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Country Factsheet Romania

Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE, THE COMMITTEE OF THE REGIONS AND THE EUROPEAN INVESTMENT BANK

State of the Energy Union

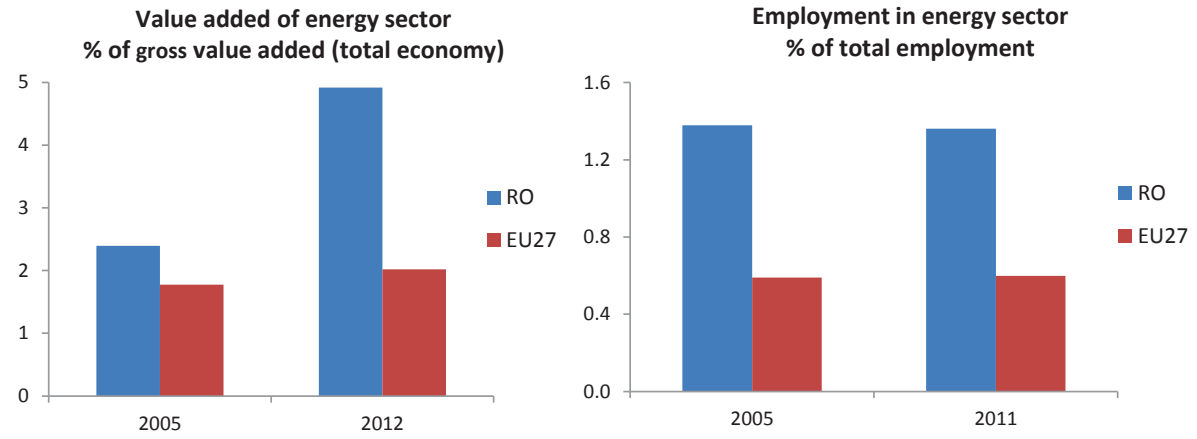
{COM(2015) 572}
{SWD(2015) 208 à 209}
{SWD(2015) 217 à 235}
{SWD(2015) 237 à 243}

Towards an Energy Union
Romania

Macroeconomic relevance of energy

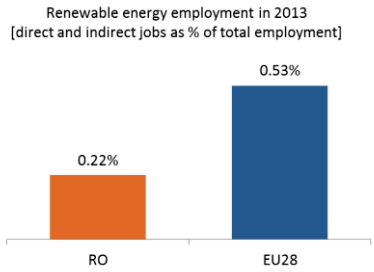
IMPORTANCE OF THE ENERGY SECTOR

The value added of the energy sector in Romania reached almost 5% in total value added of the economy in 2012, which represents a much higher importance of the sector than in the EU as a whole. This share has shown a marked increase in Romania from a level of 2.4% in 2005. The importance of the energy sector is also much higher in Romania in terms of employment (in particular in the coal sector), with a share of 1.4%.



Source: EUROSTAT – National Accounts

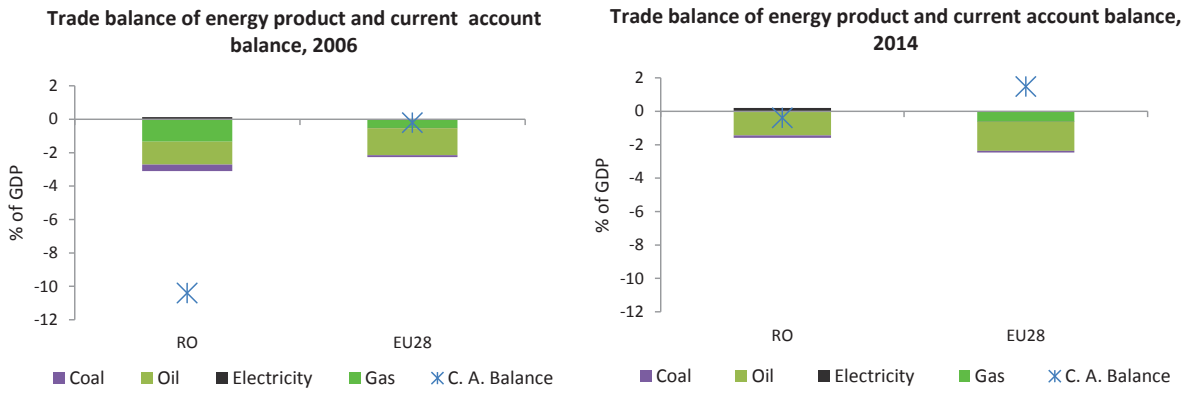
According to EurObserv'ER, in 2013, the share of direct and indirect renewable energy related employment in total employment of the economy in Romania was at about 0.22%, below the EU average of 0.53%.



Source: European Commission, based on EurObserv'ER and EUROSTAT

TRADE BALANCE OF ENERGY PRODUCTS

The energy trade balance of Romania showed a deficit of 1.4% of GDP in 2014, which is lower than the EU average. The main driver of the deficit is oil with gas and coal being close to balance. The overall energy trade deficit has decreased since 2006 from a level of 3.6% of GDP. At the same time the current account deficit recorded a marked improvement in the same period as a result of a macroeconomic adjustment process.



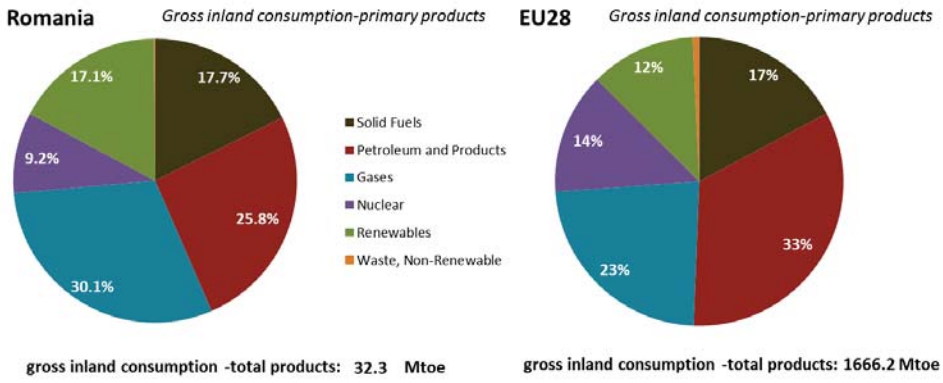
Source: EUROSTAT
Note: Current account balance for EU28 from European Commission (AMECO)

1. Energy Security, solidarity and trust

ENERGY MIX

The energy mix of Romania is broadly similar with the one of the EU-28, with the notable difference of higher use of gases and lower share of petroleum and products and nuclear. Compared to 1995, the share of petroleum and products and gases in gross inland energy consumption decreased (by 3 and 10 percentage points respectively), while the share of renewable energy and nuclear increased (by 9 and 8 percentage points respectively). The Romanian electricity generation mix is rather balanced and focusses on technology neutrality and the use of indigenous resources, important for ensuring the energy security of Romania, which is facing geostrategic threats and vulnerabilities.

Gross inland energy consumption in 2013



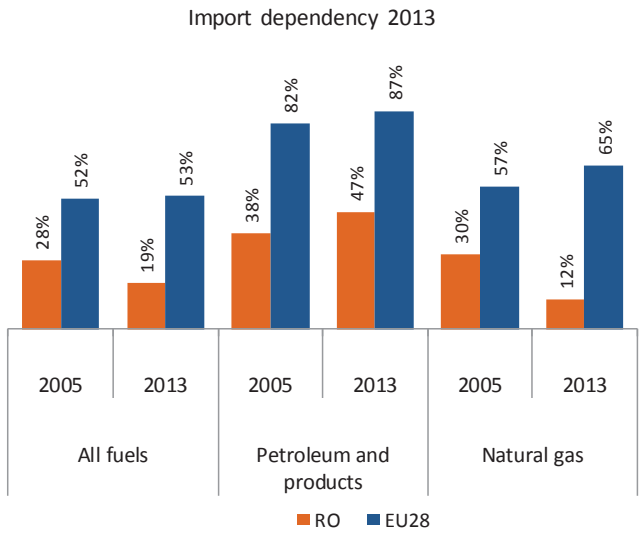
Source: European Commission, based on EUROSTAT

IMPORT DEPENDENCY

Import dependency is rather low in Romania, compared to most other EU Member States, notably due to its gas and coal reserves. Gas imports are particularly low, due in particular to the high own gas production, but come mostly from Russia[1]. According to Romanian national data, consumption of imported gas represented 7.47% of total gas consumption in 2014 (including imported gas held in

[1] Top non-EU gas suppliers table is based on EUROSTAT data. The share of imports from non-EU countries is calculated as the ratio between volumes of imports from that specific non-EU supplier and total imports (from EU and non-EU countries).

local underground storage). Putting all these factors together, the supplier concentration index is therefore low for Romania. This translates into a relatively limited energy trade deficit, expressed in percentage of GDP. Due to decline of national oil production, Romania records an import dependency of 47% (2013) on total consumption of crude oil and petroleum products.



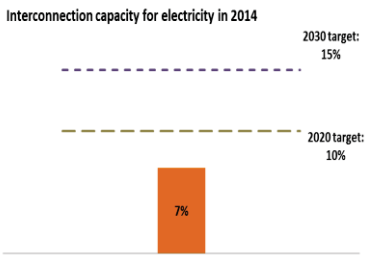
Top non-EU gas suppliers in 2013 (% in total imports)

Romania			European Union		
country		[%]	country		[%]
Russia		91.7	Russia		39.0
			Norway		29.5
			Algeria		9.7
			Qatar		6.7

Source: European Commission, based on EUROSTAT

2. A fully-integrated internal energy market

INTERCONNECTIONS



Source: European Commission based on ENTSO-E scenario outlook and adequacy forecast 2014

Note: Reference to 2030 target is based on October 2014 European Council conclusions stating that "the Commission will also report regularly to the European Council with the objective of arriving at a 15% target by 2030"

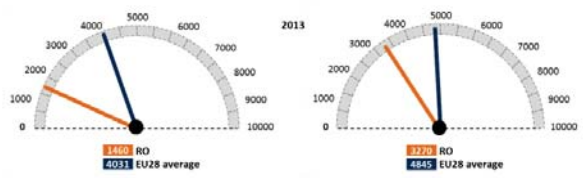
The electricity interconnection capacity was of 7% in 2014 for Romania. To reach the 10% for 2020 and 15% in 2030 targets, new Projects of Common Interest (PCIs) will have to be implemented. One PCI refers to the interconnection with Serbia and 6 others focus on the upgrade of the internal electricity system. Other projects focused on enhancing interconnector capacity with Bulgaria and the Republic of Moldova. Further electricity interconnection is needed to exploit the high generation capacity.

Regarding gas, the country has an important location as the link between South Eastern and Central Europe. The completion of gas interconnections with the neighbouring countries and reverse flow projects, including physically linking the Romanian gas system with the transit pipelines, are necessary to strengthen security of supply in the region, while considering the potential of various sources, including those from the Black Sea. Romania is also exploring alternative options for diversifying natural gas resources through the AGRI LNG project.[2]

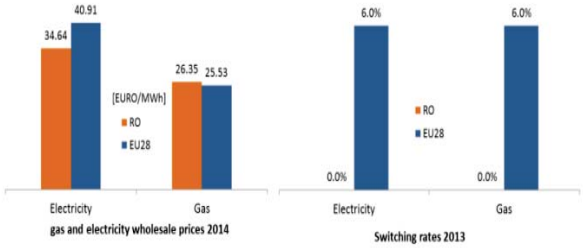
[2] AGRI is important from the perspective of strengthening regional cooperation, contributing to the diversification of natural gas supply routes and sources for the EU. It would be the first project to transport LNG in the Black Sea area, which is of high priority for the energy security of the region.

ELECTRICITY AND GAS MARKETS

Market concentration index for power generation (left) and gas supply (right) (2013) (Herfindahl index – 10000 means monopoly)



Sources: European Commission based on ESTAT, CEER and Platts Power Vision



Sources:ESTAT and European Commission Calculations; switching rates in 2013 refer to households.

Concentration on power generation markets is low. Due to changes in legislation, transactions performed on the centralised competitive electricity wholesale markets significantly increased. The gas market is more concentrated, as the sum of market shares of the three main suppliers in the wholesale market is 78.4%. Liquidity in the gas markets is very low as market participants are not incentivised to trade. A temporary gas release programme was introduced with the aim of increasing liquidity, obliging producers and traders/suppliers to trade minimum quantities (35%/30%) on the two trading platforms operated by OPCOM and the Romanian Commodities Exchange. However, the programme has shown limited effect so far, as a majority of trading still occurs on a bilateral basis. Wholesale electricity prices are near EU average.

In particular because of regulated prices, domestic retail prices for electricity and gas are much below the EU average, with the price of gas (largely covered by domestic supply) being the lowest among EU Member States. [3] On the electricity market, liberalisation was finalised for non-household consumers as of 1 January 2014. The electricity market will be fully liberalised for household consumers by 2017. On the gas market, liberalisation was finalised for non-household consumers (except for the quantities of natural gas used to produce heat for household consumption) as of 1 January 2015. According to a new roadmap adopted in June 2015, the gas market will be fully liberalised for household consumers by 2021 at the latest.

Due to the negative or slim margins allowed by price regulation, suppliers are discouraged from making offers outside their supply areas, therefore consumer choice is in reality often very limited, and this translates into low switching rates. Retail markets are also in practice very concentrated.[4]

Following a positive cost-benefit analysis, wide-scale electricity smart meters roll-out is scheduled[5] within 2014-2022 with an 80% implementation target. Consumers' overall assessment of the retail electricity and gas markets is just above the EU average.[6]

CONTRIBUTION OF ENERGY TO CONSUMER PRICE EVOLUTION

Consumer price inflation has decelerated in Romania from 9.1% in 2005 to 1.4% in 2014 thus converging to the EU average. Compared to the EU, energy prices have played a relatively smaller

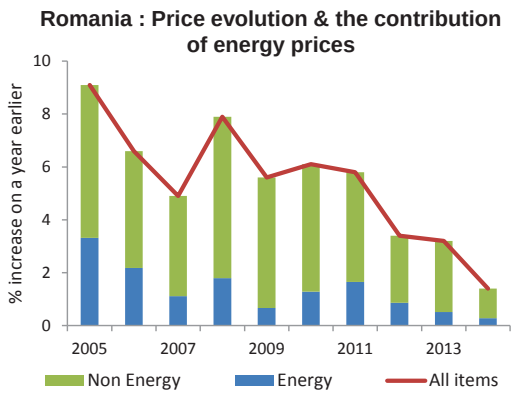
[3] Source:Eurostat (http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_price_statistics)

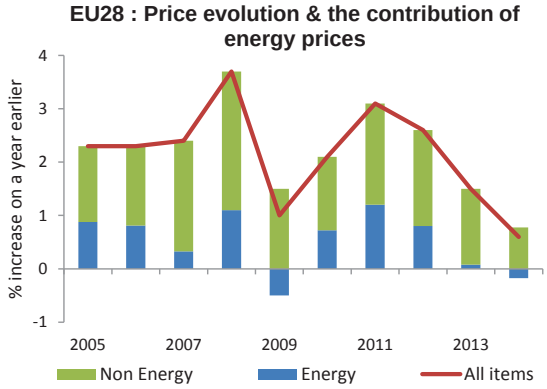
[4] NRA national report 2014, Autoritatea Naţională de Reglementare în domeniul Energiei http://www.ceer.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/National%20Reporting%202014/NR_nl/C14_NR_Romania-NL.pdf

[5] Ord 91/2013

[6] 10th Consumer Markets Scoreboard (June 2014), http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/10_edition/index_en.htm

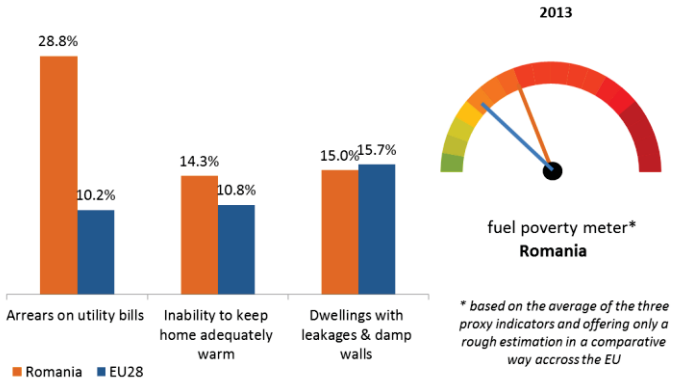
role in the overall inflationary performance of Romania in this period.





Source: DG ECFIN based on Eurostat

VULNERABLE CONSUMERS



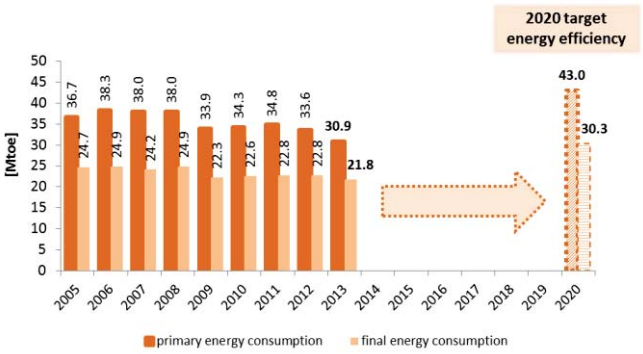
Source: European Commission, based on on EUROSTAT SILC survey

Based on a Eurostat survey on income and living conditions, three proxy indicators are used to assess fuel poverty. There seems to be a particular issue in Romania regarding households with arrears on utility bills. The roadmap for phasing out regulated electricity and gas prices includes social measures for vulnerable consumers by providing direct subsidies, informing consumers about the process of market liberalisation, reviewing the process for changing suppliers and detailing electricity and gas bills. Financial aid for social protection during the cold season is in place.

The effects of market liberalisation, in particular the costs of investments needed for decarbonisation and their impact on the utility bills, need to be carefully looked at. Due to the overall low income in Romania, an important segment of the population might be considered as vulnerable consumers.

3. Energy Efficiency and moderation of energy demand

ENERGY EFFICIENCY TARGET 2020
(43 Mtoe primary energy and 30.3 Mtoe final energy)



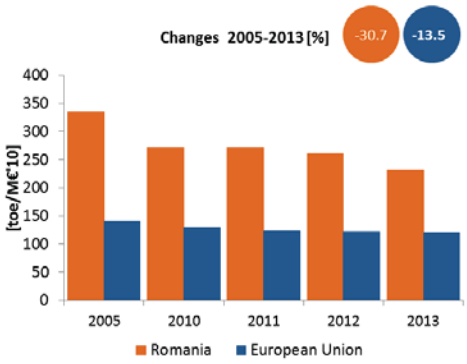
Source: European Commission, based on EUROSTAT and on national energy efficiency targets as declared by the MS under the EED

Romania's 2020 energy efficiency target is 42.99 Mtoe expressed in primary energy consumption (30.32 Mtoe expressed in final energy consumption). Even if Romania's current primary energy consumption (30.9 Mtoe in 2012) is below its 2020 target, it should continue its current efforts regarding energy efficiency to keep the primary energy consumption at this level or increase it only slightly so that it will reach its 2020 target even if the economy continues to grow in the next five years. In the second half of 2015 further steps are expected to complete energy efficiency legislation and facilitate the implementation of "alternative measures" in accordance with Article 7 of the Energy Efficiency Directive.

ENERGY INTENSITY

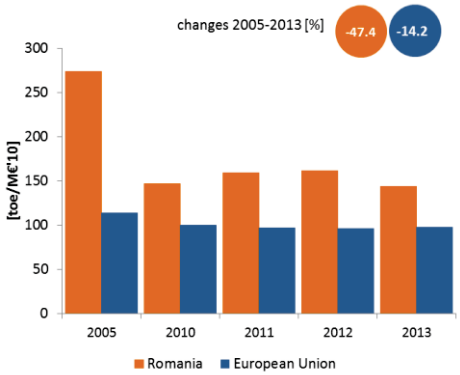
Primary energy intensity in Romania has decreased since 2005 but remains about twice as high as the EU average. Energy intensity in the industrial sector has almost halfed since 2005 but nevertheless remains above the EU average, one of the main reasons being the much higher percentage of the industrial sector in Romanian GDP compared to the EU average.

Primary energy intensity of the economy



Source: European Commission based on EUROSTAT and European Commission/AMECO

Final energy intensity in industry

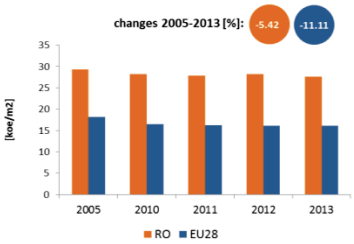


Source: European Commission based on EUROSTAT and European Commission/AMECO

Specific energy consumption by households is above EU average and only slightly decreased over the last 8 years. There seems to be untapped potential for energy savings in the residential and transport sectors. Romania has inefficient district heatings system facing a double challenge of insufficient financial resources and poor management capabilities. This in turn prompts individual customers to disconnect and use alternative sources, thus entailing a vicious circle in terms of financing the system by the remaining, fewer customers.

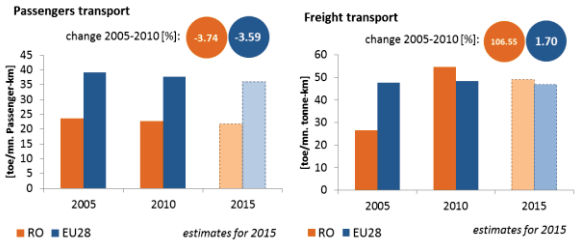
The specific energy intensity of passengers cars decreased slightly between 2005 and 2010. The specific energy intensity for freight transport more than doubled between 2005-2010 (i.e. from the same unit of energy fewer tonnes of good are transported and/or on shorter distances perhaps because the load factors of freight vehicles are lower).

Final energy consumption per m2 in residential sector, climate corrected



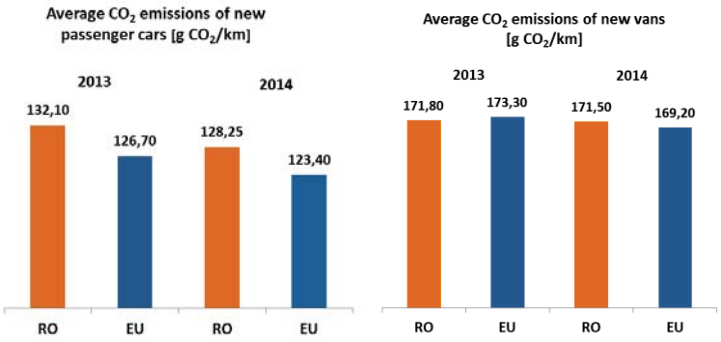
Source: European Commission based on Odyssee database

Specific energy intensity for passenger cars and freight transport[7]



Source: PRIMES model background data and estimations based on EU Commission and EU MS inputs

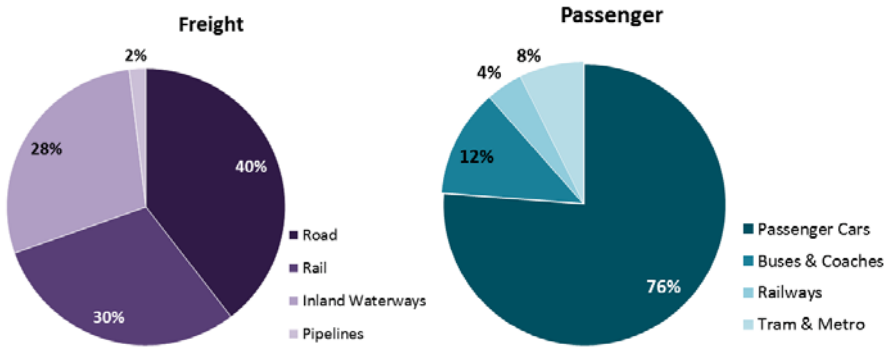
EU legislation sets mandatory CO_2 emission reduction targets for new cars and vans. By 2021, the fleet average to be achieved by all new cars is 95 grams of CO_2 per kilometre. For new vans, the fleet average is set at 147 g/km by 2020.



Source: European Environmental Agency. 2014 values are provisional. 2013 EU average refers to EU-27.

Regarding transport performance, in EU-28 the inland freight modal shares are 71% by road, 17% by rail, 7% by inland waterways and 5% by pipelines. The respective inland passenger modal shares are 82% by private car, 9% by buses and coaches, 7% by railways and 2% by tram and metro. Compared to the European average, in Romania there is a higher use of rail and inland waterways transport for the freight sector, and of buses and coaches in passenger transport.

Modal shares Romania

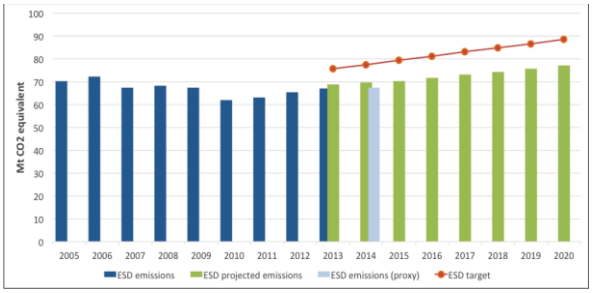


Source: Eurostat and EU transport in figures 2015. Data refers to 2013. Modal shares based on tonne-kilometres for freight sector and passenger-kilometres for passenger sector, freight data based on activity within country territory. Estimates are made when data is missing.

4. Decarbonisation of the economy

[7] Statistics on energy demand for passengers and freight transport are not available and model estimates have been used instead. These issues should be borne in mind when comparing energy intensity in freight or passenger transport between Member States, which should be regarded as merely indicative.

NON-ETS GHG EMISSION REDUCTION TARGET 2020 (+19% by 2020 as compared to 2005 in the non-ETS sector)



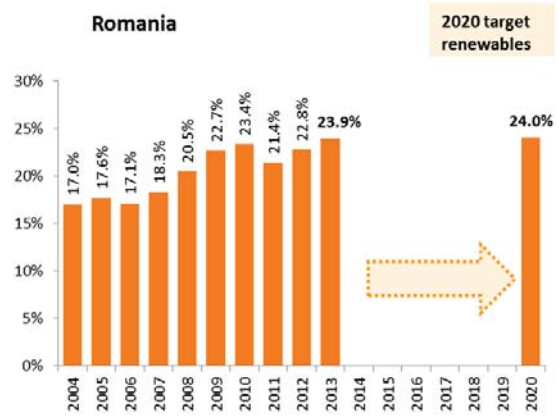
Source: European Commission based on EEA. Based on preliminary inventory data.

ESD (Effort Sharing Decision) emissions are the emissions from sectors not covered by the EU ETS.

Romania has decreased its emissions by 9 % between 2005 and 2014 approximated data.
According to its 2015 projections, Romania is expected to reach its 2020 target, with a 15 % margin as compared to 2005.

Non-ETS Emissions (vs. 2005)	Projections/proxy	target
Projections with existing measures 2020	+4%	+19%
Proxy 2014	-9%	+4%

RENEWABLE ENERGY SHARE TARGET 2020 (24%)



Source: European Commission based on EUROSTAT

With a renewable energy share of 23.9% in 2013, Romania is on track to achieve its 24% target for 2020.

GREENHOUSE GAS EMISSION INDICATORS

- Carbon intensity of the economy is among the highest in the EU (nearly 3 times higher than the EU average).
- In 2014, the revenues from the auctioning of ETS allowances amounted to EUR 97.9 million, out of which around 70% are established to be used for shifting to low carbon transport.

Largest Sectors of GHG Emissions in 2012(*)	RO	EU Average
Energy/power industry	34%	33%
Transport	13%	20%
Industry	24%	19%
Agriculture (incl. forestry & fishery)	16%	12%
Residential & Commercial	8%	13%
Waste	5%	3%

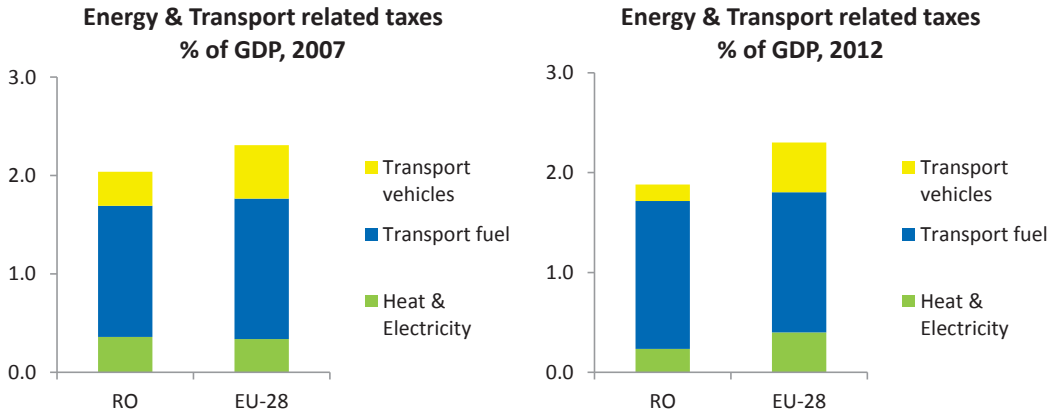
(*) Sectoral breakdown for 2013 data not available. Inventory submission 2014

GHG Emissions	RO	EU
EU ETS auctioning revenues in 2014 (EUR millions)	97.9	3205
Share of ETS emissions in 2013	39%	42%
GHG emissions/capita (tCO_2equivalent) in 2013	5.5	8.9
Carbon intensity of the economy in 2013 (tCO_2equivalent/(EUR millions)	822	346

Source: European Commission based on EEA GDP: EC, DG ECFIN 2015 spring forecast. 2013 GHT emissions from estimates provided by 31st August 2015 by the Member States. They have been compiled according to the 2006 IPCC guidelines and the new global warming potentials from the IPCC Fourth Assessment Report (AR4).

ENERGY & TRANSPORT TAXATION

Energy and transport related taxes as a share of GDP reached 1.9% in 2012, which is below the EU average. The main component is transport fuel taxes reaching 1.5% of GDP. Since 2007 the share of energy and transport taxes has declined in Romania, with taxes on both transport vehicles and heat and electricity falling as a share of GDP.

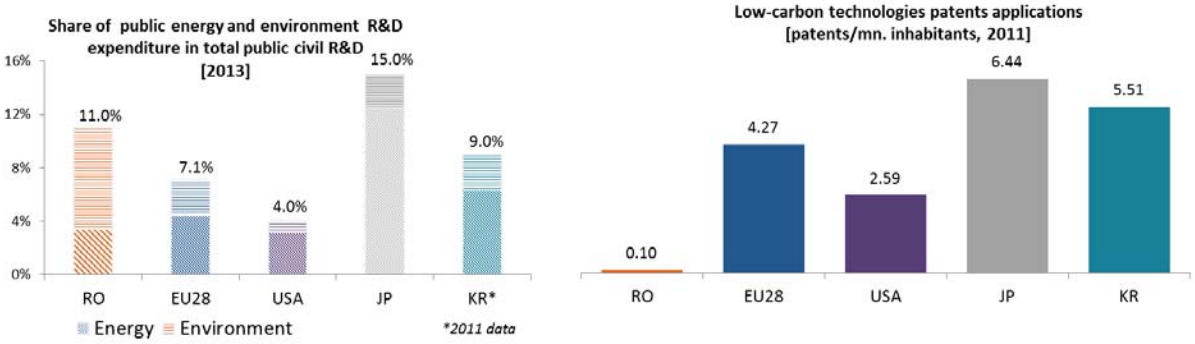


Source: Eurostat

5. Research, innovation and competitiveness

RESEARCH AND INNOVATION

Romania spends a large share of its public support to R&D in the field of sustainable energy, low-carbon and environment. However, in terms of intensity of low-carbon technologies patents, Romania is much behind the EU average and main worldwide partners.



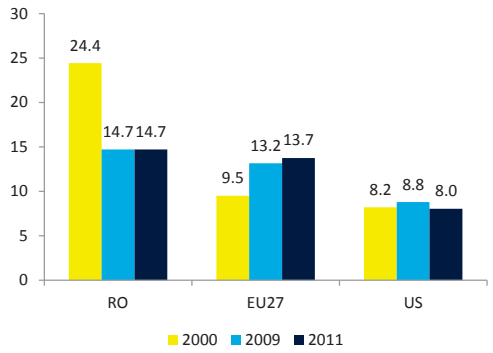
Source: European Commission based on EUROSTAT

COMPETITIVENESS

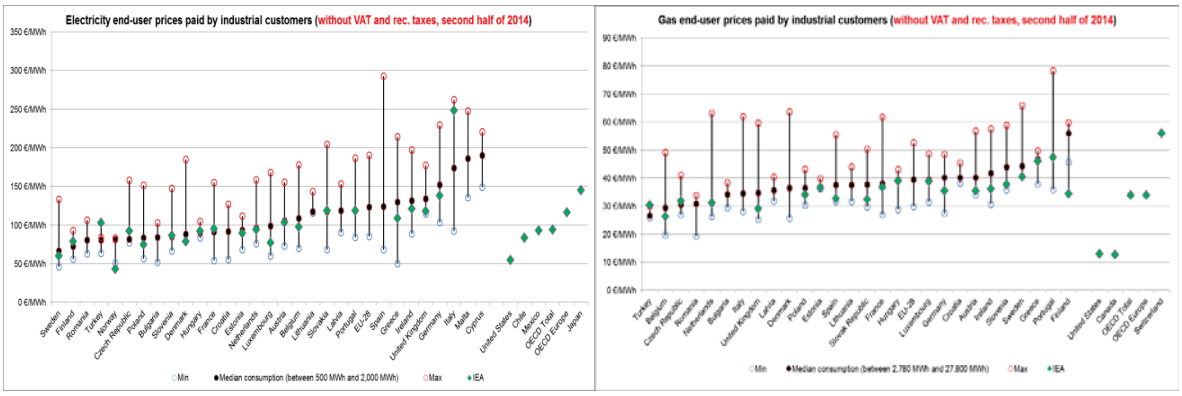
The real unit energy costs[8] in Romania decreased since 2000 having an opposite evolution than at the EU average and in the US. These costs are now slightly above the EU average and the US. However, a lack of data does not allow assessing the main determinants of this trend, i.e. development of energy prices and energy intensity[9].

In Romania, the gas and electricity prices for industrial customers are among the lowest in the EU. In comparison to energy prices for industrial consumers from the major EU trade partners, gas prices are still higher but the electricity prices are competitive.

Real unit energy costs (% of value added)



Source: European Commission



Source: European Commission based on EUROSTAT and IEA

6. Post-2020 Energy and Climate policy Strategy

COMPREHENSIVE MEDIUM TO LONG-TERM STRATEGY (post-2020) FOR CLIMATE AND ENERGY

- Romania has not yet established a medium to long-term strategy for climate and energy covering the period beyond 2020.
- The National Strategy on Climate Change 2013-2020 covers both mitigation and adaptation sectors. The strategy has a horizon to 2020 and does not define quantitative GHG emission reduction targets post 2020. Romania is developing a consolidated climate change strategy, complementing the future strategy with a low-carbon green growth strategy and an action plan.
- Romania also has in place a 2008 National Sustainable Development Strategy in place.
- The National Energy Strategy is currently being revised in the context of developments at EU level and at national level and based on national objectives in terms of security of energy supply, competitive and affordable electricity prices to the consumers, while taking advantage of the natural energy sources.
- For the horizon 2020-2030, Romania envisages an energy scenario which implies a diversified and technological neutral low-carbon energy mix. In order to meet electricity demand in the medium and long term and meet climate change objectives, Romania will commission new energy capacities, based on clean technologies, that will cover the capacity shortages

8 This indicator measures the amount of money spent on energy sources needed to obtain one unit of value added.

9 The energy intensity presented here is derived from Use Tables of WIOD, see "Energy Economic Developments in Europe SWD(2014)19".

estimated to occur after 2020, and expected to deepen after 2025.

NATIONAL TARGETS, especially for 2030

Objective, 2030-2050	Targets	Comments
GHG reduction	No	
Renewable energy	No	
Energy Efficiency / savings	No	

7. Regional cooperation

Regional cooperation on infrastructure development is necessary to optimise the identification of regional infrastructure priorities and to coordinate cross-border investments. Romania is a member of 3 Regional Groups which have been established under the TEN-E Regulation: North-South electricity interconnections in Central Eastern and South Eastern Europe; North-South gas interconnections in Central Eastern and South Eastern Europe; and Southern Gas Corridor.

Romania is a member of the High Level Group on Central East South Europe Connectivity (CESEC) together with Austria, Bulgaria, Croatia, Greece, Hungary, Italy and Slovenia. CESEC members agreed that the main purpose of the Group will be to ensure each Member State at least three different sources of natural gas. The objective of the High Level Group is to establish a regional priority infrastructure roadmap and advance its implementation in order to develop missing infrastructure and improve security of gas supplies. More specifically, Romania is cooperating with Bulgaria and Greece to connect the North-South Corridor in Eastern Europe with the Southern Gas Corridor, through access to storage, to the existing and planned LNG terminals in Greece, as well as through continuous bi-directional flows between Greece, Bulgaria and Romania.

The Czech, Slovak and Hungarian day-ahead electricity wholesale markets have been coupled since September 2012, which Romania joined in 2014. The price convergence between these countries reached 76% after the launch of the market coupling. Cross-border capacity allocation for power transmission for German, Polish and Austrian takes place through Central Allocation Office GmbH. Capacity allocation with the Czech Republic is based on long-term nominations. Since 2014, Romania is also seeking to participate in the NWE CEE Flow-Based Market Coupling Project.

8. Cohesion policy contribution

The EU Cohesion policy provides for important investment possibilities to implement energy policy objectives in Romania which will be complemented by national public and private co-financing, aiming at optimal leverage. It also ensures integrated territorial solutions to challenges by supporting capacity building, technical assistance and territorial cooperation, including the Danube Region macro-regional strategy in which Romania takes part.

Internal energy market: Over 2014-2020, EU Cohesion Policy will invest some EUR 68 million in smart energy storage and transmission systems, as well as around EUR 45 million in smart electricity distribution grids in Romania. These investments are expected to contribute to around 80 000 additional users connected to smart grids.

Energy efficiency: Over 2014-2020, EU Cohesion Policy will invest around EUR 1 309 million in energy

efficiency improvements in public and residential buildings, as well as in high-efficiency cogeneration and district heating in Romania. A further estimated EUR 3 745 million will be invested in supporting the move towards an energy-efficient, decarbonised transport sector. These investments are expected to contribute to around 129 000 households with improved energy consumption classification and a decrease of around 31 365 000 kWh per year of decreased primary energy consumption of public buildings, as well as to around 390 km of reconstructed or upgraded railway lines, 70 km of new or improved tram and metro lines and 30 km of new or improved inland waterways.

Decarbonisation: Overall, the EU Cohesion Policy investments in Romania over 2014-2020 are expected to contribute to an estimated annual decrease of GHG of around 343 000 tonnes of CO2eq. Over 2014-2020, EU Cohesion Policy will invest some EUR 95 million in renewable energy in Romania. These investments are expected to contribute to around 60 MW of additional capacity of renewable energy production.

Research, Innovation and Competitiveness: Over 2014-2020, EU Cohesion Policy will invest significantly in R&I and in SME competitiveness in Romania. This will be based on a national strategy for smart specialisation. At this stage, at least EUR 15 million is foreseen for investments in R&I and adoption of low-carbon technologies in Romania, but this might increase further in line with the evolving content of the smart specialisation strategy.