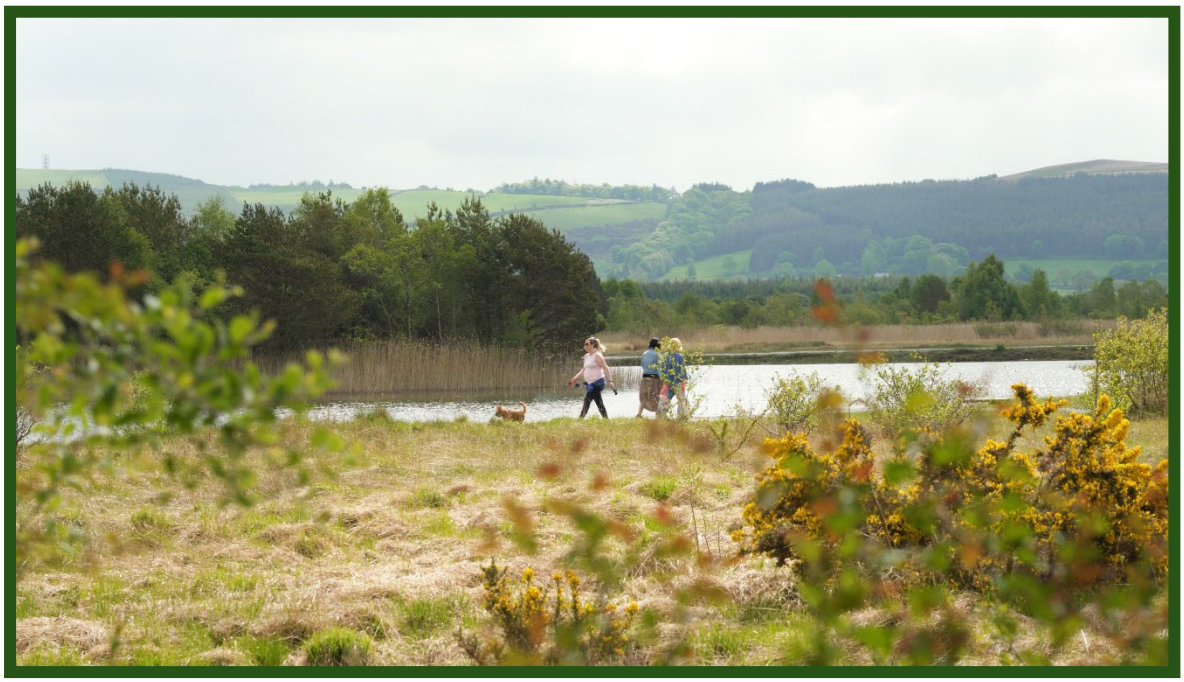
Towards a Low-Carbon Future in the Tipperary Decarbonising Zone



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Decarbonizing Zone

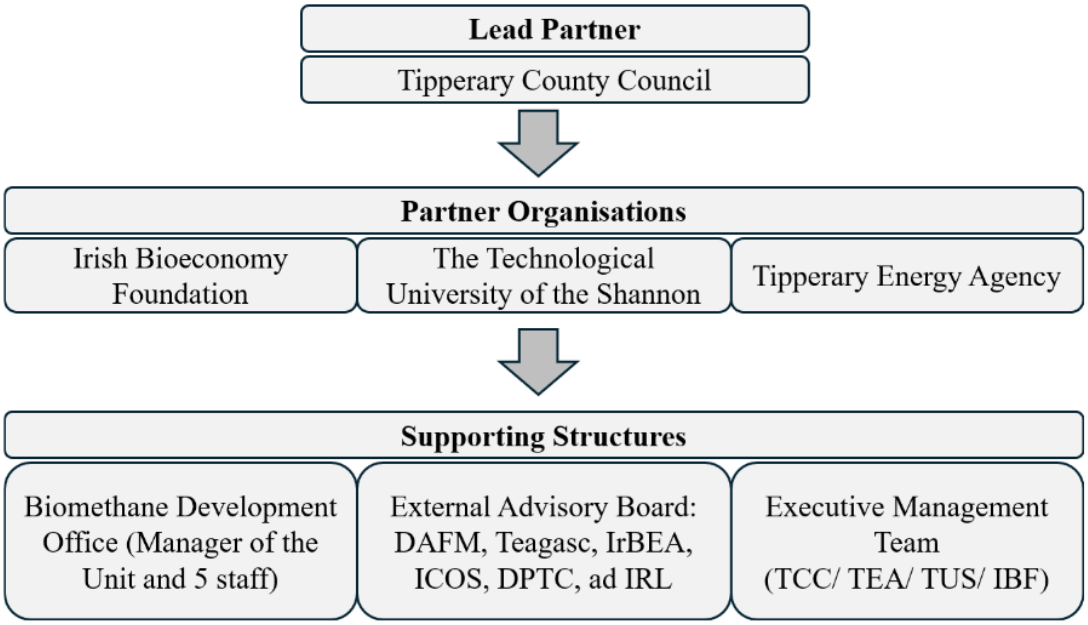
May 2026

Mid-Tipperary Low Carbon Community

Biomethane Development Office

Partner/ Organisation Name	About
Comhairle Contae Thiobraid Árann Tipperary County Council	**Tipperary County Council (TCC) (Lead partner of the Biomethane for Carbon and Community (BCC) project),** as the Local Authority for Tipperary, provides an extensive range of infrastructural and social services and plays an active role in the development of the county's enterprise, environment and climate action, transport social, arts, heritage and cultural affairs. It also functions as the regulatory body for certain matters at local level.
TUS	**The Technological University of the Shannon (TUS)** is a multi-campus institution prioritizing accessibility, inclusivity and innovation. Spanning seven campuses in Ireland's Midwest and Midlands, TUS fosters regional growth through education, research and collaboration. With over 15,000 students annually, TUS combines student-focused learning with industry partnerships, driving progress and shaping the future of education and innovation.
IRISH BIOECONOMY FOUNDATION Growing Ireland's Bioeconomy Together	**The Irish Bioeconomy Foundation (IBF)** is a pioneering hub for transforming Ireland's natural resources into sustainable, high-value products. Based at the National Bioeconomy Campus in Lisheen, Co. Tipperary, IBF fosters collaboration among agribusiness, forestry, marine and energy sectors, driving innovative projects, creating synergies and building a globally competitive bioeconomy that supports local communities and sustainable development.
TIPPERARY energy AGENCY	**The Tipperary Energy Agency (TEA)** is a not-for-profit social enterprise driving Ireland's energy transition. Funded through innovative engineering services, education and European grants, TEA enables local authorities, communities and businesses to deliver renewable energy and efficiency projects. With over 40 European projects completed, TEA bridges climate targets and results through innovation, collaboration and leadership.

Organisation Chart



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Genesis of the BCC Project

The *Biomethane for Carbon and Community (BCC)* project is grounded in a wider global, European, and national policy context focused on achieving net-zero emissions and advancing sustainable development. Across these levels, there is a growing recognition of the role of biomethane in reducing greenhouse gas emissions, enhancing energy security, and supporting the transition to renewable energy systems.

At a global level, initiatives such as the **Global Methane Pledge** highlight the urgency of reducing methane emissions, targeting a 30% reduction by 2030. Biomethane, produced from organic waste and agricultural residues, offers a practical pathway to both mitigate emissions and recover renewable energy from waste streams.

At European level, the **European Green Deal** and **Fit for 55 Package** commit to a 55% reduction in emissions by 2030 and climate neutrality by 2050. These frameworks promote the expansion of renewable gases, including biomethane, as part of a circular economy approach. Funding mechanisms such as the **EU Just Transition Fund (JTF)** are supporting regions most impacted by structural economic change to develop low-carbon industries and sustainable employment.

Nationally, Ireland's **Climate Action Plan 2024**, **National Biomethane Strategy**, and **Bioeconomy Action Plan** recognise biomethane as a key enabler of decarbonisation, particularly within agriculture and energy. These policies also highlight the potential for rural economic development, farm diversification, and improved resource efficiency.

At a regional level, the Tipperary Decarbonising Zone (DZ) and the **National Bioeconomy Campus at Lisheen** provide a strong foundation for translating policy into action. The campus serves as a hub for research, innovation, and commercialisation, supporting the development of scalable bioeconomy solutions, including biomethane.

Within this context, the BCC project acts as a practical delivery mechanism, advancing biomethane development through feasibility assessment, stakeholder engagement, and capacity building. It supports the mobilisation of local feedstocks, promotes collaborative approaches with farmers and communities, and explores viable business and delivery models.

By aligning global ambition with regional delivery, the BCC project demonstrates how biomethane can contribute to climate targets while supporting rural regeneration. It provides a replicable model for other regions, positioning Tipperary as a leader in the transition to a low-carbon, circular bioeconomy.

Acknowledgment

We would like to express our gratitude to everyone who contributed to the finalisation of these 'Planning, Permitting and Policy Guidelines' for Biomethane as part of the Biomethane for Carbon and Community (BCC) project. This document showcases the collaborative efforts of all stakeholders dedicated to achieving the objectives of the Biomethane Development Office..

We would like to express our gratitude to the Government of Ireland and the European Union (EU) for their support, particularly through the EU Just Transition Fund (JTF), which has funded the BCC project. We also thank the Eastern and Midland Regional Assembly and Pobal for their strategic guidance in achieving our objectives and ensuring effective reporting for the BCC project.

We would like to express our gratitude to the Advisory Board Members, whose strategic oversight and expertise have been crucial to the success of the BCC project. The members of the board include.

- Matthew Halpin, Assistant Agricultural Inspector at Department of Agriculture, Food and the Marine (DAFM);
- Sean Finan, CEO of Irish BioEnergy Association (IrBEA);
- John Brosnan, Bioeconomy Executive at Irish Co-operative Organisation Society (ICOS);
- Anne Marie Henihan, Centre Director at Dairy Processing Technology Centre (DPTC);
- James Claffey, Deputy CEO at Irish Rural Link (IRL);
- Barry Caslin, Energy & Rural Development Specialist at Teagasc.

We recognize and appreciate the significant contributions of the BCC project partners—Tipperary County Council (Michael Moroney, Clare Lee, Elaine Cullinan, and the entire TCC team), the Technological University of the Shannon (Seamus Hoyne, Mercedes Alonso-Gomez, Deirbhile Tuohy and Yvonne Doyle and the entire Sustainable Development Research Institute SDRI team), the Irish Bioeconomy Foundation (Stephen Napier, , Gearoid McDermott, Sean O'Grady and the entire IBF team) and the Tipperary Energy Agency (Lisa Vaughan, Mary Buckley and the entire TEA team)— whose expertise, insights and commitment to innovation have been essential to our success. The collaborative efforts of local communities, farming stakeholders and industry representatives have also played a crucial role in shaping a project that is inclusive, impactful and of great significance to the region.

We proudly extend our sincere appreciation to the dedicated team members of the BDO for their commitment to advancing the objectives of the BCC project. Your outstanding efforts in preparing this report are crucial to our success. Together, we are confidently paving the way for a sustainable and resilient future.

“Sustainability is not only about cutting emissions and adapting to change, it’s also about building places that are pleasant to live in.”

Ursula von der Leyen,

President of the European Commission

Speaking at the EU Covenant of Mayors Ceremony 2025

Executive Summary

Each of the 31 local authorities in Ireland is statutorily required to designate at least one Decarbonizing Zone within its functional area. The Tipperary Decarbonising Zone (DZ) is the only inland rural DZ in the country, providing a rural testbed for climate action and direction of travel towards a low-carbon, climate-resilient future. Located entirely within the EU Just Transition Fund territory, the DZ provides a structured and coordinated place-based approach to translating national, European and global climate ambitions into locally deliverable actions.

The Tipperary DZ strategically integrates a unique combination of related assets including: the National Bioeconomy Campus at Lisheen, , former industrial peatlands, a strong agricultural and forestry base, and a network of local communities. This creates significant opportunities to support communities to transition from a legacy of peat extraction towards a circular bioeconomy based, low-carbon, sustainable future.

The DZ adopts a place-based and community-centred approach, recognising that climate action must address local challenges and advance available opportunities. Central to this approach is the alignment of policy, governance, stakeholder and community participation, and innovation, ensuring that climate action delivers not only emissions reductions also wider economic, social, and environmental co-benefits.

Key pillars include:

- Renewable energy development, including solar PV, community energy, and biomethane.
- Peatland restoration and nature-based solutions, delivering carbon sequestration and biodiversity enhancement.
- Energy efficiency and building retrofits, improving sustainability and enjoyment of the built environment.
- Sustainable transport and mobility, providing low-carbon options to rural communities.
- Community-led climate action, enabling local ownership, resilience capacity building.

Significant progress has been achieved to date, including the establishment of local governance structures, delivery of stakeholder and community engagement initiatives, development of the National Bioeconomy Campus, and advancement of biomethane feasibility through the Biomethane for Carbon and Community (BCC) project.

Key learnings from the DZ highlight the importance of place-based approaches, strong community engagement, clear policy alignment, and effective multi-level governance. Importantly, the experience demonstrates that empowered communities have a significant role to play in delivering climate action at scale, towards achieving Net-Zero goals.

Looking ahead, the Tipperary DZ is ready transition from pilot and planning phases to scaled delivery and investment, focusing on expanding renewable energy projects, developing low-carbon village models, advancing biomethane development, and leveraging national and EU funding streams.

Critically, it demonstrates how a place-based, community-centred approach is necessary to deliver a just transition in a rural context, offering a replicable model for rural decarbonisation across Tipperary and the wider EU Just Transition Fund territory.

Contents

1. Context

1.1 Tipperary Decarbonising Zone

A Decarbonising Zone (DZ) is a spatially defined area, within which a range of climate mitigation, adaptation, and biodiversity measures can be implemented to reduce greenhouse gas emissions and support a just transition toward a low carbon, sustainable future.

Under the National Climate Action Plan (2019) and the Climate Action and Low Carbon Development (Amendment) Act 2021, Local Authorities (LAs) are mandated to identify at least one Decarbonising Zone (DZ) within their administrative areas. The Tipperary County Development Plan 2022 - 2028 incorporated the area surrounding the National Bioeconomy Campus (NBC), as the Decarbonising Zone for county Tipperary.

The Tipperary Decarbonising Zone is outlined in Chapter 6 of Tipperary County Council's Climate Action Plan 2024–2029 (LACAP). This includes a suite of 'Actions' to be delivered by relevant TCC Business Units, alongside a range of 'Opportunities' for collaboration with external stakeholders and communities, all aimed at supporting the transition to a low-carbon, sustainable future for communities and enterprises within the DZ.

In practice, a DZ serves as a testbed and demonstration area for climate innovation, aligning with national and EU climate policy and decarbonising targets towards Net-Zero by 2050. This approach presents opportunities for local authorities, communities, and businesses to work together to deliver projects like solar PV installations, buildings retrofitting programs, community led energy generation (including biomethane), biodiversity corridors, nature-based solutions, village renewal and 'place-making'.

By concentrating planning, resources and funding into a specific geographical area, LAs can develop best practice solutions, identify suitable funding, and build strong community engagement for both local decarbonising and broader climate action. DZs are non-statutory but strongly linked to local development plans and funding streams such as the Town Centre First policy, RRDF, and EU Just Transition Fund.

The Vision for the Tipperary DZ sets an ambitious goal to be achieved through collaboration and effort by local communities, service providers and TCC service delivery, all working together for common objectives.

Tipperary DZ Vision

> *A place where active, climate-resilient communities thrive in a biodiversity-rich landscape. Where sustainable agricultural practices and investment in the National Bioeconomy Campus*

support local jobs. Where communities work in partnership with Tipperary County Council service and other providers to create low-carbon, sustainable and vibrant places to live.

The Biomethane for Carbon and Community (BCC) project has supported the advancement of the Decarbonising Zone (DZ) vision and associated actions through strong alignment between the project's objectives and the Tipperary DZ vision. This alignment is reflected in BCC Project Aim 6, which seeks to:

Identify how the BCC proposal can support the DZ concept thereby reducing Green House Gas emissions in the area, and support land use diversification, carbon capture and biodiversity.

A significant impact of the BCC project has been the collaborative efforts of its project partners: Tipperary County Council (TCC), Technological University of the Shannon (TUS), the Irish Bioeconomy Foundation (IBF), and the Tipperary Energy Agency (TEA). This partnership has supported the development of expertise and capacity within the BCC project team, providing a strong foundation to advance the implementation of the National Biomethane Strategy in Tipperary and the wider region, including the EU JTF Territory.

1.2 Characteristics of the Tipperary DZ

The Tipperary DZ is the only inland rural DZ in Ireland, covering an area of 313 km² across 14 Electoral Divisions, with a population of approximately 7,100 people. Strategically anchored around the former Lisheen mine, now home to the National Bioeconomy Campus, the DZ also includes extensive former Bord na Móna industrial peatlands, all located within a rich agricultural and forestry hinterland.

The DZ includes twelve villages: Two Mile Borris, Littleton, Gortnahoo, Templetouhy, Ballynonty, Horse & Jockey, Moyne, Loughmore-Castleleiny, Glengoole (New Birmingham), Ballysloe, Ballinure, and Grange.

These unique characteristics position the Tipperary DZ as a distinctive inland, rural testbed and demonstrator for Ireland's just transition to a low-carbon future, offering opportunities for innovation in renewable energy, bioeconomy development, community-led decarbonisation, and sustainable employment.

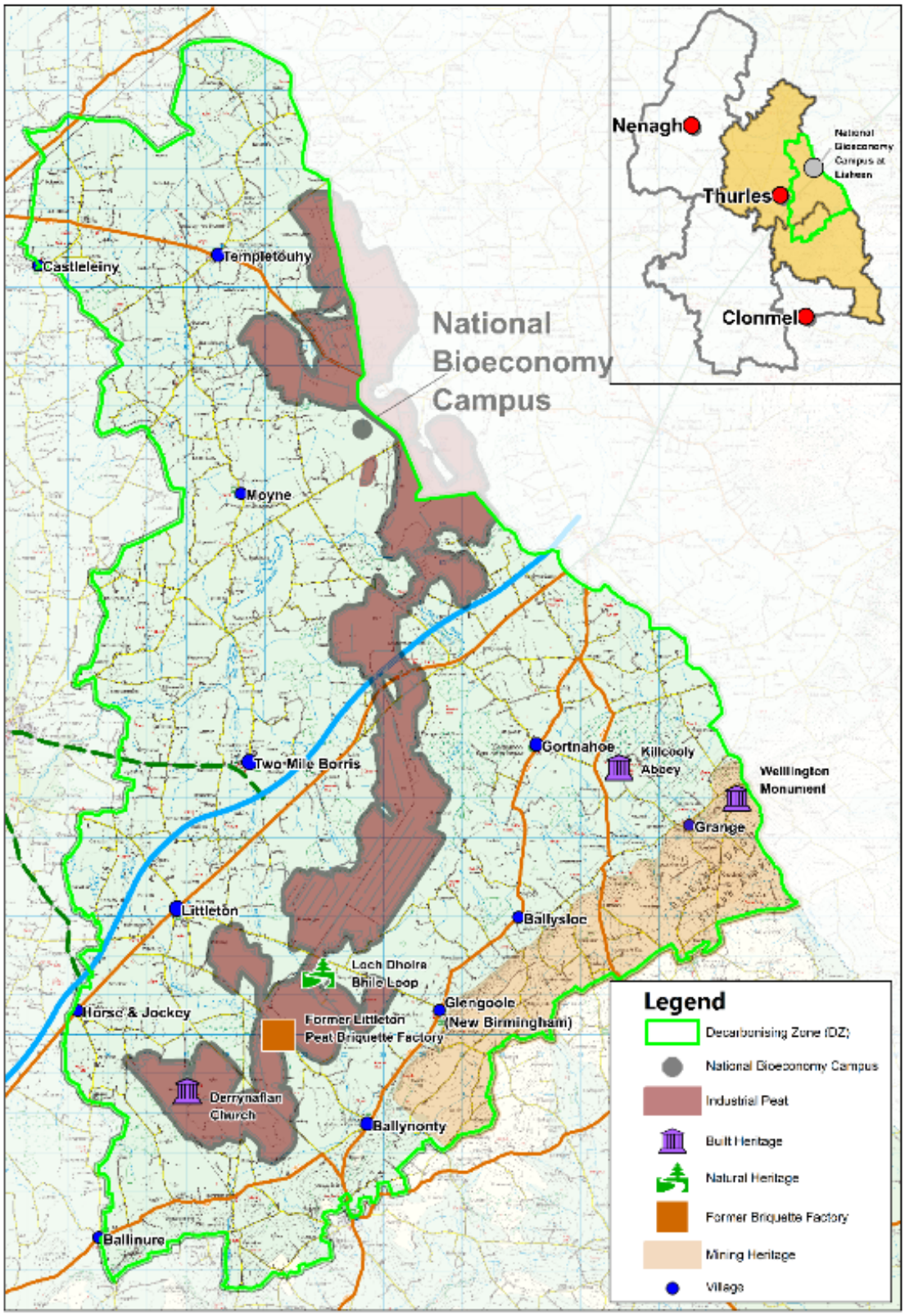


Figure 1 Map of Tipperary DZ

1.3 Local Area Profile and Baseline Emissions Inventory

A Baseline Emissions Inventory (BEI) for the DZ was prepared by KPMG in 2023. This supports the TCC Climate Action Plan 2024–2029, identifying sectoral emissions and highlighting priority areas for intervention.

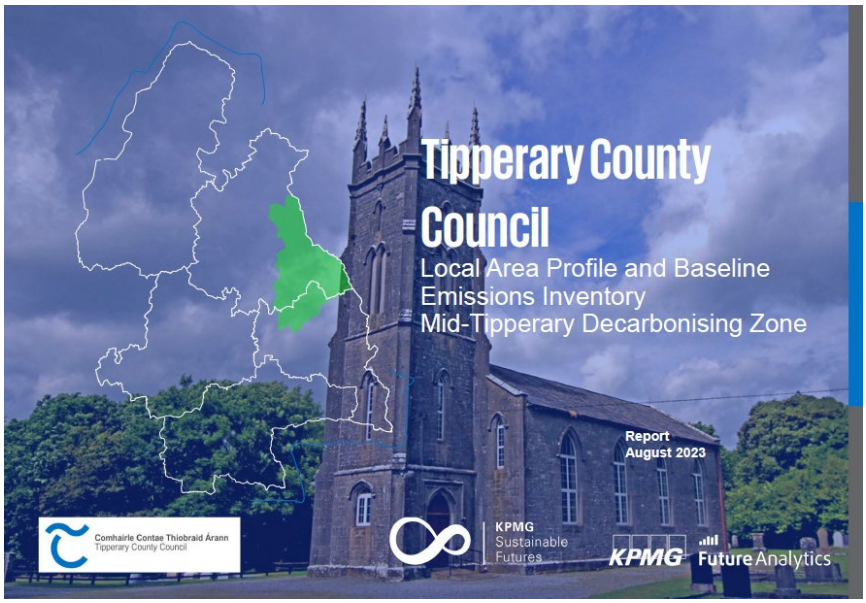
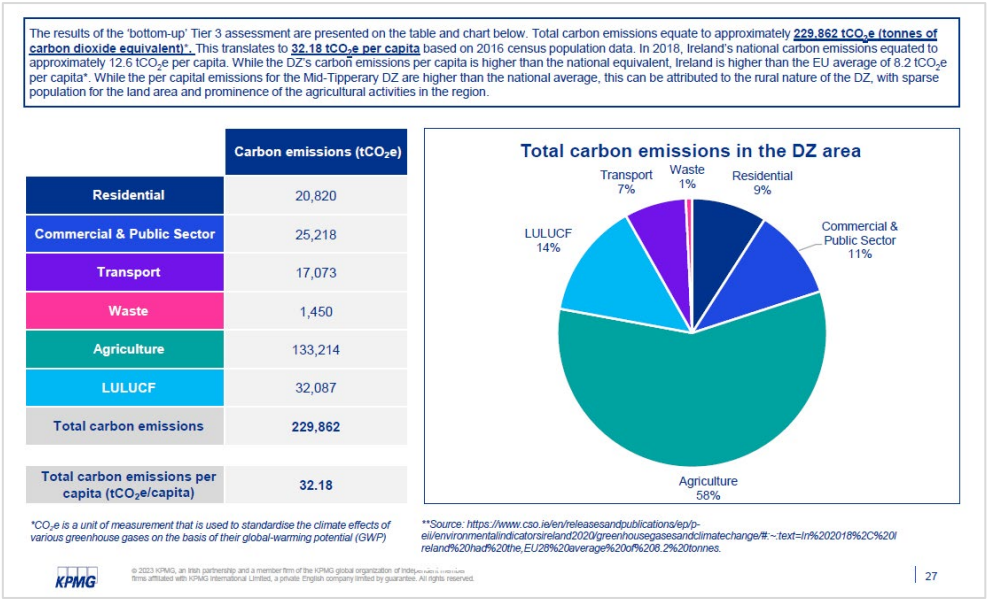


Figure 2 Cover of BEI Report



The results of the 'bottom-up' Tier 3 assessment are presented on the table and chart below. Total carbon emissions equate to approximately **229,862 tCO_2e (tonnes of carbon dioxide equivalent)***. This translates to **32.18 tCO_2e per capita** based on 2016 census population data. In 2018, Ireland's national carbon emissions equated to approximately 12.6 tCO_2e per capita. While the DZ's carbon emissions per capita is higher than the national equivalent, Ireland is higher than the EU average of 8.2 tCO_2e per capita*. While the per capital emissions for the Mid-Tipperary DZ are higher than the national average, this can be attributed to the rural nature of the DZ, with sparse population for the land area and prominence of the agricultural activities in the region.

	Carbon emissions (tCO_2e)
Residential	20,820
Commercial & Public Sector	25,218
Transport	17,073
Waste	1,450
Agriculture	133,214
LULUCF	32,087
Total carbon emissions	229,862
Total carbon emissions per capita (tCO_2e/capita)	32.18

*CO_2e is a unit of measurement that is used to standardise the climate effects of various greenhouse gases on the basis of their global-warming potential (GWP)

**Source: https://www.cso.ie/en/releasesandpublications/ep/p-eii/environmentalindicatorsireland2020/greenhousegasesandclimatechange/#:~:text=In%202018%2C%20Ireland%20had%20the,EU28%20average%20of%206.2%20tonnes.

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Figure 4 Extract from the BEI showing emissions per sector in the DZ

1.4 Summary of the Tipperary Decarbonising Zone

Key Features of the Tipperary DZ

- **Strategic Location and Innovation Hub**
  The DZ encompasses the National Bioeconomy Campus at Lisheen, a nationally significant hub for bioeconomy innovation, research, and renewable energy development.
- **Just Transition Context**
  The entire area lies within the European Union Just Transition Fund territory, providing targeted opportunities to support communities impacted by the transition away from peat extraction and mining, and to enable new sustainable employment pathways.
- **Peatland Restoration and Natural Assets**
  Extensive cutaway peatlands, currently undergoing rehabilitation by Bord na Móna, offer significant potential for carbon sequestration, biodiversity enhancement, nature-based solutions, and sustainable tourism.
- **Strong Agri-Forestry Base**
  A well-established farming and forestry sector provides a foundation for biomethane production, bioeconomy development, and agricultural diversification at both local and regional levels.
- **Integrated Climate Action Testbed**
  The DZ functions as a testbed for both climate mitigation and adaptation, supporting initiatives such as deep retrofit programmes, renewable energy deployment (including solar PV and community energy), active travel, village renewal and regeneration, and nature-based solutions.
- **Established Community and Stakeholder Networks**
  Existing support structures, including SustainableTipp, the Public Participation Network (PPN), and the Local Community Development Committee (LCDC), provide strong foundations for community engagement, participation, and delivery of integrated climate action.

Objectives for the Decarbonising Zone

- **Emissions Reduction**
  Reduce greenhouse gas emissions in line with national targets, including a 51% reduction by 2030 and climate neutrality by 2050.
- **Clean Energy Adoption**
  Scope, promote, and enable businesses and communities to adopt renewable energy solutions such as solar PV, and community-scale anaerobic digestion (AD), where appropriate.
- **Low-Carbon Rural Development**
  Support economic diversification and job creation through bioeconomy-led decarbonisation, including the development of a sustainable biomethane sector.

- **Placemaking and Village Regeneration**
  Enhance village vitality through regeneration, addressing vacancy and dereliction, and integrating clean energy and nature-based solutions into the built environment. Making rural villages attractive, vibrant and healthy places to live and visit.
- **Sustainable Mobility**
  Promote active travel and low-carbon transport solutions to improve connectivity and reduce emissions.
- **Nature-Based Solutions and Biodiversity enhancement**
  Deliver ecosystem restoration and strengthen biodiversity corridors through integrated land management approaches.
- **Environmental Quality**
  Ensure clean air, protected water resources, and a healthy natural environment across the DZ.
- **Land Use Transformation**
  Support peatland restoration and sustainable land use practices to enhance carbon sequestration, biodiversity and tourism outcomes.
- **Buildings Energy Efficiency**
  Improve energy performance of buildings through retrofitting and low-carbon heating solutions.
- **Community-Led Action and Funding Alignment**
  Enable and support community-led projects, leveraging funding streams such as the Community Climate Action Fund, Rural Regeneration and Development Fund (RRDF), LEADER, LAWPRO Nature-Based Solutions, and the EU Just Transition Fund.

2. Policy and Governance Framework

The Tipperary Decarbonising Zone is guided by a National, Regional and Local Policy and Governance Framework, ensuring alignment with climate targets and strategic priorities.

The Government of Ireland has mandated national targets for greenhouse gas (GHG) reduction by 51% 2030 and climate neutrality by 2050 (relative to the baseline year 2018). Key to achieving this will be Local Authority leadership, sectoral innovation, and community-led actions. The Tipperary DZ is an ideal testbed for supporting a just transition towards a low carbon, sustainable future through piloting integrated climate mitigation, adaptation, and biodiversity actions that can be replicated across county Tipperary, the wider region, and elsewhere nationally.

2.1 Policy

Ireland's national climate policy framework is anchored in the Climate Action and Low Carbon Development (Amendment) Act 2021, supported by successive National Climate Action Plans (most recently 2025). The Act also requires the preparation of a National Adaptation Framework and sectoral adaptation plans, ensuring that adaptation and mitigation measures operate together to strengthen national climate resilience.

While the Act mandates each local authority to prepare a statutory Local Authority Climate Action Plan (LACAP), it is the statutory LACAP Guidelines that require every local authority to designate and implement at least one Decarbonising Zone (DZ).

2.1.1 Technical Guidance

Technical Annex D of the Local Authority Climate Action Plan Guidelines entitled Decarbonising Zones provides technical guidance and support to local authorities in the development of their decarbonising zone (DZ). It sets out five key stages to the development of a DZ.

Step	Stage	Key Activities
1	Identify	Identify and define the Decarbonising Zone area Identify a clear overarching Vision and Objectives
2	Baseline & Scoping	Establish the Baseline Emissions Inventory Explore policy context and alignment Identify and map stakeholders
3	Register of Opportunities	Compile a portfolio of actions, projects, technologies and interventions
4	Action	Set out actions to be delivered over the lifetime of the plan
5	Implement	Devise a strategy for implementation

Figure 4 Five Key Stages for the development of a DZ

2.1.2 Programme for Government 2025: Role of DZs

The 2025 Programme for Government (PfG) confirms DZs as flagship, community-driven testbeds, empowering local authorities to take risks and innovate in pursuit of climate neutrality, while ensuring no community is left behind in a just transition. The PfG emphasises a whole of government approach and inter-agency DZ Advisory Group assistance to local authorities, with 41 DZs now designated (29 urban, 6 part urban, 6 rural).

2.2. Governance

2.2.1 Department of Climate, Energy and the Environment

The Department of Climate, Energy and the Environment (DCEE) established a National Decarbonising Zones Strategy Group, bringing together expertise from national bodies and local government. Membership includes DCEE officials, the Sustainable Energy Authority of Ireland (SEAI), the Eastern and Midland Regional Assembly, the County and City Management Association, the Local Government Management Agency, the Office of the Planning Regulator, and Climate Action Regional Offices. The group was formed to support the implementation of Decarbonising Zones (DZs).

This interdepartmental group plays a central role in advancing Ireland's decarbonisation ambitions across all 31 local authorities. It builds on the Local Authority Climate Action Plans (LACAPs), which identified Decarbonising Zones and developed a 'register of opportunities' as a portfolio and pipeline of interventions, projects, and actions. These include mitigation, adaptation, and biodiversity measures designed to achieve energy efficiency improvements and emissions reduction targets.

2.2.2 Climate Action Regional Office (CARO)

The Climate Action Regional Office (CARO) coordinates and supports local authorities in delivering transformative change and measurable climate action. Tipperary is part of the Eastern and Midland CARO region, which comprises 17 counties facing shared challenges in both mitigating and adapting to the impacts of climate change. CARO also plays a key role in coordinating and supporting the delivery of Decarbonising Zones (DZs) by local authorities.

2.2.3 Tipperary County Council Structures

<u>Climate Action Steering Group</u>

The Climate Action Steering Group is chaired by the Chief Executive and comprises members of the Senior Management Team. The CASG provides strategic guidance and oversight to the Climate Action Office.

<u>Climate Action Team</u>

The TCC Climate Action Team comprises of senior staff from all service areas, who act as champions for climate change in their own service areas, and to deliver and report on the actions of the LACAP, including the DZ.

Climate Action Office

The Tipperary County Council Climate Action Office (CAO) was established in spring 2023 with the support of funding from the Department of Climate, Energy and the Environment. The core roles in the TCC CAO are:

1. Climate Action Coordinator

2. Climate Action Officer

3. Community Climate Action Programme Officer

4. Stakeholder and Community Participation Officer for the DZ

5. Climate Action Assistant (National Graduate Programme)

6. Pathfinder South East Regional Energy Manager

Decarbonising Zone Working Group

Internal stakeholders are engaged through the Decarbonising Zone Working Group. This forum brings together management and staff working directly connected with delivery of the 37 DZ Actions set out in the Climate Action Plan.

Stakeholder and Community Participation Officer, DZ

An integral as part of the Climate Action Office, the Stakeholder and Community Participation Officer is driving implementation of the DZ actions and opportunities.

3. Place-Based Approach

The Tipperary Decarbonising Zone (DZ) is grounded in a place-based approach, which integrates environmental, economic, and social objectives to deliver sustainable, locally relevant climate action. This approach recognises that effective decarbonisation must be rooted in the distinct characteristics, assets, and opportunities of the area.

Key elements shaping this approach include:

- Extensive rehabilitated peatlands, offering significant potential for carbon sequestration, biodiversity restoration, and nature-based solutions
- A strong agricultural and forestry hinterland, supporting sustainable land use, bioeconomy development, and renewable energy production
- A network of rural communities and villages, providing a foundation for community-led climate action and local innovation
- Strategic infrastructure at the National Bioeconomy Campus, acting as a hub for research, development, and commercialisation of low-carbon technologies

By leveraging these place-specific assets, the DZ enables the delivery of integrated and locally tailored outcomes, including:

- Reduction of greenhouse gas emissions across key sectors such as agriculture, energy, transport, buildings, and waste.
- Enhancement of biodiversity and ecosystem services, supporting a more resilient natural environment
- Rural economic diversification and job creation, particularly through the development of the bioeconomy and renewable energy sectors
- Improved quality of life and community wellbeing, through sustainable living environments, placemaking, and enhanced local services

This place-based approach ensures that climate action in the Tipperary DZ is not only effective in reducing emissions but also delivers broader social, economic, and environmental co-benefits, supporting a just and inclusive transition to a low-carbon future.

4. Tipperary DZ Strategic Pillars

The Tipperary Decarbonising Zone (DZ) is structured around a set of interconnected strategic pillars that collectively support the transition to a low-carbon, climate-resilient rural economy. These pillars reflect an integrated, place-based approach, linking innovation, community participation, land use, and infrastructure to deliver measurable climate and socio-economic outcomes.

4.1 Bioeconomy and Innovation

The National Bioeconomy Campus at Lisheen serves as a cornerstone of the DZ, providing a dedicated hub for research, innovation, and commercialisation. The campus supports the development of renewable energy, biomaterials, and bio-based industries, enabling the transition towards a circular, low-carbon economy.

By fostering collaboration between academia, industry, and public sector partners, the campus plays a critical role in advancing new technologies, supporting enterprise development, and enabling the scaling of sustainable bioeconomy solutions.

Case Study: National Bioeconomy Campus, Lisheen
The transformation of the former Lisheen mine into the National Bioeconomy Campus represents a flagship example of **just transition in practice**. The campus now hosts research facilities, pilot plants, and the Biomethane Development Office, supporting innovation in bio-based industries, renewable energy, and circular economy systems. It has become a focal point for investment, skills development, and rural enterprise in the DZ.

4.2 Community-Led Climate Action

Community engagement and participation are central to the DZ approach, ensuring that climate action is **locally driven, inclusive, and responsive to community needs**.

Key initiatives include:

- Sustainable Energy Communities (SECs)
- Community energy projects (e.g. Solar Meitheal)
- Village networks and local development plans

This approach strengthens local ownership, builds capacity, and supports long-term behavioural change, which are essential for delivering a just transition.

Case Study: Solar Meitheal Community Energy Initiative
The Solar Meitheal approach brings households and communities together to collectively install solar PV systems, reducing costs and enabling shared learning. Emerging within DZ communities

following engagement events such as *Powering Our Communities*, this model demonstrates how **collaborative, bottom-up action** can accelerate renewable energy adoption while building local capability and confidence.

4.3 Nature-Based Solutions and Land Use

The DZ promotes a landscape-scale approach to climate action, integrating nature-based solutions that deliver both mitigation and adaptation benefits.

Key interventions include:

- Peatland restoration and carbon sequestration
- Biodiversity corridors and habitat enhancement
- Flood management and water quality improvement

These actions contribute to a **regenerative land use model**, enhancing ecosystem resilience while supporting sustainable rural livelihoods.

Case Study: Peatland Rehabilitation and Littleton Bog Area
Extensive cutover peatlands within the DZ are undergoing rehabilitation by Bord na Móna, transforming degraded landscapes into carbon sinks and biodiversity-rich habitats. Initiatives such as the **Littleton Labyrinth** combine peatland restoration with heritage and recreational tourism, illustrating how nature-based solutions can deliver **climate, ecological, and community benefits simultaneously**.

4.4 Sustainable Mobility and Placemaking

The DZ supports the development of **low-carbon, liveable rural places**, integrating sustainable mobility with placemaking and village regeneration.

Key measures include:

- Active travel infrastructure and mobility hubs
- Electric vehicle (EV) infrastructure
- Village regeneration and public realm improvements

This pillar emphasises the importance of designing places that reduce emissions while improving quality of life and local vitality.

Case Study: Littleton Low-Carbon Village Concept
The proposed Low-Carbon Village model in Littleton demonstrates how climate action can be integrated at settlement level. The concept includes energy retrofitting, renewable energy,

sustainable mobility, and public realm improvements, aligned with local development planning. It provides a **replicable template** for other rural villages transitioning to a low-carbon future.

4.5 Biomethane

4.5.1 Biomethane for Carbon and Community (BCC) project

The Biomethane for Carbon and Community (BCC) project was funded under the EU Just Transition Fund as a strategic research and capacity-building initiative led by Tipperary County Council (TCC) in partnership with the Technological University of the Shannon (TUS), the Irish Bioeconomy Foundation (IBF) and the Tipperary Energy Agency (TEA). The project sought to position Tipperary and its hinterland as a driver of a sustainable biomethane sector at both local and regional levels, leveraging the National Bioeconomy Campus at Lisheen, located within the Tipperary Decarbonising Zone.

The BCC project team comprised seven staff across the project partner organisations, working from a newly established Biomethane Development Office (BDO) within the National Bioeconomy Campus at Lisheen. The team engaged key stakeholders across government and State agencies, local authorities, agriculture, industry, business, academia, media and local communities to scope and understand the knowledge, capacity and enabling infrastructure for biomethane production in County Tipperary and the wider region.

A key focus of the BCC project was to enable the Tipperary Decarbonising Zone, the Just Transition Fund (JTF) territory and the wider region to effectively respond to emerging national policy and support mechanisms for biomethane development in Ireland. This approach can ensure local communities are placed at the forefront of biomethane development, delivering economic benefits through new income streams and local job creation and reduced reliance on fossil fuels, while helping to enable the future investment required to drive the renewable energy sector in Tipperary Decarbonising Zone.

Key aims of the BCC project include:

1. Carry out a feasibility study for biomethane development in Tipperary (including DZ).
2. Deliver a communications campaign, including project promotion, outreach and capacity building at community level.
3. Stakeholder engagement networking and collaboration with key actors involved in biomethane development in Ireland.
4. Consider community cooperative models for biomethane development in Tipperary, including the DZ.
5. Promote Lisheen as a centre of excellence for biomethane development.
6. Support the Tipperary Decarbonising Zone (DZ) objective for reducing GHGs emissions.
7. Facilitate investment in a biomethane processing facility in Lisheen.
8. Set-out a planning, licensing, and construction timeline for the Facility.
9. Consider and scope synergies between the bioeconomy and biomethane sectors

5. Biomethane Policy Context

5.1 The National Biomethane Strategy – Engagement and Delivery Requirements

The National Biomethane Strategy published in May 2024 was co-developed by the Department of Agriculture, Food and the Marine (DAFM) and the Department for Environment, Climate and Communications (DECC).

The primary objective of the National Biomethane Strategy is to deliver on the ambitious target set by the Government to scale up indigenously produced biomethane by up to 5.7 TWh per annum by 2030.

> ***Mission**: The National Biomethane Strategy will be agri-led and farmer-centric with a focus on the supply of suitable feedstocks, including animal slurries. It will align with the national biodiversity action plan, nitrates action plan, and contribute to the restoration of Ireland's biodiversity. It will align with the circular bioeconomy development contributing positively to both the sectoral emissions ceiling for agriculture, as well as to the decarbonisation of Ireland's energy mix.*
>
> ***Vision**: By 2030, Ireland will have developed a sustainable biomethane industry of scale, meeting ambitious production targets set by the Government.*
>
> ***Values:** Sustainability, Biodiversity, Diversification, Decarbonisation, Energy Security, Circular Economy and Bioeconomy.*

National Biomethane Strategy Implementation

Key Pillars for Delivery

1. Infrastructure Development: Approximately 140–250 anaerobic digestion (AD) plants nationwide.
2. Stakeholder and Community Engagement: Sectoral – Industry, Business, Local Authority, Farmer Organisations, farmers, local communities.
3. Communications, Messaging and Awareness Raising: National Communications Strategy and Plan, and Online Information Hub delivering trusted information and resources for stakeholders and communities.
4. Governance: Biomethane Implementation Group reporting to Heat and Built Environment Taskforce.

5.2 Biomethane Environmental Sustainability Charter

The Biomethane Environmental Sustainability Charter provides a national framework to ensure that Ireland's biomethane sector is developed in a high-integrity, environmentally sustainable and socially responsible manner while supporting delivery of the Government's target of up to 5.7 TWh of indigenous biomethane by 2030.

Developed under the National Biomethane Strategy and applying to all biomethane projects receiving public support, the Charter builds on existing regulatory requirements and the EU Renewable Energy Directive sustainability criteria, while setting out best practice standards to avoid unintended environmental and social impacts. It is structured around four core principles.

Biomethane Environmental Sustainability Charter

Core Principles

- **Digestate Management**: Safe storage, nutrient testing, compliance with Nitrates Directive.
- **Sustainable Feedstock Production**: Avoid biodiversity-sensitive areas, minimize chemical inputs.
- **Plant Design and Operation**: Methane leakage mitigation, odour and noise mitigation, energy efficiency measures.
- **Community Engagement**: Early consultation, Community Engagement Plans, Liaison Officers, sustained communications.

6. Community and Stakeholder Engagement

Meaningful and sustained community and stakeholder engagement is a core pillar of the Tipperary Decarbonising Zone (DZ) approach. Recognising that successful climate action depends on public trust, participation, and local ownership, the DZ places strong emphasis on inclusive, transparent, and ongoing engagement processes.

6.1 Key Principles

Engagement activities within the DZ are guided by a set of core principles:

- **Early and continuous engagement**
  Ensuring stakeholders and communities are involved from the outset and throughout project development
- **Transparency and trust-building**
  Providing clear, accessible information on objectives, impacts, and opportunities
- **Two-way dialogue and co-production**
  Enabling communities to shape projects and inform decision-making processes
- **Alignment with local needs and priorities**
  Ensuring initiatives are grounded in the social, economic, and environmental context of each community

These principles support the development of long-term relationships between stakeholders, communities, and delivery partners, which are essential for achieving a just transition.

6.2 Engagement Outcomes

Engagement activities to date have delivered a range of positive outcomes:

- **Increased awareness and capacity** among stakeholders, particularly in relation to renewable energy, biomethane, and climate action opportunities
- **Strengthened social acceptance** for projects through early engagement, transparency, and clear communication of local benefits
- **Development of tailored, policy-aligned messaging**, informed by stakeholder feedback and aligned with national strategies
- **Identification of key barriers, risks, and opportunities**, including challenges related to policy clarity, public perception, and project delivery

A structured stakeholder mapping process identified over 100 stakeholders across agriculture, industry, communities, public bodies, and academia, enabling targeted engagement and more effective communication strategies.

Case Study: Powering Our Communities

The “Powering Our Communities” initiative, brought together local residents, community groups, Tipperary County Council, and key organisations such as the Sustainable Energy Authority of Ireland (SEAI), Tipperary Energy Agency, and EcoVision.

The events provided:

- Practical information on renewable energy technologies and supports
- Direct access to expert advice and funding pathways
- Opportunities for communities to explore options for local energy projects and collaboration.

The event demonstrated how accessible, place-based engagement can build confidence, enable informed decision-making, and activate community-led action, with several communities progressing discussions on solar energy and participation in the SEAI Sustainable Energy Communities (SECs) programme.

7. Progress to Date

The Tipperary Decarbonising Zone (DZ) has made significant progress in establishing the foundations required to deliver a coordinated, place-based transition to a low-carbon future. This progress reflects strong alignment between policy, governance, stakeholder engagement, and project development.

Key achievements to date include:

- **Policy Alignment and Strategic Integration**
  Alignment of DZ actions with national, regional, and local policy and governance frameworks, ensuring coherence with Ireland's Climate Action Plan, EU directives, and local development strategies
- **Establishment of Governance and Delivery Structures**
  Development of robust governance arrangements, including dedicated working groups and stakeholder platforms, enabling coordinated and cross-sectoral delivery
- **Development of the National Bioeconomy Campus**
  Advancement of the National Bioeconomy Campus at Lisheen as a strategic anchor for innovation, research, and enterprise development within the DZ
- **Community Engagement and Capacity Building**
  Delivery of targeted engagement programmes, public events, and awareness campaigns, strengthening local participation and building capacity for community-led climate action
- **Biomethane Development and Sectoral Innovation**
  Progression of biomethane feasibility, stakeholder engagement, and capacity-building initiatives through the Biomethane for Carbon and Community (BCC) project
- **Digital Tools and Data-Driven Planning**
  Development of digital tools, including GIS mapping platforms, to support evidence-based planning, project identification, and decision-making

Collectively, these achievements demonstrate that the Tipperary DZ has evolved into a "ready-to-deliver" platform for climate action and investment, with a strong pipeline of initiatives and a well-established foundation for the next phase of implementation and scaling.

Case Study: Littleton Low-Carbon Village Initiative

The village of Littleton provides a practical example of how the Decarbonising Zone approach is being translated into place-based, community-led climate action at local level.

Through ongoing engagement with residents, community groups, and service providers, Littleton has emerged as a focus for the development of a Low-Carbon Village model. This approach brings together multiple strands of climate action into a coordinated plan at settlement scale, including:

- **Energy efficiency and retrofitting**, improving the performance of homes and community buildings
- **Renewable energy adoption**, including solar PV and potential participation in initiatives such as Solar Meitheal
- **Sustainable mobility measures**, improving connectivity and encouraging active travel
- **Placemaking and village regeneration**, enhancing the public realm and supporting local economic activity

Engagement initiatives, including public events such as *Powering Our Communities*, have helped build awareness, identify local priorities, and strengthen community capacity to participate in climate action. The process has also enabled collaboration between local stakeholders and organisations such as SEAI, Tipperary Energy Agency, and community groups.

The Littleton initiative demonstrates how integrated, place-based planning at village level can deliver tangible climate, social, and economic benefits, while providing a replicable model for other communities within the DZ and beyond.

8. Key Learnings

The Tipperary Decarbonising Zone (DZ) has generated valuable insights into the delivery of rural decarbonisation and the practical implementation of a just transition at local level. These learnings provide important guidance for both ongoing delivery within the DZ and broader replication across Ireland.

Key lessons include:

- Place-Based Approaches are Essential
  Successful climate action must be grounded in the specific characteristics, assets, and challenges of each location. A place-based approach enables stronger alignment between policy objectives and local realities, improving effectiveness and ensuring relevance to local communities.
- Communities are Key Drivers of Local Climate Action
  Empowered and engaged communities play a critical role in delivering climate action at local scale. When supported through appropriate structures, capacity building, and access to resources, communities can act as active partners in the design and implementation of solutions, driving innovation, ownership, and long-term behavioural change.
- Community Engagement is a Critical Enabler
  Early, sustained, and meaningful engagement is fundamental to building trust, supporting informed decision-making, and enabling participation. Social acceptance is essential for the successful delivery of climate initiatives, particularly in areas such as renewable energy.
- Clear and Coordinated National Messaging is Needed
  Consistent, accessible, and well-coordinated national communication is required to support local implementation. Clarity on policy direction, supports, and delivery pathways is critical for building confidence among stakeholders and communities.
- Effective Multi-Level Governance is Key
  Strong coordination between national, regional, and local levels is essential to ensure alignment, reduce duplication, and support efficient delivery. Clear roles and responsibilities across governance structures enhance effectiveness and accountability.
- Pilot Projects Drive Learning but Require Scaling Pathways
  Pilot initiatives, such as those within the DZ, provide valuable practical insights and innovation opportunities. However, mechanisms are needed to support the scaling and replication of successful models to achieve wider national impact.

9 Priority Actions

The following priority actions will guide the next stage of development:

- **Scaling Community Energy and Renewable Projects**
  Expanding the delivery of community-led and commercial renewable energy initiatives, including solar PV, energy communities, and innovative local energy models
- **Advancing Biomethane Infrastructure and Supply Chains**
  Supporting the development of biomethane projects from feasibility to investment-ready stage, including feedstock mobilisation, processing infrastructure, and end-use markets
- **Developing Low-Carbon Village Models**
  Implementing integrated, place-based approaches at settlement level, combining energy efficiency, renewable energy, mobility, and placemaking to create replicable low-carbon village templates
- **Strengthening Governance and Coordination Mechanisms**
  Enhancing multi-level governance structures and cross-sectoral collaboration to support efficient delivery, alignment, and scaling of initiatives
- **Leveraging Funding and Investment Opportunities**
  Maximising the use of funding streams such as the EU Just Transition Fund (JTF), Rural Regeneration and Development Fund (RRDF), SEAI programmes, and other national and EU supports to enable project delivery and attract further investment

9.1 Strategic Role of the Decarbonising Zone

As it progresses, the Tipperary DZ will continue to play a **strategic, multi-functional role** at both local and national levels:

- **A Testbed for Innovation and Delivery Models**
  Providing a practical environment to pilot and refine climate solutions, technologies, and governance approaches in a real-world rural context
- **A Learning Platform for Policy and Practice**
  Generating evidence, insights, and best practice to inform the development and implementation of climate policy at regional and national levels
- **A Replicable Model for Rural Decarbonisation**
  Demonstrating how integrated, place-based approaches can be scaled and applied across other rural regions, supporting Ireland's broader climate transition

9.2 Towards Scaled Impact

The continued development of the DZ will focus on transitioning from demonstration to mainstream delivery, building a pipeline of projects that can achieve:

- Measurable emissions reductions across key sectors
- Sustainable rural economic growth and job creation
- Enhanced biodiversity and ecosystem resilience
- Empowered, climate-active communities

In this context, the Tipperary DZ is increasingly positioned not only as a local initiative, but as a national exemplar of how to deliver a just, place-based transition to a low-carbon future.

10. Conclusion

The Tipperary Decarbonising Zone (DZ) provides a strong demonstration and testbed for how a place-based, community-centred approach can effectively deliver a just transition to a low-carbon future in a rural context. It highlights the importance of aligning national climate policy and targets with locally driven implementation, ensuring goals and objectives translate into measurable outcomes on the ground.

By integrating governance, policy coordination, stakeholder engagement, and innovation, the DZ establishes a coherent framework for climate action. This approach can enable a pathway towards national emissions reduction targets while simultaneously generating tangible local benefits, including economic diversification and job creation, environmental restoration and management, and improved quality of life for rural communities.

A key policy insight emerging from the Tipperary DZ is the central role for communities in delivering climate action at scale. The model demonstrates that enabling communities to actively participate in the design and delivery of climate initiatives such as clean energy generation and biodiversity enhancement can increase both effectiveness and wider public acceptance. This is particularly critical in rural regions, where local knowledge, land use practices, and social cohesion are central to just transition.

The Tipperary DZ also illustrates the value of partnership-based approach, bringing together local authorities, service providers, state agencies, and private stakeholders in pursuit of common objectives. Such collaboration is essential for knowledge sharing, capacity building, integrated decision-making, and ensuring that the transition to net-zero is inclusive, leaving no community or sector behind.

From a policy perspective, the Tipperary DZ offers a tested and transferable framework that can inform the design of future decarbonisation initiatives. Its emphasis on place-based delivery, multi-level governance, and community engagement aligns with emerging best practice in climate policy at both national and EU levels, including within the Just Transition framework.

With further funding and investment, continued cross-sector collaboration, and mechanisms for knowledge sharing, the Tipperary DZ is well positioned to support the scaling and replication of similar models across rural Ireland and the wider EU Just Transition Fund territory. As such, it provides a valuable evidence base for policymakers seeking to design effective, inclusive, and locally appropriate pathways to climate neutrality by 2050.