

Greenhouse gas emissions 1990-2022

Emissions Statistics Team



- Paul Duffy
- Damien Fahey
- Bernard Hyde
- Ann Kehoe
- Ben Macfarlane
- Suzanne Monaghan
- James Murphy
- Ann Marie Ryan
- Stephen Treacy
- Tony Kent

- Dr. Kevin Black (FERS)



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Greenhouse Gas
EMISSIONS

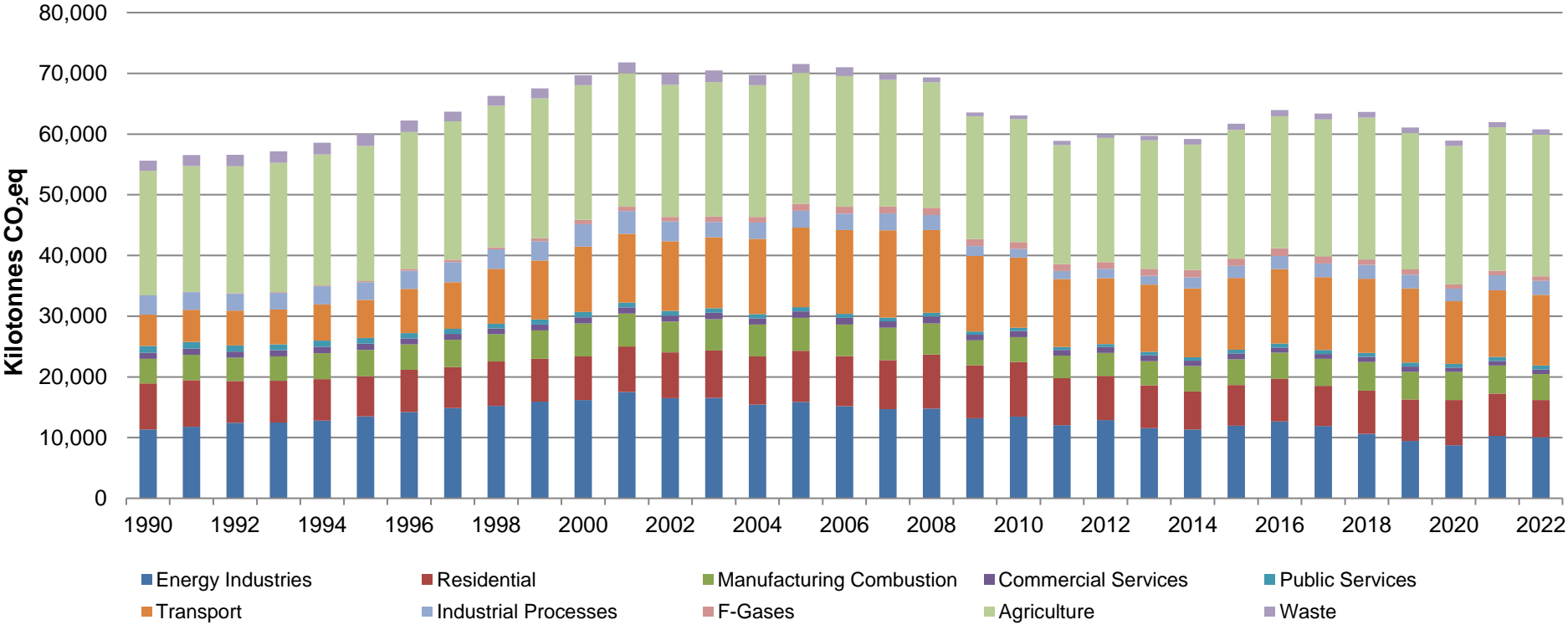
www.epa.ie
Environmental Protection Agency 2023

Overview

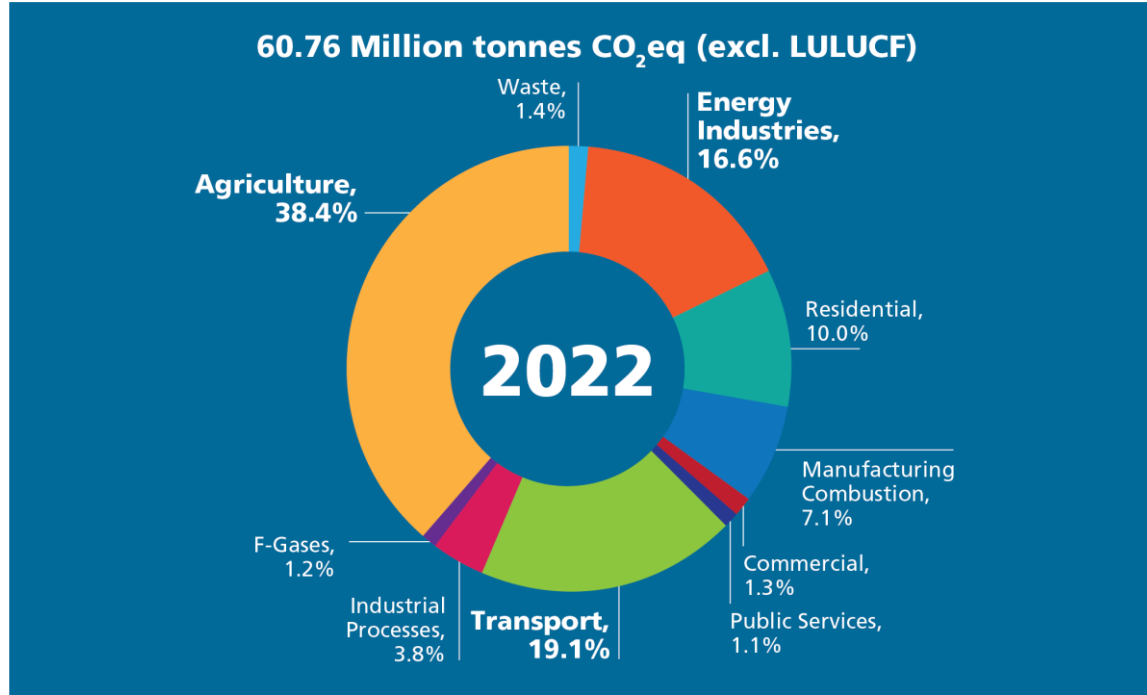
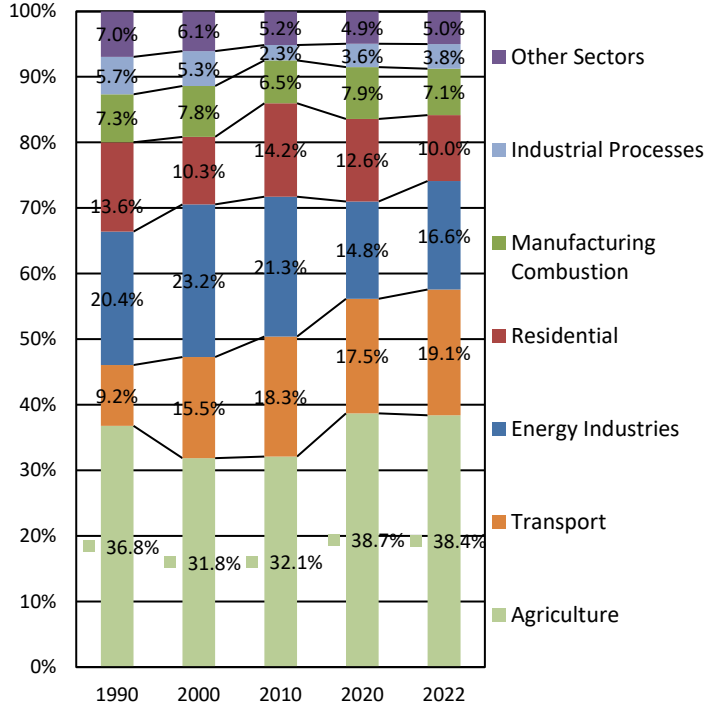


- Long Term trends
- Agriculture
- Transport
- Energy Industries
- Residential
- Industry

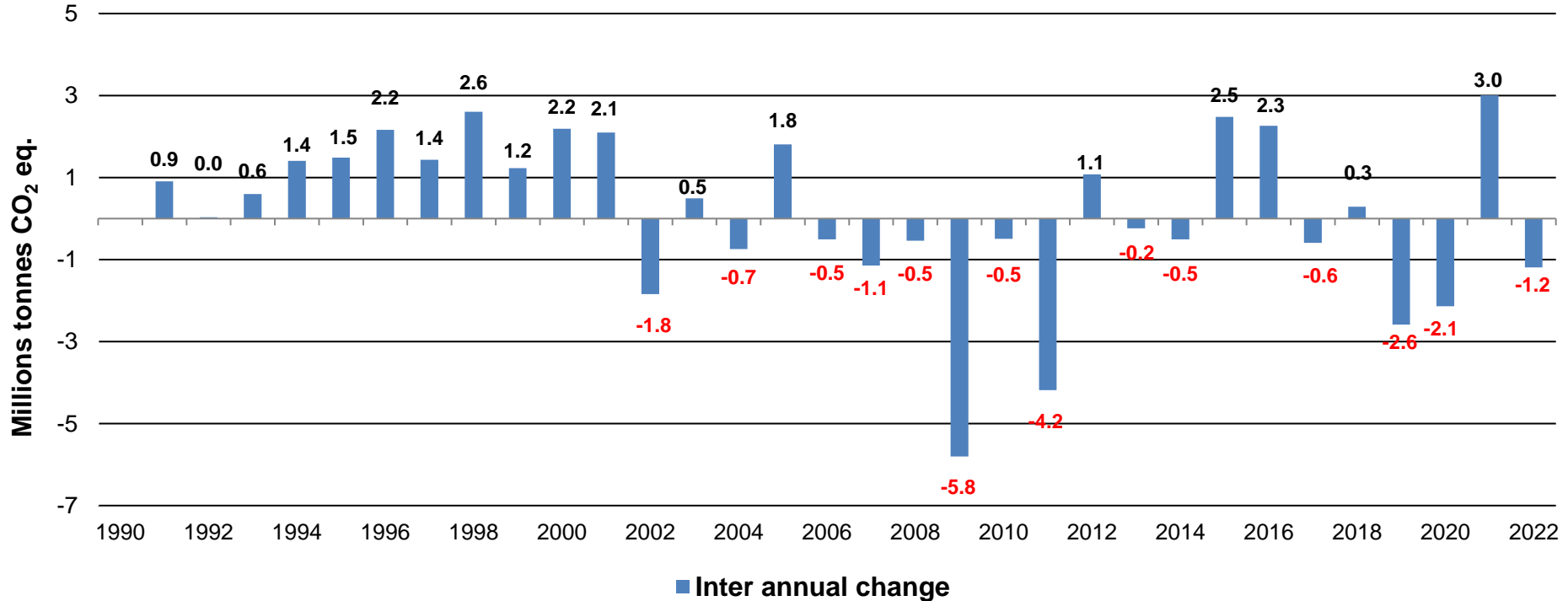
Annual Emissions 1990-2022



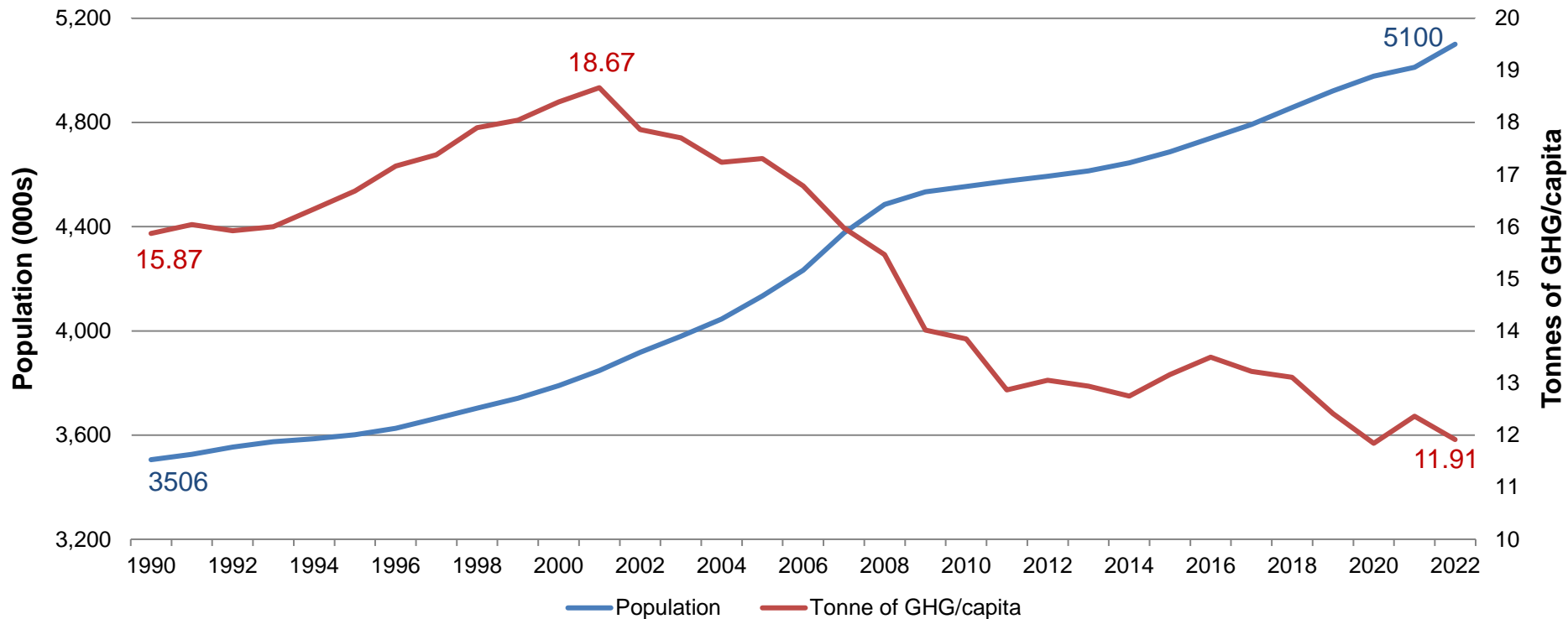
Sectoral Share of GHG emissions



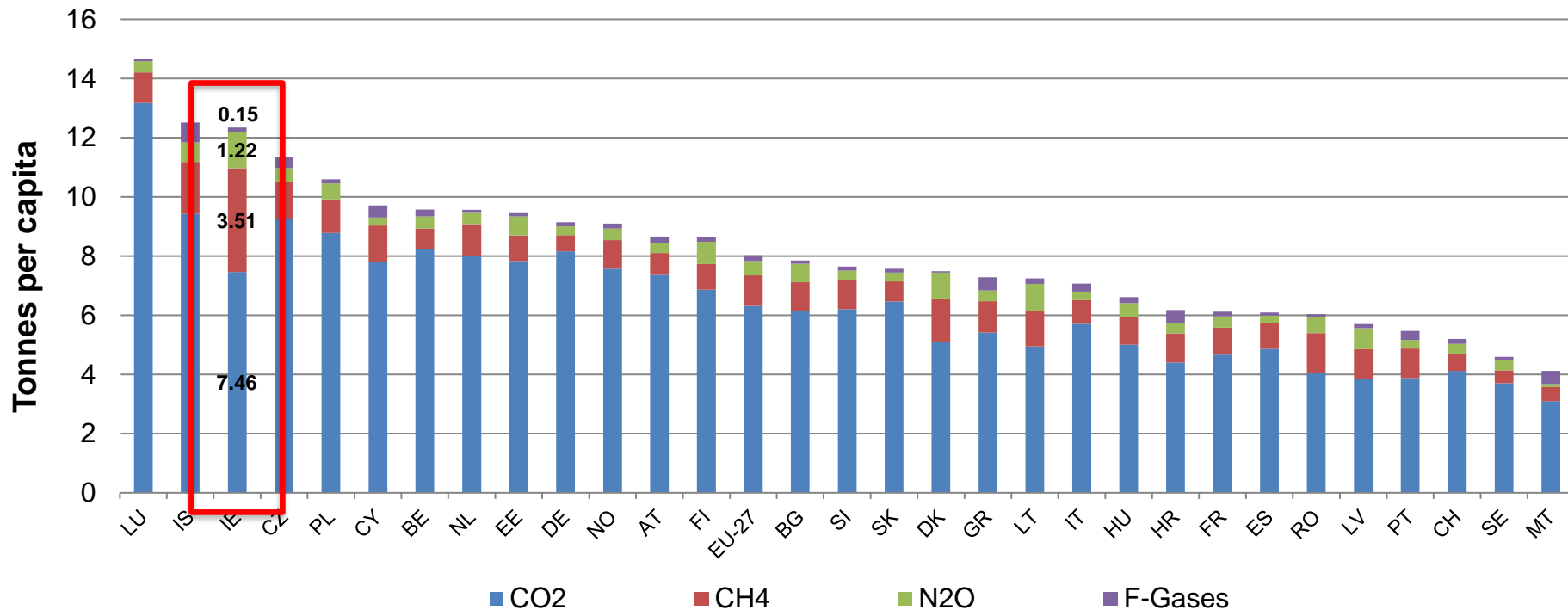
Annual Emissions trends



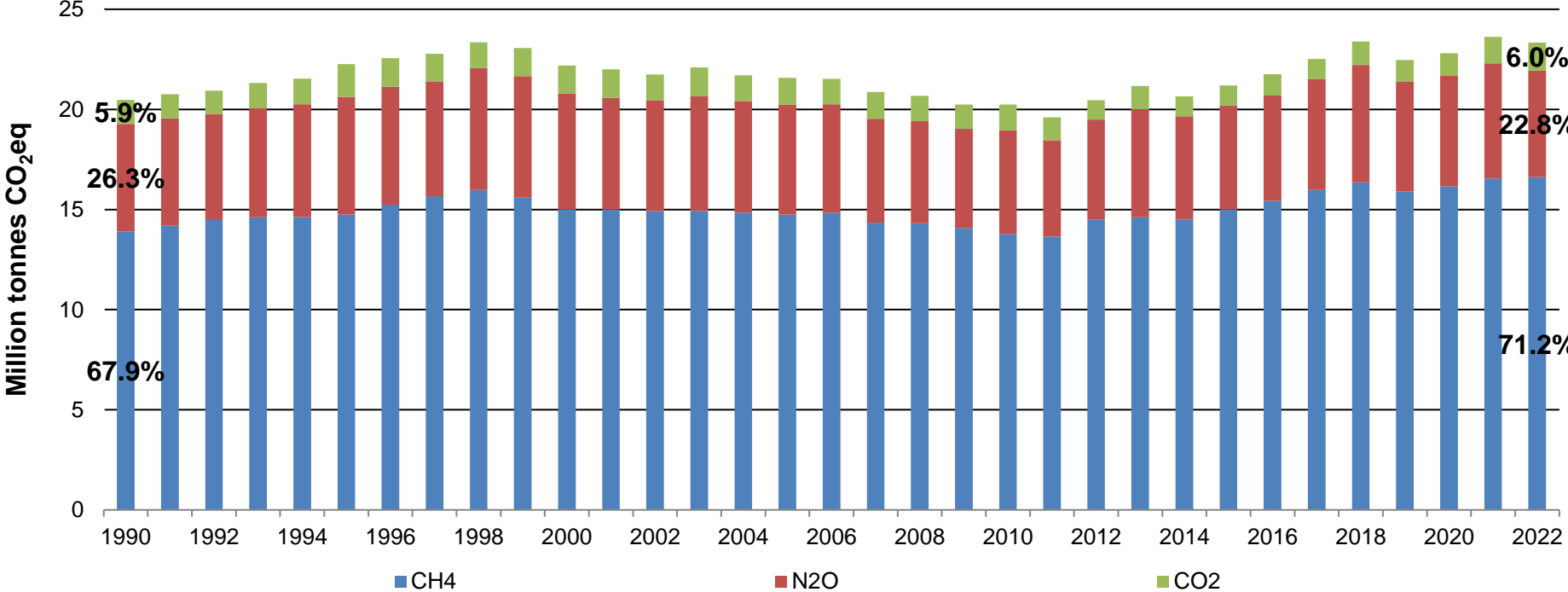
Population and per capita emissions



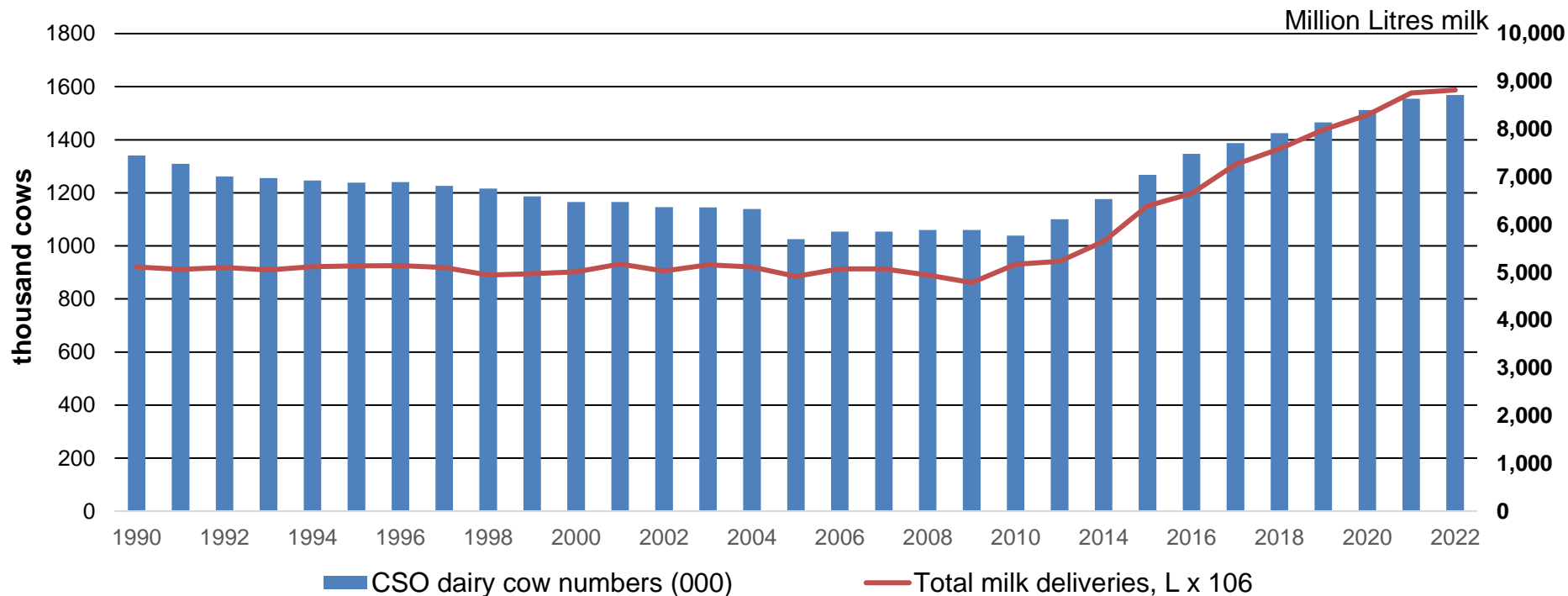
Emissions per capita (2021 comparison)



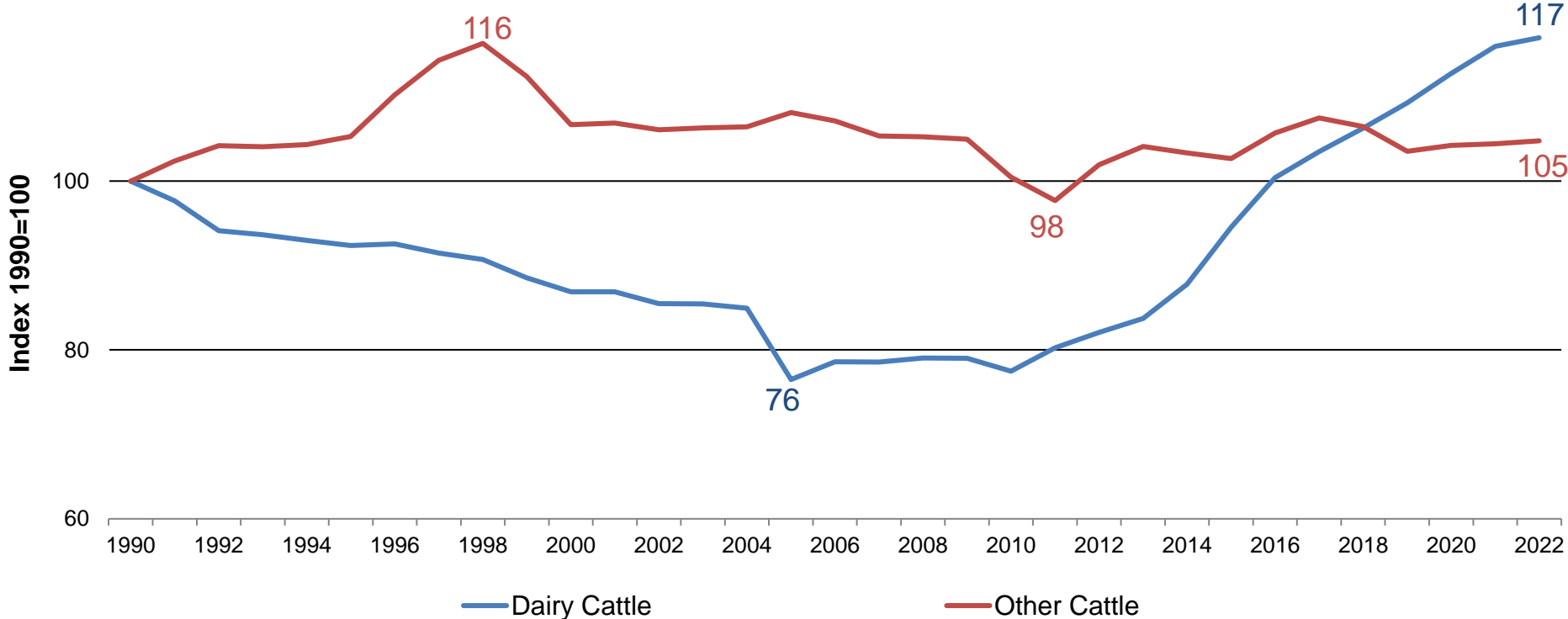
Agriculture 1990-2022 (by gas)



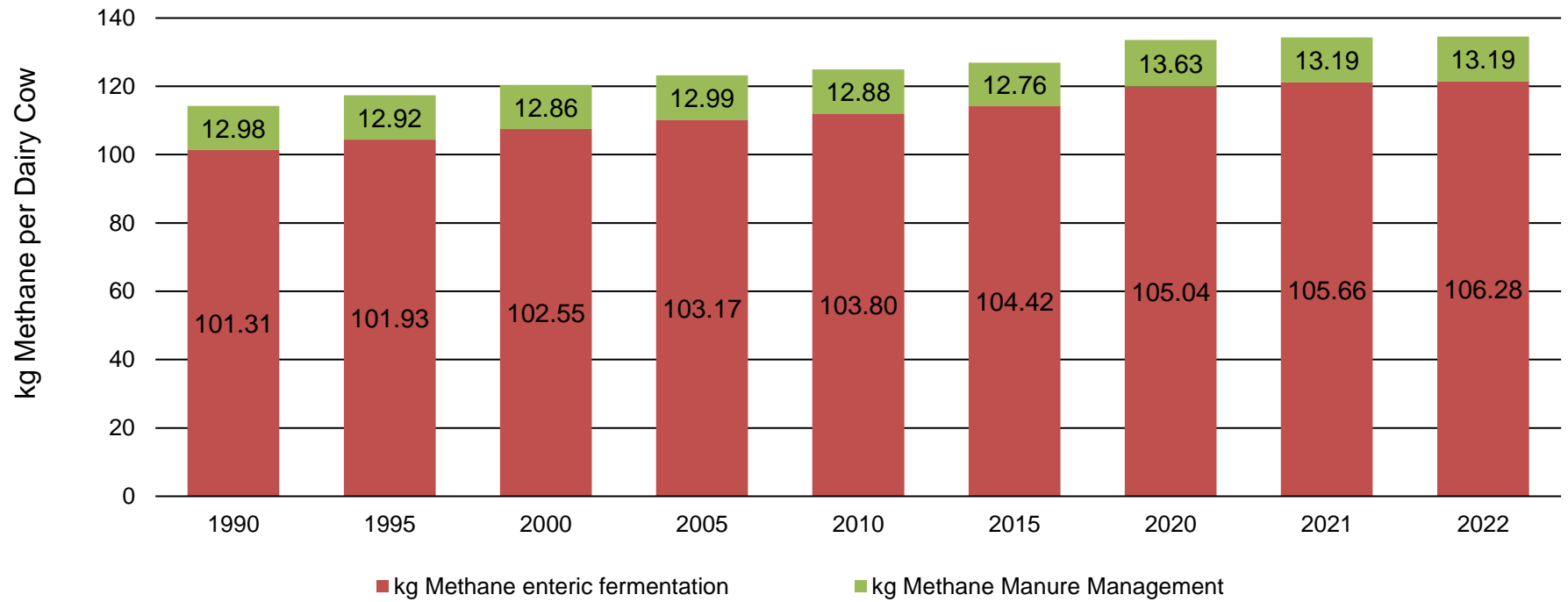
Agriculture emissions drivers – Milk production



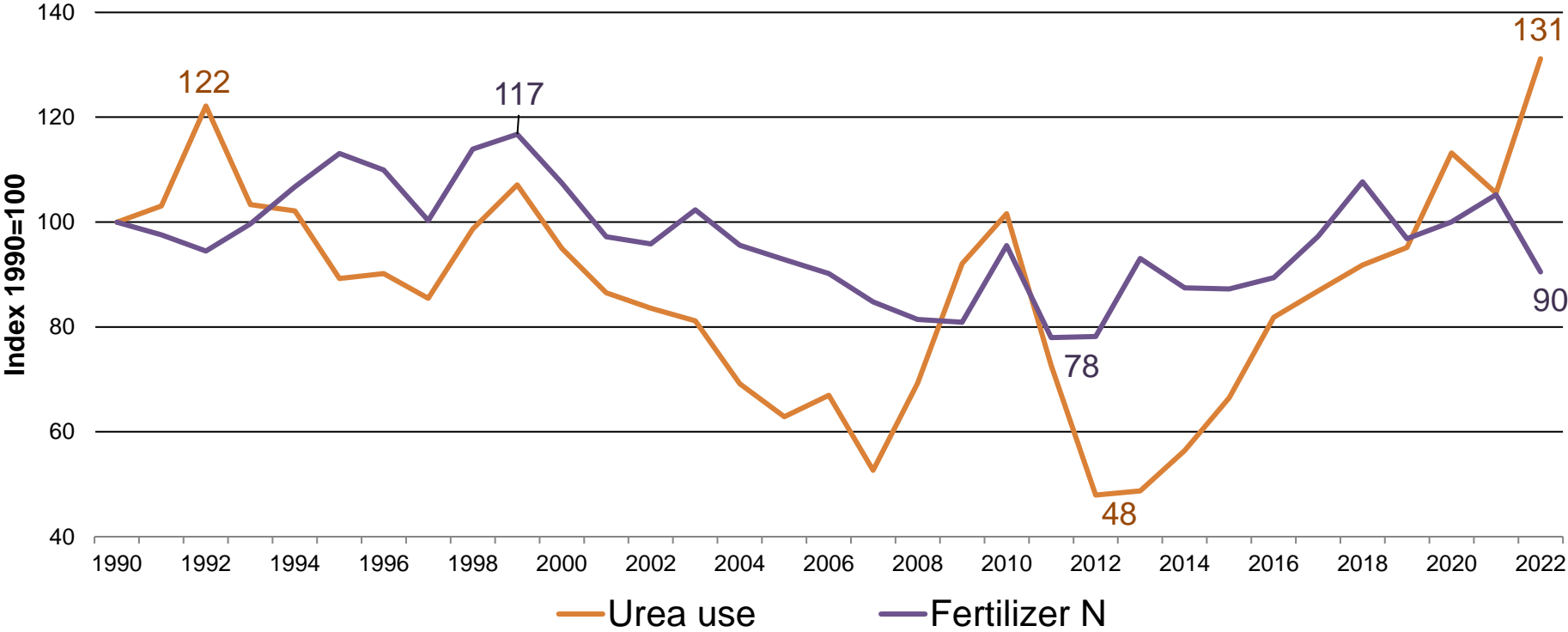
Agriculture emissions drivers – Livestock numbers



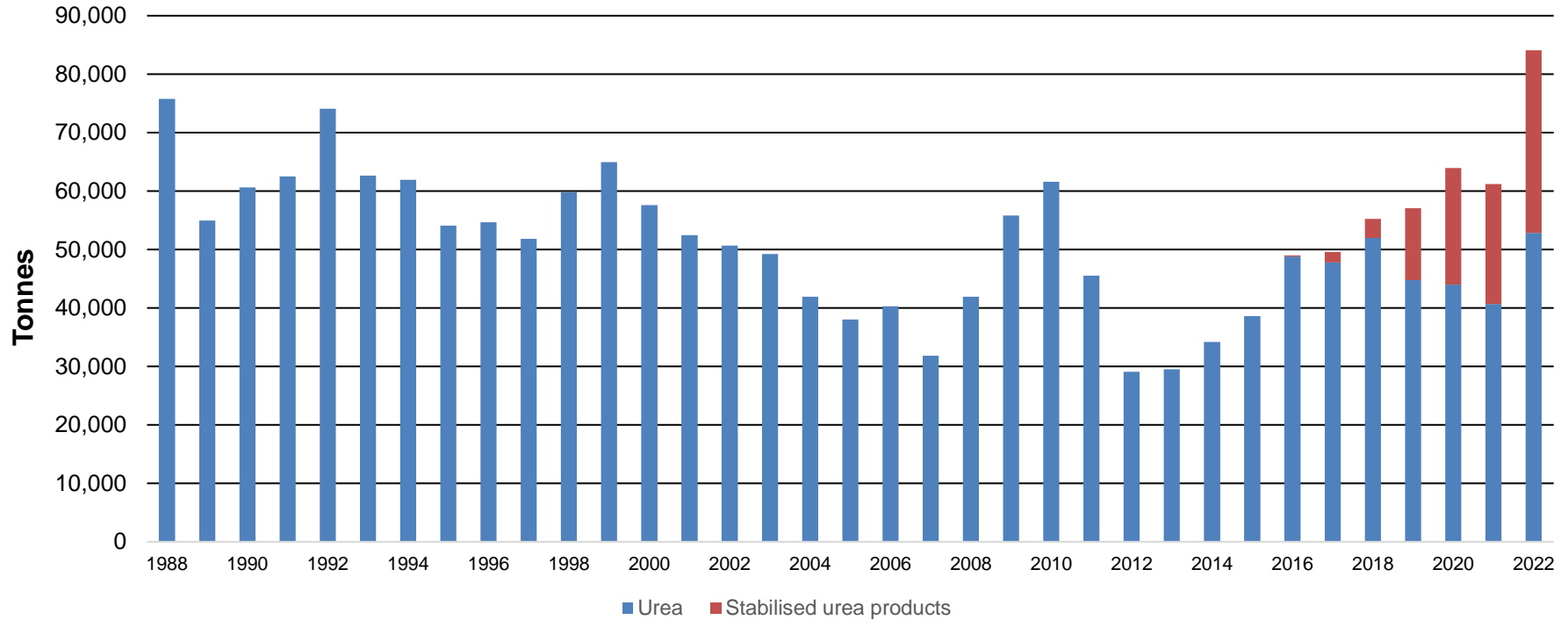
Agriculture emissions drivers – Dairy Cows



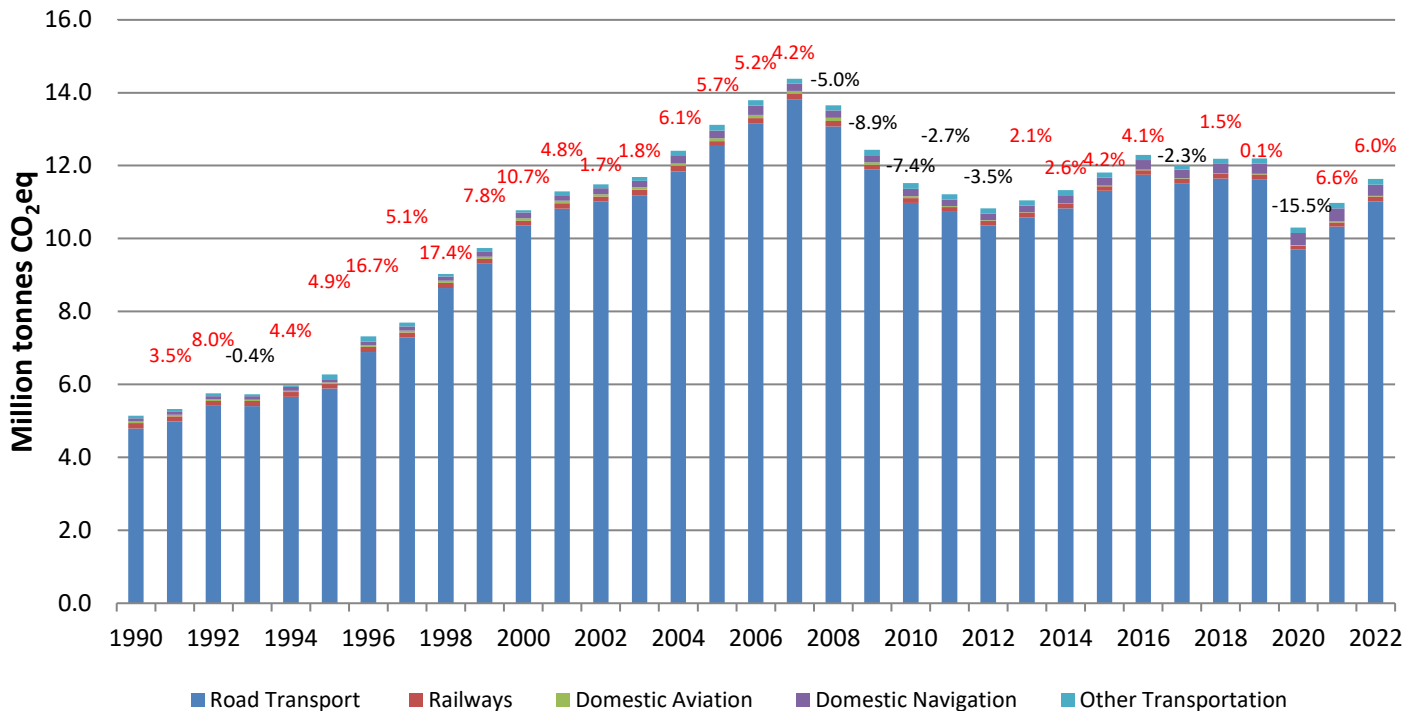
Agriculture emissions drivers – Fertiliser use



Urea trends (1988-2022)



Transport



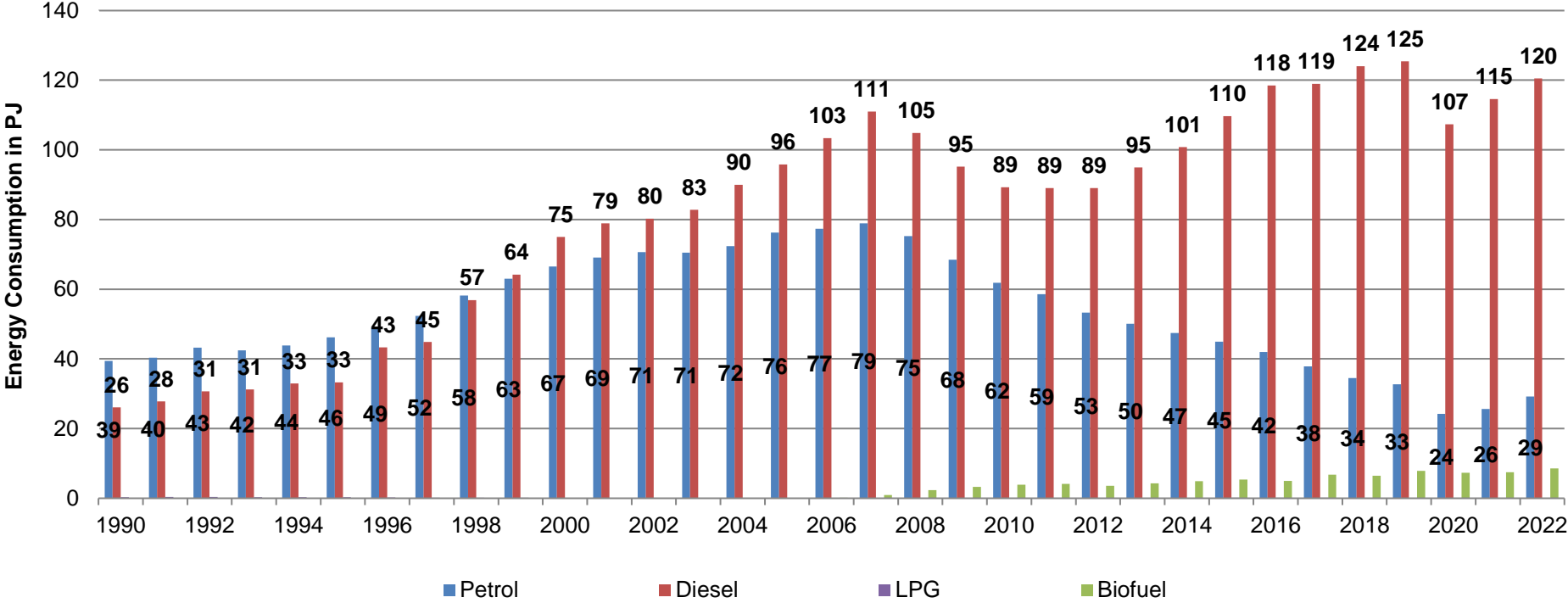
↑ +6.0%

Transport

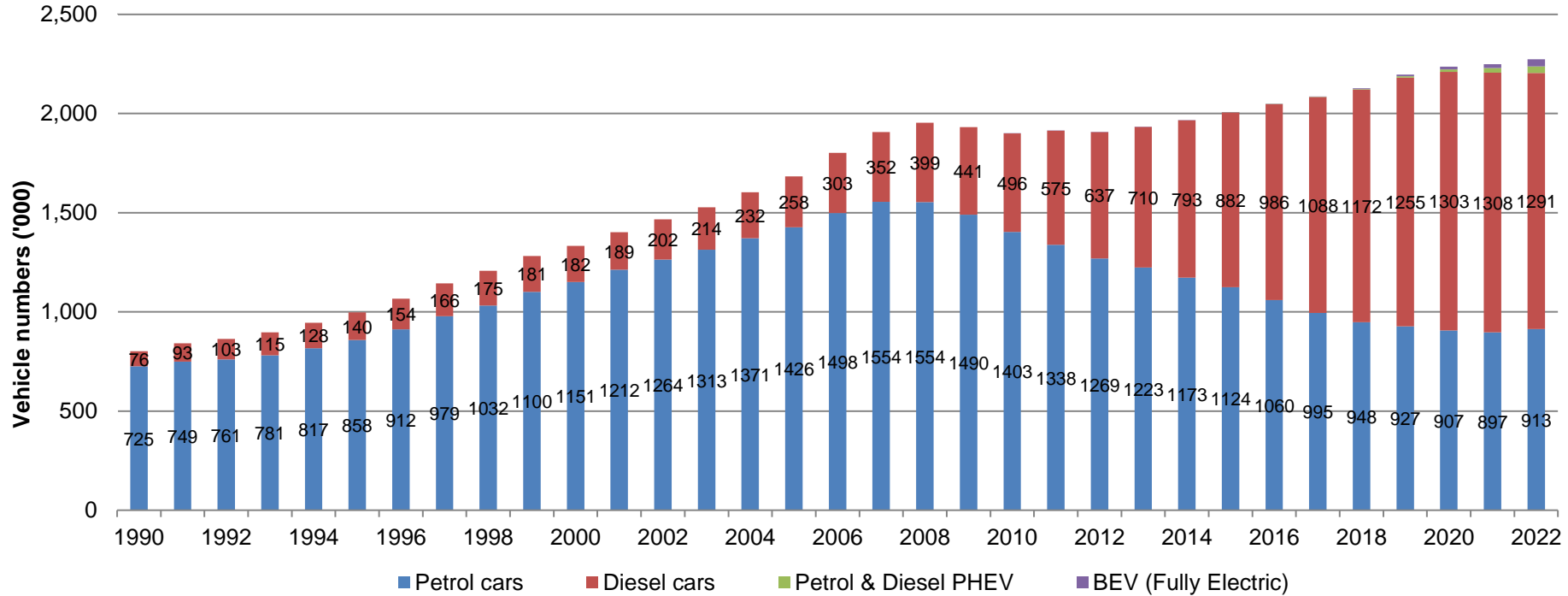


Emissions have rebounded to 95% of pre-covid levels. 19% of new car registrations were electric in 2022, with 72,000 EVs overall on Irish roads.

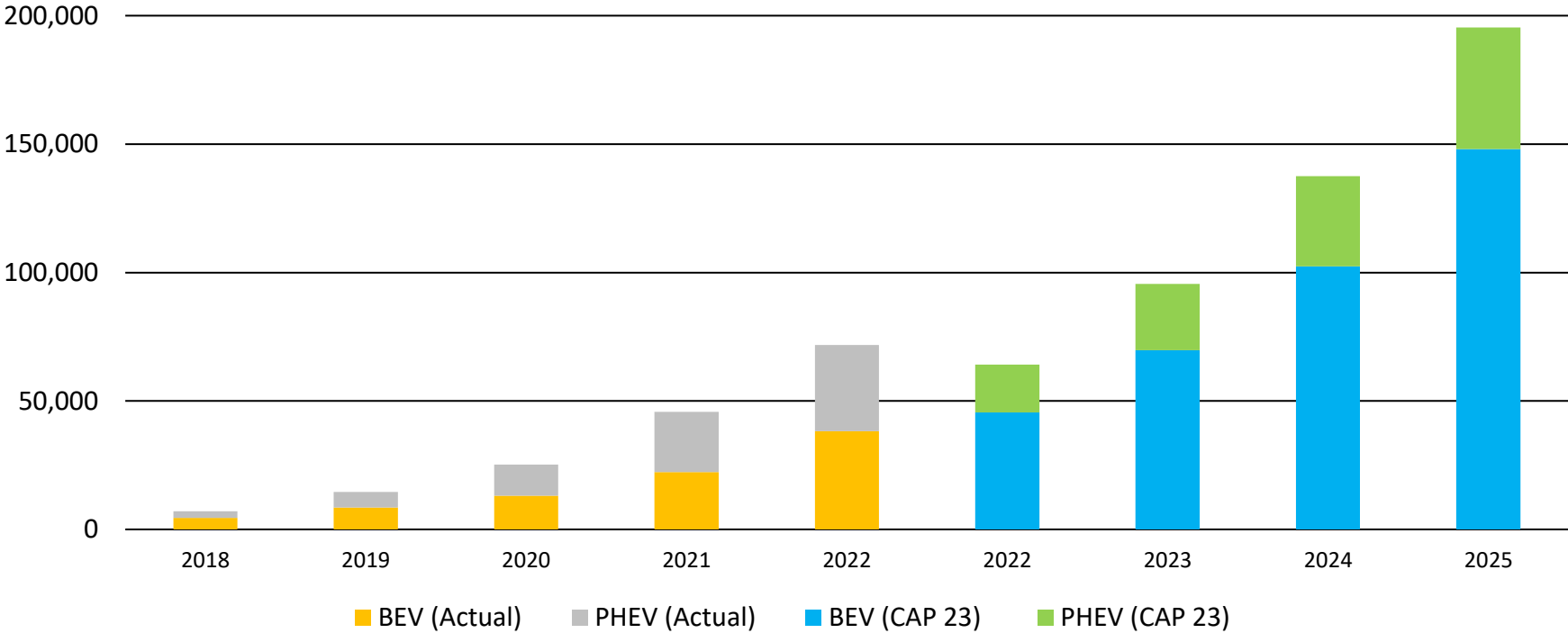
Transport emissions drivers



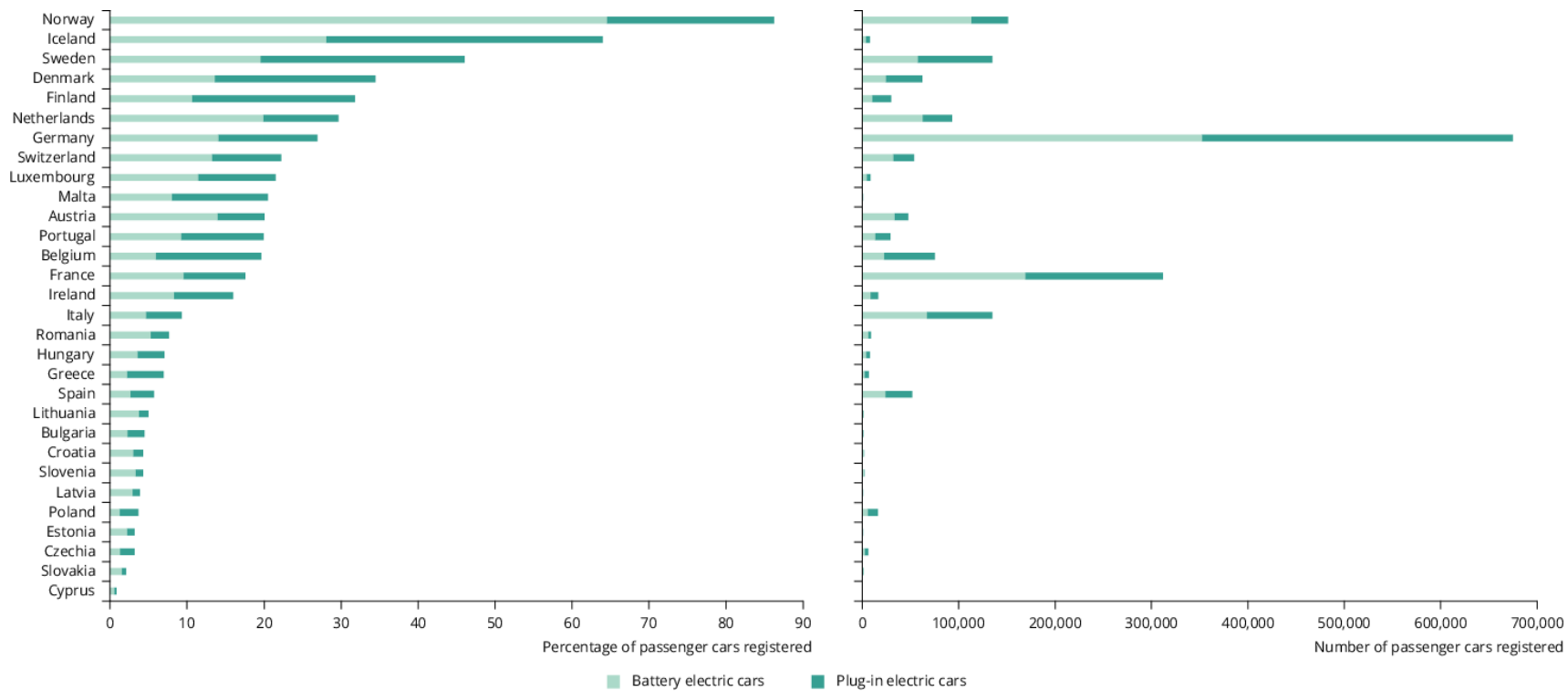
Transport emissions drivers



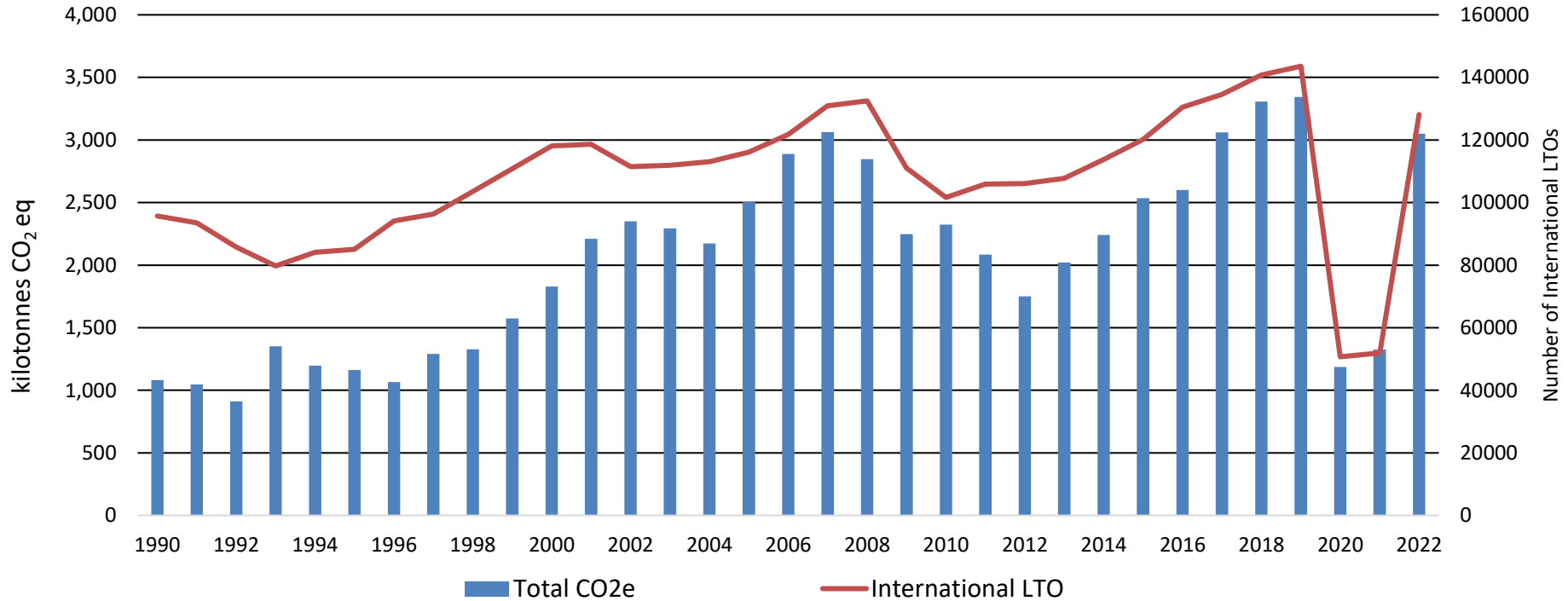
Transport – Electric Vehicles



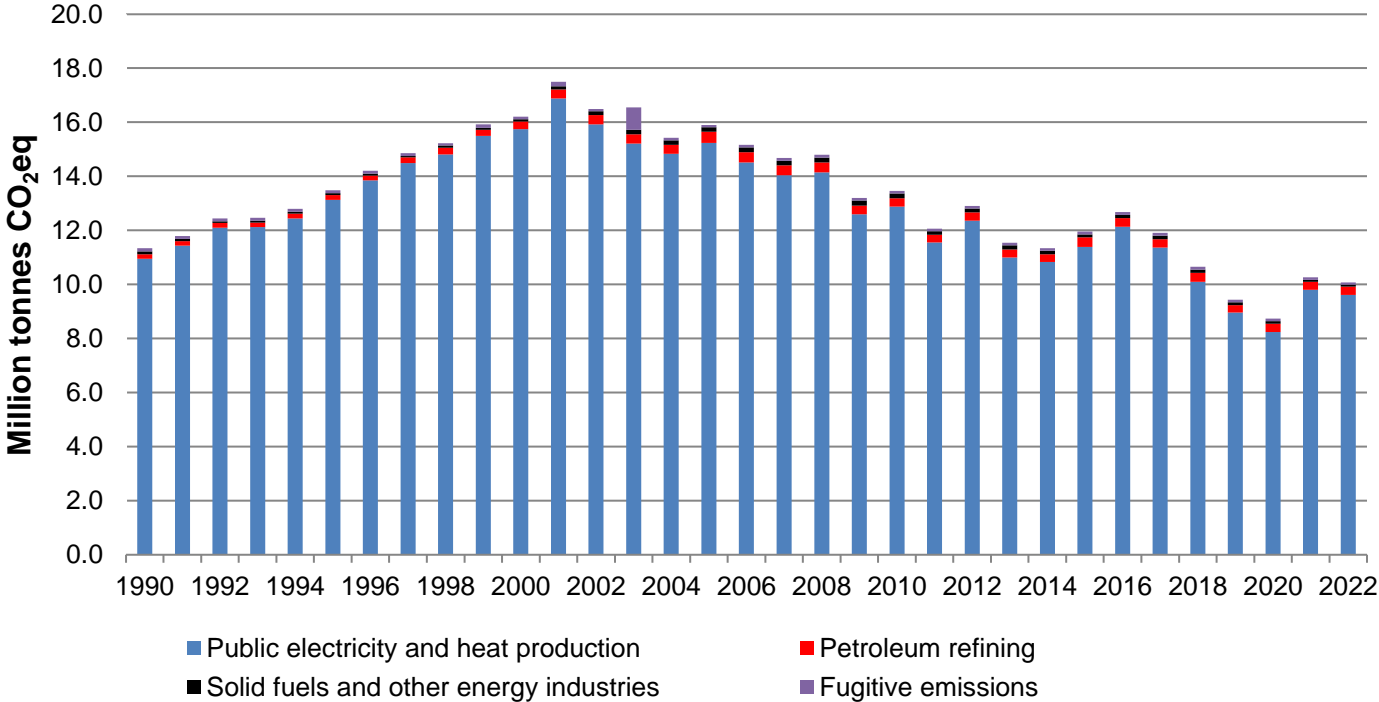
Transport – Electric Vehicles 2021 (EU)



Transport (International Aviation)



Energy Industries

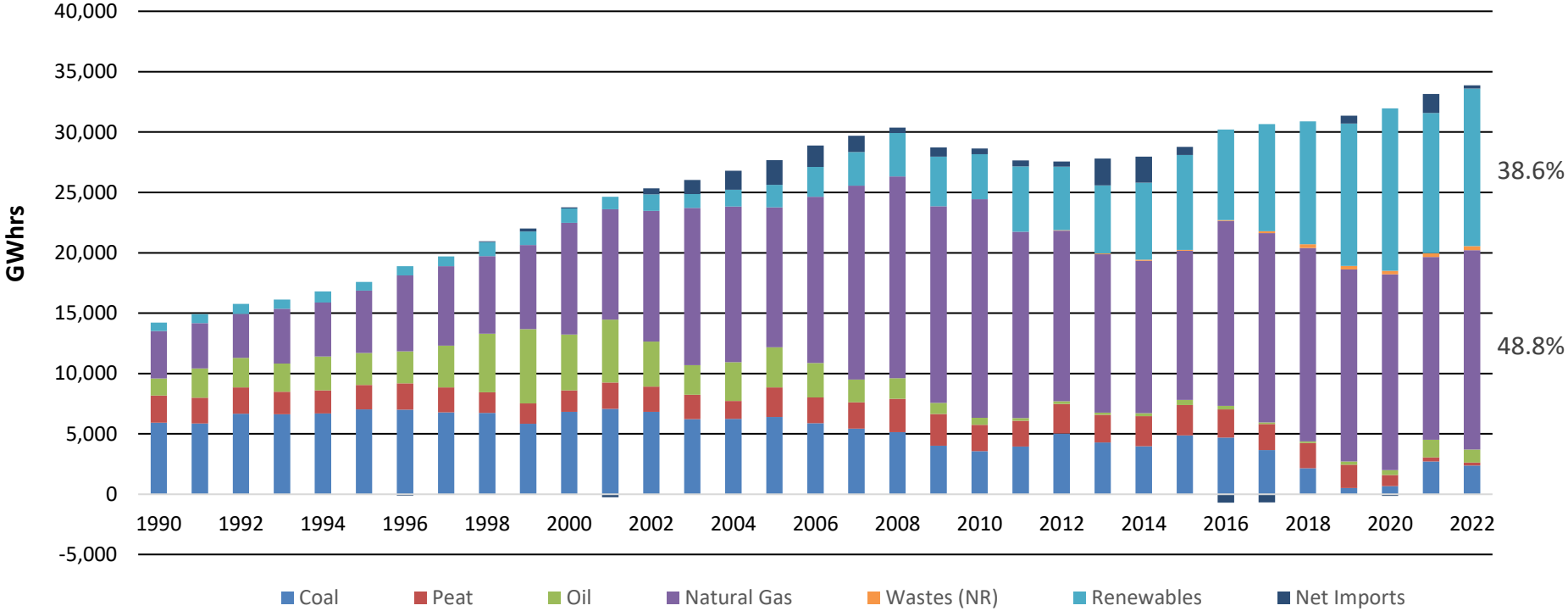


↓ -1.8%
Energy Industries

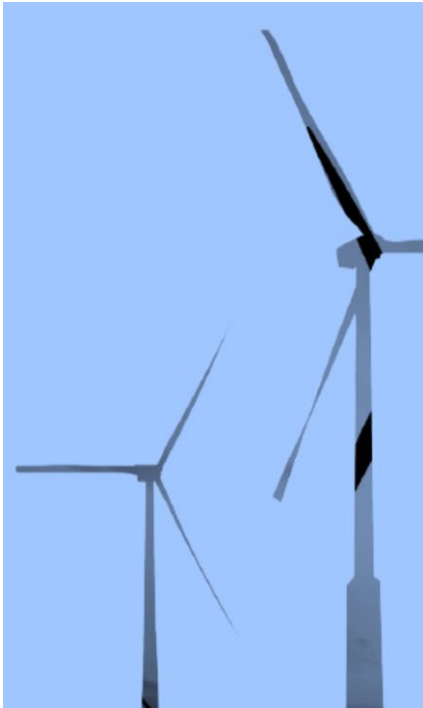
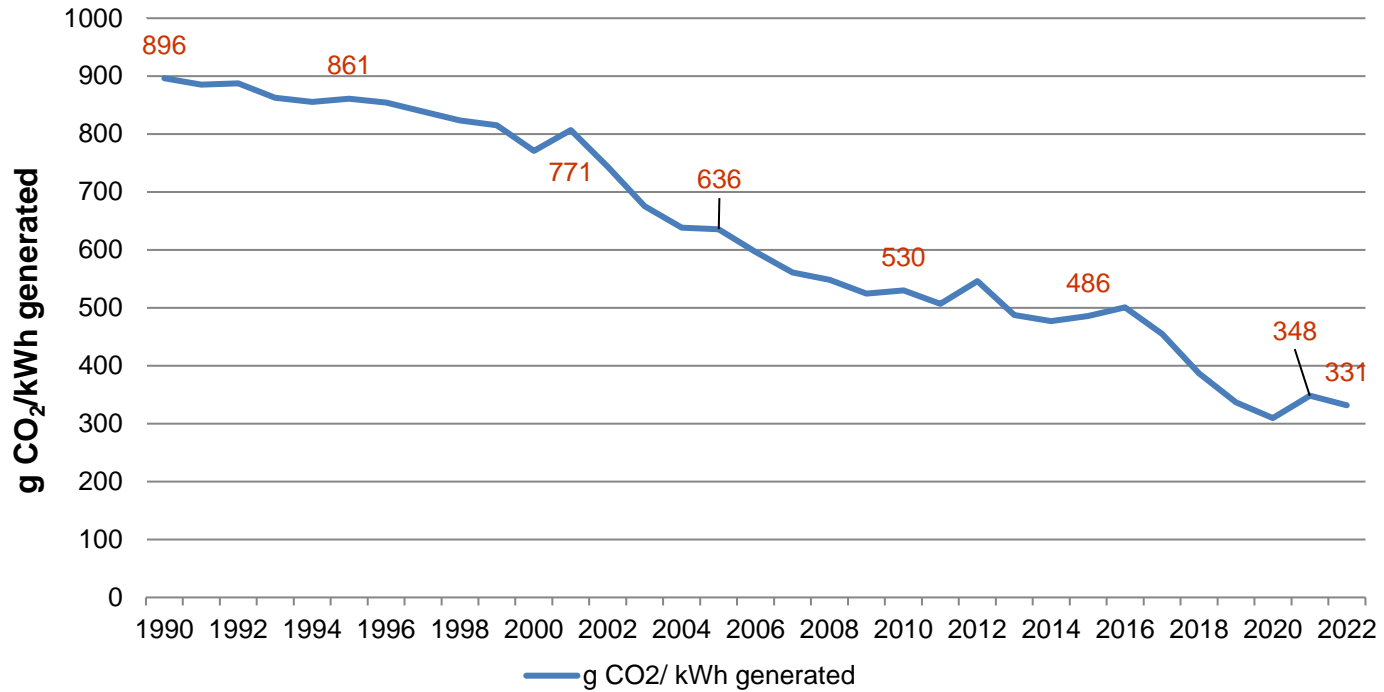
Reductions in coal (-16%), oil (-29%), peat (-25%) in electricity generation were offset by an increase in natural gas (+13%). Renewable share increased from 35% to 39%

Overall emissions in 2022 are 11.1% below 1990 levels

Electricity generated by Fuel



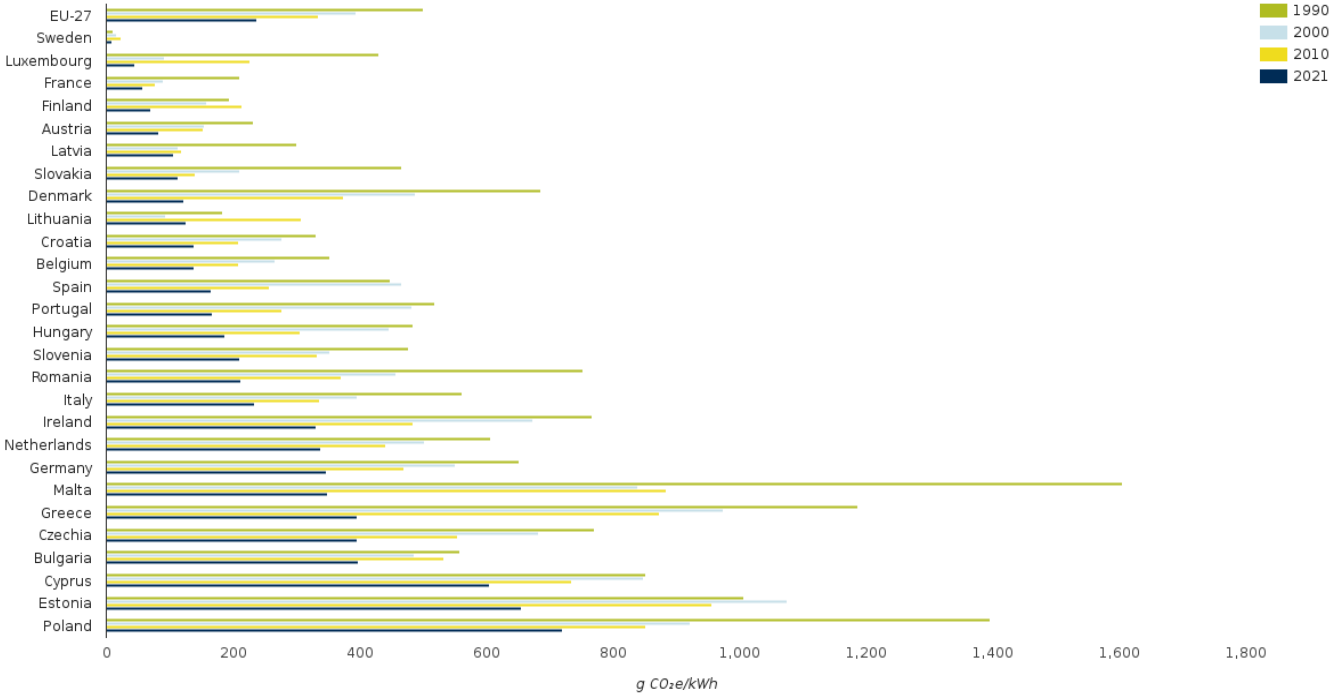
CO₂ Intensity of electricity generation



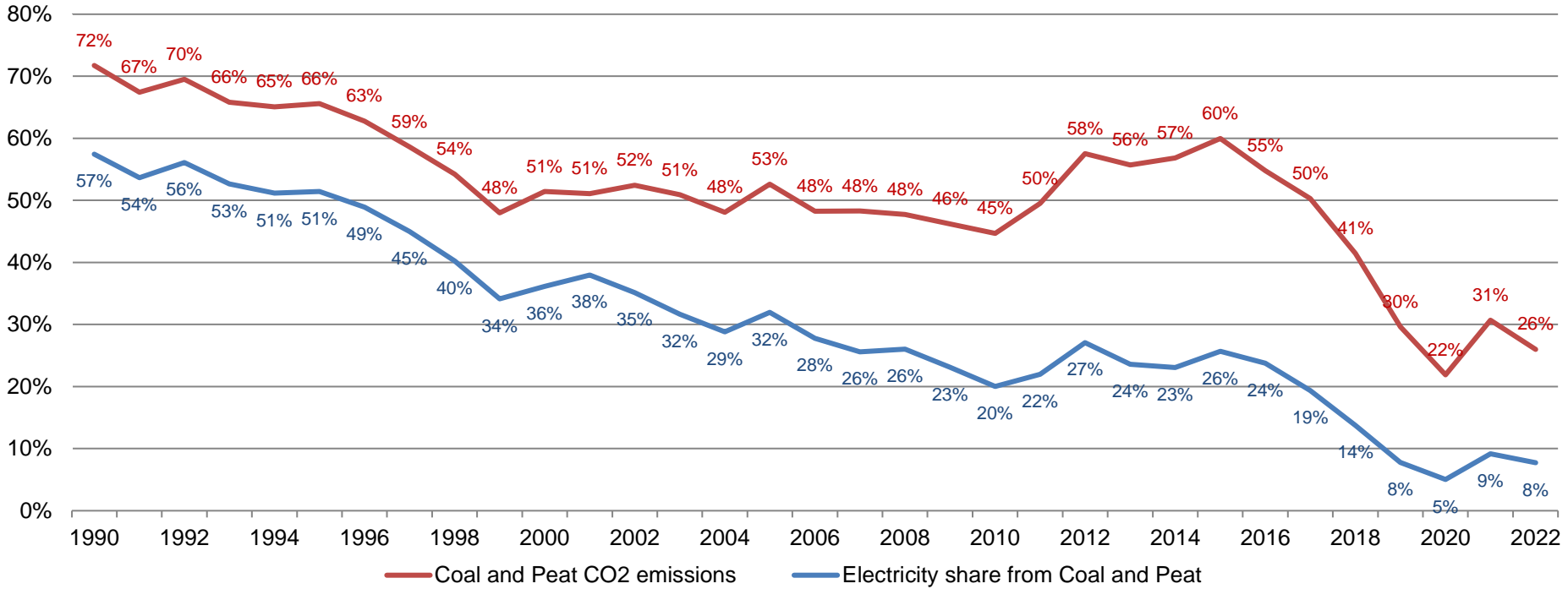
CO₂ Intensity of electricity generation (EEA)



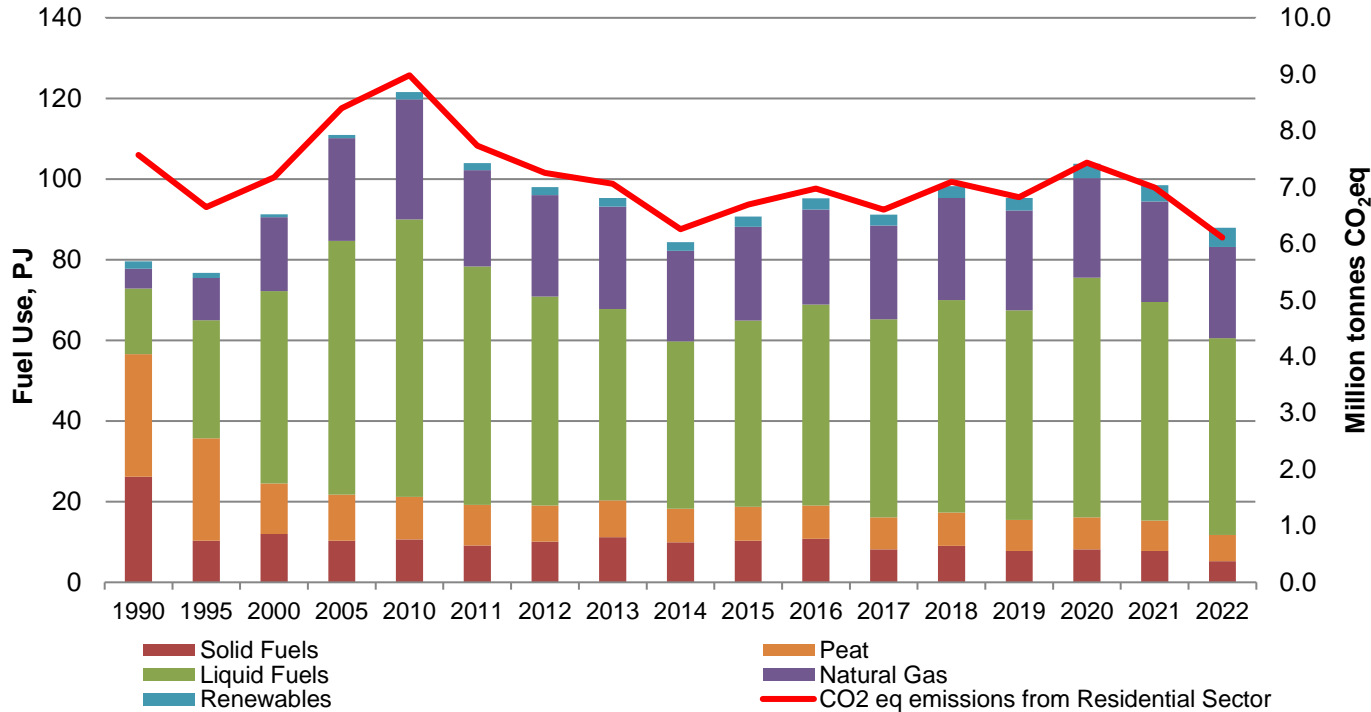
Country level – Greenhouse gas emission intensity of electricity generation



Electricity generation (Coal and Peat) CO₂



Residential

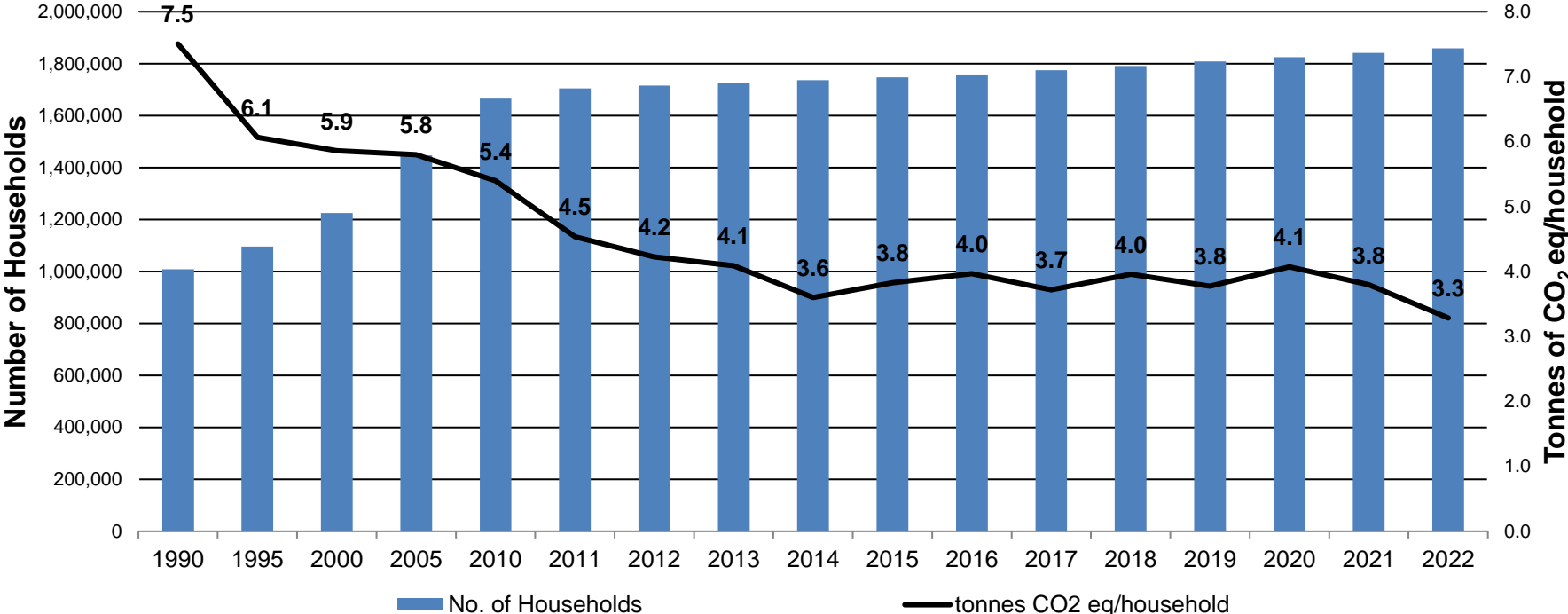


↓ -12.7%
Residential

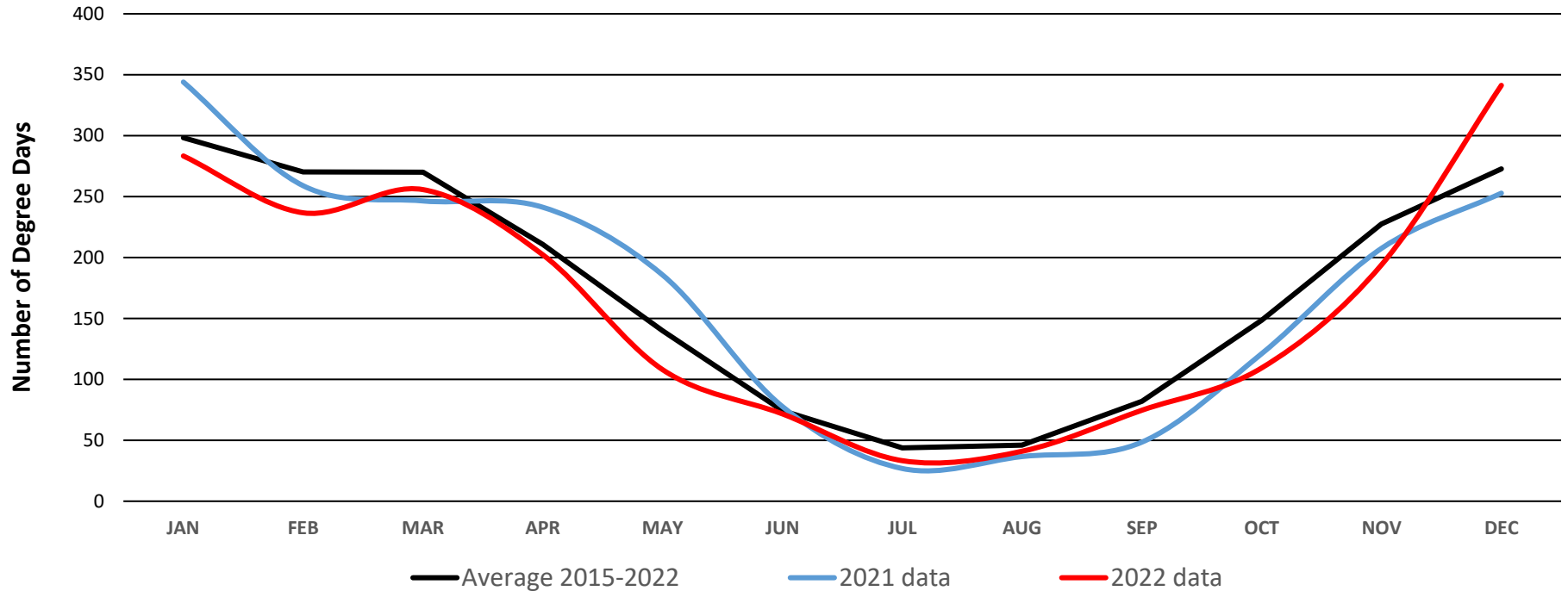


Substantial reduction in emissions driven by high fuel prices, regulation, and a milder winter. Coal use reduced by 33%, peat by 13%, oil by 10% and natural gas by 9%.

Residential emissions drivers

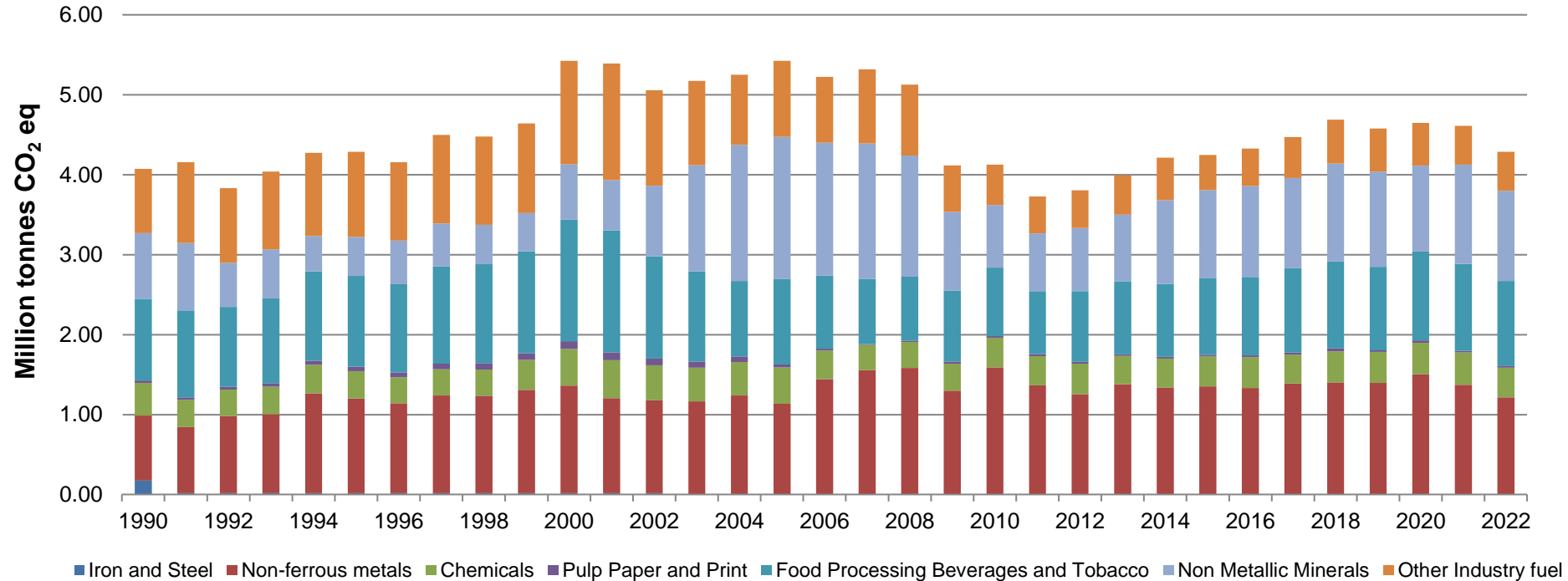


Weather and heating requirement

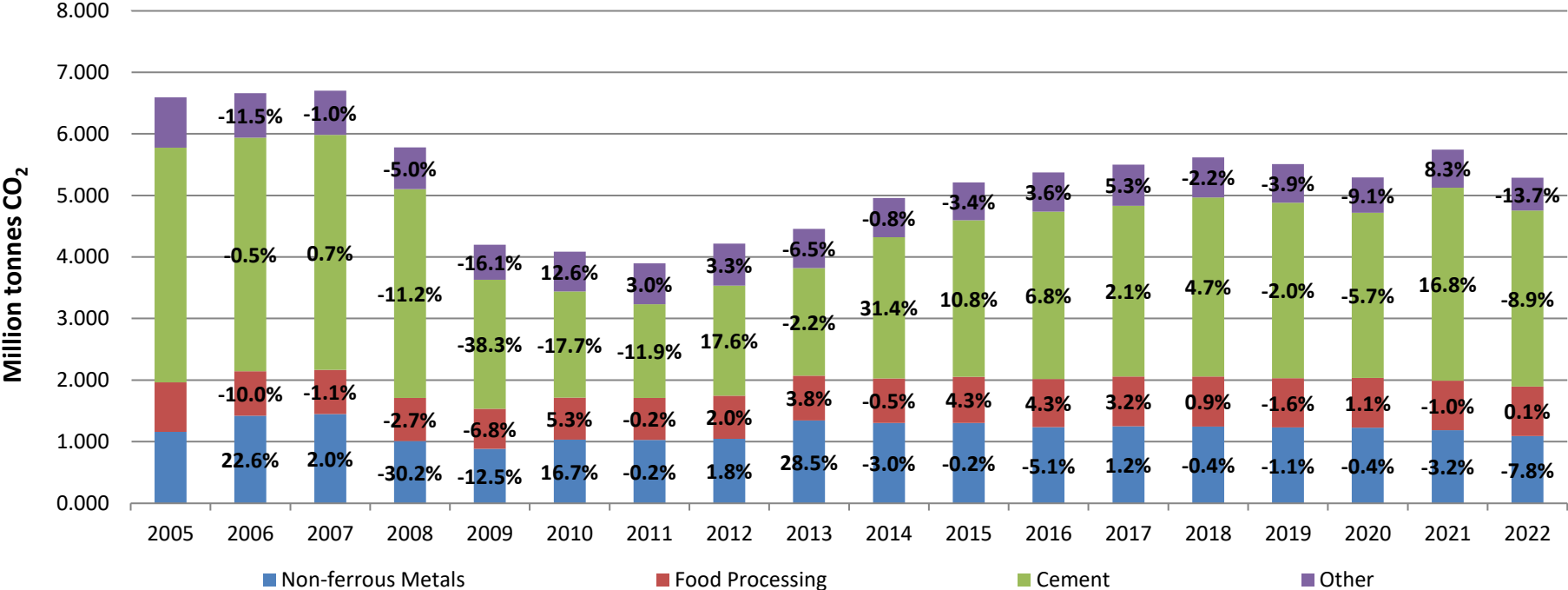


Source: Met Éireann

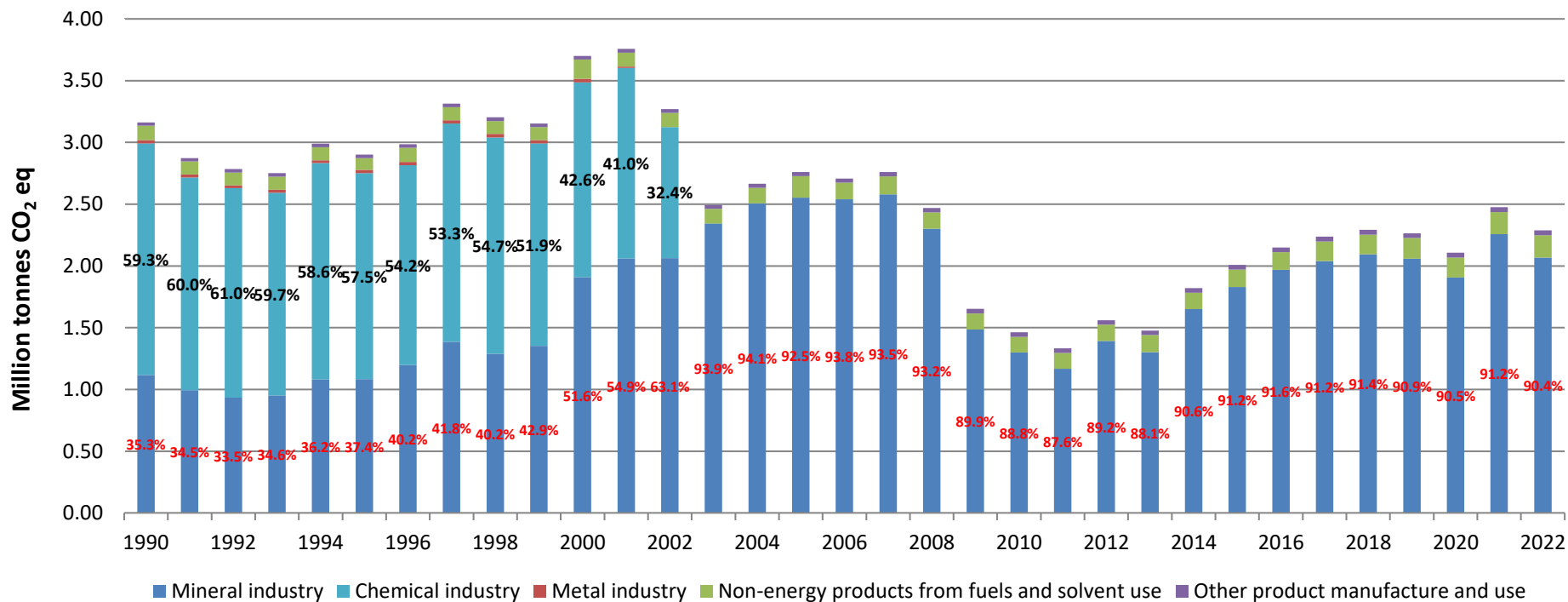
Manufacturing combustion emissions



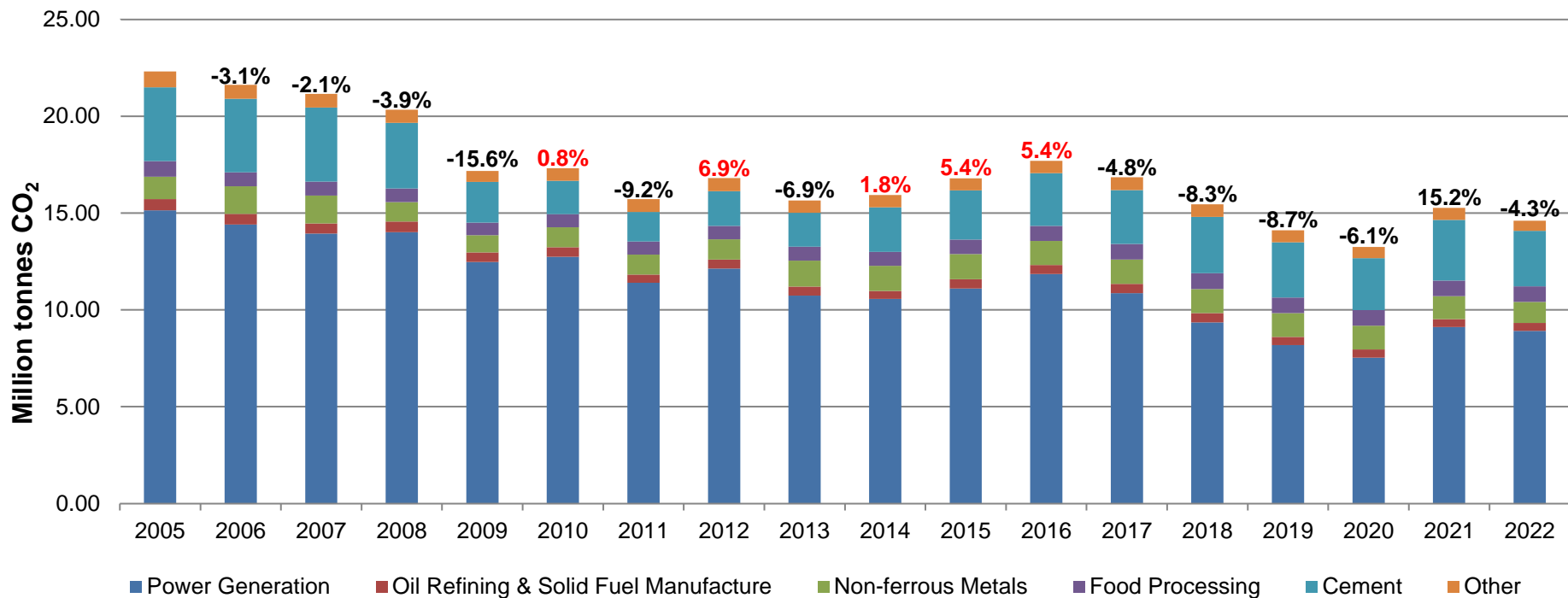
ETS Industry CO₂ 2005-2022



Industrial Processes emissions



ETS CO₂ emissions 2005-2022

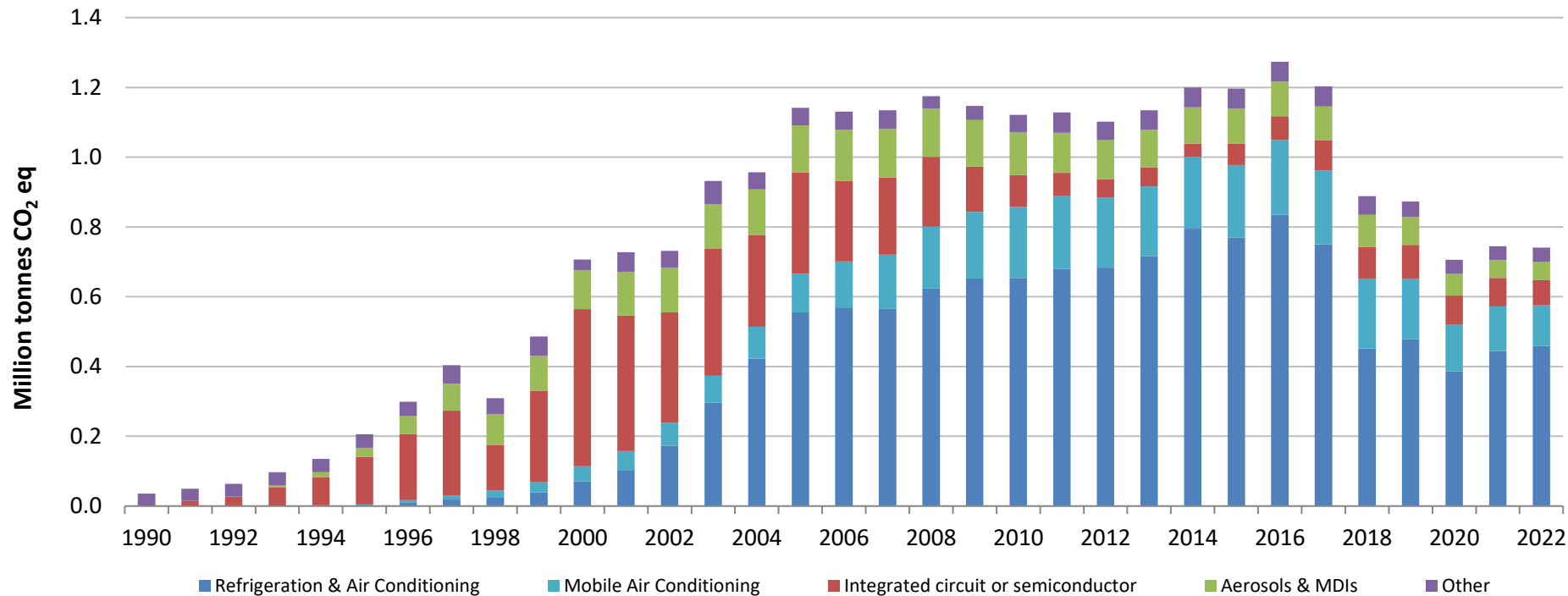


Remaining Sectors

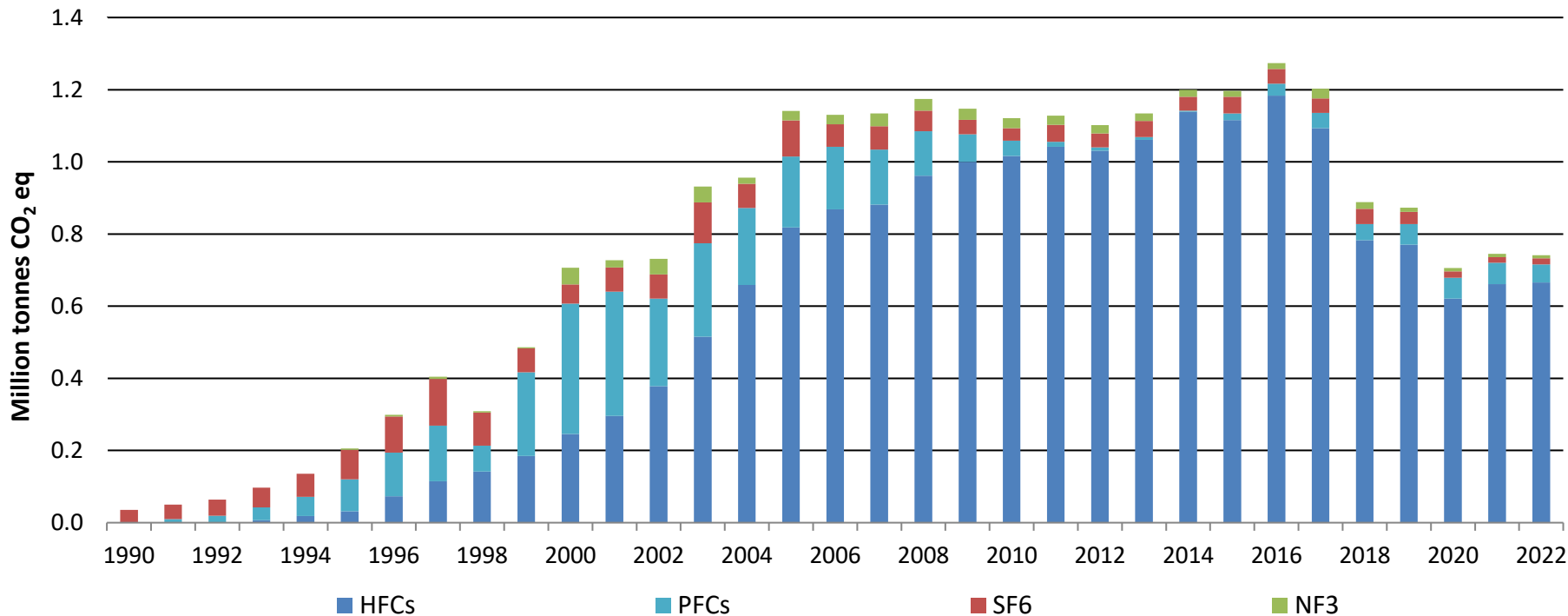


- Emissions from the **Manufacturing Combustion** sector decreased by 7.1% or 0.33 Mt CO₂eq in 2022.
- Emissions from the **Industrial Processes** sector decreased by 7.5% (0.19 Mt CO₂eq) in 2022 following a 17.5% increase in 2021
- Emissions from the **Waste** sector increased by 4.9% in 2022, largely as a result of an increase in emissions of methane from landfills by 7.1%.
- **F-Gas** emissions in 2022 are down 0.5%, due to a reduction in PFCs and NF₃ use in the semiconductor industry.
- Emissions from **Commercial Services** increased by 0.2%, whereas **Public Services** emissions decreased by 1.9% in 2022.

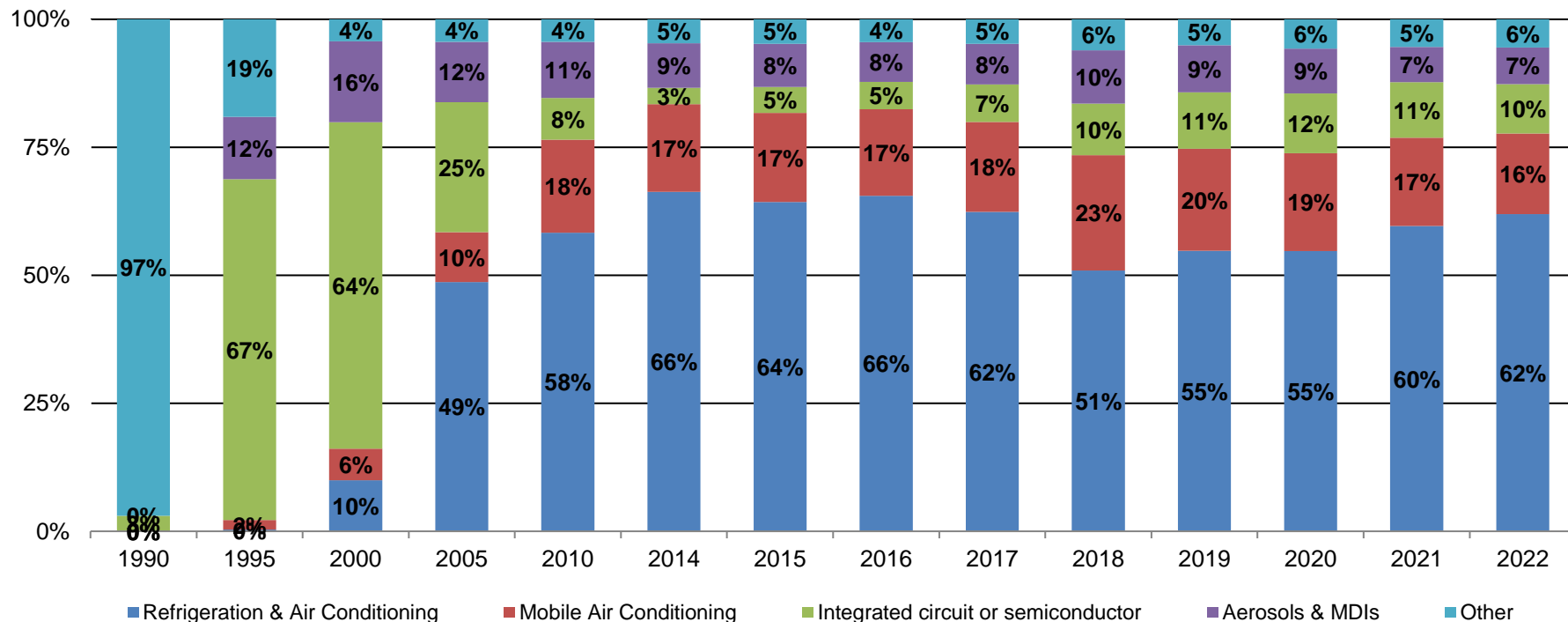
F-Gases emissions



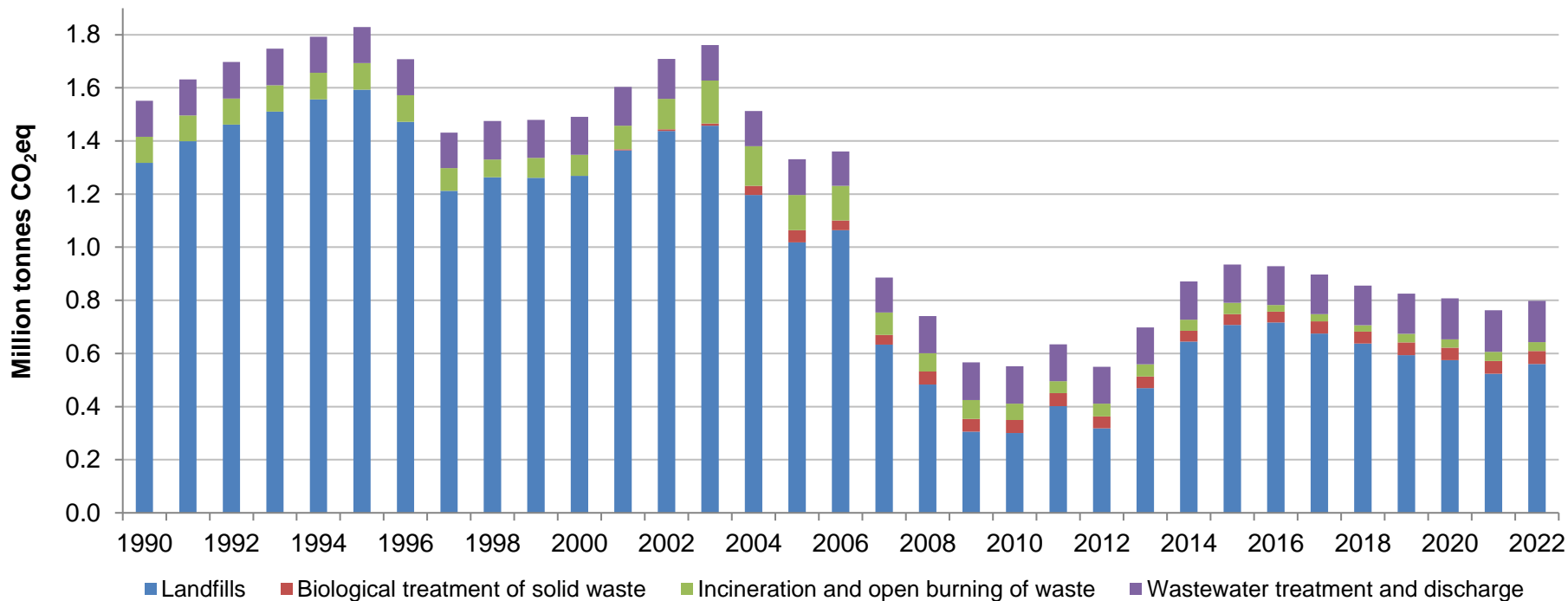
F-Gases drivers



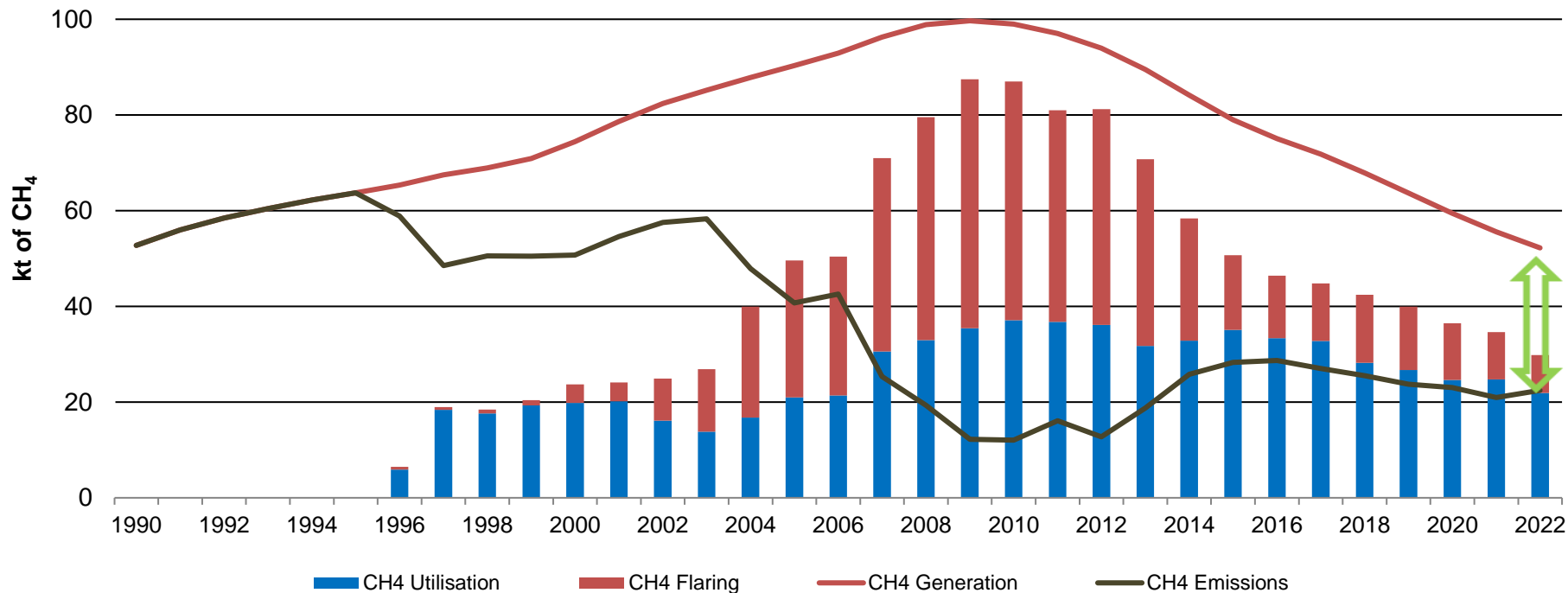
F-Gases drivers



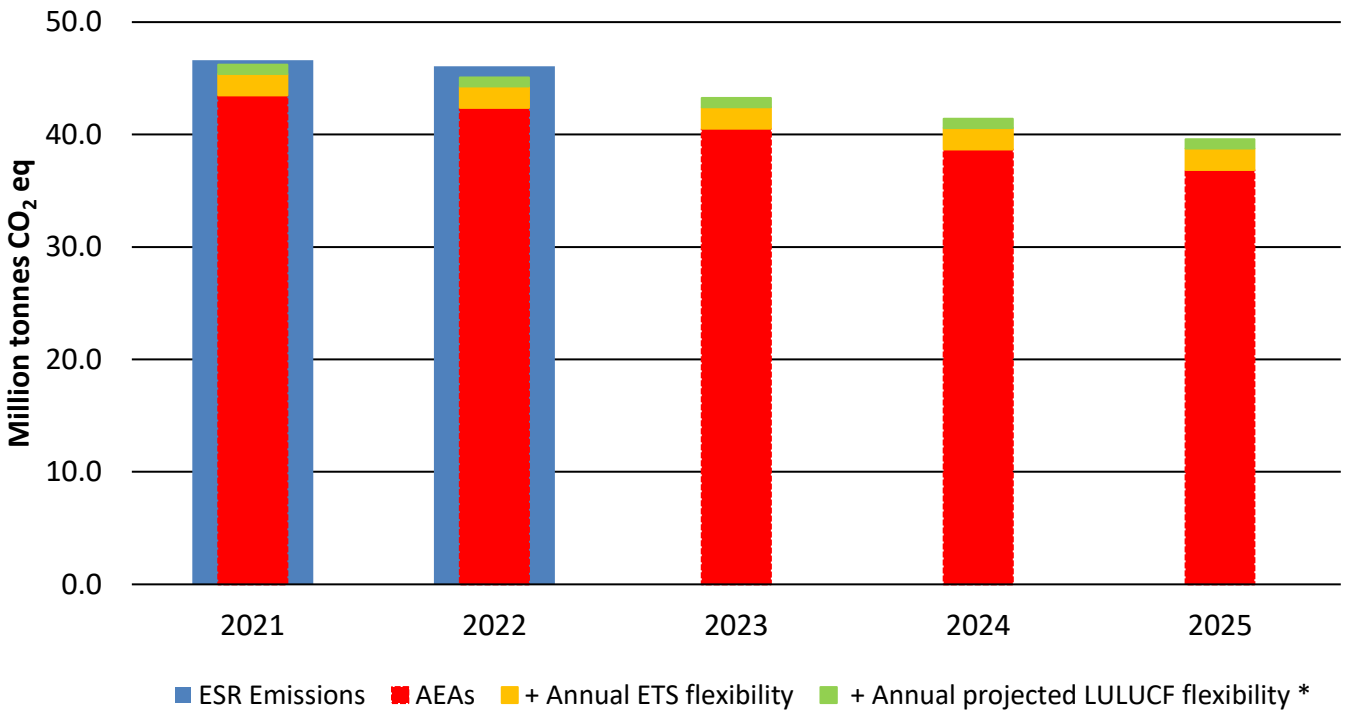
Waste emissions



Waste drivers- landfills



Compliance with EU Targets (ESR 2021-2025)



EU Targets

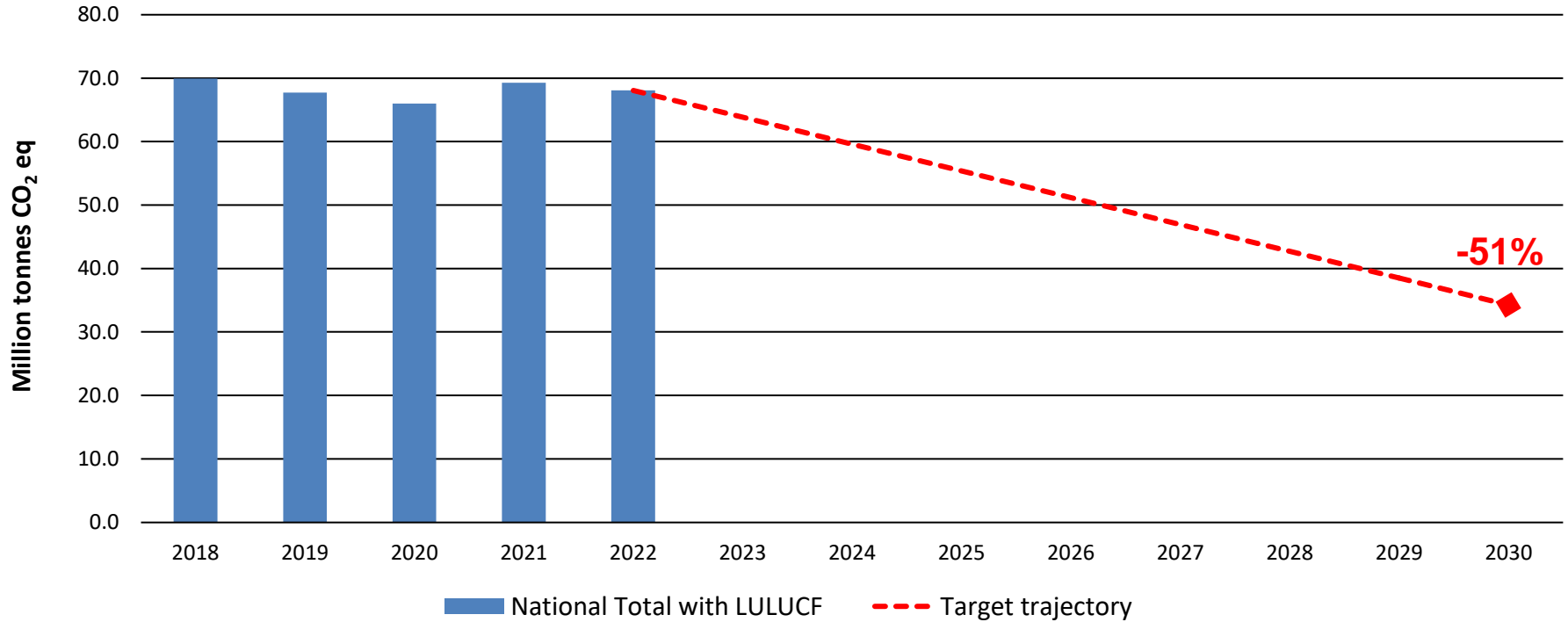
Before use of flexibilities Ireland has exceeded its 2022 annual Effort Sharing Regulation (ESR) limit by **3.72 Mt CO₂ eq**.

Compliance with ESR



	2021	2022	2023	2024	2025
Total greenhouse gas emissions without LULUCF	61,955	60,764			
- Total verified emissions from stationary installations under Directive 2003/87/EC	15,320	14,665			
- CO ₂ emissions from domestic aviation	19	18			
Total ESR emissions	46,615	46,081			
EU ESR Targets†	43,479	42,357	40,520	38,683	36,845
Gross distance to target	-3,136	-3,723			
+ annualised ETS flexibility†	1,908	1,908	1,908	1,908	1,908
+ annualised projected LULUCF flexibility*	822	822	822	822	822
Net distance to target	-406	-993			

2018-2030: Climate Act Target



Sectoral Ceiling progress



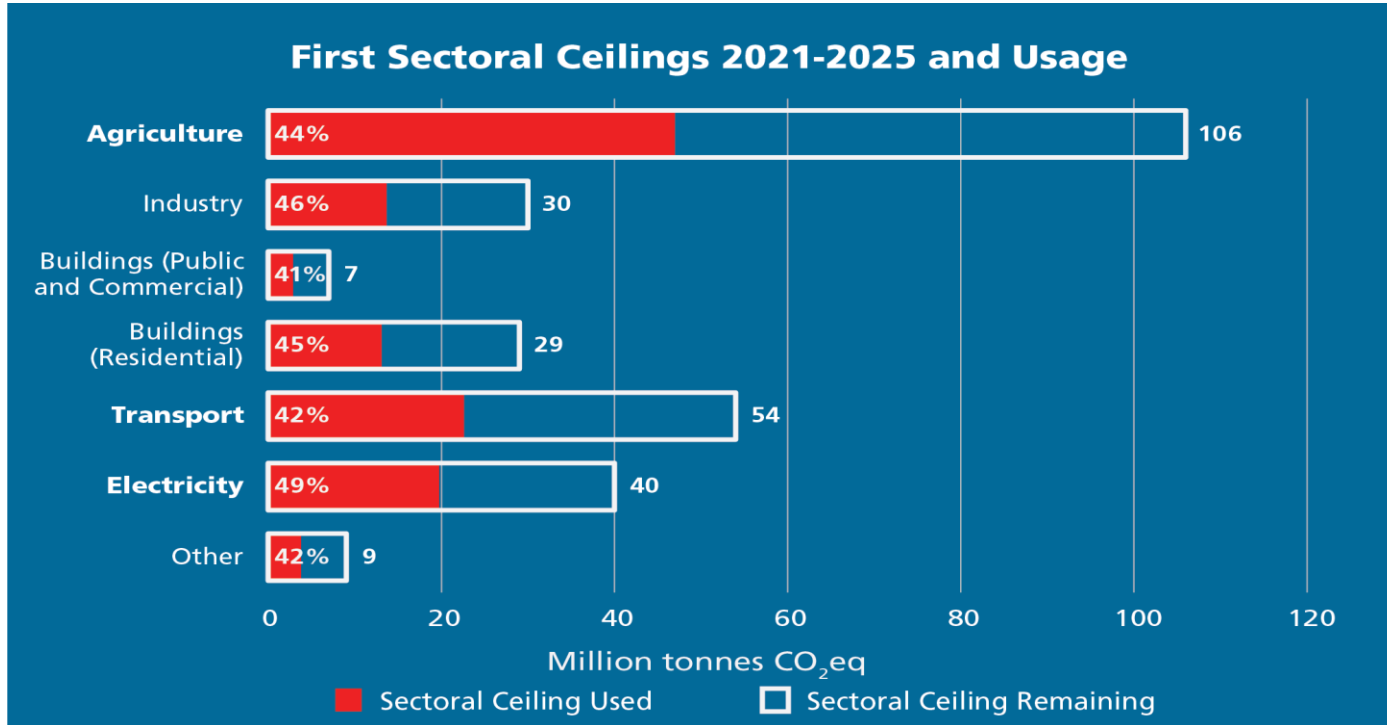
Sector	2018 (Mt CO ₂ eq)	2022 (Mt CO ₂ eq)	% change 2018-2022	Indicative % reduction by 2025	Indicative % reduction by 2030
Electricity	10.33	9.77	-5.4%	~40%	~75%
Transport	12.19	11.63	-4.5%	~20%	~50%
Buildings (Residential)	7.09	6.11	-13.9%	~20%	~40%
Buildings (Commercial and Public)	1.54	1.43	-7.5%	~20%	~45%
Industry	6.98	6.58	-5.8%	~20%	~35%
Agriculture	23.39	23.34	-0.2%	~10%	~25%
Other	2.14	1.92	-10.6%	~25%	~50%
LULUCF	6.26	7.31	16.6%	NA	NA
National Total (incl LULUCF)	69.93	68.07	-2.7%		51%

Sectoral emissions reduction targets and progress

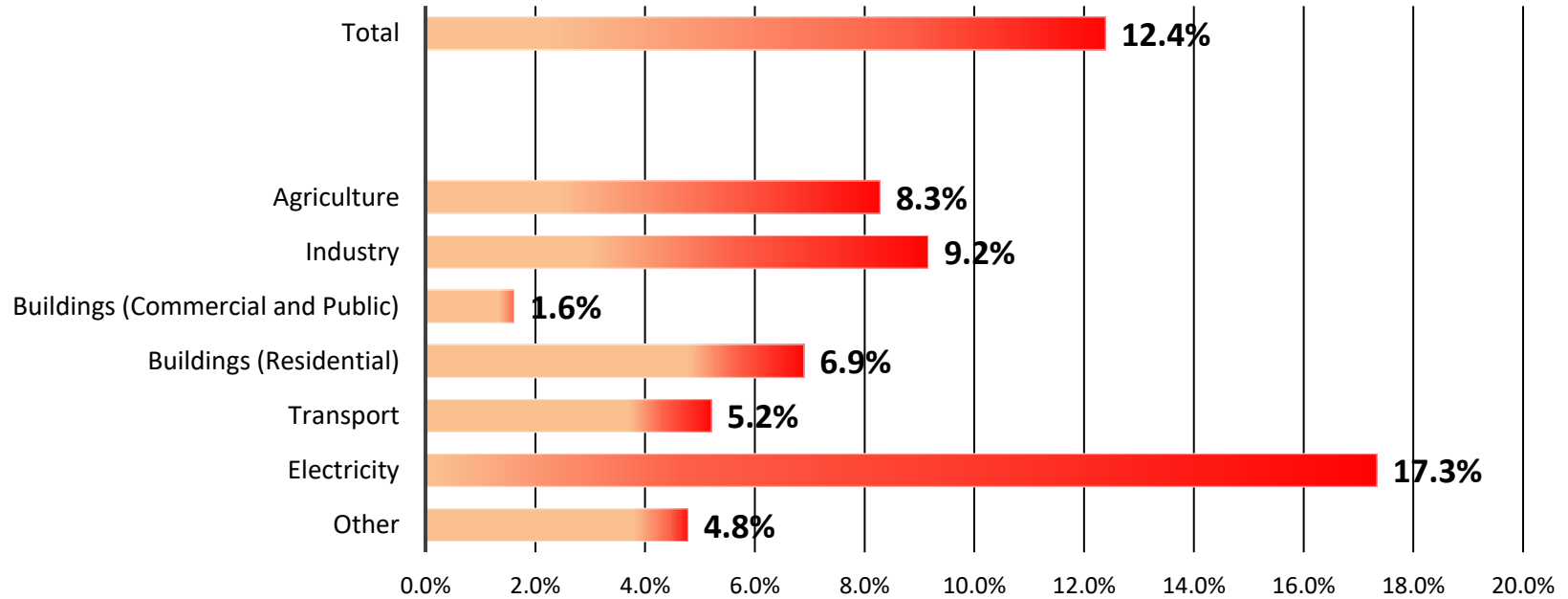


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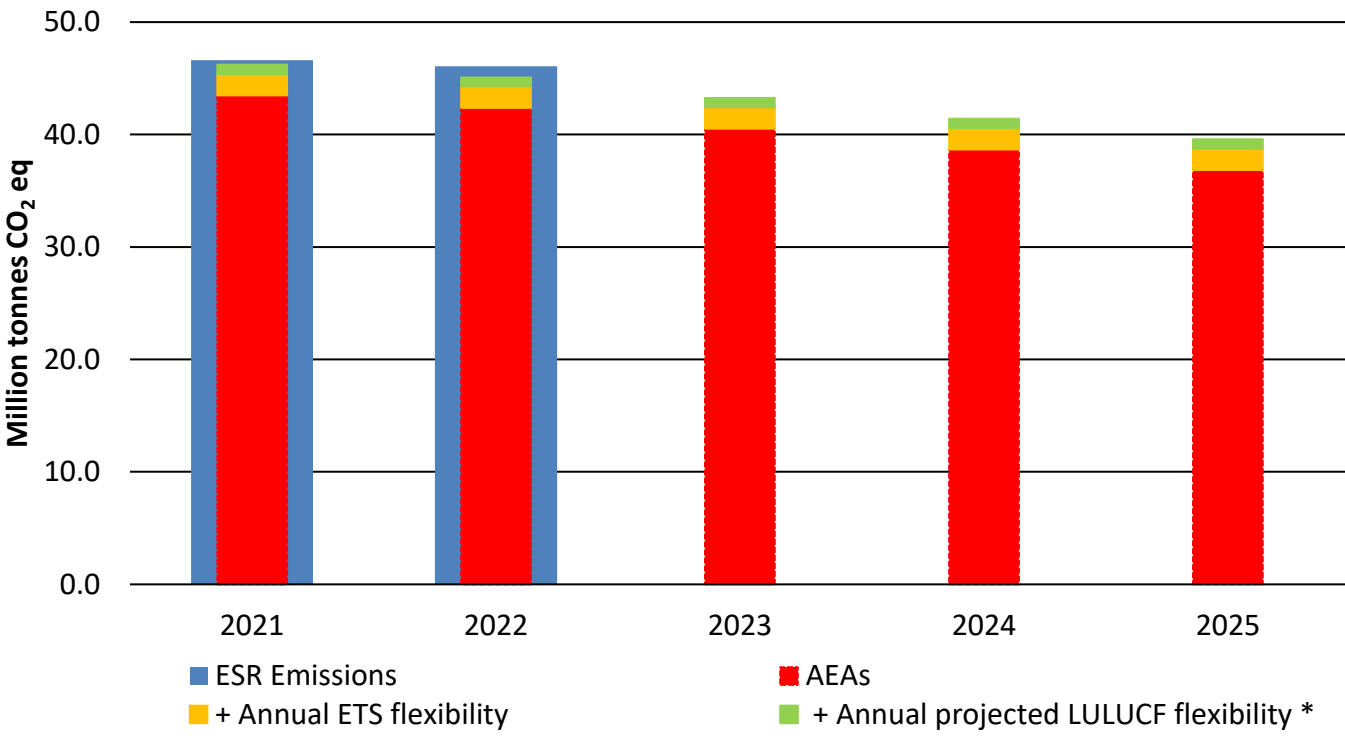
2021-25 Sectoral Ceiling and Usage



Sectoral Ceiling achievement requires



Compliance with EU Effort Sharing Targets

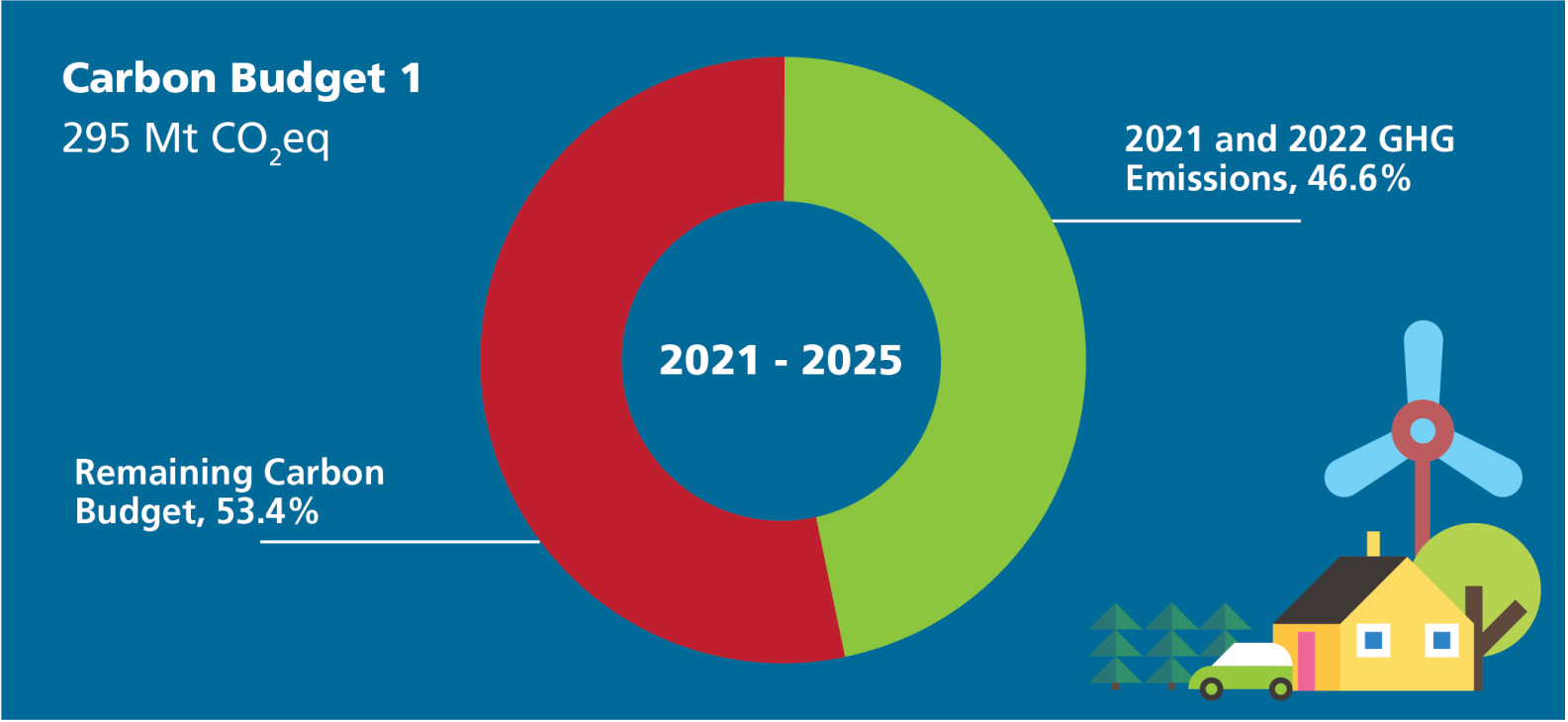


EU Targets

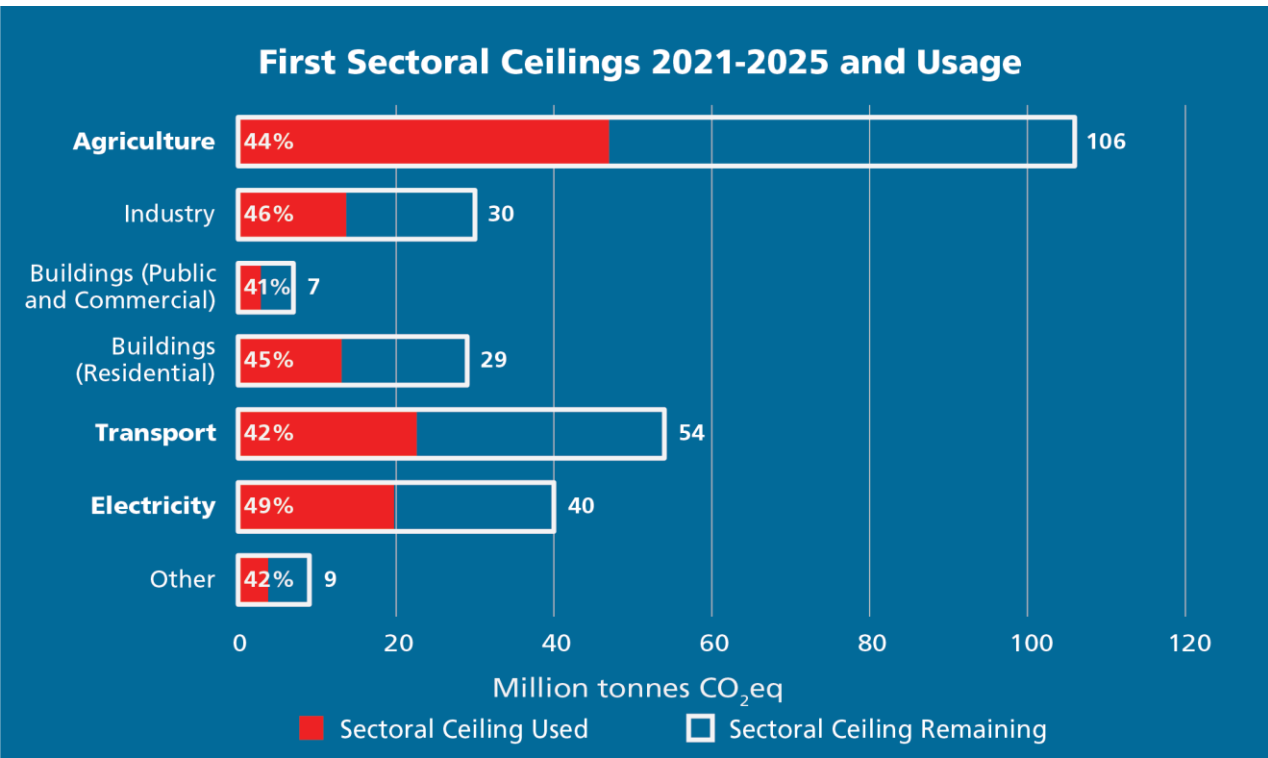


Before use of flexibilities Ireland has exceeded its 2022 annual Effort Sharing Regulation (ESR) limit by **3.72 Mt CO₂eq.**

Carbon Budget 1 and Sectoral Ceilings (2021-2025)



Carbon Budget 1 and Sectoral Ceilings (2021-2025)



↓ -1.8%
Energy Industries



Reductions in coal (-16%), oil (-29%), peat (-25%) in electricity generation were offset by an increase in natural gas (+13%). Renewable share increased from 35% to 39%

↓ -1.2%
Agriculture



14% Decrease in fertiliser nitrogen use resulted in less emissions from agricultural soils.
Dairy cow numbers +0.9%
Milk production +0.7%

↓ -12.7%
Residential



Substantial reduction in emissions driven by high fuel prices, regulation, and a milder winter. Coal use reduced by 33%, peat by 13%, oil by 10% and natural gas by 9%.

↑ +6.0%
Transport



Emissions have rebounded to 95% of pre-covid levels. 19% of new car registrations were electric in 2022, with 72,000 EVs overall on Irish roads.

EU Targets



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The EPA's Role in addressing climate change

The EPA's role in addressing climate change challenges includes collating national greenhouse gas emissions and projections; regulating emissions from industrial sectors; supporting climate science research; supporting behavioural change and facilitating the National Dialogue on Climate Action. **Note: These pages were updated with the provisional 1990-2022 inventory data in July 2023 and latest 2022-2030 projections estimates in June 2023.**



What can you do?

Reduce your transport carbon footprint, improve the energy efficiency of your home and avoid food waste - a climate action you can do every day.

"EVERY BIT

Int



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Environmental Protection Agency 2023

Greenhouse gas emissions Ireland



Key messages

Greenhouse gas (GHG) emissions in Ireland decreased in 2022

Change in emissions since 2021

-1.9%

Emissions decreases were driven by the reductions in the Residential sector, Industry, Agriculture and Electricity generation. The overall emissions reduction, while welcome, falls short of reductions required to achieve National and new EU targets.



Latest emissions estimates

Ireland's latest greenhouse gas (GHG) emissions 1990-2022 are provisional figures based on the SEAI's energy balance released in June 2023.

Latest emissions data

60.76 Mt CO₂eq

Ireland's provisional GHG emissions are estimated to be 60.76 million tonnes carbon dioxide equivalent (Mt CO₂eq)

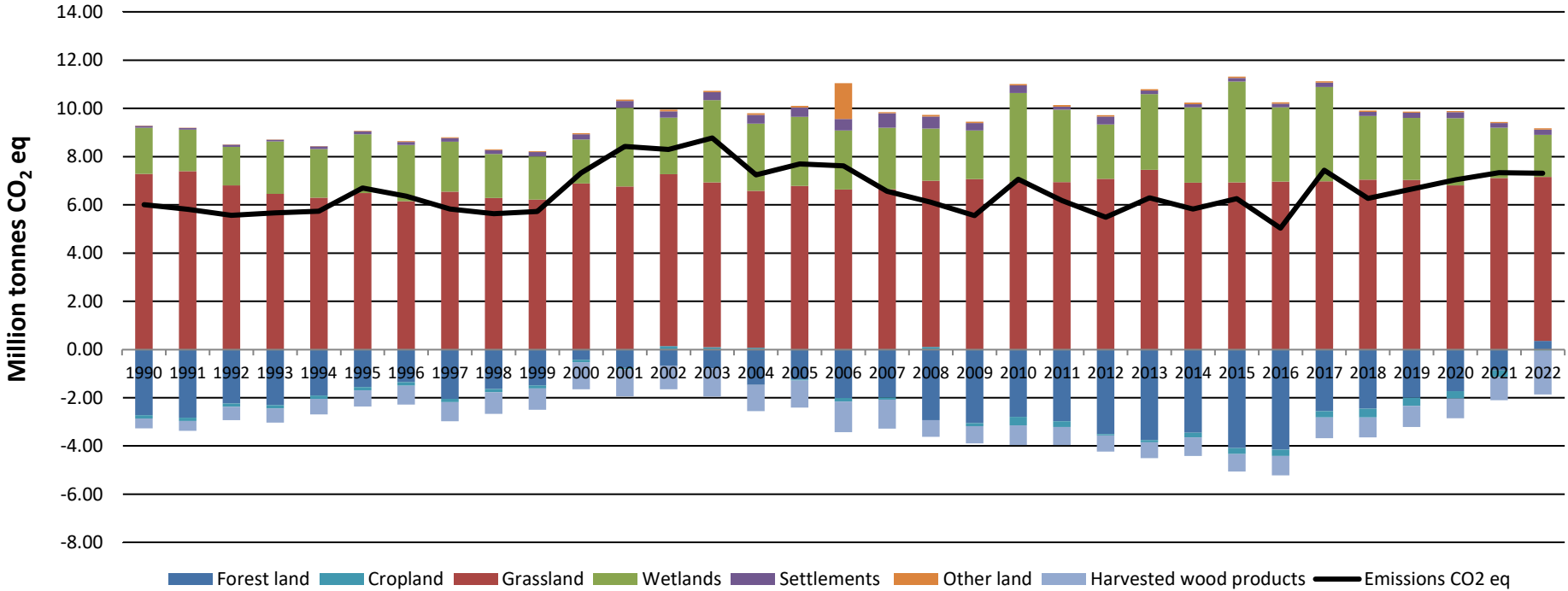
Greenhouse gas emissions decreased in 2022 due to a decrease in coal and peat use and an increase in renewable energy for electricity generation

Emissions mainly from electricity generation

-1.8%

Decreases in coal (-16.1%), oil (-29.1%) and peat (-24.8%) used in electricity generation in 2022

LULUCF 1990-2022



Trend in Emissions for largest sectors 1990-2022

