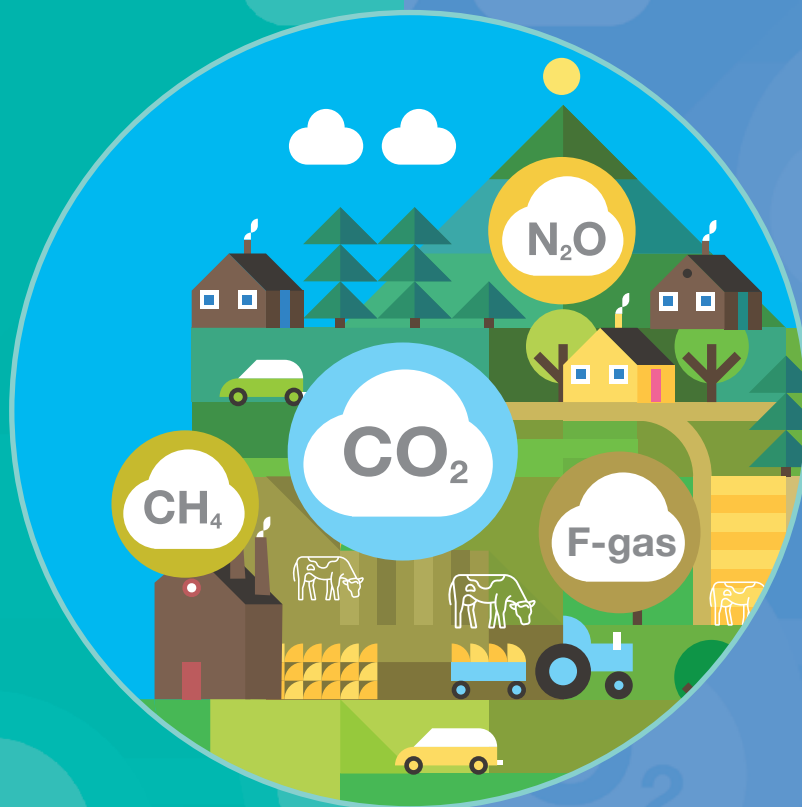


# Ireland's Provisional Greenhouse Gas Emissions

1990-2020

October 2021



CH<sub>4</sub>

CO<sub>2</sub>

N<sub>2</sub>O

F-gas



# Environmental Protection Agency

The EPA is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

- **Regulation:** Implementing regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.
- **Knowledge:** Providing high quality, targeted and timely environmental data, information and assessment to inform decision making.
- **Advocacy:** Working with others to advocate for a clean, productive and well protected environment and for sustainable environmental practices.

Our responsibilities include:

## LICENSING

- Large-scale industrial, waste and petrol storage activities;
- Urban waste water discharges;
- The contained use and controlled release of Genetically Modified Organisms;
- Sources of ionising radiation;
- Greenhouse gas emissions from industry and aviation through the EU Emissions Trading Scheme.

## NATIONAL ENVIRONMENTAL ENFORCEMENT

- Audit and inspection of EPA licensed facilities;
- Drive the implementation of best practice in regulated activities and facilities;
- Oversee local authority responsibilities for environmental protection;
- Regulate the quality of public drinking water and enforce urban waste water discharge authorisations;
- Assess and report on public and private drinking water quality;
- Coordinate a network of public service organisations to support action against environmental crime;
- Prosecute those who flout environmental law and damage the environment.

## WASTE MANAGEMENT AND CHEMICALS IN THE ENVIRONMENT

- Implement and enforce waste regulations including national enforcement issues;
- Prepare and publish national waste statistics and the National Hazardous Waste Management Plan;
- Develop and implement the National Waste Prevention Programme;
- Implement and report on legislation on the control of chemicals in the environment.

## WATER MANAGEMENT

- Engage with national and regional governance and operational structures to implement the Water Framework Directive;
- Monitor, assess and report on the quality of rivers, lakes, transitional and coastal waters, bathing waters and groundwaters, and measurement of water levels and river flows.

## CLIMATE SCIENCE & CLIMATE CHANGE

- Publish Ireland's greenhouse gas emission inventories and projections;
- Provide the Secretariat to the Climate Change Advisory Council and support to the National Dialogue on Climate Action;

- Support National, EU and UN Climate Science and Policy development activities.

## ENVIRONMENTAL MONITORING & ASSESSMENT

- Design and implement national environmental monitoring systems: technology, data management, analysis and forecasting;
- Produce the State of Ireland's Environment and Indicator Reports;
- Monitor air quality and implement the EU Clean Air for Europe Directive, the Convention on Long Range Transboundary Air Pollution, and the National Emissions Ceiling Directive;
- Oversee the implementation of the Environmental Noise Directive;
- Assess the impact of proposed plans and programmes on the Irish environment.

## ENVIRONMENTAL RESEARCH AND DEVELOPMENT

- Coordinate and fund national environmental research activity to identify pressures, inform policy and provide solutions;
- Collaborate with national and EU environmental research activity.

## RADIOLOGICAL PROTECTION

- Monitoring radiation levels and assess public exposure to ionising radiation and electromagnetic fields;
- Assist in developing national plans for emergencies arising from nuclear accidents;
- Monitor developments abroad relating to nuclear installations and radiological safety;
- Provide, or oversee the provision of, specialist radiation protection services.

## GUIDANCE, AWARENESS RAISING, AND ACCESSIBLE INFORMATION

- Provide independent evidence-based reporting, advice and guidance to Government, industry and the public on environmental and radiological protection topics;
- Promote the link between health and wellbeing, the economy and a clean environment;
- Promote environmental awareness including supporting behaviours for resource efficiency and climate transition;
- Promote radon testing in homes and workplaces and encourage remediation where necessary.

## PARTNERSHIP AND NETWORKING

- Work with international and national agencies, regional and local authorities, non-governmental organisations, representative bodies and government departments to deliver environmental and radiological protection, research coordination and science-based decision making.

## MANAGEMENT AND STRUCTURE OF THE EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by advisory committees who meet regularly to discuss issues of concern and provide advice to the Board.

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## Key Findings

<p><b>Reduction in overall greenhouse gas emissions driven by COVID and cleaner electricity</b></p>	<p>2020 total national greenhouse gas emissions are estimated to have declined by 3.6% on 2019 levels to 57.70 million tonnes carbon dioxide equivalent (Mt CO<sub>2</sub>eq). This reduction in total emissions was driven by the COVID impact on Transport and less peat used for electricity generation. It highlights that further, transformative measures will be needed to meet National Climate ambitions.</p>
<p><b>EU Effort Sharing limits exceeded</b></p>	<p>The Provisional estimates of greenhouse gas emissions indicate that Ireland will exceed its 2020 annual limit set under the EU's Effort Sharing Decision (ESD) by 6.73 Mt CO<sub>2</sub>eq, the 5th year in a row limits were exceeded. The cumulative exceedance for the 2013-2020 period is 12.02 Mt CO<sub>2</sub>eq.</p>
<p><b>Lower 2020 emissions both within and outside the Emissions Trading Scheme</b></p>	<p>In 2020, emissions from Ireland's Emissions Trading Sector (ETS) decreased by 6.2% or 0.89 Mt CO<sub>2</sub>eq while non-ETS emissions decreased by 2.8% or 1.26 Mt CO<sub>2</sub>eq. Since 2005, emissions in the ETS sector have decreased by 40.8% or 9.15 Mt CO<sub>2</sub>eq whereas emissions under the non-ETS only decreased by 7.0% or 3.33 Mt CO<sub>2</sub>eq, considerably short of Ireland's 20% reduction commitment.</p>
<p><b>Less Peat and more Wind means less emissions from electricity generation</b></p>	<p>Emissions in the Energy Industries sector show a decrease of 7.9% or 0.74 Mt CO<sub>2</sub>eq in 2020, which is attributable to a 51% decrease in peat used in electricity generation. Electricity generated from wind increased by 15.3% in 2020. The reduced peat use and increased wind and hydro-electricity resulted in a 8.1% decrease in the emissions intensity of power generation in 2020 to 295 g CO<sub>2</sub>/kWh.</p>
<p><b>More livestock and fertiliser use increase Agriculture emissions</b></p>	<p>Agriculture emissions increased by 1.4% or 0.3 Mt CO<sub>2</sub>eq in 2020, driven by increased fertiliser nitrogen use (3.3%) increased numbers of livestock including dairy cows (3.2%), other cattle (0.6%), sheep (4.8%) and pigs (2.5%). Total milk production increased by 3.8% in 2020, with only a marginal increase in the milk output per cow (0.6%).</p>
<p><b>Transport emissions decrease due to COVID</b></p>	<p>Greenhouse gas emissions from the Transport sector decreased by 15.7% or 1.92 Mt CO<sub>2</sub>eq in 2020. This decrease was largely driven by the impact of COVID restrictions on passenger car and public transport usage. International aviation, not included in national total emissions, declined by 65% in 2020 or by 2.17 Mt CO<sub>2</sub> eq.</p>
<p><b>Residential emissions show significant increase</b></p>	<p>Greenhouse gas emissions from the Residential sector increased by 9.0% or 0.59 Mt CO<sub>2</sub>eq due to substantial increases in carbon intensive fossil fuel use; coal +6%, peat +3% and Kerosene +19%. Natural gas use decreased marginally by -0.3%. Accelerated retrofitting required to decarbonise home heating.</p>

## 1. Introduction

The EPA is responsible for compiling the inventories of greenhouse gas emissions for Ireland and for reporting the data to the relevant European and international institutions. As such, Ireland's legal reporting obligations require that we submit data for the period 1990-2020 in January, March and April 2022 to the European Commission and the United Nations Framework Convention on Climate Change (UNFCCC).

The provisional estimates of Ireland's greenhouse gas figures for the years 1990-2020 are based on the SEAI's final energy balances released in September 2021 and are estimated using methodologies employed in the inventory in accordance with UNFCCC reporting guidelines and the latest available input data. In addition, verified emissions data from installations covered by the EU's Emissions Trading Scheme (ETS) are included. These estimates are, at this stage, provisional estimates of Ireland's greenhouse gas figures for the years 1990-2020, which will be further refined as methods and activity data are updated before official submission to the European Commission on 15th January 2022.

The 2020 estimates are presented on the following pages, accompanied by an account of how these differ from the 2019 estimates. The recent and long-term trends in greenhouse gas emissions across key sectors, and their significance in relation to Ireland's target under the EU's Effort Sharing Decision up to 2020 are also assessed.

The latest Inventory year, 2020, shows the impact of the Pandemic and the impact of measures announced in the 2019 Climate Action Plan on emission levels.

## 2. Ireland's Provisional Greenhouse Gas Emissions in 2020

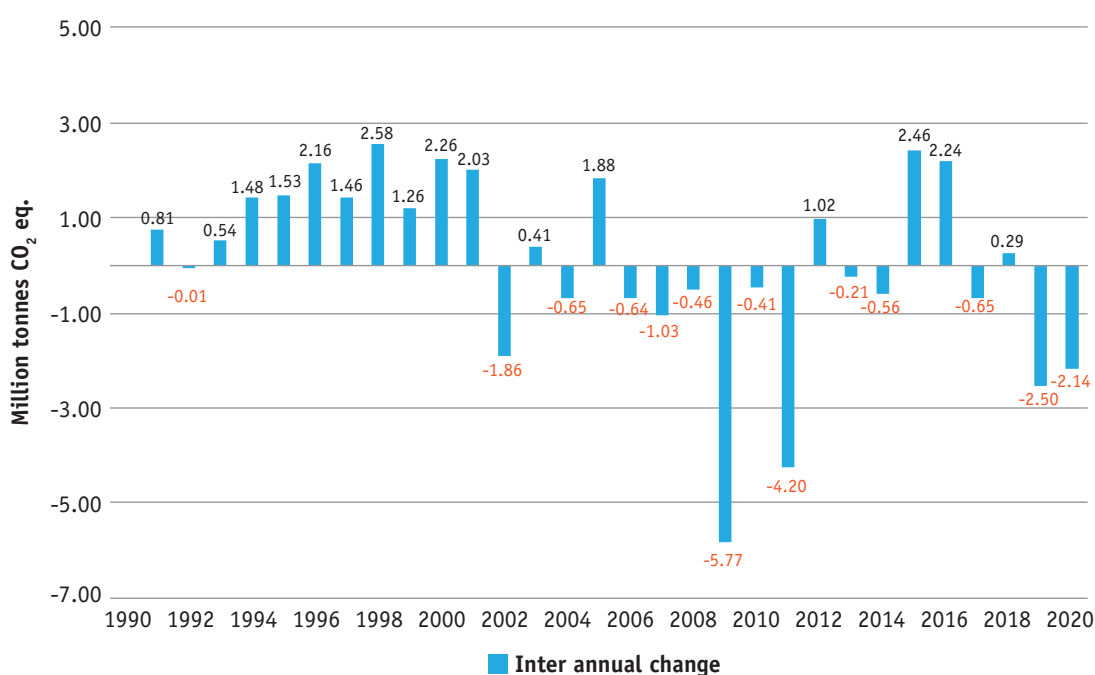
For 2020, provisional total national greenhouse gas emissions are estimated to be 57.70 million tonnes carbon dioxide equivalent (Mt CO<sub>2</sub>eq) which is 3.6% lower (or 2.14 Mt CO<sub>2</sub>eq) than emissions in 2019 (59.84 Mt CO<sub>2</sub>eq) and follows a 4.0% decrease in emissions reported for 2019. Emission reductions have been recorded in 6 of the last 10 years.

In 2020, national total emissions decreased (-3.6%), ETS<sup>1</sup> emissions decreased (-6.2%) and ESD emissions decreased (-2.8%).

The inter-annual change in total greenhouse gas emissions is presented in Figure 1 and sectoral share of emissions in Figures 2 and 19. Detailed sectoral data are shown in Table 3.

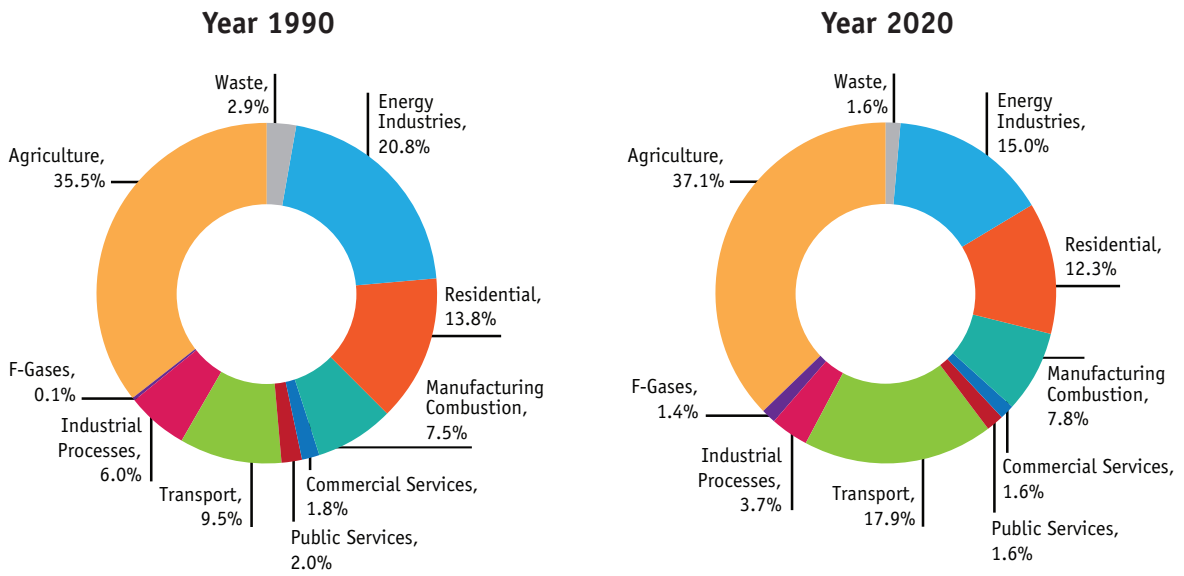
*Agriculture* is the single largest contributor to the overall emissions at 37.1% of the total. *Transport and Energy Industries* are the second and third largest contributors at 17.9% and 15.0% respectively. *Residential and Manufacturing Combustion* emissions account for 12.3% and 7.8% respectively. These five sectors accounted for 90.2% of national total emissions in 2020. The remainder is made up by the *Industrial Processes* at 3.7%, *F-Gases* at 1.4%, *Commercial Services* at 1.6%, *Public Services* at 1.6% and *Waste* at 1.6%. Figure 2 shows the contributions from each of the sectors in 1990 and 2020.

**Figure 1. Inter annual changes in GHG emissions 1990-2020**



<sup>1</sup> ETS emissions in this report refers to CO<sub>2</sub> emissions from stationary installations and from domestic aviation. It does not include emissions from intra-EU aviation as those are not considered part of Ireland's total reportable greenhouse gas emissions.

Figure 2. Profile of GHG Emissions in 1990 and 2020 by Sector



### 3. Compliance with EU and international commitments

The greenhouse gas emission inventory for 2020 is the eighth and final year that compliance under the European Union's Effort Sharing Decision (Decision 406/2009/EC) will be assessed. This Decision sets 2020 targets for sectors outside of the Emissions Trading Scheme (known as ESD emissions) and annual binding limits for the period 2013-2020. Ireland's target is to reduce ESD emissions by 20% by 2020 compared with 2005 levels.

The final inventory reviews for the years up to 2019 were completed in April 2021 following the submission of official data in March 2021 to the European Commission. For the period 2013 to 2019 Ireland currently has a cumulative 5.29 Mt CO<sub>2</sub>eq shortfall of annual emission allowances (AEAs), despite emissions being substantially below the annual allowance in the years 2013-2015, see Table 1 and Figure 3.

Ireland's annual limit for 2020 is 37.65 Mt CO<sub>2</sub>eq. Ireland's provisional 2020 greenhouse gas ESD emissions are 44.38 Mt CO<sub>2</sub>eq, 6.73 Mt CO<sub>2</sub>eq more than the annual limit for 2020. This value is the national total emissions less emissions covered by the EU's emissions trading scheme for stationary and aviation operators. This indicates that Ireland is not in compliance with its 2020 Effort Sharing Decision annual limit, the fifth year in a row exceeding the assigned allowances. Ireland's provisional cumulative shortfall of allowances for the period 2013 to 2020 is 12.02 Mt CO<sub>2</sub>eq. Agriculture and Transport accounted for 71.5% of total ESD emissions in 2020.

Since 2005, emissions in the ETS sector have decreased by 40.8% or 9.15 Mt CO<sub>2</sub>eq whereas emissions under the ESD only decreased by 7.0% or 3.33 Mt CO<sub>2</sub>eq, considerably short of Ireland's 20% reduction commitment. Within the ETS sector, electricity generation and the cement sectors, are responsible for most of the decrease. Since 2005, emissions under the ESD decreased in the *Transport, Residential, Commercial Services, F-Gases* and *Waste* sectors, with the *Agriculture* and *Public Services* sectors increasing.

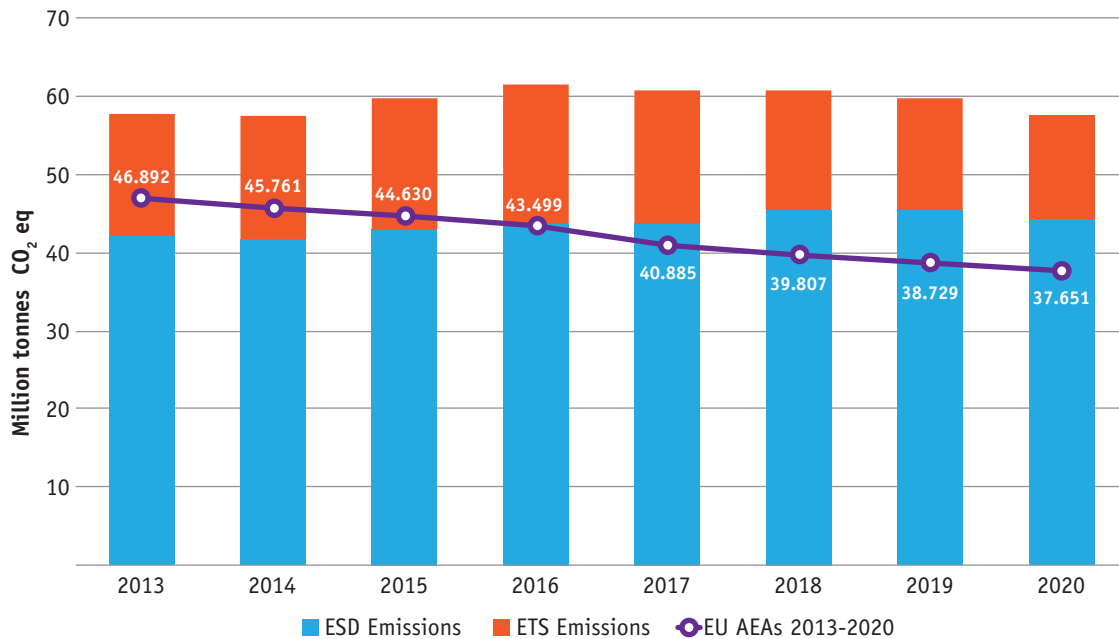
**Table 1. Compliance with EU ESD Targets 2013-2020 (all numbers in the table are rounded to the nearest kt CO<sub>2</sub>eq)**

	2013	2014	2015	2016	2017	2018	2019	2020
<b>A</b> Total greenhouse gas emissions without LULUCF	57,903	57,626	59,878	61,546	60,744	60,912	59,777	57,699
<b>B</b> NF <sub>3</sub> emissions	1	1	1	1	1	1	1	1
<b>C</b> Total greenhouse gas emissions without LULUCF and without NF <sub>3</sub> emissions	57,903	57,625	59,877	61,545	60,743	60,911	59,776	57,697
<b>D</b> Total verified emissions from stationary installations under Directive 2003/87/EC	15,686	15,953	16,830	17,737	16,896	15,515	14,179	13,294
<b>E</b> CO <sub>2</sub> emissions from 1.A.3.a. domestic aviation	10	9	10	10	17	17	18	18
<b>F</b> Total ESD emissions (= C-D-E)	42,207	41,663	43,037	43,798	43,829	45,379	45,579	44,385
<b>G</b> EU ESD Targets	46,892	45,761	44,630	43,499	40,885	39,807	38,729	37,651
<b>Distance to target (= F-G)</b>	-4,685	-4,098	-1,593	299	2,944	5,571	6,850	6,733

Note: Shaded cells show data that has been reviewed, and compliance agreed, by the European Commission under Article 19 of the MMR No. 525/2013

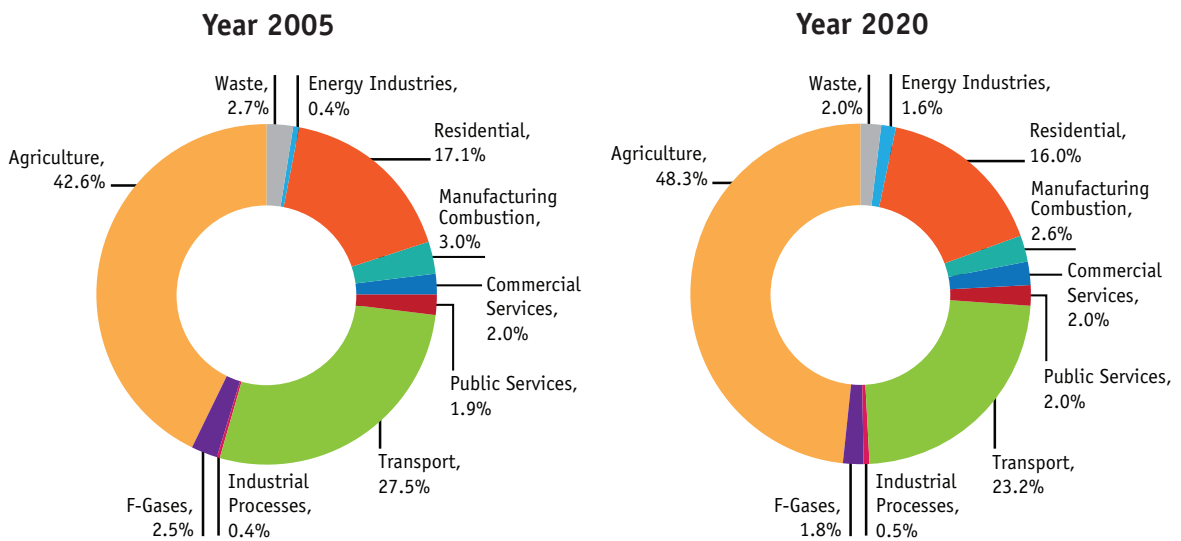


Figure 3. Compliance with ESD Targets 2013-2020



The data presented in Figure 4 shows the sectoral shares of emissions covered by the Effort Sharing Decision. In 2020, Agriculture and Transport account for 71.5% of these emissions.

Figure 4. Profile of Effort Sharing Decision relevant GHG Emissions in 2005 and 2020 by Sector



## 4. Greenhouse gas emissions by sector

For the purposes of this report emissions are classified into nine key sectors and fluorinated gases (F-gases). Although F-gases can be emitted from any sector it is helpful to group them collectively as the emissions from any one sector are seldom significant, and measures to reduce them are often cross-sectoral in nature. The sectoral breakdown used in this report, and changes in emissions for those sectors between 2019 and 2020, are presented in Table 2 below and described in more detail in the Appendix.

This sectoral breakdown is produced for National reporting purposes and although generally in alignment with the classification used for UNFCCC reporting, some adjustments have been made for ease of comparison with national policies. Key energy subcategories; Energy Industries (largely electricity generation), Residential, Manufacturing Combustion, Transport, Commercial Services and Public Services are also shown separately rather than as part of an overarching Energy category as reported to the UNFCCC. In this section, the time series since 1990 is graphically presented, as 1990 is the historical base year used for UNFCCC and Kyoto Protocol reporting.

**Table 2. Ireland's Provisional Greenhouse Gas Emissions for 2019 and 2020 by Sector**

Million tonnes CO <sub>2</sub> eq	2019	2020	% Change
Agriculture	21.147	21.432	1.4%
Transport	12.220	10.304	-15.7%
Energy Industries (including electricity generation)	9.427	8.683	-7.9%
Residential	6.529	7.119	9.0%
Manufacturing Combustion	4.589	4.522	-1.5%
Industrial Processes	2.272	2.113	-7.0%
F-Gases	0.917	0.785	-14.4%
Commercial Services	0.939	0.937	-0.3%
Public Services	0.887	0.896	1.0%
Waste	0.914	0.907	-0.8%
<b>Total</b>	<b>59.842</b>	<b>57.699</b>	<b>-3.6%</b>

## 4.1 Agriculture

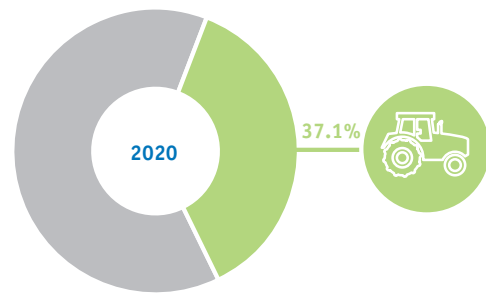
Methane emissions originate from Enteric Fermentation, Manure Management and fuel combustion. In 2020, CH<sub>4</sub> emissions contribute 64.9% to the Agriculture sector and have increased by 1.4% since 2019.

Nitrous Oxide emissions originate from Manure Management, Agricultural Soils and fuel combustion. In 2020, N<sub>2</sub>O emissions contribute 29.9% to the Agriculture sector and have increased 0.6% since 2019.

Carbon dioxide emissions originate from Liming, Urea Application and fuel combustion. In 2020, CO<sub>2</sub> emissions contribute 5.1% to the Agriculture sector and have increased by 5.1% since 2019. See Figures 5 and 6.

Agriculture emissions by source category and by gas are presented in Figures 5 and 6. Increasing methane emissions are evident in the gas share trend, 13.92 Mt CO<sub>2</sub>eq (64.9% share) in 2020 compared to 11.76 Mt CO<sub>2</sub>eq (60.8% share) in 1990, increasing in level by 18.4%.

Agriculture emissions increased by 1.4% or 0.29 Mt CO<sub>2</sub>eq in 2020 following a decrease in 2019 of 4.0%. The most significant drivers for the increased emissions in 2020 were increased synthetic nitrogen fertiliser use of 3.3% and national dairy herd continued to increase in 2020 (10 consecutive years), with higher dairy cow numbers of 3.2% with an increase in milk production of 3.8%. Milk output per cow only increased marginally (0.6%), therefore increased production was met by an increase in livestock numbers. In 2020, other cattle and sheep numbers increased by 0.6% and 4.8% respectively, pig and poultry numbers increased by 2.5% and 5.9% respectively. Total fossil fuel consumption in agriculture/forestry/fishing activities decreased by 2.6% in 2020. In 2020, liming on soils increased by 16.2%, a welcome measure in improving soil fertility.



**Figure 5. Trend in Agriculture 1990-2020**

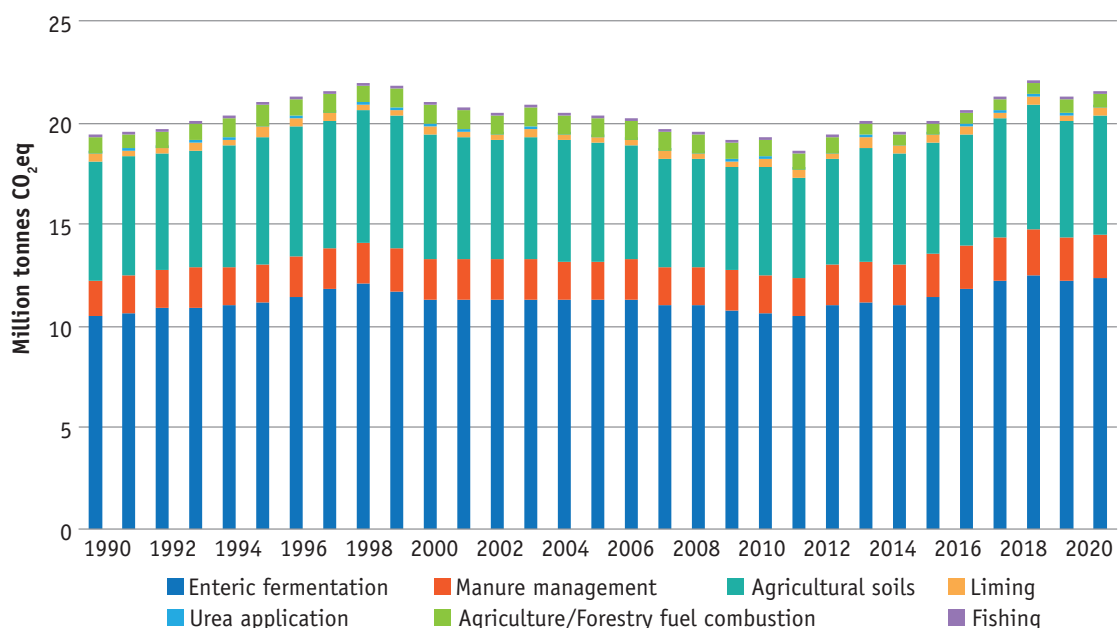
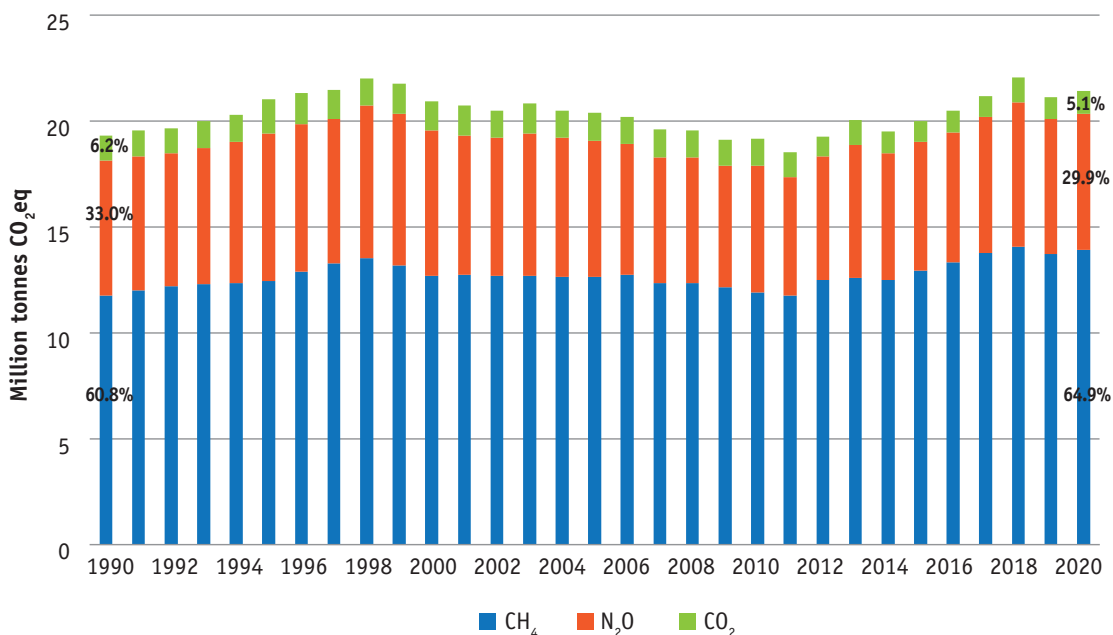
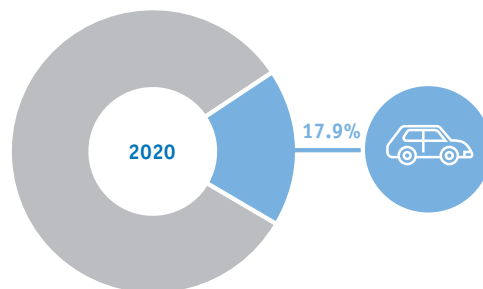


Figure 6. Trend in Agriculture, by Gas 1990-2020



## 4.2 Transport

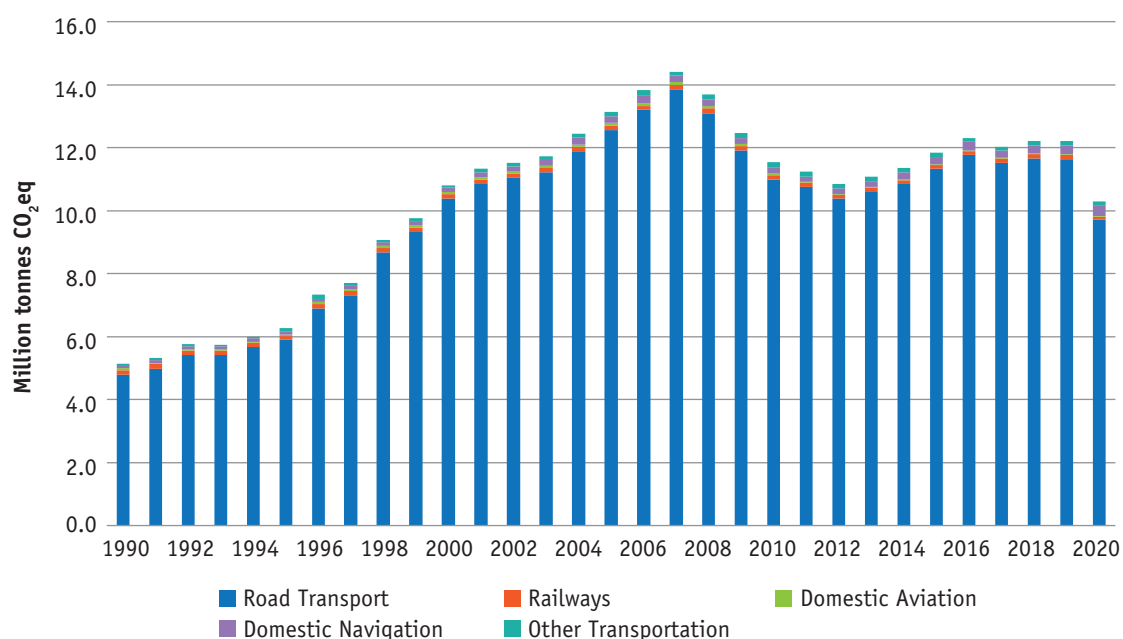
Transport emissions decreased significantly by 15.7% in 2020 or 1.9 Mt CO<sub>2</sub>eq. This was due to the impact of COVID restrictions on passenger car and public transport journeys. Emissions from road transport were relatively stable for the period 2015-2019, at an average 11.6 Mt CO<sub>2</sub>eq but reduced to 9.7 Mt CO<sub>2</sub>eq in 2020. Total energy consumption in road transport decreased by 16.3% in 2020; petrol, -25.9%, diesel -14.4%, bioethanol -25.8% and biodiesel -4.2%.



Transport emissions in 2020 were 28.5% below peak levels in 2007 primarily due to the effect of COVID restrictions, economic downturn and also due to improving vehicle fuel efficiency, the increased use of biofuels and a significant decrease in fuel tourism in recent years. At the end of 2020, there were just under 26,000 battery electric (BEVs) and plug-in hybrid electric (PHEVs) vehicles in Ireland, approximately 14% of the 2025 policy target of 181,600 or <3% of the 2030 policy target of 936,000 vehicles. The impact of Electric Vehicles in reducing Transport emissions is still very low given the low number in the vehicle fleet but they are projected to contribute substantially to emissions reductions towards the latter half of the 2020s.

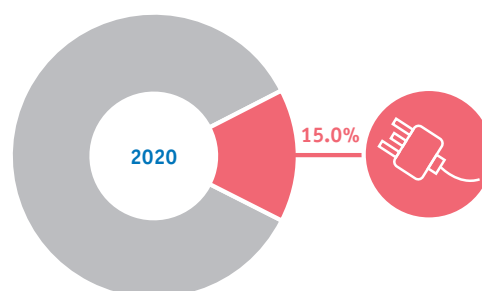
Passenger cars were responsible for 54% of road transport emissions in 2020, with Heavy Goods Vehicles responsible for 20%, Light Goods Vehicles for 18% and Buses 7%.

Figure 7. Trend in Transport 1990-2020



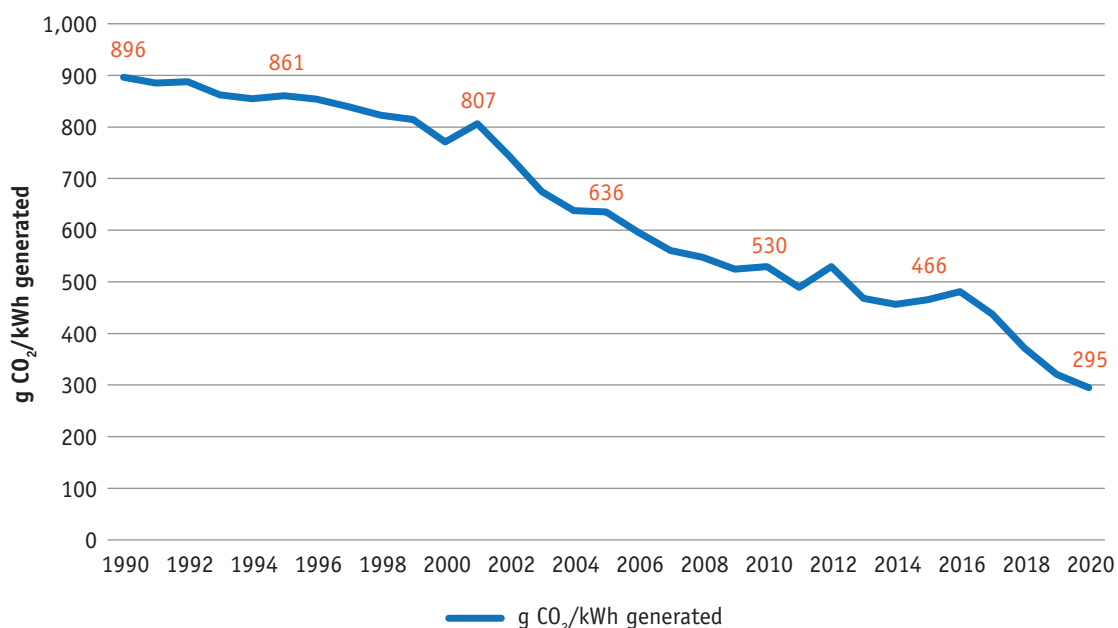
### 4.3 Energy Industries

Sectoral emissions in the *Energy Industries* sector show a decrease of 7.9% in 2020 which is attributable to decreases in consumption of peat by 50.8%, whilst there were increases in coal, natural gas, oil and biomass of 23.7%, 1.8%, 36.6% and 27.8% respectively for electricity generated. In 2020, electricity generated from wind and hydro increased by 15.3% and 5.2% respectively, reflected in a 8.1% decrease in the emissions intensity of power generation in 2020 (295 g CO<sub>2</sub>/kWh) compared with 2019 (321 g CO<sub>2</sub>/kWh) which is a new low in terms of carbon intensity. Renewables now account for 42.1%, (up from 37.6% in 2019) also a new high and natural gas 50.7% of electricity generated in 2020. See Figures 8 and 9.

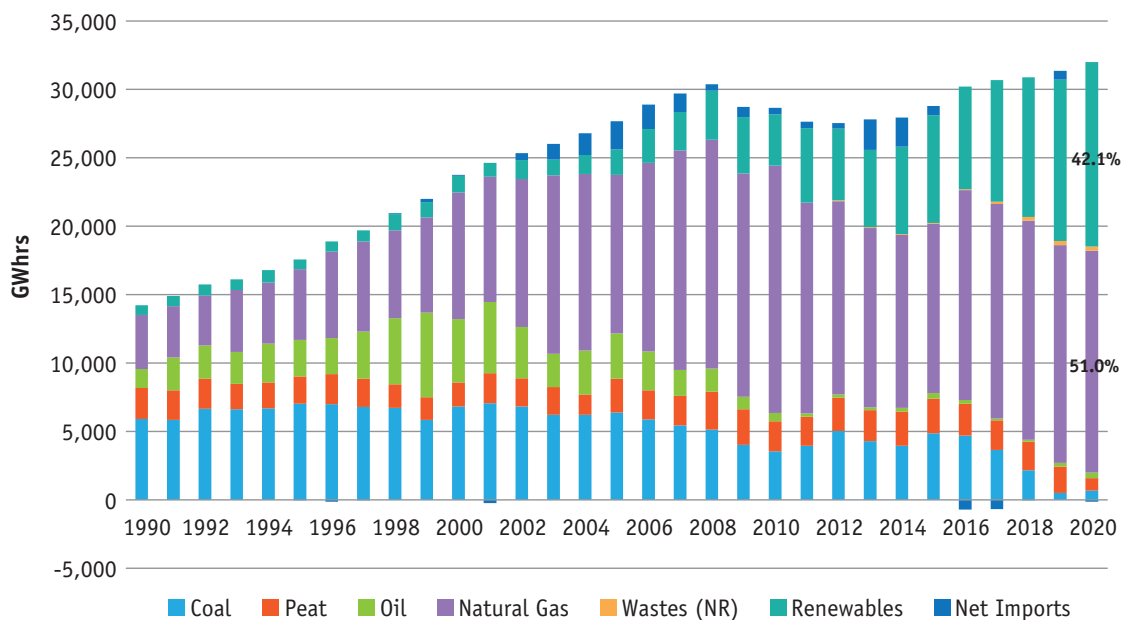


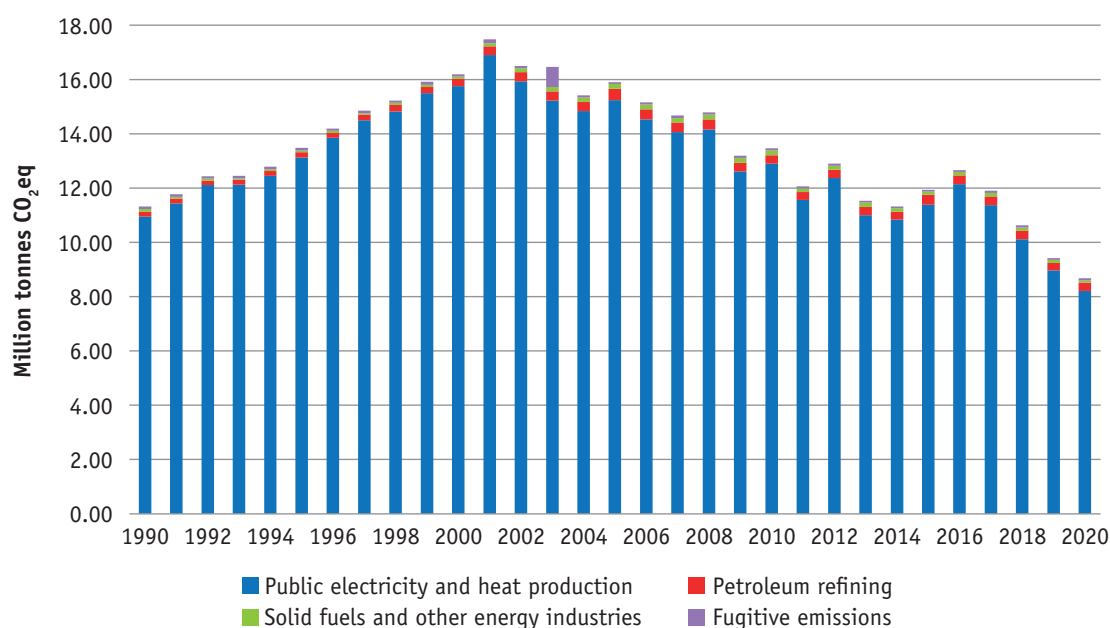
In the last 4 years, emissions from electricity generation have decreased by over 3.94 Mt CO<sub>2</sub>eq due to a reduced use of coal and peat and an increased use of natural gas and renewables in electricity generation. The emission categories relevant under the *Energy Industries* sector are: Public electricity and heat production, Petroleum refining, Manufacture of solid fuels and other energy industries and fugitive emissions, Figure 10.

**Figure 8. Emissions Intensity of Electricity Generation 1990-2020**



**Figure 9. Electricity Generated by Fuel 1990-2020**



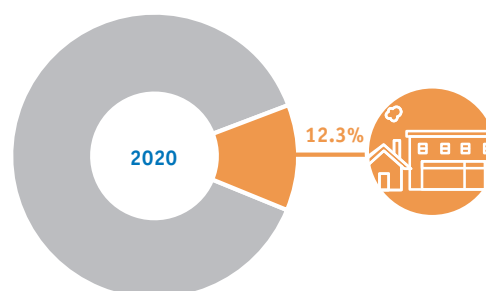
**Figure 10. Trend in Energy Industries 1990-2020**

#### 4.4 Residential

Emissions in the *Residential* sector increased by 9.0% or 0.59 Mt of CO<sub>2</sub>eq in 2020. Within the different fuels used in household space and water heating, increases were seen in; coal, peat and kerosene by 6.0%, 3.2% and 19.3% respectively, with natural gas use the only fuel declining in 2020 by 0.3%.

Monthly deliveries of kerosene in March to May 2020 showed increases of over 80-140% on 2019, driven by exceptionally low prices of kerosene at that time. There were 0.9% more heating degree days in 2020. February and March 2020 had 27% and 12% more heating degree days<sup>2</sup> than the same months of 2019.

Fuel switching, from coal and peat to oil and natural gas use, as well as improvements in buildings regulations helped reduced emissions per household from 7.0 t/CO<sub>2</sub> per year in 1990 to a low of 3.4 t/CO<sub>2</sub> per year in 2014. Since 2014, fuel use by household has increased by 14% with CO<sub>2</sub> emissions per household increasing to 3.9 t CO<sub>2</sub> in 2020. While weather is a key variable from year to year, the flattening of the historic downward trend in per household CO<sub>2</sub> emissions evident in Figure 12, indicates a need for increased energy efficiency retrofit activity in order to achieve future emissions reduction commitments.



<sup>2</sup> Degree days are a measure of the heating or cooling requirement on a given day with reference to a level where neither is required (typically 15.5o C). The number of degree days in a year is a strong indicator of the annual Residential energy demand.

Figure 11. Trend in Residential 1990-2020

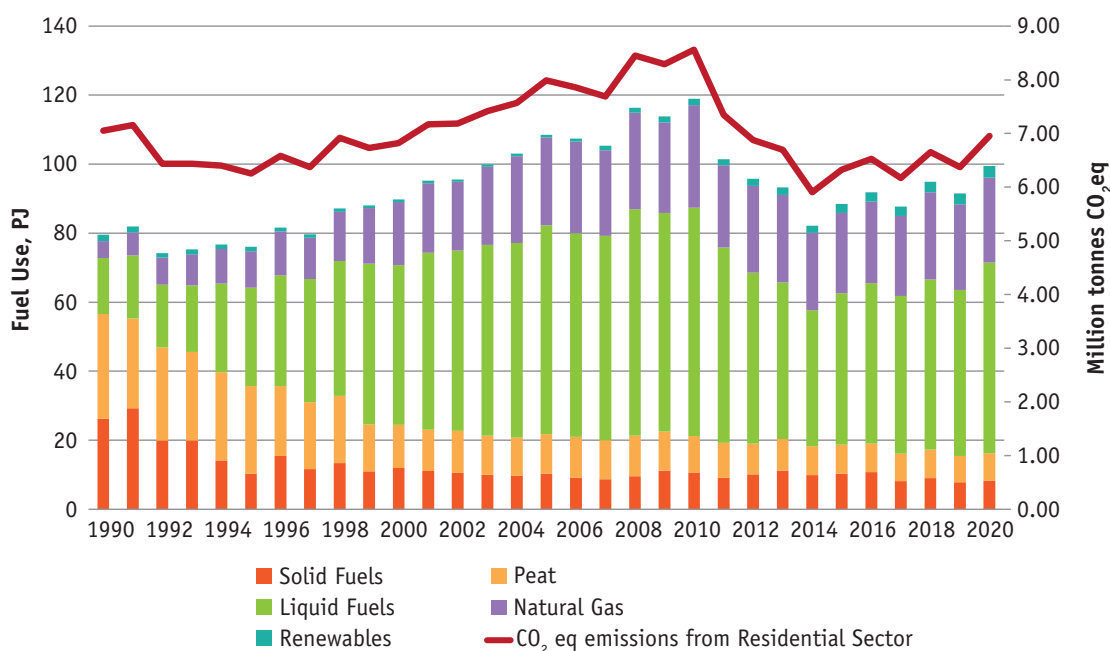
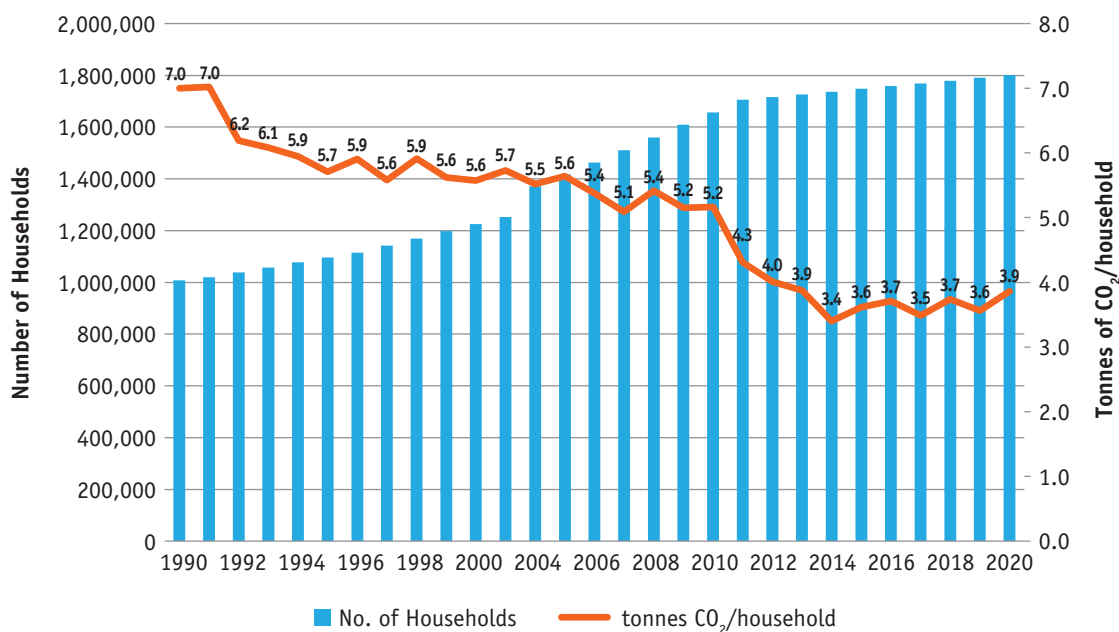


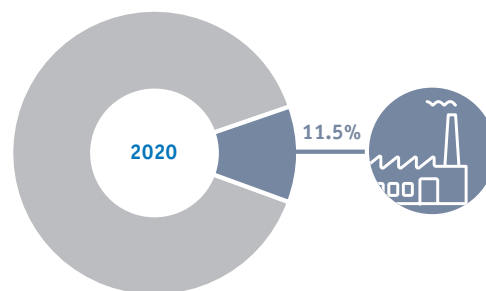
Figure 12. CO<sub>2</sub> emissions per Household 1990-2020





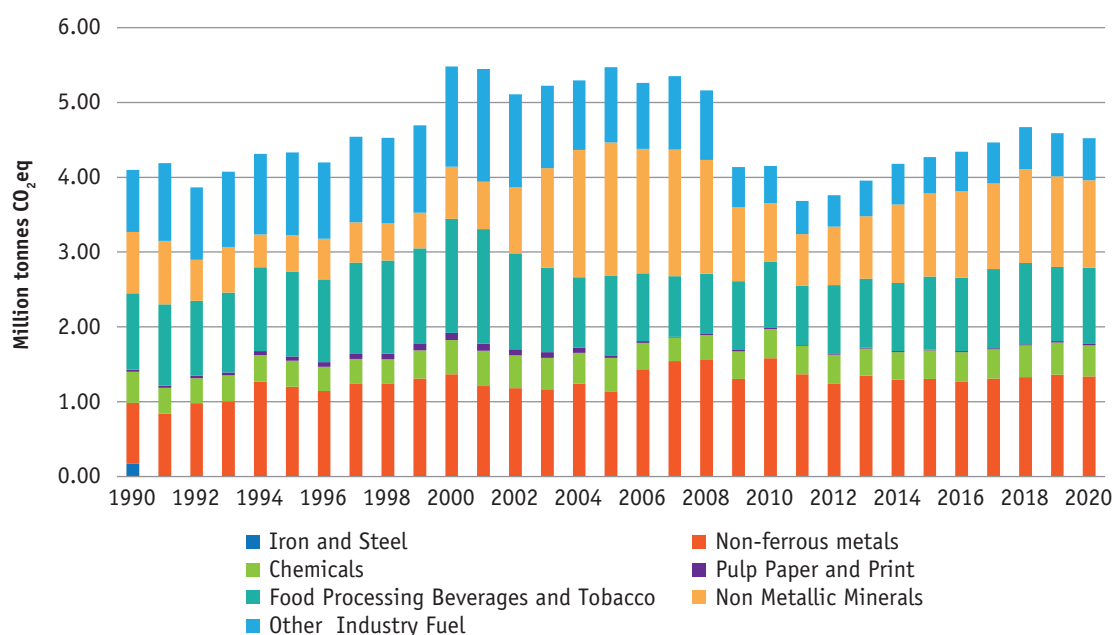
## 4.5 Manufacturing and Industry

Emissions relating to *Manufacturing Combustion* and *Industrial Processes* combined accounted for 11.5% of Ireland's total emissions in 2020. Emissions from the *Manufacturing Combustion* sector decreased by 1.5% or 0.07 Mt CO<sub>2</sub>eq in 2020. There were decreases in combustion emissions from major sub sectors including chemical and non-metallic minerals (includes cement) which decreased by 2.6% and 3.7% respectively in 2020 whereas combustion emissions from food and drink increased by 2.4%. See Figure 13.



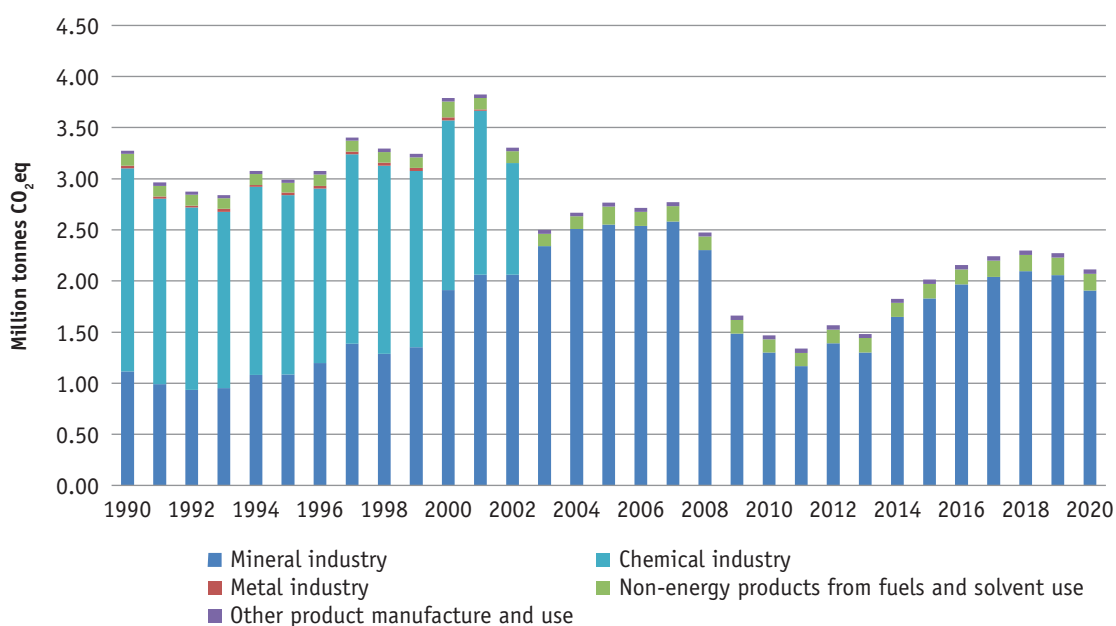
Decreased emissions from companies within the ETS were evident in the Non-ferrous metals, Chemicals and Non-Metallic Minerals (including cement) sectors, with emissions decreasing by 0.5%, 1.6% and 5.3% respectively.

**Figure 13. Trend in Manufacturing Combustion 1990-2020**



Emissions from the *Industrial Processes* sector decreased by 7.0% (0.16 Mt CO<sub>2</sub>eq) in 2020 following a 1.3% decrease in 2019. The yearly decrease is due to a reduction in cement production, with most cement plants having extended closures in 2020 due to COVID. Total process emissions from the mineral products subsector (including cement) decreased by 7.3%.

In 2020, total emissions (combustion and process) from the cement sector decreased by 5.7% and amount to 2.68 Mt CO<sub>2</sub>eq, or 4.6% of national total emissions. This is the second year of decline in the sector's emissions since 2013. Cement sector emissions are now 76.5% higher than the 2011 low during the economic recession.

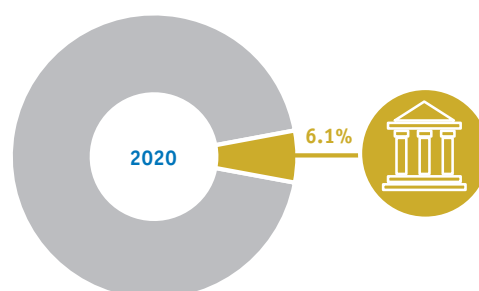
**Figure 14. Trend in Industrial Processes 1990-2020**

## 4.6 Other Sectors

Emissions from *F-Gases*, *Commercial Services*, *Public Services* and *Waste* account for 6.1% of total national emissions in 2020.

### Commercial and Public Services

Emissions from *Commercial Services* decreased by 0.3% and *Public Services* emissions increased by 1.0%. Natural gas use in both sectors increased by 1.7% in 2020, whereas oil use decreased in *Commercial Services* by 2.8% and decreased in *Public Services* by 0.3%.

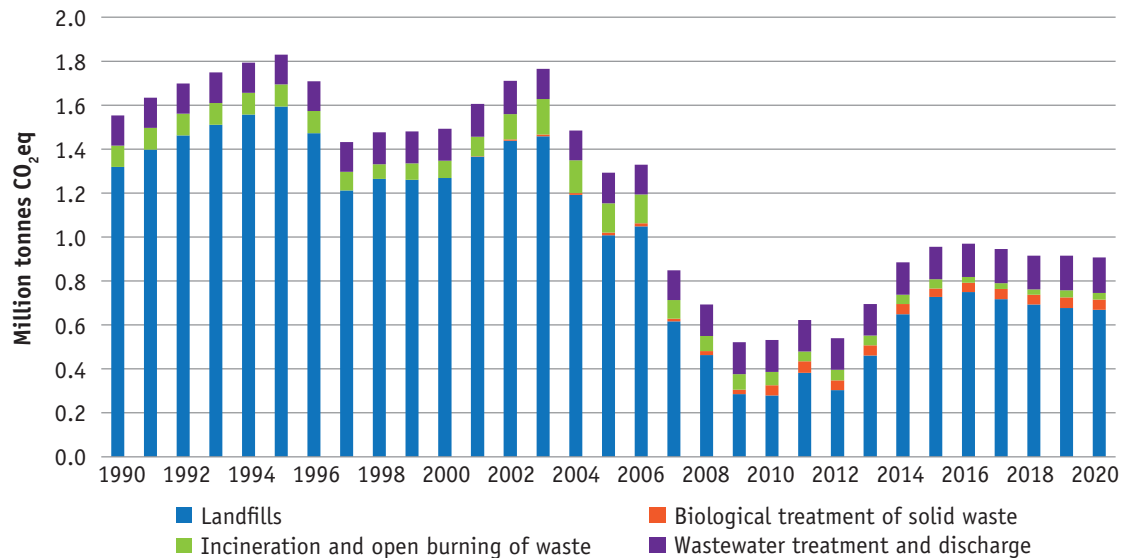


### Waste

Emissions from the *Waste* sector decreased by 0.8% in 2020, with a decrease in subcategory; landfills of 1.3%. Overall emissions decreased by 0.01 Mt CO<sub>2</sub>eq. See Figure 15.

Long-term decreases are a result of decreased quantities of municipal solid wastes (MSW) disposed of at landfills which now are combusted in Waste to Energy (WtE) plants and a decrease in the proportion of organic materials (food and garden waste) in MSW as well as a diversion of paper products from landfills. A large proportion of organic food and garden waste is now treated in composting and anaerobic digestion facilities, with significant emission reduction than landfills. The emissions associated from combustion at WtE plants are estimated under electricity generation in *Energy Industries*. Improved management of landfill facilities, including increased recovery of landfill gas utilised for electricity generation and flaring is also a big driver in decreased emissions from the waste sector. The increasing trend of methane emissions from landfills from 2009 to 2016 is due to a decrease in landfill gas flaring as overall landfill gas volumes decrease.

Figure 15. Trend in Waste 1990-2020

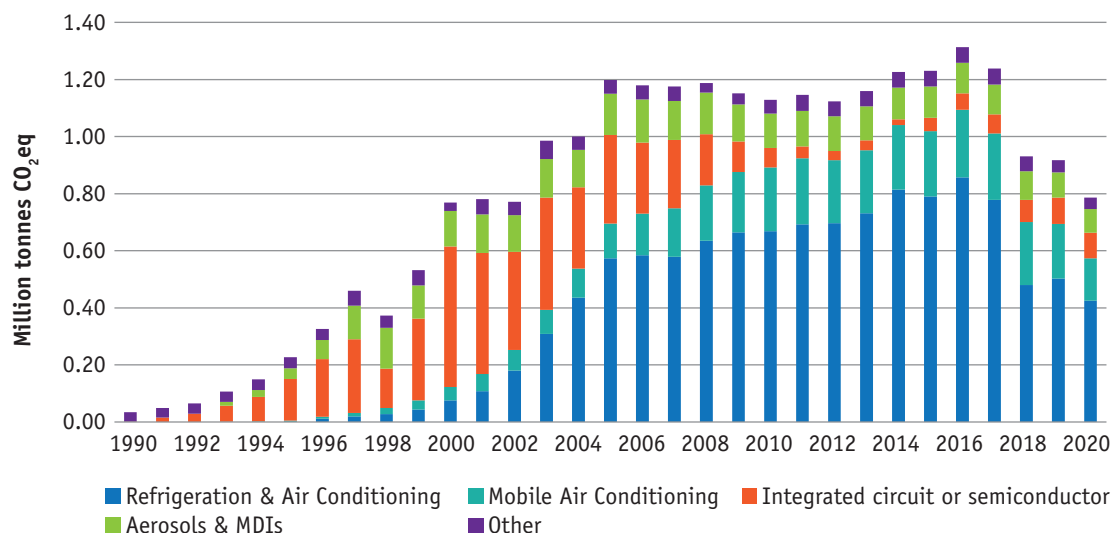


## Fluorinated Gas Emissions

F-Gas emissions were down 14.4% from 2019 to 2020, following a decrease of 1.4% in 2019. This is driven by a reduction in refrigeration and air conditioning emissions. Emissions of F-gases (HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub>) were 0.79 Mt CO<sub>2</sub>eq in 2020 compared to 34.6 kt CO<sub>2</sub>eq in 1990, a 23-fold increase over the time series, see Figure 13. However, F-gas emissions have risen from a very low base and only accounted for 1.4 per cent of the national total in 2020. F-gases include a wide range of substances that are used in a diverse range of products and manufacturing processes.

The main causative factor behind the more recent decreases in F-gas emissions has been the phasing out of refrigerant and air conditioning (AC) gases with high global warming potentials (GWPs), due to the implementation of the F-Gas Regulation (EU) No. 517/2014. These refrigerant gases are being replaced with products containing a blend of HFCs and hydrofluoroolefins (HFOs) with low GWPs in subcategory, Refrigeration and Air Conditioning.

Figure 16. Composition and Trend in F-Gas Emissions 1990-2020



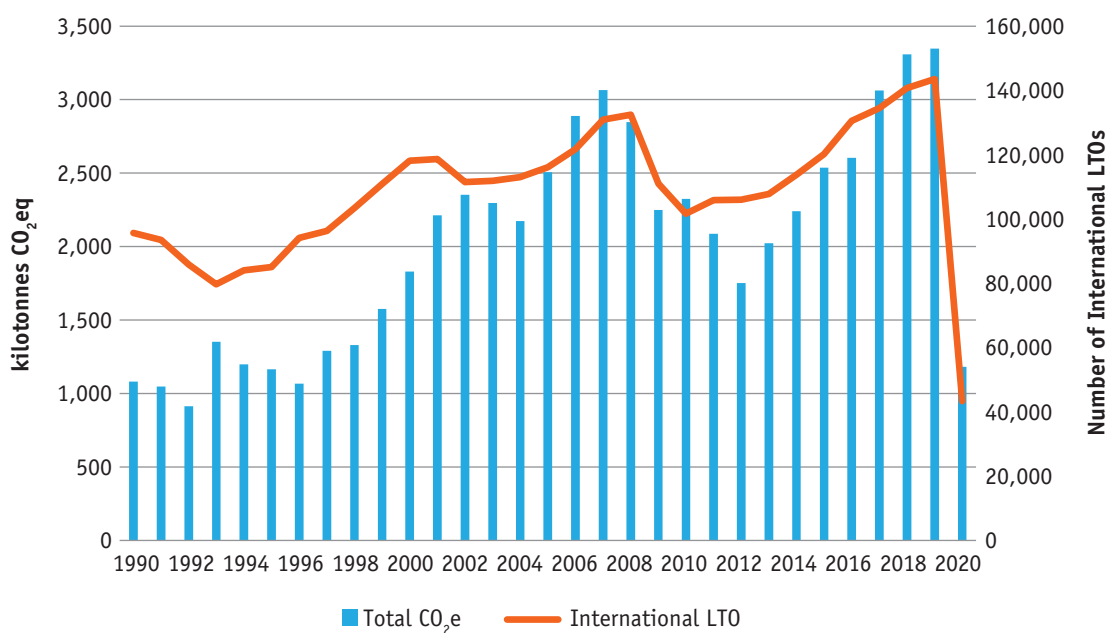
## 5. International Aviation and Maritime Emissions

Emissions from international aviation and maritime navigation are reported as “memo items” in the national emission inventory. This means they are not counted as part of Ireland’s national total emissions but are reported by Ireland to the UNFCCC and EU for information purposes. A substantial proportion of Ireland’s international aviation emissions is included in the EU ETS, such as all intra EU flights and flights within the European Economic Area (EEA) including; Iceland, Norway and Liechtenstein. In 2020, total international aviation contributed 1.17 Mt of CO<sub>2</sub> from over 43,000 return flights from Irish airports, see Figure 17. This is a significant reduction on recent trends, with international aviation emissions averaging over 3.0 Mt of CO<sub>2</sub> per year. The travel restrictions due to COVID are evident in this sector.

In recent years, CO<sub>2</sub> emissions from international aviation have increased very rapidly and it is therefore important that they are closely monitored for comparison with other sources and for the benefit of the international organisations that will have to develop control strategies for them in the future.

International marine navigation is another important source of emissions that is also excluded from Ireland’s national total emissions and any EU or UN reduction commitments. In 2020, emissions from this source amounted to 0.48 Mt of CO<sub>2</sub>eq up from 0.44 Mt of CO<sub>2</sub>eq in 2019.

**Figure 17. Trend in International Aviation 1990-2020**



## 6. Long-term Changes in Sectoral Emissions 1990-2020

As 1990 is the historical base year used by most countries in relation to UNFCCC and Kyoto Protocol reporting, it is instructive to look at how emissions have evolved over the longer timeframe from 1990 to the present. The share of CO<sub>2</sub> in total greenhouse gas emissions has increased to 60.9% of total greenhouse gas emissions in 2020 compared to 60.6% in 1990. The share of CH<sub>4</sub> and N<sub>2</sub>O emissions, primarily from the agriculture sector, have fallen from 39.4% of total greenhouse gas emissions in 1990 to 37.8% in 2020 as emissions (primarily CO<sub>2</sub>) from other sectors grew at a faster rate. Emissions from F-gases account for 1.4% of the total in 2020. The trend in national total emissions from 1990 to 2020 is +6.1%, shown in Figures 18 and 19 and Table 3 in the Appendix.

Between 1990 and 2020, Transport shows the greatest overall increase of GHG emissions at 100.1%, from 5,148.4 kt CO<sub>2</sub>eq in 1990 to 10,304.4 kt CO<sub>2</sub>eq in 2020, with road transport increasing by 102.6%. Fuel combustion emissions from Transport accounted for 9.5 per cent and 17.9 per cent of total national greenhouse gas emissions in 1990 and 2020, respectively. The increase in emissions up to 2007 can be attributed to general economic prosperity and increasing population, with a high reliance on private car travel as well as rapidly increasing road freight transport. Over the time series passenger car numbers increased by 176% and commercial vehicles increased by 163%. Both the increase in transport emissions up to 2007 and the subsequent fall during the financial crisis highlight that transport emissions have not yet been effectively decoupled from economic activity through sustainable planning or electrification.

*Energy Industries* show a decrease in emissions of 23.3% over the period 1990 to 2020. Over the time series, emissions from electricity generation have decreased by 25.0% whereas total electricity consumption has increased by 141.1%. Emissions from electricity generation increased from 1990 to 2001 by 54.2% and have decreased by 51.4% between 2001 and 2020. This decrease reflects the improvement in efficiency of modern gas fired power plants replacing older peat and oil-fired plants and the increased share of renewables, primarily, wind power along with increased interconnectivity. This year was the lowest year in the 31-year time series for peat fired electricity generation, 51% less than in 2019. These reductions reflect the gradual ending of coal and peat fired electricity generation for market and climate policy reasons.

The latest estimates show that total emissions in the *Agriculture* sector have increased by 10.9% from 1990 to 2020 mainly driven by a 17.6% increase in methane emissions from enteric fermentation and a 24.0% increase in emissions from manure management. After initially showing a rising trend in emissions in the 1990s, the *Agriculture* sectoral emissions began to decrease steadily between 1998 until 2011. However, since 2011, emissions have trended upwards again with an overall peak in emissions reported in 2018. Meanwhile, total fossil fuel combustion emissions from agriculture/forestry/fishing activities have decreased by 20.3% since 1990. In the last 10 years, dairy cow numbers have increased by 45.5% with a corresponding milk production increase of 60.3%. This reflects national plans to expand milk production under Food Wise 2025 and the removal of the milk quota in 2015. In the same 10-year period sheep numbers increased by 21.9%, pigs by 9.7% and poultry by 25.9%.

Increased housing stock and a growing population drove the gradual upward trend in the emissions from the *Residential* sector after 1997 following emission reductions in the early 1990s due to fuel switching, from coal and peat to oil and natural gas, to reach a peak in 2010. The 2020 emissions in this sector are 9.0% higher than 2019 levels and are 5.3% lower than their 1990 level, whereas the housing stock increased by 78.7% and population by 42.0% between 1990 and 2020. Winter heating demand is the most important variable determining emissions from this sector.

Figure 18. GHG Emissions by Gas 1990-2020

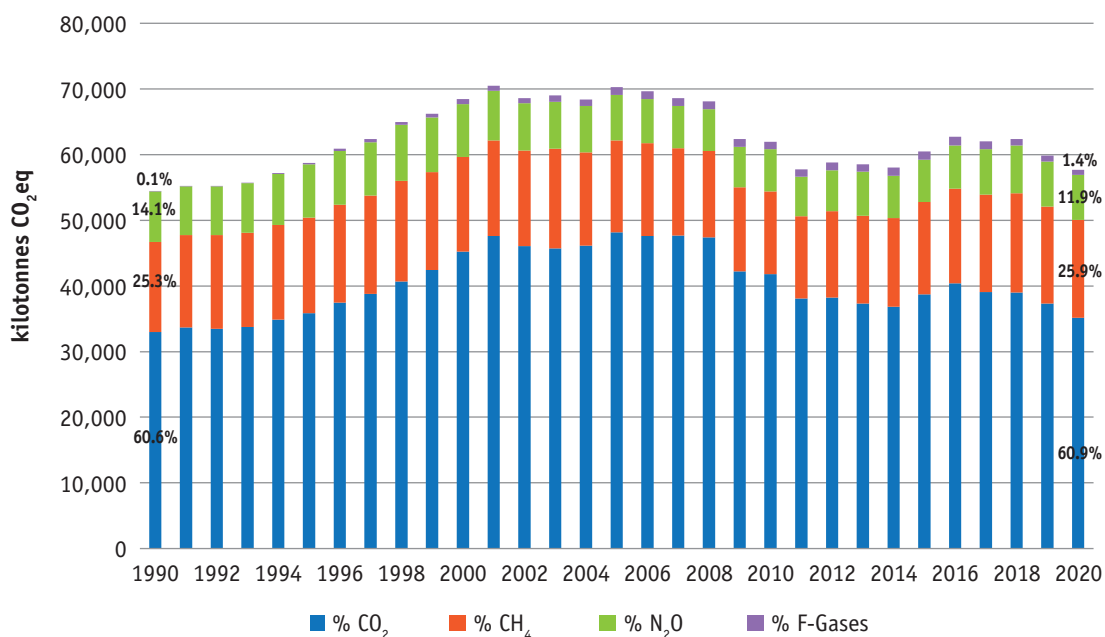
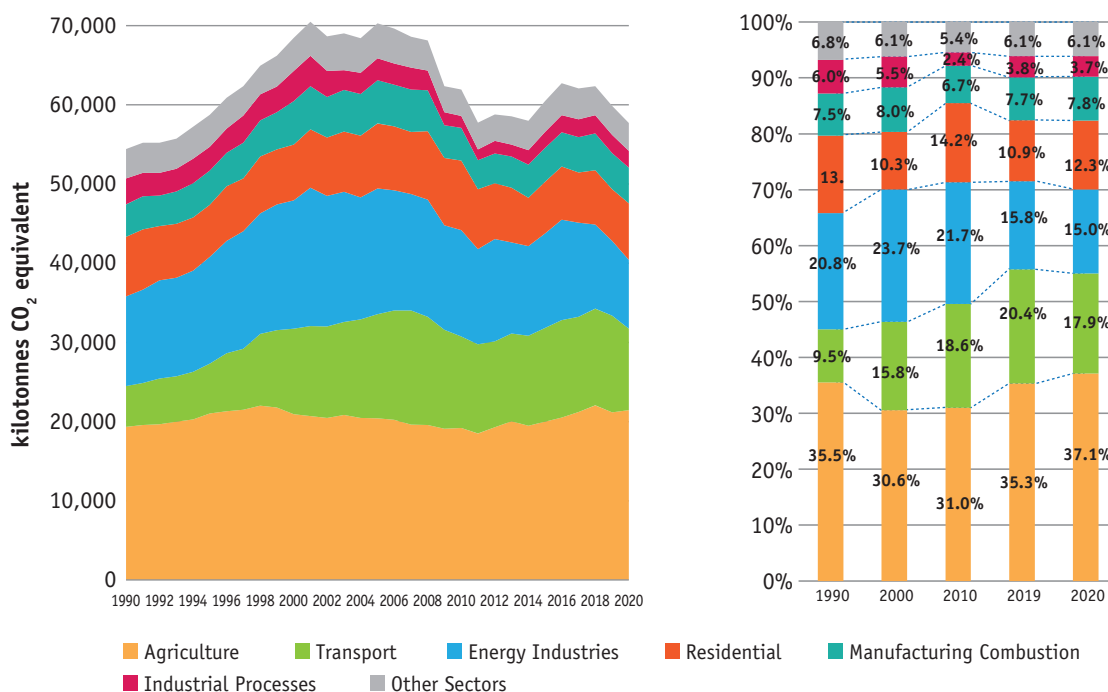


Figure 19. Trend in Emissions for Largest Sectors 1990-2020



## 7. Conclusion

The events of 2020 disrupted the lives of billions of people globally and Irish lives were no exception. Ireland's greenhouse gas emissions were impacted by the measures to tackle the pandemic but not all sectors were affected equally and, in some cases, the measures themselves led to increased emissions, such as in the *Residential* sector. The overall decrease in greenhouse gas emissions in 2020 was less than 4% compared to 2019, and while clearly significant, was still less than what will be necessary each year from 2021-2030 to meet the ambition of Ireland's Climate Act, and less indeed than the reductions we had already seen in 2019.

The EPA has been projecting for some time that Ireland will miss its 2020 greenhouse gas emission reduction targets under the EU Effort Sharing Decision (ESD). The provisional 2020 data bears out those projections with a cumulative target exceedance over the 2013-2020 period of over 12 Mt CO<sub>2</sub>eq, a similar amount to Ireland's total transport sector emissions in 2019, pre-COVID. In percentage terms Ireland's 2020 emissions under the ESD were only 7.0% below 2005 levels, despite the significant downward impact of COVID in 2020 itself. Given the target for 2020 was a 20% reduction, this gap highlights that for compliance with more onerous 2030 targets, Ireland will need to implement effective policies and measures as quickly as possible.

Of all the sectors, *Transport* saw the biggest disruption and consequently the biggest emissions reduction in 2020, with a decrease compared to 2019 of almost 2 Mt CO<sub>2</sub> eq. Even this does not tell the full story as, although International Aviation is not by convention included in National Inventory totals, the ~2 Mt CO<sub>2</sub> eq of emissions avoided from flights into and out of Ireland are still equally important for the avoidance of further global warming.

Significant emissions reductions were achieved from electricity generation in 2020, not because of pandemic measures, but rather from the welcome phasing out of peat being used to generate electricity. As a result of this measure, and a substantial increase in wind generation, the energy intensity of electricity generation in 2020 was below 300 g CO<sub>2</sub>/kWh for the first time.

However, a reversal was noted in other sectors; Residential emissions increased markedly (+9%) because of increased working from home, highlighting the work left to do to improve the efficiency of our housing stock. Agricultural activity was less affected than industrial sectors of the economy and this was reflected in emissions growth of 1.4% in the sector compared to 2019. The inexorable rise in the number of dairy cows in the herd (up 46% since 2010) continued to play a role here, along with increased nitrogen fertiliser usage. Although some measures to mitigate agricultural emissions (such as use of stabilised urea fertilisers) are starting to be implemented, the impact has been small to date. Implementation of effective measures will need to be swiftly stepped up if the Climate Act target for 2030 is to be achieved.

The Climate Act<sup>3</sup> sets out a National Policy Objective that commits to "achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy". As a milestone towards delivering that objective, the Act envisages emissions being reduced by 51% by 2030 compared to 2018 levels. That big emissions reductions did not occur in 2020 despite intense societal disruption highlights both the scale of the climate change challenge and the fact that transformational change will be needed for the targets to be met. While measures which restrict activity may be part of the solution, far more important for 2030 targets and beyond will be those measures, in all sectors, that decouple economic growth from emissions growth. If trips can be avoided through better planning or homes require little heating because our buildings are highly efficient, both the environment and all of us who live in it will benefit.

<sup>3</sup> The Climate Action and Low Carbon Development (Amendment) Act 2021. <https://data.oireachtas.ie/ie/oireachtas/act/2021/32/eng/enacted/a3221.pdf>

## Appendix – Additional Tables and Background Notes

**Table 3. Ireland's Provisional GHG Emissions by Sector 1990-2020 (kilotonnes CO<sub>2</sub> equivalent)**

1990-2020 Submission 2022 Provisional	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	% Share 2020	Annual change
Energy Industries	11327.5	13476.5	16197.0	15899.4	13465.8	12061.4	12902.6	11538.3	11329.1	11938.9	12663.1	11895.3	10635.4	9427.1	8683.1	<b>15.0%</b>	<b>-7.9%</b>
Public electricity and heat production	10953.9	13132.9	15754.4	15244.8	12895.1	11560.6	12365.5	11006.4	10844.2	11393.0	12150.6	11376.4	10114.3	8968.1	8212.5	14.2%	-8.4%
Petroleum refining	168.7	181.3	274.8	411.9	310.5	285.5	313.6	294.6	279.5	358.7	313.6	311.2	322.2	274.5	301.0	0.5%	9.7%
Solid fuels and other energy industries	100.5	69.4	87.2	171.9	173.3	135.8	145.4	161.2	133.7	114.5	125.4	128.7	118.5	107.2	91.9	0.2%	-14.3%
Fugitive emissions	104.4	92.9	80.7	70.9	87.0	79.6	78.1	76.2	71.8	72.7	73.5	79.0	80.4	77.3	77.8	0.1%	0.7%
Residential	7521.3	6563.8	7044.1	8198.6	8771.3	7535.1	7066.8	6889.4	6080.4	6506.4	6716.3	6329.6	6829.0	6529.2	7119.1	<b>12.3%</b>	<b>9.0%</b>
Manufacturing Combustion	4099.2	4333.1	5481.5	5473.5	4150.4	3681.7	3760.0	3954.7	4180.0	4271.9	4343.7	4465.7	4671.5	4589.1	4522.0	<b>7.8%</b>	<b>-1.5%</b>
Commercial Services	993.9	1062.4	1019.2	1010.7	809.1	844.0	860.2	876.4	783.6	854.4	823.5	835.8	927.4	939.3	936.7	<b>1.6%</b>	<b>-0.3%</b>
Public Services	1114.8	942.3	924.6	888.2	900.5	783.4	818.5	857.4	850.6	867.2	901.9	863.9	880.3	887.0	896.1	<b>1.6%</b>	<b>1.0%</b>
Transport	5148.4	6280.3	10802.3	13148.0	11545.4	11235.6	10847.1	11071.6	11354.0	11833.7	12316.5	12037.0	12211.9	12220.2	10304.4	<b>17.9%</b>	<b>-15.7%</b>
Domestic aviation	48.4	45.7	69.6	80.2	49.5	24.7	15.0	15.4	14.7	15.6	16.8	17.5	16.8	17.6	18.6	0.0%	5.6%
Road transportation	4792.0	5892.8	10380.3	12567.0	10998.2	10750.3	10378.0	10600.2	10848.2	11336.4	11772.7	11528.1	11664.4	11644.9	9706.5	16.8%	-16.6%
Railways	148.9	124.5	137.6	136.6	136.3	136.5	131.9	131.4	120.5	122.8	125.1	129.1	130.5	136.6	108.8	0.2%	-20.3%
Domestic navigation	85.8	92.1	152.7	211.2	200.1	173.7	183.6	179.6	224.8	221.7	266.5	235.3	260.2	277.2	322.6	0.6%	16.4%
Other transportation	73.4	125.2	62.0	153.0	161.3	150.4	138.7	145.1	145.7	137.2	135.4	127.0	140.1	144.0	147.8	0.3%	2.7%
Industrial Processes	3275.6	2992.1	3790.6	2766.7	1467.9	1337.3	1565.1	1481.2	1825.5	2012.0	2155.3	2243.2	2299.6	2271.6	2112.8	<b>3.7%</b>	<b>-7.0%</b>
Mineral industry	1116.7	1084.2	1908.8	2552.8	1299.0	1167.3	1392.0	1301.7	1650.5	1830.4	1968.4	2039.9	2094.5	2057.7	1907.2	3.3%	-7.3%
Chemical industry	1985.6	1754.4	1663.3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		
Metal industry	26.1	24.8	28.8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		
Non-energy products from fuels and solvent use	115.9	96.5	155.8	177.0	128.1	129.1	132.2	138.4	133.8	140.2	144.3	160.6	162.1	169.9	161.2	0.3%	-5.1%
Other product manufacture and use	31.3	32.2	33.9	37.0	40.7	40.9	41.0	41.1	41.2	41.4	42.6	42.8	43.0	44.0	44.5	0.1%	1.1%



1990-2020 Submission 2022 Provisional	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	% Share 2020	Annual change
F-Gases	34.6	226.3	768.7	1198.6	1128.0	1145.8	1122.8	1159.2	1225.6	1230.1	1313.6	1237.8	929.9	917.1	785.5	<b>1.4%</b>	<b>-14.4%</b>
Agriculture	19332.7	21034.7	20937.7	20390.3	19178.8	18502.6	19284.5	20030.0	19484.2	19990.5	20500.2	21198.9	22037.2	21146.6	21432.3	<b>37.1%</b>	<b>1.4%</b>
Enteric fermentation	10466.1	11085.9	11295.8	11217.3	10554.7	10419.3	11043.0	11144.5	11063.7	11463.7	11789.9	12182.6	12467.1	12147.9	12313.4	21.3%	1.4%
Manure management	1777.0	1897.0	1954.8	1986.7	1873.3	1870.4	2022.7	2029.5	1984.1	2067.7	2128.0	2190.5	2261.2	2168.3	2207.1	3.8%	1.8%
Agricultural soils	5819.5	6304.2	6205.9	5760.2	5395.0	4996.9	5185.2	5618.9	5382.2	5413.7	5469.0	5777.8	6078.7	5725.7	5753.4	10.0%	0.5%
Liming	355.0	494.6	366.4	266.7	427.9	360.7	229.4	515.7	391.1	401.1	433.6	332.7	461.1	343.9	399.5	0.7%	16.2%
Urea application	96.7	86.3	91.8	60.8	98.2	70.3	46.4	47.1	54.5	64.3	79.1	84.0	88.8	92.0	106.5	0.2%	15.8%
Agriculture/Forestry fuel combustion	730.6	1008.1	909.8	953.6	753.5	721.9	687.9	596.6	534.5	514.9	540.7	560.3	595.8	595.8	595.8	1.0%	0.0%
Fishing	87.8	158.6	113.2	144.9	76.2	63.1	69.9	77.7	74.1	65.1	59.8	70.8	84.5	73.0	56.6	0.1%	-22.4%
Waste	1552.1	1829.2	1492.8	1292.0	531.4	621.9	539.4	695.5	884.8	955.9	969.6	944.4	914.6	914.4	906.7	<b>1.6%</b>	<b>-0.8%</b>
Landfills	1318.1	1592.8	1268.2	1007.0	278.6	381.6	302.8	461.0	648.1	726.9	749.6	717.9	692.7	676.9	667.9	1.2%	-1.3%
Biological treatment of solid waste	0.0	0.0	0.0	13.8	46.2	52.4	44.8	46.5	47.4	38.3	43.1	45.2	44.4	48.0	48.0	0.1%	0.0%
Incineration and open burning of waste	97.7	100.6	79.5	132.5	62.1	45.0	48.3	45.2	41.7	42.4	25.0	27.5	23.9	32.5	30.6	0.1%	-6.0%
Wastewater treatment and discharge	136.2	135.8	145.1	138.7	144.5	143.0	143.5	142.9	147.7	148.3	151.9	153.9	153.7	157.0	160.2	0.3%	2.0%
<b>National Total</b>	<b>54400.2</b>	<b>58740.7</b>	<b>68458.5</b>	<b>70266.0</b>	<b>61948.4</b>	<b>57748.9</b>	<b>58767.2</b>	<b>58553.6</b>	<b>57997.8</b>	<b>60461.0</b>	<b>62703.6</b>	<b>62051.6</b>	<b>62336.9</b>	<b>59841.6</b>	<b>57698.8</b>	<b>100.0%</b>	<b>-3.6%</b>

## Background Notes

**Units:** 1 Mt = 1,000 kilotonnes

**CO<sub>2</sub> Equivalent:** greenhouse gases other than CO<sub>2</sub> (i.e. methane, nitrous oxide and F-gases) may be converted to CO<sub>2</sub> equivalent using their global warming potentials (GWPs).

**F-gases:** These gases comprise HFCs (Hydrofluorocarbons), PFCs (Perfluorocarbons), SF<sub>6</sub> (Sulphur Hexafluoride) and NF<sub>3</sub> (Nitrogen Trifluoride). They are much more potent than the naturally occurring greenhouse gas emissions (carbon dioxide, methane and nitrous oxide).

### GWPs:

Industrial designation or common name	Chemical formula	GWP for 100-year time horizon IPCC 4th assessment report (AR4)
Carbon dioxide	CO <sub>2</sub>	1
Methane	CH <sub>4</sub>	25
Nitrous oxide	N <sub>2</sub> O	298
Hydrofluorocarbons	HFCs	12 to 14,800
Perfluorinated compounds	PFCs	7,390 to >17,340
Sulphur hexafluoride	SF <sub>6</sub>	22,800
Nitrogen trifluoride	NF <sub>3</sub>	17,200

**Ireland's GHG Sectors:** include the following ten sectors for analysis;

1. Energy Industries (electricity generation, waste to energy incineration, oil refining, briquetting manufacture and fugitive emissions)
2. Residential (combustion for domestic space and hot water heating)
3. Manufacturing Combustion (combustion of fuels for heating, steam generation and powering machinery)
4. Commercial Services (combustion for Commercial Services space and hot water heating)
5. Public Services (combustion for Public services space and hot water heating)
6. Transport (combustion of fuel used in road, rail, navigation, domestic aviation and pipeline gas transport)
7. Industrial Processes (process emissions from mineral, chemical, metal industries, non-energy products and solvents)
8. F-Gases (gases used in refrigeration, air conditioning and semiconductor manufacture)
9. Agriculture (emissions from fertiliser application, ruminant digestion, manure management, agricultural soils and fuel used in agriculture/forestry/fishing)
10. Waste (emissions from solid waste disposal on land, solid waste treatment (composting and anaerobic digestion), wastewater treatment, waste incineration and open burning of waste).

# An Ghníomhaireacht Um Chaomhnú Comhshaoil

Tá an GCC freagrach as an gcomhshaoil a chosaint agus a fheabhsú, mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaoil a chosaint ar thionchar díobhálach na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

- Rialáil: Rialáil agus córais chomhlíonta comhshaoil éifeachtacha a chur i bhfeidhm, chun dea-thorthaí comhshaoil a bhaint amach agus díriú orthu siúd nach mbíonn ag cloí leo.
- Eolas: Sonraí, eolas agus measúnú ardchaighdeán, spriocdhírthe agus tráthúil a chur ar fáil i leith an chomhshaoil chun bonn eolais a chur faoin gcinnteoireacht.
- Abhcóideacht: Ag obair le daoine eile ar son timpeallachta glaine, táirgiúla agus dea-chosanta agus ar son cleachtas inbhuanaithe i dtaobh an chomhshaoil.

I measc ár gcuid freagrachtaí tá:

## CEADÚNÚ

- Gníomhaíochtaí tionscail, dramhaíola agus stórála peitрил ar scála mór;
- Sceitheadh fuíolluisce uirbigh;
- Úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe;
- Foinsí radaíochta ianúcháin;
- Astaíochtaí gás ceaptha teasa ó thionscal agus ón eitlíocht trí Scéim an AE um Thrádáil Astaíochtaí.

## FORFHEIDHMIÚ NÁISIÚNTA I LEITH CÚRSAÍ COMHSHAOIL

- Iniúchadh agus cigireacht ar shaoráidí a bhfuil ceadúnas acu ón GCC;
- Cur i bhfeidhm an dea-chleachtais a stiúradh i ngníomhaíochtaí agus i saoráidí rialáilte;
- Maoirseacht a dhéanamh ar fhreagrachtaí an údarais áitiúil as cosaint an chomhshaoil;
- Caighdeán an uisce óil phoiblí a rialáil agus údaruithe um sceitheadh fuíolluisce uirbigh a fhorfheidhmiú;
- Caighdeán an uisce óil phoiblí agus phríobháidigh a mheasúnú agus tuairisciú air;
- Comhordú a dhéanamh ar líonra d'eagraíochtaí seirbhíse poiblí chun tacú le gníomhú i gcoinne coireachta comhshaoil;
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaoil.

## BAINISTÍOCHT DRAMHAÍOLA AGUS CEIMICEÁIN SA CHOMHSHAOIL

- Rialacháin dramhaíola a chur i bhfeidhm agus a fhorfheidhmiú lena n-áirítear saincheisteanna forfheidhmithe náisiúnta;
- Staitisticí dramhaíola náisiúnta a ullmhú agus a fhoilsiú chomh maith leis an bPlean Náisiúnta um Bainistíocht Dramhaíola Guaisí;
- An Clár Náisiúnta um Chosc Dramhaíola a fhorbairt agus a chur i bhfeidhm;
- Reachtaíocht ar rialú ceimiceán sa timpeallacht a chur i bhfeidhm agus tuairisciú ar an reachtaíocht sin.

## BAINISTÍOCHT UISCE

- Plé le struchtúir náisiúnta agus réigiúnacha rialachais agus oibriúcháin chun an Chreat-treoir Uisce a chur i bhfeidhm;
- Monatóireacht, measúnú agus tuairisciú a dhéanamh ar chaighdeán aibhneacha, lochanna, uiscí idirchreasa agus cósta, uiscí snámha agus screamhuise chomh maith le tomhas ar leibhéal uisce agus sreabhadh abhann.

## EOLAÍOCHT AERÁIDE & ATHRÚ AERÁIDE

- Fardail agus réamh-mheastacháin a fhoilsiú um astaíochtaí gás ceaptha teasa na hÉireann;
- Rúnaíocht a chur ar fáil don Chomhairle Chomhairleach ar Athrú Aeráide agus tacaíocht a thabhairt don Idirphlé Náisiúnta ar Ghníomhú ar son na hAeráide;
- Tacú le gníomhaíochtaí forbartha Náisiúnta, AE agus NA um Eolaíocht agus Beartas Aeráide.

## MONATÓIREACHT & MEASÚNÚ AR AN GCOMHSHAOIL

- Córais náisiúnta um monatóireacht an chomhshaoil a cheapadh agus a chur i bhfeidhm: teicneolaíocht, bainistíocht sonraí, anailís agus réamhaisnéisiú;
- Tuairiscí ar Staid Timpeallacht na hÉireann agus ar Tháscairí a chur ar fáil;
- Monatóireacht a dhéanamh ar chaighdeán an aeir agus Treoir an AE i leith Aeir Ghlain don Eoraip a chur i bhfeidhm chomh maith leis an gCoinbhinsiún ar Aerthruailliú Fadraoin Trasteorann, agus an Treoir i leith na Teorann Náisiúnta Astaíochtaí;
- Maoirseacht a dhéanamh ar chur i bhfeidhm na Treorach i leith Toráin Timpeallachta;
- Measúnú a dhéanamh ar thionchar pleananna agus clár beartaithe ar chomhshaoil na hÉireann.

## TAIGHDE AGUS FORBAIRT COMHSHAOIL

- Comhordú a dhéanamh ar ghníomhaíochtaí taighde comhshaoil agus iad a mhaoiniú chun brú a aithint, bonn eolais a chur faoin mbeartas agus réitigh a chur ar fáil;
- Comhoibriú le gníomhaíocht náisiúnta agus AE um thaighde comhshaoil.

## COSAINT RAIDEOLAÍOCH

- Monatóireacht a dhéanamh ar leibhéal radaíochta agus nochtadh an phobail do radaíocht ianúcháin agus do réimsí leictreamaighnéadacha a mheas;
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as tásimí núicléacha;
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta;
- Sainseirbhísí um chosaint ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

## TREOIR, ARDÚ FEASACHTA AGUS FAISNÉIS INROCHTANA

- Tuairisciú, comhairle agus treoir neamhspleách, fianaise-bhunaithe a chur ar fáil don Rialtas, don tionscal agus don phobal ar ábhair maidir le cosaint comhshaoil agus raideolaíoch;
- An nasc idir sláinte agus folláine, an geilleagar agus timpeallacht ghlan a chur chun cinn;
- Feasacht comhshaoil a chur chun cinn lena n-áirítear tacú le hionmpaíocht um éifeachtúlacht acmhainní agus aistriú aeráide;
- Tástáil radóin a chur chun cinn i dtithe agus in ionaid oibre agus feabhsúchán a mholadh áit is gá.

## COMHPHÁIRTÍOCHT AGUS LÍONRÚ

- Oibriú le gníomhaireachtaí idirnáisiúnta agus náisiúnta, údarais réigiúnacha agus áitiúla, eagraíochtaí neamhrialtais, comhlachtaí ionadaíochta agus ranna rialtais chun cosaint comhshaoil agus raideolaíoch a chur ar fáil, chomh maith le taighde, comhordú agus cinnteoireacht bunaithe ar an eolaíocht.

## BAINISTÍOCHT AGUS STRUCTÚR NA GNÍOMHAIREACHTA UM CHAOMHNÚ COMHSHAOIL

Tá an GCC á bainistiú ag Bord Iánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóir. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig um Inbhuanaitheacht i leith Cúrsaí Comhshaoil
- An Oifig Forfheidhmithe i leith Cúrsaí Comhshaoil
- An Oifig um Fhianaise agus Measúnú
- An Oifig um Chosaint ar Radaíocht agus Monatóireacht Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tugann coistí comhairleacha cabhair don Ghníomhaireacht agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair inní agus le comhairle a chur ar an mBord.

