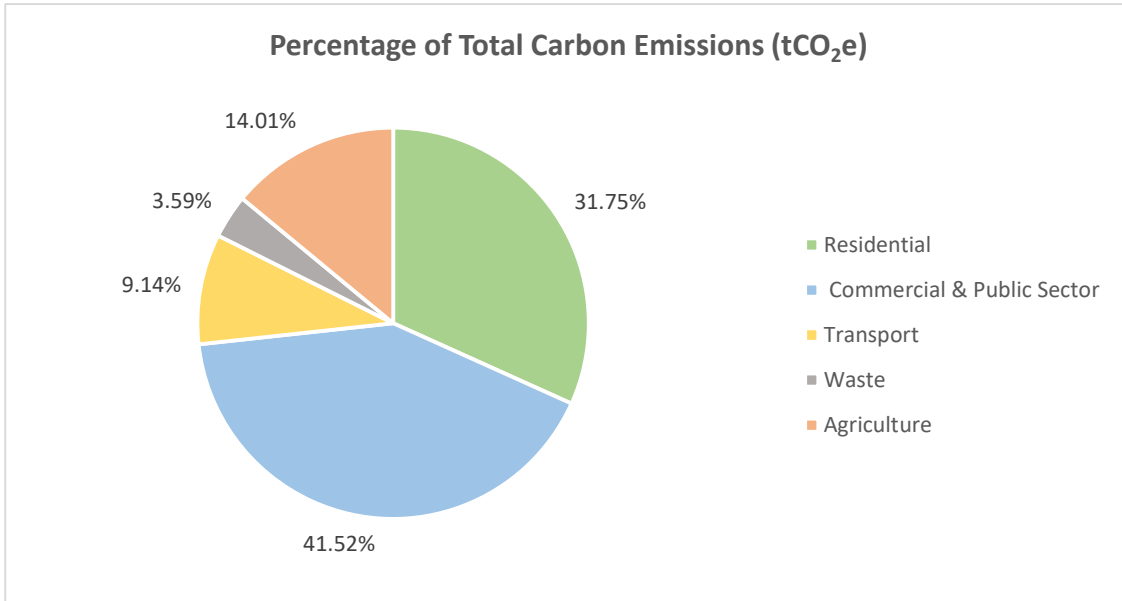


Figure 15: Cavan’s Baseline carbon emissions by Category in 2018

RESIDENTIAL SECTOR

The residential sector is accountable for 32% of carbon emissions within the Cavan DZ area, equating to approximately **22,669 tCO₂e**. Total energy consumption of the residential sector equates to **82,307 MWh/year**.

The 4,520 ‘Houses’ within the DZ account for 94% of both the sector’s total energy consumption and carbon emissions with 542 ‘Apartments’ within the DZ account for the remaining 6% of total residential and carbon emissions.

	Energy Consumption (MWh/ year)	Carbon emissions (tCO ₂ e)
Houses	77,124	21,199
Apartments	5,183	1,470
Total carbon emissions	82,307	22,669

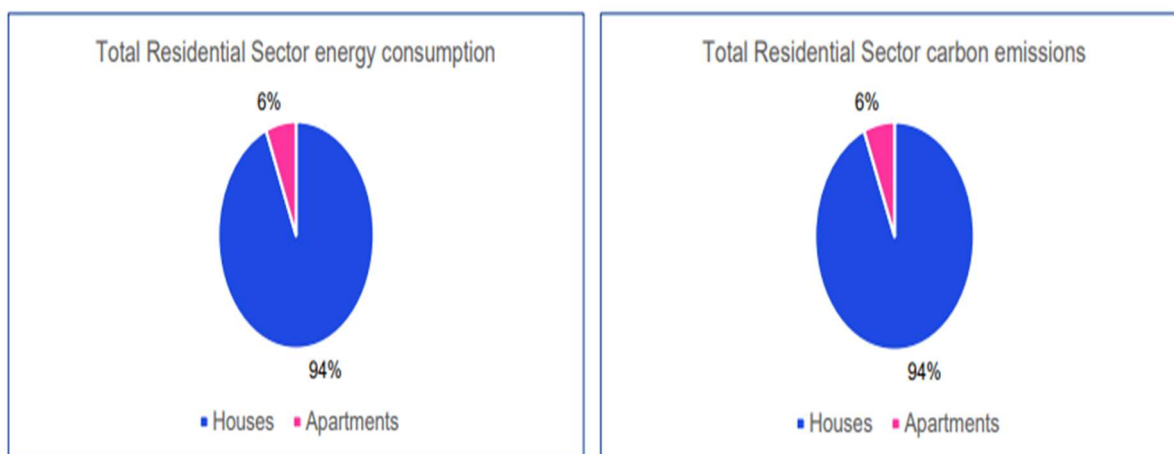


Figure 16: Residential Energy Consumption and Carbon Emissions for Residential Sector in Cavan DZ

Figure 16 shows the energy consumption and carbon emissions associated with the residential sector across the DZ area, presented by Electoral District.

Within the Cavan DZ area, there are a range of fuel types used for the heating of properties as outlined in (Tables 3 and 4). The data shows that oil is the most prominent fuel source, and it accounts for both the greatest amount of energy consumption and carbon emissions within the DZ area. This is followed electricity, natural gas and coal.

Table 3 Energy Consumption by fuel type

Energy Consumption (MWh)				
Energy Source	Houses	Apartments	Total	Percent
Coal	5,376	531	5,907	7.2
Peat	481	29	510	0.6
Oil	48,478	3156	51,634	62.7
LPG	2323	111	2,434	3.0
Natural Gas	9,574	453	10,027	12.2
Renewables	851	49	900	1.1
Electricity	9,133	789	9,922	12.1
Wood	908	64	972	1.2
Total			82,306	

Table 4: Carbon Emissions by Fuel Type

Carbon emissions (tCO ₂ e)				
Energy Source	Houses	Apartments	Total	Percent
Coal	1,831	181	2,012	8.9%
Peat	171	10	182	1%
Oil	13,264	863	14,127	62.3%
LPG	533	25	558	2.5%
Natural Gas	1,960	93	2,053	9.1%
Renewables			0	0.0%
Electricity	3,427	296	3,723	16.4%
Wood	14	1	15	0.1%
Total	21,200	1,469	22,670	100.0%

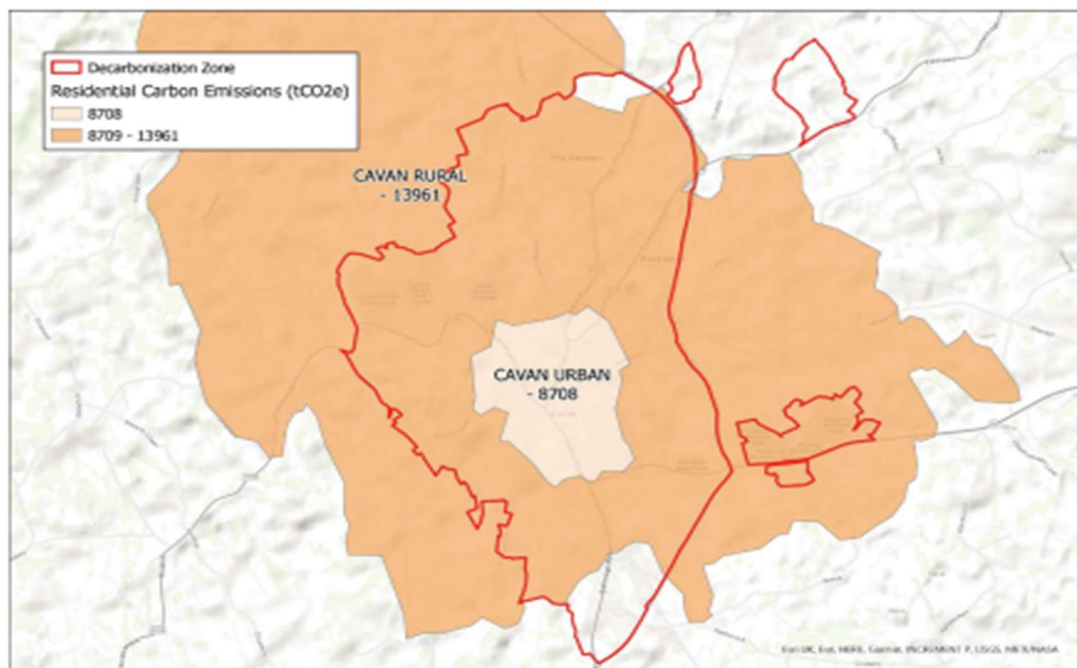


Figure 17: Total Carbon Emissions within the Cavan Town DZ presented by ED.

TRANSPORT

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

The total carbon emissions of the transport sector within the DZ area equate to 9.14 % of total emissions or **6,523 tCO₂e**.

As presented in Figure 18, private Car use equates to 3,453 tCO₂e (53%) of carbon emissions within the Cavan DZ. Road freight and light goods vehicles account for 2,904 tCO₂e (46%) while public transport accounts for 166 tCO₂e (3%) coming from public transport. Petrol and diesel are the most common sources of fuel for transport and account for 99.95% of fuel used. Just 0.05% rely on electricity for transport fuel.

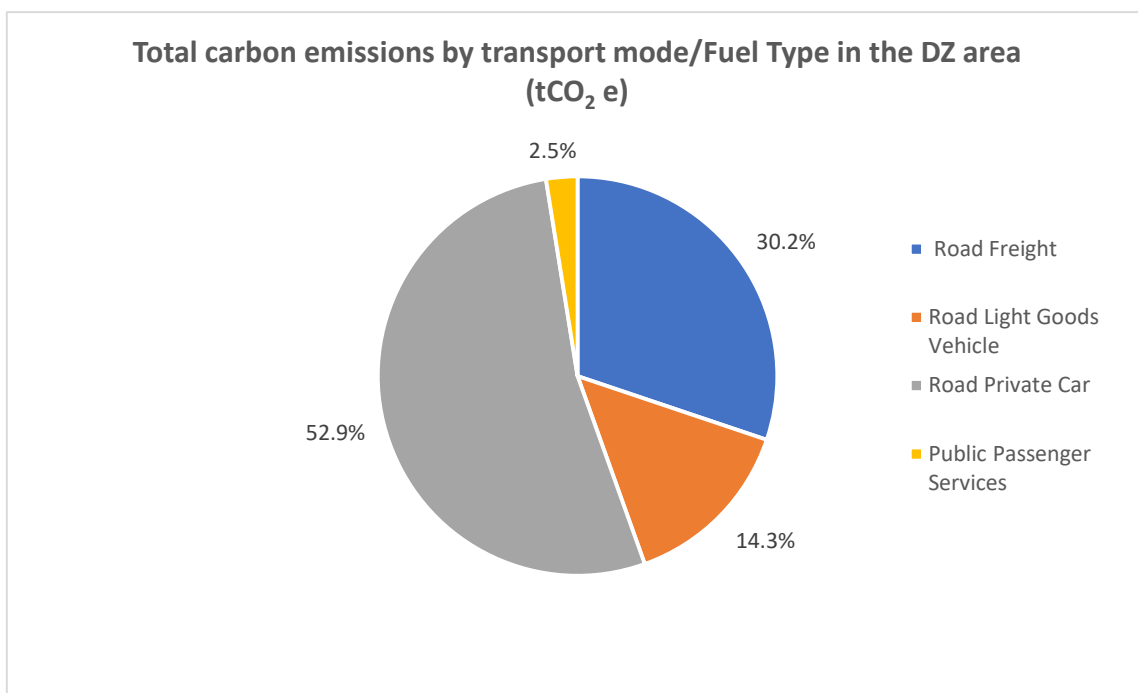


Figure 18: Total carbon emissions by transport mode/fuel type in DZ area (tCO₂ e)

Public Transport

Buses are the key form of public transport within the study area comprising several public and private operators. A total of 34 bus stops are noted in the Cavan DZ area. The uptake of 'Green' transport methods such as Buses, Trains, Electric vehicles, and walking are vital in the reduction of Ireland's overall emissions and an increase in the general health of a population through reduced air pollutants.

Using 2016 Census data, commuters leaving and entering the DZ area to attend work, college or school on a daily basis has been explored. It is estimated that the commuter trips leaving and entering the DZ area, contribute to emissions of 5,810 tCO₂e (figure 20) and 13,083 tCO₂e (figure 21) respectively on an annual basis.

Figure 19 provides an illustration of commuters leaving the DZ area and travelling to surrounding EDs on a daily basis.

For the purposes of this assessment, the starting point for all commuters is assumed to be Cavan Urban ED. To provide for a proportional assessment, commuters travelling to the top 90% of EDs are included in the carbon emissions estimate. An uplift is then applied to the resulting carbon emissions to represent 100% of commuters.

It is estimated that these daily commuter trips leaving the DZ area, and assumed to then return, contribute approximately 5,810 tCO₂e on an annual basis

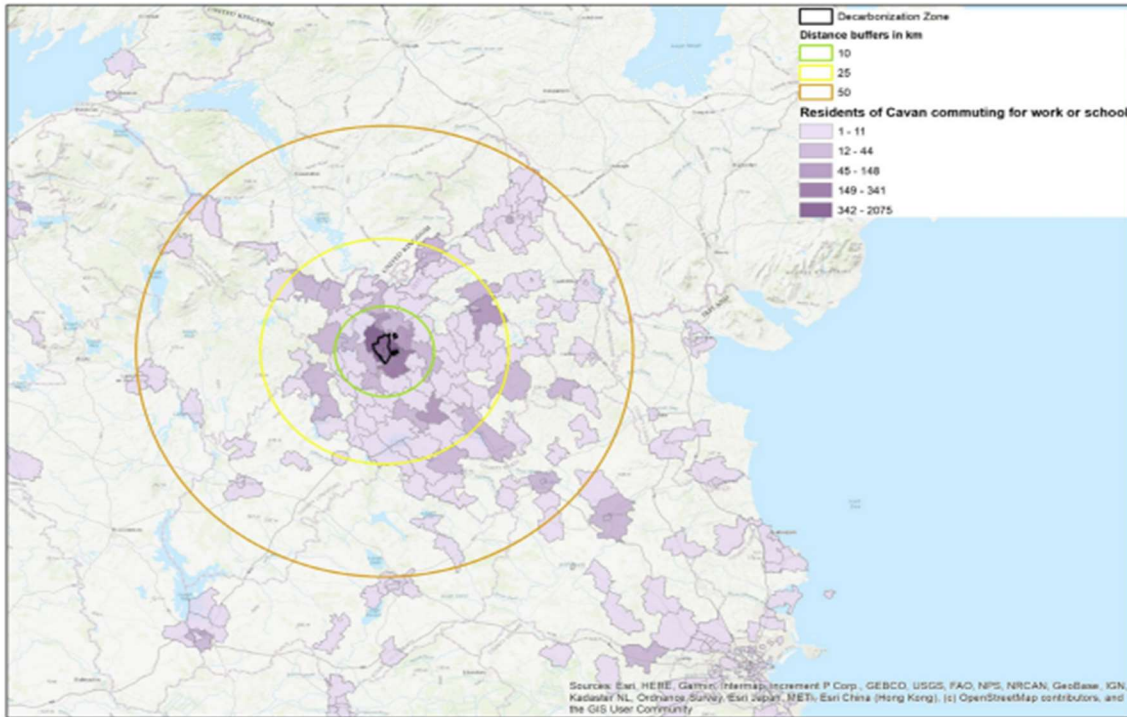


Figure 19 : Carbon Emissions (tCO₂e) associated with commute travel out of the DZ area to surrounding EDs

Figure 20 provides an illustration of commuters travelling into the DZ area from surrounding EDs on a daily basis.

It is estimated that these daily commuter trips travelling into the DZ area, and assumed to then return, contribute approximately 13,083 tCO₂e on an annual basis.

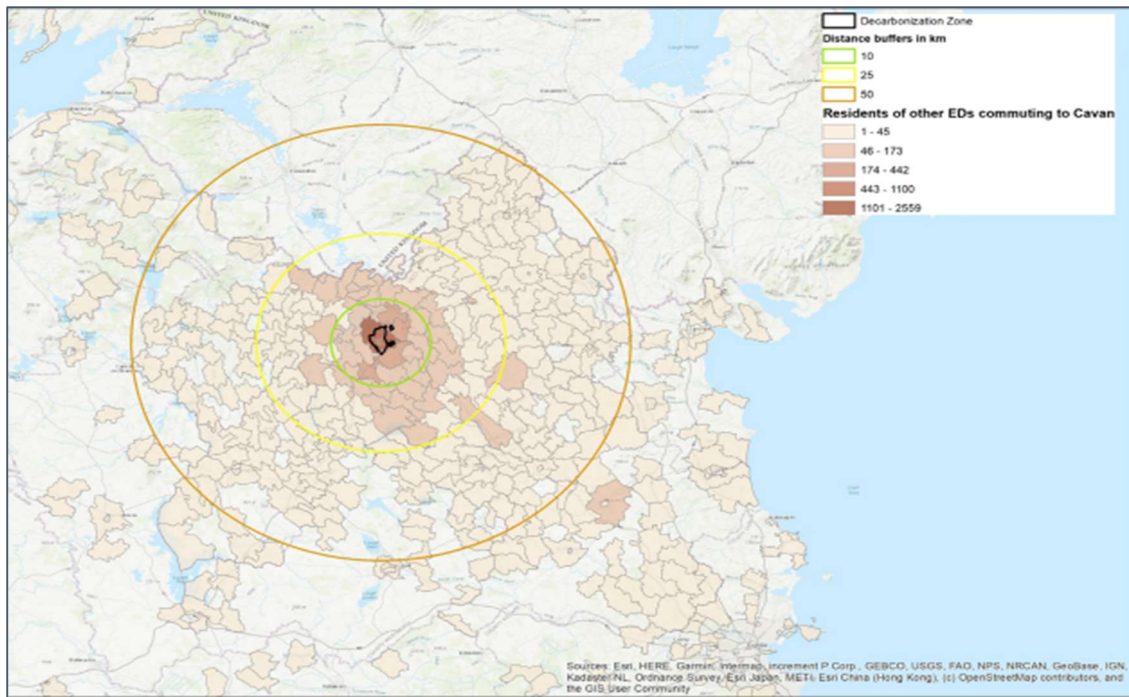


Figure 20: Carbon Emissions (tCO₂e) associated with commuter travel into the DZ area from surrounding EDs

Note that although these commuting patterns focus on commuters travelling in and out of the DZ area, the impact of which are not entirely associated with the DZ area boundary itself, it is important to understand opportunities for decarbonisation through both control and influencing mechanisms available to the Council.

COMMERCIAL & INDUSTRIAL

The section below outlines a summary of the Cavan's DZ's carbon emissions associated with the commercial & public sector, presented by building type and fuel type. The commercial & public sector accounts for the largest DZ's carbon emissions at 41% equating to approximately **29,642 tCO₂e**. Total energy consumption of the sector equates to **106,523 MWh**. The 234 commercial, business and other buildings within the DZ primarily rely upon electricity as their primary fuel source. Electricity is used to power 51% of commercial buildings in the DZ.

The largest number of commercial and public sector buildings are in the Cavan Rural ED, followed by Cavan Urban. Commercial and public sector building types are broken down into three categories: 'Business', 'Commercial' and 'Other'.

- 'Business' category refers to building types including restaurants, shopping centres, and mixed use.
- 'Commercial' category refers to building types including banks, cinemas, factories, and libraries.
- 'Other' category refers to building types including car parks, schools, colleges, and electricity stations.

The results of the commercial and public sector assessment are presented by building type in Figure 21. The 162 ‘commercial’ buildings within the DZ area account for 81.71% of carbon emissions while the 46 ‘Other’ buildings account for 9.57% and the ‘Business’ building types account for 8.72% of carbon emissions.

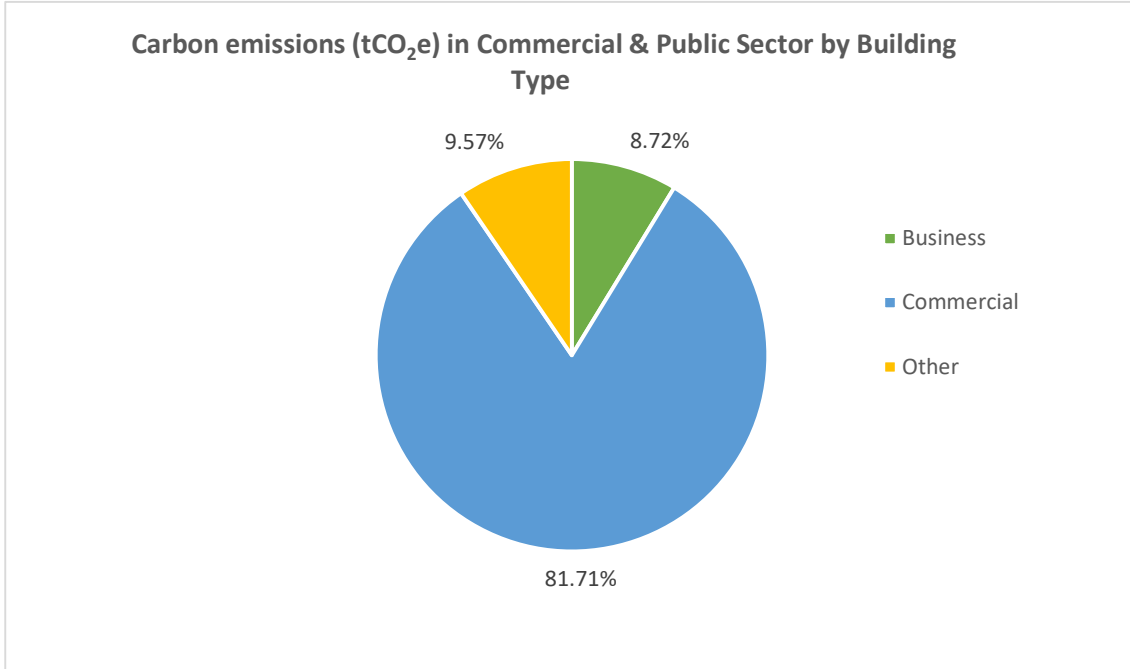


Figure 21: Total carbon emissions associated with the commercial and public sector within the Cavan DZ, by building type.

The total carbon emissions of the commercial and public sector are also presented by fuel type in Figure 22. Electricity is the primary fuel source utilised within the DZ area, powering approximately 51.27% of commercial and public buildings. Natural Gas and Oil contribute 24.58% and 24.08% respectively.

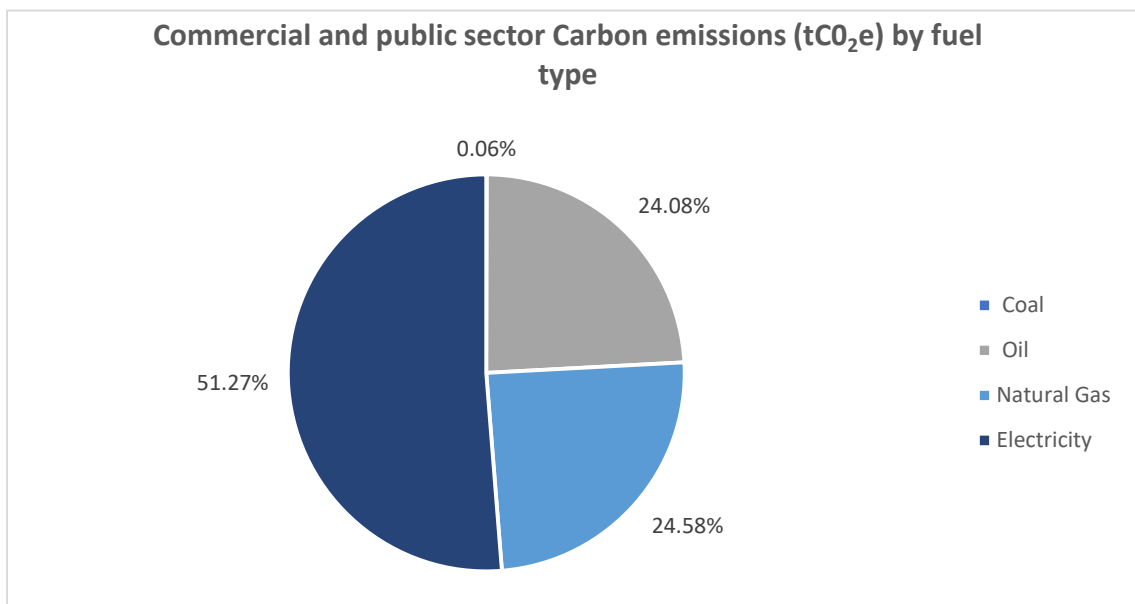


Figure 22: Total Carbon Emissions associated with Commercial & Public Sector activities with the DZ, by fuel type.

WASTE

This section outlines a summary of the DZ waste related carbon emissions along with possible actions that will support emissions reductions. The waste sector accounts for approximately 3.59% of Cavan’s DZ carbon emissions.

Cavan Waste Disposal Ltd, Corranure Landfill and an Urban Wastewater Treatment plant lie within the boundary of the DZ. To calculate waste-related emissions from within the DZ, a benchmark for waste related carbon emissions of 0.21 tCO₂e/head of population was been used. On this basis, it can be estimated that waste related carbon emissions within the boundary of DZ area are approximately **2,562 tCO₂e**.

AGRICULTURE

Agricultural activities in the Cavan DZ area account for 14% (**10,002 tCO₂e**) of the DZ area’s total carbon emissions, as well as a large part of economic activities. Beef, dairy and sheep farming are the most common farming activities within the DZ area. The total number of livestock within the DZ is 4,677. This comprises Beef cattle, dairy cows and sheep, figure 23.

Methane emissions produced by livestock enteric fermentation is one of the main contributors to agriculture’s total carbon emissions. Farming activities occur predominantly in the Cavan Rural ED.

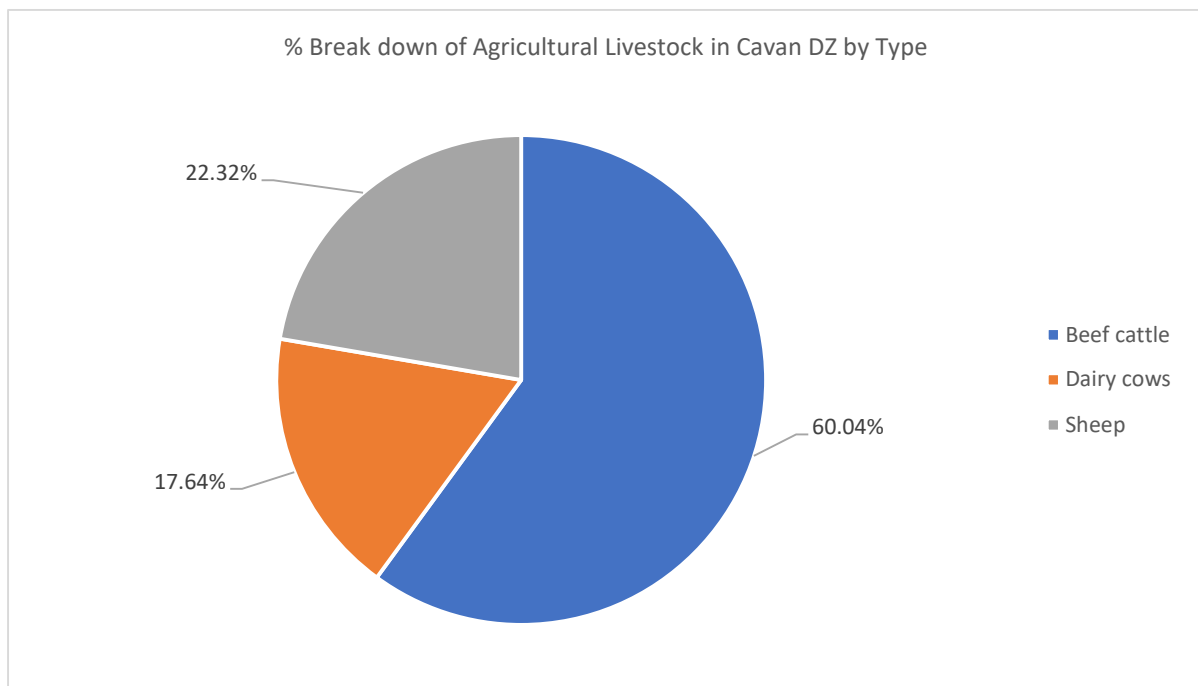


Figure 23: Breakdown of Agricultural livestock in Cavan DZ & On Farm Carbon emissions by Livestock type

As the majority of livestock in the DZ area are beef cattle, dairy cows and sheep, to provide for a meaningful and proportionate assessment, these livestock have been focused on.

On-farm fuel combustion and electricity use contribute to national agriculture carbon emissions. To estimate carbon emissions associated with beef cattle, dairy cows and sheep within the DZ area, benchmarks (kWh/livestock/year) have been used and are presented in table 6.

Estimated carbon emissions related to energy consumption in beef cattle, dairy cows and sheep presented by ED are shown in table 5.

ED	Energy consumption (kWh) for all beef cattle	Carbon emissions (tCO ₂ e) for all beef cattle
Cavan Rural	1,272,024	336

ED	Energy consumption (kWh) for all dairy cows	Carbon emissions (tCO ₂ e) for all dairy cows
Cavan Rural	721,875	220

ED	Energy consumption (kWh) for all sheep	Carbon emissions (tCO ₂ e) for all sheep
Cavan Rural	19,836	5

Table 5 Agri energy related emissions

Benchmarks		Summary		
	kWh/livestock/year	Beef cattle (tCO ₂ e)	Sheep (tCO ₂ e)	Dairy cows (tCO ₂ e)
Beef cattle	453	336	5	220
Dairy cow	875			
Sheep	19			
		Energy related carbon emissions		
		Total	561	

Table 6 Benchmarks

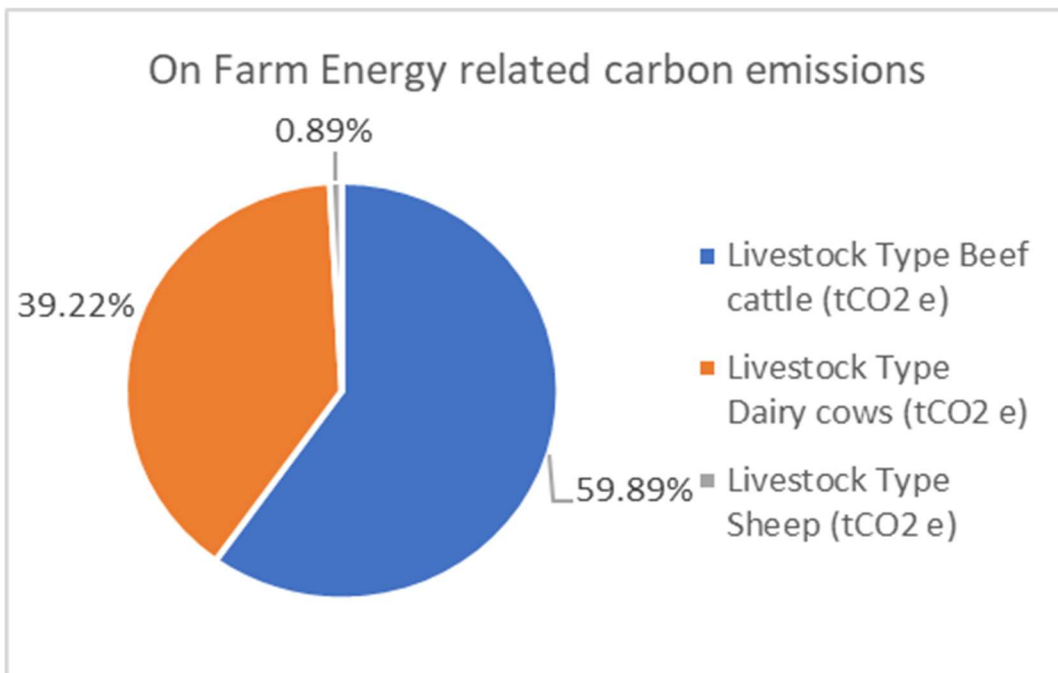


Figure 24 On farm energy related carbon emissions

A full comprehensive Baseline Emissions Inventory Report for the County Town DZ is presented in Appendix D.

5.0 CLIMATE CHANGE RISK ASSESSMENT

5.1 CLIMATE CHANGE RISK ASSESSMENT METHOD

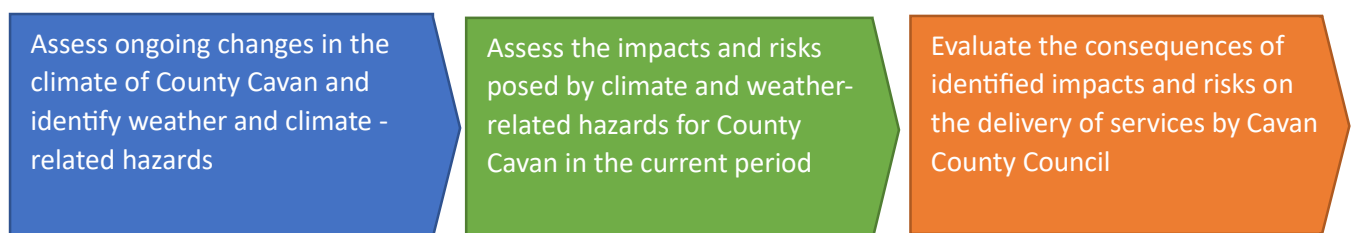
Understanding the risks posed by climate is an essential first step for Cavan County Council to develop effective and efficient adaptation actions in response to current and projected climate change. Climate change risk assessments identify the likelihood of future climate hazards and their potential 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 Cavan 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 Cavan 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 are assessed.

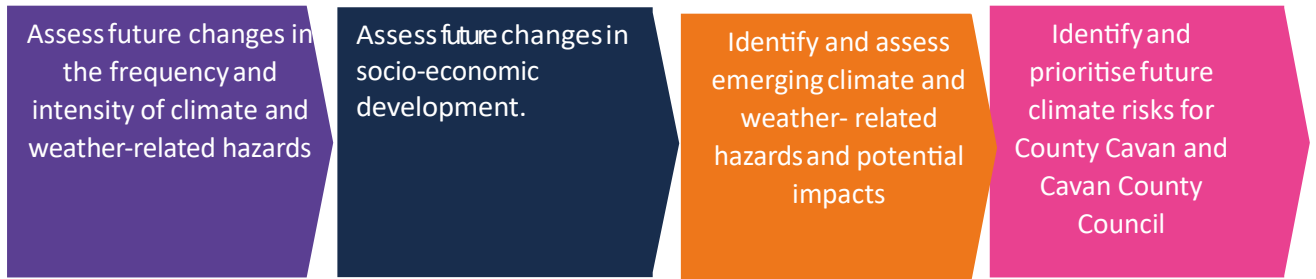
PHASE 1: ASSESSMENT OF CURRENT CLIMATE RISKS AND IMPACTS

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 Cavan and the implications of these for the delivery of services by Cavan 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 Cavan. For example, projections indicated that heatwaves would become more frequent and intense in the future meaning that heat-related risk will increase in the future.



In line with global trends, the climate of Ireland and Cavan 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 Cavan and Cavan County Council. A summary of some extreme weather events recorded in Cavan is presented in Table 7.

Table 7 Records of extreme weather events in Cavan

<p>EXTREME HEAT (Summer 2022): A temperature of 30.8°C was recorded at Ballyhaise , Co. Cavan in July 2022. High temperatures have resulted in localised damage to road surfaces (tar and chip) across the County. Due to extreme heat and an associated algal bloom, 5,000 fish died in Barnagrow Lough in July 2021. In 2020 Cavan fire services attended 34 wildfires and 6 in 2021.</p>	<p>SURFACE WATER FLOODING October 2022: Heavy rainfall led to flooding on the N3 outside Cavan town, limiting transport access, making temporary diversions necessary and causing disruption to motorists. Similar levels of flooding were recorded in September 2019 & September 2020. In July 2021 heavy rainfall led to a landslide on Benbrack mountain in West Cavan, causing an area of peatland 6ft deep and 50m wide to 'slip' down the mountainside.</p>
<p>SNOW & ICE (BEAST FROM EAST STORM EMMA , MAR 18): Heavy snowfall resulted in road closures and transport disruption, which led to snow drifts of up to 2m in County Cavan. Flooding post-heavy snowfall events results in the flooding of assets (e.g., roads and infrastructure). Flooding post-heavy snowfall event results in overland flow of pollutants to habitats and ecosystems with detrimental effects.</p>	
<p>WIND (STORM BARRA DEC.21) 76 km/hr wind speed were recorded at Ballyhaise, Co. Cavan'. ESB reported 3,000 premises in County Cavan lost power. During Storm Barra County Cavan saw the closure of the R199, R194, R165 and R188 roads due to incidents of fallen trees.</p>	<p>FLOODING: Pluvial flooding can cause landslides and damage to local habitats, as in July 2022 when heavy rainfall led an area of peatland 6ft deep and 50m wide to 'slip' down Benbrack mountain in west Cavan. In Cavan town, 54 homes and 56 non-residential properties are currently considered at risk of flooding. The R212/N3 east of Cavan town flooded in 2019 & 2020 when the Cavan river burst its banks</p>

5.2 EXTREME WEATHER EVENTS IN CAVAN COUNTY

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

For the period 1985 to 2022, Cavan County has been affected most frequently by severe windstorms and flooding events (fluvial and pluvial). 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.

For each of the climate hazards that have been identified through the climate hazard profile, an assessment of their frequency of occurrence has been conducted. Each hazard was assigned a frequency category according to Table 2 of the Technical Annex B Climate Change Risk Assessment Guidelines.

Based on the climate hazard baseline, severe windstorm events have impacted upon County Cavan most frequently over the period 2006-2022, with pluvial* flooding also affecting the County on a number of occasions. River flooding, cold spells, heavy snowfall, heatwaves and droughts have also impacted County Cavan, but less frequently.

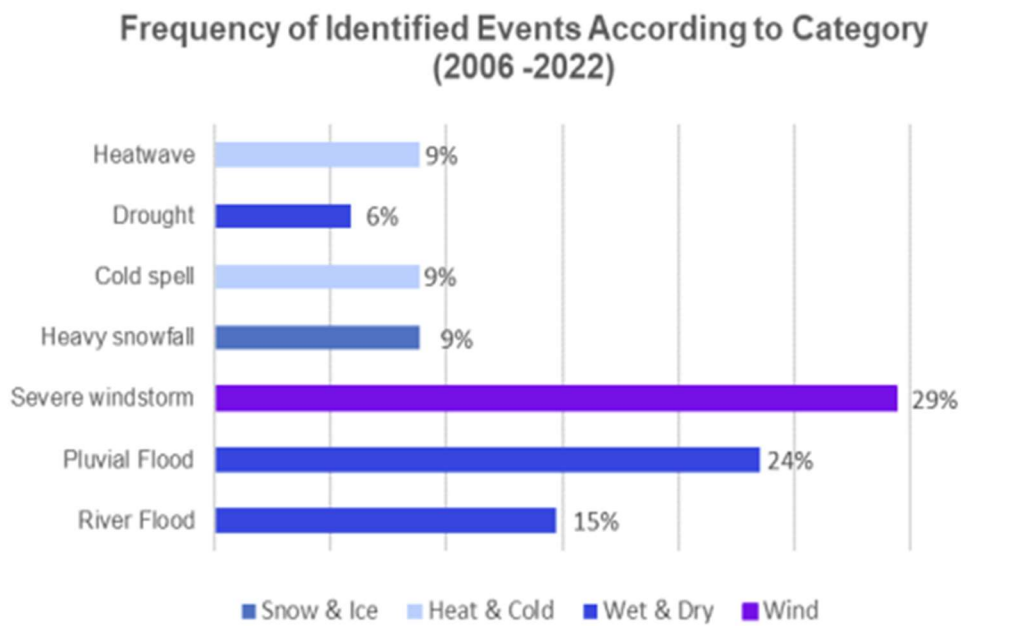


Figure 25: Climate Hazard Baseline of Weather Events according to Category (2006-2022)

5.3 PROJECTED CLIMATE CHANGES FOR CAVAN COUNTY

In line with global and national projections of climate change, the climate of County Cavan 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.

The frequency of extreme weather events is projected to change. For Cavan 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 Cavan County by 2050.

Table 8: Projected change in frequency of climate hazards for Cavan County by 2050

HAZARD	PROJECTED CHANGE IN FREQUENCY	CLIMATE PROJECTIONS
Heatwaves	Increase ↑	Projections indicate an overall increase in average temperature of between 1.1 and 1.6°C for County Cavan. 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 Cavan.
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 ↓	Because 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.
Heavy Snowfall	Decrease ↓	The annual snowfall in the region is projected to decrease substantially by the middle of the century.
Severe Wind-storms	Increase ↑	Projections of storms are subject to a high level of uncertainty. By mid-century, projections indicate that average wind speed will remain like those currently experienced. However, some projections indicate an increase in the frequency of the most intense storms which are currently rare events
River Flooding	Increase ↑	Projections indicate an increase in the frequency of heavy rainfall days (days with precipitation >30mm) for County Cavan with some areas projected to see a significant increase. This will likely result in an increased frequency of associated river and surface water flooding.
Surface Water Flooding	Increase ↑	Projections indicate an increase in the frequency of heavy rainfall days (days with precipitation >30mm) for County Cavan with some areas projected to see increase of up to 80%.
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.

5.4 FUTURE CLIMATE RISKS

In determining future climate risks for Cavan 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 County Cavan 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 Cavan County both in terms of people affected and economic value of damages created.

Cavan County's population is expected to increase by 12,000 by 2031 with an expected population increase for Cavan Town of 30% between 2016 and 2040.

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 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 Cavan 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 Cavan 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 Cavan 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.

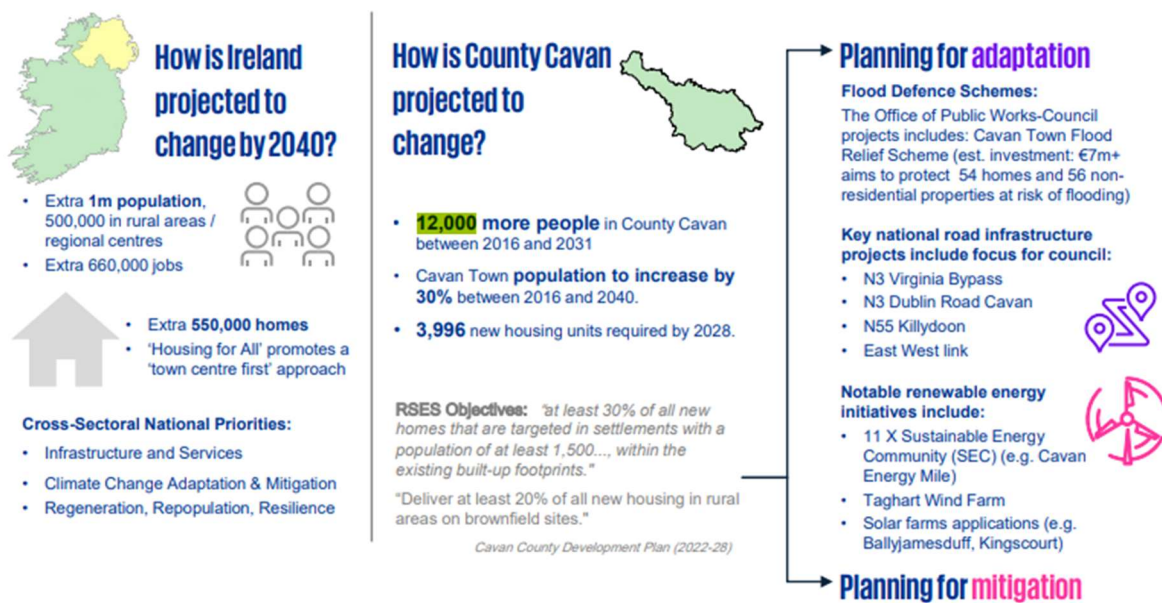


Figure 26 Anticipated changes in population and development.

A full comprehensive Baseline Emissions Inventory Report for the County Town DZ is presented in Appendix E.

6.0 A VISION AND MISSION FOR CAVAN COUNTY COUNCIL

6.1 FUTURE CLIMATE RISKS

Local Authorities have already undertaken extensive work around 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 Cavan 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 Cavan County Council is:

Cavan County Council will be a climate resilient and low carbon organisation that inspires, leads and supports ambitious action to achieve a Climate Neutral Local Economy

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

The proposed Mission for Cavan County Council is:

Cavan County Council will lead by example, support and inspire climate action across our county to ensure that Cavan remains an attractive, competitive and sustainable place to live, visit and do business.

All Council departments will receive appropriate information and engagement regarding their assigned responsibilities within this Plan. This approach ensures a well-coordinated and all-encompassing response to climate-related initiatives.

The Council will actively interact with citizens, businesses, and communities to enhance understanding of climate change, promote climate literacy, and facilitate the necessary shifts in behaviour.

Strategic goals set the context for mitigation and adaptations actions in service of Cavan 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 Cavan County Council are:



1. To implement appropriate climate action mitigation and adaptation measures across all operations of Cavan County Council
2. To be an exemplar in climate action so as to influence, coordinate and enable others to meet their own climate obligations
3. To work and collaborate with other sectors and agencies to deliver programmes that support climate action
4. To utilise technology to enhance the efficiency and decrease the carbon footprint of our services
5. To increase the knowledge, awareness and competency of the staff of Cavan County Council surrounding climate change and action



1. To reduce the council's impact on the environment through organisational energy management and upgrades
2. To conserve resources, reduce greenhouse gas emissions, increase the use of renewable energy sources and increase energy efficiency throughout our housing, offices and infrastructure
3. Ensure that emergency planning systems and plans address climate action to protect our assets and critical infrastructure from extreme weather events and to ensure a co-ordinated and resourced emergency response to all climate related emergencies and events, including flooding
4. To promote, support and facilitate the implementation and expansion of active travel mechanisms. This will be done in association with other key stakeholders, to enhance connectivity, mobility and modal shift in Cavan
5. To reduce the councils transport emissions through increasing fuel efficiency, facilitating fleet transition and examining current working practices
6. To align, update and implement plans and strategies as required to enable sustainable transport and active travel in Cavan



1. To promote and protect our environment and its biodiversity and water catchments as key enablers of climate adaptation and mitigation across the county, through the delivery of sustainable services, including those with a focus on nature based solutions, in collaboration with sectors and communities
2. To promote green infrastructure as a strategically planned network of natural and semi-natural areas with other environmental features, designed and managed to deliver a wide range of ecosystem services, while also enhancing biodiversity
3. To protect peatlands from further degradation



1. To build capacity, improve social connectedness and foster cooperation to increase community resilience and transition.
2. To promote climate action and climate literacy through training and education in partnership with educational facilities

APPENDICES

Appendix 1: – Glossary

Biodiversity: The variability among living organisms from terrestrial, marine, and other ecosystems. Biodiversity includes variability at the genetic, species and ecosystem levels.

Carbon Neutral This means that the amount of greenhouse gas released into the air equals the amount removed from the air

Climate: The long-term average weather of area, usually taken over 30 years

Climate projection: A climate projection is the simulated response of the climate system to a scenario of future emission or concentration of greenhouse gases (GHGs) and aerosols, generally derived using climate models.

Coastal erosion is the breaking down of land and removal of sediment and rocks by coastal processes. Factors affecting the rate of coastal erosion include sea level rise, strong wave action, and storms.

Cold Spell: A sustained period of cold weather, where extreme low temperatures are recorded.

Coastal Flooding: Coastal flooding occurs when sea levels along the coast or in estuaries exceed neighbouring land levels, or overcome coastal defences where these exist, or when waves overtop over the coast.

Drought: A period of abnormally dry weather long enough to cause a serious hydrological imbalance

Exposure: The presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected

Extreme weather event: An extreme weather event is an event that is rare at a particular place and time of year.

Fluvial flooding occurs when rivers and streams break their banks and water flows out onto the adjacent low-lying areas (the natural floodplains)

Groundwater flooding occurs when the water table rises above the land surface. It generally requires sustained rainfall over relatively longer duration than other forms of flooding, its location is discontinuous, and they can last for weeks or months.

Hazard: The potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources.

Heat wave: A period of abnormally and uncomfortably hot weather

Heavy Snowfall: A substantial prolonged snowfall event resulting in substantial accumulations of snow on the ground over a period of consecutive days.

Landslide describes a wide variety of processes that result in the downward and outward movement of materials under the force of gravity.

Pluvial flooding occurs when the amount of rainfall exceeds the capacity of urban storm water drainage systems or the ground to absorb it.

Representative Concentration Pathways (RCPs): Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases (GHGs) and aerosols and chemically active gases, as well as land use/land cover.

RCP4.5 and RCP6.0: Two intermediate stabilization pathways in which radiative forcing is stabilized at approximately 4.5 W/m² and 6.0 W/m² after 2100 (the corresponding ECPs assuming constant concentrations after 2150)

RCP8.5 One high pathway for which radiative forcing reaches >8.5 W/m² by 2100 and continues to rise for some amount of time (the corresponding ECP assuming constant emissions after 2100 and constant concentrations after 2250)

Risk: The potential, when the outcome is uncertain, for adverse consequences on something of value (lives, ecosystems, assets, services, etc.)

Severe Windstorm: A windstorm is a wind that can cause at least light damage to trees and buildings, typically exceeds 34 mph (55 km/h), and may or may not be accompanied by rain

Vulnerability: The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Appendix 2: – Acronyms

Acronym	Full form
CAPS	Climate Action Plans
CAROs	Climate Action Regional Offices
CCRA	Climate Change Risk Assessment
CDP	County Development Plan
CRA	Climate Risk Assessment
EPA	Environmental Protection Agency
EU	European Union
GHG	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
LA	Local Authority
NHA	National Heritage Area
RCP	Representative Concentration Pathways
SACs	Special Area of Conservation
SPAs	Special Protection Areas
URDF	Urban Regeneration Development Fund
WTP	Water Treatment Plant

Appendix 3- Sources of Information

BASELINE EMISSIONS INVENTORY 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)

END OF REPORT

***CLIMATE ACTION OFFICE
CAVAN COUNTY COUNCIL
JUNE 2023***



Cavan County Council Leading on Climate Action

