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PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE, THE COMMITTEE OF THE REGIONS AND THE EUROPEAN
INVESTMENT BANK**

State of the Energy Union

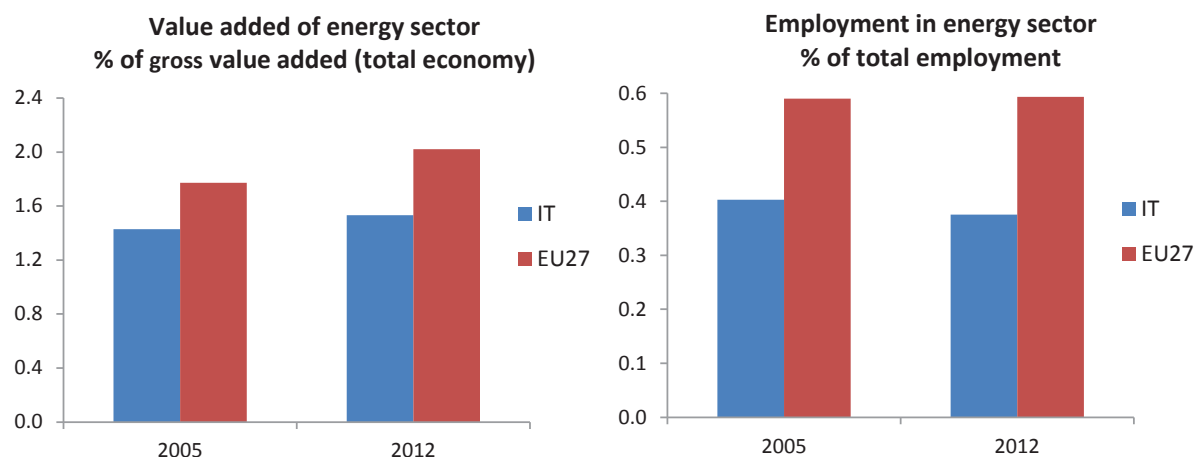
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Macroeconomic relevance of energy

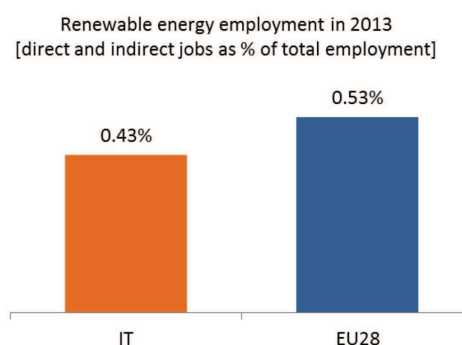
IMPORTANCE OF THE ENERGY SECTOR

The energy sector in Italy accounts for a smaller share of gross value added total employment than in the EU as a whole. While the share of energy in Italy's gross value added has slightly increased between 2005 and 2012, the share in total employment has decreased over the same period.



Source: EUROSTAT – National Accounts

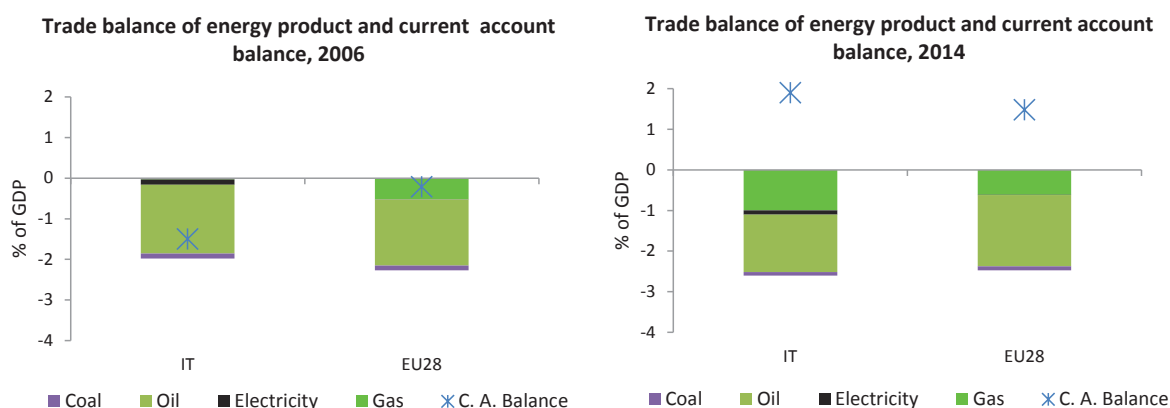
According to EurObserv'ER, in 2013, the share of direct and indirect renewable energy related employment in total employment of the economy in Italy was at about 0.43%, below the EU average of 0.53%.



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

TRADE BALANCE OF ENERGY PRODUCTS

In 2014 the overall energy trade deficit of Italy was slightly larger than that of the EU28 while the opposite was true in 2006. The largest component of the deficit is the oil trade balance but in 2014 the gas component has also become significant. In spite of the deterioration of the energy trade deficit, the country moved from a current account deficit in 2006 of almost 2% to a current account surplus in 2014 of about 2%.

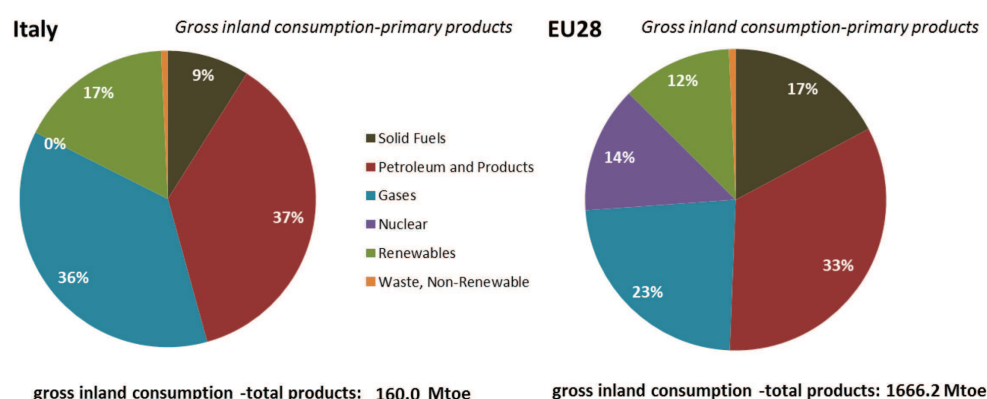


1. Energy Security, solidarity and trust

ENERGY MIX

The energy mix of Italy differs to some extent from the one of the EU-28, with the notable difference of a higher share of gases and the absence of use of nuclear. Compared to 1995 data, the share of petroleum and oil products decreased (from 58% to 37% of gross inland energy consumption), while the share of solid fuels and renewable energy increased, by 2 and 8 percentage points respectively. The share of gases increased considerably, from 28 to 36% of the energy mix.

Gross inland energy consumption in 2013

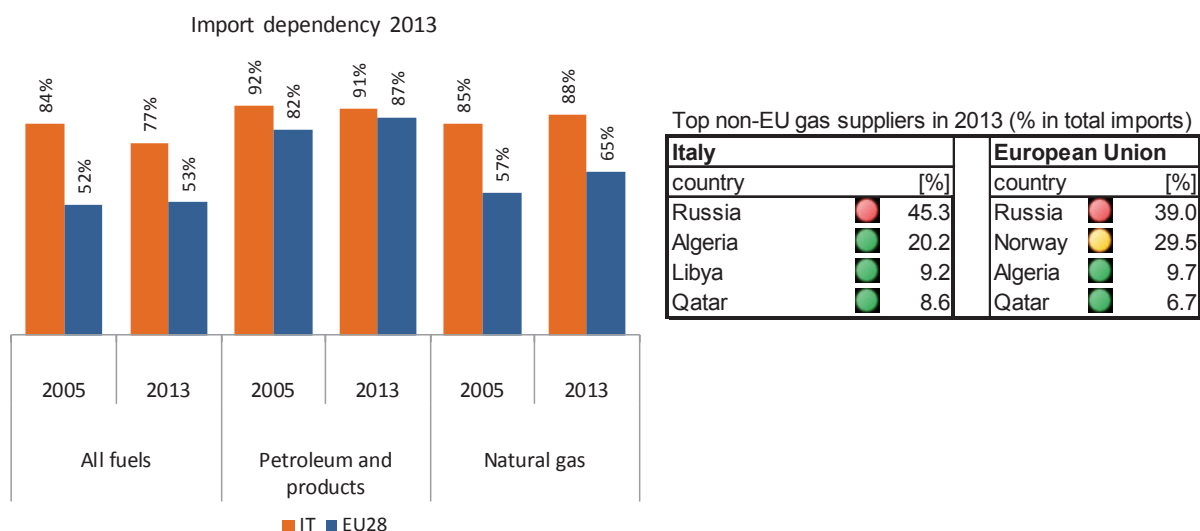


Source: European Commission, based on EUROSTAT

IMPORT DEPENDENCY

Italy has an import dependency above the EU28 for fossil fuels. Import dependency is particularly high for petroleum products and gas. A high share of gas imports are from Russia¹, but otherwise, gas supply sources are relatively well diversified. As such, the country supplier concentration index is relatively low. Still, Italy experiences an energy trade deficit (expressed in percentage of GDP) above the EU average.

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).

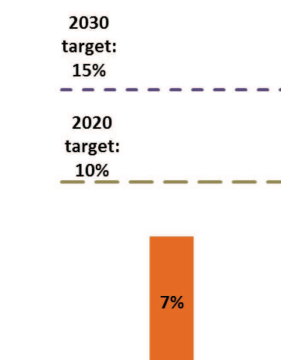


Source: European Commission, based on EUROSTAT

2. A fully-integrated internal energy market

INTERCONNECTIONS

Interconnection capacity for electricity in 2014



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

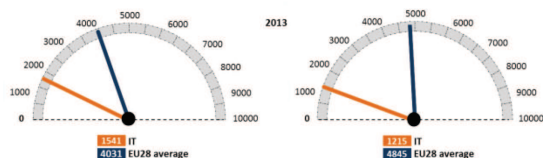
Note: Reference to 2030 target is based on October 2014 European Council conclusions stating that "the Commission will also report regularly to the European Council with the objective of arriving at a 15% target by 2030"

The interconnection capacity for electricity was 7,4% of installed capacity in 2014 for Italy. Italy still has to improve its electricity interconnection capacities with the neighbours as it relies on significant power imports with the risk of serious congestion problems. Overall, Italy has 31 Projects of Common Interest (PCIs), of which 19 are in the electricity sector, with a focus mainly on interconnectors between Italy and France, Switzerland and Austria, and the necessary internal reinforcements. Altogether such investments will ease the grid constraints and reduce differences between price zones. The implementation of these PCIs by 2020 would improve Italy's interconnection capacities with neighbours to around 12% when completed. 15% by 2030 can be reached with the implementation of new PCIs. The new 1000 MW High Voltage Direct Current (HVDC) interconnection line between Villanova (Italy) and Lastva (Montenegro) is also very important. The available interconnection capacity is not always fully exploited. In this regard further capacity on the national network should be important to overcome internal bottlenecks and to take into account the needs of security and flexibility of the system.

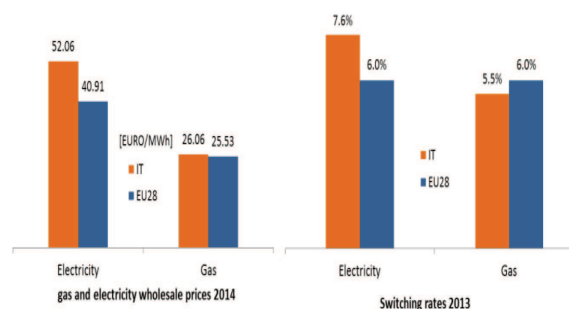
Italy plays an important role in the creation of a Mediterranean gas hub. The strategy for the diversification of gas supply appears so far to be oriented towards the Southern Corridor. Within the Southern Gas Corridor, the construction of the Trans Adriatic Pipeline (TAP, a critical project listed in the European Energy Security Strategy (EESS)), transporting Azeri gas from the Turkish border to the South of Italy through Greece and Albania, is expected to start in 2016 despite a strong opposition from local authorities. Italy has also PCIs ensuring additional reverse flow capacity towards the north western markets by 2018.

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

Concentration on power generation and gas supply markets continues to improve, with ratios lower than EU average. Despite rather low market liquidity, the level of competitiveness on gas markets was enhanced by early introduction of congestion management rules at the Northern border.

Competition in the electricity market has been enhanced by the development of the electricity network and the excess of supply caused by demand reduction and growth in renewables. Despite all this, power prices in Italy are generally still higher than in other EU member states.

Domestic retail prices for electricity are in general above the EU average, with the exception of the smallest consumption classes (which are however representative for Italy), while the price of gas is for all consumption one of the highest among EU Member States. At retail level, electricity network costs, policy measures costs and taxes account, respectively, for 17%, 23% and 13% of the final price paid by consumers. Italy has recently adopted some measures (so-called "*Taglia bollette*") to reduce the burden of renewable energy support schemes on consumers and industry. In gas, network costs and taxes account, respectively, for 18% and 36% of the final price paid by consumers.

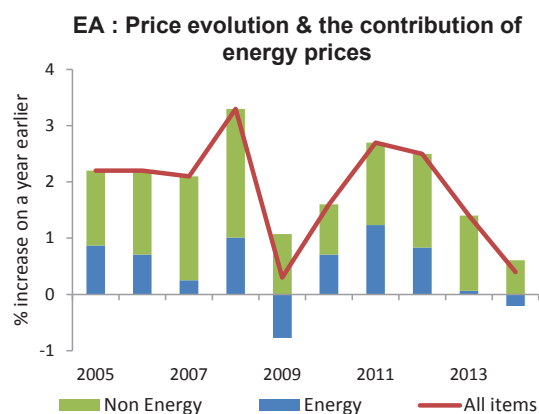
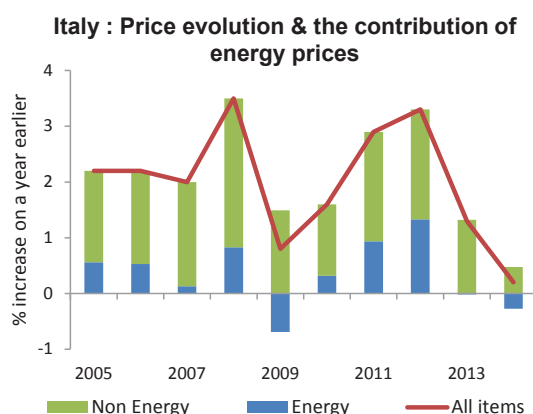
Customers are relatively active in switching suppliers. However, electricity and gas retail markets remain concentrated. Despite the numerous active electricity suppliers (about 140), the standard (monitored) offer market ("*mercato tutelato*", which is available to households only) is dominated by one company with a 85.4% market share. The assessment of both retail electricity and gas markets in Italy is the 5th lowest in the EU and well below the EU average².

Smart metering deployment on ENEL's meters started already in 2001 and was completed in 2006. As regards smart meters for gas, the current target is at 60% by 2018 for smaller gas customers.

CONTRIBUTION OF ENERGY TO CONSUMER PRICE EVOLUTION

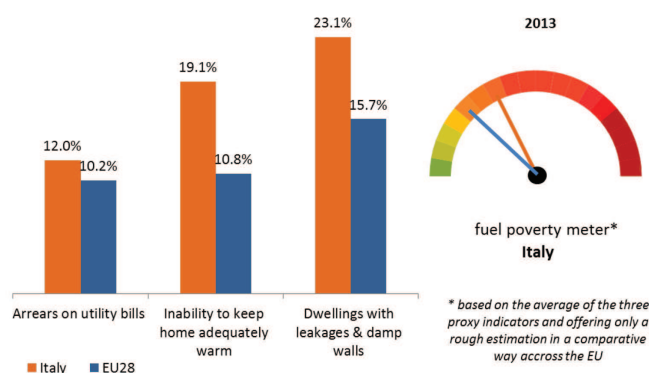
In the run up to the crisis, the Italian inflation rate was in line with the average inflation rate in the Euro area. Its decomposition shows a slightly smaller contribution of the energy component compared to the Euro area. Since 2012 both the energy and the non-energy component of inflation declined, and the overall Italian inflation rate has fallen slightly below the Euro area average in 2014.

² 10th Consumer Markets Scoreboard (June 2014), http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/10_edition/index_en.htm



Source: DG ECFIN based on Eurostat

VULNERABLE CONSUMERS

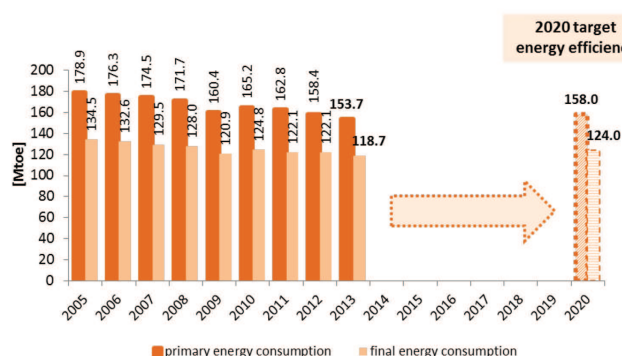


Source: European Commission, based on EUROSTAT SILC survey

Based on a EUROSTAT survey on income and living conditions, three proxy indicators were used to assess fuel poverty. They indicate an acute issue for Italy. A last resort supplier and social tariffs available for vulnerable customers who suffer from financial hardship or serious health conditions have been introduced. Moreover, according to legislation adopted in 2014, a redefinition of the compensation for vulnerable consumers will take place.

3. Energy Efficiency and moderation of energy demand

ENERGY EFFICIENCY TARGET 2020 (158.0 Mtoe primary energy and 124.0 Mtoe final energy)



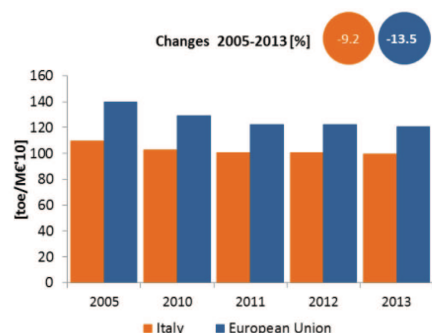
Source: European Commission, based on EUROSTAT and on national energy efficiency targets as declared by the MS under the EED

Italy's 2020 energy efficiency target is 158 Mtoe expressed in primary energy consumption (124 Mtoe expressed in final energy consumption). The target was set at a level that would allow energy consumption to grow in the coming years. Even if Italy's current primary energy consumption (153.7 Mtoe in 2013) is below its 2020 target, considerable efforts to keep the primary energy consumption at this level are still needed to decouple the expected GDP increases during the next five year period.

ENERGY INTENSITY

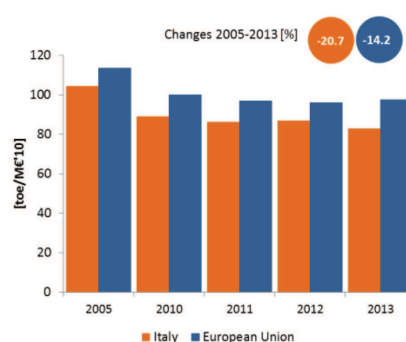
Primary energy intensity in Italy is below the EU average, and has decreased since 2005. A high energy intensity reduction is recorded in the industrial sector, which remains below EU average.

Primary energy intensity of the economy



Source: European Commission based on EUROSTAT

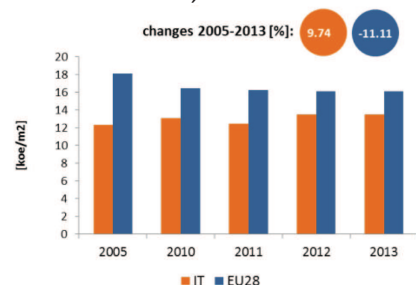
Final energy intensity in industry



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

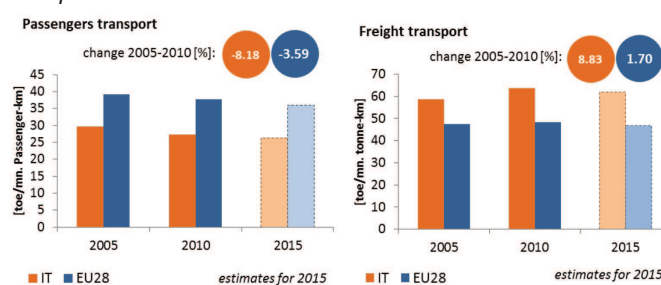
Specific energy consumption by households is below EU average but increased since 2005. The specific energy intensity of passengers' cars decreased between 2005 and 2010 which reflects a more efficient usage of cars. However, the specific energy intensity for freight transport increased over the period 2005-2010 (by 8%), i.e. from the same unit of energy fewer tons of good are transported and/or on shorter distances (or the filling factor of goods in freight vehicles are lower).

Final energy consumption per m2 in residential sector, climate corrected



Source: European Commission based on Odyssee database

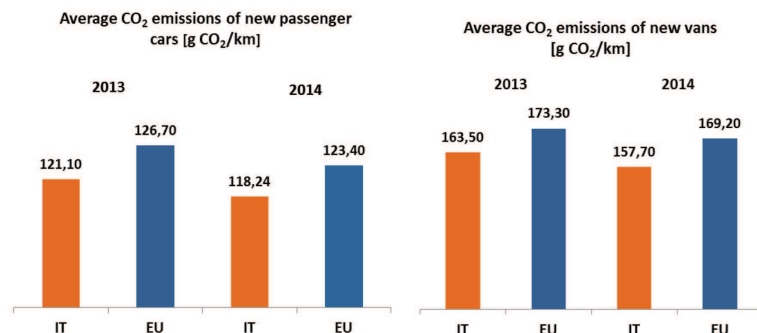
Specific energy intensity for passenger cars and freight transport³



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

EU legislation sets mandatory CO₂ emission reduction targets for new cars and vans. By 2021, the fleet average to be achieved by all new cars is 95 grams of CO₂ per kilometre. For new vans, the fleet average is set at 147 g/km by 2020.

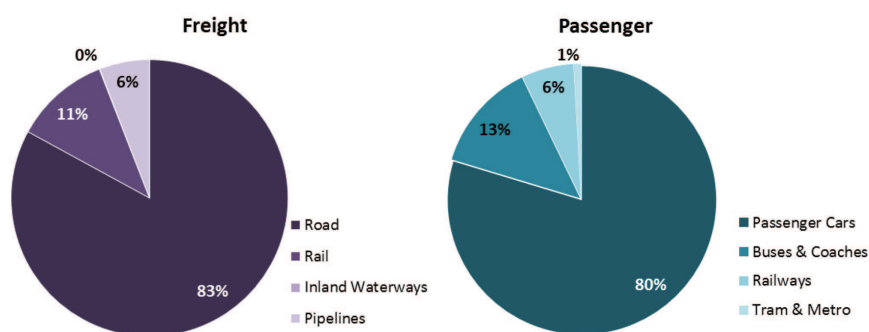
³ Statistics on energy demand for passengers and freight transport are not available and model estimates have been used instead. These issues should be borne in mind when comparing energy intensity in freight or passenger transport between Member States, which should be regarded as merely indicative.



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.

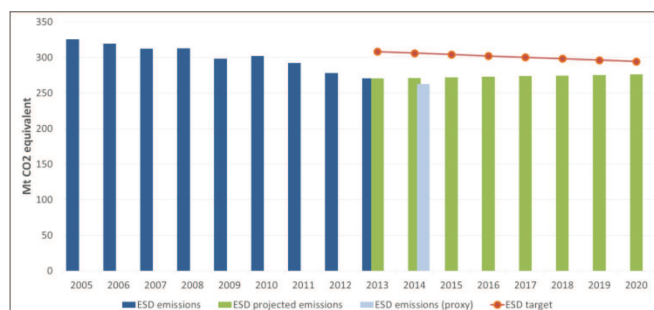
Modal shares Italy



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

NON-ETS GHG EMISSION REDUCTION TARGET 2020 (-13% 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.

National Reform Programme as well as the Report of the Minister of the Environment, Land and Sea on the status of implementation of commitments to reduce greenhouse gases emissions annexed to the 2015 Financial and Economic Document mention both the measures already in place and the new measures for GHG emission reductions.

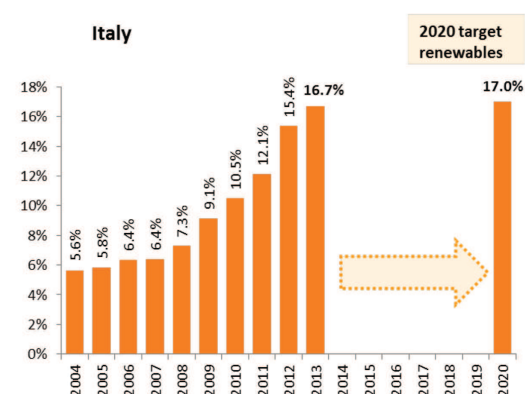
Italy has decreased its emissions by 22% between 2005 and 2014 approximated data.

According to the projections submitted in 2015, Italy is on track to reach its 2020 greenhouse gas (GHG) emission reduction target, with a 5% margin as compared to 2005.⁴

The national strategy for the reduction of GHG was updated in 2013. The 2015

Non-ETS Emissions (vs. 2005)	Projections/proxy	target
Projections with existing measures 2020	-18%	-13%
Proxy 2014	-22%	-10%

RENEWABLE ENERGY SHARE TARGET 2020 (17%)



Source: European Commission based on EUROSTAT

With a renewable energy share of 16.7% in 2013, Italy has nearly achieved its 17% target in 2020.

According to a recent hearing in the national high chamber⁵ by the relevant Government agency costs of renewable energy support reached EUR 307/MWh for solar photovoltaic and EUR 120/MWh for other renewables. This led the Government to restructure the support schemes which in turn caused widespread protest.

Current uncertainty on future renewable support schemes may create new challenges for the development of this important sector.

The support scheme's framework has in the recent years progressively shifted to a more balanced and diversified system, including renewables in the

⁴ The reference energy scenario at the basis of the evaluation of the emissions path here recalled has been updated compared to the one referred to in section 3. For further details see document '2015 Italy Climate Policy Progress Report Submitted to the European Commission pursuant to Regulation No 525/2013/EC, Art. 13 and Art. 14'.

⁵ https://www.senato.it/application/xmanager/projects/leg17/attachments/documento_evento_procedura_commissione/files/000/002/514/2015_04_01_-_GSE.pdf.

heating sector, biofuels, and efficiency measures.

GREENHOUSE GAS EMISSION INDICATORS

- In Italy the carbon intensity of the economy in 2013 was 14% lower than the EU average.
- In 2014 the revenues from the auctioning of ETS allowances amounted to EUR 408.6 million, out of which 50% are planned to be used for climate and energy related purposes.

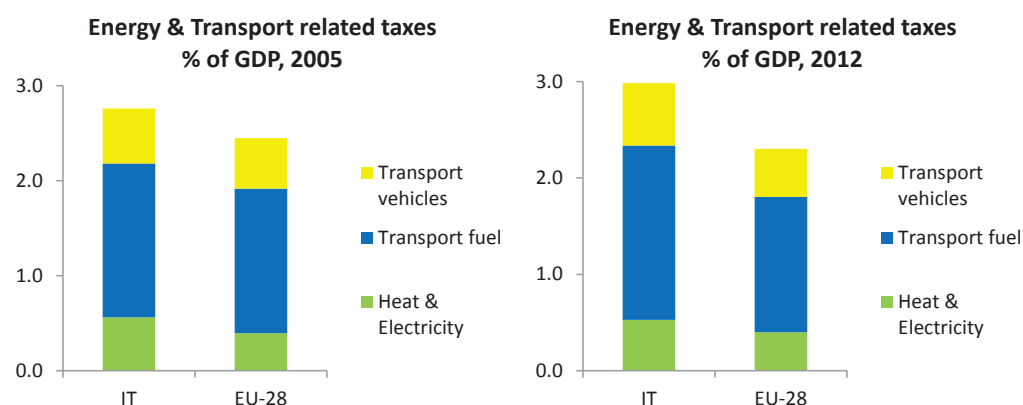
Largest Sectors of GHG Emissions in 2012(*)	Italy	EU Average
Energy/power industry	29%	33%
Transport	23%	20%
Industry	18%	19%
Agriculture (incl. forestry & fishery)	9%	12%
Residential & Commercial	17%	13%
Waste & others	4%	3%

GHG Emissions	Italy	EU
EU ETS auctioning revenues in 2014(EUR millions)	408.6	3205
Share of ETS emissions in 2013	38%	42%
GHG emissions/capita in 2013 (tCO ₂ equivalent)	7.3	8.5
Carbon intensity of economy in 2013 (tCO ₂ equivalent/EUR millions)	283	328

Source: European Commission based on EEA
 (*) Sectoral breakdown for 2013 data not yet available

ENERGY & TRANSPORT TAXATION

Taxation of energy and transport in Italy was in 2005 slightly above the EU28 average mostly due to higher heat and electricity taxes. By 2012 the gap with the EU average had considerably widened in particular because of the increase in transport fuel excise duties.

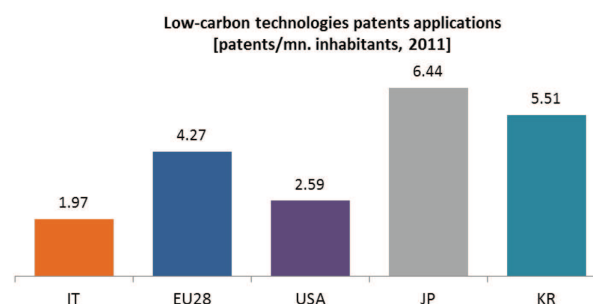
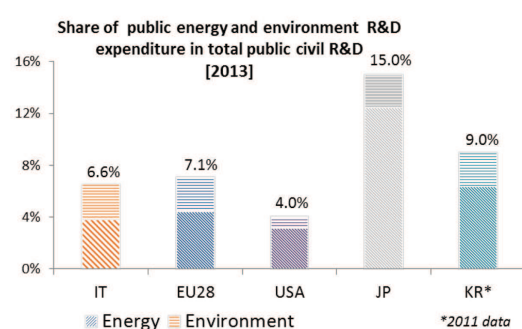


Source: Eurostat

5. Research, innovation and competitiveness

RESEARCH AND INNOVATION

Italy is near the EU average, above the US and below Japan and South Korea in terms of public support share allocated to research and innovation in the field of energy and environment. These levels are however lower than those of other large euro area economies such as France or Germany. In terms of intensity of low-carbon technologies patents, Italy is much behind the EU average and main worldwide partners.

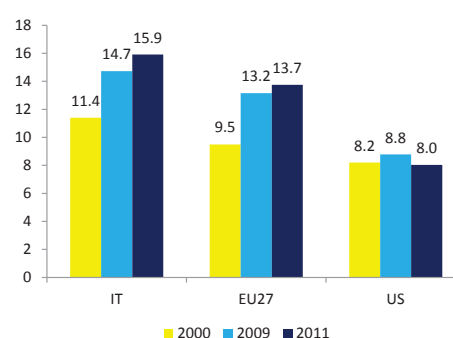


Source: European Commission based on EUROSTAT

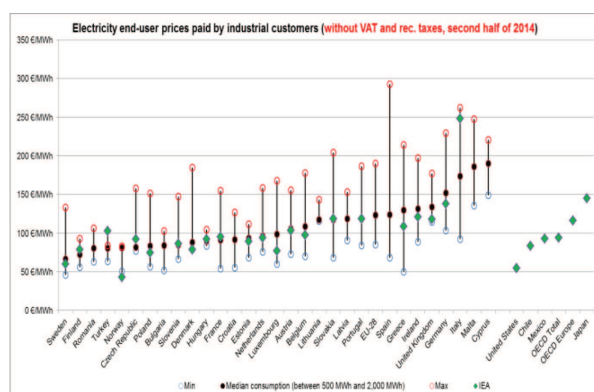
COMPETITIVENESS

The real unit energy costs⁶ are higher in Italy than in the EU or in the US. The energy intensity⁷ of Italy's manufacturing sector is slightly lower than the EU's and much lower than of the US, while real energy prices are higher vis-à-vis both. Regarding electricity prices paid by industrial customers, Italy experiences one of the highest prices in the EU, and higher than most non-EU trade partners too. There is however a large discrepancy between minimum and maximum prices paid industry, based on level of consumption. Taxes and levies on electricity prices went up significantly in recent years, especially for industry. While for the large majority of Member States the share of taxes and levies is still below 10% of ex-VAT prices, for Italy it exceeds 20%. Gas prices are much lower for industry, and recently fell.

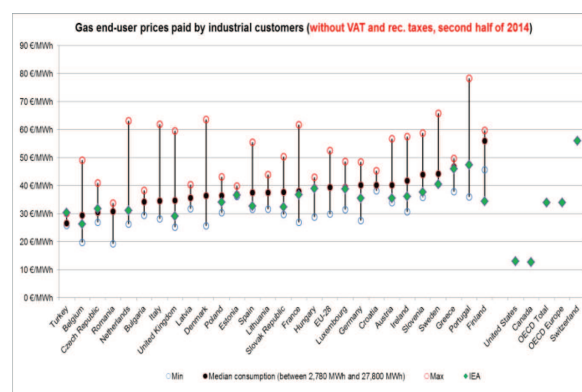
Real unit energy costs (% of value added)



Source: European Commission



Source: European Commission based on EUROSTAT and IEA



⁶ This indicator measures the amount of money spent on energy sources needed to obtain one unit of value added.

⁷ The energy intensity presented here is derived from Use Tables of WIOD, see "Energy Economic Developments in Europe SWD(2014)19".

6. Post-2020 Energy and Climate policy Strategy

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

- Italy has yet to establish a comprehensive medium to long term strategy for energy and climate 2030 and 2050 objectives.
- Climate and energy targets in Italy are outlined in the "*National Energy Strategy*" (2013), which mainly focuses on 2020 objectives. The Strategy refers to the long run only in a general way, by including potential scenarios and pathways for 2050.

NATIONAL TARGETS, especially for 2030

Objective, 2030-2050	Targets	Comments
GHG reduction	No	
Renewable energy share	No	No specific target. However, according to the Energy Strategy possible scenarios, renewables are expected to reach a level of at least 60% of gross final consumption by 2050, with an interim level of 29% by 2030
Energy Efficiency / savings	No	No specific target, but the Strategy indicates that primary energy consumption will have to fall in the range of 17-26% by 2050 compared to 2010

7. Regional Cooperation

Regional cooperation on infrastructure development is necessary to optimise the identification of regional infrastructure priorities and to coordinate cross-border investments. Italy is a member of 5 energy infrastructure priority corridors which have been established under the TEN-E Regulation: North South Electricity Interconnections in Eastern Europe, North South Electricity Interconnections in Western Europe, North South Gas Interconnections in Western Europe, North South Gas Interconnections in Eastern Europe and the Southern Gas Corridor.

In the context of regional cooperation with neighbouring countries, Italy is active in the context of the EuroMed platforms for gas and for regional electricity market which provide for cooperation of regulators and transmission system operators around the Mediterranean with the objective to develop a plan for an integrated regional network including identification of projects of Euromed common interest.

8. Cohesion policy contribution

The EU Cohesion policy provides for important investment possibilities to implement energy policy objectives in Italy which will be complemented by national public and private co-financing, aiming at optimal leverage.⁸ It also ensures integrated territorial solutions to challenges by supporting capacity

⁸ The indicator target values in this section are based on the adopted operational programmes; they might be adjusted in the future.

building, technical assistance and territorial cooperation, including the Alpine Region and Adriatic and Ionian Region macro-regional strategies in which Italy takes part.

Internal energy market: Over 2014-2020, EU Cohesion Policy will invest some EUR 444 million in smart electricity distribution grids in Italy. These investments are expected to contribute to around 304 000 additional users connected to smart grids.

Energy efficiency: Over 2014-2020, EU Cohesion Policy will invest around EUR 1 413 million in energy efficiency improvements in public and, to a lesser extent, residential buildings and in enterprises, as well as in high-efficiency cogeneration and district heating in Italy. A further estimated EUR 3 684 million will be invested in supporting the move towards an energy-efficient, decarbonised transport sector. These investments are expected to contribute to around 1 000 households with improved energy consumption classification and a decrease of around 367 598 000 kWh per year of decreased primary energy consumption of public buildings, as well as to around 270 km of reconstructed or upgraded railway lines and 250 km of new or improved tram and metro lines.

Decarbonisation: Overall, the EU Cohesion Policy investments in Italy over 2014-2020 are expected to contribute to an estimated annual decrease of GHG of around 5 149 000 tonnes of CO₂eq. Over 2014-2020, EU Cohesion Policy will invest some EUR 200 million in renewable energy in Italy. These investments are expected to contribute to around 405 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 Italy. This will be based on the national and regional strategies for smart specialisation. For Italy, the national strategy identifies five macro-areas of specialisation, including one on smart and sustainable industry, energy and environment. Many regional strategies further develop their areas of specialisation targeting smart and sustainable energy, sustainable mobility, blue growth and green chemistry. At this stage, at least EUR 33 million is foreseen for investments in R&I and adoption of low-carbon technologies in Italy, but this might increase further in line with the evolving content of the smart specialisation strategies.