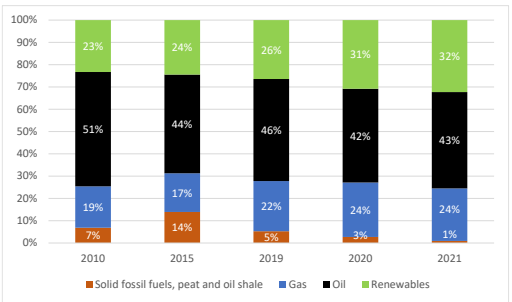
State of the Energy Union 2023 Portugal

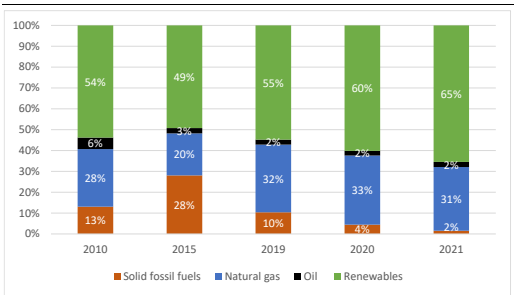
Key energy figures

Graph 1: **Energy mix**



Source: Eurostat

Graph 2: **Electricity mix**



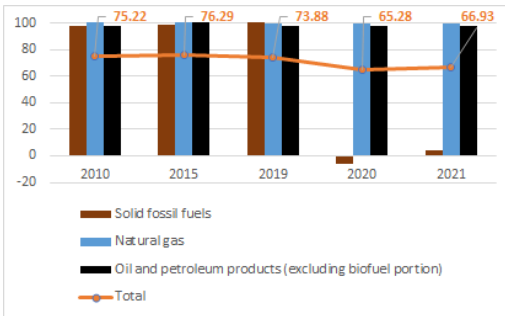
Source: Eurostat

- Portugal is well on track to transform its energy system and speed up the roll-out of renewable energy. In 2021, **with a 32% share of renewable energy in its energy mix and 65% of renewable electricity in its power mix**, Portugal's energy system is one of the most decarbonised systems in the EU.
- In 2022, Portugal **completely phased out coal from its energy mix**. Portugal has announced that it aims to meet the 80% renewable electricity target ahead of schedule in 2026 rather than in 2030.

Security, solidarity and trust

1. DIVERSIFICATION OF ENERGY SOURCES AND REDUCTION OF IMPORT DEPENDENCY

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

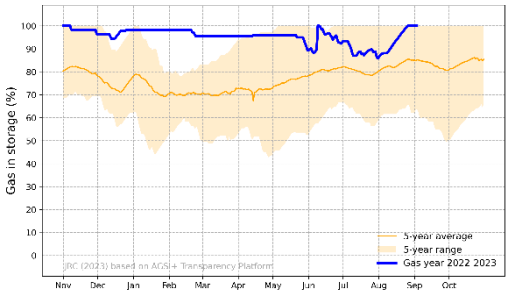


(1) In percentages
(2) Combustible renewables and electricity are excluded.
(3) The total amount takes into consideration the energy mix of the country.
Source: Eurostat

- Despite its **low dependence on gas supplies from Russia**, Portugal consumes most of its gas for the production of electricity. Continuing to rely on gas for electricity production may lead to increasing risks for electricity supply security, aggravated by more frequent extreme droughts. Further investments in the rollout of renewables, in financing energy efficiency projects, and investment in the grids would help to increase resilience in terms of electricity supply security.

2. FLEXIBILITY OF THE ENERGY SYSTEM

Graph 4: **Gas storage levels**



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

- Portugal has **one underground gas storage facility** with a total capacity of around **0.41 bcm**.
- On 16 October, the country's storage capacity was filled to **100%**.

Integrated internal energy market

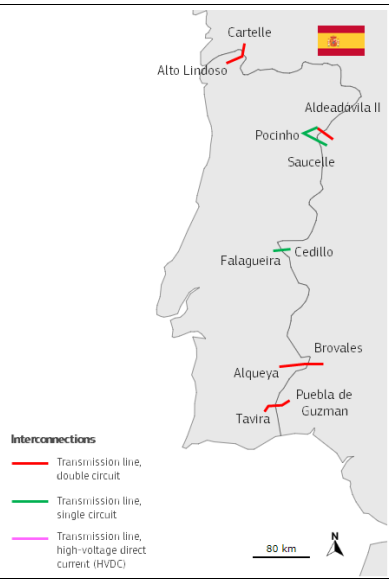
1. ELECTRICITY INTERCONNECTIVITY

2023	2030 target
13.25%	At least 15%

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

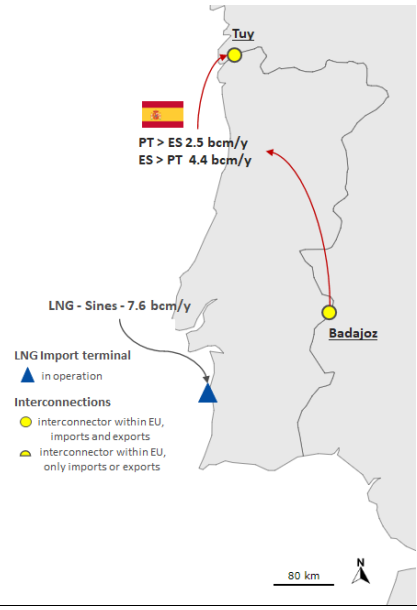
2. ENERGY TRANSMISSION INFRASTRUCTURE

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



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

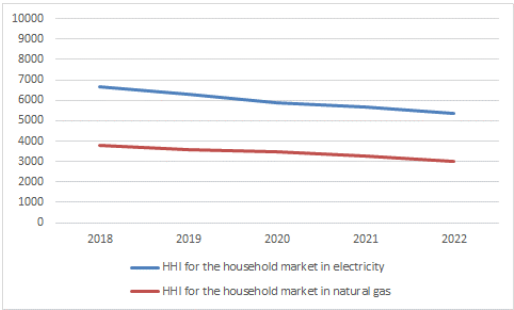
Map 2: **Cross-border gas interconnections**



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

3. MARKET INTEGRATION

Graph 5: **Index of concentration (HHI) for the household markets in electricity and natural gas**



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

- In 2022 in Portugal, the market share of the three largest suppliers in the market (CR3) reached 88% for electricity, and 80% for natural gas. (1)

Rollout of electricity smart meters

- Portugal had a high smart meter rollout, with 73% of household consumers being equipped with smart meters in 2022. 80% of consumers are planned to be equipped with smart meters no later than 2023. (2)

4. ENERGY POVERTY AND JUST TRANSITION

Table 1: **Energy poverty**

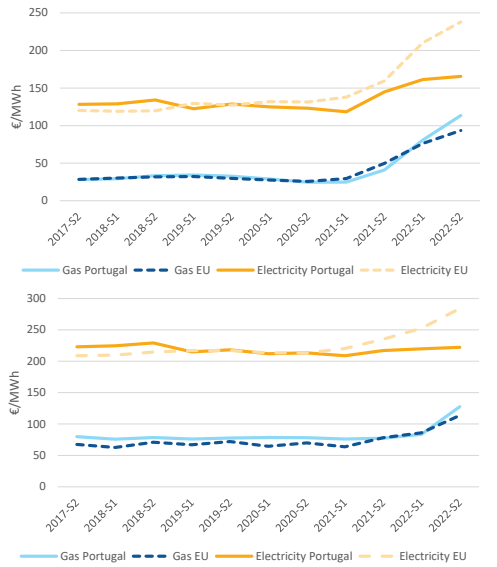
	Portugal			EU		
	2020	2021	2022	2020	2021	2022
Arrears on utility bills (households %)	3.5%	5.3%	4.7%	6.5%	6.4%	6.9%
Inability to keep home adequately warm (household %)	17.5%	16.4%	17.5%	7.5%	6.9%	9.3%
Population living in dwelling with presence of lead, damp and rot (population %)	25.2%	:	:	14.8%	:	:

Source: Eurostat

- **Just transition plan:** The Portuguese Territorial Just Transition Plans (TJTP) outline the transition away from fossil fuels and fossil-fuel based industry in the regions of Alentejo Litroral and Medio Tejo. The plans set out how the Just Transition Fund (JTF), with a national allocation of 223€ million, will support the development of renewable energy sources, economic diversification and business development, and research and innovation.

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

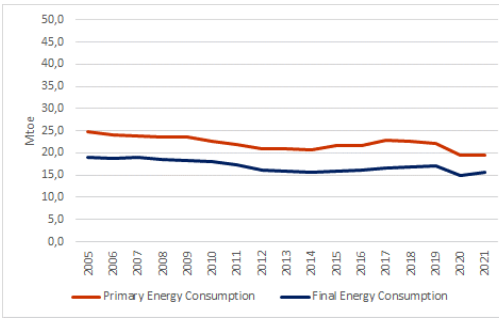
(1) CEER 2023 out of ACER´s Energy Retail and Consumer Protection 2023 Market Monitoring Report.

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

Energy efficiency

1. ENERGY EFFICIENCY

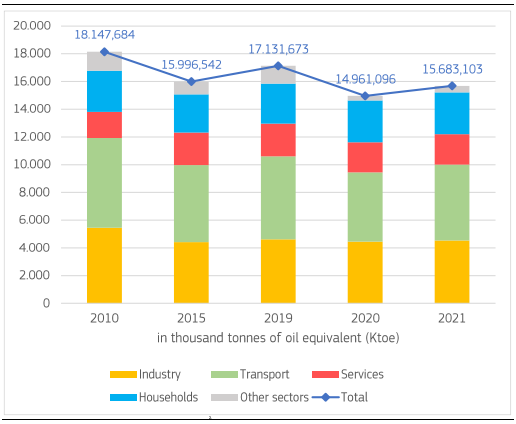
Graph 7: **Primary and final energy consumption**



Source: Eurostat

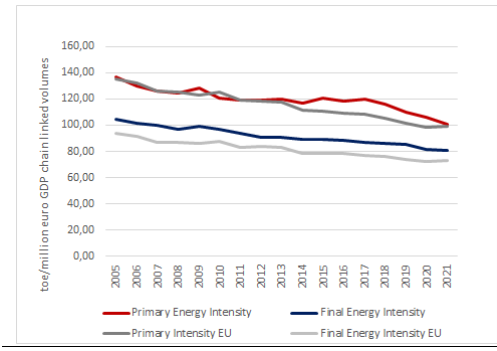
- In 2021, Portugal's **Primary Energy Consumption (PEC)** amounted to 19.53 Mtoe, 11.5% lower than in 2019, while its **Final Energy Consumption (FEC)** amounted to 15.68 Mtoe, 8.5% lower than in 2019, despite the COVID-19 crisis recovery.

Graph 8: **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 9: **Primary and final energy intensity**



Source: Eurostat

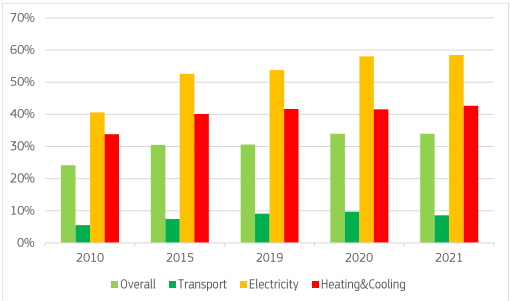
2. ENERGY SAVINGS IN BUILDINGS

- In 2020 there were **5.86 million** of **residential buildings** in **Portugal**.
- As per its 2020 Long Term Renovation Strategy (LTRS), **Portugal** targets to achieve **-11%** of energy savings **by 2030** compared to **2018** in the building sector.
- In 2021, the final energy consumption of residential buildings **increased by 8.89%** compared to 2019.
- The sales of heat pumps amounted to **40 311 units** in 2022 representing an increase of **22%** compared to 2021, as per the European Heat Pump Association (EHPA).

Decarbonisation and climate action

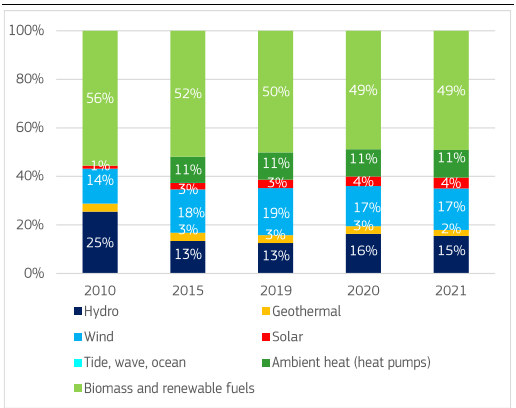
1. SECTORAL SHARE OF RENEWABLE ENERGY

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



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

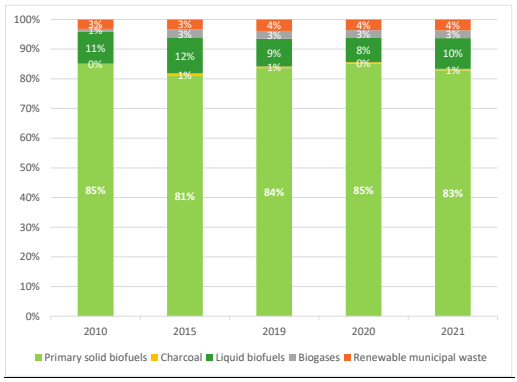
Graph 11: **Renewable energy mix**



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

2. BIOENERGY DEMAND

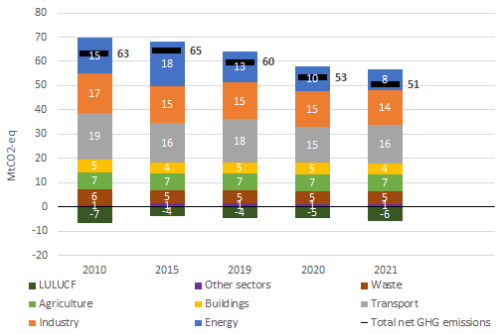
Graph 12: **Bioenergy mix**



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

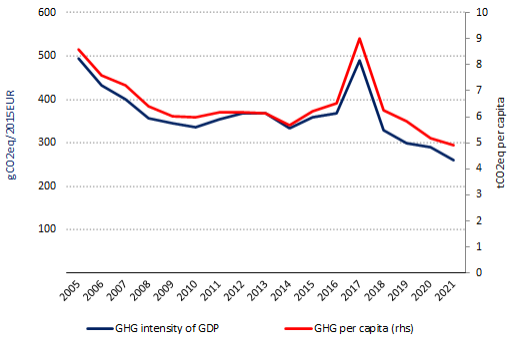
3. GREENHOUSE GAS EMISSIONS

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).

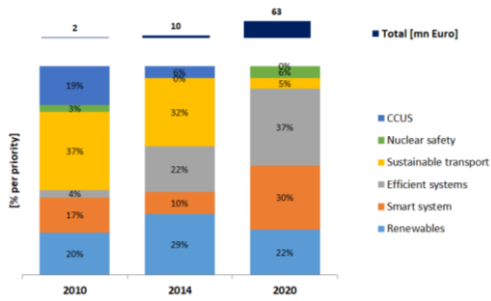
- With 260 gCO2eq/2015EUR, Portugal lies slightly above the EU average in terms of GHG intensity per GDP.
- With 5 tonnes of CO2 equivalent per capita, Portugal is below the EU average in terms of GHG emissions per capita.
- For more detailed information on country profiles see Progress made in cutting emissions (europa.eu).

Research, innovation and competitiveness

1. INVESTMENT IN R&I

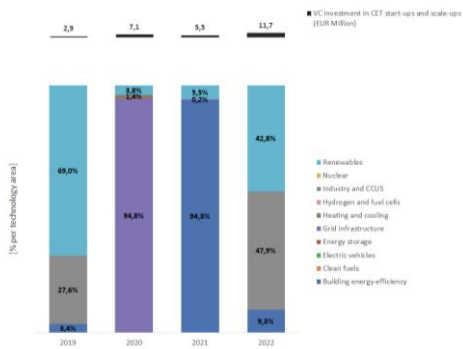
- Public investment in research and innovation (R&I) in Energy Union priorities[3] increased from 0.006% in 2014 to 0.029% in 2021 (share of GDP).

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)**

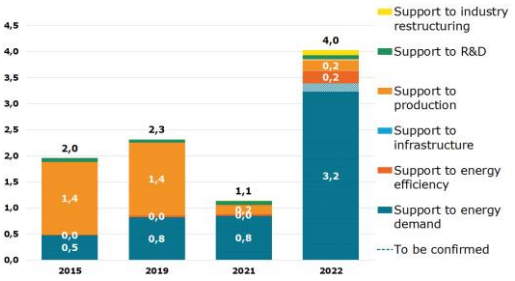


(1) Firms typically use venture capital to expand, break into new markets, and grow faster. Venture capital is essential for the growth of innovative firms and it is key to foster the EU's competitiveness and to strengthen the EU's technology sovereignty in the clean energy sector.
Source: JRC SETIS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

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

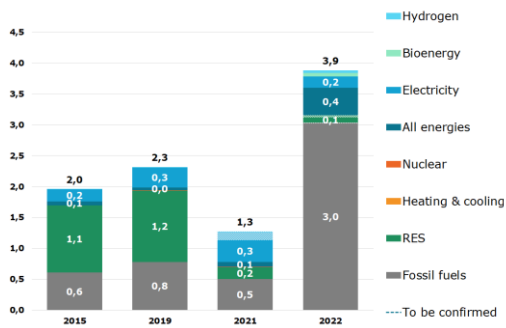
2. ENERGY SUBSIDIES

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**



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

European Semester 2023

Country Specific Recommendation (Energy):

Reduce overall reliance on fossil fuels. Further accelerate the deployment of renewables by further simplifying and digitalising permitting to allow for additional wind particularly offshore and solar electricity production, as well as promoting self-consumption and renewable energy communities. Increase electricity interconnection capacity and upgrade the electricity transmission and distribution grids, enabling investment in electricity storage and digitalisation of the grid, including the faster roll-out of smart meters. Accelerate investment in energy efficiency by promoting financial schemes to attract private investment and supporting households in need Step up policy efforts aimed at the provision and acquisition of the skills needed for the green transition.[4]

For more information see the 2023 European Semester Country Reports.

National Energy and Climate Plan (NECP)

- **The draft updated NECP** was submitted to the European Commission on 30 June 2023.
- For more information see the dedicated webpage of the European Commission on the NECPs.

Recovery and Resilience Plan (RRP) and REPowerEU chapter

- **The Portuguese RRP was approved by the Council on 13 July 2021.**
- The implementation of the measures proposed in the RRP would allow Portugal to access **EUR 13.9 billion in grants** and **EUR 2.7 billion in loans**.
- The Commission **disbursed so far EUR 5.14 billion to Portugal. A payment request, for the third and fourth instalments** was submitted on 4 October 2023 and it's currently under assessment.
- On 26 May 2023 Portugal submitted a **request to revise its RRP**, adding a **REPowerEU chapter**.

[4] Council of the European Union 9848/1/23.

- The REPowerEU chapter proposed by Portugal includes 6 **new reforms**, 16 **new investments**.
- The amended RRP takes into account the **revised RRF grant allocation** for Portugal decreased to EUR 15.5 billion. It includes also the EUR 704 million **REPowerEU grant allocation** and EUR 81 million **voluntary transfer from the Brexit Adjustment Reserve**. Portugal has also requested EUR 3.2 billion **additional loans**. The **total amount available** is therefore EUR 22.2 billion.
- **41.2%** of these funds are **allocated** for measures contributing to **climate objectives**.
- The **amended RRP, including the REPowerEU chapter, was approved by the Council** on 17 October 2023.
- For more information visit the Recovery and Resilience Scoreboard (europa.eu).