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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

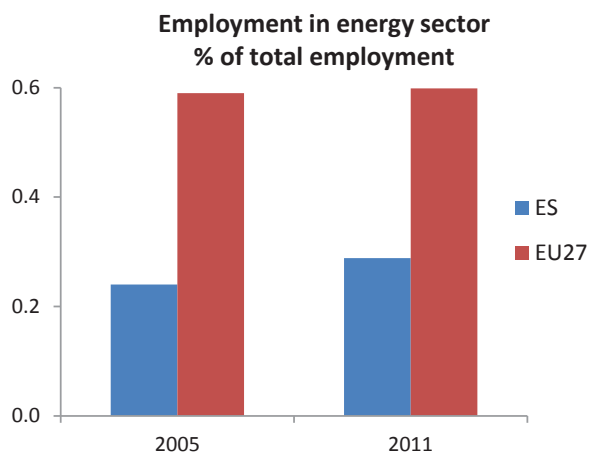
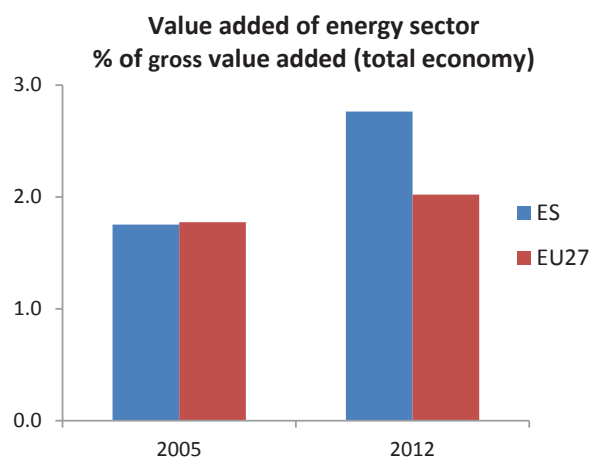
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Macroeconomic relevance of energy

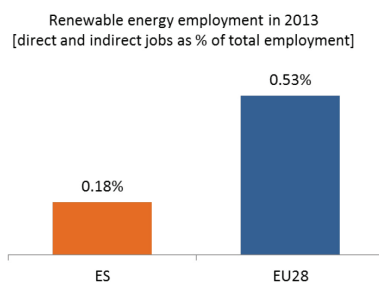
IMPORTANCE OF THE ENERGY SECTOR

The macroeconomic significance of the energy sector in Spain is relatively high compared to the EU average, in terms of share in gross value added, while it is relatively limited in terms of share of total employment. In 2012 the value added of the energy sector accounted for 2.76% of the total gross value added in Spain increased considerably compared to 2005 levels (1.75%). The employment of the energy sector in the total employment followed a similar trend, at lower rate, by increasing from 0.24% in 2005 to 0.29% in 2011.



Source: EUROSTAT – National Accounts

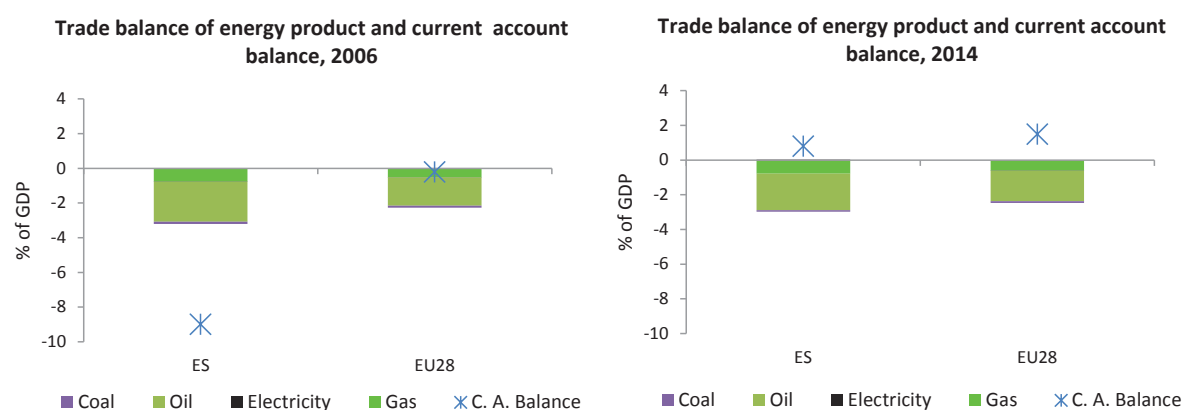
According to EurObserv'ER, in 2013, the share of direct and indirect renewable energy related employment in total employment of the economy in Spain was at about 0.18%, below the EU average of 0.53%.



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

TRADE BALANCE OF ENERGY PRODUCTS

In 2006 the overall energy trade deficit of Spain was considerably higher than that of the EU28, while in 2014 it converged at around the level of the EU28 average. The largest components of the deficit are the oil and natural gas trade balance throughout the period. Despite the persistence of the energy trade deficit in these two energy commodities, the country moved from a current account deficit in 2006 of 9% to a current account surplus in 2014 of about 0.8%.



Source: EUROSTAT

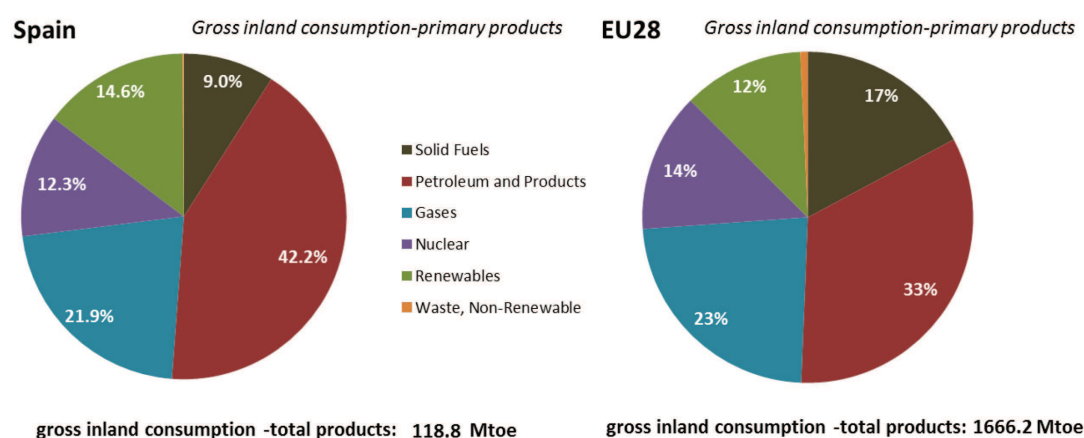
Note: Current account balance for EU28 from European Commission (AMECO)

1. Energy Security, solidarity and trust

ENERGY MIX

The energy mix of Spain is broadly similar with the EU28 average, with the notable difference of a higher share of petroleum, less use of solid fuels and a higher share of renewables. Compared to 1995 data, the share of gases sharply increased, more than EU average (from less than 8% to 22% of the gross inland energy consumption), while the share of solid fuels decreased (by 7 percentage point). The main decrease concerns the use of petroleum and products (by 13 percentage points).

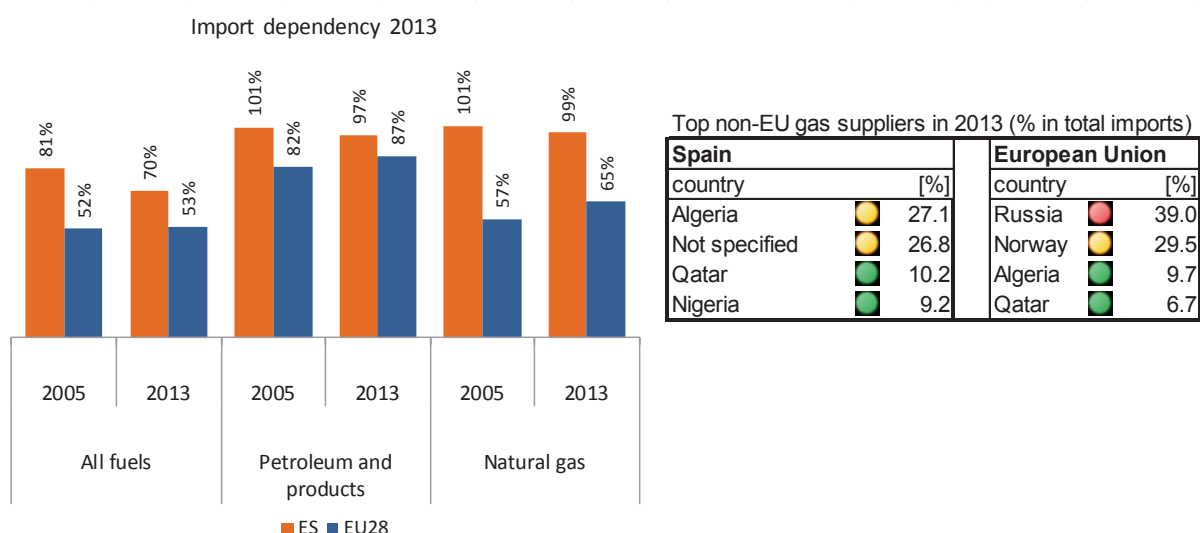
Gross inland energy consumption in 2013



Source: DG ENER, based on EUROSTAT

IMPORT DEPENDENCY

Spain has an import dependency¹ above the EU average for fossil fuels as well as more specifically on gas and petroleum and products. Regarding petroleum and gas products, dependency is reaching 100%. Spain has one of the highest levels of gas supplier diversification in Europe². In 2012, most imports were in the form of LNG. This also translates into an overall low supply concentration index. Spain experiences an energy trade deficit, expressed in percentage of GDP, slightly above the EU value.



Source: DG ENER, based on EUROSTAT

2. A fully-integrated internal energy market

INTERCONNECTIONS



The electricity interconnection level between Spain and France is 2.8% in 2015. With the implementation of the existing PCIs, the target of 10% for 2020 will still not be met; this also applies to the 15% 2030 target. The submarine cable in the Biscay Gulf between Aquitaine (FR) and the Basque Country (ES), to double the interconnection capacity to 5 %, was listed as a key infrastructure project in the European Energy Security Strategy (EESS). The project is also a PCI and benefitted from CEF co-financing for feasibility studies to assess the technical aspects of its implementation.

Source: DG ENER 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

For natural gas, Spain has six LNG terminals and a seventh regasification plant in Gijon was completed in 2012. It has interconnection pipeline connections with Morocco, Portugal, France and a direct connection with Algeria. The transmission capacity with France was upgraded in 2013 providing reverse flow interconnection at Larrau which reinforced the North-South

¹ Note: A dependency rate in excess of 100% indicates that energy products have been stocked.

² 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).

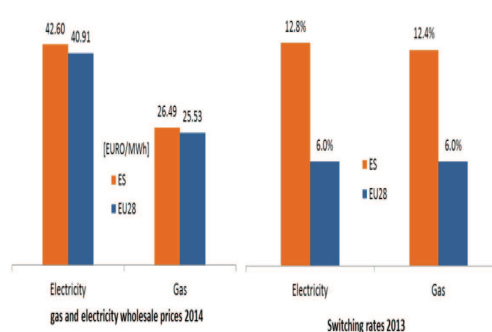
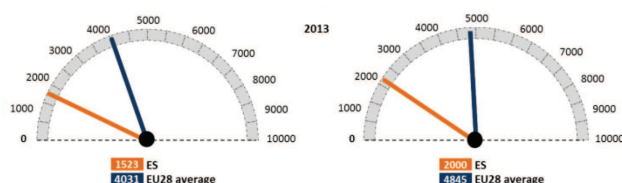
objective of arriving at a 15% target by 2030"

interconnections. The interconnection capacity with France is expected to reach 7bcm/y in both directions by end 2015.

In the Memorandum of Understanding on the Establishment of a High Level Group on Interconnections for South-West Europe, the parties undertake to prepare an Implementation Plan of the Madrid Declaration to be adopted no later than December 2015. For electricity, priority will be given to the Biscay Gulf project and two lines through the Pyrenees. For gas, the Implementation Plan should focus on the development of the Eastern Axis, allowing bidirectional gas flows between the Iberian Peninsula and the French gas systems, notably through the MIDCAT project and the third interconnection point between Portugal and Spain.

ELECTRICITY AND GAS MARKETS

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



Sources: ESTAT and DG ENER Calculations

Sources: DG ENER based on ESTAT, CEER and Platts Power Vision

Power generation market concentration, which had been falling for a number of years with the increase in smaller renewable energy generating companies, has remained stable in recent years, well below EU average. Due to the absence of an organised gas hub, there is currently no single liquid transparent gas reference price in Spain. However, Spain is currently working on launching an organised gas market which is expected to start operation by the end of 2015. Wholesale gas and electricity prices are slightly above EU average. The electricity market could further converge and integrate with the wider European market, especially concerning intraday and balancing markets, provided interconnection with France is improved. The reform that Spain has undertaken since 2013 increased the competences and functions of the national regulatory authority (Comisión Nacional de los Mercados y la Competencia).

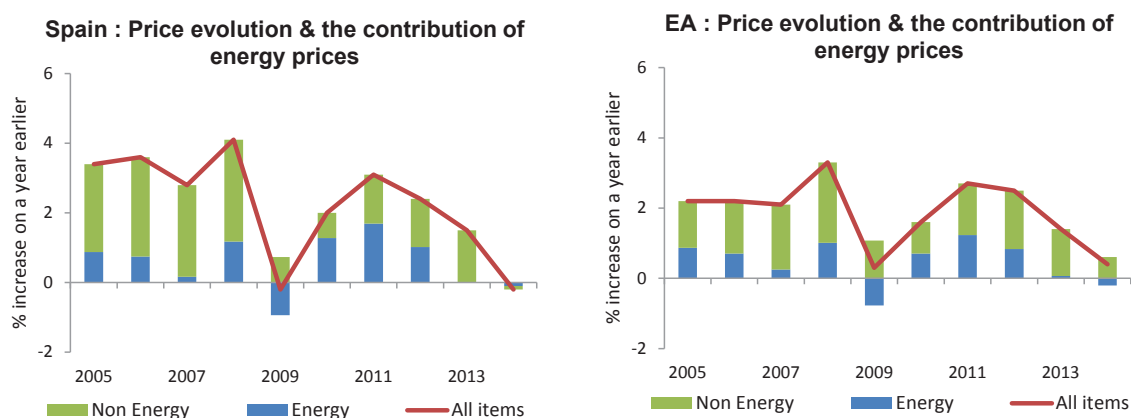
Competition in retail supply continues to rise, with a significant and steady increase in the switching rate (from 5.2% in 2009 to more than 12% in 2013 in both markets).

Energy policy decisions in Spain over the last decade resulted in a substantial increase of all regulated costs of the electricity system provoking a huge tariff deficit which made electricity prices in Spain one of the highest of the European zone. The electricity tariff deficit reached EUR 3.5bn in 2013, and the accumulated tariff debt amounted to EUR 28.5bn at the end of 2013, almost 3% of GDP, which remains to be eliminated. Therefore, Spain undertook in 2012-2014 an in-depth reform of the electricity sector aimed at achieving the financial balance and sustainability of the system and ensuring supply to consumers at the lowest possible cost and eliminating the tariff deficit. The electricity reform has established a regulatory framework which reviews the parameters for calculating the remuneration of regulated activities, introduces a set rate of return for renewable energy facilities and establishes a financial stability framework that prevents new tariff deficit generation in the future (the system will already achieve a slight surplus in 2014).

CONTRIBUTION OF ENERGY TO CONSUMER PRICE EVOLUTION

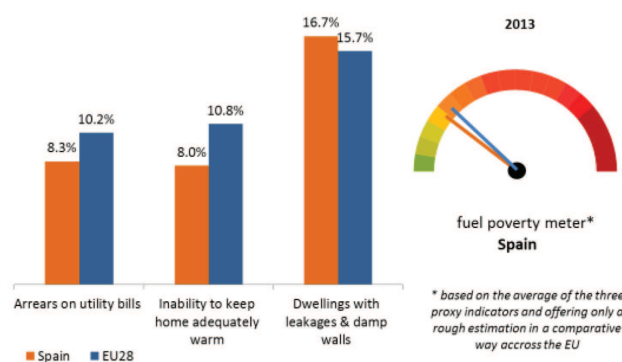
The Spanish inflation rate followed a similar pattern as the average inflation rate of the Euro area between 2005 and 2014. However, its decomposition shows a slightly higher contribution of the non-energy component compared to the Euro area

Electricity prices to consumers in Spain increased well above inflation: between 2008 and 2012 electricity prices for average household consumers surged 46% while the Harmonised Index of Consumer prices (HICP) increased 7%, largely reflecting the increase in regulated costs. The 2013 reform has reversed this trend. The overall Spanish inflation rate has fallen below the EU average in 2014.



Source: DG ECFIN based on Eurostat

VULNERABLE CONSUMERS



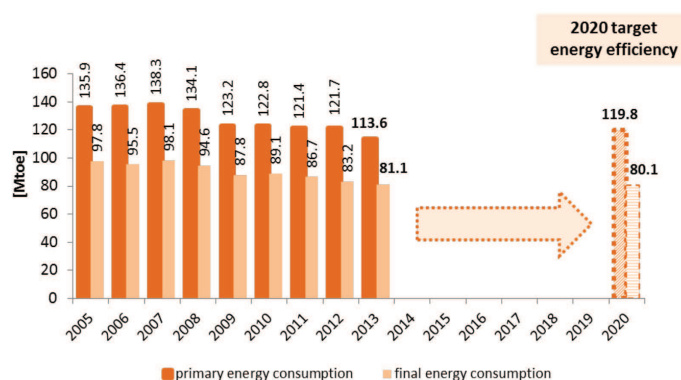
Source: DG ENER, based on EUROSTAT SILC survey

Based on a EUROSTAT survey on income and living conditions, three proxy indicators are used to assess fuel poverty. They indicate potential issues for Spain in line with EU average.

As part of the reform of the electricity sector, a new electricity pricing system for consumers of less than 10 kW was introduced: the Voluntary Price for Small Consumers (PVPC in Spanish). This new system links retail prices to hourly wholesale spot prices. A subgroup of the PVPC for vulnerable consumers ("bono social") addresses energy poverty. The "bono social" is available to consumers with a 3kW connection or lower in their primary residence, but also to retired persons, families with numerous children and the unemployed, and provides a reduction of the electricity tariffs by 25%.

3. Energy Efficiency and moderation of energy demand

ENERGY EFFICIENCY TARGET 2020 (119.8 Mtoe primary energy and 80.1 Mtoe final energy)



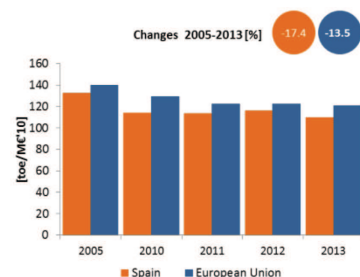
Spain's 2020 energy efficiency target is 119.8 Mtoe expressed in primary energy consumption (80.1 Mtoe expressed in final energy consumption). Even if Spain's current primary energy consumption (113.6 Mtoe in 2013) is below its 2020 target, additional efforts could be needed to keep the primary energy consumption at this level or to minimise its increase when the GDP increases again during the next five year period.

Source: DG ENER, based on EUROSTAT and on national energy efficiency targets as declared by the MS under the Energy Efficiency Directive

ENERGY INTENSITY

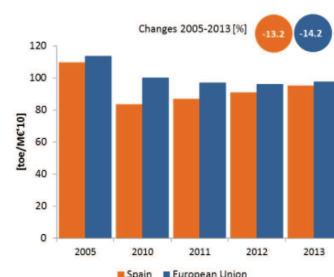
Primary energy intensity in Spain has decreased from 2005, and is below EU average. However, since 2010, energy intensity in the industrial sector is deteriorating. It could have been influenced by the economic crisis.

Primary energy intensity of the economy



Source: DG ENER based on EUROSTAT and DG ECFIN/AMECO

Final energy intensity in industry



Source: DG ENER based on EUROSTAT and DG ECFIN/AMECO

Specific energy consumption by households is below EU average and decreased at a slightly faster pace than the EU average. This might be the result of a combination of factor, namely energy efficiency improvements, but also deterioration in economic conditions, reducing energy demand. The specific energy intensity of passenger transport decreased between 2005 and 2010 in line with EU average, which reflects a more efficient usage of cars. The specific energy intensity for freight transport has been stable and above EU average.

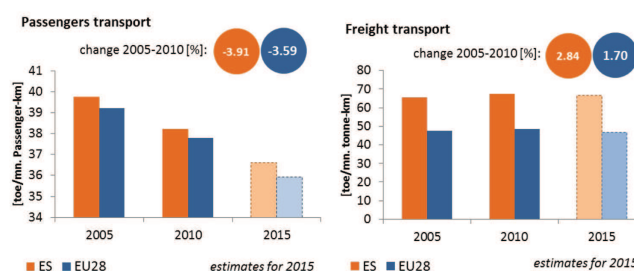
Spain remains among the Member States with the lowest proportion of environmental taxes in GDP. In particular, taxation on motor fuel remains among the lowest in Europe.

Final energy consumption per m² in residential sector, climate corrected



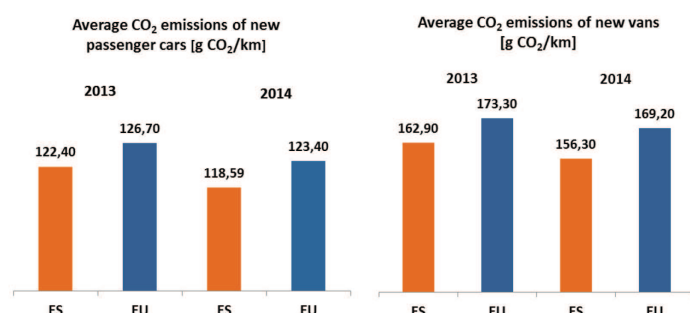
Source: DG ENER based on Odyssee database

Specific energy intensity for passenger cars and freight transport³



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

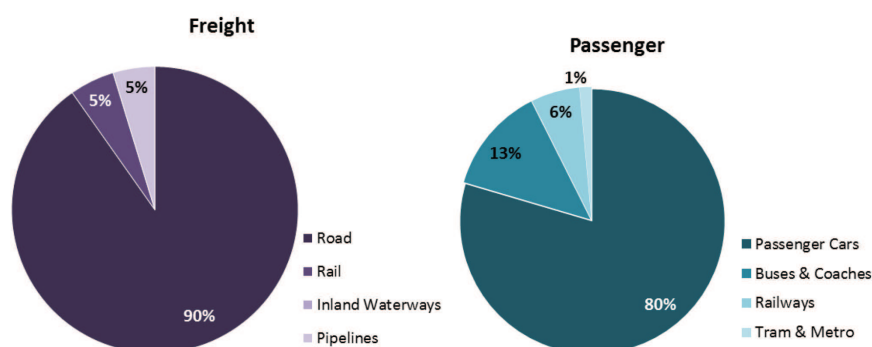
EU legislation sets mandatory CO₂ emission reduction targets for new cars and vans. By 2021, the fleet average to be achieved by all new cars is 95 grams of CO₂ per kilometre. For new vans, the fleet average is set at 147 g/km by 2020.



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 share Spain

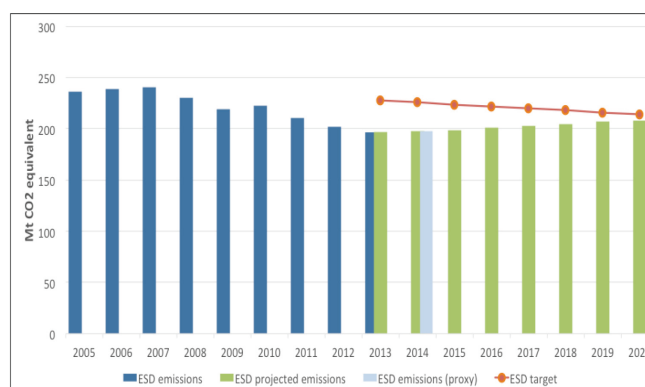


Source: Eurostat and EU transport in figures 2015. Data refers to 2013. Modal shares based on tonne-kilometres for freight sector and passenger-kilometres for passenger sector, freight data based on activity within country territory. Estimates are made when data is missing.

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.

4. Decarbonisation of the economy

NON-ETS GHG EMISSION REDUCTION TARGET 2020 (-10% by 2020 as compared to 2005 in the non-ETS sector)



Source: DG CLIMA based on EEA. Based on preliminary inventory data.

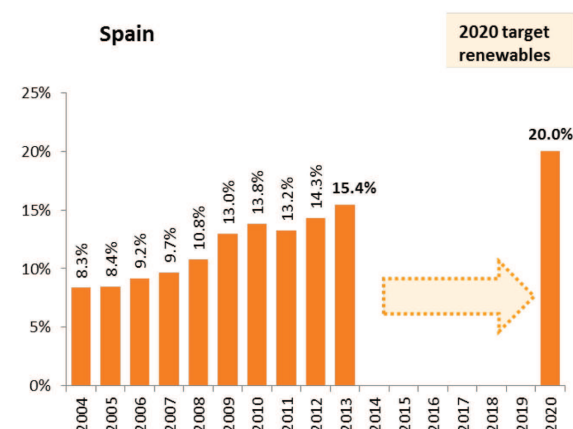
ESD (Effort Sharing Decision) emissions are the emissions not covered by the EU ETS

Spain has decreased its non-ETS emissions by 17% between 2005 and 2014.

According to its projections of 2015, Spain will reach its greenhouse gas emission reduction target for 2020, with a 2 percentage points margin as compared to 2005.

Non-ETS Emissions (vs. 2005)	Projections/proxy	target
Projections with existing measures 2020	-12%	-10%
Proxy 2014	-17%	-5%

RENEWABLE ENERGY SHARE TARGET 2020 (20%)



Source: DG ENER based on EUROSTAT

With a renewable energy share of 15.8 % in 2014, Spain is on track to reach its 2020 renewable energy target of 20% but efforts should continue ahead of 2020. Spain has to continue guaranteeing a stable framework for the development of the sector. In this sense, Spain intends to keep fostering renewable energies in mainland and non-mainland areas by setting competitive mechanisms, based on cost effective criteria, introduce new renewable capacity and renovate old facilities. Like the rest of Member States, although to a lesser extent, Spain needs to assess whether its policies and tools are sufficient and effective in meeting their renewable energy objectives.

GREENHOUSE GAS EMISSION INDICATORS

- In Spain, emissions per capita in 2013 were about 20% lower than the EU average.
- In 2014, the revenues from the auctioning of ETS allowances amounted to almost EUR 330 million, all of which is planned to be used for energy and climate purposes, especially to support the renewable energy industry.

Largest Sectors of GHG Emissions in 2012(*)	Spain	EU Average
Energy/power industry	28%	33%
Transport	24%	20%
Industry (incl. industrial processes)	21%	19%
Agriculture (incl. forestry & fishery)	14%	12%
Residential & Commercial	9%	13%
Waste & others	4%	3%

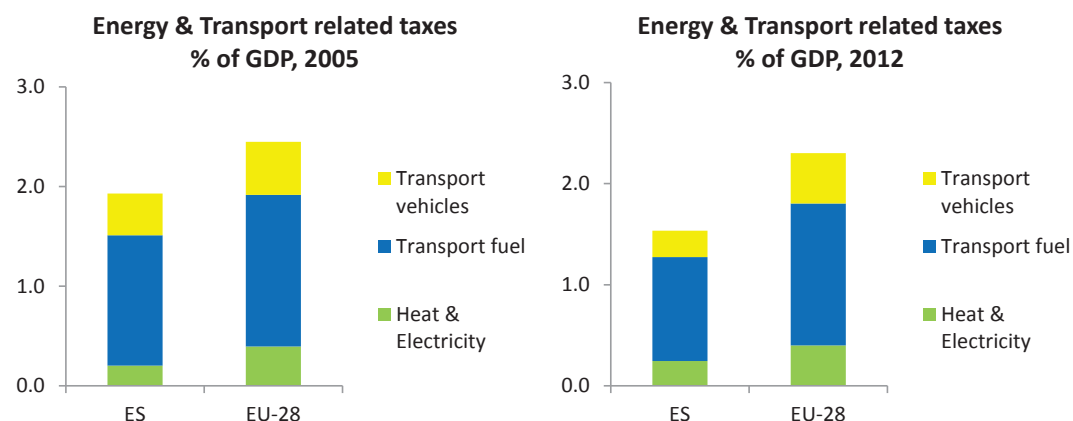
GHG Emissions	Spain	EU
EU ETS auctioning revenues in 2014 (EUR millions)	330	3205
Share of ETS emissions in 2013	39%	42%
GHG emissions/capita in 2013 (tCO ₂ equivalent)	6.9	8.5
Carbon intensity of the economy in 2013 (tCO ₂ equivalent/(EUR millions))	310	328

Source: DG CLIMA based on EEA

(*) Sectoral breakdown for 2013 data not available

ENERGY & TRANSPORT TAXATION

Energy and transport related taxes as a share of GDP are relatively lower than the EU-average in both 2005 and 2012. This is mainly explained by differences in all energy and transport related taxes, which are particularly pronounced in 2012. In this year the energy and transport related tax burden reduced by 20% compared to 2005, while the respective reduction of the EU-average was around 6%.

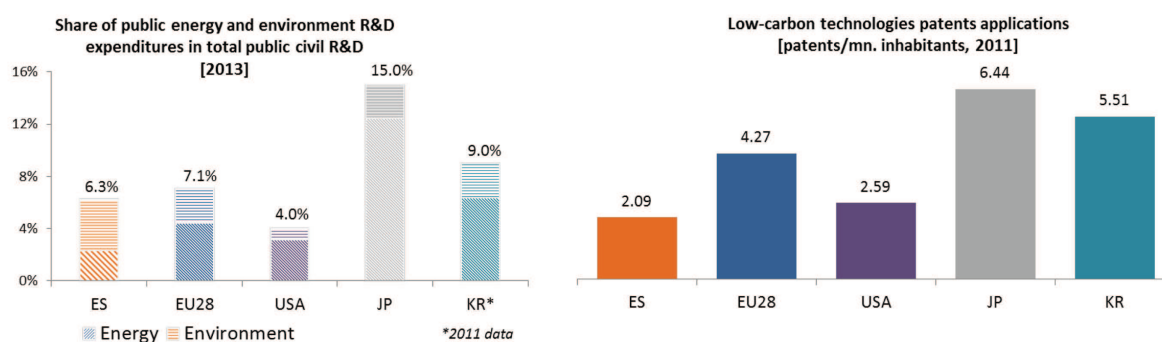


Source: Eurostat

5. Research, innovation and competitiveness

RESEARCH AND INNOVATION

Spain 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. In terms of intensity of low-carbon technologies patents, Spain is behind the EU average and main worldwide partners.

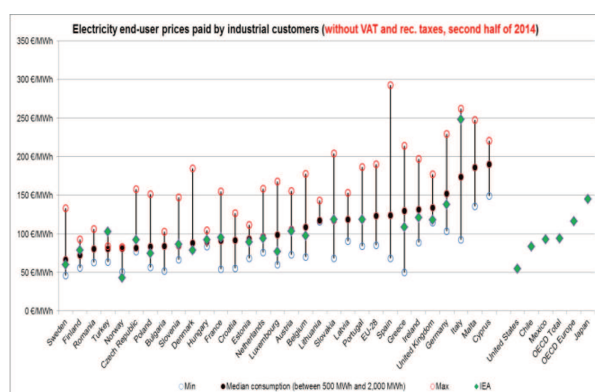
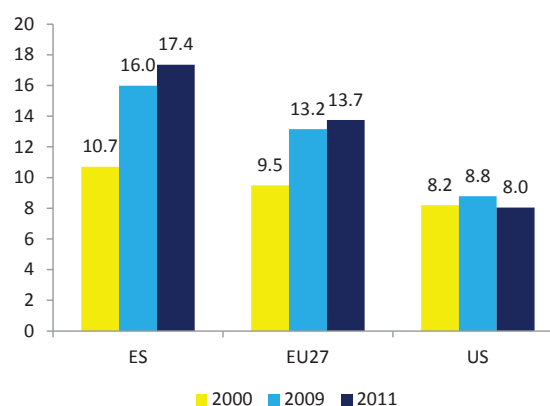


Source: DG ENER based on EUROSTAT

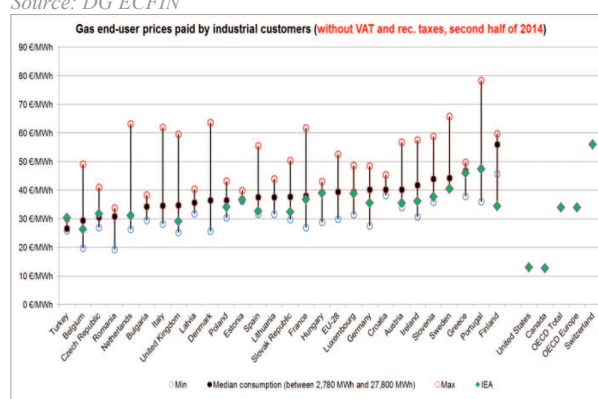
COMPETITIVENESS

The real unit energy costs⁴ in Spain have increased steadily over the last years, and are now above both the EU average and the US. Decomposing the factors of the costs, energy intensity⁵ of Spain's manufacturing sector is in line with the EU but lower than in the US. Real energy prices, the other factor, have increased more in Spain than in the EU over the past ten years, while remaining higher than in the US. Electricity and gas prices for industrial consumers are in line with prices in the OECD, but are higher than in the US.

Real unit energy costs (% of value added)



Source: DG ECFIN



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

- Spain has not yet defined a detailed and comprehensive long-term climate and energy strategy for the period post 2020. The current Strategy for Climate Change and Clean Energy was adopted in 2007 and is being updated.
- Spanish efforts are currently directed towards GHG emission reductions in the non-ETS sectors. For these sectors, a Roadmap has been elaborated which will allow the fulfilment of climate objectives in the period 2013- 2020 (covering transport, construction, farming, waste, agriculture). This initiative has been recently extended up to 2030. Spain is also carrying out a reform of the Electricity System.
- According to Spain, the main elements of the energy and climate change policy should be defined at the EU level first. Only in a second stage, and according to the agreed framework, a national strategy and related policies will be defined.

⁴ This indicator measures the amount of money spent on energy sources needed to obtain one unit of value added.

⁵ The energy intensity presented here is derived from Use Tables of WIOD, see "Energy Economic Developments in Europe SWD(2014)19".

NATIONAL TARGETS, especially for 2030

Objective, 2030-2050	Targets	Comments
GHG reduction	No	
Renewable energy share	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. Spain is a member of two Regional Groups which have been established under the TEN-E Regulation: North-South Gas Interconnections in Western Europe and North-South electricity interconnection in Western Europe.

Spain is also a member of the High Level Group on the Interconnectivity of the Iberian Peninsula, formalized in consequence of the Madrid Summit which led to the Madrid Declaration, which aims to tackle the existing interconnection issues both for electricity and gas through the adoption of an Action Plan.

8. Cohesion policy contribution

The EU Cohesion policy provides for important investment possibilities to implement energy policy objectives in Spain 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.

Internal energy market: Over 2014-2020, EU Cohesion Policy will invest some EUR 217 million in smart electricity storage and transmission systems, as well as around EUR 18 million in smart electricity distribution grids in Spain. These investments are expected to contribute to around 621 000 additional users connected to smart grids.

Energy efficiency: Over 2014-2020, EU Cohesion Policy will invest around EUR 1 096 million in energy efficiency improvements in public and residential buildings and in enterprises in Spain. A further estimated EUR 2 400 million will be invested in supporting the move towards an energy-efficient, decarbonised transport sector. These investments are expected to contribute to around 85 000 households with improved energy consumption classification and a decrease of around 1 629 176 000 kWh per year of decreased primary energy consumption of public buildings, as well as to around 520 km of new railway lines, 1 280 km of reconstructed or upgraded railway lines and 15 km of new or improved tram and metro lines.

Decarbonisation: Overall, the EU Cohesion Policy investments in Spain over 2014-2020 are expected to contribute to an estimated annual decrease of GHG of around 6 580 000 tonnes of CO₂eq. Over 2014-2020, EU Cohesion Policy will invest some EUR 650 million in renewable energy in Spain. These investments are expected to contribute to around 1 051 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 Spain. This will be based on the national and the regional strategies for smart specialisation. For Spain, the strategies (both the national and several regional ones) include a focus on clean, safety, sustainable and clean energy and smart, integrated and sustainable transport, as well as actions against climate change consequences and for resource efficiency. At this stage, at least EUR 8 million is foreseen for investments in R&I and adoption of low-carbon technologies in Spain, but this might increase further in line with the evolving content of the smart specialisation strategies.