

Luxembourg

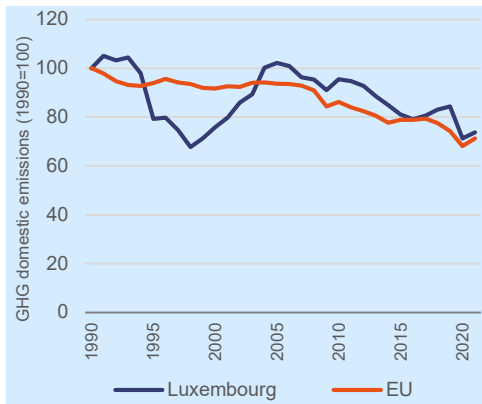
1) Key takeaways

- In 2021, GHG emissions in Luxembourg were 12.6% below 2019 pre-pandemic levels.
- Over the same period, ETS and Effor Sharing emissions decreased by 11.9% and by 12.8%, respectively.
- Net GHG emissions (i.e. including LULUCF) in 2021 were 30.4% lower than 1990 levels.
- The LULUCF sector removed 0.01 MtCO₂-eq on average per year from 2013 to 2020, based on accounting.

2) Greenhouse gas emissions



In 2021, approximated domestic greenhouse gas (GHG) emissions in Luxembourg were 9.4 MtCO₂-eq, 3.5% higher compared to 2020 but 12.6% below pre-pandemic levels. Overall, net domestic emissions, including the Land Use, Land Use Change and Forestry (LULUCF) sector, were 30.4% lower than 1990 levels.



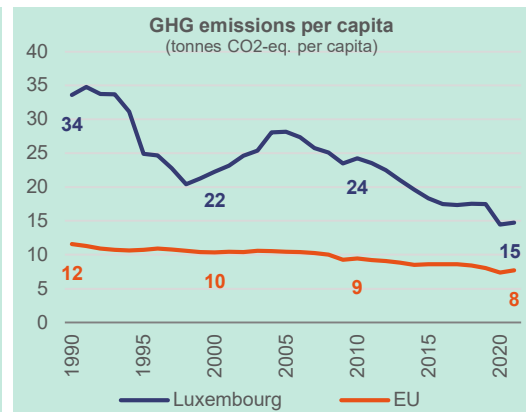
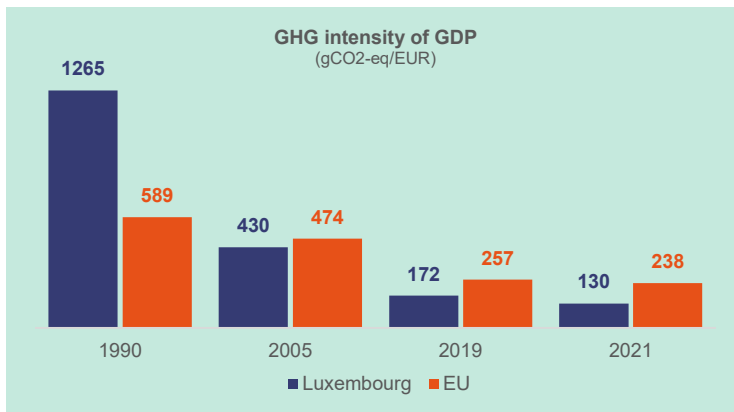
Total domestic GHG emissions

	1990 (MtCO ₂ -eq)	2005 to 1990 (% change)	2019 to 2005 (% change)	2021 to 2019 (% change)	2021 to 1990 (% change)
Luxembourg	13	2%	-17%	-13%	-26%
EU	4847	-6%	-21%	-4%	-29%

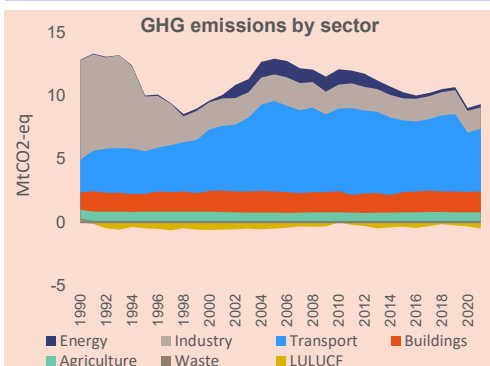
Total net domestic GHG emissions (including LULUCF)

	1990	2005 to 1990	2019 to 2005	2021 to 2019	2021 to 1990
Luxembourg	13	-2%	-20%	-17%	-30%
EU	4633	-13%	-26%	-10%	-33%

Note: GHG emissions and removals for 1990-2020 are based on data submitted by EU Member States to the UNFCCC under Regulation (EU) No 525/2013. Figures may change following resubmissions. GHG emissions for 2021 are based on approximated GHG inventories.



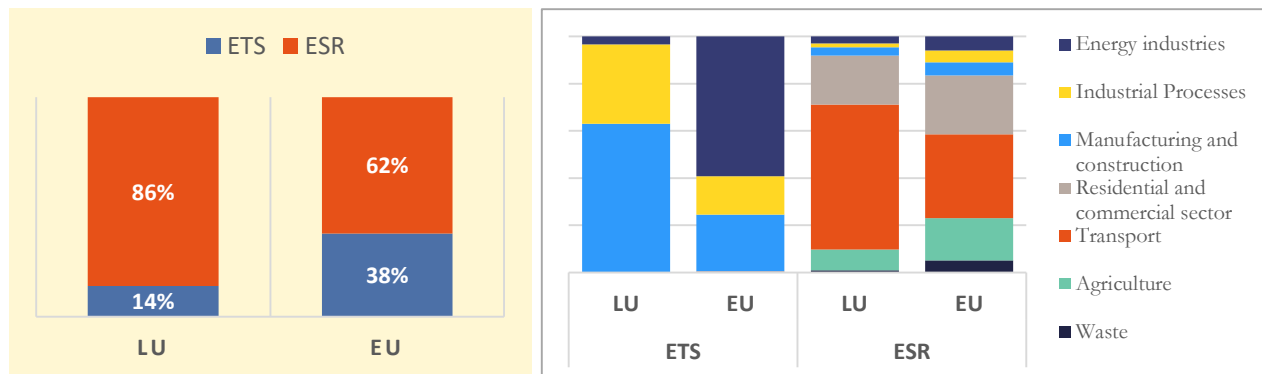
3) Greenhouse gas emissions by sector



	1990 (MtCO ₂ -eq)	2005 to 1990 (% change)	2019 to 2005 (% change)	2021 to 2019 (% change)	2021 to 1990 (% change)
Energy	0.0	3368%	-81%	12%	633%
Industry	7.9	-73%	-11%	-11%	-79%
Transport	2.6	175%	-14%	-20%	89%
Buildings	1.4	22%	-2%	2%	23%
Agriculture	0.7	-10%	9%	0%	-2%
Waste	0.1	0%	-27%	-3%	-29%
LULUCF	0.2	-423%	-48%	95%	-425%
International aviation	0.4	228%	39%	7%	388%

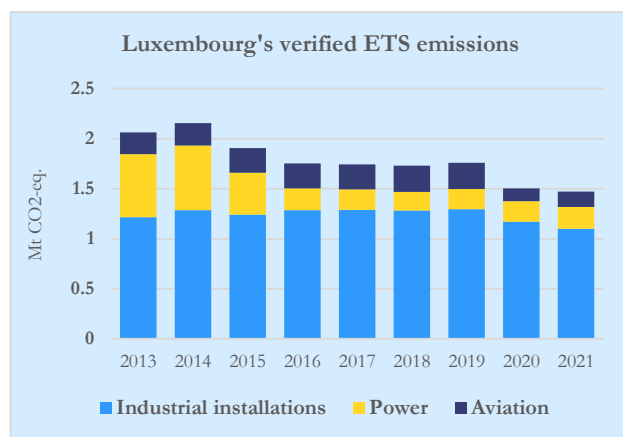
Notes: (1) Energy sector refers to electricity and heat production and petroleum refining. (2) Industry includes fuel combustion in manufacturing and construction and emissions in industrial processes and product use. (3) Buildings include emissions from energy use in residential and tertiary buildings, and energy use in agriculture and fishery sectors.

In 2021, the highest contribution to net GHG emissions in Luxembourg came from the Transport sector (46%), followed by the International aviation sector (18%) and the Industry sector (16%). Emissions from sectors under the Effort Sharing Regulation (ESR) were 86% compared to 62% for the EU as a whole (see shares in the charts below).



4) Emissions under the EU Emissions Trading System (ETS)

In 2021, stationary installations (e.g. power generation and manufacturing industry) in Luxembourg emitted 1.3 million tonnes of CO₂-eq emissions (equal to 14% of Luxembourg's total GHG emissions). This is 4.3% lower compared to 2020 and 11.9% below pre-pandemic levels. By 2021, emissions from stationary installations were down by 28.7% against 2013 level (i.e. -54.9% to 2005 levels). Aviation emissions covered by the EU ETS were 20.5% higher compared to 2020 but 41.7% below 2019 level.



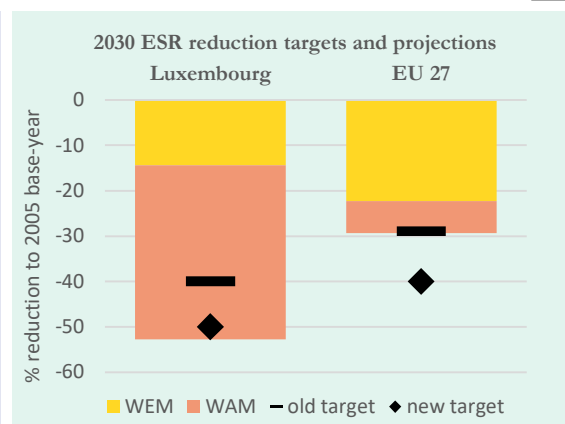
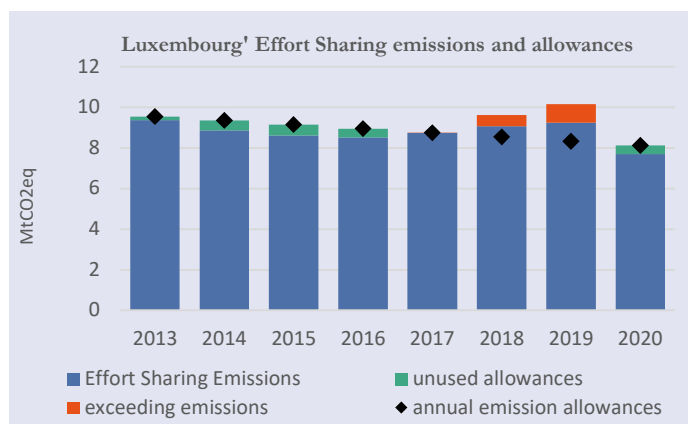
In parallel, Luxembourg has raised over EUR 0.1 billion in auction revenues since 2013, available for further climate action and energy transformation. Luxembourg reported that an average of 74% of revenues was spent for climate and energy purposes over the same period. (*)

Mt CO ₂ -eq	2013	2020	2021
Power installations	0.6	0.2	0.2
<i>% change since 2013</i>	-	-67.2%	-65.6%
Industrial installations	1.2	1.2	1.1
<i>% change since 2013</i>	-	-3.9%	-9.5%
Aviation (**)	0.22	0.13	0.15
<i>% change since 2013</i>	-	-40.5%	-28.3%

(*) Revenues are not earmarked, example projects have been reported up to 100% of revenues each year.

(**) ETS emissions from aviation include flights within the European Economic Area (EEA) and outgoing flights to Switzerland and to the UK.

5) Emissions in Effort Sharing sectors



Note: (1) Verified emissions based on annual inventory review under the Effort Sharing Decision (ESD). (2) Projections as reported by Member States under Reg. (EU) 2018/1999, compiled and checked by the EEA. (3) ESR base-year emissions and targets have been approximately converted into GWP AR4 for comparability. For these reasons, the distances to targets for 2030 are provided for illustrative purposes only (4) WEM = with existing measures, WAM = with additional measures.

In 2021, effort sharing approximated emissions in Luxembourg were 8.1 MtCO₂eq (equal to 86% of Luxembourg's total GHG emissions), 4.8% higher than in 2020 but 12.8% lower than 2019 pre-pandemic level.

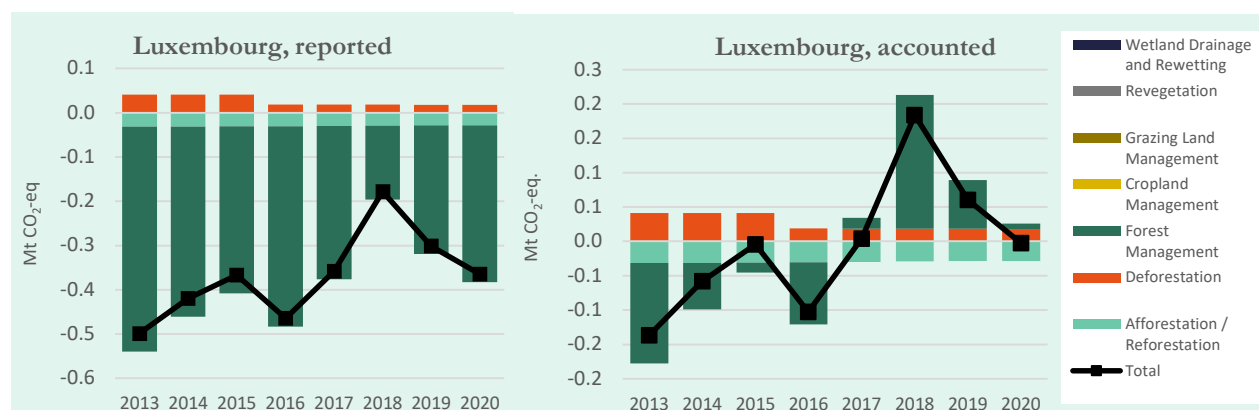
Between 2013 and 2019, Luxembourg exceeded its annual emission allocations (AEAs) 3 times. However, Luxembourg complied with the Effort Sharing Decision by making use of the flexibilities provided therein.

In 2020, effort sharing emissions in Luxembourg were below the annual limit.

6) Land Use, Land Use Change and Forestry (LULUCF)



Reported quantities under the Kyoto Protocol for Luxembourg show net removals of -0.4 Mt CO₂-eq on average per year for the period 2013 to 2020. In this regard, Luxembourg contributes with 0.1% to the annual average sink of -320.2 Mt CO₂-eq of the EU-27. Accounting for the same period depicts net credits of, on average, -0.06 Mt CO₂-eq, which corresponds to 0.07% of the EU-27 accounted sink of -83.4 Mt CO₂-eq. Reported net removals and accounted net credits show a declining trend with moderate fluctuations until 2018 with increasing net removals for 2019 and 2020; for 2018 the accounts show very small net debits.



Notes: (1) Charts based on the submissions delivered until May 2022. (2) Data reported for the period 2013-2020, for mandatory and elected LULUCF activities, were submitted by Member States to the European Environment Agency (EEA) and underwent a simulated accounting process developed by the Joint Research Centre (JRC), together with DG CLIMA. (3) Reported data represent the gross annual flux of greenhouse gas from the sector, by activity, according to the IPCC methods for calculation in the framework of the Kyoto Protocol (KP). Accounting is aimed at assessing the impact of policies on climate actions on the actual data, for example as an increase in the sink within the Forest Management activity. (4) The simulated accounting process does not take into account any adjustments or flexibilities that a Member State may apply, for example the purchase of KP credits.

The dominating reported activity for most years is Forest Management with removals. Removals by Afforestation/Reforestation is neglectable. Emissions by Deforestation are negligible. Removals by Forest Management is the only activity with remarkable variations and shows a generally decreasing trend of removals except for 2016, 2019 and 2020. The reason is that annual harvest rates differ significantly year by year influenced by timber demand and wood prices, insect infestation or wind throws.

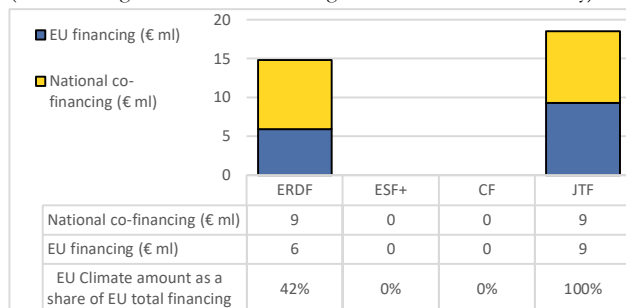
Credits by Afforestation/Reforestation and Forest Management, and debits by Deforestation show an overall decreasing trend between 2013 and 2016 and turn into debits in 2017 to 2020.

7) Financing Climate Action



Cohesion policy

Luxembourg's Planned Financing for Climate Actions (EU financing & national co-financing - 2021-2027 Cohesion Policy)



The chart presents information on investment plans and achievement targets from adopted programmes. Financing for cohesion policy uses a categorisation to provide thematic information on the finances planned.

Source: <https://cohesiondata.ec.europa.eu/>

Innovation and Modernisation Fund

Innovation Fund (Portfolio of signed projects)

	n.	EUR million
Small Scale Projects	-	-
Large Scale Projects	-	-

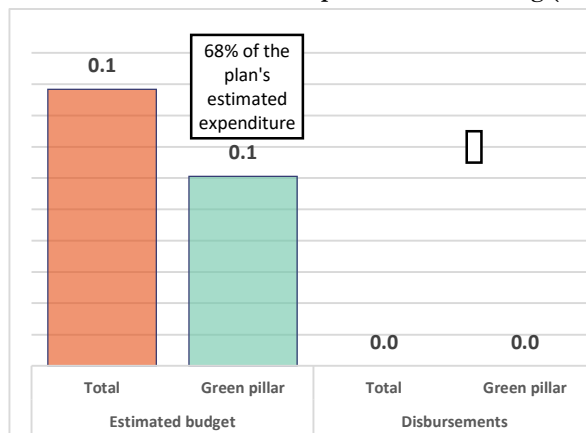
Modernisation Fund

(List of confirmed or approved investment proposals) non-beneficiary

Recovery & Resilience Facilities

RRF allocations (EUR billion)	Grants:	Loans:	% of GDP
	0,09	-	0.1

RRF contribution to the Green pillar in Luxembourg (€ bn)



This graph displays: 1) the estimated cost of measures attributed by the Commission, in consultation with the Member State, to the green pillar either as primary or secondary assignments; and 2) how disbursements under the RRF (excluding pre-financing) relate to the green pillar.

Source: https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/index.html?lang=en