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Ireland's Long-term Strategy for GHG Emissions Reductions
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Our ref: EPAC-0923

20th September 2023

Re: Ireland's Long-term Strategy for GHG Emissions Reductions

Dear Sir/Madam,

The Environmental Protection Agency (EPA) welcomes the opportunity to comment on Ireland's current Long-term Strategy (LTS) for Greenhouse Gas Emissions Reductions. You are referred to our previous submission attached to this response.

The LTS is key to framing climate action, enabling sectors, public and private sector actors to plan for transition and transformation, and for communication and engagement with citizens. It is also a recognition that addressing climate change is a multi-generational issue. Therefore, as well as being a forward-looking statement of national intent which informs shorter term climate actions to address climate change it should also provide a framework for sustainable societal, economic and cultural development.

In late 2020, the EPA published the latest State of the Environment Report: ["Ireland's Environment - An Integrated Assessment"](#). The report identifies that systematic change is required for Ireland to

become the climate neutral and climate resilient society and economy that it aspires to be. As you will be aware, this publication provides a detailed account of the overall quality of Ireland's environment; the pressures being placed on it; and the societal responses to current & emerging environmental issues. The assessment found that the overall quality of Ireland's environment is not what it should be, and the outlook is not optimistic unless we accelerate action. The Report also highlighted that in Ireland's changing climate, 'mitigation and adaptation action that is planned, coordinated and prioritised is required to build the resilience of society and the economy in the face of current and projected climate change impacts.

The EPA greenhouse gas inventories and projections inform the monitoring of Ireland's climate action performance on a national and sectoral level. The latest assessments, published in 2023, have highlighted the challenges that Ireland faces in achieving the scale and pace of greenhouse gas emissions reductions required to stay within the first two carbon budgets and reduce emissions by 51% relative to 2018. Full and urgent implementation of the actions in the 2023 Climate Action Plan is required as well as firming up the actions in CAP23 that don't have associated policies and measures, such as reduced embodied carbon in construction materials and diversification in agriculture; and identification and implementation of further policies and measures.

EPA data is clear that reaching the 2030 target requires implementation of policies that deliver emission reductions across all sectors in the short term to provide the foundation for longer term ambition. Current decarbonisation actions are being outpaced by increased energy demand across the economy and dependence on fossil fuels for energy generation. A continued lack of delivery of large-scale practical actions to decarbonise activities in all sectors will see an exceedance of the first two carbon budgets.

It is recognised that world class infrastructure takes significant time and investment from conception to implementation. However, the time horizon for achievement of national and EU commitments is getting ever shorter. The longer this is delayed the longer it will be before we realise the significant opportunities including social and economic co-benefits for people, communities and business that can be delivered through innovation and decarbonisation.

The LTS should respond to new science and knowledge. Therefore, it should be subject to regular review, i.e., at least on a 5-year basis. In this it should also increasingly include consideration of post 2050 and end of century issues.

The EPA has considered the four consultation questions with responses set out below: We also include the EPA's response to the Call for Evidence for the Climate Action Plan 2024, which should be read in conjunction with and considered as part of this submission.

1. Following on from the 2019 consultation, is there anything new or incremental you think should be included in Ireland's Long-term Strategy?

- The LTS is a key part of Ireland's contribution to achievement of the goals of the Paris Agreement. The adoption of the updated Long-Term Strategy ahead of the first global stocktake would be timely.
- The LTS should be informed by the scientific findings in the reports provided by the outcomes of the UNFCCC 26th Conference of Parties (COP26) meeting in Glasgow¹ which included key findings from the IPCC Special Report on global warming of 1.5°C. The full outcomes for the IPCC's 6th Assessment Cycle and findings from European and national research such as the upcoming Ireland's Climate Change Assessment Report, the European JPI Climate supported Climate Neutrality forum² as well as Ireland's specific circumstances and responsibilities
- The LTS should be clear and unambiguous in its alignment with the national ambition as stated in the Climate Action and Low Carbon Development (Amendment) Act 2021.
- The LTS provides a basis for development of a nationally determined strategy that will enable Ireland to have "no further negative impacts on the climate system". In the context of the temperature goal of the Paris Agreement, this is assumed to mean that by 2050 Ireland will no-longer cause an increase the global temperature. Future LTS will need to consider actions for post 2050 that will address the impacts of activities that occurred up to that point.
- The LTS should be clear and unambiguous in its alignment, or otherwise, with the national ambition as stated in the Climate Action and Low Carbon Development (Amendment) Act 2021.

2. Does the current long-term strategy identify realistic emission reduction pathways beyond 2030, or are there alternative or complementary pathways worthy of further consideration?

- The current strategy has a strong focus on actions to 2030 informed by the Climate Action Plan 2023 and is quite limited in its discussion of long-term emissions pathways. Further clarity on long-term emissions pathways are needed and should include key components such as timing of achievement of net-zero carbon dioxide levels. Reaching net-zero carbon dioxide levels should be well ahead of

¹ https://unfccc.int/sites/default/files/resource/Overarching_decision_1-CP-26_0.pdf

² https://netzeroclimate.org/wp-content/uploads/2021/11/CNF-SIP-report_-FINAL-For-Print_.pdf

2050 in-order to enable the provision of sufficient removals to offset the impacts of long life GHG such as Nitrous Oxide. Further analysis of long life GHG e.g. industrial gases that focuses on their impacts on global warming and how these may be balanced, is required.

- The contribution of reductions in methane emissions should be assessed in a more systematic manner. This should be considered in the context of temperature impacts as well as the influence of other short lived climate forcings such as tropospheric ozone and aerosol species including black carbon/soot as well as their precursors, including emissions of inorganic and organic species.
- The roles of short-lived climate forcings, such as sulphate aerosol on climate and the reduction of its cooling influences on climate in the North Atlantic region due to actions to address air quality at EU and under UNECE CLTRAP has been highlighted by the IPCC. However, the impacts of these changes are complex and remain an area of large scientific uncertainty. Reducing the uncertainties around the impacts of short-lived climate forcings is necessary to aerosol species.

Ireland, through research at sites such as Mace Head, and working in cooperation with European and North American partners can play a key role in this (e.g. research report Coleman et al 2023³). In addition, emissions of industrial gases such as CFC, HFCs which are considered under the Vienna Convention, the Montreal Convention and Kigali agreement warrant further consideration because of the longer-term climate impacts which become increasingly significant as emissions of the main GHGs are reduced. .

- To ensure that that Ireland has no further contribution to global warming beyond 2050 requires more analysis of its historic, current and projected impacts on the climate system than has been provided so far. This this would include analysis of climate impacts i.e. warming contributions, of historical and projected emissions of GHGs in the period to 2050 and the warming and cooling influences of short-lived climate forcings typically considered under air quality policies. Taking these into account this would enable Ireland to univocally state that it has achieved its climate goals based on international reported data and independently validated by the best available science.
- 3. Noting that the transition to climate neutrality requires systemic change and that it is critical to consider the factors that may contribute to or hinder progress of such a transition, are there enabling conditions to support the transition that you think require greater focus, if so, what are they?**

³ <https://www.epa.ie/publications/research/air/research-436.php>

- The systems transformation necessary to achieve Ireland's 2050 target is not examined in detail post 2030. Discussion and consideration of post 2030 emissions reductions and associated milestones to 2050 are largely absent from the document. The LTS would be strengthened by moving beyond the focus on GHG emissions reductions relative to historic emissions to a broader vision of a future where we realise the significant opportunities including social and economic co-benefits for people, communities and business delivered through innovation and decarbonisation.
- A focus on an articulation of the required transformation on energy, buildings, transport, and land use should be reflected in the strategy and what this means in the context of Ireland's physical, economic and social planning and development.

4. Are there any other comments or observations that you wish to make regarding Ireland's Long-term Strategy?

- This strategy should become the focus for consideration of further actions and be subject to a regular review and update.

Climate Change Adaptation

- The LTS describes the national structures in place, including the revision of the National Adaptation Framework (NAF). The LTS should also reference the National Climate Change Risk Assessment (NCCRA) as described in the CAP23. This assessment will provide a prioritisation of risk at a national level that should be taken into account in the GHG emission reduction planning and delivery processes. The updating and further development guidance will also move towards a standardisation of risk assessment approaches, including cascading a systemic risk under the coordination of the EPA. This will ensure that the new data sets are used in a standardised way under the strategy to achieve both mitigation and adaptation objectives.
- The strategy should also aim to fully align and integrate Local Authority Climate Action Planning with the achievement of national objectives in the areas of water, air, biodiversity and circular economy, without which resilience cannot be achieved.

Research and Innovation

- Ongoing investment in research and systematic observations of the climate systems in Ireland is essential to develop required, knowledge, expertise and capacity. This is needed to inform effective policy, actions and underpin engagement with social and economic communities and citizens. Research in Ireland needs to be linked regional and global networks and to take account of our

unique position on the Atlantic boundary of Europe. Working with stakeholders across Government, the EPA delivers timely evidence and transfer knowledge effectively to support robust policy making and implementation relevant to climate change, the green and circular economy, the environment and health, and our natural environment.

- The EPA Research Call 2023 will provide funding of up to €16 million (inclusive of co-funding) for new research projects, with many having directly related to or with co-benefits for climate. Within our current portfolio of projects, the EPA is managing 105 Climate Research projects. Upon completion, all EPA-funded research projects publish a report of findings, which are available on our website <https://www.epa.ie/our-services/research/epa-funded-research/epa-research-publications/>
- The EPA chairs two committees for the coordination of environmental and climate research, with representation from relevant Government Departments and Agencies. The Climate Research Coordination Group publishes an annual report on climate research activities in Ireland, with the most recent report from 2022 available at <https://www.epa.ie/our-services/research/national-environmental-research-coordination/climate-research-coordination-group/crcg-annual-reports-of-activities/>
- **Ireland's Climate Change Assessment (ICCA)** is funded by the Environmental Protection Agency (EPA) with co-funding by the Sustainable Energy Authority Ireland (SEAI), Department of Transport (DoT) and Science Foundation Ireland (SFI). The project is led and managed by the EPA.

The project's objective is, based on relevant research findings and systemic observations, to assess and communicate robust knowledge on the understanding of climate change, responses to the challenges it poses and to identify opportunities that arise from implementation of these responses. It will also identify knowledge gaps and areas of uncertainty including areas that can be addressed through future investments in research and observation systems.

The four volumes and synthesis report which make up ICCA are listed below, each will include a short summary for policymakers:

- Science: Ireland in a changing world
- Achieving climate neutrality by 2050
- Being prepared for Ireland's future climate
- Realising the benefits of transition and transformation

A short synthesis report (SYR) will integrate the key messages from the material in the four underlying volumes.

Science to Policy

The EPA organised an inaugural Environmental Science to Policy Seminar in October 2022. Its objective was to explore how best to improve the delivery of evidence and knowledge to the policymaking system. The event brought together policymakers, knowledge transfer practitioners and scientists from across government and academia to share experiences on the issues, constraints, good practices and ways forward. A Seminar Reflections Paper⁴ captured the key themes and recommendations that emerged during the seminar, to support and inform the national Science to Policy agenda.

It was recommended that in delivering environmental knowledge effectively to the policymaking process, the following priority areas should be considered:

1. Leadership and Strategic Direction
2. Developing Relationships and Enhancing Knowledge Management
3. Strengthening Multi Stakeholder Approaches to Support Policy Development
4. Looking to the Future in a Structured and Systematic way
5. Developing Capacity for Knowledge Management, Brokerage and Synthesis

The Circular Economy

- The document states that “Ireland has made significant progress in managing waste streams, particularly in improving recycling rates and diversion from landfill.” The point regarding ‘improving recycling rates’ doesn’t align to national waste statistics reporting which highlight that Ireland’s recycling rate has stagnated. The EEA publication (June 2023) Early Warning System Assessment related to the 2025 targets for municipal waste and packaging waste recycling reports aligns to EPA’s national statistical reporting, i.e. that Ireland is at risk of not meeting the municipal waste recycling target in 2025 and the plastic packaging waste recycling target in 2025.
- The EPA’s previous submission on the LTS highlighted the opportunities presented by Green Public Procurement presents for climate action. Through the Climate Action Plans, GPP consideration has been included in the Public Sector Climate Action Mandate, the Local Authority Climate Action Charter and the Climate Action Framework for commercial semi-state bodies. DECC is drafting a GPP Strategy and Action Plan to replace Green Tenders (2012 policy) which is expected to be out for public consultation in Q3 2023. The EPA would like to see ambitious targets for implementation in

⁴ <https://www.epa.ie/publications/research/communicating-research/epa-environmental-science-to-policy-seminar-2022---seminar-reflections-paper.php>

the public sector, and requirements for public sector reporting on GPP implementation. EPA have published two annual reports on GPP implementation by Government Departments (reference years 2020 and 2021) and these have shown a disappointing level of uptake. See the report on reference year 2021: [Resources | Environmental Protection Agency \(epa.ie\)](#)

- The previous EPA submission on the Long Term Strategy references EPA providing GPP training supports, this concluded in Q1 2023.
- The EPA's previous submission highlighted the potential for food waste prevention as a climate action. [Ireland's National Food Waste Prevention Roadmap](#) was published by the government in November 2022 and it sets out clear roles & responsibilities for government depts, State Agencies, local government and other stakeholders under 38 priority actions. In Ireland, approximately 800,000 tonnes of food waste is generated a year and the government has made a commitment under UN SDG 12.3 to reduce food waste by half by 2030. The only way to reduce food waste is through its prevention, so the focus in the food use hierarchy must be on food waste prevention. A revised Food Waste Charter launched in July, with a call to action to businesses across the food supply chain to sign up to this voluntary agreement and pledge to measure, take target-based actions and report on food waste. With approx. 70% of food waste in Ireland generated in the food supply chain (primary production, manufacturing & processing, distribution & retail, food services & hospitality), industry commitment to food waste prevention is essential, to meet the target but also as an effective climate action, with up to 10% of GHG emissions globally attributed to food waste. www.foodwastecharter.ie.
- 'The circular economy strategy must consider the longer term, end of life materials to be dealt with as part of the shift to zero emissions.' An end of life circular economy consideration to add here is non-recyclable plastic wind turbine blades that will be generated as blades need to be replaced.

The EPA is happy to discuss all aspects of this submission and looks forward to continuing work with DECC on developing the Strategy.

Yours sincerely,



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31st July 2023

Re: Call for Expert Evidence - Climate Action Plan 2024 (EPAC-1023)

Dear Sir/Madam

The Environmental Protection Agency (EPA) welcomes this opportunity to respond to this “call for expert evidence” for the climate action plan 2024.

The EPA’s most recent State of the Environment Report highlighted that in Ireland’s changing climate, ‘mitigation and adaptation action that is planned, coordinated and prioritised is required to build the resilience of society and the economy in the face of current and projected climate change impacts.

The synthesis report of the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment published in March 2023 provides a clear message on the scale and pace of climate action required to avoid the worst impacts of climate change.

“Deep, rapid and sustained mitigation and accelerated implementation of adaptation actions in this decade would reduce projected losses and damages for humans and ecosystems, and deliver many co-benefits, especially for air quality and health “. “Delayed mitigation and adaptation action would lock-in high-emissions infrastructure, raise risks of stranded assets and cost-escalation, reduce feasibility, and increase losses and damages”.

The EPA has a broad remit in the area of climate change, this submission reflects the key findings of recent EPA assessments, data, and insights to support the development of Climate Action Plan 2024.

As with previous Climate Action Plans the EPA is participating in Climate Action Plan 2024 (CAP24) chapter working groups as well as providing data and briefings to author teams on the latest EPA Greenhouse Gas Inventories and Projections and other matters as required.

Strategic Environmental Assessment

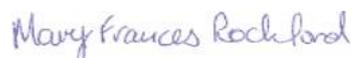
You should fully consider, as appropriate, the requirements of the Strategic Environmental Assessment Regulations (S.I. 435 of 2004, as amended) and the Habitats Directive, early in the plan-preparation process.

We also refer you to the EPA [Good Practice Guidance for Strategic Environmental Assessment \(SEA\) Screening](#) (EPA, 2021) provides specific stand-alone guidance to assist plan or programme makers and SEA practitioners. It focuses primarily on plans/programmes in the non-land use sector in Ireland and includes an elaboration of the steps needed for screening, the legislative landscape underpinning SEA screening, and step-by-step process and templates to assist in preparing the required documentation.

Where an SEA screening determines that the implementation of the plan would be likely to have significant effects on the environment, there is merit in pointing to Articles 11 and 13 of the SEA Regulations (S.I. 435 of 2004, as amended) which relate to consultations. In particular, Article 13 relates to public consultation to be undertaken for the SEA environmental report and the draft plan. The regulations refer to a public consultation period of not less than 4 weeks, however, given that the Climate Action Plan is a key national plan, consideration should be given to undertaking a more appropriate consultation period in the order of 6-8 weeks.

The EPA is happy to discuss all aspects of this submission and looks forward to continuing work with DECC through our participation in the Climate Action Plan 2024 working groups.

Yours sincerely,



Mary Frances Rochford

Programme Manager

1. EPA greenhouse gas inventories and projections

Full and urgent implementation of the actions in the 2023 Climate Action Plan is required as well as firming up the actions in CAP23 that don't have associated policies and measures, such as reduced embodied carbon in construction materials and diversification in agriculture; and identification and implementation of further policies and measures.

EPA greenhouse gas inventory and projection reports inform the monitoring of Ireland's climate action performance on a sectoral level. These reports, published in 2023, have highlighted the challenges that Ireland faces in achieving the scale and pace of Greenhouse Gas emissions reduction required to stay within the first two carbon budgets and reduce emissions by 51% relative to 2018.

[EPA greenhouse gas inventory 2022](#) show that National total emissions (including LULUCF), in 2022, were 68.07 Mt CO₂ eq, 2.7 per cent below the 2018 reference year.

47 per cent of Ireland's Carbon Budget for 2021-2025 has been used in the first 2 years. If Ireland is to stay within the first carbon budget, an extremely challenging annual reduction of 12.4 per cent is required for each of the remaining years.

In the Electricity sector, with 49% of the 2021-25 emissions budget already used, annual emissions reductions of 17% are now required from 2023-25 to stay within budget. Annual emissions reductions of 9%, 8%, 7% and 5% are required from 2023-25 in the Industry, Agriculture, Residential buildings and Transport sectors respectively.

The figures also show that Ireland exceeded its 2022 annual limit under the European Union's Effort Sharing Regulation (EU 2018/842). These annual limits have been reduced further from 2023 onwards as Ireland's Effort Sharing commitment increased from a 30 per cent reduction on the 2005 level by 2030 to a 42 per cent reduction.

[EPA greenhouse gas projections 2021-2040](#) indicate that the first two carbon budgets (2021-2030), which aim to support achievement of the 51 per cent emissions reduction goal, are projected to be exceeded by a significant margin of between 24 per cent (With Additional Measures scenario) and 34 per cent (With Existing Measures scenario).

Almost all sectors are on a trajectory to exceed their national sectoral emissions ceilings for 2025 and 2030, including Agriculture, Electricity Transport and Industry. A continued lack of delivery of large-scale practical actions to decarbonise activities in all sectors will see us exceed our carbon budgets.

In preparing the projections, it was not possible for the EPA to include all actions in Climate Action Plan 2023 – such as diversification of agriculture and decarbonisation of construction materials – more detail is needed on how and when delivery of these actions will occur.

EPA data is clear that reaching the 2030 target requires implementation of policies that deliver emission reductions across all sectors in the short term. Current decarbonisation actions are being outpaced by increased energy demand across the economy and dependence on fossil fuels for energy generation. A continued lack of delivery of large-scale practical actions to decarbonise activities in all sectors will see an exceedance of the first two carbon budgets.

It is recognised that world class infrastructure takes significant time and investment from conception to implementation. However, the time horizon for achievement of national and EU commitments is getting ever shorter. The longer this is delayed the longer it will be before we realise the significant opportunities and social and economic co-benefits for people, communities and business that can be delivered through innovation and decarbonisation.

2. Public Engagement

The EPA's [Climate Change in the Irish Mind](#) Study (in support of the National Dialogue on Climate Action) shows that 85% of the population are either alarmed or concerned about climate change, and a large majority (79%) of Irish people say that climate change should be either a “very high” or “high” priority for Government.

EPA data shows that even among populations that accept the reality and seriousness of climate change, potentially strong opposition exists to climate action policies, and such opposition appears to centre around the practicality or perceived cost of the proposed policy responses.

This has important implications for behavioural change and engagement, as many opposed to such policies also accept the reality of climate change and that action is required to address it. Identifying and understanding what the barriers are in terms of perception, cost, viability of alternatives is important and will be the subject of future research.

The second Climate Change in the Irish Mind survey will be carried out during Summer 2023 with its associated report published before the end of this year.

3. Land Use, Land Use Change and Forestry (LULUCF)

The EPA, as part of its inventory refinement process, is developing a predominantly Tier 2 approach for Ireland's LULUCF inventory, which will be produced using spatially disaggregated data. This will integrate the findings of academic researchers on a wide range of LULUCF topics.

It is recognised, nationally and internationally, that there are significant gaps in the scientific understanding of emissions from the land use and land use change and forestry sector. Current LULUCF emissions/removal estimates in Ireland are based on the best available information available obtained from a number of sources including for example Teagasc, DAFM, FERS, and CSO.

There are significant advancements in the scientific understanding of LULUCF being made, supported by research, advancements in technology and improved knowledge and understanding of land management in Ireland.

The output from various research projects will be incorporated into the national inventory as soon as practical following publication and in consultation with research project leaders and other experts, so that the best possible estimates can be derived.

The EPA is developing a land use map and data system to produce the LULUCF Inventory using spatial data, as required under the EU's LULUCF Regulation. This will bring a refinement to the understanding of the spatial distribution of land use categories and facilitate monitoring and reporting of emissions and removals from land-uses and the effects of associated policy actions in a robust, spatially explicit way.

Based on the ongoing research outlined above there will be recalculations to the LULUCF Inventory and Projections. The overall emissions/removals impact of these changes cannot yet to be determined, due to interactions and interdependencies between land-use areas, management regimes, drainage status and nutrient status.

Forestry

The policy position of carbon neutrality by 2050 will depend on the forest sector acting as a carbon sink to offset residual emissions. Without action now and in the short to medium term to increase afforestation rates, this policy position is in doubt.

The forest sector constitutes an important source of CO₂ removal from the atmosphere. These removals are reported by the EPA on an annual basis as part of the overall Land Use, Land Use Change and Forestry (LULUCF) sector emission and removals estimates submitted to the EU and the

United Nations. However, there has been a noticeable reduction in the absolute value of this sink or removal activity due to the current age profile of our national forest stock.

This has been driven by two factors. Firstly, a significant reduction in the areas afforested in comparison to that in the 1990's and early 2000's. Secondly in past years significant afforestation occurred on peat (organic soils) from which there can be large emissions of greenhouse gases to the atmosphere. Recent national research has shown these emission levels to be higher than originally estimated.

Current low afforestation rates (c.2000 ha) are well below the planned 8,000 ha foreseen annually in the 2023 Climate Action Plan. This combined with increased timber harvest will lead to further reductions in the ability of our national forests to contribute to CO₂ emissions removals going forward. It is projected that by 2025 the forest sector in Ireland will be a source of greenhouse gas emissions to the atmosphere.

The extent of forestry that is required to be consistent with Ireland meeting its National Climate Objective needs to be determined to allow an appropriate afforestation target to be set in the next Climate Action Plan. This is likely to exceed the current planned 8,000 ha per annum. Analysis from the SeQuester project¹ (funded by the EPA and DAFM) indicated that between 13,000 ha and 40,000 ha per annum of afforestation would be needed from 2025 to 2050 to offset projected CO₂ and N₂O emissions (but not methane emissions) from the agriculture sector. Afforestation rates at the lower end of the range are considered in combination with a 75% reduction in agricultural emissions combined with a substantial rewetting programme of agricultural organic soils.

Land use review

Phase 1 of the National Land Use Review was included as a commitment in the Programme for Government and in the 2021 Climate Action Plan (Action 393). Ten products were produced as part of the Phase 1 Evidence Review, covering climate research; economic research; stakeholder cataloguing and categorisation; cataloguing of policies and commitments relevant to land use; national land ownership profile; review of land use strategies and policies in other countries; review of fiscal instruments; and an assessment of land use environmental indicators. The suite of products and an overall synthesis report were published by DECC in March 2023.

¹ [AFOLU Briefing Note UL.pdf \(climatecouncil.ie\)](#)

4. Bioeconomy

Innovations and practices in the bioeconomy have the ability to both reduce greenhouse gas (GHG) emissions and promote the sequestration and storage of carbon in biomass and soils. Bioeconomy and natural carbon sinks is one of seven strategic areas within the EU's strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050. Ireland's development of the bioeconomy has the potential to support the development of an environmentally sustainable resource base, that could also contribute to climate change mitigation and adaptation.

Enterprises in bio-based value chains have several possibilities to reduce their GHG emissions. Examples include a shift towards energy efficient equipment and practices, inputs with a lower carbon footprint, or better management of products' end of life, wastes and residues.

For land managers, there are opportunities in both carbon sequestration and minimising GHG emissions through environmentally friendly land management practices and local production of sustainable building/insulation materials to feed into the retrofit targets of the Climate Action Plan 2023, e.g. hemp, sheep's wool insulation products.

The options available depend on the nature of the business involved (e.g. livestock, forestry, or arable land) and the local conditions such as soil type and climate patterns. Climate actions by rural communities can also have links with building local, circular food systems, waste management and ecosystem services that will contribute to climate resilience. Local co-operative groups (including agricultural co-ops) should not be forgotten from the point of view of promoting and providing an outlet for products but also from the educational point of view. These organisations have an existing network of contacts and the trust of local communities.

Promoting more sustainable consumption patterns to guarantee environmental integrity and preserving/building skill sets which are in decline due to the consumption patterns of replace rather than repair will play a role. This would include developing policies and measures to encourage new entrants and existing companies to step into this space and look at how they can participate in the bioeconomy. Climate and the environment should be a key cross-cutting theme across all pillars in the bioeconomy.

You are referred to the EPA's submission on the Bioeconomy Action plan. [EPAC-3022-Bioeconomy-Action-Plan-consultation-response_FINAL.pdf](#)

5. Food waste Prevention

With approx. 70% of food waste in Ireland generated in the food supply chain (primary production, manufacturing & processing, distribution & retail, food services & hospitality), industry commitment to food waste prevention is essential, to meet the target but also as an effective climate action.

The European Commission reports that the 58.5 Mt of food waste generated in the EU in 2020 caused emissions of 252 Mt of CO₂ equivalents. This corresponds to 16% of the total GHG impact resulting from the EU food system.²

In Ireland, approximately 800,000 tonnes of food waste is generated a year and the government has made a commitment under UN SDG 12.3 to reduce food waste by half by 2030. Ireland's National Food Waste Prevention Roadmap was published by the Government in November 2022, and it sets out clear roles & responsibilities for Government Departments, State Agencies, local government and other stakeholders under 38 priority actions. In July 2023, the European Commission published a proposal for an amendment to the Waste Framework Directive, which includes legislative food waste reduction targets for Member States for 2030 (against a baseline year of 2020).

The only way to reduce food waste is through its prevention, so the focus in the food use hierarchy must be on food waste prevention. The national food waste prevention programme sits within the EPA's Circular Economy Programme. [Stop Food Waste](#) is the consumer-facing national food waste prevention campaign. In relation to food waste prevention in the food supply chain, a revised [Food Waste Charter](#) launched in June 2023, with a call to action to businesses across the food supply chain to sign up to this voluntary agreement and pledge to measure, take target-based actions and report on food waste.

Further information on EPA's work on food waste statistics and food waste prevention is available at [Food waste | Environmental Protection Agency \(epa.ie\)](#).

6. Public Sector

The public sector must play a leadership role **in responding effectively to climate change**. Green Public Procurement sends a powerful signal to the marketplace that Ireland's Government sector

² eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52023PC0420

is committed to reducing emissions and protecting our environment while saving money over the full lifecycle of goods and services.

The EPA has supported [Green Public Procurement \(GPP\) implementation](#) through the provision of national guidance and green criteria for ten priority sectors, developed and delivered training for public sector procurers and monitors & reports on GPP implementation in Government Departments on an ongoing basis.

The EPA has published two annual reports on GPP implementation by Government Departments (reference years 2020 and 2021) and these have shown a low level of implementation of [Green Public Procurement in Government Departments](#). This is a missed opportunity for Government Departments to purchase more resource efficient and less polluting goods, services and works.

In its most recent report, '[GPP: Monitoring and Reporting by Government Departments, 2021 reference year](#)', the EPA calls on Government Departments to place an urgent focus on Green Public Procurement and sets out five key recommendations:

- to assign senior level resources with responsibility to ensure GPP is incorporated into procurement processes,
- to update the Corporate Procurement Plan to include GPP,
- to ensure relevant staff receive GPP training and are aware of the available guidance and resources,
- to ensure there are tracking systems to monitor and report on GPP and
- to ensure that GPP data is published in Government Department Annual Reports.

A GPP Strategy and Action Plan is currently being drafted to replace Green Tenders (2012 policy). The EPA would like to see ambitious targets for implementation in the public sector, and requirements for public sector reporting on GPP implementation.

7. Circular Economy

Ireland remains reliant on export markets for the treatment of specific waste streams including residual municipal wastes, hazardous waste, packaging waste and more recently biowastes. Immediate targeted actions are needed in 2023 to drive improvements in our municipal and plastic packaging recycling.

The latest EPA National Waste Statistics Summary Report for 2020 showed that Waste generation in Ireland continued to increase in 2020. Our rising levels of waste makes it difficult to maintain or

increase recycling rates and Ireland is in danger of missing future (2025) EU municipal waste and plastic packaging recycling targets.

A recent OECD study found that Ireland has a circular material use rate of 1.8 per cent, relative to an EU average of 12.8%. We need to move to circular economy where less natural resources are extracted, and resources in the economy are reduced, re-used, repaired, or recycled as much as possible, and the generation and disposal of waste is minimised. Systemic change is needed across all economic sectors to shift the focus to designing out and reducing waste and promoting reuse and recycling.

The EPA's Circular Economy Programme provides Leadership, Supports, Knowledge and Opportunity to promote and amplify circularity in Ireland for business sectors, citizens and the public sector.

Circular economy insights, guidance and project reports are available on the EPA website [here](#).

Some recent publications that may inform your considerations for the CAP24 include:

- Revised [‘Best Practice Guidelines for the preparation of Resource and Waste Management Plans for Construction & Demolition Projects’](#) in 2021. These are voluntary guidelines, aiming to introduce circularity considerations into construction projects from design through to construction/deconstruction. It is recommended that any public sector bodies that are engaged in construction activities implement the guidelines for their projects, to ensure that waste is prevented, and circularity aspects are incorporated into all stages of the process.
- A Circular Insights study [“Government interventions to support transition to a circular economy”](#) has identified five categories of barriers to the uptake of a circular economy (1) the lack of meaningful data and metrics (2) regulatory (3) financial (4) behavioural, and (5) operational barriers with recommendations for interventions that (1) Keep product in the loop, (2) Close loops, (3) Align economic policy measures with Circular Economy principles, (4) Invest in the Circular Economy and (5) Provide for Collaboration.
- A Circular Insights study [“Role of Ireland's digital sector in accelerating the transition to a circular economy”](#). Digitalisation is identified as a key enabler for accelerating the adoption of a circular economy. Data and digitally-enabled solutions are already being leveraged to improve circularity across economies and there remains significant scope to strengthen this transition globally. The report identifies a suite of recommended opportunities for the public and private sector to accelerate a digitally enabled circular economy in Ireland.
- The Circular Economy Programme is delivering nationally representative behavioural insights studies on circular economy focus areas (such as plastics, food, textiles, reuse and repair)

which have included questions regarding public awareness of linking practical circular economy actions (such as food waste prevention) with climate action. The published studies are available on the Circular Economy Resources webpages.

8. Research and Innovation

Working with stakeholders across Government, the EPA delivers timely evidence and transfer knowledge effectively to support robust policy making and implementation relevant to climate change, the green and circular economy, the environment and health, and our natural environment.

The EPA Research Call 2023 will provide funding of up to €16 million (inclusive of co-funding) for new research projects, with many having directly related to or with co-benefits for climate. Within our current portfolio of projects, the EPA is managing 105 Climate Research projects. Upon completion, all EPA-funded research projects publish a report of findings, which are available on our website <https://www.epa.ie/our-services/research/epa-funded-research/epa-research-publications/>

The EPA chairs two committees for the coordination of environmental and climate research, with representation from relevant Government Departments and Agencies. The Climate Research Coordination Group publishes an annual report on climate research activities in Ireland, with the most recent report from 2022 available at <https://www.epa.ie/our-services/research/national-environmental-research-coordination/climate-research-coordination-group/crcg-annual-reports-of-activities/>

Ireland's Climate Change Assessment (ICCA) is funded by the Environmental Protection Agency (EPA) with co-funding by the Sustainable Energy Authority Ireland (SEAI), Department of Transport (DoT) and Science Foundation Ireland (SFI). The project is led and managed by the EPA.

The project's objective is, based on relevant research findings and systemic observations, to assess and communicate robust knowledge on the understanding of climate change, responses to the challenges it poses and to identify opportunities that arise from implementation of these responses. It will also identify knowledge gaps and areas of uncertainty including areas that can be addressed through future investments in research and observation systems.

The four volumes and synthesis report which make up ICCA are listed below, each will include a short summary for policymakers:

- Science: Ireland in a changing world
- Achieving climate neutrality by 2050
- Being prepared for Ireland's future climate
- Realising the benefits of transition and transformation

A short synthesis report (SYR) will integrate the key messages from the material in the four underlying volumes.

Science to Policy

The EPA organised an inaugural Environmental Science to Policy Seminar in October 2022. Its objective was to explore how best to improve the delivery of evidence and knowledge to the policymaking system. The event brought together policymakers, knowledge transfer practitioners and scientists from across government and academia to share experiences on the issues, constraints, good practices and ways forward. A Seminar Reflections Paper³ captured the key themes and recommendations that emerged during the seminar, to support and inform the national Science to Policy agenda.

It was recommended that in delivering environmental knowledge effectively to the policymaking process, the following priority areas should be considered:

1. Leadership and Strategic Direction
2. Developing Relationships and Enhancing Knowledge Management
3. Strengthening Multi Stakeholder Approaches to Support Policy Development
4. Looking to the Future in a Structured and Systematic way
5. Developing Capacity for Knowledge Management, Brokerage and Synthesis

9. Transport

EPA Projections indicate that the share of total Road transport CO₂ emissions from Heavy Duty Vehicles (HDVs) and Light Goods Vehicles (LGVs) is projected to increase from ~35% pre-COVID to 57% by 2030, and 74% by 2040 in the With Additional Measures Scenario (WAM). This is as a result of continued projected growth in demand for freight transport services as well as faster projected mitigation of passenger transport emissions.

³ <https://www.epa.ie/publications/research/communicating-research/epa-environmental-science-to-policy-seminar-2022---seminar-reflections-paper.php>

As highlighted in the Transport chapter in the EPA's most recent State of the Environment Report⁴, a sustainable mobility transformation is required, with the next decade crucial, whereby necessary journeys are made by sustainable modes such as walking, cycling and public transport, followed by using electric vehicles where unavoidable. For this transformation to happen we need to start fast-tracking the measures in the Climate Action Plan and other necessary measures.

The use of the Avoid, Shift, Improve (ASI) hierarchy to structure Transport sector actions is positive in establishing a comprehensive integrated systems approach. This framing recognises that while improvements in energy and carbon efficiency are necessary, they are not sufficient to achieve a sustainable mobility transformation.

In the context of current and projected sources of transport emissions between now and 2030, the EPA suggests that CAP 2024 should place greater emphasis on addressing emissions reductions from the Freight transport sector. Some suggestions include:

- “Avoid” measures. The EPA's SoER 2020 highlighted the work of Prof. Alan McKinnon⁵. This work presents a range of options in relation to improving “material efficiency” to reduce the number of products that need to be moved. Many of these options also link with the goals of a Circular economy strategy in addition to measures such as restructuring of supply chains and optimised routing.
- “Shift” measures are set out at length in the SoER chapter, with a particular focus on the potential of rail freight to play a role. Prof. McKinnon's work noted that Ireland had the 3rd lowest rail freight modal share in Europe, with the only two countries with a lower share (Cyprus and Malta) not possessing a railway. CSO rail freight statistics show that the tonnage of freight transported by rail in 2021 was only 11 per cent of what was transported in the 1981. The recent Iarnród Éireann Rail freight 2040 strategy⁶ highlights that much of the infrastructure required to facilitate rail freight activity is still available to be used or possible to upgrade.

⁴ <https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/irelands-environment-2020---chapter-11---environment-and-transport.php>

⁵ [Slide 1 \(climatecouncil.ie\) \(presented to the Climate Change Advisory Council at its workshop on the “Transition of Irish Transport” in 2019.\)](#)

⁶ [IE_Rail-Freight-2040-Strategy_Public_Final_20210715.pdf \(irishrail.ie\)](#)

- “Improve” measures, such as the electrification measures already proposed in the previous Climate Action Plans, will be important and also include measures around the optimisation of vehicle loading, the types of trucks that could be used, vehicle efficiency and scheduling.

Much of the knowledge and modelling expertise available at present is largely focussed on passenger transport measures, with a need for further work to model future freight demand scenarios and the projected impact of policies and measures to tackle freight transport emissions. A further action within the plan may be the development of analysis and modelling expertise specifically devoted to freight.

