



Rialtas na hÉireann
Government of Ireland

Climate Action Plan 2021

Progress Report

Q4 2022



Contents

Table of Figures	3
Table of Tables	4
Glossary of Acronyms	5
Q4 2022 Infographic.....	6
Executive Summary	8
Agriculture	16
Transport	19
Electricity	23
LULUCF & the Marine	27
Buildings	31
Enterprise	35
Public Sector Lead	39
Circular Economy	42
Cross-Cutting Policies	45
Adaptation	49

Table of Figures

Figure 1 – Agriculture: emissions context (excluding agriculture-related LULUCF emissions) and key actions from CAP 2021	17
Figure 2 – Transport: emissions context and key actions from CAP 2021	20
Figure 3 – Electricity: emissions context and key actions from CAP 2021	24
Figure 4 - LULUCF: emissions context and key actions from CAP 2021	28
Figure 5 – Buildings: emissions context.....	32
Figure 6 – Buildings: emissions context and key actions from CAP 2021	33
Figure 7 - Enterprise: emissions context.....	36
Figure 8 - Enterprise: emissions context and key actions from CAP 2021	37
Figure 9 - Waste: emissions context and key actions from CAP 2021	43
Figure 10- Sectoral Adaptation Plans and Themes in Ireland	50

Table of Tables

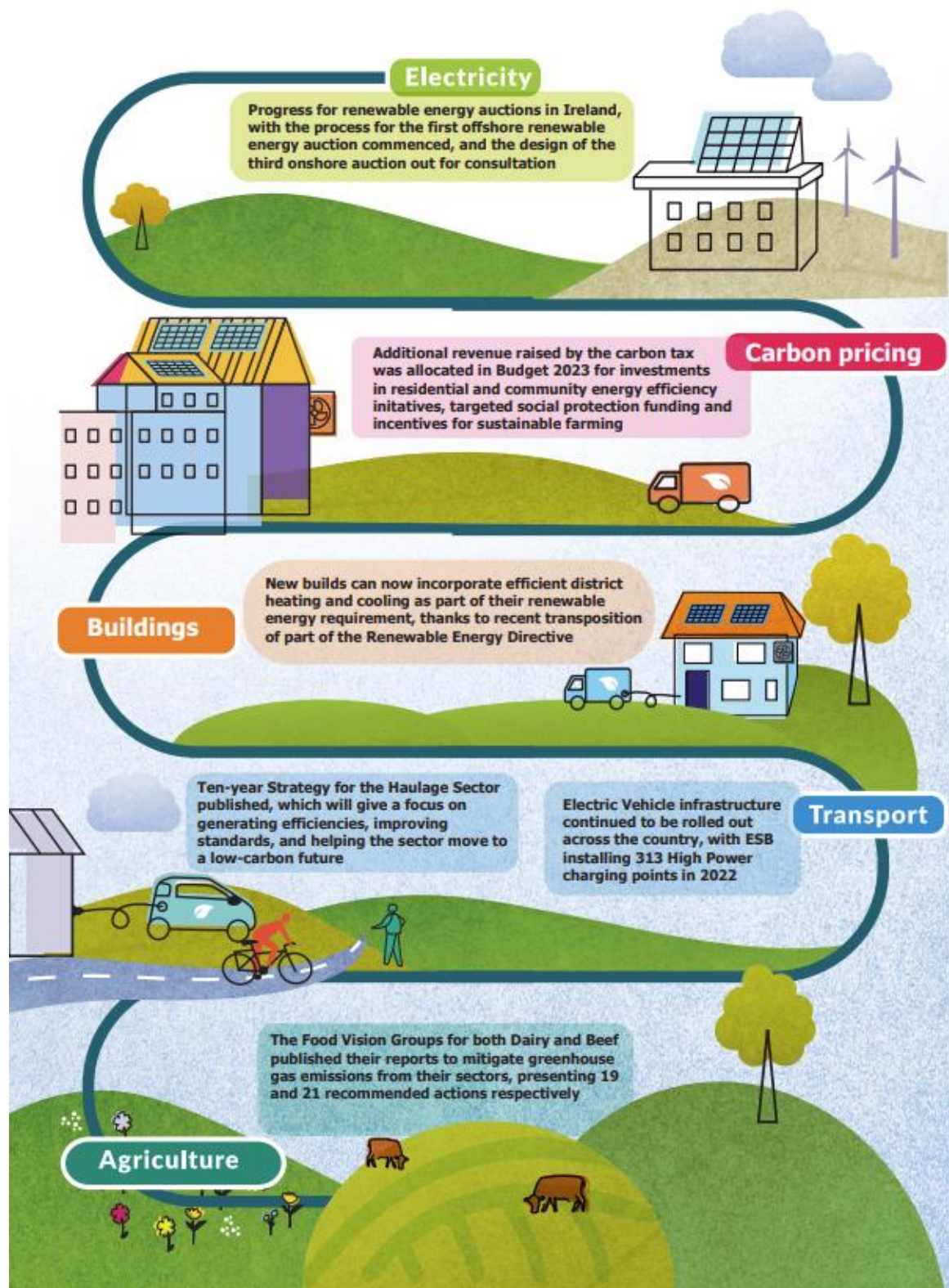
Table 1 – Delivery rate by Department on Q4 2022 measures	10
Table 2 – Implementation to end of Q4 2022 of all measures due under CAP 2021	10
Table 3 – Implementation by Department to end of Q4 of all measures due under CAP 2021	11
Table 4 - 'High Impact' measures rolled over from previous quarters that completed in Q4 2022	11
Table 5 - New 'High Impact' measures completed in Q4 2022.....	12
Table 6 - 'High Impact' measures from previous quarters that continued to be delayed in Q4	13
Table 7 - New 'High Impact' measures delayed in Q4 2022	13
Table 8 - 'High Impact' completed agriculture measures in Q4 2022	18
Table 9 - 'High Impact' delayed agriculture measures in Q4 2022	18
Table 10 - 'High Impact' completed transport measures in Q4 2022.....	21
Table 11 - 'High Impact' delayed transport measures in Q4 2022.....	21
Table 12 – 'High Impact' completed electricity measures in Q4 2022	25
Table 13 – 'High Impact' delayed electricity measures in Q4 2022	25
Table 14 - 'High Impact' completed LULUCF and marine measures in Q4 2022	29
Table 15 - 'High Impact' delayed LULUCF and marine measures in Q4 2022	29
Table 16 - 'High Impact' completed buildings measures in Q4 2022.....	33
Table 17 - 'High Impact' delayed buildings measures in Q4 2022	34
Table 18 - 'High Impact' completed enterprise measures in Q4 2022	38
Table 19 - 'High Impact' delayed enterprise measures in Q4 2022	38
Table 20 - 'High Impact' completed public sector measures in Q4 2022.....	40
Table 21 - 'High Impact' delayed public sector measures in Q4 2022.....	40
Table 22 - 'High Impact' completed circular economy measures in Q4 2022.....	44
Table 23 - 'High Impact' delayed circular economy measures in Q4 2022.....	44
Table 24 - 'High Impact' completed cross-cutting measures in Q4 2022	46
Table 25 - 'High Impact' delayed cross-cutting measures in Q4 2022.....	47
Table 26 - 'High Impact' completed adaptation measures in Q4 2022	50
Table 27 - 'High Impact' delayed adaptation measures in Q4 2022	51

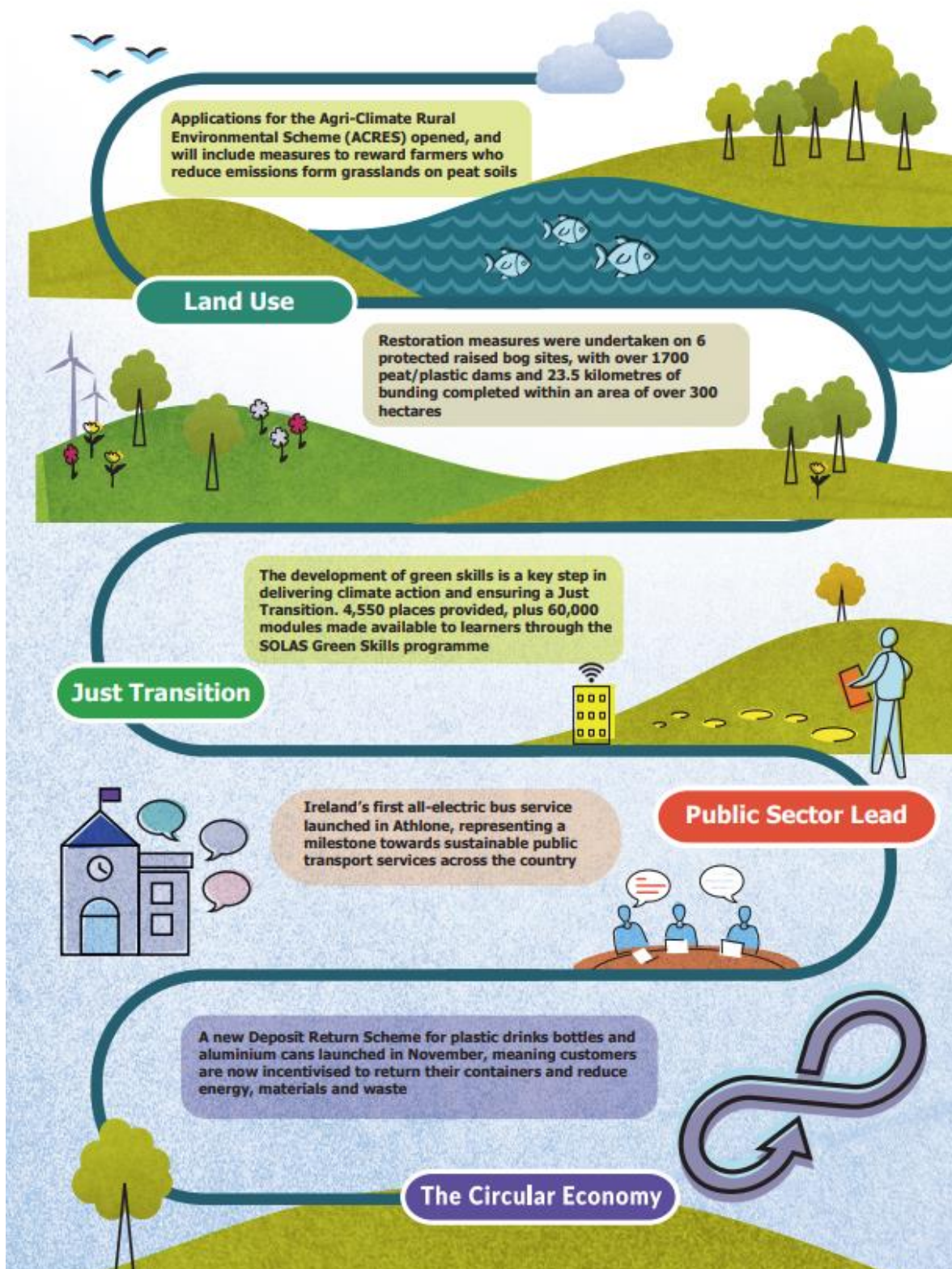
Glossary of Acronyms

Acronym	Expansion
ACRES	Agri-Climate Rural Environmental Scheme
AD	Anaerobic Digester
CADB	Climate Action Delivery Board
CAP	Climate Action Plan
CCAC	Climate Change Advisory Council
CCS	Carbon Capture and Storage
CO²	Carbon Dioxide
COP	Conference of Parties
CRU	Commission for Regulation of Utilities
DAFM	Department of Agriculture, Food and the Marine
DCEDIY	Department of Children, Equality, Disability, Integration and Youth
DECC	Department of the Environment, Climate and Communications
D/Education	Department of Education
DETE	Department of Enterprise, Trade and Employment
DFA	Department of Foreign Affairs
DFHERIS	Department of Further and Higher Education, Research, Innovation and Science
DFIN	Department of Finance
DHLGH	Department of Housing, Local Government and Heritage
DPER	Department of Public Expenditure and Reform
DRCD	Department of Rural and Community Development
DSP	Department of Social Protection
D/Taoiseach	Department of the Taoiseach
DTCAGSM	Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media
D/Transport	Department of Transport
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
EU	European Union
EV	Electric Vehicle
GHG	Greenhouse Gases
GW	Gigawatt
LEU	Large Energy Users
LULLUCF	Land Use, Land-use Change and Forestry
NAF	National Adaptation Framework
NPF	National Planning Framework
PV	Photovoltaic
RED	Renewable Energy Directive
RESS	Renewable Electricity Support Scheme
SAC	Special Areas of Conservation
SEAI	Sustainable Energy Authority of Ireland
SEC	Sectoral Emissions Ceilings
SME	Small and Medium-sized Enterprises
TII	Transport Infrastructure Ireland
TWh	Terawatt hour
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization

Q4 2022 Infographic

Q4 2022 Highlights - Delivery Rate: 64%





Overall Climate Action Plan 2021 delivery to date: 79%

Executive Summary

This is the final Progress Report on the Climate Action Plan (CAP) 2021, detailing progress on the delivery of measures due for reporting in Q4 2022. The report is organised into sectoral chapters, in order of emissions impact, with detail given on key emissions trends and high impact sectoral measures completed and delayed this quarter. The progress of all measures due in Q4 is contained at **Appendix 1** for full transparency and accountability.

Overall, a **delivery rate of 64% is reported for Q4 2022**, with 165 of 257 new measures completed on time. The progress of measures delayed from previous quarters is also reported, with just 32% of the 166 delayed measures completing despite the extra time gained for implementation. The overall implementation rate of the CAP 21 (combining delivery from Q4 2021 to Q4 2022) now concludes at 79%, with 760 of 965 measures completed.

Climate change in Q4 2022

The effects of climate change remained clear in the last quarter of 2022. The oddly warm October weather, [which broke all-time records at some weather stations around Ireland](#), was evident in the landscape with leaves remaining on trees and spring flowers appearing early. In their [annual climate statement](#), Met Éireann confirmed that 2022 was Ireland's hottest year on record, a trend seen across Europe and in countries across the globe.

Similarly, a [report released by the World Meteorological Organization](#) in Q4 found that temperatures in Europe have increased by more than twice the global average over the last 30 years – the highest of any continent in the world – which could lead to more extreme weather events over time. Across the Atlantic, North America experienced their own extreme weather event as a “bomb cyclone” enveloped much of the continent. The rare [“once-in-a-lifetime”](#) weather system brought severe freezing conditions and blizzards, resulting in two-thirds of the population of the United States under weather alerts, [low temperature records broken](#) and dozens of people killed.

The effects of climate change continued to extend beyond extreme weather. UNESCO released a [report](#) in November which detailed the extent to which glaciers on well-known heritage sites such as Kilimanjaro and Yosemite are continually retreating due to warming temperatures. Together, these glaciers are losing 58 billion tonnes of ice each year contributing about 5% of observed sea level rises. In a quarter that saw a focus on global energy prices, a [report](#) by The Lancet summarised the link between human health and fossil fuels, stating that “Fossil fuel dependence is not only undermining global health through increased climate change impacts, but also affects human health and wellbeing directly, through volatile and unpredictable fossil fuel markets, frail supply chains, and geopolitical conflicts”.

Further climate insights came from closer to home in Q4 2022, when the Sustainable Energy Authority of Ireland [released energy data from 2021](#). This data showed an upward trend of emissions

from the energy and transport sectors, with such emissions now back at 2019 levels after a temporary reduction due to Covid-related restrictions.

Climate action in Q4 2022

In November, the world's leaders gathered for COP27 in Sharm El-Sheikh, Egypt. The UN Secretary General closed the event, stating that *"We are already halfway between the Paris Climate Agreement and the 2030 deadline. We need all hands on deck to drive justice and ambition."* A key [outcome from COP27](#) included establishing a dedicated fund for loss and damage for countries vulnerable to climate change and pivoting towards the implementation of climate pledges and policies to see more effective, real world action.

The last quarter of the year also yielded some positive climate action news. EU lawmakers agreed to [phase out fossil fuel cars](#) by setting a zero-emissions sales mandate for new cars and vans by 2035. This sends a clear signal to industry and consumers that Europe is embracing the shift to sustainable transport. As part of the European Green Deal, the EU also agreed to increase carbon removals through land use, forestry, and agriculture to 310 million tonnes of CO₂ equivalent, paving the way for member states to improve their carbon sinks.

In Ireland, [ESB broke](#) its previous renewable electricity connection record and deployed 23 large-scale renewable generator projects to Ireland's electricity network, bringing the total additional green energy capacity added to the grid for 2022 to 688MW, equivalent to powering 350,000 homes. In addition to the completed actions reported in this Progress Report, a range of other government developments were announced to support climate action, including; the launch of the €74m Irish-British [initiative](#) to research climate change, €5m [funding](#) under the Community Climate Action Programme, a new €3m Creative Climate Action [fund](#) and a [publicised ambition](#) to establish the Shannon Estuary Region as a renewable energy powerhouse.

Before the end of 2022, the new [Climate Action Plan 2023](#) was launched by Government. Pertinent sectoral details of this are outlined at the start of each chapter in this report, detailing how ambition is being progressed following the conclusion of CAP 21.

Overview of delivery in Q4 2022

In total, 423 measures were scheduled for delivery and reporting in Q4 2022, comprising 166 delayed measures from previous quarters, and 257 'new' Q4 measures. An **implementation rate of 64% was achieved** on the new Q4 measures, with 165 of the 257 measures delivered by the end of the quarter.

Progress on delayed actions remains a concern, as it has done throughout CAP 21, with only 32% of the 166 measures delayed from previous quarters completed despite additional time received for implementation (53 measures).

The overall implementation rate of the CAP 21 (combining delivery from Q4 2021 to Q4 2022) concludes at 79%, with 760 of 965 CAP 21 measures completed. This is the final progress report on the CAP 21, with quarterly reporting to continue on the new measures set out in CAP 23.

Delivery rates by Department for Q4 are detailed in Table 1, while overall implementation rates to date of the CAP 21 are detailed in Tables 2 and 3.

Table 1 – Delivery rate by Department on Q4 2022 measures

Department	No. of Q4 Actions due	Complete	Delayed	Q4 Delivery Rate
DECC	74	39	35	53%
DAFM	45	39	6	87%
DHLGH	37	17	20	46%
D/Transport	25	12	13	48%
DTCAGSM	15	10	5	67%
DFIN	11	11	0	100%
DFHERIS	11	11	0	100%
DPER	9	6	3	67%
DETE	6	5	1	83%
D/Education	7	4	3	57%
DFA	5	3	2	60%
D/Health	3	0	3	0%
D/Taoiseach	3	3	0	100%
DSP	3	3	0	100%
DRCD	1	0	1	0%
D/Justice	1	1	0	100%
TOTAL	257	165	92	64%

Table 2 – Implementation to end of Q4 2022 of all measures due under CAP 2021

	Measures Completed in the Quarter	Measures Subsequently Delivered	Total Measures Delivered to date	Measures still delayed	Delivery Rate
Q4 2021	194	27	221	10	96%
Q1 2022	113	51	164	27	86%
Q2 2022	73	50	123	39	76%
Q3 2022	74	13	87	37	70%
Q4 2022	165	N/A	165	92	64%
Total CAP 2021 Delivery	619	141	760	205	79%

Table 3 – Implementation by Department to end of Q4 of all measures due under CAP 2021

Department	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Total Measures Complete	Total Measures Due	Delivery Rate to Date
DECC	58	31	47	24	39	199	278	72%
DAFM	43	40	26	15	39	163	187	87%
DHLGH	24	21	9	9	17	80	114	70%
D/Transport	22	24	13	5	12	76	104	73%
DETE	23	16	10	6	5	60	65	92%
DTCAGSM	7	8	3	4	10	32	39	82%
DFIN	9	3	1	11	11	35	36	97%
D/Taoiseach	5	9	5	6	4	29	35	83%
DPER	8	1	1	0	6	16	25	64%
DFHERIS	1	4	1	2	11	19	19	100%
D/Health	10	2	1	0	0	13	19	68%
D/Education	2	3	3	2	4	14	17	82%
DFA	2	1	2	1	3	9	11	82%
DRCD	5	1	0	0	0	6	7	86%
DCEDIY	0	0	1	2	0	3	3	100%
DSP	2	0	0	0	3	5	5	100%
D/Justice	0	0	0	0	1	1	1	100%
TOTAL	221	164	123	87	165	760	965	79%

'High Impact' measures completed in Q4 2022

With significant potential for direct or indirect emissions reduction and/or building resilience to climate change through adaptation, a number of 'high impact' measures were completed in Q4 2022. This includes the delivery of some 'high impact' measures delayed from previous quarters, as well as some new measures from Q4 2022 with high mitigation and/or adaptation potential. Examples are outlined in Tables 4 and 5. Further sectoral high impact highlights exist in each chapter of this Progress Report, with detail on every measure due for reporting contained in **Appendix 1**.

Table 4 - 'High Impact' measures rolled over from previous quarters that completed in Q4 2022

Sector	Action / Measure
Agriculture	<i>Action 313b</i> : Examine the effects of feed ingredients/ additives in sheep and cattle
	<i>Action 321a</i> : Produce detailed plans to manage the sustainable environmental footprint of the dairy and the beef sectors
Transport	<i>Action 288a</i> : Publish the 10-year Strategy for the Haulage Sector
Electricity	<i>Action 105c</i> : Publish High-Level Design for Microgeneration Support Scheme

Buildings	<i>Action 189c:</i> Transpose Article 15.4 of RED II so that Building Regulations permit minimum requirements for renewable energy to be fulfilled through efficient district heating and cooling
	<i>Action 215a:</i> Launch a new Energy Efficiency Obligation Scheme
Public Sector Lead	<i>Action 57c:</i> Develop an approach to cost-effectively retrofitting the public sector building stock to 2030
Citizen Engagement	<i>Action 38e:</i> Commence Senior Primary Climate Action Resource and accompanying lesson plans
Cross-Cutting	<i>Action 90a:</i> Incorporate the guiding principles for sustainable tourism development in business support programmes

Table 5 - New 'High Impact' measures completed in Q4 2022

Sector	Action / Measure
Agriculture	<i>Action 396b:</i> Explore options for wider rollout of the pilot ACRES to reduce emissions from grasslands on peat soils
Transport	<i>Action 276b:</i> Support the delivery of the ESB EV High Power Charging Infrastructure
Electricity	<i>Action 104c:</i> Commence RESS 3 Auction
	<i>Action 122b:</i> Commence dedicated offshore RESS auction
LULUCF	<i>Action 33a:</i> Continue to deliver the Enhanced Decommissioning, Rehabilitation and Restoration Scheme for Bord Na Móna peatlands
Buildings	<i>Action 220a:</i> Explore the potential for new tax measures to support retrofit
	<i>Action 214b:</i> Deliver retrofits to approximately 2,400 local authority homes
Enterprise	<i>Action 99d:</i> Facilitate and promote links between Large Energy Users, including data centres, and the renewable energy sector
Circular Economy	<i>Action 443c:</i> Introduce Deposit Return Scheme for plastic drinks bottles and aluminium cans
Just Transition	<i>Action 13b:</i> Education and training offered under SOLAS Green Skills
Research	<i>Action 82f:</i> Deliver Grand Challenge funding in areas relevant to climate
Carbon Pricing	<i>Action 66b:</i> Allocate carbon tax revenues in the Budget
Adaptation	<i>Action 493a:</i> Continue to develop and improve timely communications to customers during weather events

'High Impact' measures not delivered in Q4 2022

It is just as important to highlight measures that were not completed on time in Q4 2022 that hold significant emissions reduction and/or adaptation potential. Delays in implementation must be urgently addressed to meet legally binding emissions reduction targets at EU and national levels.

Examples of 'high impact' delayed measures can be found in Tables 6 and 7. As before, this includes 'high impact' measures delayed from previous quarters that continued to be delayed, as well as new Q4 measures that failed to complete on time. Further elaborations are contained within each Progress Report chapter, with detail on all delayed measures contained in **Appendix 1**.

Table 6 - 'High Impact' measures from previous quarters that continued to be delayed in Q4

Sector	Action / Measure
Agriculture	<i>Action 315a:</i> Explore pathways for earlier finishing of beef animals
	<i>Action 318d:</i> Start-up of the Teagasc biomethane anaerobic digestion pilot plant in Grange
Transport	<i>Action 275a:</i> Roll out an engagement strategy to drive EV uptake
Electricity	<i>Action 102c:</i> Review and publish a revised Methodology for Local Authority Renewable Energy Strategies
LULUCF	<i>Action 364d:</i> Launch the new Forest Strategy
	<i>Action 406a:</i> Publish restoration plan for 60ha of blanket bog
Buildings	<i>Action 185a:</i> Develop an approach to retrofit of commercial buildings
	<i>Action 197a:</i> Develop a roadmap to promote greater use of lower-carbon building material in construction
	<i>Action 225a:</i> Publish new guidance for the retrofit of traditional buildings
Enterprise	<i>Action 134b:</i> Develop the actions required to achieve a 10-60% decrease in embodied carbon in construction materials, including low carbon cement
	<i>Action 167a:</i> Agree high level decarbonisation plan with the alumina manufacturing sector
Public Sector Lead	<i>Action 9b:</i> Develop options to enhance climate action delivery and tackle key implementation challenges
	<i>Action 53b:</i> Publish new Public Sector Strategy for delivery
Governance	<i>Action 1a:</i> Finalise Ireland's long-term climate strategy
	<i>Action 4a:</i> Enhance Cabinet procedures to ensure that all Government Memoranda are considered against their carbon impact & mitigation potential
Circular Economy	<i>Action 434b:</i> Agree and set out a Bioeconomy Action Plan

Table 7 - New 'High Impact' measures delayed in Q4 2022

Sector	Action / Measure
Transport	<i>Action 232b:</i> Publish National Cycle Network Strategy
	<i>Action 285a:</i> Publish Strategic Rail Review
Electricity	<i>Action 99e:</i> Develop an enhanced reporting framework and implementation plan for electricity emissions for Large Energy Users
	<i>Action 100b:</i> Deliver a 2030 Demand Side Strategy
	<i>Action 126a:</i> Establish a framework for analysis of the potential for Carbon Capture and Storage deployment for Ireland
LULUCF	<i>Action 387c:</i> Conclude detailed national land cover and land map
	<i>Action 406d:</i> Publish restoration plan for 116ha of blanket bog from coniferous forestry in Glenamoy Bog Complex SAC
Marine	<i>Action 416a:</i> Enact legislation for the identification, designation, and management of Marine Protected Areas in Irish marine waters
Buildings	<i>Action 187b:</i> District Heating Steering Group to report to Government
Public Sector Lead	<i>Action 20c:</i> Develop Local Authority Climate Action Plans in the relevant counties
Cross-Cutting	<i>Action 400a:</i> Publish the 4th National Biodiversity Action Plan
Adaptation	<i>Action 467a, b & c:</i> Develop and publish coastal vulnerability mapping and coastal erosion databases for the east and south coasts of Ireland
	<i>Action 492c:</i> Install Flood Defences on vulnerable infrastructure in the electricity and gas networks sector

Overcoming challenges to climate action implementation

Delays in climate action implementation must be overcome to meet national and EU emissions reduction obligations. As [revealed by the SEAI this quarter](#), examining energy-related CO₂ emissions in 2021 shows that Ireland's emissions are heading in the wrong direction. Emissions are returning to pre-Covid levels, with further increases of c.6% anticipated based on initial SEAI data for 2022.

In this context, any delays in implementation experienced in CAP 21 have greater consequences and further risk not meeting legally binding carbon budgets and SECs. As stated by the SEAI: *"We cannot afford to lose focus on the fact that [our carbon budgets] are annual budgets. Every year counts. If a target is missed one year, then the following years become more challenging"*. Urgent action is required to turn our emissions trajectory around.

In keeping with the reasons for delay outlined in previous Progress Reports, the key reasons cited by Departments for delayed implementation this quarter include:

1. **Issues of alignment**, including desires to streamline the delivery of climate action with other ongoing activities or strategies (often to increase impact) and/or delays in one measure affecting the timely delivery of others;
2. **Lengthy public and stakeholder consultation**, often essential to include necessary voices and engage people in the transition to a climate neutral future;
3. **Issues of public sector capacity and capability**, including resource constraints, competing work priorities and a reliance on external expertise to complete tasks;
4. The **complexity of climate action**, including from technical, physical or planning standpoints (e.g. seasonal planting dependencies, planning permissions required for land use changes, or the complexities associated with low cost retrofit loans or Just Transition);
5. **External factors**, including legacy delays from Covid-19 and related supply chain issues;
6. Delays associated with the **passage of legislation** through the Oireachtas; and
7. The **layers of administrative clearance** often required for measures to complete, including from Agency, Departmental, Ministerial and EU level.

Some new reasons for delay cited in Q4 2022, include:

8. **Changes in the approach** or scope of actions since the publication of CAP 21 that result in some committed actions being no longer necessary or appropriate;
9. **More minor delays to action delivery**, with most of the necessary work completed but final reports or schemes awaiting publication (e.g. expected in Q1 2023).

As stated previously, the issue of continuous, rollover delays in action delivery remains concerning, where actions delayed from previous quarters remain uncompleted despite additional time gained.

All 205 delayed measures listed in this Progress Report carried forward for consideration in the drafting of the new Annex of Actions for CAP 23. A separate report will be published on all legacy CAP 21 measures, detailing how both delayed measures (e.g. those due in 2022) and future actions (e.g. those due in 2023, 2024 etc) are accounted for, either within the updated CAP and Annex of Actions or otherwise.

Further detail on the high impact measures due for delivery in Q4 2022 is provided next, presented in sectoral chapters. While the measures due for reporting in this Progress Report appeared in CAP 21, a brief description is also provided at the start of each chapter showing how the sectors will move forward under the updated CAP23. Detail on emissions trends is also provided for each sector, including its proportion of national emissions (without LULUCF), trajectories to date and gap to established 2030 emissions reductions targets.

Full detail on all completed and delayed measures due for reporting in Q4 2022 is contained at **Appendix 1**.

Agriculture

Progress in Q4 2022

Context:

Agriculture is the largest GHG emitting sector in Ireland, accounting for 37.5% of national emissions in 2021. This does not include agriculture-related land use emissions considered in the LULUCF chapter, including emissions from organic soils drained for farming uses (grasslands). Combined, emissions from agriculture and LULUCF account for c.45% of the national emissions profile.

According to the EPA, agricultural emissions increased by 3% in 2021 and are overall up 19.3% in the last ten years (2011-2021). Compared to 2020, increases in nitrogen fertiliser use (+5.2%), liming (+49.5%), dairy cow numbers (+2.8%) and milk production (+5.5%) caused emissions increases in 2021. While enhanced liming improves soil fertility, and may reduce fertiliser use in future, emissions from agriculture will further rise with any increases in livestock numbers.

Methane associated with ruminant livestock production (i.e. enteric fermentation and manure management) accounts for 68% of Irish agricultural GHG emissions (Teagasc 2022). While overall emissions from agriculture are predicted to fall slightly in 2022 due to high fertiliser prices decreasing sales, this may be offset by a rise in dairy cow numbers. While the total number of cattle dropped by 1.5% in December 2022 to a total of 6,551,800 cattle compared to the same period in 2021, the number of dairy cows rose slightly to 1.51 million (+0.3%). Further, Ireland consistently has one of the highest EU greenhouse gas emissions per capita, largely due to the disproportionate impact that agriculture has as an industry here. This signals the importance of decarbonisation in the sector.

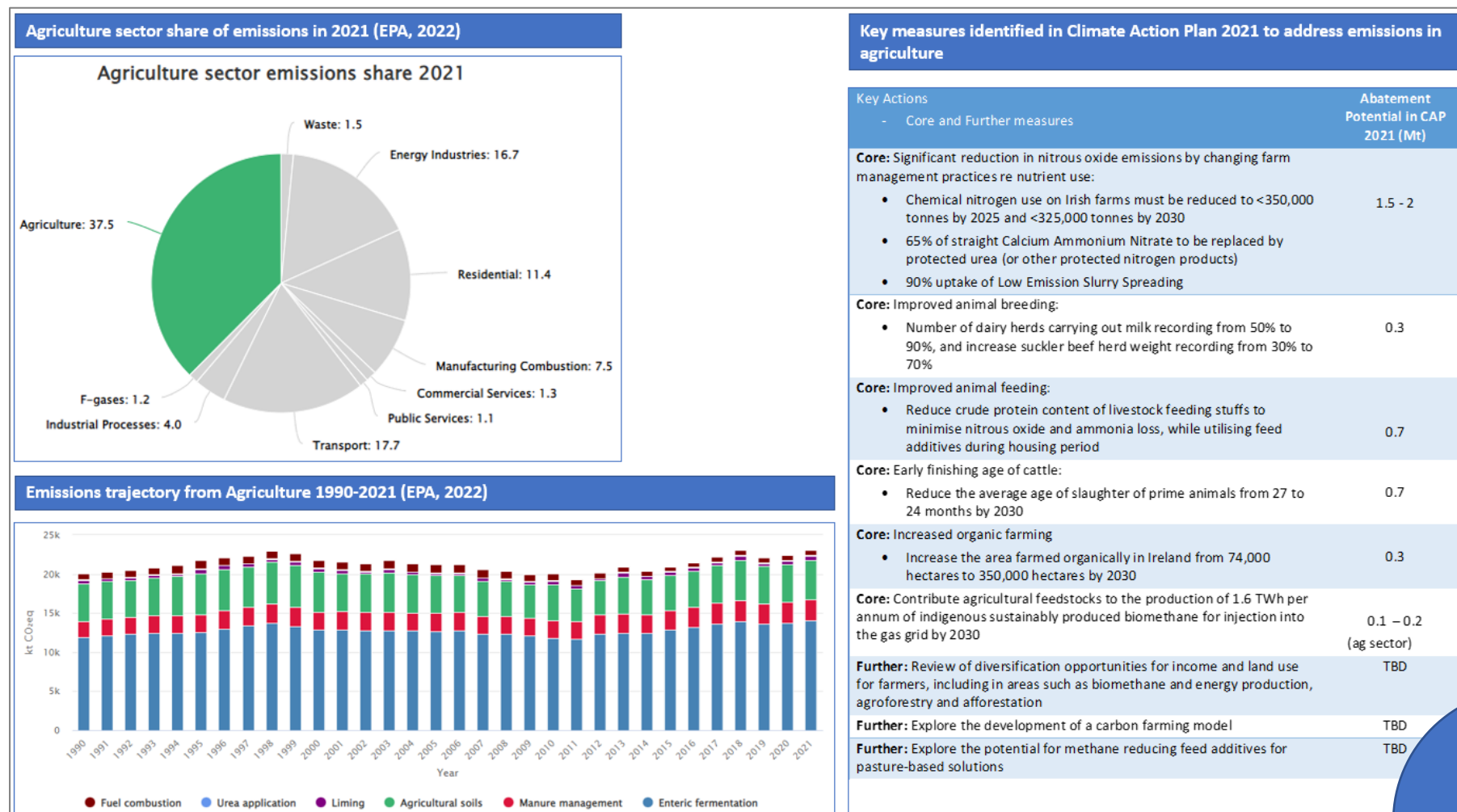
CAP 21 identified agricultural abatement potential in areas of fertilisers, farm income diversification, low emissions slurry spreading, reduced slaughter ages, animal breeding and feed management. The quantifiable impact of these actions, on methane emissions in particular, however remained unclear for the EPA who requested more specific actions and implementation pathways in CAP 23.

CAP 23 continues the sectoral focus on the key measures outlined in CAP 21. Additional miscellaneous measures are added, including extended grazing and a roll out of a methane-reducing slurry additive. A key new focus in CAP 23 includes the mobilisation of recommendations of the Food Vision sectoral groupings to diversify livestock activity and transition livestock farmers towards new land use opportunities including organics, tillage, forestry, anaerobic digestion and better management of organic soils.

To have an impact however, CAP 23 acknowledges that any voluntary livestock reduction on one farm must be structured in a way that ensures its impact is not offset by increases in breeding ruminant numbers overall, i.e. diversification must lead to the displacement of livestock and reduction in livestock numbers. Supports and actions are being established to achieve this through CAP23.



Figure 1 – Agriculture: emissions context (excluding agriculture-related LULUCF emissions) and key actions from CAP 2021



Gap to 2030
Target
Agriculture
5.85Mt*

*Gap comprising the 2021 EPA emissions figure for agriculture (23.1Mt) minus the agriculture SECs target for 2030 (17.25Mt)

Table 8 - 'High Impact' completed agriculture measures in Q4 2022

Agriculture Action / Measure Achieved	Why is this important?
<i>Action 316b:</i> Examine the effects of feed ingredients/additives (seaweeds, seaweed extracts, oils, and halides) in sheep and cattle	New feed additives may help to reduce methane emissions from livestock, particularly during animal housing periods, and need to be rigorously tested before bringing into use. The final indoor feed additive trial for beef cattle has now been completed. Supplements tested included a novel additive in pellet form that could be easily delivered on farms. These feed additives will be further evaluated during grazing in 2023 and will need to be evaluated by the European Food Safety Authority before use on farms.
<i>Action 321a:</i> Produce detailed plans to manage the sustainable environmental footprint of the dairy and the beef sectors	Detailed plans to manage the sustainable environmental footprint of dairy and beef are crucial to map decarbonisation pathways in the areas of farming most responsible for agricultural emissions. Delayed since Q2 2022, the final reports of the Food Vision Dairy Group and of the Food Vision Beef and Sheep Group both published in Q4. They helped to set the options for emissions reduction in the CAP 2023.
<i>Action 331a:</i> Ongoing monitoring of implementation by the Food Vision High-level Implementation Committee, including the Environmental Sub-Committee	The Food Vision 2030 Strategy published in August 2021 and aims to make Ireland a world leader in Sustainable Food Systems. Its first progress report finalised in November, showing how many agricultural climate actions are complete (1), substantially undertaken (17), commenced (40), or not yet commenced (3). The Food Vision Environmental Working Sub-Group also completed its first annual report, highlighting the environmental issues associated with implementing the Strategy including those related to water quality, methane, nitrous oxide and ammonia emissions and biodiversity. The need for industry to support farmers was also emphasised.

Table 9 - 'High Impact' delayed agriculture measures in Q4 2022

Agriculture Action / Measure Delayed	Why is this important?
<i>Action 315b:</i> Explore pathways to encourage earlier finishing of beef animals	Under correct feeding conditions, reducing the age of animal slaughter can reduce GHGs by c.250kg / head or c.3.6% per animal per month reduced. Repeat delays were encountered in finalising this measure in Q4. Pathways to encourage and facilitate earlier finishing have been identified. The expected delivery date of this action is now Q1 2023.
<i>Action 318d:</i> Start-up of the Teagasc biomethane anaerobic digestion pilot plant in Grange	Anaerobic Digestion (AD) can capture methane gases produced by decomposing organic waste such as slurry and grass silage and transform it into renewable energy and organic fertiliser. AD is promoted in CAP 23 as a key diversification opportunity for farmers to generate new income and displace traditional livestock farming. The pilot AD plant in Teagasc has suffered repeatedly from supply chain issues, delaying the delivery of equipment to complete the pilot plant. This is now expected in Q1 2023. Once operational, it will serve as an important demonstrator site for proof-of-concept and farmer learning.

Transport

Progress in Q4 2022

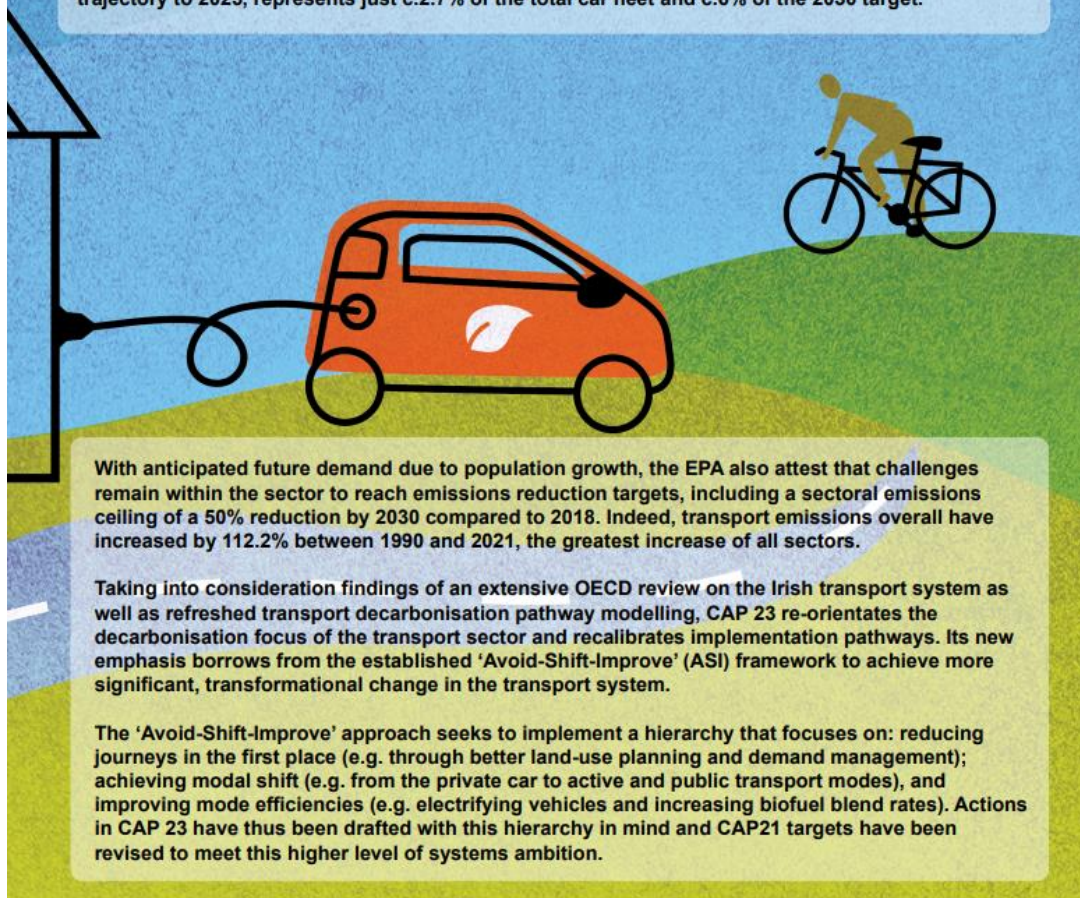
Context:

Transport emissions increased by 6.1% in 2021, attributed to a partial rebounding from Covid-19 travel restrictions. Overall, the transport sector accounted for 17.7% of Ireland's total GHGs in 2021. The EPA estimate that transport emissions may rise by 18-19% between 2020 and 2022, given that all Covid-related travel restrictions were removed in 2022.

Overall, 20.2% of the first sectoral carbon budget was expended in 2021. While this level is consistent with the sector being compliant with its carbon budget to 2025, it was a year marked with COVID travel restrictions. The need to substantially accelerate transport emissions abatement is clear as emissions continue to rebound post-Covid-19.

Road transport accounts for 94% of all transport emissions. While electric vehicle (EV) numbers are growing, the rebound in emissions seen in 2021 shows that we have not yet effectively decoupled transport emissions from economic activity through sustainable planning or electrification.

CAP 21 identified abatement potential in transport through the electrification of passenger and light goods vehicles, increased biofuel blending and modal shift to public and active transport. As of January 2023, there were over 60,000 EVs on Irish roads which, while ahead of a linear uptake trajectory to 2025, represents just c.2.7% of the total car fleet and c.6% of the 2030 target.

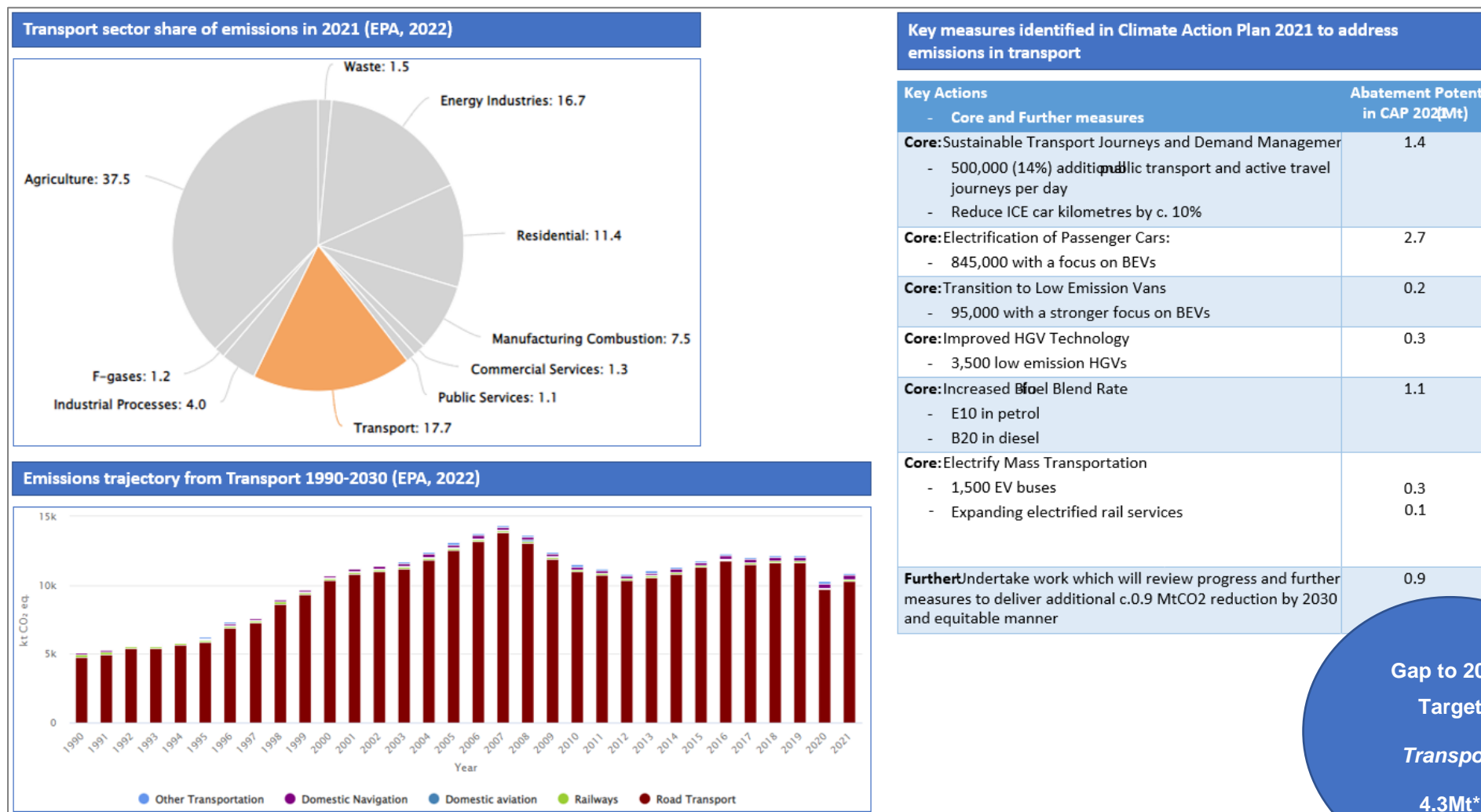


With anticipated future demand due to population growth, the EPA also attest that challenges remain within the sector to reach emissions reduction targets, including a sectoral emissions ceiling of a 50% reduction by 2030 compared to 2018. Indeed, transport emissions overall have increased by 112.2% between 1990 and 2021, the greatest increase of all sectors.

Taking into consideration findings of an extensive OECD review on the Irish transport system as well as refreshed transport decarbonisation pathway modelling, CAP 23 re-orientates the decarbonisation focus of the transport sector and recalibrates implementation pathways. Its new emphasis borrows from the established 'Avoid-Shift-Improve' (ASI) framework to achieve more significant, transformational change in the transport system.

The 'Avoid-Shift-Improve' approach seeks to implement a hierarchy that focuses on: reducing journeys in the first place (e.g. through better land-use planning and demand management); achieving modal shift (e.g. from the private car to active and public transport modes), and improving mode efficiencies (e.g. electrifying vehicles and increasing biofuel blend rates). Actions in CAP 23 have thus been drafted with this hierarchy in mind and CAP21 targets have been revised to meet this higher level of systems ambition.

Figure 2 – Transport: emissions context and key actions from CAP 2021



*Gap comprising the 2021 EPA emissions figure for transport (10.3Mt) minus the transport SECs target for 2030 (6Mt).

Table 10 - 'High Impact' completed transport measures in Q4 2022

Transport Action / Measure Achieved	Why is this important?
<i>Action 234a:</i> Ensure that an equivalent of 20% of the Transport Capital Budget is dedicated to Active Travel and Greenways	For 2023, €290m has been allocated to the National Transport Authority (NTA) for Active Travel (walking and cycling) and €6m allocated for Smarter Travel projects. €63m has also been allocated to TII for Greenways, with additional funding available for cross-border Greenway projects. Such funding will bolster walking and cycling as a safe and attractive transport option, lessening the need for fossil fuel car use, and thus reducing emissions.
<i>Action 235b:</i> Rollout of Safe Routes to School Infrastructure Programme	The Safe Routes to School Programme creates safer walking and cycling routes within communities, alleviates congestion at the school gates and improves walking and cycling facilities. Its rollout will reduce emissions by replacing fossil fuel car journeys and improve local air quality. Projects at all Round 1 schools have commenced and 436 schools have received cycle parking as part of the Programme. Round 2 launched in Q4, with an extra 108 schools brought into the scheme.
<i>Action 276b:</i> Support the delivery of the ESB EV High Power Charging Infrastructure	In 2022, ESB continued installing electric vehicle (EV) charge points nationwide, with 313 points installed to date. Government has provided over €1.2m to support this project to date. High power charging infrastructure is critical to enabling the transition to EVs, expanding and enhancing the country's public charging network.
<i>Action 288a:</i> Publish the 10-year Strategy for the Haulage Sector	The Road Haulage Strategy was published on 15 December. It focuses on generating efficiencies, improving standards, and helping the road freight sector move to a low-carbon future. The Strategy is key to decarbonising the second largest user of transport energy (next to private cars). It is particularly critical when considering that 99% of heavy goods vehicles are currently diesel fuelled.

Table 11 - 'High Impact' delayed transport measures in Q4 2022

Transport Action / Measure Delayed	Why is this important?
<i>Action 232b:</i> Publish National Cycle Network Strategy	A National Cycle Network will better connect towns, cities, and destinations across Ireland, making cycling more accessible for locals and visitors. A draft National Cycle Network Plan was completed by TII in Q3 following public consultation. Final publication has been delayed to Q1 due to ongoing discussions between TII and D/Transport.
<i>Action 275a:</i> Roll out a communication and engagement strategy to drive EV uptake	Customer communications and engagement is key to drive the uptake of electric vehicles (EVs). A decision was made to delay this campaign due to availability constraints of EVs on the market. A campaign will be deployed once market availability returns, likely early in 2023.

Action 285a: Publish Strategic Rail Review

The [All-Island Strategic Rail Review](#) considers how the rail network on the island of Ireland can improve to promote connectivity between cities, enhance regional accessibility, and provide more sustainable travel options. Rail analysis is continuing as planned, however sign-off and publication will be delayed due to the lack of a Northern Ireland Executive.

Electricity

Progress in Q4 2022

Context:

Energy security, costs and domestic supplies remained a focus in Ireland in Q4. Many climate actions, including those aimed at reducing electricity consumption, enhancing storage and accelerating renewable energy generation, can all help to improve domestic energy security and reduce reliance on imported fossil fuels.

Sectoral emissions from Energy Industries increased by 17.6% in 2021. This was attributed to a tripling of coal and fuel oil use in electricity generation due to 2021 bring an unusually low-wind year, less renewable generation as a consequence and a reduction in natural gas use as some plants were offline in 2021 for repair or maintenance. This was the first year of energy GHG increases since 2016, with the rebound threatening to undo recent achievements to decarbonise the electricity sector.

Overall, energy industries were responsible for 16.7% of national emissions in 2021. Renewables accounted for 34.7% of electricity generated that year, down from a high of 42.3% in 2020. The outlook for emissions from energy industries is uncertain according to the EPA, particularly given the recent return to coal use despite commitments to phase it out, and increasing energy demand. 2021 was nevertheless the lowest year in the 32-year time series for peat fired electricity generation.

CAP 21 aimed to increase renewable electricity generation to 80% by 2030 as a key abatement measure, including the rapid acceleration of offshore wind, onshore wind and solar PV capacity. This ambition is supported by additional actions focused on interconnectivity, demand management and improved storage.

CAP 23 maintains its focus on such actions to 2030. Ambition has also been increased for solar PV which is now aiming to generate 8GW in capacity by 2030. The Plan further aims to produce green hydrogen from surplus renewable electricity and introduces targets and actions to create new flexible gas-fired generation of at least 2GW to assist with energy security during the transition. Increased attention is also given to accelerating other flexibilities (including storage) and demand side management.

Electricity will play an important role in the decarbonisation of other sectors through electrification, including transport, heating, and industry, and so it remains a critical foundation to reduce emissions in the wider economy.

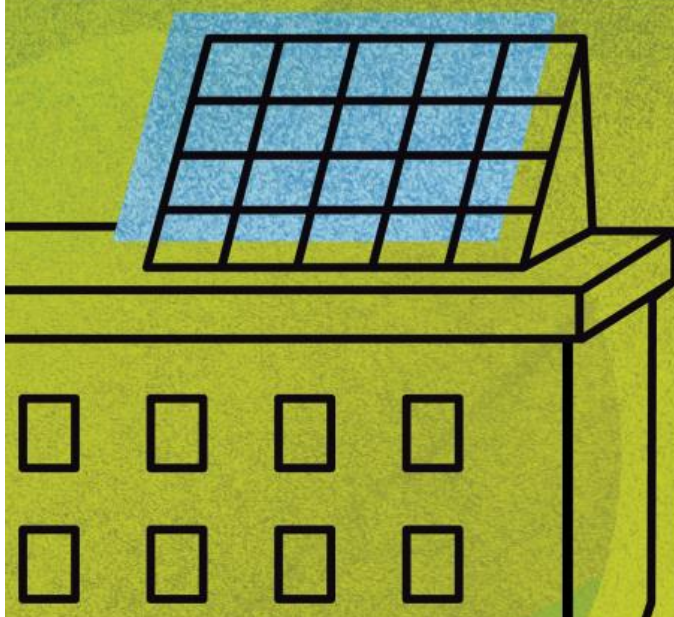
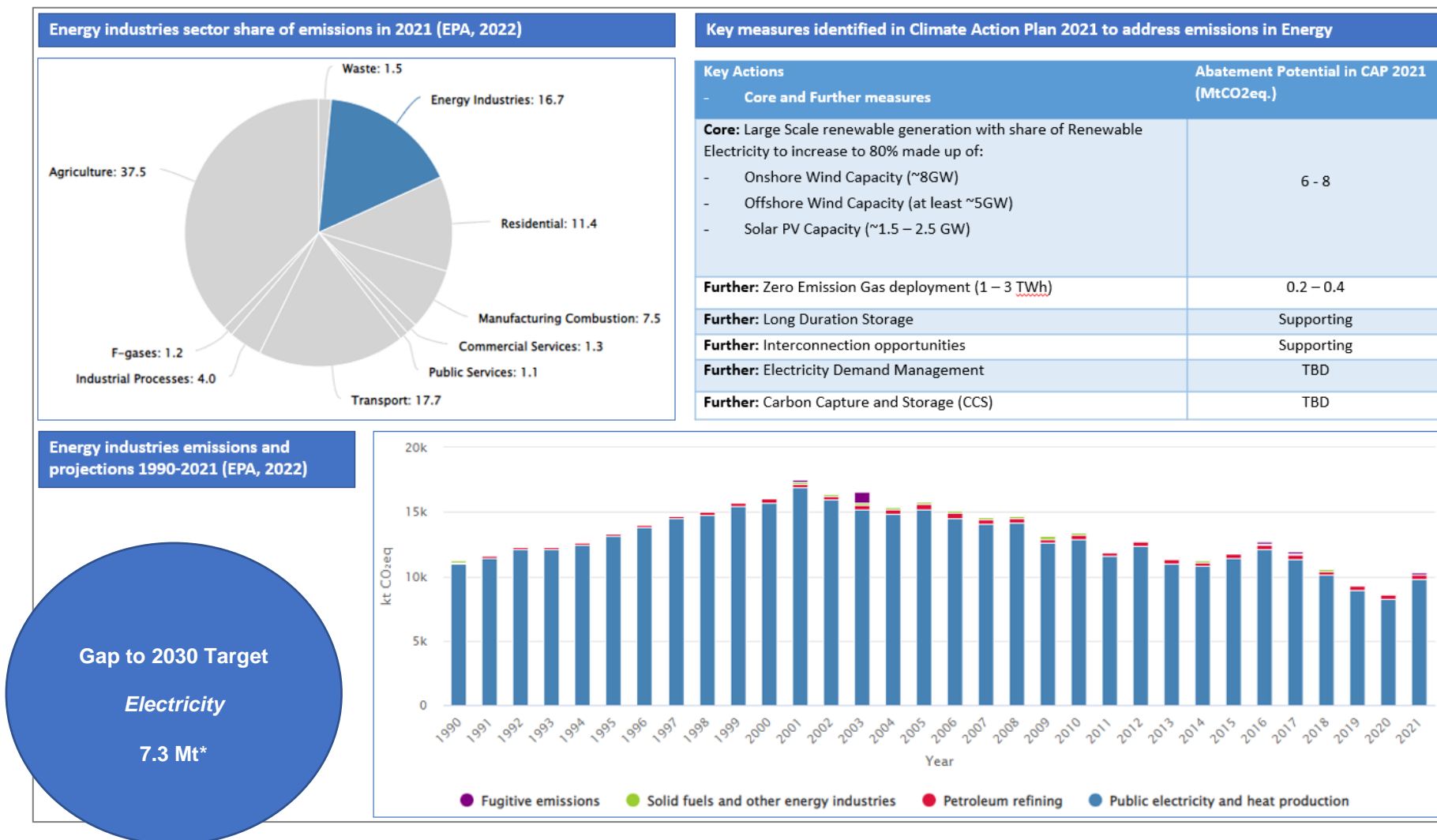


Figure 3 – Electricity: emissions context and key actions from CAP 2021



2

*Gap comprising the 2021 EPA emissions figure for electricity (10.3Mt) minus the electricity SECs target for 2030 (3Mt)

Table 12 – ‘High Impact’ completed electricity measures in Q4 2022

Electricity Action / Measure Achieved	Why is this important?
<i>Action 101e:</i> Develop programme of consumer communications based on research relevant to demand side flexibility	Demand side flexibility will help control electricity demand by incentivising customers to modify their energy consumption patterns. Engagement with the SEAI is ongoing, including regular update meetings to report on progress, ongoing developments, and uptake, in respect of the Community Enabling Framework supports.
<i>Action 104c:</i> Commence the Renewable Electricity Support Scheme (RESS) 3 Auction	RESS aims to promote the generation of electricity from renewable sources by providing financial support to renewable electricity projects in Ireland. In October 2022, DECC published a consultation on the design of the RESS 3 auction, with the auction set to take place in 2023. Further auction rounds are expected in future years and an updated RESS auction schedule will be published shortly.
<i>Action 105c:</i> Publish the final High-Level Design for a Microgeneration Support Scheme	A Microgeneration Support Scheme will incentivise people to install renewable energy on their rooftops helping to diversify the grid and decarbonise local electricity use. The final High-Level Design for a Microgeneration Support Scheme was published in December 2022.
<i>Action 122b:</i> Commence dedicated offshore RESS auction	Ireland has huge potential for offshore renewable energy, and an auction process is a key step in enabling this. The final Offshore RESS 1 Timetable was published by Eirgrid on 17 November 2022 and the Qualification Information Pack published by Eirgrid on 28 November. This provides certainty and structure to investors looking to develop offshore renewable projects in Ireland.

Table 13 – ‘High Impact’ delayed electricity measures in Q4 2022

Electricity Action / Measure Delayed	Why is this important?
<i>Action 99e:</i> Develop an enhanced reporting framework and implementation plan for electricity emissions for Large Energy Users (LEUs)	With the aim of facilitating reduced carbon intensity across the demand profile of LEUs and promoting grid efficiency, this measure did not complete in Q4 as planned, pending the procurement of external expertise to support the framework development. This tender will be advertised in Q1 2023. An enhanced understanding of LEUs is vital to designing appropriate actions to reduce their carbon intensity. Completion of this measure will also help to better align enterprise policy and the wider regulatory environment with electricity emission reduction targets and the security of energy supply.
<i>Action 100a:</i> Deliver a 2030 Demand Side Strategy	This action has been deferred due to prioritisation of security of supply programme of actions. The Electricity Demand Side Strategy will help control electricity demand by incentivising customers to modify their energy consumption patterns. Reducing electricity use in the first instance is the most straight-forward way of reducing associated emissions.

<p><i>Action 102c:</i> Review and publish a revised Methodology for Local Authority Renewable Energy Strategies</p>	<p>Local Authorities play an important role in the creation of local renewable energy projects, including ensuring supportive spatial planning framework for onshore renewable electricity generation development. A consistent approach for Local Authority Renewable Energy Strategies is needed across all 31 Local Authorities, as this measure aims to facilitate. Delays were caused by early set backs in procurement processes, with the measure now expected to complete in Q2 2023 under the new CAP 23. Its completion will help to support Ireland's renewable acceleration programme.</p>
<p><i>Action 108c:</i> Determine an appropriate settlement mechanism for small-scale generators between 51 kW and 500 kW</p>	<p>Progressing from micro-generation (between 6kW and 50KW), support must also be developed for small scale generation (between 51kW and 500kW) to advance ambition in Ireland's renewable energy programme. This measure was delayed in Q4 due to resourcing issues at the CRU. These issues have now been rectified and the measure will be completed under CAP 23, including to publish a mechanism for Premium Export Guarantee to facilitate larger on-site generation investments, as well as an implementation plan for a Clean Export Premium feed-in tariff in support of rooftop solar of this scale.</p>
<p><i>Action 126a:</i> Establish a framework for analysis of the potential for Carbon Capture and Storage deployment for Ireland</p>	<p>Carbon Capture and Storage (CCS) is often advocated as an important technological solution in achieving a net-zero future, particularly for difficult-to-abate sectors. Its deployment must be context specific, as this measure aimed to explore for Ireland. Its delay is significant from the perspective of the need to need to start preparing regulatory and policy frameworks for longer-term measures such as CCS in the near-term, for abatement to be achieved in the longer term. This includes the use of CCS in the third carbon budget period, as stated in CAP 23.</p>

LULUCF & the Marine

Progress in Q4 2022

Context:

Land management plays a critical role in both climate mitigation and adaptation. Land Use, Land Use Change and Forestry (LULUCF) has been an emissions source in Ireland since 1990. According to the CCAC Annual Review 2022, 7.8Mt CO₂ eq were emitted from land uses in 2021, representing 11% of national emissions. Emissions from the sector are 25% higher than in 1990.

According to the EPA, emissions in LULUCF largely come from Grassland and Wetlands, mainly due to the drainage of organic soils for agriculture and forestry uses. This emissions source is offset somewhat by Forest Land on mineral soils and functioning (wet) bogs which can act as carbon sinks, as well as Harvested Wood Products that sequester carbon. However, an ageing tree profile, the presence of trees on organic soils, drained bogland and continued deforestation create challenging conditions for present and future emissions in the sector.

A decision on setting a Sectoral Emissions Ceiling for LULUCF was deferred by 18 months last July, pending the assessment of evolving scientific data. In absence of a ceiling, CAP 23 continues with the LULUCF measures established in CAP 21. This includes efforts to increase planting rates to 8,000ha per annum, restore and rehabilitate bogs damaged by peat extraction and promote changes in grassland management on both mineral and organic soils (including re-wetting).

Overall, the complex dynamics of land-use change must be re-balanced to revert current sources to net GHG sinks. Changed land use practices will also bring benefits for adaptation resilience, biodiversity and ecosystem services including water quality, drought management, and flood attenuation.

CAP 23 introduces a new standalone chapter on the Marine sector. The importance of the marine environment in establishing offshore renewables is emphasised, along with actions dedicated to improving marine biodiversity, which in turn can enhance blue carbon sequestration. Increasing public awareness of the value of oceans is also emphasised in CAP 23, along with establishing robust marine research and innovation to increase sustainability in the sector.

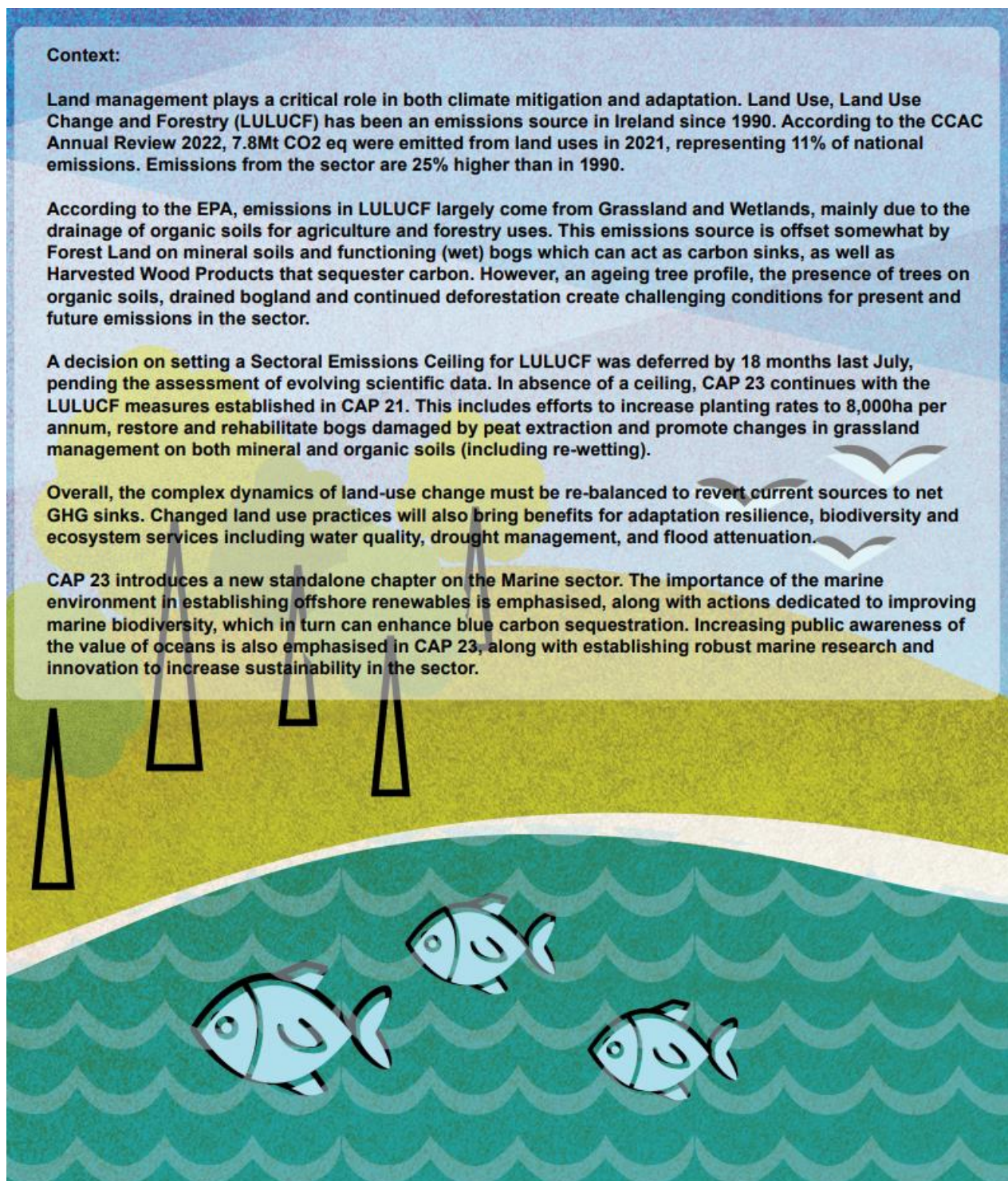
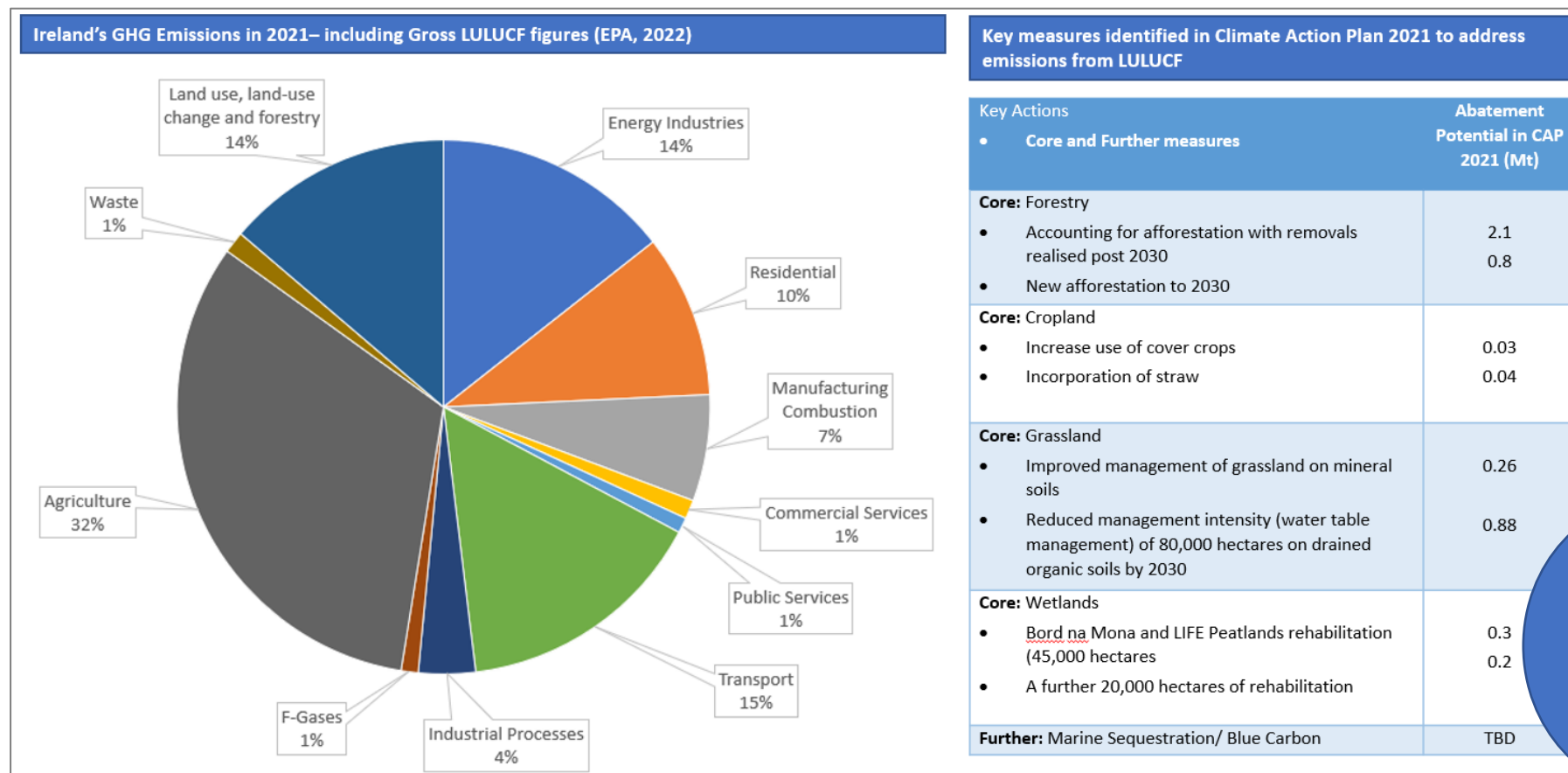


Figure 4 - LULUCF: emissions context and key actions from CAP 2021



Gap to 2030
Target
LULUCF
9Mt*

* From LULLUCF discussion in Climate Action Plan 2021, p168 – “The 4.8 MtCO₂eq. net emissions in 2018 represents non-forest land as a source of emissions with our forest sink netted off. This forest sink is reducing, and current EPA projections forecast that by 2030 Ireland’s net emissions will reach 7.1 MtCO₂eq. Furthermore, this projected net total is expected to increase further with emerging science to a range between 7-11 MtCO₂eq. in 2030, with the level of carbon removals from forests on organic soils being less than previously understood.” **Maximum gap to target thus calculated from 11Mt projected top estimate in 2030 to the 2Mt target identified in the CAP 2021.**

Table 14 - 'High Impact' completed LULUCF and marine measures in Q4 2022

LULUCF Action / Measure Achieved	Why is this important?
<i>Action 33a:</i> Progress restoration of 33,000 hectares of peatlands across 81 bogs owned by Bord na Móna	Delivery of the 'Enhanced Decommissioning, Rehabilitation and Restoration' (EDRR) Scheme for Bord Na Móna peatlands is on track. It will make important contributions to carbon sequestration in Ireland through re-wetting and restoring bogland that has been industrially extracted for energy production. By the end of Q3, 11,114 hectares have been rehabilitated across 35 bogs.
<i>Action 388d:</i> Update the 2013 Teagasc Land Drainage and Soil Management Handbook	A second edition of the Teagasc manual on Drainage and Soil Management has been published, conveying a consistent message to land owners and farmers on soil health and drainage. Drained organic soils are a big source of emissions in Ireland and so consistent advice on their water table management to re-wet them is key. Equally, properly managed mineral soils can bring sequestration benefits. Several projects and knowledge transfer events have been established to support these aims and promote this land use advice.
<i>Action 396b:</i> Explore options for wider rollout of the pilot ACRES to reduce emissions from grasslands on peat soils	The rollout of the pilot ACRES (Agri-Climate Rural Environmental Scheme) has been decided and is currently accepting applications from farmers that will include measures to reduce emissions from peat soils. Farmers will be incentivised through a "Low Input Grassland on Peat" measure to help restore these important ecosystems and the services they provide.

Table 15 - 'High Impact' delayed LULUCF and marine measures in Q4 2022

LULUCF Action / Measure Delayed	Why is this important?
<i>Action 364d:</i> Launch the new Forest Strategy	The new Forest Strategy remained delayed in Q4 and will publish in Q1 2023. The Strategy aims to ensure a sustainable forest sector that increases forestry's contribution to enhancing biodiversity while also tackling climate change and promoting carbon sequestration. Increased tree planting is critical to meet net-zero targets by 2050.
<i>Action 366c:</i> Increase participation of existing schemes and measures	The Forestry Programme 2014-2022 has now completed but failed to increase participation of existing schemes and measures. The next Forestry Programme 2023-2027 will include a range of measures to increase incentivisation across all schemes. In Q4, Government announced €1.3 billion in forestry supports with the purpose of increasing scheme uptake, particularly in woodland creation measures.
<i>Action 387c:</i> Conclude detailed national land cover and land map	Determining appropriate decarbonisation pathways for LULUCF requires robust data and baselines from which to measure progress. The National Land Cover map is undergoing final testing and is now scheduled to be delivered in Q1 2023.

<p><i>Action 406d:</i> Publish restoration plan for 116ha of blanket bog from coniferous forestry in Glenamoy Bog Complex SAC under active restoration</p>	<p>Trees planted on blanket bog are a significant source of emissions, as is the case in the Glenamoy Bog Complex, and so removing them in favour of re-wetting is important for long term carbon storage. The project was however delayed in Q4 as a result of an unexpected need to apply for planning permission prior to submitting a felling licence application due to the change in land use from forest to bog. A draft felling and bog restoration plan has been produced but awaits publication following necessary permissions.</p>
<p><i>Action 416a:</i> Enact comprehensive legislation for the identification, designation, and management of Marine Protected Areas in Irish marine waters</p>	<p>The Programme for Government committed to “realise our outstanding target of 10% under the Marine Strategy Framework Directive as soon as is practical and aim for 30% of marine protected areas by 2030”. Rich and protected marine ecosystems are essential to the functioning of our oceans, with benefits of enhanced biodiversity and blue carbon sequestration. The Government approved the General Scheme of stand-alone Marine Protected Areas Bill in Q4 2022, with the legislation expected to be enacted as early as possible in 2023.</p>

Buildings

Progress in Q4 2022

Context:

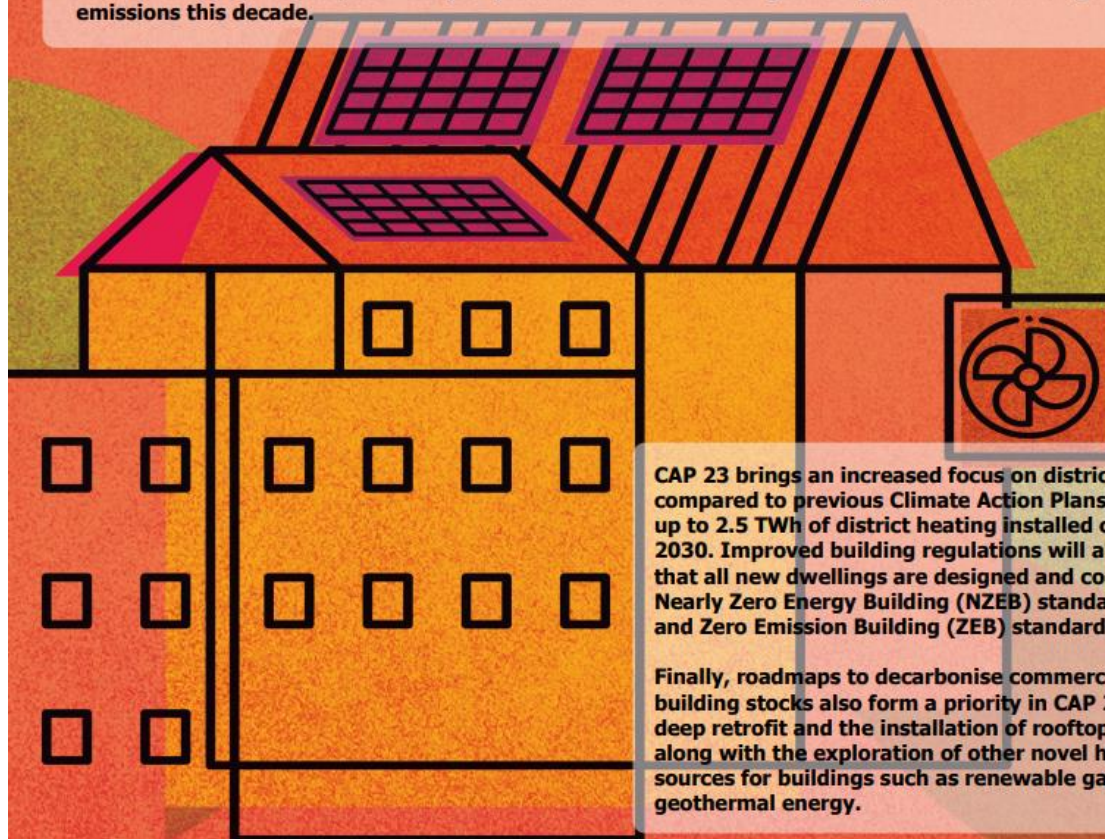
In the main, emissions from buildings arise from fossil fuel combustion for space and water heating in homes, businesses, and public buildings nationwide. Residential emissions accounted for 11.4% of national emissions in 2021, while commercial and public services combined represented 2.4%.

Emissions in the residential sector decreased by 4.9% in 2021 from an inflated position in 2020, attributed to reduced home working as Covid-19 restrictions eased. Emissions also decreased in commercial and public buildings in 2021, down 3% and 3.8% respectively.

Assessing these reduction, the EPA state that a milder winter in 2021 resulted in fewer heating days (down 2.5%), while increased fuel prices in 2021 may have also resulted in fewer fuel purchases. Combined, these trends resulted in a reduction in all fuel use in buildings (and thus emissions), with the exception of natural gas.

Exceptionally high fuel prices during 2022 may see continue trends for reduced oil and gas use, though reductions may be offset by increases in coal and peat use if households turned to solid fuel in response to high natural gas prices.

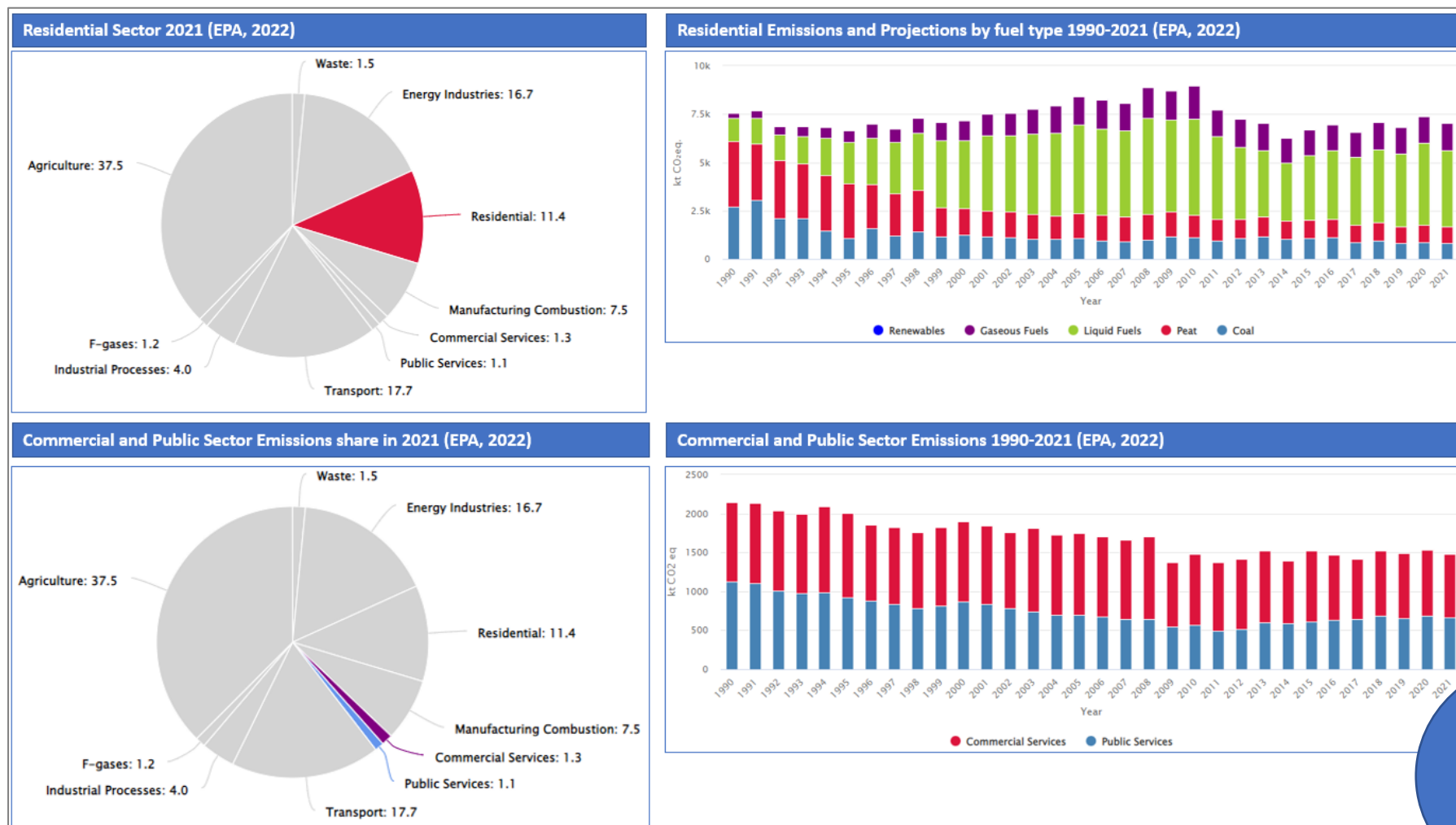
As with CAP 21, CAP 23 continues plans for further, long term emissions reduction from buildings including a focus on enhancing home heating efficiencies through retrofit (e.g. better insulation to reduce heat loss) and investing in renewable heat sourcing (e.g. installation of electric heat pumps). CAP 2021 retrofit and heat pump targets remain in CAP 23, including 500,000 home retrofits by 2030, as well as the installation of 680,000 heat-pumps across new and existing buildings, to reduce buildings emissions this decade.



CAP 23 brings an increased focus on district heating compared to previous Climate Action Plans, targeting up to 2.5 TWh of district heating installed capacity by 2030. Improved building regulations will also require that all new dwellings are designed and constructed to Nearly Zero Energy Building (NZEB) standard by 2025, and Zero Emission Building (ZEB) standard by 2030.

Finally, roadmaps to decarbonise commercial and public building stocks also form a priority in CAP 23 (including deep retrofit and the installation of rooftop solar PV), along with the exploration of other novel heating sources for buildings such as renewable gas and geothermal energy.

Figure 5 – Buildings: emissions context



Gap to 2030
Target
Buildings
3.52Mt*

*Gap comprising the 2021 EPA emissions figure for residential (7.04Mt) + commercial services (0.82Mt) + public services (0.66Mt) (total = 8.52Mt) minus the built environment SEC for 2030 (i.e. 5Mt)

Figure 6 – Buildings: emissions context and key actions from CAP 2021

Key Actions - Core and Further measures	Abatement Potential in CAP 2021 (MtCO ₂ eq.)
Core: Complete 500,000 residential retrofits to achieve a B2 BER/cost optimal equivalent or carbon equivalent	CAP 2019 measure
Core: Install 600,000 heat pumps in residential buildings (of which 400,000 to be installed in existing buildings)	CAP 2019 measure
Core: Strengthen NZEB to effectively ban fossil fuels in new homes (+280k new homes without fossil heat)	0.2
Core: Ramp-up zero emissions heat in commercial buildings (50,000 buildings)	0.3 – 0.4
Core: Increase targets for roll-out of district heating (up to 2.7 TWh of district heat)	0.3
Core: Planning for the full phase out of fossil fuels in buildings by 2050	CAP 2019 measure
Further: Promoting behavioural change in how households use energy to reduce heat demand	TBD
Further: Blend in zero-emission gas for fuel use in buildings	TBD

Table 16 - 'High Impact' completed buildings measures in Q4 2022

Buildings Action / Measure Achieved	Why is this important?
<i>Action 189c:</i> Transpose Article 15.4 of RED II so that Building Regulations permit minimum requirements for renewable energy to be fulfilled through efficient district heating and cooling	The Renewable Energy Directive (RED) II is an important European Directive that sets targets for renewable energy consumption across the EU in both building and transport sectors. The necessary District Heating Regulations have now been transposed, introducing minimum requirements for renewable energy to be fulfilled through efficient district heating and cooling. District heating is a proven technology, offering the potential to supply low- and zero-carbon heat to homes, businesses and public buildings from a central source. This is part of the wider move to use more renewable energy and waste heat.
<i>Action 214b:</i> Deliver retrofits to approximately 2,400 local authority homes	Government has committed to retrofit 36,500 Local Authority homes to B2/Cost Optimal by 2030. By end of Q4 2022, 2,283 homes were upgraded, close to the approximate targets for the year and despite the effects of Covid on the construction sector and related supply chain issues. Local Authorities are ramping up delivery to achieve the 36,500 retrofits by 2030. This is a critical measure to decarbonise social housing, ensure a Just Transition and ultimately create warmer, more comfortable and healthier homes with lower energy bills.
<i>Action 215a:</i> Launch a new Energy Efficiency Obligation Scheme	New regulations underpinning the Energy Efficiency Obligation Scheme published in October, with the new Scheme coming into operation on 1 January 2023. Under the Obligation, energy suppliers must support energy efficiency projects in businesses and homes across Ireland. This will help to reduce energy consumption and thus related emissions.

<i>Action 220a:</i> Explore the potential for new tax measures to support retrofit	November 2022 saw the announcement of a new tax incentive to encourage small-scale landlords to undertake retrofitting works. This is essential to ensure that renters are not left behind in the climate neutral transition and will also assist in improving the quality and comfort of homes in the private rental sector.
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Table 17 - 'High Impact' delayed buildings measures in Q4 2022

Buildings Action / Measure Delayed	Why is this important?
<i>Action 185a:</i> Develop an approach to the retrofit of the commercial building stock	Retrofitting commercial buildings will bring important energy and emissions savings while also reducing energy bills for businesses. Elements of the approach for retrofitting the commercial building stock are underway. For example, a new non-domestic retrofit support received approval and budget of €2 million for 2023, while agreement has also been reached that a Support Scheme for Energy Audits will form part of the retrofit approach. Approach paper for the new non-domestic retrofit support received from the SEAI and remains under consideration by DECC.
<i>Action 187b:</i> District Heating Steering Group to report to Government annually	Several measures related to district heating remained delayed in Q4, pending the outputs of the District Heating Steering Group who were due to report to Government in Q4. This includes recommendations on a suitable ownership model as well as updating 2030 district heating targets. District heating can help to decarbonise many of our urban and sub-urban areas and is a well-established technology across Europe. The group is anticipated to report in Q1 2023.
<i>Action 197a:</i> Develop a roadmap to promote greater use of lower-carbon building material in construction	A roadmap to increase the use of lower-carbon building materials is necessary to direct the decarbonisation of the construction industry, reduce embodied carbon in buildings and promote forestry as a land use for increased timber production. A draft roadmap remained delayed from the Office of Public Works (OPW) in Q4.
<i>Action 225a:</i> Publish new guidance for the retrofit of traditional buildings	Traditional buildings (i.e., generally pre-1940 construction) make up c.18% of commercial, residential, and public sector buildings in Ireland. Different retrofitting guidance is required to protect their integrity. Rolling over from previous CAPs and most recently delayed since Q1 2022, this has been a complex project requiring significant engagement across industry, professional bodies and other relevant stakeholders, including public consultation. It is now expected to publish in Q3 2023.

Enterprise

Progress in Q4 2022

Context:

Emissions from enterprise in the EPA inventory include GHGs from three key sources: manufacturing combustion (e.g. producing cement, food, aluminium, chemicals) (7.5% of national emissions in 2021), industrial processes (4%) and Fluorinated (F-) gases (1.2%). Combined, emissions from the industrial sector accounted for c.12.7% of emissions in Ireland in 2021.

There were increases in both combustion and process emissions in 2021 compared to 2020, up by 0.9% and 16.8% respectively. The EPA largely attributes this to increases in cement production in Ireland as Covid-19 restrictions eased.

Indeed, combustion emissions from non-metallic minerals (including cement) increased by 10.5% (or 0.12 Mt CO₂eq.) in 2021, indicating the need to rapidly decarbonise heating processes in this section of the economy. Cement sectoral emissions overall are up 106.2% since 2011, while total emissions (combustion and process) from cement production in 2021 amounted to 5.1% of national emissions.

To reduce emissions from enterprise, CAP 21 aimed to accelerate the uptake of carbon-neutral heating in industry, reduce embodied carbon in construction materials and phase out F-gases. Developing detailed decarbonisation plans (including the potential for Carbon Capture and Storage) was prioritised for emissions intensive industries like cement, aluminium and food processing.

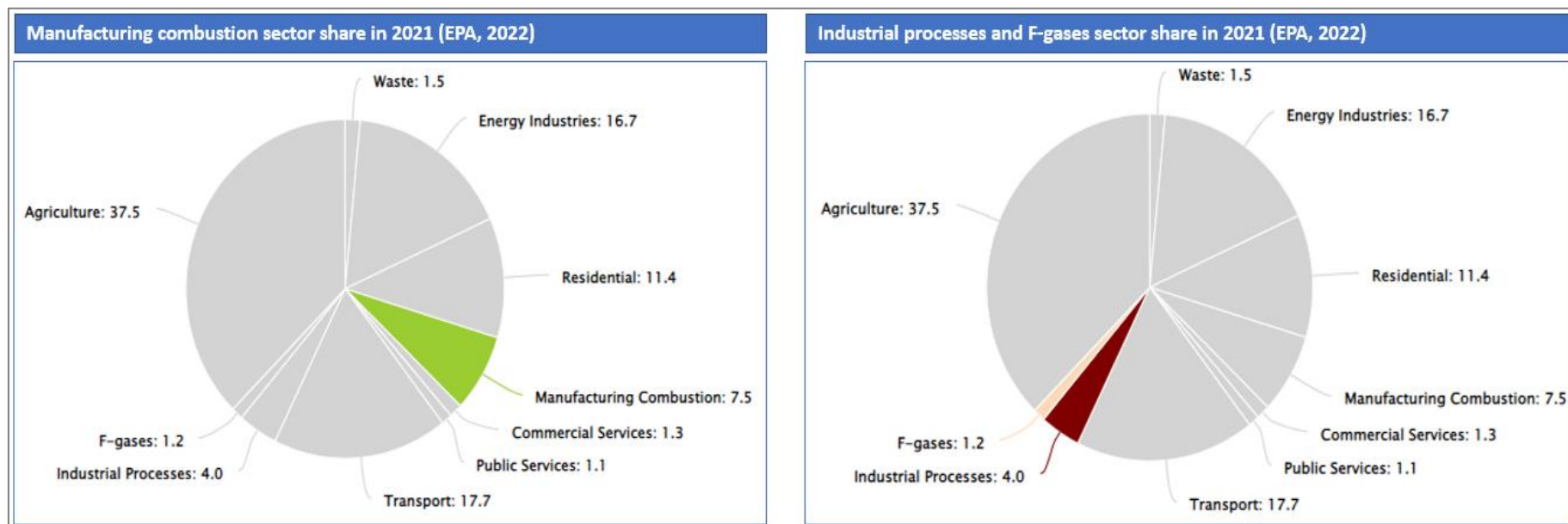
CAP 23 intensifies focus on decarbonising the industry sector, re-naming the chapter as such and moving elements of enterprise/commercial buildings retrofit to the 'Buildings' chapter and F-gases to the 'Other' section, in keeping with established sectoral emissions ceilings.

Building on the findings of the SEAI National Heat Study, the industry actions pursue a 70-75% share of carbon neutral heating in total fuel demand by 2030, with differentiated targets depending on the temperature grade required (high, medium or low heat). Alongside this, CAP 23 increases focus on reducing fossil fuel demand in industry including through supported energy efficiency measures, as well as accelerating the use of zero emissions gas in industrial heating (at least 2.1 TWh by 2030).

Ambition to decrease embodied carbon in construction materials remains in the CAP 23, with targets to reduce embodied carbon by at least 30% by 2030 through product substitution and the reduction of clinker content in cement. Significantly growing the circular economy and the bioeconomy also features in the new Plan, with the aim of changing how we produce, consume, and design our goods and services by breaking the link between fossil fuels and economic progress.



Figure 7 - Enterprise: emissions context



Gap to 2030 Target

Enterprise

2.79Mt*

Gap comprising the 2021 EPA emissions figure for manufacturing combustion (4.59Mt), industrial processes (2.46Mt) and F-gases (0.74Mt) (total = 7.79Mt) minus the industry SEC for 2030 (5Mt)

Figure 8 - Enterprise: emissions context and key actions from CAP 2021

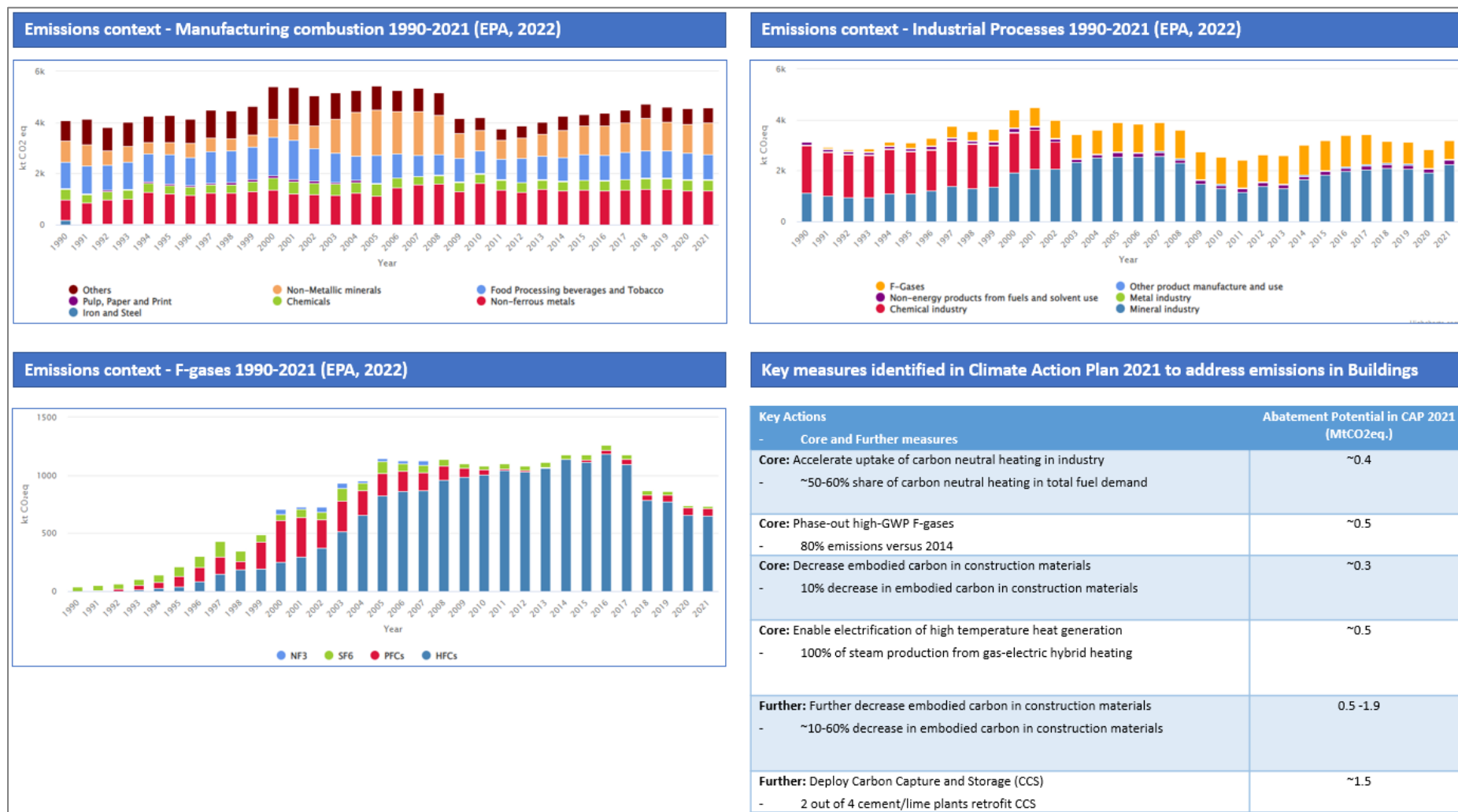


Table 18 - 'High Impact' completed enterprise measures in Q4 2022

Enterprise Action / Measure Achieved	Why is this important?
<i>Action 99d:</i> Facilitate and promote links between Large Energy Users (LEUs), including data centres, and the renewable energy sector	New links were established, and existing links were strengthened, between LEUs and the renewable energy sector in Q4 (e.g. in planned renewable energy parks). In the long-term, the established links should contribute significantly to driving climate action by promoting the use of renewable energy in industries that use the most energy in Ireland and by helping to better align future network needs.

Table 19 - 'High Impact' delayed enterprise measures in Q4 2022

Agriculture Action / Measure Delayed	Why is this important?
<i>Action 134b:</i> Develop the actions required to achieve a 10- 60% decrease in embodied carbon in construction materials, including low carbon cement	Cement emissions are up 106.2% since 2011, while total emissions (combustion and process) from cement production in 2021 amounted to 5.1% of national emissions. It thus represents a key industry to focus decarbonisation efforts. A working group was formed to develop actions to reduce embodied carbon in the construction sector, including low carbon cement. The group will continue in 2023 and is planning to procure technical expertise to advise on areas such as cement standards, supply and availability and wider impacts.
<i>Action 151d:</i> Assess agency grants through the Economic Appraisal Model for their Climate impact	Incorporating climate impacts into capital grant decisions is important to ensure that enterprise agency grants are aligned with emissions reduction efforts. A robust methodology to ensure this alignment is required and a Pilot Economic Appraisal Model for Climate Impact has concluded. The use of the model by agencies however was delayed again in Q4 as parameters of the model are being updated.
<i>Action 167a:</i> Agree high level decarbonisation plan with the alumina manufacturing sector	A changing geopolitical situation has resulted in a different operating environment, which has delayed progress on the decarbonisation plan for the alumina sector. Commitments on key actions to support the development of renewable energy supply options are thus delayed. As a concentrated energy-intensive industry, agreeing a decarbonisation plan with this sector is important to reduce national industry emissions.

Public Sector Lead

Progress in Q4 2022

Context:

Emissions from the public sector in 2018 accounted for c.3.3% of Ireland's GHGs. This includes emissions from heating and electricity use in public buildings, transport use, as well as emissions from commercial semi-state bodies.

Although its share of emissions is relatively small nationally, the public sector plays an important exemplar role as a catalyst, advocate, and proof-of-concept for ambitious climate action. Further, as a large purchaser of goods and services, green procurement in the public sector is important to incentivise the development of more sustainable businesses and supply chains. These roles were provided for in actions under the CAP 2021 and continue under the CAP 23.

As with CAP 21, actions combine in CAP 23 to support and promote public building retrofit activity, address emissions from public sector vehicles, and build capacity across all levels of government to deliver on climate action. Signposted in the CAP 21, the implementation of the Public Sector Climate Action Mandate is a priority under CAP 23, supported by more detailed monitoring and reporting from the SEAI as well as the development of individualised climate action roadmaps in every public sector body.



Enhancing climate literacy in the public sector also features in CAP 23, supported by new governance approaches and increased climate action and sustainability training for public servants. A new Green Public Procurement Strategy and implementation action plan will also be developed, including a need for public bodies to specify low carbon construction methods and materials, as far as practicable, for directly procured or supported construction projects from 2023. The CAP also increases ambition to procure only zero emission vehicles from January 2023 onwards, with some exemptions.

Table 20 - 'High Impact' completed public sector measures in Q4 2022

Public Sector Action / Measure Achieved	Why is this important?
<i>Action 57c:</i> Develop an approach to cost-effectively retrofitting the public sector building stock to 2030 based on completed research including establishing the role of energy performance contracting	Saving energy and increasing the sustainability of public sector stock is important not only to saving emissions directly, but also demonstrating that different types of buildings can be upgraded effectively. The SEAI undertook a review of the Pathfinder Programme to identify opportunities to enhance the delivery of cost-effective retrofits in public sector buildings. It was determined that the Pathfinder Programme would require an increased budget in combination with a new delivery model to support a scaling up of the programme. The review and the actions contained in CAP 23 have informed the development of a new programme strategy, including use of capital, supply-chain development and measurement and verification processes.
<i>Action 270b:</i> Convert entire Athlone town bus service to electric buses	Moving the public sector transport fleet away from combustion engines will reduce emissions and improve air quality in the areas that they are servicing. Works to deliver the requisite electric bus charging infrastructure at Athlone Depot were complete at the end of 2022. The scheme marks the first Pathfinder Scheme in operation.

Table 21 - 'High Impact' delayed public sector measures in Q4 2022

Public Sector Action / Measure Delayed	Why is this important?
<i>Action 9b:</i> Develop options to enhance climate action delivery and tackle key implementation challenges	Identifying common challenges to climate action implementation is a first key step to developing solutions to address any capacity or capability challenges in the civil service. A capacity review of the civil service is underway, with support from the Institute of Public Administration , but suffered initial delays in such expertise procurement. It is now expected to complete in Q2 2023.
<i>Action 20c:</i> Develop Local Authority Climate Action Plans in the relevant counties	The Climate Action and Low Carbon Development (Amendment) Act 2021 created a requirement for Local Authorities across the country to develop their own Climate Action Plans. This is important to promote and facilitate local climate action, appreciating that 'not one size fits all' for local mitigation and adaptation approaches. This action was delayed in 2022, a new deadline of Q1 2024 set for Local Authority Climate Action Plans to be developed and submitted to the Minister.
<i>Action 53b:</i> Seek Government approval and publish new Public Sector Strategy for delivery	An over-arching public sector decarbonisation strategy will bolster efforts of the public sector to lead by example in climate action and track its progress. The Strategy is complete and was originally to be included as a stand-alone chapter in CAP23, however it was ultimately decided to bring the strategy to Government separately and publish in Q1 2023.

Action 53c: Large Public Bodies will prepare comprehensive Climate Action Roadmaps

With buildings and services nationwide, the public sector has an important role to play in reducing emissions and leading by example for climate action in communities. The timeline for delivery of Climate Action Roadmaps for the Public Sector was moved from Q4 2022 to Q1 2023, following the late publication in November of SEAI Guidance to prepare such roadmaps.

Circular Economy

Progress in Q4 2022

Context:

Emissions from waste accounted for 1.5% of national emissions in 2021. This follows a trend of emissions decline in this sector seen over recent years, with GHG emissions from waste now 45.2% below 1990 levels.

Long term emissions savings in the sector are attributed to the improved management of landfill facilities as well as enhanced waste segregation and recycling rates that have resulted in reduced municipal solid waste (MSW) in landfills, a decrease in organic materials (food and garden waste) in MSW and a better diversion of paper products. Landfills are the largest source of emissions in the sector, where methane, a potent GHG, is emitted.

The CAP 21 promoted circular economy actions to further reduce waste emissions, aiming to reduce consumption and waste in the first instance and keep materials in use for as long as possible. As noted in the CAP 23, Ireland has low circularity rates (1.8%) compared to an EU average of 12.8% and it is imperative that this improves.

The CAP 23 aim to increase the importance of the circular economy nationwide, pursuing the implementation of the Waste Action Plan for a Circular Economy and the Whole-of-Government Circular Economy Strategy. It prioritises plastics, food, construction, and commercial waste for prevention planning and continues with actions to encourage further recycling and reuse of materials. This includes a phased introduction of environmental levies on a range of single-use disposable items.

The bioeconomy represents a further important opportunity for fossil fuel displacement and reduced emissions, pollution and waste noted in the CAP 2021 and equally pursued in CAP 23. The bioeconomy uses renewable, biological resources from agriculture, forestry, marine and food industries, instead of fossil fuels, to create food, feed, materials, chemicals and fuels.

Bioeconomy development can also help to diversify agriculture, industry and land-use practices into higher value and more sustainable uses, providing for more resilient incomes, enterprises and jobs. The Bioeconomy now features in the 'Cross-cutting Policies' chapter in CAP 23, enhancing its relevance to all sectors with action centred on the development of a dedicated Bioeconomy Action Plan to make further progress.



Figure 9 - Waste: emissions context and key actions from CAP 2021

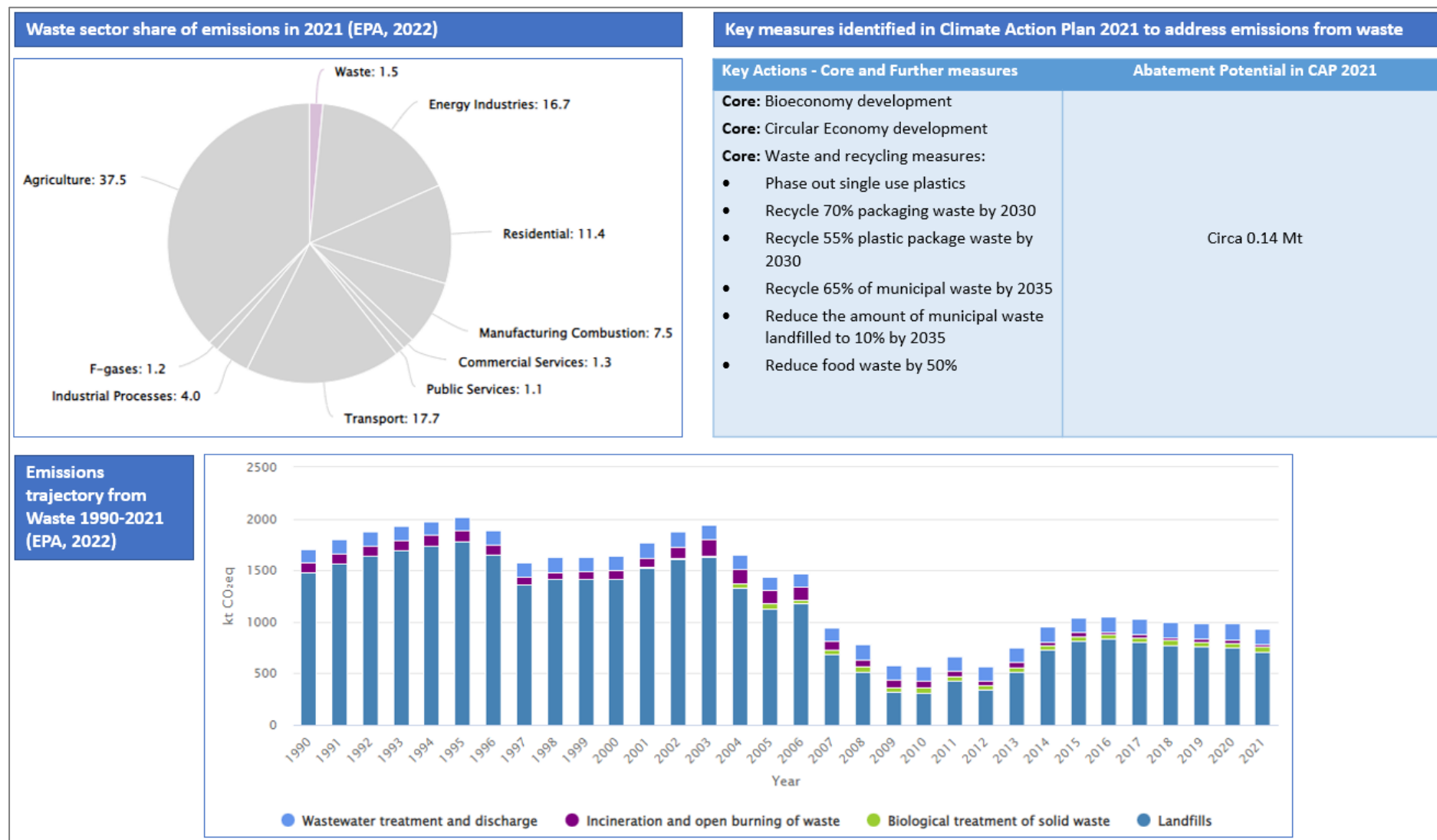


Table 22 - 'High Impact' completed circular economy measures in Q4 2022

Circular Economy Action / Measure Achieved	Why is this important?
<i>Action 440a:</i> Publish Food Waste Prevention Roadmap and commit resources to undertake national food waste prevention activities	Delayed since Q4 2021, a Food Waste Prevention Roadmap has now been published that sets out a series of actions to halve food waste by 2030. The Roadmap sets out key steps to take to achieve sustainability, help combat climate change, and support the transition to a circular economy and bioeconomy. €500,000 is being allocated to Regional Waste Management Planning Offices in 2023 to support food waste recycling awareness, including the planned distribution of food waste recycling kitchen caddy packs to households.
<i>Action 443c:</i> Introduction of a Deposit Return Scheme for plastic drinks bottles and aluminium cans	New and expanded environmental levies and incentives can encourage reduced resource consumption and incentivise higher levels of re-use and recycling. A new Deposit Return Scheme for plastic drinks bottles and aluminium cans launched in November to this end. It introduces a refundable deposit that will incentivise consumers to return plastic bottles and cans so that producers can make new bottles and cans out of them, saving materials, energy and reducing litter.

Table 23 - 'High Impact' delayed circular economy measures in Q4 2022

Circular Economy Action / Measure Delayed	Why is this important?
<i>Action 434b:</i> Agree and set out a Bioeconomy Action Plan for a three-year period	Overdue since Q3 2022, a detailed national Bioeconomy Action Plan remained delayed in Q4 2022. The Plan is important to provide clear signalling and direction to all sectors on diverse bioeconomy opportunities, displacing fossil fuels across the economy and helping to diversify land uses and industry away from emissions-intensive practices. A public consultation for the Bioeconomy Action Plan launched in Q4, with the finalised Plan expected shortly.

Cross-Cutting Policies

Progress in Q4 2022


Context:

Every Department and Agency has a role to play in accelerating climate action. Alongside clear sectoral emissions reduction policies, a range of supporting governance, finance, planning, education, engagement, research and international actions are needed to create the right conditions for climate action to flourish.

While hard to quantify their direct emissions reduction potential, cross-cutting actions are essential to further the impact and implementation of sectoral policies and support behavioural changes across all of the economy and society.

Citizen Engagement and Just Transition are two central pillars in this cross-cutting context. Engagement is necessary to empower citizens in emissions reduction efforts, while Just Transition considerations are key to ensuring that vulnerable communities are protected and that nobody is left behind. These efforts must be supported by clear governance mechanisms to ensure continued momentum and accountability across all levels of Government, while private finance and public spending must also be mobilised in way that deprioritises emissions intensive practices.

Climate-friendly planning and international supports are also key to Ireland's climate leadership, while Research & Innovation (R&I) can act a critical enabler through the development of mitigation and adaptation solutions with environmental, economic and social benefits.



CAP 23 increases ambition in a lot of these areas including across governance and public spending categories. The new Plan also introduces a dedicated chapter on R&I for the first time. It recognises the need to continue building a robust domestic climate R&I ecosystem as well as strong relationships with global R&I communities to provide the knowledge, expertise, data, evidence, technologies and solutions to enable the transition to net-zero and yield benefits for all of society.

Combined, the range of cross-cutting, supportive actions present in the CAP 2021, and reiterated in the CAP 23, provide an important enabling context for individual, household, community, international, and company-level climate action. It is therefore important that we continue to draw attention to those high impact cross-cutting measures completed and delayed in this last reporting period of CAP 21.

Table 24 - 'High Impact' completed cross-cutting measures in Q4 2022

Cross-Cutting Sector	Action / Measure Achieved	Why is this important?
Just Transition	<i>Action 13b:</i> Education and training opportunities offered under the SOLAS Green Skills Action Programme	Green skills training opportunities are essential to support new jobs and action needed in the climate neutral transition. Nearly Zero Energy Building (NZEB) training is particularly critical to support construction workers and to decarbonise buildings. In total, 2,034 NZEB training places were provided in 2022 in 5 Centres of Excellence. System capacity can meet current and increased demand up to the targeted 4,550 places, with signs that demand is increasing. Further, a wholly online green skills module was launched in Q4, providing the capacity to deliver 60,000 green skills places.
	<i>Action 29b:</i> Education and Training Boards to provide Bog Rewetting Programme Traineeship and the Sustainable Agriculture Traineeship	As a particularly affected region, CAP 21 aimed to enhance delivery of further education in the Midlands to equip people for future green employment opportunities. The Laois and Offaly Education and Training Board continues to engage with Bord Na Móna on a Peatland Rehabilitation Traineeship, with 222 people participating to date. A Sustainable Agriculture Traineeship is also provided in partnership with Teagasc, aimed at Bord Na Móna seasonal employees and farming families. It works to develop skills to avail of green initiatives in new CAP reform policies as well as exploring diversification and off-farm income generation. 79 learners have participated since 2021 and has been so successful that it will now be offered to the wider agricultural community in the region.
Citizen Engagement	<i>Action 38e:</i> Commence Senior Primary Climate Action Resource and accompanying lesson plans	Education is key to raising awareness and understanding of climate change and the need for climate action. Following initial delays, Senior Primary Climate Action resources have now been piloted for 3rd-6th class. An initial teacher information seminar was held in September, the resources were launched in October and resource training completed in December.
Carbon Pricing	<i>Action 66b:</i> Allocate carbon tax revenues in the Budget	The carbon tax rate increased to €48.50 per tonne of CO ₂ in Q4. This impacted autofuels on 12 October 2022 and is due to apply to other fuels on 1 May 2023. Carbon tax is important to send the necessary signals to reduce fossil fuel use, with the resulting revenue used to fund climate action and fuel poverty measures nationwide.

	<i>Action 73a(ii):</i> NewERA to mobilise private investment towards assisting in meeting our climate objectives	Engaging with commercial State companies, the Ireland Strategic Investment Fund, the Strategic Banking Corporation of Ireland , and other public bodies, NewERA works to increase private investment in climate action in Ireland. Publicly available information on the current allocation of Green Bonds details the €1,036m allocated to eligible green projects here. The total allocation in Ireland has increased to €7,344m.
Planning	<i>Action 90a:</i> Incorporate the guiding principles for sustainable tourism development in business support programmes	Growing awareness and supports for sustainability in tourism is key to decarbonising this sector. Delayed since Q4 2021, Fáilte Ireland have now launched a substantial volume of resources to educate and support tourism businesses on their climate action journey. This includes a carbon emission calculator, resource management guides and a dedicated "Climate Action Roadmap".
Research & innovation	<i>Action 82f:</i> Deliver Grand Challenge funding in areas relevant to Climate under the new National Grand Challenges Programme	The National Challenge Fund is a €65million research fund that provides ambitious researchers the chance to develop solutions to key challenges. In the Fund, the Green Transition Theme has 5 related challenges, three of which launched before the end of Q4: the 2050 Challenge, Healthy Environment for All and Energy Innovation. Challenges on Sustainable Communities and Future Food Systems will launch in Q2 2023.

Table 25 - 'High Impact' delayed cross-cutting measures in Q4 2022

Cross-Cutting Sector	Action / Measure Delayed	Why is this important?
Governance	<i>Action 1a:</i> Finalise Ireland's long-term climate strategy	The ambition of Ireland's Long-Term Strategy must align with legislated climate targets and the CAP 23 to make the strongest possible contribution to overall EU ambition. For this reason, the action was delayed in Q4 to allow for necessary updates following publication of the CAP 23 in December. An updated draft will be brought to Cabinet in Q1 to seek approval to submit to the Commission and launch a public consultation, with a finalised Strategy to be submitted later in the year.
	<i>Action 4a:</i> Enhance Cabinet procedures to ensure that all Government Memoranda are considered against their carbon impact	Subjecting Memoranda to climate impact evaluation is important to climate proof Government decisions and investments undertaken. The design of a technical solution to include this requirement in the preparation of Memoranda is complete and is awaiting activation by the Office of the Government Chief Information Officer .

	<i>Action 8a:</i> Develop a consultation paper on potential methodologies for apportioning any cost of compliance across Departments	Determining how sectors could bear any compliance costs incurred from the failure to reach EU emissions reduction targets is important to build further accountability for legally binding targets system-wide. A spending review was recently published that estimates the cost of compliance Ireland will face on EU climate and energy targets. The cost apportionment work was dependent on the completion of this work.
Just Transition	<i>Action 10a:</i> Approval of policy approach on establishment of Just Transition Commission	Ensuring a consistent approach to Just Transition and embedding it in all climate policy is essential to protect the most vulnerable in the transition and leverage available opportunities. A proposed policy approach is currently under consideration by the Minister after stakeholder engagement was undertaken. CAP 23 provides that the Commission will be established by Q2 2023.
Carbon Pricing	<i>Action 69b:</i> Revise shadow price of carbon in light of enhanced climate ambition in the Climate Act 2021 and informed by updated research	The shadow price of carbon is critical to value the cost that society will bear in dealing with any GHGs that public investment projects may give rise to. It is a key instrument for incentivising more climate-friendly investment. University College Cork have provided their modelling on shadow price of carbon values to DPER as of 1 January 2023. The aim is to now publish the circular that will implement the revised shadow price in Q1 2023.
Cross-cutting Policies	<i>Action 400a:</i> Publish the 4th National Biodiversity Action Plan	The climate and biodiversity crises are dual emergencies that impact one another in both positive and negative ways. Biodiversity has been declining in Ireland because of human and economic activity, with a clear need to restore, enhance and protect biodiversity on a whole-of-government basis. The 4th National Biodiversity Action Plan will help to coordinate these efforts and set tangible actions to be taken. Its publication was delayed in Q4 while submissions from public consultations and outcomes from the Biodiversity Citizens Assembly and COP 15 are reviewed.
	<i>Action 472b:</i> Publication of final River Basin Management Plan for 2022-2027 for the protection and improvement of Ireland's waters	Similar to biodiversity enhancement and protection, improving water quality will bring multiple co-benefits for climate action by reducing environmentally harmful agricultural and industrial activities that also create emissions. Following a public consultation, engagement with stakeholders on proposed measures for inclusion in the final plan commenced. These complex engagements have delayed the finalisation process in Q4 2022.

Adaptation

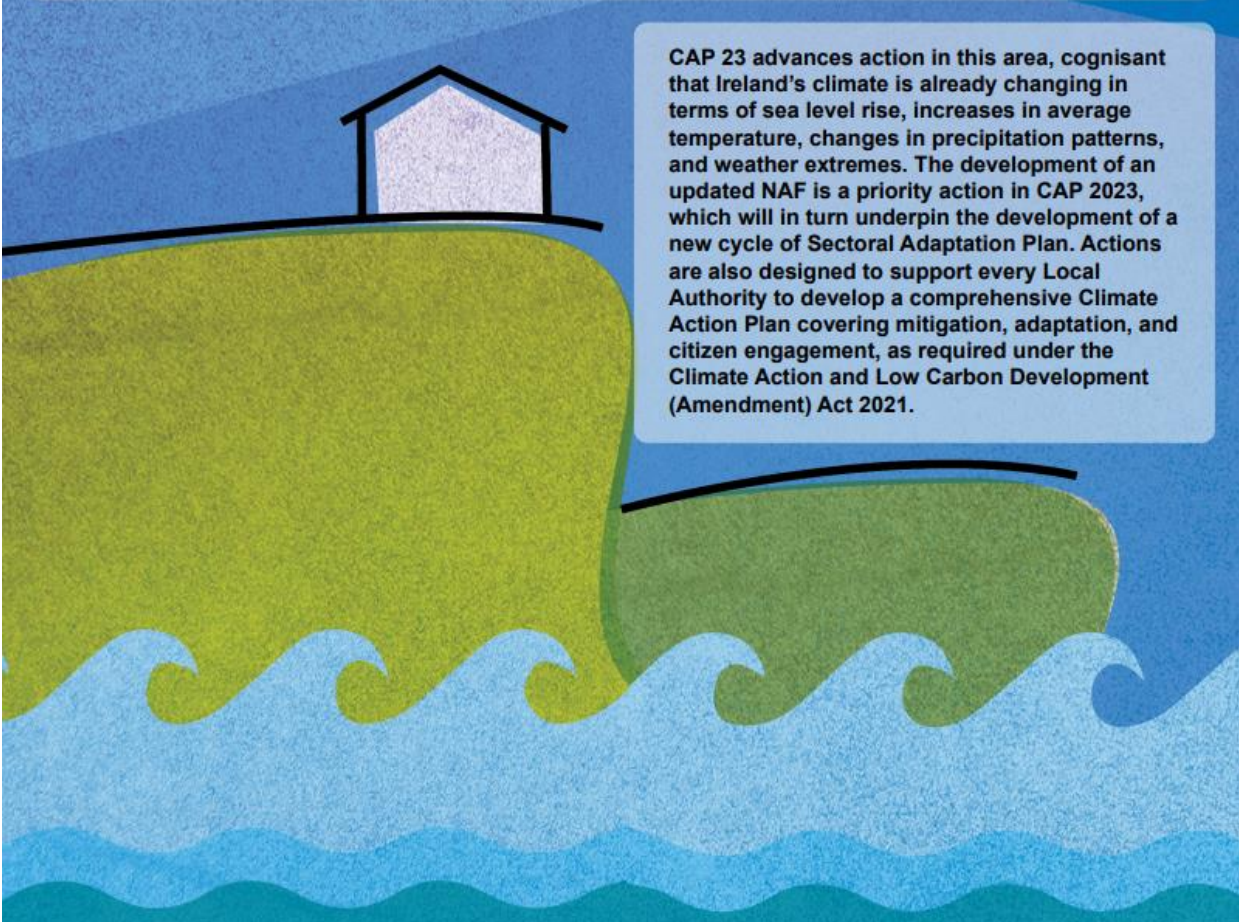
Progress in Q4 2022

Context:

Planning for the negative impacts of climate change (e.g. increased flooding, sea level rise and severe storms) is essential to minimise loss and damage across all sectors. Adapting to human-induced climate changes already locked-in is important to minimise their adverse impact on Ireland's physical, economic and social fabric.

Reports from the Intergovernmental Panel on Climate Change reinforce the urgent need for greater action on climate adaptation globally, with the Climate Change Advisory Council similarly calling for increased policy attention to climate adaptation in Ireland.

Ireland's first statutory National Adaptation Framework (NAF) to address these issues was published in 2018. Actions in CAP 2021 dedicated to supporting a review of the NAF, as well as the implementation of actions across 12 sectoral adaptation plans (detailed in Figure 10 below).

A stylized illustration of a white house with a black roof on a green cliff. The cliff is partially submerged in blue waves. The background is a gradient of blue and green.

CAP 23 advances action in this area, cognisant that Ireland's climate is already changing in terms of sea level rise, increases in average temperature, changes in precipitation patterns, and weather extremes. The development of an updated NAF is a priority action in CAP 2023, which will in turn underpin the development of a new cycle of Sectoral Adaptation Plan. Actions are also designed to support every Local Authority to develop a comprehensive Climate Action Plan covering mitigation, adaptation, and citizen engagement, as required under the Climate Action and Low Carbon Development (Amendment) Act 2021.

Figure 10- Sectoral Adaptation Plans and Themes in Ireland

Theme	Sector Level	Lead Department for Sectoral Adaptation Plans
Natural and Cultural Capital	<ul style="list-style-type: none"> - Seafood - Agriculture - Forestry - Biodiversity - Built and Archaeological Heritage 	<ul style="list-style-type: none"> - Department of Agriculture Food and the Marine - Department of Housing, Local Government and Heritage
Critical Infrastructure	<ul style="list-style-type: none"> - Transport Infrastructure - Electricity and Gas Networks - Communications Networks 	<ul style="list-style-type: none"> - Department of Transport - Department of Environment, Climate and Communications
Water Resource and Flood Risk Management	<ul style="list-style-type: none"> - Flood Risk Management - Water Quality - Water Services Infrastructure 	<ul style="list-style-type: none"> - Office of Public Works - Department of Housing, Local Government and Heritage
Public Health	<ul style="list-style-type: none"> - Health 	<ul style="list-style-type: none"> - Department of Health

Table 26 - 'High Impact' completed adaptation measures in Q4 2022

Adaptation Action / Measure Achieved	Why is this important?
<i>Action 84b:</i> Initiate the coordination of Ireland's National Framework for Climate Services in consultation with stakeholders	Ensuring coordinated resources and consistent information regarding adaptation is important from planning, infrastructure and policy perspectives. Delayed since Q1 2022, the kick-off meeting to progress the National Framework for Climate Services was held in Q4 2022. The group is chaired by Met Éireann and attended by the EPA, Teagasc, Marine Institute, DECC, and Department of the Taoiseach.
<i>Action 471c:</i> Work in partnership with decision makers and with National Emergency Management organisations	An ever-improving network of stakeholders in support of National Emergency Management is being developed, with a new Forecasting Services Manager now in place. Severe weather warnings also continue to be communicated, supporting citizen safety and reducing damage to property and economic activity from climate change
<i>Action 493a:</i> Continue to develop and improve timely communications to customers during weather events	Communicating promptly and effectively with citizens during extreme weather events is critical to enhance preparedness, reduce loss and damage and build support for adaptation measures that enhance resilience. The accuracy of Information for customers on electricity outages in their area and likely restoration times are consistently being improved. Customers now have the ability to check via a new Customer Online Portal as well as an updated Power Check App.

Table 27 - 'High Impact' delayed adaptation measures in Q4 2022

Adaptation Action / Measure Delayed	Why is this important?
<i>Action 374a:</i> Assess Adaptation/Appropriate tree species selection for climate change	The right trees on the right soils sequester carbon and are essential to reach net-zero targets. Ensuring that the right species are planted that account for future climatic changes (e.g., temperature, CO ₂ concentrations, growing season) is critical to forestry success. Recruitment issues continued to cause delays to this measure in Q4, with species trials expected to continue into 2023.
<i>Action 467abc:</i> Develop and publish coastal vulnerability mapping and coastal erosion databases for the east and south coasts of Ireland	One of the biggest impacts of climate change includes sea level rise which threatens coastal communities and viability. Three steps related to coastal vulnerability in Ireland were due in Q4 but failed to complete due to a lack of resources in Geological Survey Ireland . This included a Coastal Vulnerability Index map for the East and South coastline as well as confirmed coastal erosion rates.
<i>Action 492b:</i> Refurbish / Upgrade energy assets	As part of the need to identify the measures required to adapt vulnerable infrastructure in the electricity and gas networks sector to the impacts of climate change, energy assets were due to be refurbished/upgraded by Q3 2022 and a list of required measures produced. This measure continued to be delayed in Q4 due to resourcing issues in DECC.
<i>Action 492c:</i> Install Flood Defences on vulnerable infrastructure in the electricity and gas networks sector	It is important to ensure the resilience of our electricity supply sector in the face of increasing extreme weather events, flooding and sea level rise. The installation of flood defences provides important protection in this context. This measure was due in Q4 but was delayed due to resourcing issues in DECC.

Detail on the progress of all CAP 2021 actions due for reporting in Q4 2022 can be found in Appendix 1.