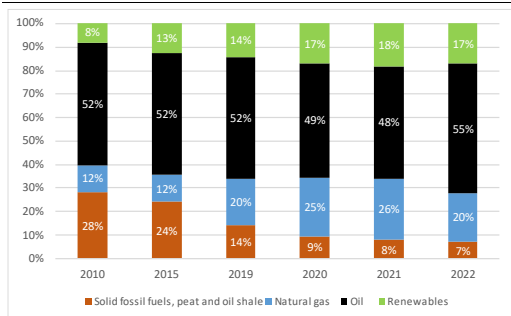


State of the Energy Union 2024: Greece

Key energy figures

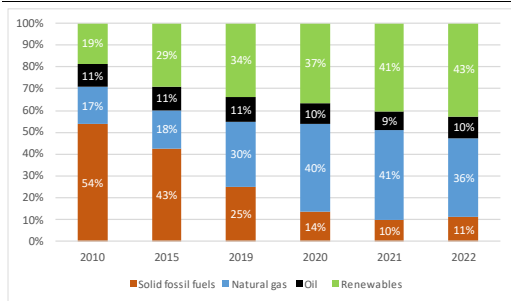
Graph 1: **Energy mix**



(1) The 2022 gross inland energy consumption was 901 157 TJ. (1.6% of the total EU consumption).

Source: Eurostat

Graph 2: **Electricity mix**



(1) The 2022 gross electricity production was 52.5 TWh. (1.9% of the total EU production).

Source: Eurostat

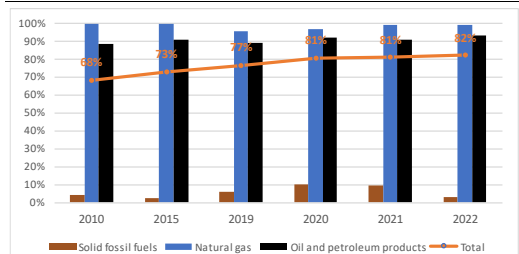
- Fossil fuels account for 83% of Greece's **energy mix** (compared to 69% at EU level), while renewables 17%.
- The **electricity mix** of Greece is dominated by fossil fuels with 57.2%. Renewable energy accounts for the remaining 42.8% (compared to 39.4% at EU level).

(1) Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage.

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

- Greece **does not operate any underground gas storage facility**. The European Commission does not have additional information on arrangements between Greece and other Member States with existing facilities, in accordance with the burden-sharing mechanism⁽¹⁾.

Integrated internal energy market

1. ELECTRICITY INTERCONNECTIVITY

Table 1: Electricity interconnectivity

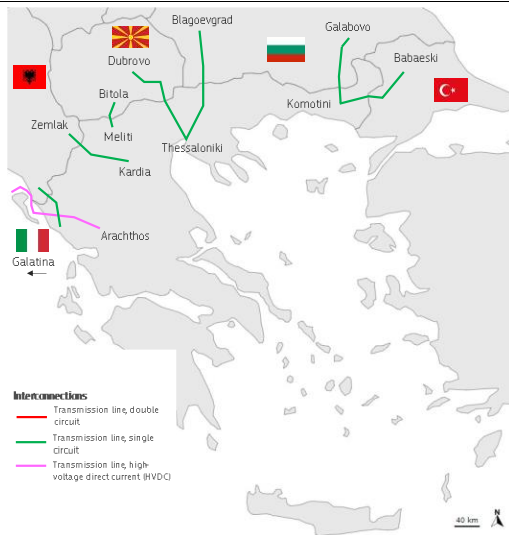
2024	2030 target
4.8 %	At least 15%

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)

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

(3) European Semester Spring Package, 2024 Country Report – Greece, SWD(2024) 608 final

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

- The latest ACER/CEER Market Monitoring Report⁽²⁾ does not provide data on the percentage of households equipped with smart meters. However, while the Greek Recovery and Resilience Plan promotes the deployment of smart metering, the penetration remains notably low. As of a recent update⁽³⁾, approximately 420 000 electricity smart meters (corresponding to 5.6% penetration rate) have been installed at low voltage, but Greece is among the countries with the lowest adoption rate, falling significantly short of the EU target of at least 80%.

Diversification of gas supplies

- In 2023, Greece had 9 natural gas supply sources, compared to 6 in 2021. Its three largest suppliers accounted for 90%, with Azerbaijan being the main supplier, holding a share of 50%. In 2021, Russia with 64%, Azerbaijan with 24%, and the United States (9%) were Greece's biggest natural gas supply sources.⁽⁴⁾

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

4. ENERGY POVERTY, SOCIAL CLIMATE PLAN AND JUST TRANSITION

Table 2: Energy poverty

Indicator	%		Evolution compared to 2017	EU average
	2023	2021		
EED NECPs four main indicators				
Inability to keep home adequately warm	19.2	+1.7 pp	+6.5 pp	10.6
Arrears on utility bills	32.9	+7.6 pp	-3.4pp	6.9
Share of pop. With leak, damp or rot in dwelling	13.5	+1 pp (2020)	0 pp	15.5
AROP (At risk of poverty)	18.9	-0.7 pp	-1.3 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 Greece: EUR 3 986 million or 5.52 % of total SCF.

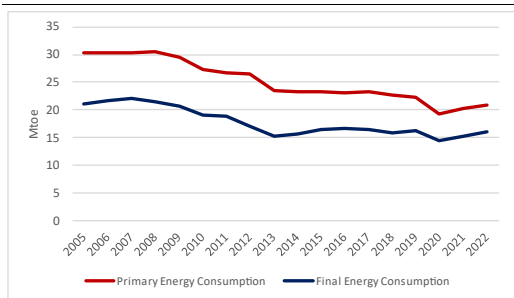
Just Transition Plan

- The Greek Territorial Just Transition Plans (TJTP) outline the coal mining and fossil fuel-powered stations in Western Macedonia, Megalopolis and in the islands of North-South Aegean and Crete. They set out how the Just Transition Fund (JTF), with a total allocation of EUR 1.6 billion, will support the development of clean energy, industry and trade, smart agricultural production, sustainable tourism, and technology and education. Greece committed to phase out lignite from its electricity production by 2028; this target is also included in the first ever Greek Climate Law⁽⁵⁾.

Energy efficiency

1. ENERGY EFFICIENCY

Graph 4: Primary and final energy consumption

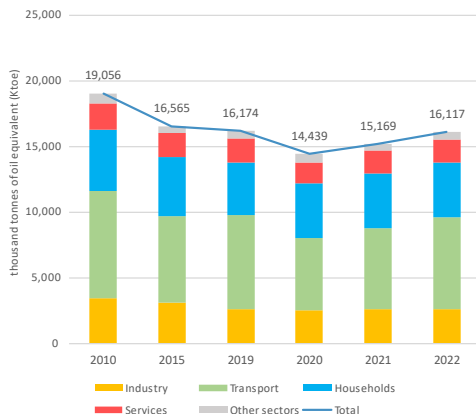


Source: Eurostat

- In 2022, Greece's **Primary Energy Consumption (PEC)** amounted to 20.9 Mtoe,

2.9% higher than in 2021, while its **Final Energy Consumption (FEC)** amounted to 16.1 Mtoe, 6.2% higher than in 2021.

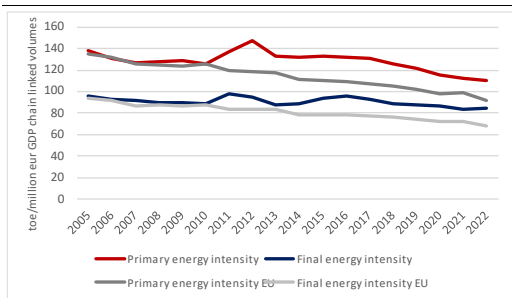
Graph 5: Final energy consumption by sector



(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 Greek **residential sector** was **4.2 Mtoe**, representing **an increase of 1.0%** compared to 2021. In the **services sector**, FEC was **1.8 Mtoe**, with an **2.6% increase** compared to 2021.
- Heating and cooling account for around **76%** of the country's residential final energy consumption, with renewables supplying approximately **31%** of the gross final energy consumption for heating and cooling. As per the European Heat Pump Association (EHPA), there are no data available for Greece.

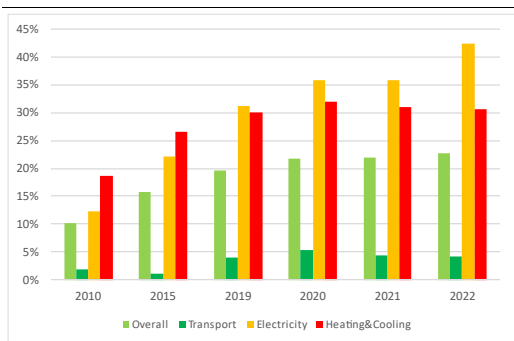
(5) Greek Climate Law 4936/2022, article 11, Government Gazette FEK A' 105/27.5.2022

- In 2023, **32.9%** of the total population was experiencing difficulties on paying their utility bills while **19.2%** was not able to keep their home adequately warm over the cold periods of the year (growing from 2021, when such figures were, respectively, 25.3% and 17.5%). This underlines the importance to increase rate and depth of building renovation, specifically of worst-performing buildings.

Decarbonisation and climate action

1. SECTORAL SHARE OF RENEWABLE ENERGY

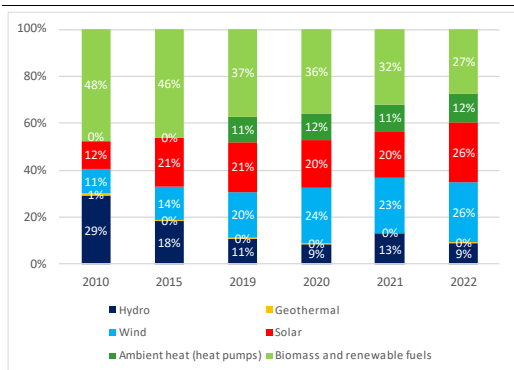
Graph 7: Share of renewable energy sources



(1) In % of gross final consumption of energy.

Source: Eurostat

Graph 8: Renewable energy mix

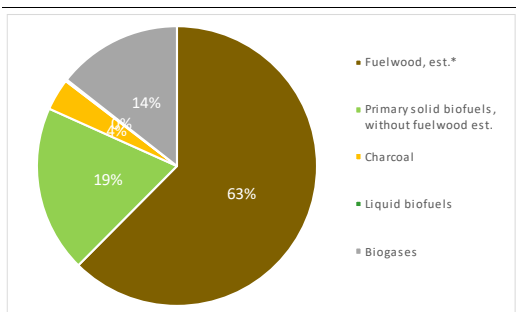


(1) In % of gross final consumption of energy.

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

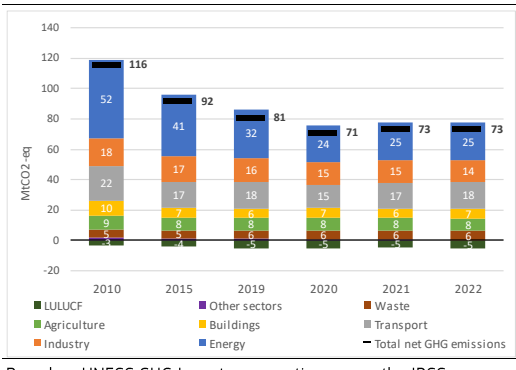
Table 3: Operational hydrogen projects

Name	Description
Agios Efstratios	0.1 MW online since 2012
REMOTE - Agkistro (Greece)	0.025 MW from hydropower
Linde Hellas - Mandra	1 MW from renewables

Source: European Commission based on IEA data

4. GREENHOUSE GAS EMISSIONS

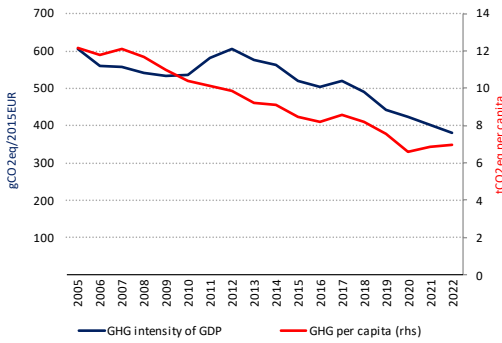
Graph 10: Greenhouse gas emissions by sector



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

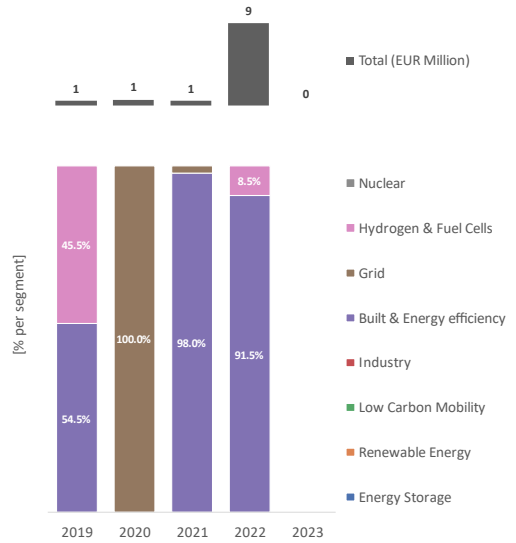
Research, innovation and competitiveness

1. INVESTMENT IN R&I

- Data related to public investment in Energy Union R&I priorities⁽⁶⁾ are not available⁽⁷⁾.

⁽⁶⁾ Renewables, smart system, efficient systems, sustainable transport, CCUS and nuclear safety, COM(2015) 80 final ('Energy Union Package').

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

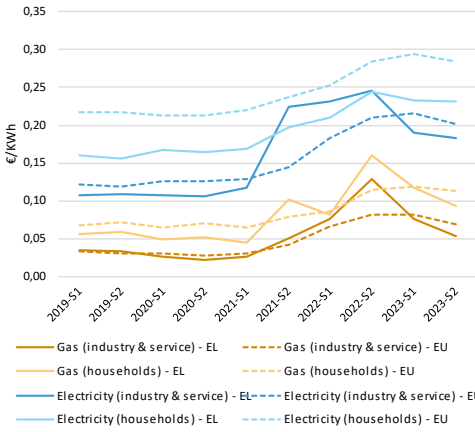
- Greece's manufacturing landscape for clean technologies has historically leaned on imports to drive its renewable energy initiatives. However, recent years have witnessed the emergence of noteworthy initiatives notably in the wind rotor and battery manufacturing supply chain. In the wind energy domain, although critical components such as nacelles, blades and control systems are imported, local production exists for transformers, electrical switchgear and towers. Particularly noteworthy is a medium-sized steel manufacturing company producing specialised components essential for the construction of supporting structures for floating offshore wind turbines. Also worth mentioning is a vertical production plant manufacturing the EW16 wind rotor and a wind tower manufacturing plant with a maximum capacity of 450 sections annually. Recent market dynamics have taken a toll on established manufacturers of photovoltaic (PV) frames, leading to closures amid stiff competition from Chinese counterparts. In

⁽⁷⁾ Source: JRC SETIS 2024

contrast, a Greek company specialising in the development, production and distribution of cutting-edge lead-acid and lithium-ion batteries, along with energy storage systems and chargers, is currently the third largest manufacturer of batteries in the global motive power battery industry, with about EUR 1 billion of consolidated annual sales and a workforce of approximately 3 100 people.

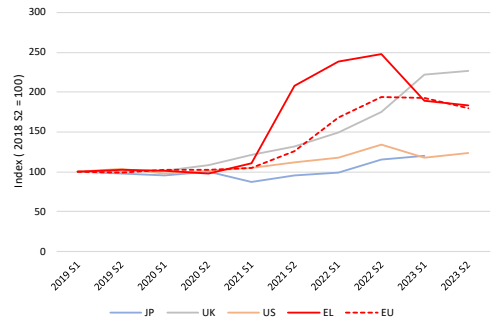
3. ENERGY PRICES DEVELOPMENT

Graph 13: Greece'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

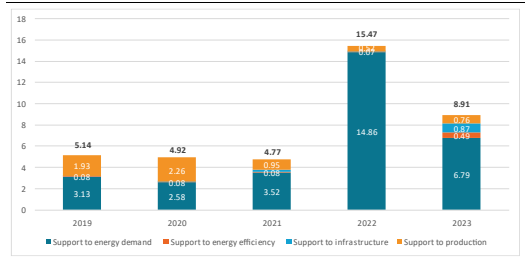
Graph 14: Trends in electricity prices for non-household consumers (EU and foreign partners)



- (1) For Eurostat data (EU and EL), 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

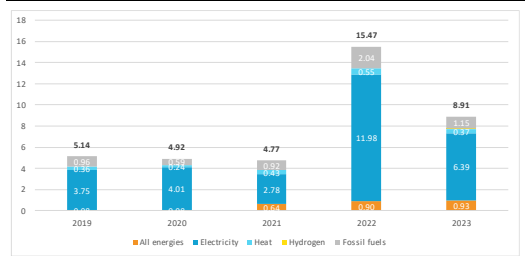
4. ENERGY SUBSIDIES

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
 - (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

European Semester 2024

- **Country Specific Recommendation (Energy):** Reduce reliance on fossil fuels by accelerating the decarbonisation of the transport sector.⁽⁸⁾
- For more information see the [2024 European Semester Country Report](#).

National Energy and Climate Plan (NECP)

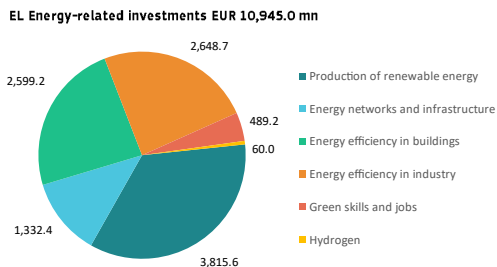
- The **draft updated NECP** was submitted to the European Commission in November 2023.
- Member States were due to submit their **final updated NECP by 30 June 2024**, taking into account the Commission recommendations.
- **The final updated NECP** was not submitted yet to the European Commission.
-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

Recovery and Resilience Plan (RRP and REPowerEU chapter)

- The Greek RRP has a total allocation of EUR 18.2 billion in grants and EUR 17.7 billion in loans, with 38.1% of the plan supporting climate objectives.
- **EUR 10.9 billion are allocated to energy-related measures**, with the largest amount for **renewable energy** [EUR 3.8 billion]:
 - Restructuring and enhancement of the **RES CHP Account revenues**; the introduction of a **Guarantees of Origin trading system**; of an extraordinary “Covid-19 Duty” for RES producers and suppliers; and of a permanent “carbon tax” on diesel fuel; establishment of new special spatial planning framework for renewable energy.
- The Commission disbursed the 4th payment for loans of EUR 2.3 billion to Greece in July 2024 and endorsed its preliminary assessment of Greece’s 4th payment request for EUR 998.6 million in grants.

⁽⁸⁾ Council of the European Union 11700/24.

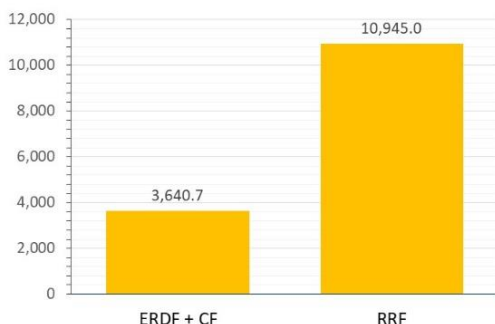
Graph 17: **Energy-related investments in the RRP (in EUR million)**



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 489.5 million.** For more information see the webpage [innovation-fund-projects-country_en](#).
- **CEF-Energy: EUR 657.9 million** (34.0% of total EU contribution, for 2021-2027). For more information see [CINEA's Project Portfolio dashboard](#).