Energy Efficiency Profile : EU

Energy Efficiency Trends

October 2012

Overview

Energy efficiency improved by 12% at EU level between 2000 and 2010 (1.2%/year). There has been a net slow down in the energy efficiency progress since the economic crisis: 0.6%/year since 2007, compared to 1.5%/year between 2000 and 2007. Without energy savings, final energy consumption would have been 130 Mtoe higher in 2010. Around 38% of the savings come from households, 28% from industry, 27 % from transport and 7% from services.

Industry

Around 12% progress in energy efficiency in industry in the EU since 2000, but only until 2007 (1.8%/year at EU level). Since 2007, there was no more progress with even a reverse trend in 2009 and 2010. A shift towards less energy-intensive branches contributed to reduce industrial energy intensity in most countries until 2008. The reaction of countries to the industrial recession in 2009 was quite diverse, structural changes were generally significant but not all in the same direction: they explain 40% of the large decrease in the energy intensity of industry at EU level. In 2010, the rebound of industrial growth resulted in an increase of the energy intensity, driven both by structural changes to more intensive branches and lower energy performance (linked to structural changes within the branches and a progressive recovery with inefficient operations in the beginning of 2010); as a result, in 2010 energy efficiency in industry is not back to its historical trends.

Households

Energy efficiency improved by 15% since 2000 (or about 1.6%/year), mainly due space heating (17% or 1.9%/year) and large appliances (11% or 1.1%/year). These energy savings are largely due to the deployment of technologies that reduce energy demand (e.g. double glazing, insulation), convert fuels more efficiently (e.g. high efficiency boilers) or use electricity more efficiently (e.g. labels A, A+ and A++).

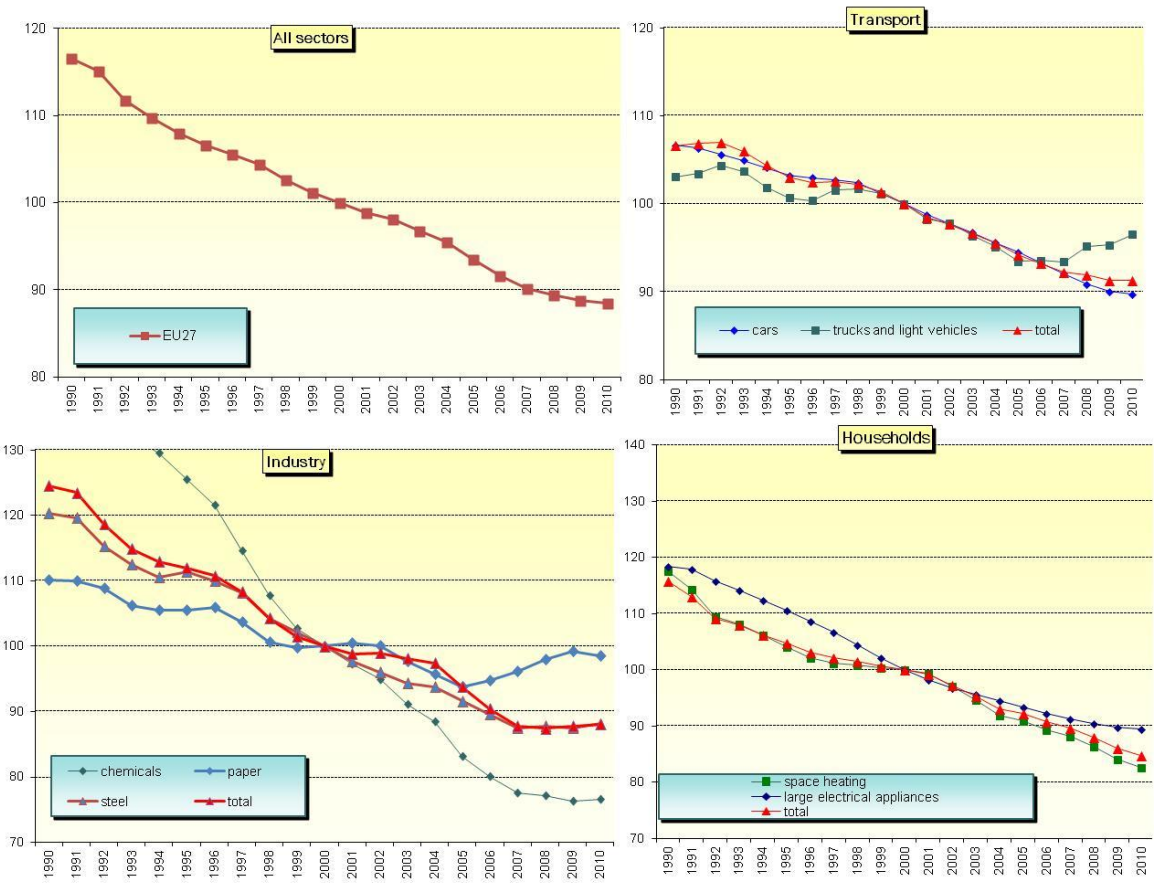
Transport

Despite deterioration in the efficiency of freight transport in 2009, the overall transport sector was 9% more energy efficient in 2010 than in 2000. Most of the gains come from cars, thanks to technical improvements and measures on new cars that have been clearly reinforced since 2007 (EU labelling for new cars and national fiscal measures). On average cars consumed on average 0.8 litre/100 km less than in 2000 at EU level, i.e. 7.1 litre/100 km.

Modal shift has a negative impact on energy savings as the share of public transport in passenger traffic is decreasing almost everywhere, despite policies to reverse that trend.

The transport sector is the only end-use sector in which CO_2 emissions continue to increase: emissions in 2010 were 21% above their 1990 levels.

Energy efficiency index (base 100=2000)



* All indicators measured as a three-year moving average

Source ODYSSEE

For more information : http://www.odyssee-indicators.org/

Energy Efficiency Policy measures

Institutions, programmes and main cross-cutting energy efficiency measures in the EU

Since 2010 energy issues are represented with a Directorate General for Energy. In December 2008 the European Union agreed on an Energy and Climate Change Package plus a Strategic Energy Review. The most important initiatives relevant for energy efficiency since then include: the Effort Sharing Decision 406/2009/EC (2009); the EU-Energy Strategy 2020 (November 2010); the Energy Efficiency Plan 2011 reemphasizing the (indicative) 20% energy efficiency target and stating that the EU is on track only to achieve only half it a well as the Low Carbon Roadmap 2050 incl. long-term GHG reduction objectives (both March 2011); the Energy Roadmap 2050 (Dec. 2011) exploring how long-term GHG targets can be reached while also ensuring security of supply and competitiveness. The most controversially discussed initiative was the Commission's proposal for a new Energy Efficiency Directive (EED) from June 2011, including a set policy measures ensuring that the 20% saving target is achieved. The entry into force is expected in November 2012. The EED includes provisions on the setting of energy efficiency targets in the MS (Art. 3), general energy efficiency policies (esp. the introduction of energy efficiency obligations or equivalent measures in Art. 7) and measures addressing specific energy consumption sectors as e.g. buildings (Art. 4 and 5), energy audits and management systems for enterprises (Art. 8) or CHP Art. 14). It is however assumed that the compromise measures will not be fully able to achieve the 20 % saving target but only around 15 -17%.

The Recast of the Eco-design Directive 2009/125/EC creates a framework for an ecologic design of products that are related to energy ("ErP"). It replaces directive 2005/32/EC, known as "Energy-using Products" (EuP). "ErP" and "EuP" provides the basis for several implementing regulations: 14 implementing regulations are in place now and 39 in preparation for EuP, plus additional ones on ErP (e.g. windows, insulation material). For some products, voluntary agreements are discussed. The revised Labelling Directive 2010/30/EU extends the scope from household appliances to all energy-related products. The Directive introduces new efficiency classes A+, A++ and A+++ on top of the existing A grade, while the number of classes still limited to 7 (to be reviewed in 2014). Up to now, delegated regulations for 7 product groups are in place (incl. a new for TV).

Industry

Next to the new EED and the Eco-design Directive which are also relevant for the industry, the main relevant measure for this sector is the European Emissions Trading Scheme (EU ETS). The system is approaching the end of the second phase 2008-2012, in which allowances were given for free. The revised EU ETS accepted in December 2008 will apply over 2013-2020 and should lead to a reduction in GHG emissions of 21% compared to 2005 levels. The quantity of allowances issued each year will decrease in a linear fashion to reduce gradually the overall level of emissions each year. The industry sector will be, at least partially and for a transition period, exempted from auctioning and certificates will be allocated based on benchmarks that have been published in December 2010. To limit carbon leakage, 100% free allocation will be kept up to the benchmark by 2020.

Buildings

Apart from the new EED, which also includes provisions relevant for buildings, the recast of the Energy Performance of Buildings Directive (EPBD; 2010/31/EC) was the most important policy addressing the building sector. It introduced the following novelties: new buildings will have to consume 'nearly zero' energy and use 'to a very large extent' renewables in 2020; public authorities that own or occupy a new building should set an example by building, buying or renting 'nearly zero energy building' by 2018; Member States shall develop measures to stimulate the refurbishment of buildings into very low energy buildings; the 1000 m2 threshold for major renovation has been deleted (to be effective in 2014); minimum requirements for components are introduced for all replacements and renovations; an harmonised calculation methodology to push-up MS minimum energy performance requirements towards a cost-optimal level; a more detailed and rigorous procedure for issuing energy performance certificates with mandatory controls required to check their correctness; introduction of penalties for non-compliance. The impact assessment for the recast EPBD estimates the energy savings at 60 – 80 Mtoe/year energy savings by 2020, i.e. a reduction of 5-6% of the EU final energy consumption in 2020.

Transport

The main EU initiative is mandatory CO2 standards as voluntary agreements on performance have failed to reach their target. The new regulation set an average target of 130g CO2/km for new passenger cars in 2015. A long term target is introduced for 2020 at 95 g CO2/km. Manufacturers will be given interim targets (65% of their fleets in 2012, to 80% in 2014). In case they exceed the targets, they will have to pay fines. In February 2011 the European Parliament adopted a legislation on CO2 emissions of new light commercial vehicles (LCV) with a target of an average CO2 emission of 175 g/km by 2017 (for category N1, i.e. below 3.5 t gross weight) (~185 g/km in 2009) and 147 g/km in 2020. Air traffic has been included in the EU ETS from 2012, emissions for all flights that arrive at or depart from an EU airport. A similar measure for international marine traffic is under discussion. Regulation (EC) No 1222/2009 introduced a labelling scheme for tyres.

Impact evaluation of selected energy efficiency measures

Sectors	Title of Measure	Since	Energy (Mtoe)	CO2 (Mt)
All	Recast Eco-Design Directive 2009/125/EC (Various Implementing Directives)	2009	376 TWh for the 12 first measures in 2020	150 Mt of CO_2 in 2020
All	Revised Labelling Directive 2010/30/EC	2010	27 Mtoe by 2020	80 Mt of CO_2 in 2020
All	Energy Service Directive 2006/32/EC	2006	9% of final energy excl. emission trading in 2016 (89 Mtoe with "Early Action")	270 Mt of CO_2 in 2016 (incl. Early Action)
Buildings	Recast EPBD 2010/31/EC	2010	60 – 80 Mtoe/year by 2020	160 to 210 Mt/year CO_2 in 2020
Households	Minimum standards for televisions	2010	43 TWh in 2020 (incl. above in Ecodesign)	17 Mt of CO_2 in 2020
Transport	Tyre labelling Regulation (1222/2009/EC)	2009	1.5 Mtoe in 2020	4.5 Mt of CO_2 in 2020
Transport	Emissions new cars (130 g CO_2/km 2015)	2008	Potentially very large impact	
Transport	Inclusion of aviation in EU ETS	2012	59 Mtoe in 2020 (based on CO_2 emissions)	183 Mt of CO_2 in 2020
Industry	EU emission trading scheme	2005	Limited impact due to over-allocation	
Industry	Minimum standards for electric motors	2011	135 TWh in 2020 (incl. above in Ecodesign)	54 Mt of CO_2
Tertiary	Minimum standards for commercial lighting	2008	35 TWh in 2020 (incl. above in Ecodesign)	14 Mt of CO_2