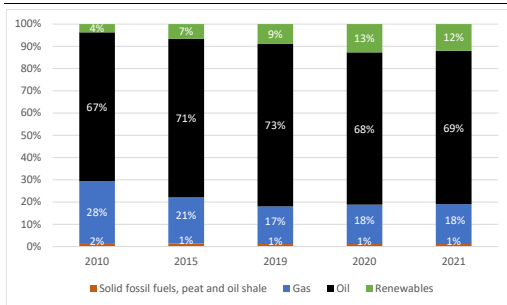


# State of the Energy Union 2023 Luxembourg

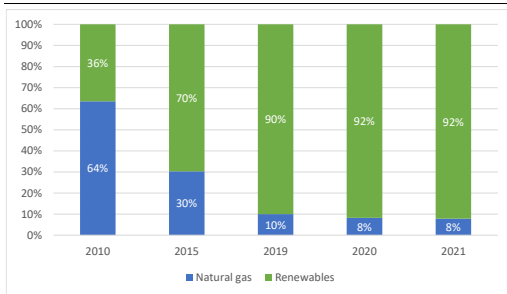
## Key energy figures

Graph 1: Energy mix



Source: Eurostat

Graph 2: Electricity mix



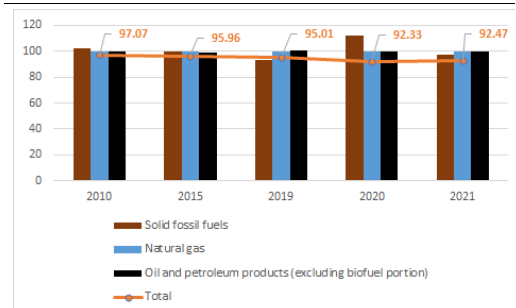
Source: Eurostat

- Fossil fuels still play a strong role in Luxembourg's energy mix. In 2021, **oil provided 69% of Luxembourg's energy mix, and natural gas 18%**, while 12% came from renewable energy sources.
- Luxembourg continues to support renewable energy nationally, but also through cooperation agreements with other Member States.

## Security, solidarity and trust

### 1. DIVERSIFICATION OF ENERGY SOURCES AND REDUCTION OF IMPORT DEPENDENCY

Graph 3: Import dependency on fossil fuels



- In percentages (%)
- Combustible renewables and electricity are excluded
- The total amount takes into consideration the energy mix of the country

Source: Eurostat

- Luxembourg has limited exposure to Russian gas and oil. However, it is quite dependent on imported fossil fuels and electricity in general. This makes its economy particularly sensitive to global price developments, requiring it to step up efforts on the energy transition.

### 2. FLEXIBILITY OF THE ENERGY SYSTEM

- Energy storage:** Luxembourg does not have an underground gas storage facility.

# Integrated internal energy market

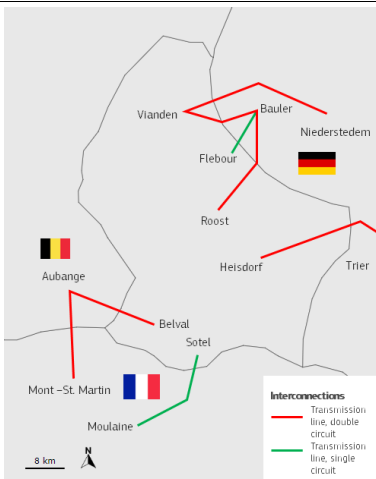
## 1. ELECTRICITY INTERCONNECTIVITY

2023	2030 target
166.33%	At least 15%

Source: DG ENER's own calculation based on ENTSO-E

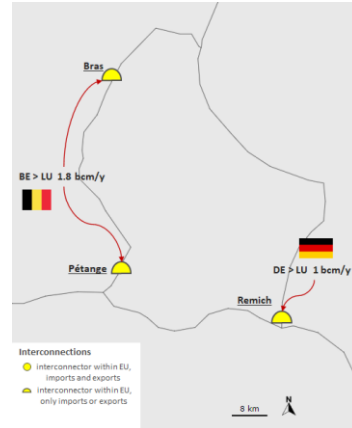
## 2. ENERGY TRANSMISSION INFRASTRUCTURE

Map 1: Cross-border electricity interconnections



Source: European Commission map recreation (based on ENTSO-E)

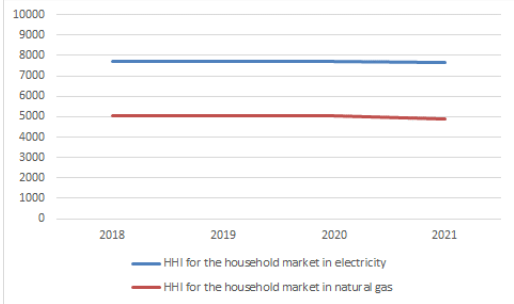
Map 2: Cross-border gas interconnections



Source: European Commission map recreation (based on ENTSO-G)

## 3. MARKET INTEGRATION

Graph 4: Index of concentration (HHI) for the household markets in electricity and natural gas



(1) No data available for HHI in electricity and natural gas household markets in 2022

Source: CEER 2023 out of ACER's Energy Retail and Consumer Protection 2023 Market Monitoring Report.

- Data regarding the market share of the three largest suppliers in 2022 is not available<sup>(1)</sup>.

### Rollout of electricity smart meters

- Luxembourg had a high electricity smart meter rollout, with 98.5% of household consumers being equipped with smart meters in 2022.<sup>(2)</sup>

<sup>(1)</sup> CEER 2023 out of ACER's Energy Retail and Consumer Protection 2023 Market Monitoring Report.

<sup>(2)</sup> ACER, CEER. Energy Retail and Consumer Protection, 2023 Market Monitoring Report

## 4. ENERGY POVERTY AND JUST TRANSITION

Table 1: **Energy poverty**

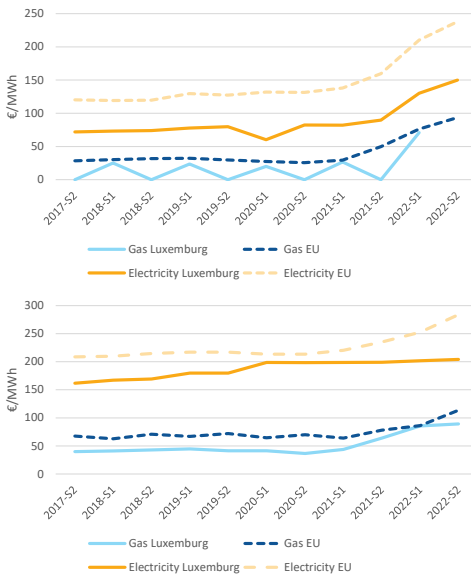
	Luxembourg			EU		
	2020	2021	2022	2020	2021	2022
Arrears on utility bills (households %)	2.9%	3.6%	4.4%	6.5%	6.4%	6.9%
Inability to keep home adequately warm (household %)	3.6%	2.5%	2.1%	7.5%	6.9%	9.3%
Population living in dwelling with presence of lead, damp and rot (population %)	15.4%	:	:	14.8%	:	:

Source: Eurostat

- **Just transition plan:** Luxembourg's Just Transition Plan outlines the just transition of the steel and cement industry in the south of the country. The plans set out how the Just Transition Fund (JTF), with a national allocation of 9.3€ million, will support energy efficiency projects, reconversion of former industrial sites and the reskilling of workers in relevant sectors.

## 5. ENERGY PRICES

Graph 5: **Energy retail prices for industry (top) and households (bottom)**



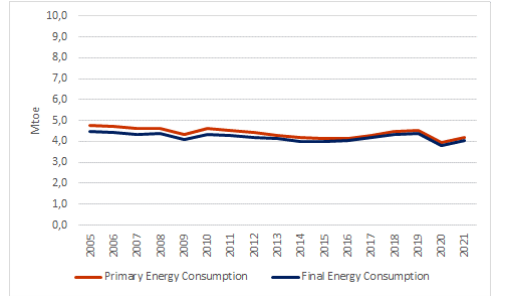
- (1) On electricity, the band consumption is for DC households and ID for industry
- (2) On gas, the band consumption is D2 for households and I4 for industry

Source: Eurostat

## Energy efficiency

### 1. ENERGY EFFICIENCY

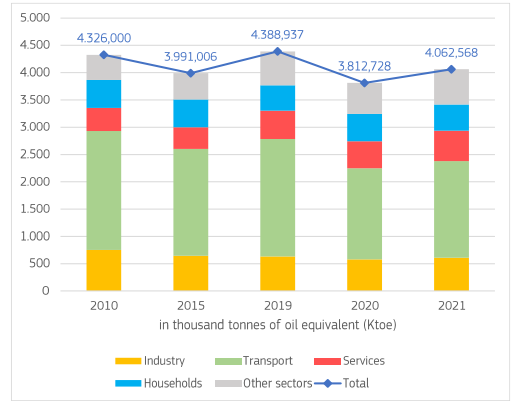
Graph 6: **Primary and final energy consumption**



Source: Eurostat

- In 2021, Luxembourg's **Primary Energy Consumption (PEC)** amounted to 4.19 Mtoe, 7% lower than in 2019, while its **Final Energy Consumption (FEC)** amounted to 4.06 Mtoe, 7.4% lower than in 2019, despite the COVID-19 crisis recovery.

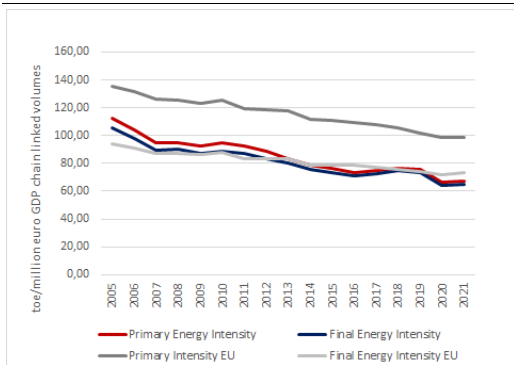
Graph 7: **Final energy consumption by sector**



- (1) Final energy consumption excludes consumption of the energy sector (including transformation and distribution losses) and non-energy use of energy carriers.

Source: Eurostat

Graph 8: **Primary and final energy intensity**



Source: Eurostat

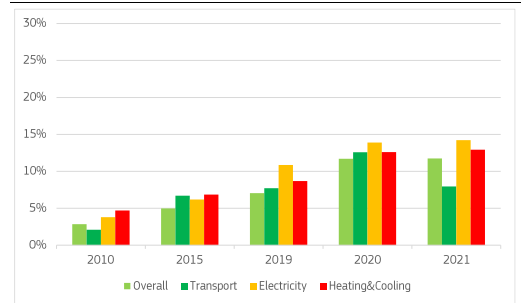
## 2. ENERGY SAVINGS IN BUILDINGS

- In 2020, there were **208 thousand dwellings** in **Luxembourg**.
- As per its 2020 Long Term Renovation Strategy (LTRS), **Luxembourg** targets to achieve **-34%** of energy savings **by 2030** compared to **year 2020** in the building sector.
- In 2021, the final energy consumption of residential buildings **decreased by 10.08%** compared to 2019.
- As per the European Heat Pump Association (EHPA), there are no data available for Luxembourg, as per the European Heat Pump Association (EHPA).

# Decarbonisation and climate action

## 1. SECTORAL SHARE OF RENEWABLE ENERGY

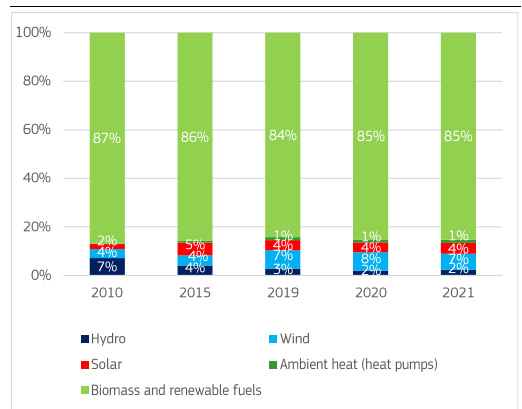
Graph 9: **Share of renewable energy sources**



(1) in % of gross final consumption of energy

Source: Eurostat

Graph 10: **Renewable energy mix**

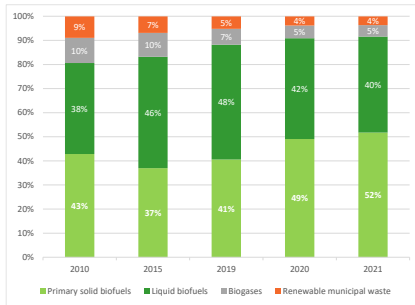


(1) in % of gross final consumption of energy

Source: Eurostat

## 2. BIOENERGY DEMAND

Graph 11: Bioenergy mix

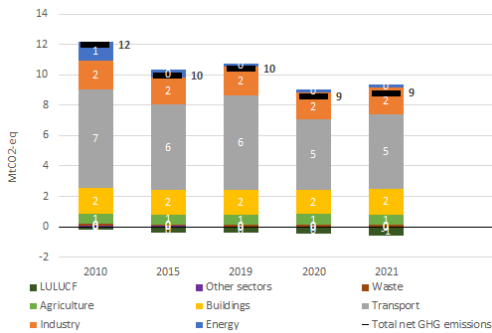


(1) Composition of bioenergy, in % of gross inland consumption of energy

Source: Eurostat

## 3. GREENHOUSE GAS EMISSIONS

Graph 12: Greenhouse gas emissions by sector



(1) Energy sector refers to electricity and heat production and petroleum refining.

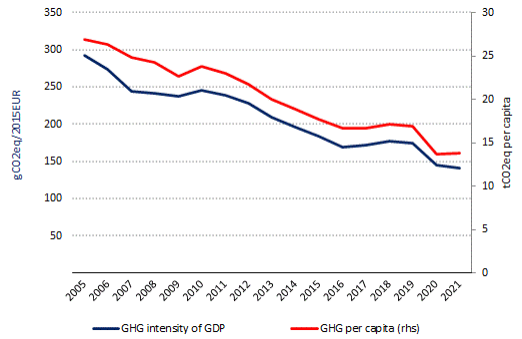
(2) Industry includes fuel combustion in manufacturing and construction and emissions in industrial processes and product use.

(3) Buildings include emissions from energy use in residential and tertiary buildings, and energy use in agriculture and fishery sectors.

(4) Total net GHG emission including LULUCF and excluding international aviation.

Source: EEA

Graph 13: GHG per capita and GHG intensity of GDP



(1) Total greenhouse gas emissions, including LULUCF and excluding international aviation.

Source: Greenhouse gas inventory 1990-2021 (EEA). Real GDP in 2015-prices (AMECO, European Commission). Population (Eurostat)

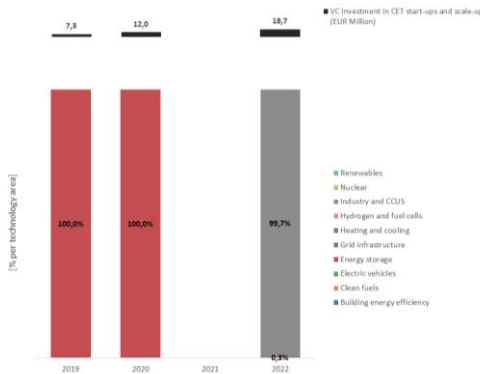
- With 141 gCO<sub>2</sub>eq/2015EUR, Luxembourg lies below the EU average in terms of GHG intensity of GDP.
- With 14 tonnes of CO<sub>2</sub> equivalent per capita, Luxembourg is above the EU average in terms of GHG emissions per capita.
- For more detailed information on country profiles see [Progress made in cutting emissions \(europa.eu\)](https://europea.eu).

# Research, innovation and competitiveness

## 1. INVESTMENT IN R&I

- Data for public investment in Energy Union R&I priorities are not available.

Graph 14: **Venture capital investment in clean energy technology (start-ups and scale-ups)**

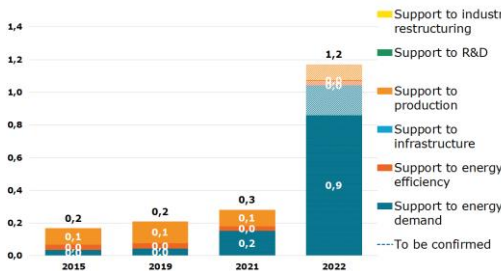


(1) Firms typically use venture capital to expand, break into new markets, and grow faster. Venture capital is essential for the growth of innovative firms and it is key to foster the EU's competitiveness and to strengthen the EU's technology sovereignty in the clean energy sector.

**Source:** JRC SETIS 2023

## 2. ENERGY SUBSIDIES

Graph 15: **Energy subsidies by purpose**

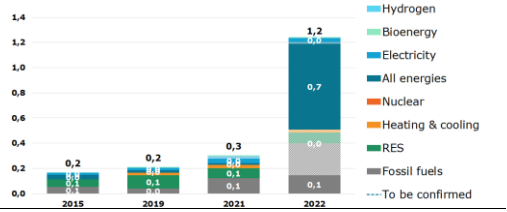


(1) Subsidies in EUR 2022 billion

(2) Some 2022 data were not fully available or validated at the time the study was completed (August 2023). For missing 2022 values, 2021 data were taken as a basis for an estimate. The estimated data are referred to as 'to be confirmed' in the graphs and indicated by hatching.

**Source:** Enerdata. Inventory of energy subsidies in the EU27 - 2023 edition

Graph 16: **Energy subsidies by carrier**



(1) Subsidies in EUR 2022 billion

(2) Some 2022 data were not fully available or validated at the time the study was completed (August 2023). For missing 2022 values, 2021 data were taken as a basis for an estimate. The estimated data are referred to as 'to be confirmed' in the graphs and indicated by hatching.

**Source:** Enerdata. Inventory of energy subsidies in the EU27 - 2023 edition

# European Semester 2023

## Country Specific Recommendation (Energy):

Reduce reliance on fossil fuels by accelerating the deployment of renewables, electricity transmission capacity, easing permitting procedures and investing in energy efficiency in both the residential and non-residential sectors. Support municipalities in developing detailed local plans for deploying renewable energy, including wind power and photovoltaics, and for district heating and cooling systems. Further promote electrification of transport and invest in public transport networks and infrastructure. Step up policy efforts aimed at the provision and acquisition of the skills 26 needed for the green transition. <sup>(3)</sup>

For more information see the [2023 European Semester Country Reports](#)

<sup>(3)</sup> Council of the European Union 9841/1/23

## National Energy and Climate Plan (NECP)

- **The draft updated NECP** was submitted to the European Commission in July 2023.
- For more information see the dedicated [webpage of the European Commission on the NECPs](#).

## Recovery and Resilience Plan (RRP) and REPowerEU chapter

- **The Luxembourg RRP was approved by the Council on 13 July 2021.**
- The implementation of the measures proposed in the RRP would allow Luxembourg to access **EUR 93 million in grants**.
- **61%** of these funds are **allocated** for measures contributing to **climate objectives**.
- The Commission **disbursed so far EUR 32.37 million to Luxembourg**. A 1<sup>st</sup> payment request was disbursed on 16 June 2023.
- On 11 November 2022, Luxembourg submitted a **request to revise its RRP**, and yet has to submit the **REPowerEU chapter**.
- The amended RRP takes into account the **revised RRF grant allocation** for Luxembourg decreased to EUR 82.7 million.
- The **amended RRP was approved by the Council** on 17 January 2023.
- For more information visit the [Recovery and Resilience Scoreboard \(europa.eu\)](#)