

## Country profile – Spain

The section 'Key climate- and energy-related data' was prepared by the EEA. It includes the latest data available as of 31 July 2014

The section 'Climate and energy policy framework' was prepared by eclareon and Ecologic Institute, Germany. It includes the latest information on national policies and measures available as of 31 May 2014.

For methodological details and other country profiles, see [www.eea.europa.eu/themes/climate/country-profiles](http://www.eea.europa.eu/themes/climate/country-profiles).

## Key climate- and energy-related data — Spain

Key data on GHG emissions	2005	2011	2012	2013	EU 2012
Total GHG emissions (UNFCCC, Kyoto Protocol) (Mt CO <sub>2</sub> -eq.)	431.4	345.9	340.8	315.6	4 544.2
GHG per capita (t CO <sub>2</sub> -eq./cap.)	10.0	7.4	7.3	6.8	9.0
GHG per GDP (g CO <sub>2</sub> -eq./PPS in EUR)	434	310	302	281	350
Share of GHG emissions in total EU-28 emissions (%)	8.3 %	7.5 %	7.5 %	7.1 %	100 %
EU ETS verified emissions (Mt CO <sub>2</sub> -eq.)	183.6	132.7	135.6	122.8	1 848.6
Share of EU ETS emissions in total emissions (%)	43 %	38 %	40 %	39 %	41 %
ETS emissions vs allowances (free, auctioned, sold) (%)	+ 6.7 %	- 12.4 %	- 12.0 %	- 20.5 %	- 14.1 %
Share of CERs & ERUs in surrendered allowances (%)	0.0 %	20.7 %	28.0 %	n.a.	26.4 %
Non-ETS (ESD) emissions, adjusted to 2013–2020 scope (Mt CO <sub>2</sub> -eq.)	229.1	201.6	194.0	189.7	2 566.6
Key data on renewable energy	2005	2010	2011	2012	EU 2012
Share of renewable energy in gross FEC (%)			13.2 %	14.3 %	14.1 %
( ) = including all biofuels consumed in transport	(8.4 %)	(13.8 %)			
Share of renewable energy for electricity (%)	19.1 %	29.7 %	31.6 %	33.5 %	23.5 %
Share of renewable energy for heating and cooling (%)	9.4 %	12.6 %	13.6 %	14.0 %	15.6 %
Share of renewable energy for transport (%)			0.4 %	0.4 %	5.1 %
( ) = including all biofuels consumed (%)	(1.0 %)	(4.7 %)			
Key data on energy consumption	2005	2010	2011	2012	EU 2012
Primary energy consumption (Mtoe)	135.9	122.8	121.4	121.3	1 584.8
Primary energy consumption per capita (Mtoe/cap.)	3.1	2.6	2.6	2.6	3.1
Final energy consumption (Mtoe)	97.8	89.1	86.7	83.1	1 104.5
Final energy consumption per capita (Mtoe/cap.)	2.3	1.9	1.9	1.8	2.2
Efficiency of conventional thermal electricity and heat production (%)	46.7 %	48.7 %	46.3 %	44.0 %	50.0 %
Energy consumption per dwelling by end use	2005	2009	2010	2011	EU 2011
Total energy consumption per dwelling (toe/dwelling)	0.96	0.97	0.97	0.96	1.42
Space heating and cooling (toe/dwelling)	0.49	0.50	0.49	0.49	0.96
Water heating (toe/dwelling)	0.21	0.20	0.23	0.21	0.18
Cooking (toe/dwelling)	0.08	0.07	0.07	0.07	0.08
Electricity (lighting, appliances) (toe/dwelling)	0.19	0.21	0.18	0.19	0.20

**Progress towards GHG targets (under the Effort Sharing Decision, i.e. non-ETS emissions)**

2013 ESD target (% vs base year)	- 4.4 %	2020 ESD target (% vs base year)	- 10.0 %
2013 ESD emissions (% vs base year)	- 17.6 %	2020 ESD projections WEM (% vs base year)	- 1.4 %
		2020 ESD projections WAM (% vs base year)	- 3.0 %

Based on approximated emission estimates for 2013, emissions covered by the Effort Sharing Decision (ESD) (i.e. in the sectors which are not covered by the EU ETS) are expected to be below the annual ESD target in 2013. However, projections indicate that 2020 ESD emissions are expected to be above the 2020 ESD target, despite the implementation of measures planned until 2013.

**Progress towards renewable energy targets**

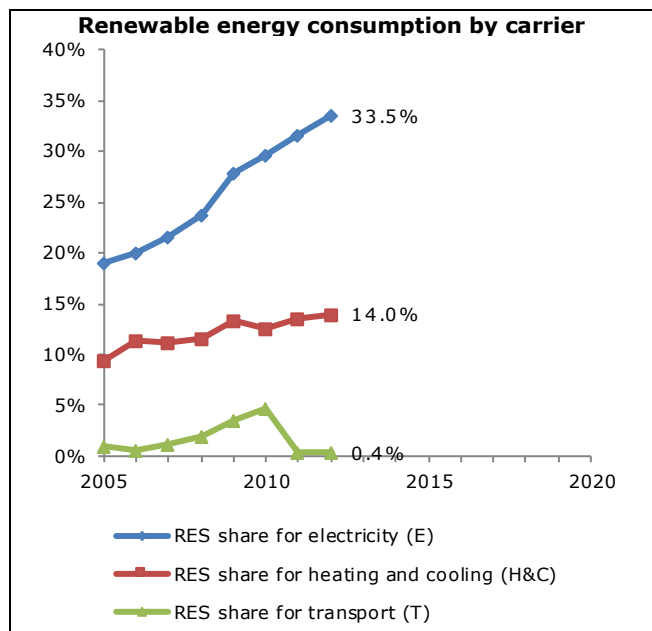
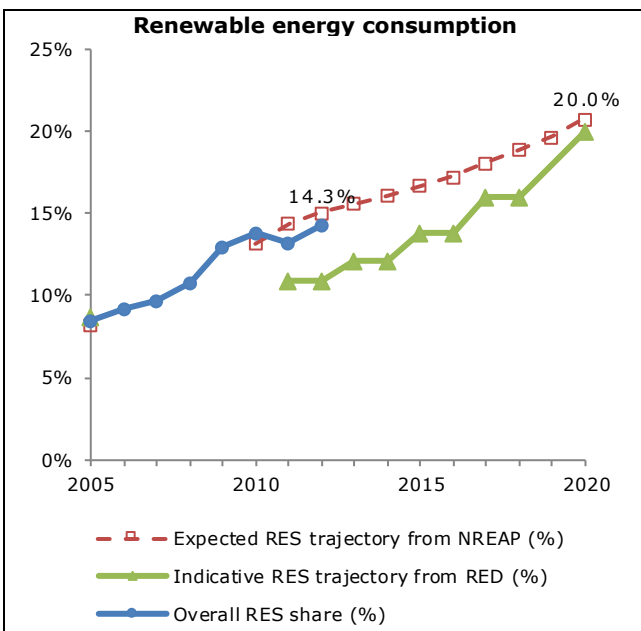
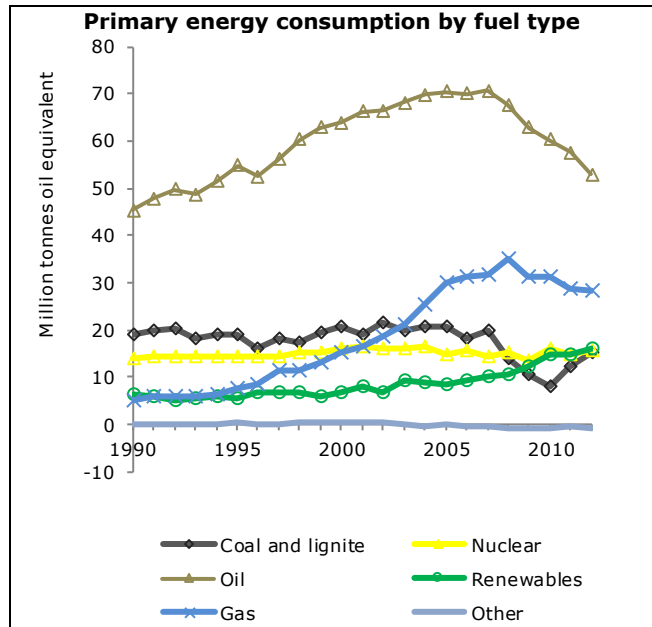
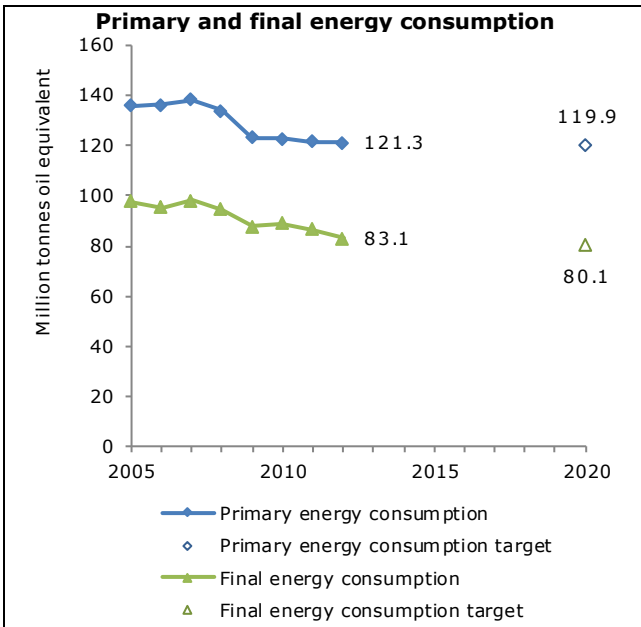
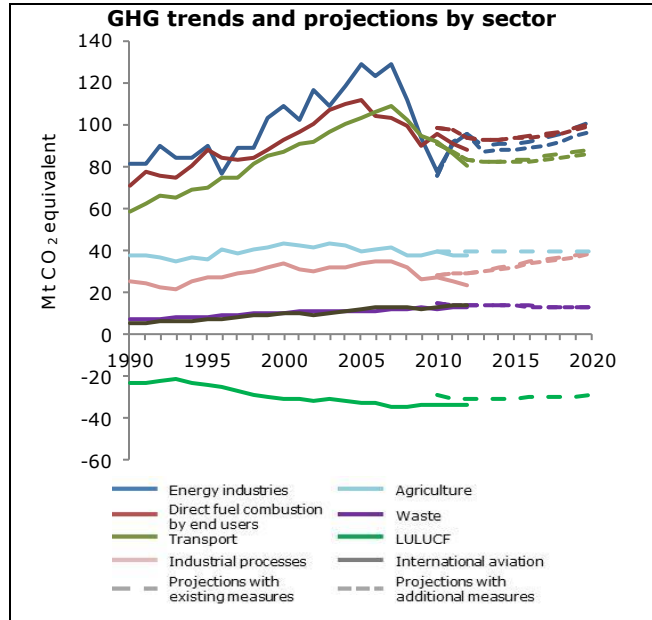
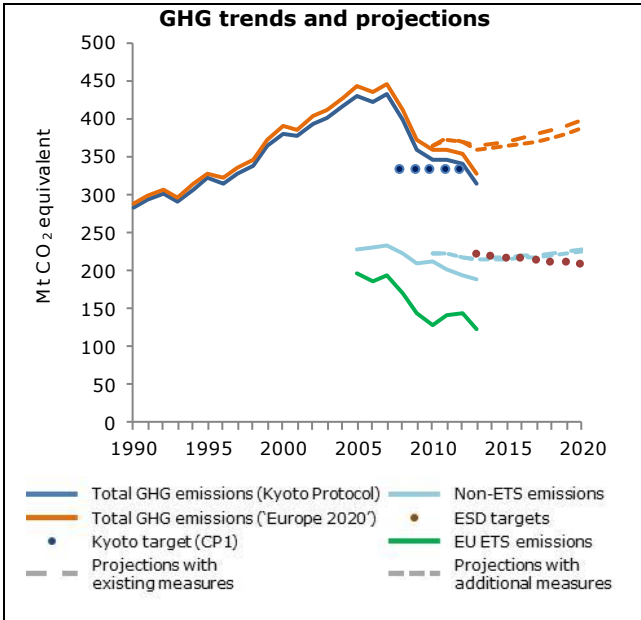
2012 RES share in gross final energy consumption (%)	14.3 %	2011–2012 indicative share from RES Directive (%)	11.0 %
2020 RES target	20.0 %	2012 expected share from NREAP (%)	15.1 %

The average share of renewable sources in gross final energy consumption for 2011–2012 was 13.7% (12.0 Mtoe), which is higher than the indicative RED target for 2011–2012 (11.0%). At the same time, the share of renewables in 2012 (14.3 %) is lower than the expected 2012 NREAP target (15.1 %). Over the period 2005–2012 the observed average annual growth rate in renewable energy consumption amounted to 5.8%. In order to reach its 2020 NREAP target, Spain needs an average annual growth rate of 6.7% in the run-up to 2020. In absolute terms, this is equivalent to 2.1 times its cumulative effort so far.

**Progress towards energy efficiency targets**

Primary energy consumption:		Final energy consumption:	
2005–2012 average annual change	-1.6 %	2005–2012 average annual change	-2.3 %
2012–2020 average annual change to target	-0.1 %	2012–2020 average annual change to target	-0.5 %

Between 2005 and 2012, energy consumption decreased at a faster pace than is necessary to meet the 2020 targets. This was a combined result of energy efficiency policies as well as the effects of the economic recession. More efficient household equipment is being used and conversion efficiency improved, due to a higher share of natural gas in electricity production until 2009. Tackling the consumption of the energy sector, which increased by 33 % between 2005 and 2012, as well as the deterioration of conversion efficiency since 2010 (due to a 91 % increase in the use of solid fuels) could contribute to stabilising Spain's energy consumption. Electricity consumption in the residential and services sectors could also be further addressed in order to limit final energy consumption.



## Climate and energy policy framework

### Challenges and opportunities

In the aftermath of the economic crisis, the rising debt level of the state made austerity an important consideration of Spanish policymaking. This has imposed the need to take the cost efficiency of policy measures into account even more so than before. Public acceptability of any policy-related costs imposed on consumers is also particularly limited due to high unemployment rates. Under these circumstances, policies that can generate a direct positive economic impulse without additional cost to the economy are of particular interest, and Spain has the potential to deploy such measures. A shift of taxation from labour to environmental taxes has the potential to improve performance on environmental goals without creating an additional economic burden while at the same time creating a stimulus investment into clean jobs or technologies. Transport, one of the largest emitting sectors, has significant potential for emission reductions and could be tackled effectively in this way.

In the energy sector, support for renewable sources of energy was suspended in early 2012 to tackle the persistent tariff deficit of the electricity system. The deficit arises from the problem that the costs of the electricity system are not balanced by revenues from retail prices, because these are regulated. Since then, the expansion of renewables in Spain has halted. Furthermore, the retroactive measures have worsened the profitability of existing projects and damaged investor confidence. However, a successful uptake of investment in renewable energies could revive the renewable energy industry and create profits and employment in green sectors, pushing forward the transition of Spain to a green economy, as set out in the 2011 Sustainable Economy Act. In 2012, around 80 000 direct jobs and nearly EUR 9 billion of turnover were generated by the renewable energy sector alone, without even considering the supplying industries (EurObserv'ER, 2012).

### Climate and energy strategies

The overarching strategy is the 2007 Spanish Strategy for Climate Change and Clean Energy outlining the policy framework and targets until 2020. The Strategy is complemented by the National Energy Efficiency Action Plan (NEEAP) 2011–2020 and the Renewable Energy Action Plan. The NEEAP 2011–2020 was approved in 2011 and constitutes a continuation of previously approved plans as part of the Saving and Energy Efficiency Strategy 2004–2012. The Plan presents targets and measures that include investment incentives, promotion, training, dissemination and legislative actions (IDAE, 2012). The Renewable Energy Action Plan 2011–2020 aims to promote a total investment of more than EUR 62 million, of which more than EUR 55 million is earmarked for electricity-generating installations and more than EUR 6 million for facilities for thermal use. Most support is planned for wind and hydropower, but photovoltaics, thermal electric installations and biomass are also planned to be supported.

### Renewable energy

Spain had made considerable progress in the application of renewable energies, especially regarding renewable electricity between 2005 and 2011. However, support for renewable electricity has taken a sharp turn from 2012 onwards. Access to the feed-in support scheme as well as the premium tariff was blocked in January 2012; Royal Decree Law 2/2013 suspended remuneration schemes for existing installations, which severely affected the economics of those projects and, finally, Royal Decree Law 9/2013 phased out both renewable electricity support schemes. These measures were taken as the support schemes were considered to be one of the main reasons for the failing cost coverage in the electricity system, causing the so-called tariff deficit. Law 24/2013 introduced a new 'specific remuneration system', which pays a supplementary compensation on the market price. It was implemented to allow renewable energy producers to recover costs and a suitable return that cannot be recovered by selling the electricity on the market. The calculation of the premium is based on a theoretical renewable plant and on the average costs incurred by a well-managed company running a renewable installation. The Law also regulates the priority connection and priority dispatch of renewables if these do not constitute a danger for the grid itself. The remuneration system is applicable to both existing and newly installed facilities. The final provision also states that entities that consume the energy they produce would still need to contribute to the financing of costs and services of the grid in the same amount as consumers that take the electricity directly from the grid.

There is no support scheme for heating and cooling in place.

### Energy efficiency

Energy **taxation** is rather low with the level of excise duties being below the EU average. In addition, there are exemptions in place, for example for coal used for chemical reduction and in electrolytic and metallurgical processes and lower electricity rates for business. In 2014, the Ministry of Industry, Energy and Tourism has opted for an increase of the weight of the fixed component of the electricity bills to 60 % (electricity bills in Spain have a fixed and a variable component). This has been read by some parts of the industry as a disincentive to reduce consumption and use electricity most efficiently.

An **obligation scheme** for energy market operators is planned, but the outline is unclear so far.

The Energy Efficiency Action Plan 2011–2020 intends to achieve energy savings in **industry** of 4 489 ktoe. To meet this target, the Plan includes the introduction of energy audits, improved equipment and process technology, as well as implementation of energy management systems. A grant scheme for improvements in equipment and processes is in place; furthermore, subsidies for energy audits and **cogeneration** of electricity and heat are provided.

In the **building sector**, minimum energy performance standards for new and modernised buildings are implemented. Additionally, as of June 2013, owners of buildings are required to present an energy efficiency certificate to buyers or renters of flats, which evaluates the efficiency level of the building in terms of energy consumption and carbon dioxide (CO<sub>2</sub>) emissions. Financial support for efficiency improvements in existing buildings is provided through grants covering between 22 and 35 % of investment costs under the Renove Plan, focusing on rehabilitation of the thermal casing. Furthermore, the government has approved the PIMA SOL plan with the aim to reduce CO<sub>2</sub> emissions from hotels by up to 70 %. The overall budget amounts to EUR 400 million, 50 % of which comes from the European Investment Bank (EIB). The plan will cover around 500 hotels and is estimated to contribute to the creation of about 8 000 jobs (ABC, 2013; Mercados de las Energías, 2013; RDL 635/2013).

### Transport

Following the Energy Efficiency Action Plan, measures in transport can be grouped into three categories: a modal shift to reduce demand for conventional vehicles, fleet renewal to incorporate new technological advances in vehicle energy efficiency, and increasingly rational use of transport methods. The main measures in this regard include a registration tax that is based on CO<sub>2</sub> emissions. The ownership tax is based on horse power. Petrol is taxed at around the EU average but diesel is taxed well below it. A high distance-based road charge is applied on specific parts of the road network (CE Delft, 2012). Biofuels are promoted through a quota system.

The Strategic Infrastructure and Transport Plan defines basic guidelines for action in infrastructure and transport for 2005–2020, including the promotion of intermodal transport and public transport. The Plan aims to shift personal and freight transport to rail. In 2014, Royal Decree 128/2014 initiated the third round of the Plan of Support to the Environment (PIMA 3), promoting the purchase of efficient and/or hybrid vans, cars and motorcycles as well as bicycles with assisted pedalling. The aim of this Plan is to achieve compliance with the goals set by the Ambient Air Quality Directive. The Plan's budget amounts to EUR 5.5 million and the amount of support will vary from EUR 350 to 2 500, depending on the vehicle type.

### Agriculture

The Agriculture and Fisheries Action Plan 2011–2020 aims to realise energy savings in this sector by applying measures based on economic incentives and training, such as promotion and training techniques for efficient use of energy, improving energy efficiency and boosting irrigation facilities for migrating sprinkler systems to drip irrigation systems, as well as energy audits and support of sustainable agriculture. The Plan to Reduce the Use of Fertilisers is among the rules derived from the Common Agricultural Policy (CAP) and targets the rationalisation of fertiliser use.

### Waste

The 2008–2015 National Waste Plan encourages the parties involved to consolidate an integrated form of management, which combines effectively the guiding principles governing EU waste policy and achieves a significant change towards a more sustainable waste management in Spain. The cornerstone of this Plan is a limit to the amount of biodegradable municipal waste going to landfills.

### Land use, land-use change and forestry

The Socioeconomic Plan of Forest Activation has been presented in 2014. This Plan is active at the national level and is closely tied to the programming of the European Agricultural Fund for Rural Development (EAFRD). The Fund will run for 7 years and will finance a variety of measures with priority given to the ones that are aimed at improving environmental conservation and climate change mitigation. The Fund intends to tackle the latter by exploiting the CO<sub>2</sub>-capturing capabilities of forests and by increasing the use of biomass as a fuel. In parallel, the Plan aims to diversify the economic activity of rural communities, thereby improving the quality of life of their inhabitants.

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