

Energy Efficiency Trends

Overview

The end-use energy demand showed an upward trend until 2007, and then started a downward path, worsened from 2008 under the effects of the crisis; then followed a period of stability with a downward trend with a deeper reduction in consumption in 2012 and 2013, which reached a consumption rate of 80,836 ktoe in 2013. The productivity of economy shows the effects of the crisis, especially in 2008 and 2009, accounting for a slight upturn in 2013. The joint evolution of energy demand and the GDP in recent years has led to a more moderate evolution of end-use energy intensity with a downward trend, decreasing by 3.5% in 2013 as demand fell below the GDP drop level. Progress in energy efficiency, expressed by the ODEX index, a most suitable indicator for the analysis of the energy efficiency, accounted for continued progress in the period 2000-2013, highlighting the contribution of the transport and industry sectors with annual average improvements of 1%.

Industry

According to the ODEX index, the industrial sector recorded an average annual improvement in energy efficiency of 1% in the period 2000-2013. The more intensive branches in the period 2000-2008 included the cement and steel industries for their further progress in efficiency. In the period 2005-2010, the paper industry was the most remarkable one, with an evolution accounting for an increase in pulp imports and the use of recycled paper for paper production. In general terms, the paper industry, the iron & steel and the cement ones have been incorporating improvements in the production processes in recent decades with a favourable impact on energy efficiency. In the case of cement, an investment effort in efficiency measures was carried out during the period 2000-2008, accounting for an annual average improvement close to 3% in its efficiency rating. More recently, a worsening has been recorded in the behaviour of all these branches fuelled by the crisis as facilities and equipment ran below their capacity, consequently penalising energy efficiency. These records are more striking in the cement industry, which also underwent an increase in Clinker production, leading to an energy consumption rise.

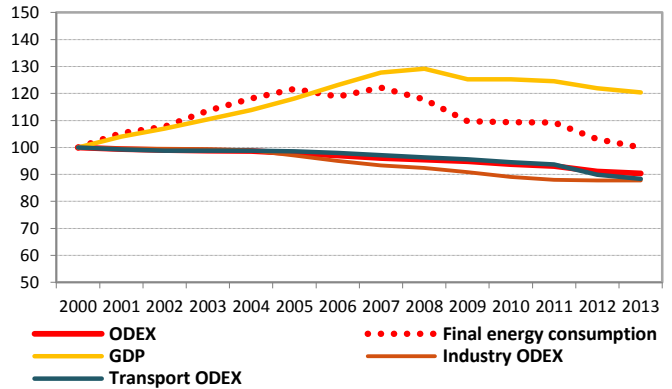
Households

According to the ODEX index, the residential sector registered an average annual improvement in energy efficiency of 0.4% during the period 2000-2013. This improvement slowed down its pace in the post-crisis period. This fact limits the favourable impact associated with energy efficiency standards in equipment and building as it represents a slowdown in the pace of the rehabilitation of existing housing and of the penetration of new housing and of more efficient equipment. Therefore, a contrast between the previous average improvements prior to the crisis (0.49%/year) and after (0.28%/year) can be noticed. Most of the improvements recorded are found in heating. As for the unitary electricity demand of households, it has evolved to rise above the heating unit consumption, in line with the gradual penetration of electrical household equipment. The unit electricity demand shows downward trend after 2004, more marked than in the case of the demand associated with heating. This could relate to certain saturation in the electrical household appliances, as well as to the efficiency improvements associated with equipment and lighting. More conservative patterns of behaviour induced by the crisis have also joined this scenario.

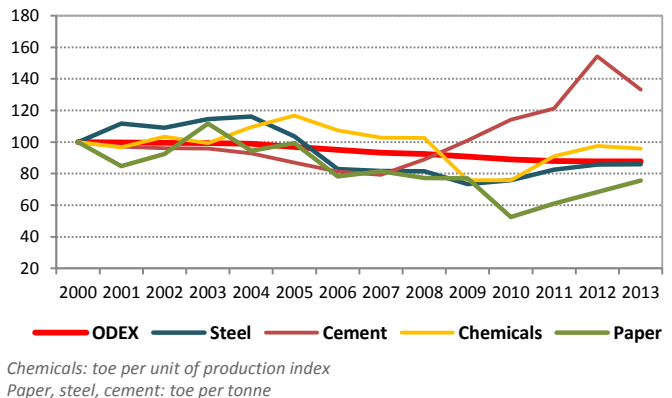
Transport

According to the ODEX index, the transport sector in Spain has experienced an average annual improvement by around 1% in the period 2000-2013. Trends in overall efficiency in the transport sector are correlated with road transport, where about 80% of consumption is absorbed. Private vehicles, which account for about 50% of consumption in road transport, largely determine the progress of the efficiency of road transport. There have been technological improvements associated with private vehicles in recent years, which have resulted in fleet renewal as well as in improved energy efficiency. This improvement is not seen in the case of trucks and light vehicles, largely responsible for much of the freight. This rather relates to the slowdown in the pace of renewal of such vehicles, associated with the induced effects by the on the economic situation change.

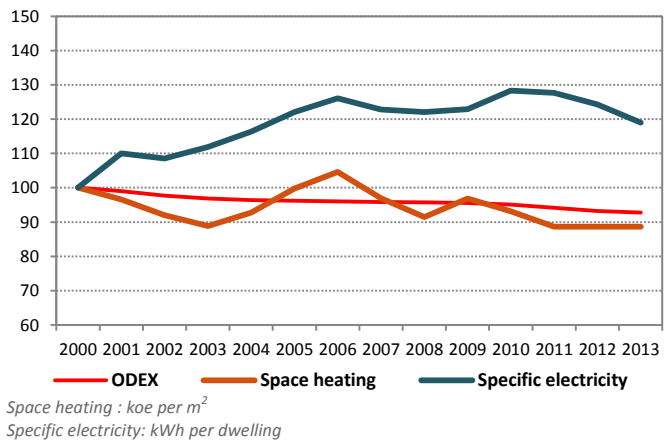
Energy cons., GDP and energy efficiency index (100=2000)



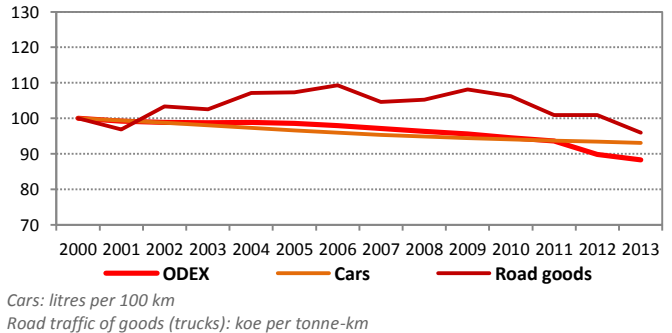
Main energy efficiency indicators in industry (100=2000)



Main energy efficiency indicators in households (100=2000)



Main energy efficiency indicators in transport (100=2000)



Energy Efficiency Policy

Institutional and energy efficiency targets:

The IDAE is the national agency responsible for the promotion of energy efficiency and renewable energies in Spain. The IDAE is a public body belonging to the Ministry of Industry, Energy and Tourism (MINETUR) through the Secretariat of State for Energy, as established by Royal Decree 344/2012 of 10 February. In addition, Royal Decree 20/2012 of 17 July provides that the IDAE shall be considered an instrumental resource of the General State Administration own instruments means the General State Administration's (AGE), and by adding to their tasks the support to the development of technologies aimed at the decarbonising of electricity generation and the provision of technical and financial assistance to MINETUR.

The National Action Plan for Energy Efficiency 2014-2020 has been recently approved, in compliance to the requirements set out by Directive 2012/27/EU on energy efficiency. This Plan is the first action Plan in the context of Directive 2012/27/EU and third (NEEAP3) as stated by Directive 2006/32/EC on end-use efficiency and energy services energy. This plan is a continuation of previous plans approved within the framework of the Strategy for Energy Saving and Efficiency 2004-2012 (E4) and Action Plan 2011-2020 (NEEAP2).

In terms of **horizontal energy efficiency measures**, the most outstanding ones are the **JESSICA - FIDAE Fund**, aimed at financing urban projects of energy efficiency and the use of renewable energy infrastructure in industrial, transportation, and buildings, and the creation of the **National Fund for Energy Efficiency (NFEE)** by Law 18/2014 of 15 October, approving urgent measures for growth, competitiveness and efficiency, aimed at financing the efficiency measures of a varied kind (mechanisms of economic, financial, technical assistance, training, etc.) that contribute to increasing energy efficiency in various sectors.

The **industrial sector** currently has two important energy efficiency actions: **Aid programme for SMEs and the large firm in the industrial sector** integrated into Action Plan 2014-2020, financed at the expense of the NFEE and aimed at the execution of energy efficiency improvement and implementation actions of energy management systems; and the JESSICA-IDAE Fund cited above.

The actions currently carried out in the **building sector** follow the guidelines set by the EU guidelines, in particular Directive 2012/27/EU and Directive 2010/31/ EU on the energy efficiency of buildings. As for the latter Directive,

legislative progress has recently taken place to transpose it through a number of regulatory provisions introducing higher demand levels in the **Technical Building Code** (Order FOM/1635/2013 of 10 September), the **Regulation on Thermal Installations in Buildings** (Royal Decree 238/2013 of April 5) and the **Energy Certification of Buildings** (Royal Decree 235/2013 of April 5). With regard to Directive 2012/27/EU, it has efficiency measures as provided in Articles 4, 5 and 7. We highlight on this point the **Spanish Strategy for Energy Rehabilitation in the Building Sector**, the measures aimed at the buildings in the public sector, as well as the actions aimed at the rehabilitation of buildings - such is the case of the **Aid programme for the energy rehabilitation of existing buildings in the residential sector** and the **Plan to boost environmental preservation in the hotel sector (PIMA SOL)**.

The transport sector has numerous projects under way, most notably the measures aimed at fleet renewal, particularly **PIVE Plans** and **PIMA Air Plans**, as well as at boosting electric mobility through initiatives such as **MOVELE Programme**. In addition, under the NFEE, an **Aid programme for modal shift actions and more efficient modes of transport use** has recently been approved. All the above adds up to the promotion of clean vehicles through a tax measure consisting in **levying the registration of new passenger cars depending on their CO₂ emissions**.

In the **public services sector**, there are a number of mechanisms to purchase efficient products at the level of the Autonomous Regions and the Central Government which have the State General Administration's Green Public Procurement Plan as a reference. This is reinforced by the adoption of **Law 15/2014, on the rationalisation of the public sector**. This is forcing the Public Administrations belonging to the State Public Sector to acquire high-performance products. The Law also encourages the purchase of energy-efficient buildings by the government, demanding a minimum energy rating C-class for energy demand indicators in heating, cooling and consumption of non-renewable primary energy. With regard to lighting, there is already a **Regulation of energy efficiency in public lighting installations**, approved by **Royal Decree 1890/2008**, which, together with technological improvements made in recent years, has enabled significant progress in efficiency energy in this area. This is completed with the adoption of an **aid program to renew municipal outdoor lighting installations**, funded with NFEE.

Main energy efficiency policy measures

Sector	Main Energy Efficiency Measures
Cross-sectoral	<ul style="list-style-type: none"> ➤ Spanish National Energy Efficiency Fund (NFEE) ➤ JESSICA-F.I.D.A.E Fund (Energy Diversification and Saving Investment Fund)
Industry	<ul style="list-style-type: none"> ➤ Aid Programme for SMEs and the large firm in the industrial sector
Buildings	<ul style="list-style-type: none"> ➤ State Plan to boost rental housing, building rehabilitation, and urban regeneration and renovation 2013-2016. ➤ Aid programme for the energy rehabilitation of existing buildings in the residential sector, for housing and hotel uses (PAREER-CRECE) ➤ Plan to boost environmental preservation in the hotel industry (PIMA SOL).
Transport	<ul style="list-style-type: none"> ➤ PIVE Plans (Efficient-Vehicle Incentive Programme) ➤ PIMA Air Plans (Plan to boost environmental preservation «PIMA Aire» to purchase commercial vehicles) ➤ MOVELE Programme to support the purchase of electric vehicles ➤ Aid Programme for modal change actions and a more efficient use of transport modes ➤ Registration duty on new motor vehicles (Law 34/2007 on air quality)
Public services	<ul style="list-style-type: none"> ➤ Energy efficiency regulation in outdoor lighting installations (Royal Decree 1890/2008) ➤ Law 15/2014, on the Public Sector rationalisation ➤ Aid Programme to renew municipal outdoor lighting installations