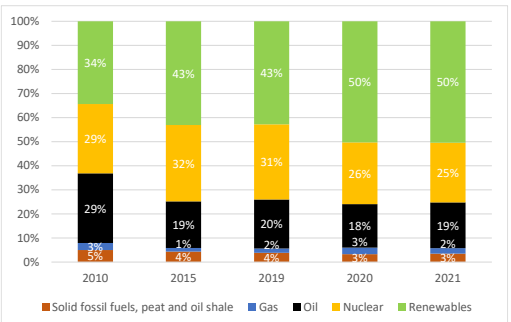
# State of the Energy Union 2023 Sweden

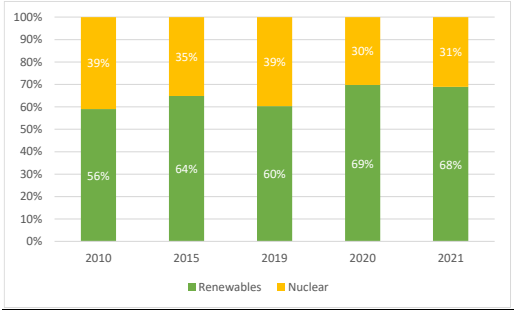
## Key energy figures

Graph 1: **Energy mix**




***Source:*** Eurostat

Graph 2: **Electricity mix**



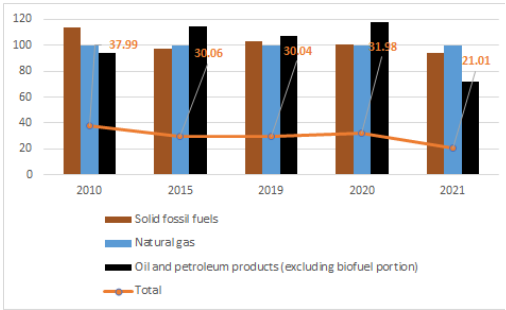

***Source:*** Eurostat

- In 2021, **renewable energy still made up the majority of Sweden's energy mix,** even though production fell, leading to an increase in the share of nuclear energy.
- Sweden's **electricity mix is composed of 68% of renewable energy**, the main source being hydropower (43%), followed by wind (16%) renewable combustible fuels (8%) and solar (1%). Nuclear energy made up 31% of the electricity mix.

## Security, solidarity and trust

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

Graph 3: **Import dependency on fossil fuels**

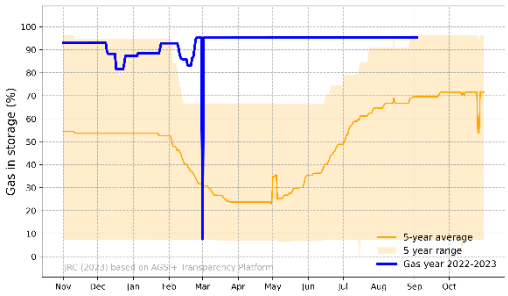



(1) In percentages (%)
(2) Combustible renewables and electricity are excluded
(3) The total amount takes into consideration the energy mix of the country
***Source:*** Eurostat

- Sweden is dependent on imports for fossil fuels **but also before Russia invaded Ukraine, Sweden had limited exposure to Russian gas and oil.** Sweden does not depend on fossil fuels for the electricity sector.

## 2. FLEXIBILITY OF THE ENERGY SYSTEM

Graph 4: **Gas storage levels**




***Source:*** JRC calculation based on AGSI+ Transparency Platform, 2023

- Sweden has **one gas storage facility** with a total capacity of around **10 mcm**.
- On 16 October, the country's storage capacity was filled to **95.32%**.

# Integrated internal energy market

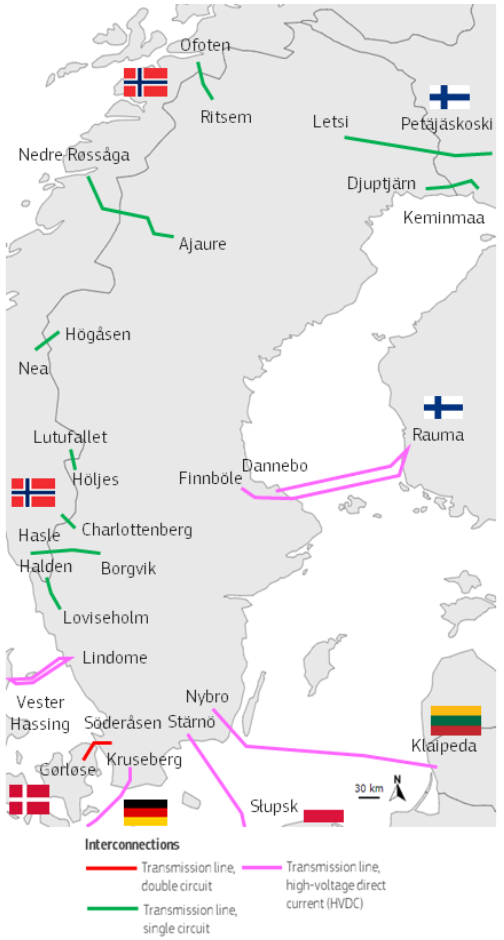
## 1. ELECTRICITY INTERCONNECTIVITY

| 2023 | 2030 target |
|---|---|
| 12.79% | At least 15% |

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

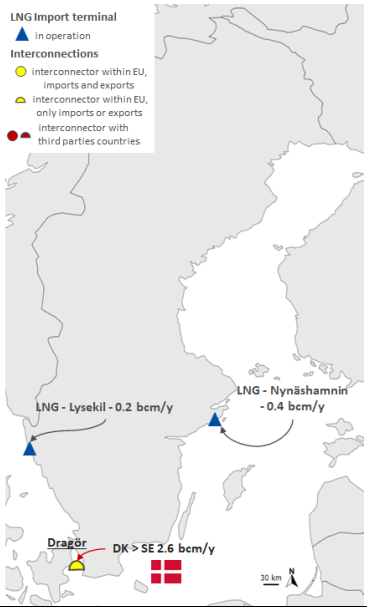
## 2. ENERGY TRANSMISSION INFRASTRUCTURE

Map 1: **Cross-border electricity interconnections**




***Source:*** ENTSO-E (DG ENER map recreation)

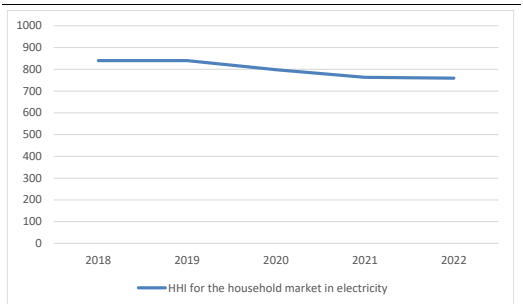
Map 2: **Cross-border gas interconnections**




***Source:*** ENTSO-G (DG ENER map recreation)

## 3. MARKET INTEGRATION

Graph 5: **Index of concentration (HHI) for the household market in electricity**




(1) No data available for HHI in natural gas markets.
***Source:*** CEER 2023 out of ACER´s Energy Retail and Consumer Protection 2023 Market Monitoring Report

- In 2022 in Sweden, the market share of the three largest suppliers reached 44% for electricity.

### Rollout of electricity smart meters

- Sweden had a **complete electricity smart meter rollout**, with 100% of household consumers being equipped with smart meters in 2022. 80% of EU consumers are planned to be equipped with smart meters later than 2024. (1)

(1) ACER, CEER. Energy Retail and Consumer Protection, 2023 Market Monitoring Report.

## 4. ENERGY POVERTY AND JUST TRANSITION

Table 1: **Energy poverty**

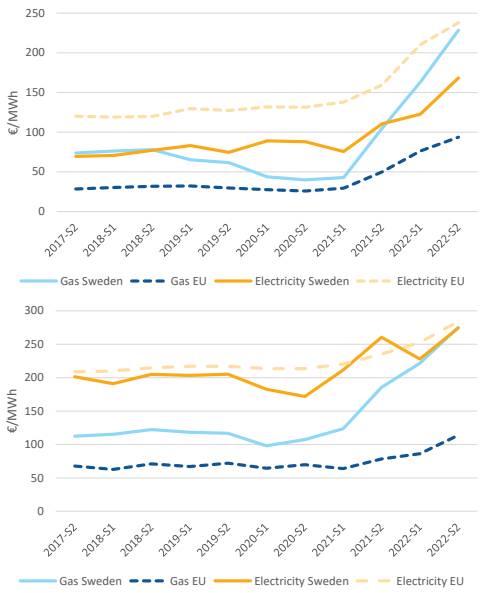
| | Sweden | | | EU | | |
|---|---|---|---|---|---|---|
| | 2020 | 2021 | 2022 | 2020 | 2021 | 2022 |
| Arrears on utility bills (households %) | 2.4% | 2.2% | 1.7% | 6.5% | 6.4% | 4.2% |
| Inability to keep home adequately warm (household %) | 2.7% | 1.7% | 3.3% | 7.5% | 6.9% | 9.3% |
| Population living in dwelling with presence of lead, damp and rot (population %) | 7.1% | : | : | 14.8% | : | : |

***Source:*** Eurostat

- **Just transition plan:** The Swedish Territorial Just Transition Plans (TJTP) outline the transition towards climate neutrality by 2045. The plans set out how the Just Transition Fund (JTF), with a national allocation of 155€ million, will support the development of renewable energy sources, economic diversification, and modernisation of industries.

## 5. ENERGY PRICES

Graph 6: **Energy retail prices for industry (top) and households (bottom)**

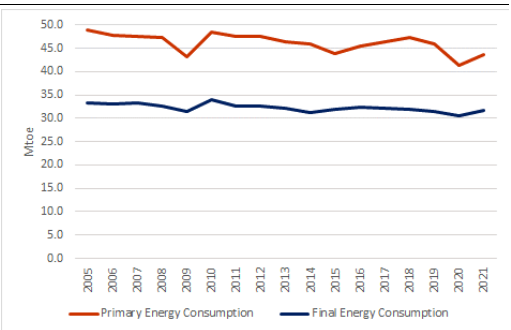



(1) On electricity, the band consumption is for DC households and ID for industry.
(2) On gas, the band consumption is D2 for households and I4 for industry.
***Source:*** Eurostat

# Energy efficiency

## 1. ENERGY EFFICIENCY

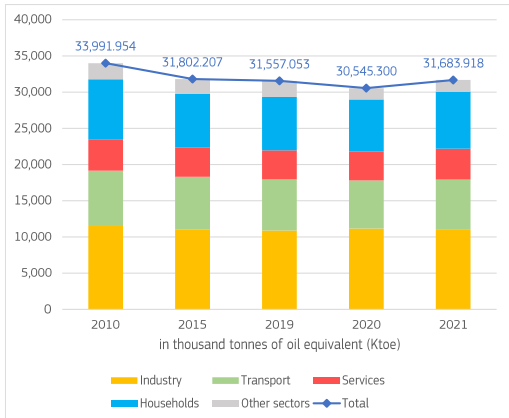
Graph 7: **Primary and final energy consumption**




***Source:*** Eurostat

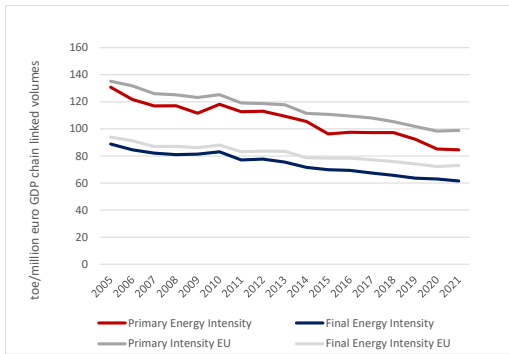
- In 2021, Sweden's **Primary Energy Consumption (PEC)** amounted to 43.5 Mtoe, 5% lower than in 2019, while its **Final Energy Consumption (FEC)** amounted to 31.68 Mtoe, 0.4% higher than in 2019.

Graph 8: **Final energy consumption per 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 9: **Primary and final energy intensity**




***Source:*** Eurostat

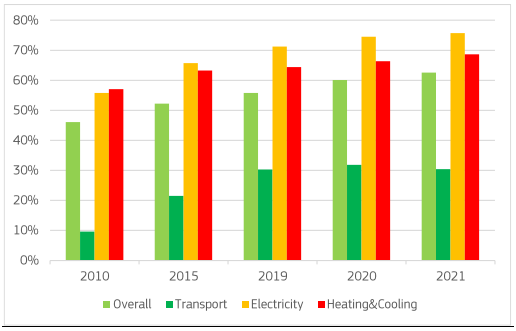
## 2. ENERGY SAVINGS IN BUILDINGS

- In 2020 there were **3 million** of **residential buildings** in **Sweden**.
- As per its 2020 Long Term Renovation Strategy (LTRS), **Sweden** targets to achieve **-7%** of energy savings **by 2030** compared to **year 2020** in the building sector.
- In 2021, the final energy consumption of residential buildings **increased by 5.31%** compared to 2019.
- The sales of heat pumps amounted to **215 373 units** in 2022 representing an increase of **62%** compared to 2021, as per the European Heat Pump Association (EHPA).

# Decarbonisation and climate action

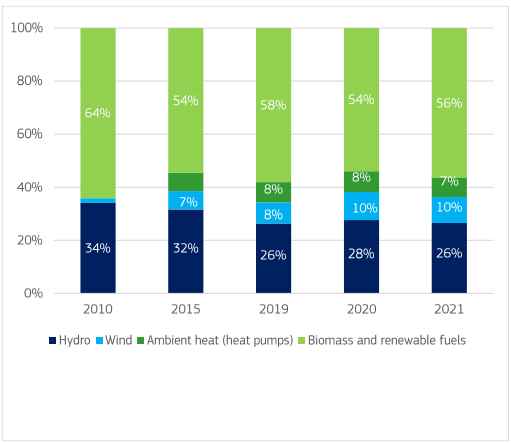
## 1. SECTORAL SHARE OF RENEWABLE ENERGY

Graph 10: **Share of renewable energy sources**




(1) In % of gross final consumption of energy
***Source:*** Eurostat

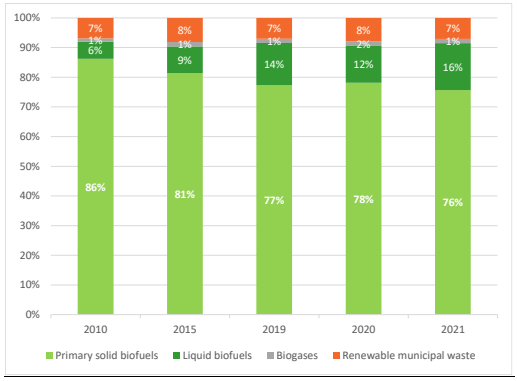
Graph 11: **Renewable energy mix**




(1) In % of gross final consumption of energy
***Source:*** Eurostat

## 2. BIOENERGY DEMAND

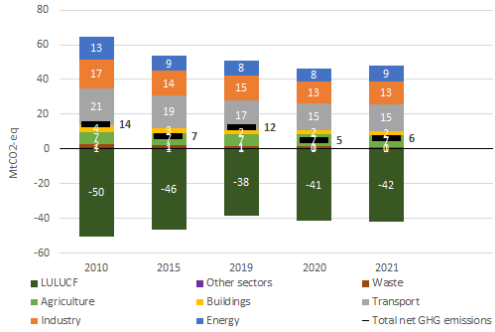
Graph 12: **Bioenergy mix**




(1) Composition of bioenergy, in % of gross inland consumption of energy.
***Source:*** Eurostat

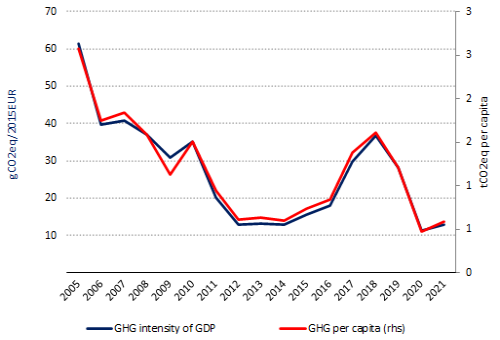
## 3. GREENHOUSE GAS EMISSIONS

Graph 13: **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 14: **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).

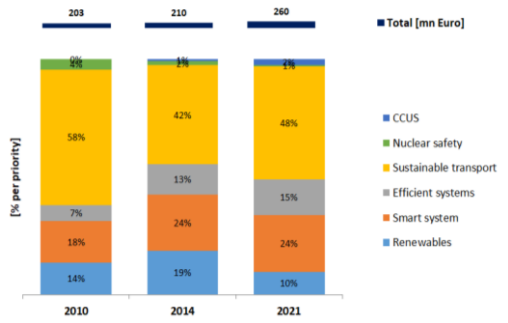
- With 13 gCO2eq/2015EUR, Sweden lies below the EU average in terms of GHG intensity of GDP.
- With 1 tonnes of CO2 equivalent per capita, Sweden is below the EU average in terms of GHG emissions per capita.
- For more detailed information on country profiles see Progress made in cutting emissions (europa.eu).

# Research, innovation and competitiveness

## 1. INVESTMENT IN R&I

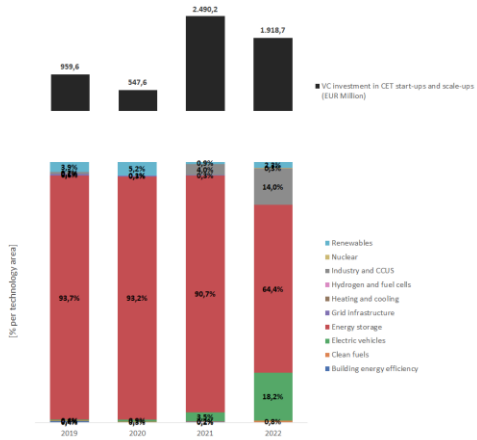
- Public investment in research and innovation (R&I) in Energy Union priorities[2] remained stable from 2014 to 2021, at 0.048% (share of GDP).

Graph 15: **Public investment in Energy Union R&I priorities**




***Source:*** JRC SETIS (2023)

Graph 16: **Venture capital investment in clean energy technology (start-ups and scale-ups)**

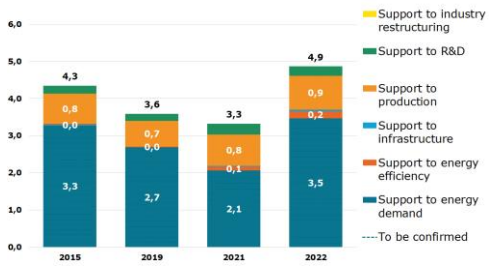



(1) Firms typically use venture capital to expand, break into new markets, and grow faster. Venture capital is essential for the growth of innovative firms and it is key to foster the EU's competitiveness and to strengthen the EU's technology sovereignty in the clean energy sector.
***Source:*** JRC SETIS 2023

(2) Renewables, smart system, efficient systems, sustainable transport, CCUS and nuclear safety, COM(2015) 80 final ('Energy Union Package').

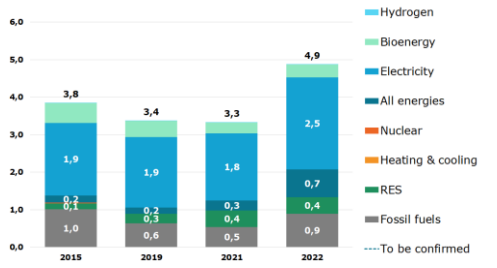
## 2. ENERGY SUBSIDIES

Graph 17: **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 18: **Energy subsidies by carrier**




(1) Subsidies in EUR 2022 billion.
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**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, including by expanding and upgrading energy transmission networks, introducing reforms to simplify and speed up administrative and permitting procedures, improving energy efficiency and stepping up policy efforts aimed at the provision and acquisition of the skills needed for the green transition.[3]

For more information see the 2023 European Semester Country Report.

# 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 Swedish RRP was approved by the Council on 4 May 2022.**
- The implementation of the measures proposed in the RRP would allow Sweden to access **EUR 3.29 billion in grants**.
- **44.4%** of these funds are **allocated** for measures contributing to **climate objectives**.
- The Commission has not disbursed so far funds to Sweden. No payment request has been submitted so far.
- On 24 August 2023 Sweden submitted a **request to revise its RRP**, adding a **REPowerEU chapter**.
- The amended RRP takes into account the **revised RRF grant allocation** for Sweden decreased to EUR 3.18 billion. It includes also the EUR 198.7 billion **REPowerEU grant allocation** and EUR 66 million **voluntary transfer from the Brexit Adjustment Reserve**. The **total amount available** is therefore EUR 3.46 billion.
- For more information visit the Recovery and Resilience Scoreboard.

[3] Council of the European Union 9853/1/23