

# GREEN 2.6 ECONOMY



An initial evaluation by the Organisation for Economic Co-operation and Development (OECD) based on indicators provides that the green economy is still relatively small, although significant growth is on the horizon. The transition to green growth requires effective guidelines and stimulus from governments, but also the involvement of the private sector. Green growth is a business opportunity which can help to enhance the productivity of the economy as a source of growth and job creation, where innovation and the development of new markets and economic activities have an important role to play.

The "Green Growth Knowledge Platform" is a global network of researchers and development experts that identifies the main gaps in theoretical and practical knowledge of green growth. It is a tool to promote economic growth and sustainable development.

According to the United Nations Environment Programme (UNEP), the Platform offers new opportunities for expanding the limit of knowledge on how a green economy transition can create jobs and income, while positively impacting the environment and providing a new threshold for greater global cooperation on green growth ([www.greengrowthknowledge.org](http://www.greengrowthknowledge.org)).

Green growth means promoting growth and economic development while at the same time providing the resources and environmental services our well-being depends on. (OECD Ministerial Council meeting in May, 2011).

In order to do so, investment and innovation should be stimulated to consolidate sustainable growth and pave the way for new economic opportunities. Green growth is not a substitute for sustainable development, but must be considered as a complement to it.



The green economy, in the context of sustainable development and the eradication of poverty, was one of the main themes of the Rio+20 United Nations Conference on Sustainable Development. In this context, the EU promotes the adoption of objectives and targets to encourage and facilitate the transition to the green economy. In order to do so, five priority areas are identified for which the EU has set a target, objectives and actions to be taken to attain them. These five areas are: water, oceans and the environment, sustainable management of land and ecosystems, sustainable energy and resource efficiency (particularly waste).

### KEY MESSAGES

The green economy faces a three-fold challenge: achieve economic development without increasing the use of resources or the impact on the environment (efficient use of resources), conserve natural capital (guarantee ecosystem resilience) and improve the welfare state (social equity).

In Spain, energy intensity is decreasing as the economy converges towards EU levels.

In 2008, Spain's material consumption fell by 12.8%, bucking the upward trend observed since 1995.

In 2010 Spain was the sixth-largest worldwide generator of renewable energy patents.

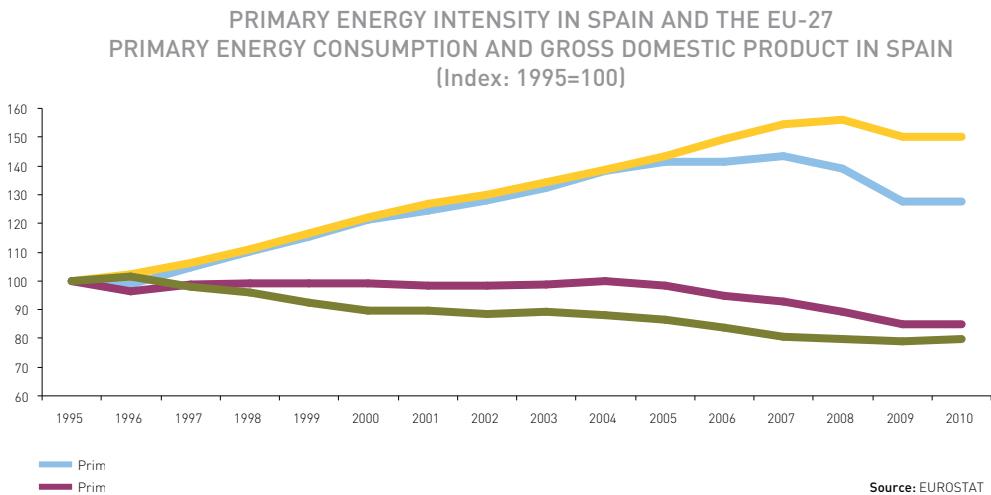
Environmental taxes represent a smaller percentage of GDP each year, the smallest of all the countries in the EU.

### INDICATORS

- Energy intensity of the economy
- Total material requirement
- Renewable energy patents
- Environmental taxes

## Energy intensity of the economy

Spain's energy intensity has converged towards EU energy intensity levels



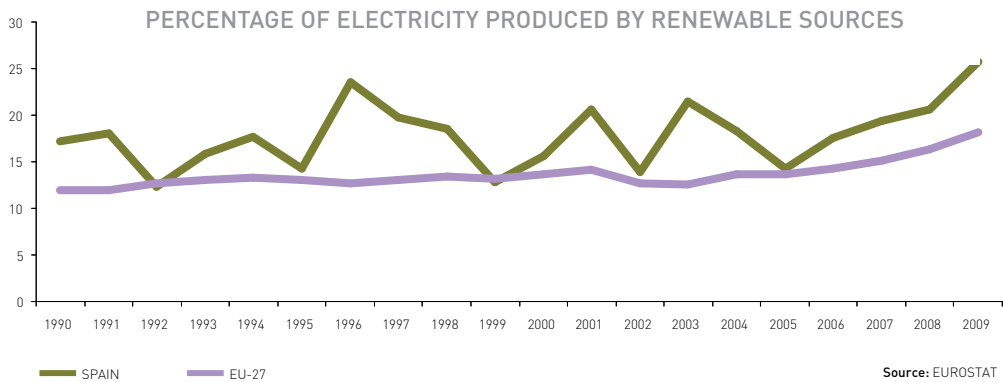
One of the ways of creating green growth is to improve productivity. In order to do so, increasing how efficiently we use energy is vital. Moreover, it is the fastest and least costly way of addressing energy security and some of the main environmental and economic challenges.

Action is needed in the energy sector to change the model of producing, transporting and, above all, consuming energy. Changes and stimulus should be promoted to reduce energy consumption and so, that the energy that is consumed is used as efficiently as possible. The joint report by the OECD and the International Energy Agency "*Green Growth Studies: Energy 2011*" predicts that global emissions could be halved by 2050 by promoting energy efficiency policies, low-carbon technologies and eliminating fossil fuel subsidies.

Growth in primary energy consumption was very similar to that of GDP from 1995 to 2004, albeit less valuable. From 2005 onwards, these two variables have clearly decoupled, the former recording a significant decline, at least until 2009. The result has been a downward trend in primary energy intensity, decreases being slightly smaller than those in the UE-27 (which Spain has converged towards in recent years), although in terms of intensity values.

Primary energy intensity bucked the downward trend in the EU-27 between 2009 and 2010, recording moderate growth of 1.22%, while in Spain it continued to decline, on this occasion by 0.02%.

The green economy promotes an efficient use of resources and energy. Developing renewable energies is an alternative to more polluting sources. Restructuring the sector towards a cleaner energy mix creates potential for both direct employment, in producing such energies, and also in aspects related to research and innovation. In this sense, the percentage of electricity produced by renewable sources in Spain is higher than the average for the EU-27. Only in 1992 and 1999 was it slightly lower or similar, remaining above the average for the rest of the years since 1990. In 1996, Spain exceeded the EU by 10.8 percentage points, while in 2009 the difference was 7.54 points (Spain produced 25.75% of its electricity using renewable sources, compared to 18.21% in the UE-27).



#### NOTES

- This indicator evaluates the energy consumption of an economy and therefore its energy efficiency. It is calculated for each year by the ratio of primary energy consumption to gross domestic product.
- Energy consumption includes consumption from coal, electricity, oil, natural gas and renewables. GDP is obtained from the chain volumes referring to the year 2000.

#### Sources

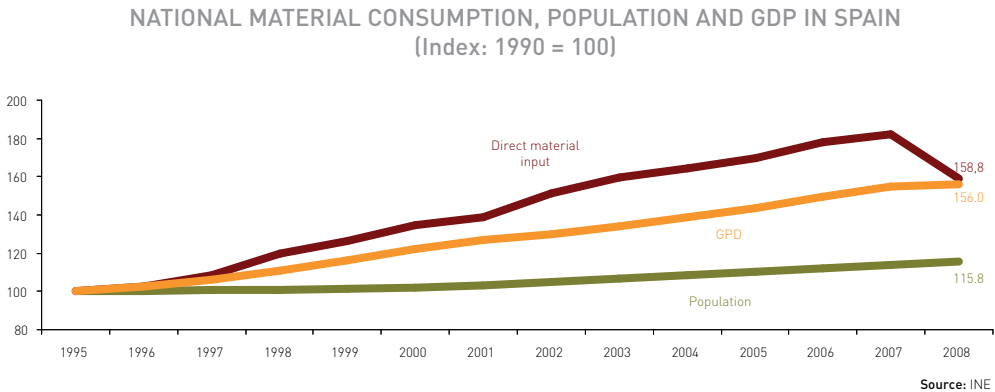
- Information from the Eurostat website.
- Available at: Estadísticas/Base de datos por temas/Medio ambiente y energía/Energía/ Indicadores principales-Estadísticas energéticas/Estadísticas energéticas-Indicadores estructurales de energía/Intensidad energética de la economía (nrg\_ind\_332a).

#### FURTHER information

- <http://www.eea.europa.eu/>
- <http://www.idae.es/Idae>
- [www.iea.org/efficiency](http://www.iea.org/efficiency)
- OECD, 2011. "OECD Green Growth Studies: Energy"

# Total material requirement

## Spain's material consumption fell for the first time in 2008



Developing a green economy requires an efficient use of resources. The transition to green growth involves decoupling economic growth from the use of natural resources and environmental impact. At the current rate of growth, the United Nations estimates that worldwide consumption of materials (minerals, fossil fuels and biomass) will have multiplied by three by 2050 to 140 million tonnes.

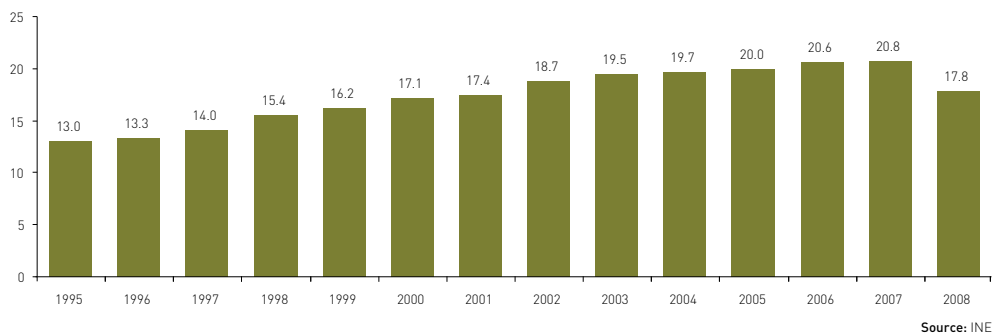
At present, the European economy continues to encourage inefficient use of resources as many of them are cheaper than their real cost. A resource-efficient Europe is one of the seven flagship initiatives that are part of the “Europe 2020” strategy, which aims to generate intelligent, sustainable and inclusive growth. This is Europe's main strategy to generate growth and employment. In order to advance towards the above mentioned objectives, in 2011 the EU adopted the Roadmap to a Resource-Efficient Europe.

Spain's material consumption fell for the first time by 12.8% in 2008, bucking the trend observed since 1995. In the same year, GDP still grew by 0.9%, slowing down in regard to previous years. Comparing the two growth rates suggests these two variables are possibly beginning to decouple, which could lead to signs of greater efficiency in material consumption. In that same year, the population increased by 1.6%, retaining the trend observed in previous years.

There was also a decrease in per capita consumption of materials in 2008 from 20.8 tonnes in 2007 to 17.8 tonnes (-14.2%). Consumption per capita between 1995 and 2007 only rose by 60% (annual average of 5%).

According to Eurostat, material consumption in Spain accounted for 9.8% of total consumption in the EU-27 (third largest consumer behind France and Germany). However, advance estimates for 2009 indicate domestic consumption of materials of 646 million tonnes, a reduction of 20.5% with respect to 2008 (representing 8.8% of total consumption in the EU-27 and fourth place in the ranking, now also behind Italy).

NATIONAL MATERIAL CONSUMPTION PER INHABITANT (t/hab)



#### NOTES

- Domestic consumption of materials is the total quantity of materials used directly in the economy. The material flow accounts show the physical materials inputs that enter the national economic system and the outputs to other economies or to the natural environment. Domestic extraction includes the annual quantity of solid, liquid and gaseous raw materials (excluding water and air) taken from the natural environment for use as a material input in the economic system. They include biomass, minerals and fossil fuels.
- GDP at constant prices is based on chain volume indices. The figure for 2008 is provisional.

#### Sources

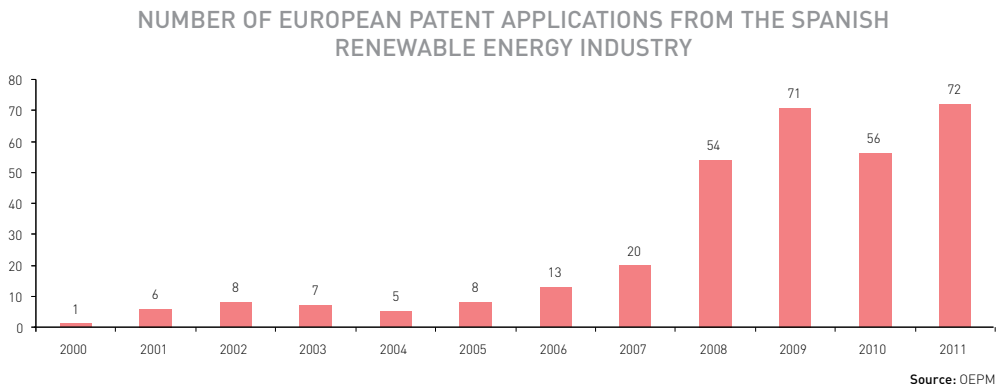
- INE, 2012. Material flow accounts. 1995-2008 series.

#### FURTHER information

- [www.ine.es](http://www.ine.es)
- [www.unep.org/greeneconomy](http://www.unep.org/greeneconomy)
- UNEP, 2011. *Towards a green economy: Pathways to sustainable development and poverty eradication - Synthesis for policymakers.*
- EU commission, 2011. *Roadmap to a resource-efficient Europe. Brussels, 20/9/2011. COM(2011) 571 end.*

## Renewable energy patents

Spain is one of the countries that generates the most patents for renewable energies



The EU Commission's “Energy Roadmap 2050” (COM (2011) 885 end) states the need to transform the European energy system for climate change, security and economic reasons. In order to do so, the roadmap proposes 10 measures, including the development of renewable energies and the need for investment in R+D and technological innovation to get low-carbon solutions onto the market as quickly as possible.

In 2011, the OECD and the European Patent Office (EPO) designated the European Union as the region with the most patents in renewable energies (37%), followed by the United States (20%) and Japan (20%). At European level, Spain was ranked 4<sup>th</sup> that year, behind Germany, Denmark and the United Kingdom.

The OECD ranked Spain the sixth largest generator of renewable energy patents in the world. Technologies related to solar energy and wind power are the predominant “green patents” in Spain.

Over the period 2000-2011, there has been significant growth in the number of European patents in the Spanish renewable energy sector, from one patent in 2000 to 72 in 2011. Wind power is the renewable energy source with the most patents (156, accounting for 49% of the total), followed by solar power (118 patents and 37% of the total) and tidal power (20 patents that represent 6% of total). The Autonomous

Community of Navarre applied for the most patents during this period (24.3%), followed by Madrid (17.1%) and Catalonia (16.8%). By ownership, 69% of the applications were filed by companies, 23% by individuals and the remaining 8% by Public Organisations and Universities.

The international community believes that greener growth will create new job niches in which professional training will play a decisive role. In contrast, this transition might imply a loss of jobs.

According to the OECD, recent estimates suggest that as many as 20 million jobs in the generation and distribution of renewable energy could be created worldwide by 2030. The role of innovation in green growth also stands out, as it ends the dependence on established customs and helps to decouple growth from the depletion of natural capital.

#### NOTES

- Industrial Property Statistics are drawn up entirely by the Spanish Patent and Trademark Office (Independent Organisation attached to the Spanish Ministry of Industry, Energy and Tourism).
- A Patent is a certification that recognises the right to exclusive use of a patented invention, preventing others from manufacturing, selling or using it without the consent of the holder. In return, the Patent is made available to the general public for their information.
- The following are considered renewable energies: biomass, solar energy, coal and industrial storage of waste, cement, the methane industry, construction, fuel injection, wind energy, lighting, hydroelectric energy, geothermal energy and tidal energy.

#### SOURCES

- Spanish Patent and Trademark Office, 2012. Estudio Estadístico de invenciones y energías renovables. 2000-2011
- OECD, 2011. Towards green growth. A summary for policymakers. May 2011.

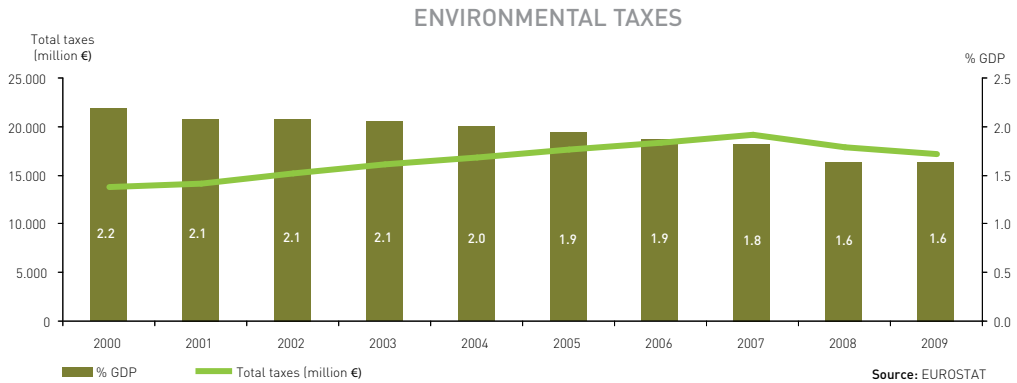
#### FURTHER INFORMATION

- EU commission, 2011. Energy Roadmap 2050. Commission communication (COM (2011) 885 final). Brussels, 15/12/2011.
- <http://www.oepm.es>



# Environmental taxes

Environmental taxes have decreased since 2007



The OECD believes that green growth strategies, as well as considering policies that strengthen economic growth and the conservation of natural capital, should also include new political requirements that encourage the efficient use of natural resources and make polluting more expensive. Such policies include a mixture of instruments based on price, taxes relating to the environment and non trade instruments, such as standards, policies supporting technology and voluntary approaches.

Similarly, promoting tax systems that take into account the environment is one of the measures the EU is considering to transform the energy system into a low-carbon system, proposing that energy prices should more accurately reflect all the costs involved.

There have been two trends in environmental taxes: upward until 2007, when the series peaked, and downward from then onwards. Between 2007 and 2009, environmental taxes have decreased by 10.3%. However, despite this turning point the ratio between the amount of taxes and total GDP displays a clearly downward trend, as a result of the slump in GDP that began in 2007.

As in 2008, in 2009 Spain was once again ranked last in the EU in terms of the ratio between environmental taxes and GDP. While environmental taxes in the EU-27 represented the equivalent of 2.43% of GDP, in Spain this figure was only 1.63%. Denmark recorded the highest ratio of environmental taxes to GDP (4.79%).

The breakdown of environmental taxes by sector of activity has not registered any significant changes in recent years, although a slight increase in taxes levied on energy products is observed, along with a decrease in those affecting transport. According to the INE, 81% of the 16,872 millions of euros of environmental taxes in 2009 came from energy products, 18% from transport and slightly less than 1% from pollution.

#### NOTES

- Under the harmonised statistical framework developed in 1997 by Eurostat, the European Commission, the Organisation for Economic Co-operation and Development and the International Energy Agency, environmental taxes are defined as those applied to a physical unit (or similar) of a material that has a proven and specific negative impact on the environment. These include taxes on energy and transport, but exclude value added tax. The taxes in question are mandatory payments collected by the Government and the benefits to the taxable person are not directly linked to the payment.
- Spain's main environmental taxes are as follows:
  - **Energy taxes:** hydrocarbon tax, electricity tax, tax on retail sales of certain hydrocarbons, special tax on oil-based fuel (Canary Islands);
  - **Transport taxes:** special tax on certain means of transport, motor vehicle tax;
  - **Pollution taxes:** state duty on waste discharge, regional taxes on pollution, waste dumping and waste discharge into the sea.

#### SOURCES

- Information from the Eurostat website. Available at: Statistics/Browse/Search database/Environment and energy/Environment/Environmental accounts/Monetary flow accounts/Environmental tax revenue.
- INE: Environmental taxes. 1995-2009 Series. Available at INEbase/Physical Variables and environment/Environment statistics/Environment accounts/Environmental taxes.

#### FURTHER INFORMATION

- <http://www.ine.es>
- <http://epp.eurostat.ec.europa.eu>
- <http://www.eea.europa.eu/>