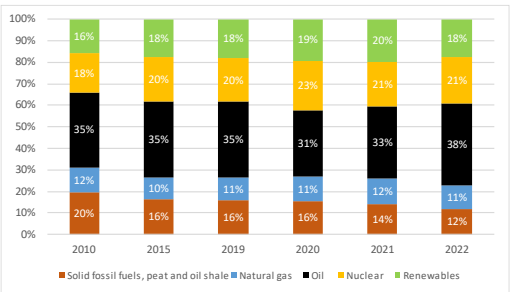
State of the Energy Union 2024: Slovenia

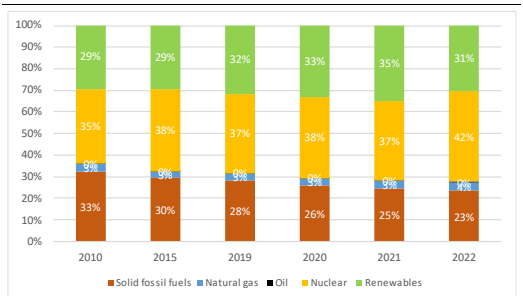
Key energy figures

Graph 1: **Energy mix**



(1) The 2022 gross inland energy consumption was 261 445 TJ. (0.5% of the total EU consumption).
Source: Eurostat

Graph 2: **Electricity mix**



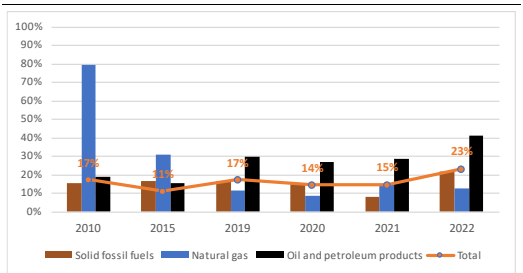
(1) The 2022 gross electricity production was 13.4 TWh. (0.5% of the total EU production).
Source: Eurostat

- Fossil fuels account for 61% of Slovenia´s **energy mix** (compared to 69% at EU level). The share of nuclear was 21.4% and renewables 17.6%.
- The **electricity mix** of Slovenia is dominated by nuclear energy with 41.9%. Renewable energy accounts for 30.5% of the electricity mix (compared to 39.4% at EU level) and fossil fuels for 27.5% (compared to 38.6% at EU level).

Security, solidarity and trust

1. DIVERSIFICATION OF ENERGY SOURCES AND REDUCTION OF IMPORT DEPENDENCY

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



(1) The graph shows the Member States' import dependency on third countries by fuel type.
(2) Combustible renewables and electricity are excluded.
(3) The total amount takes into consideration the energy mix of the country.
Source: Eurostat

2. FLEXIBILITY OF THE ENERGY SYSTEM

- Slovenia **has no underground gas storage facilities** but has confirmed that its suppliers store gas on commercial basis corresponding to 15% of the previous 5-year consumption, in accordance with the burden-sharing mechanism [1].

3. NUCLEAR FUEL DIVERSIFICATION

- The existing Krško NPP (jointly owned and 50%-50% shared with Croatia) is supposed to be in operation up to the end of its extended lifespan (in 2043). Slovenia also explores the possibility of construction of a new nuclear power plant.

[1] Report from the Commission to the European Parliament and the Council of 27 February 2024 on certain aspects concerning gas storage based on Regulation (EU) 2017/1938 of the European Parliament and of the Council.

Integrated internal energy market

1. ELECTRICITY INTERCONNECTIVITY

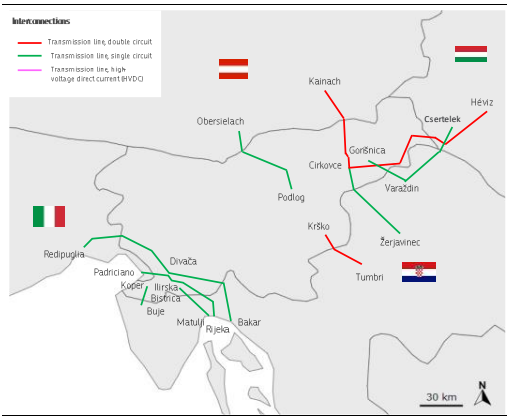
Table 1: **Electricity interconnectivity**

2024	2030 target
85.5 %	At least 15%

1) The electricity interconnectivity is a ratio of electricity import capacity of a given Member State (sum of net transfer capacities of interconnectors with neighbouring Member States) and its total power generation capacity. The 2030 level represents the general interconnectivity target of 15%.
Source: European Commission's own calculations based on the ENTSO-E Winter Outlook 2023-2024 data

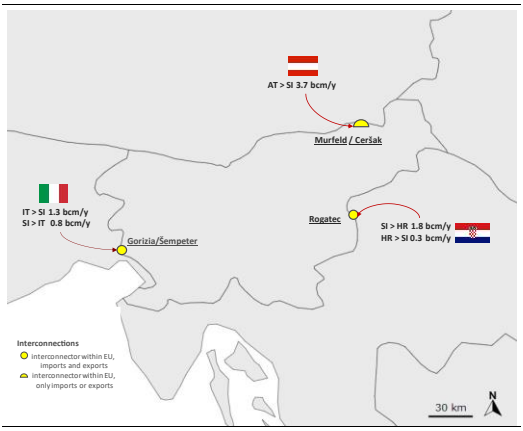
2. ENERGY TRANSMISSION INFRASTRUCTURE

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



Source: DG ENER map recreation (based on ENTSO- E)

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



(1) The capacities are based on ENTSO-G 2024 capacity dataset (as of 11 January 2024) and the ENTSO-G Transparency Platform.
Source: DG ENER map recreation (based on ENTSO- G)

3. MARKET INTEGRATION

Rollout of electricity smart meters

- Slovenia has reached 95% coverage for the rollout of smart meters based on a 15-minute interval by the end of 2023 [2].

Diversification of gas supplies

- In 2023, Slovenia had 3 natural gas supply sources, compared to 4 in 2021. Its three largest suppliers accounted for 100%, with Austria being the main supplier, holding a share of 64%. In 2021, Russia with 60%, Austria with 27%, and Italy (8%) were Slovenia's biggest natural gas supply sources. [3]

4. ENERGY POVERTY, SOCIAL CLIMATE PLAN AND JUST TRANSITION

Table 2: **Energy poverty**

Indicator	%	Evolution compared to		EU average
EED NECPs four main indicators	2023	2021	2017	
Inability to keep home adequately warm	3.6	+ 1.9 pp	- 0.3 pp	10.6
Arrears on utility bills	6.6	-1.1 pp	-7.7 pp	6.9
Share of pop. With leak, damp or rot in dwelling	18.5	-2.3 (2020)	- 3.5pp	15.5
AROP (At risk of poverty)	12.7	+ 1 pp	- 0.6 pp	16.2

Source: Eurostat

Social Climate Plan

- Member States need to submit these plans to the European Commission by June 2025.
- Maximum financial allocation for Slovenia: EUR 397 million or 0.55 % of total SCF.

Just Transition Plan

- The Slovenian Territorial Just Transition Plans (TJTP) outline the transition away from coal mining in the regions of Savinjsko-Saleška and Zasavje. The plans set out how the Just Transition Fund (JTF), with a national allocation of EUR 258 million, will support the development of renewable energy sources, economic diversification, and modernisation of industries. The regions that will receive support from the JTF are primarily those heavily dependent on industries such as coal mining. Coal phase-out commitment is set out in the National Energy and Climate Plan by 2033.

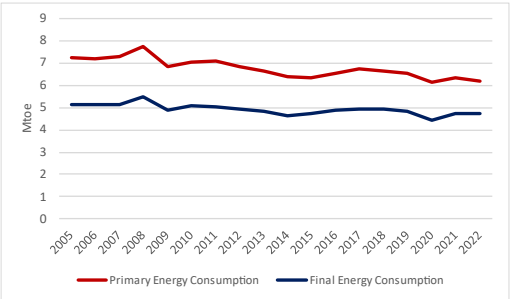
(2) ACER, 2024 Retail Market Monitoring Report, Energy retail and decarbonisation (forthcoming).

(3) ACER-CEER Annual Report Monitoring: the Internal Gas Market in 2022 and 2023.

Energy efficiency

1. ENERGY EFFICIENCY

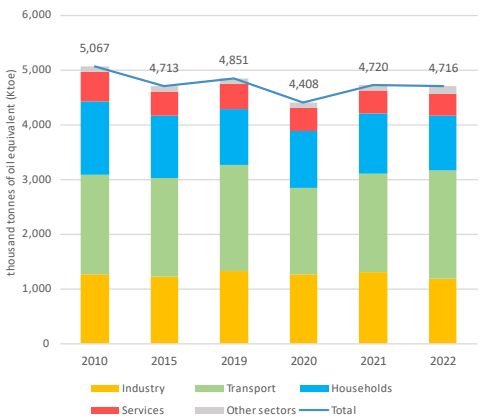
Graph 4: **Primary and final energy consumption**



Source: Eurostat

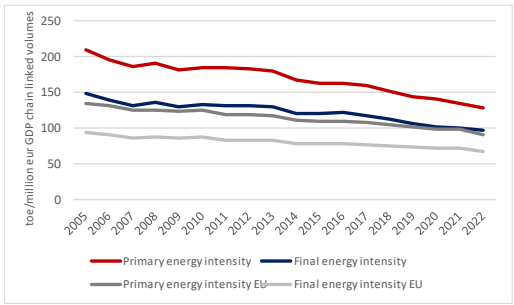
- In 2022, Slovenia's **Primary Energy Consumption (PEC)** amounted to 6.2 Mtoe 2.2% lower than in 2021, while its **Final Energy Consumption (FEC)** amounted to 4.7 Mtoe, 0.1% lower than in 2021.

Graph 5: **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 6: **Primary and final energy intensity**



Source: Eurostat

2. ENERGY PERFORMANCE OF BUILDINGS

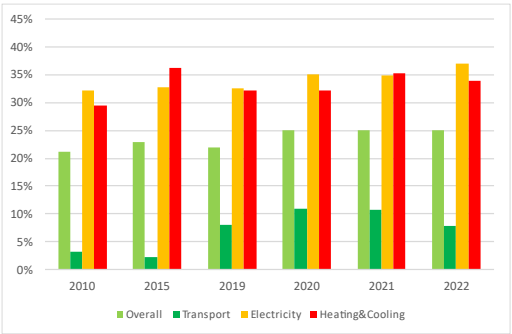
- In 2022, Final Energy Consumption (FEC) in the Slovenian **residential sector** was **1.0 Mtoe**, representing **a reduction of 10.5%** compared to 2021. In the **services sector**, FEC was **0.4 Mtoe**, with an **1.4% decrease** compared to 2021. However, climate corrected data [4] show a **residential FEC increase of 1.9%** from 2021 to 2022, indicating that the above reduction is mostly climate-related (e.g. milder winter) rather than linked with an improvement of the building stock.
- Heating and cooling account for around **79%** of the country's residential final energy consumption, with renewables supplying approximately **34%** of the gross final energy consumption for heating and cooling. As per the European Heat Pump Association (EHPA), there are no data available for Slovenia.
- In 2023, **6.6%** of the total population was experiencing difficulties on paying their utility bills while **3.6%** was not able to keep their home adequately warm over the cold periods of the year (with a mixed evolution compared to 2021, when such figures were, respectively, 7.7% and 1.7%). This underlines the importance to increase rate and depth of building renovation, specifically of worst-performing buildings.

[4] Following JRC's methodology (see for reference "Energy Consumption and Energy Efficiency trends in the EU, 2000 – 2020).

Decarbonisation and climate action

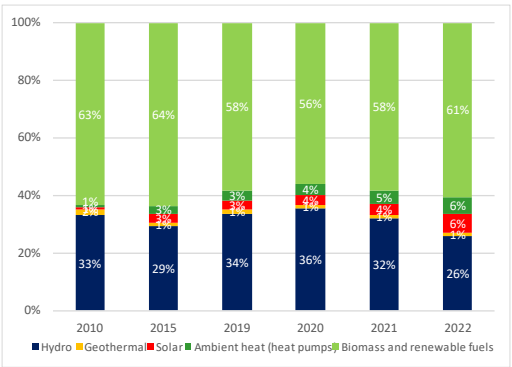
1. SECTORAL SHARE OF RENEWABLE ENERGY

Graph 7: **Share of renewable energy sources**



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

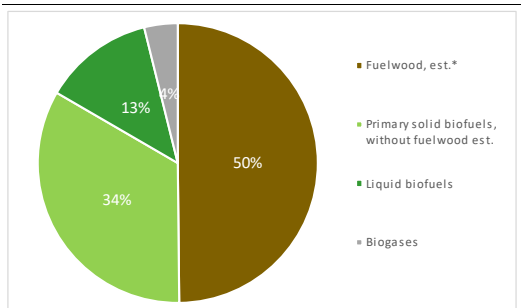
Graph 8: **Renewable energy mix**



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

2. BIOENERGY MIX

Graph 9: **Bioenergy mix**



(1) In % of gross final consumption of energy (2022).
(2) * Fuelwood estimate, based on the Primary solid biofuels consumption in Other sectors, Eurostat and industry secondary data, DG ENER estimations.
Source: Eurostat and DG ENER

- For more information see the dedicated website on biomethane country fiches.

3. HYDROGEN

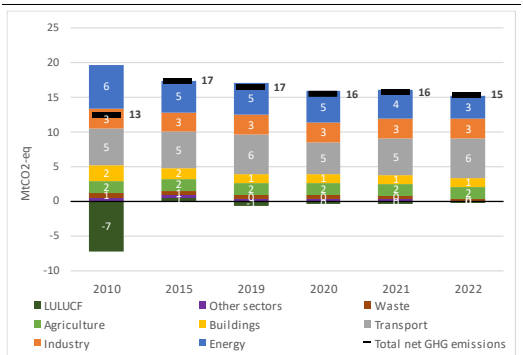
Table 3: **Operational hydrogen projects**

Name	Description
Steklarna Hrastnik glass manufactuing plant	0.15MW from solar PV
Thermal Power Plant Sostanj	0.1MW online since 2000
TPJ Jesenice	0.35MW onlinse since 2000

Source: European Commission based on IEA data

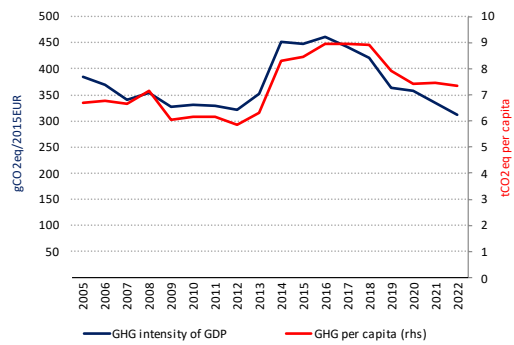
4. GREENHOUSE GAS EMISSIONS

Graph 10: **Greenhouse gas emissions by sector**



Based on UNFCC GHG Inventory reporting as per the IPCC categories: (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: Greenhouse gas inventory 1990-2022 (EEA)

Graph 11: **GHG per capita and GHG intensity of GDP**



(1) Total greenhouse gas emissions, including LULUCF and excluding international aviation.
Source: Greenhouse gas inventory 1990-2022 (EEA). Real GDP in 2015-prices (AMECO, European Commission). Population (Eurostat).

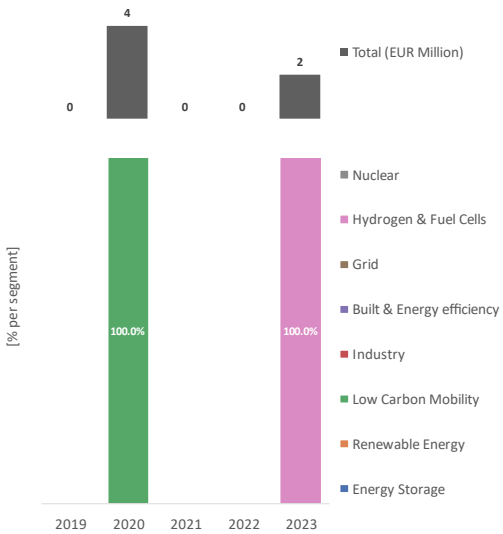
- With 312 gCO2eq/2015EUR, Slovenia lies above the EU average in terms of GHG intensity of GDP.
- With 7 tonnes of CO2 equivalent per capita, Slovenia is at the EU average in terms of GHG emissions per capita.
- For more detailed information on country profiles see Progress on climate action (europa.eu).

Research, innovation and competitiveness

1. INVESTMENT IN R&I

- Data related to public investment in Energy Union R&I priorities[5] are not available[6].

Graph 12: **Venture capital investment in net-zero energy technology (start-ups and scale-ups)**



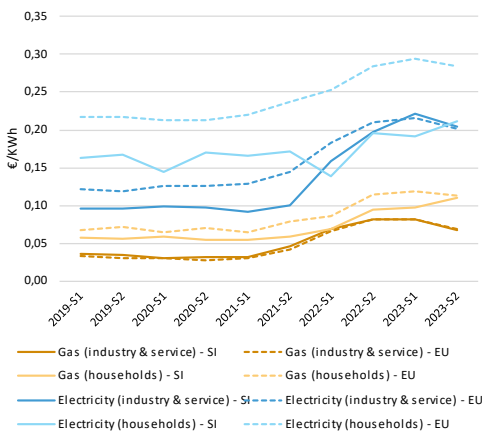
(1) Firms typically use venture capital to expand, break into new markets, and grow faster. Venture capital is essential for the growth of innovative firms and it is key to foster the EU's competitiveness and to strengthen the EU's technology sovereignty in the net-zero energy sector.
Source: JRC elaboration based on PitchBook data (08/2024)

2. NET-ZERO ENERGY TECHNOLOGIES

- Slovenia has significant battery manufacturing capacity and capacity for photovoltaic module manufacturing, whose deployment has been increasing in the last few years. Behind the manufacturing operations of both technologies are mainly Slovenian pure market players (see also Annex 12). Annual capacity for the production of solar modules by Slovenia's lead manufacturer is approximately 750 MW. There are also several battery manufacturers in Slovenia, some of which have been operating for over half a century. Its leading battery manufacturer owns three production facilities in Slovenia and one abroad. Its portfolio includes different types of lead and lithium-ion batteries. Recently, the company unveiled ambitious plans to start its first gigafactory for lithium-ion energy storage systems in Prevalje, set to come online in 2024. The different activities of the consortium brought together by the leading battery manufacturer, including support for production and research and development, have been supported through the Slovenia's RRP.

3. ENERGY PRICES DEVELOPMENT

Graph 13: **Slovenia's energy retail prices for households and industry & service**

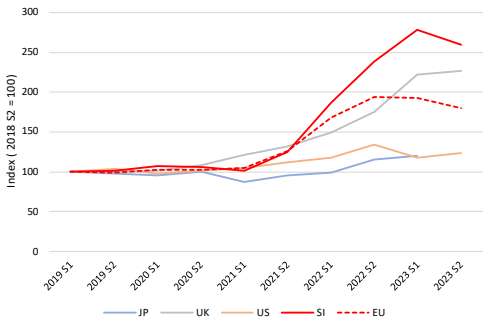


(1) For industry, consumption bands are I3 for gas and IC for electricity, which refer to medium-sized consumers and provide an insight into affordability.
(2) For households, the consumption bands are D2 for gas and DC for electricity.
(3) Industry prices are shown without VAT and other recoverable taxes/levies/fees as non-household consumers are usually able to recover VAT and some other taxes.
Source: Eurostat

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

(6) Source: JRC SETIS 2024

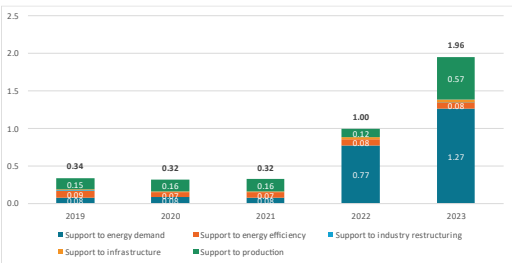
Graph 14: **Trends in electricity prices for non-household consumers (EU and foreign partners)**



(1) For Eurostat data (EU and SI), the band consumption is ID referring to large-sized consumers with an annual consumption of between 2 000 MWh and 20 000 MWh, such as in electricity intensive manufacturing sectors, and gives an insight into international competitiveness.
(2) JP = Japan
Source: Eurostat, IEA

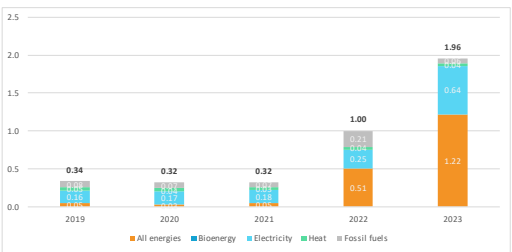
4. ENERGY SUBSIDIES

Graph 15: **Energy subsidies by purpose**



(1) Subsidies in EUR 2023 billion
(2) Some 2023 data were not fully available or validated at the time the study was completed (August 2024). For missing 2023 values, 2022 data were taken as a basis for an estimate.
Source: Enerdata. Inventory of energy subsidies in the EU27 – 2024 edition

Graph 16: **Energy subsidies by carrier**



(1) Subsidies in EUR 2023 billion
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Source: Enerdata. Inventory of energy subsidies in the EU27 – 2024 edition

European Semester 2024

- **No Country Specific Recommendation for Energy** [7]
- For more information see the 2024 European Semester Country Report.

National Energy and Climate Plan (NECP)

- The **draft updated NECP** was submitted to the European Commission in July 2023.
- Member States were due to submit their **final updated NECP by 30 June 2024**, taking into account the Commission recommendations.
- **The final updated NECP** was not submitted yet to the European Commission.
- For documents and information see the dedicated webpage of the European Commission on the NECPs.

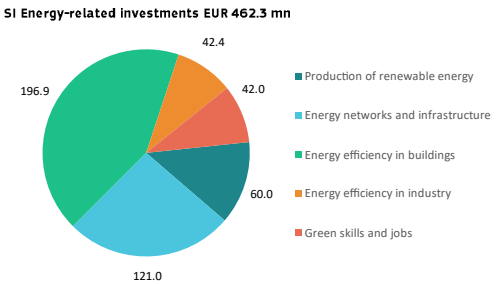
Recovery and Resilience Plan (RRP and REPowerEU chapter)

- The Slovenian RRP has a total allocation of EUR 1.6 billion in grants and EUR 1.1 billion in loans, with 43.8 % of available funds supporting climate objectives.
- EUR 462.3 million **are allocated to energy-related measures,** with the largest amount for **energy efficiency in buildings** [EUR 196.9 million]:
  - **planned reforms will improve planning and financing of the energy renovation of buildings**, support heating decarbonisation, and lead to the adoption of an Action Plan for the energy renovation of public buildings;
  - **energy efficiency in economy**: a reform will provide a framework for developing sustainable, quality and high value-added tourism, while investments will support the refurbishment, extension, or construction of highly energy efficiency tourist facilities.
- In December 2023 the Commission disbursed the 2nd payment of EUR 536 million to

[7] Council of the European Union 11716/24.

Slovenia. In July 2024 Slovenia submitted a 3rd payment request of EUR 257.6 million.

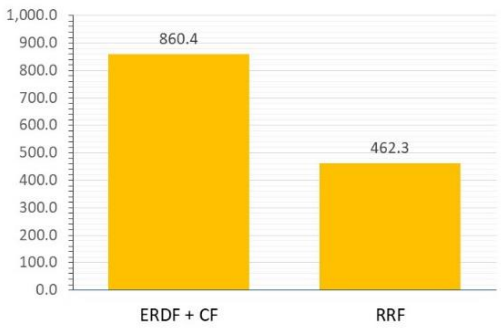
Graph 17: **Energy-related investments in the RRP (in EUR million)**



Source: European Commission

EU Funds supporting energy related investments

Graph 18: **Energy-related investments across EU funds (in EUR million) (*)**



(*) European Regional Development Fund (ERDF) + Cohesion Fund (CF): comprise EU grants & national cofinancing; RRF: comprise grants & loans. Investment categories can also differ across funds.
Source: European Commission

- **Innovation Fund: EUR 2.2 million.** For more information see the webpage innovation-fund-projects-country_en.
- **CEF-Energy: EUR 42.3 million** (2.2% of total EU contribution, for 2021-2027). For more information see CINEA's Project Portfolio dashboard.