

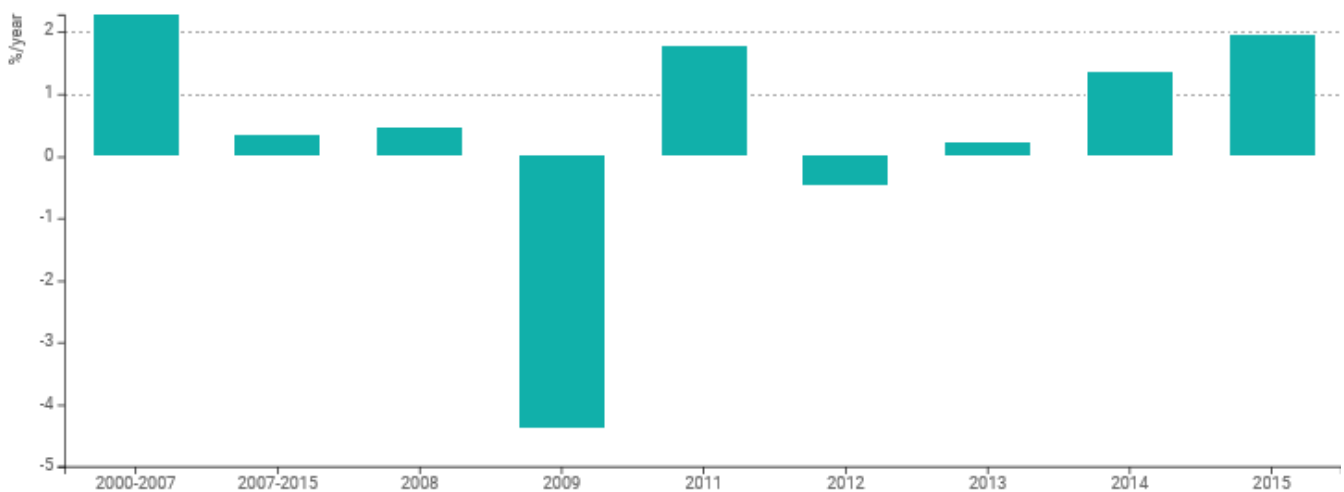
# Sectoral Profile - Overview

## Energy consumption pattern and drivers

### GDP growth rate very erratic since 2007

- Slowdown of GDP since the global economic crisis: 0.4%/ year (of which -4.4% in 2009) against +2.3%/year from 2000 to 2007.
- Continuous increasing trend since 2012 (up to 2%/year in 2015). As a result, GDP in 2015 has exceeded the level reached in 2008 (i.e. before the crisis).

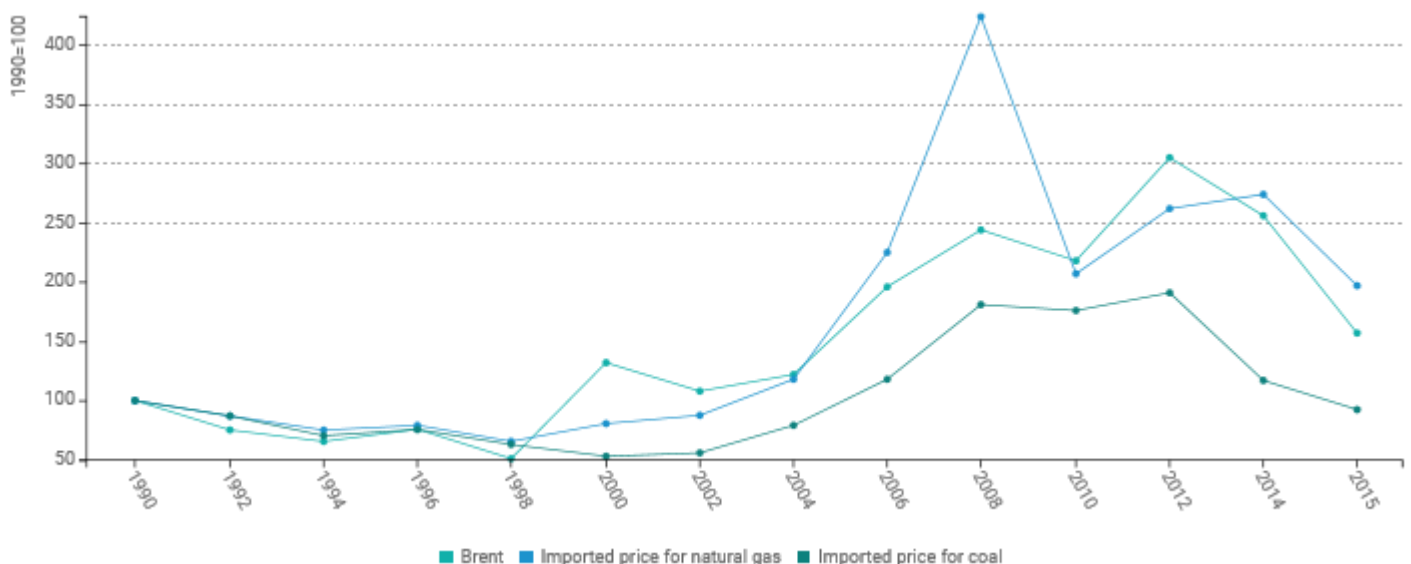
*GDP growth in the EU*



## Energy prices

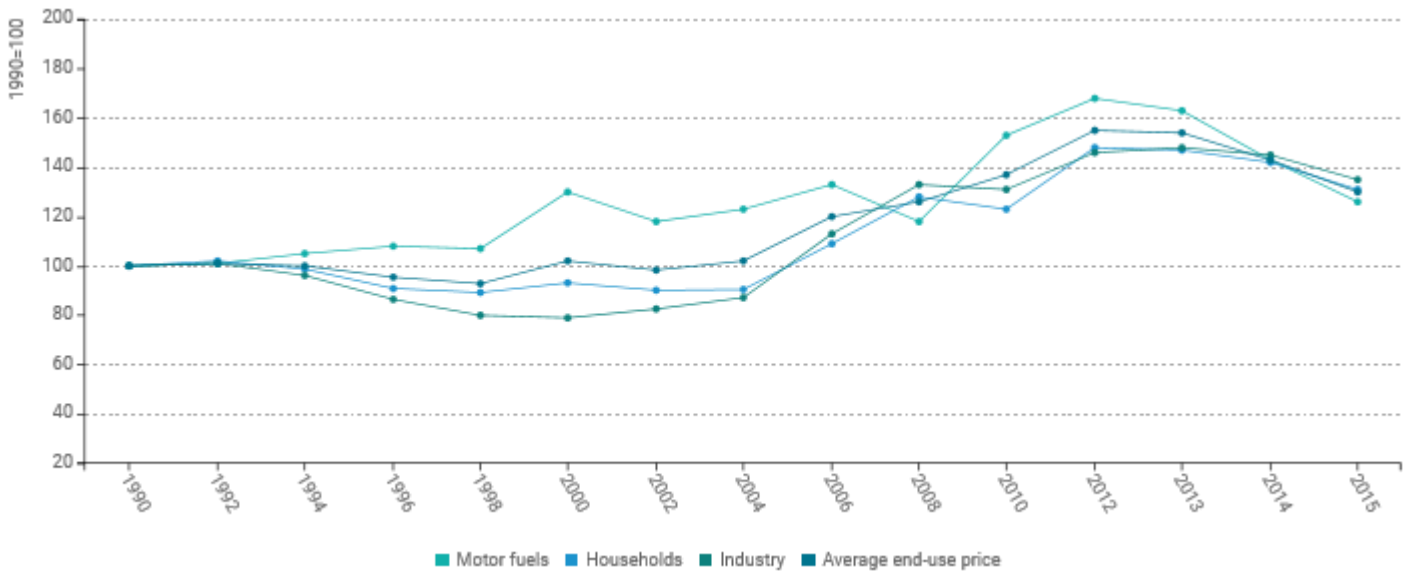
- Peak increases of the prices in 2000 (only for Brent), 2008 and 2012-2013.
- Drop in international fuel prices in 2009 (e.g. -37% for oil)
- Since 2012, global decreasing trends for international energy prices.
- In 2015, prices are around 1.5-2 times higher for oil and gas than in 1990.

*International energy prices (EU)*



- Very rapid increase of the end-use energy prices since 1990 (around 30%).
- Since 2012, rapid decrease of energy prices (-5.7%/year), mainly for motor fuels (-9%/year), for households (-4%/year) followed by industry (-2.8%/year).

*Average real energy prices by sector (EU)*



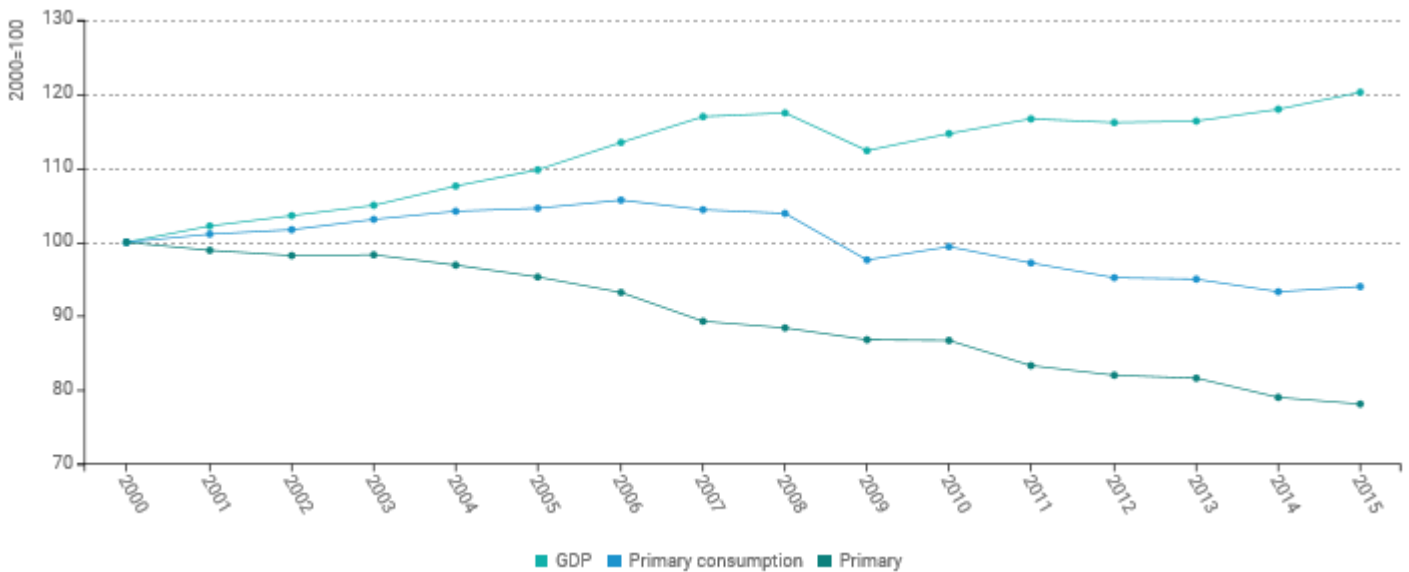
Energy prices by sector: weighted average prices by energy (electricity, gas, fuel, coal) on the basis of energy market shares.

Source: Eurostat

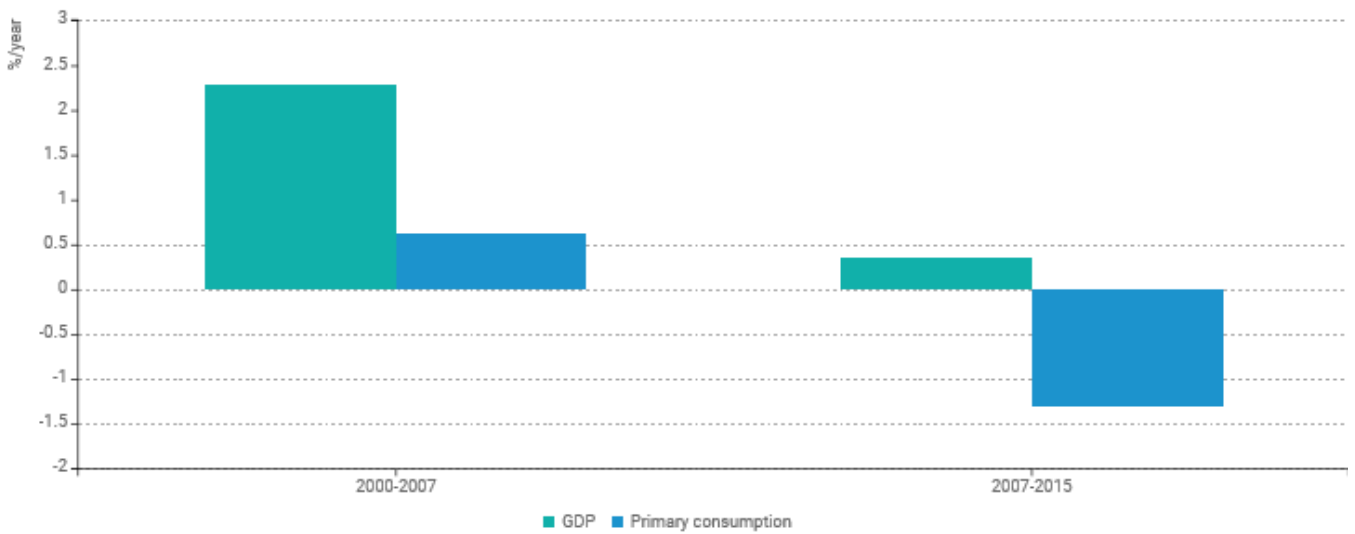
### Primary consumption and GDP

- Strong reduction of the primary consumption since 2007 (-1.3%/year, against 0.6%/year over 2000-2007), although the GDP remain quite low (+0.4%/year, against 2.3%/year from 2000 to 2007).
- As a result, primary energy intensity has decreased by around 1.6%/year since 2000

*Primary consumption and GDP trends (normal climate) in the EU*

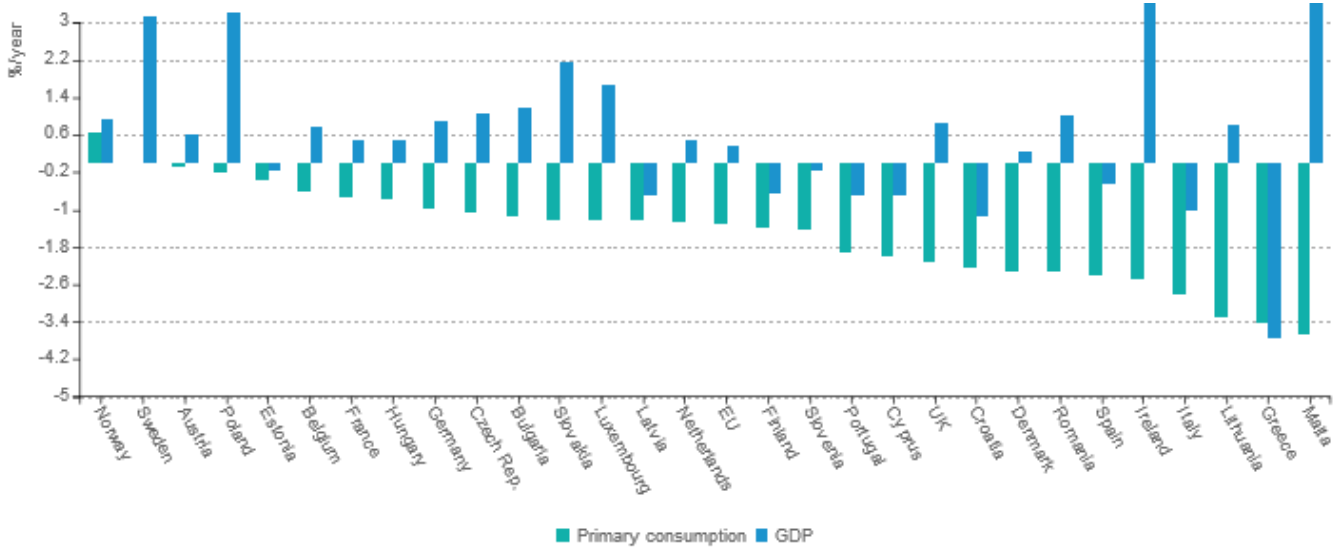


### Annual growth rate of primary consumption (normal climate) and GDP trends (EU)



- Decreasing trend of the primary consumption in most countries:

### Primary consumption (normal climate) and GDP trends (2007-2015)

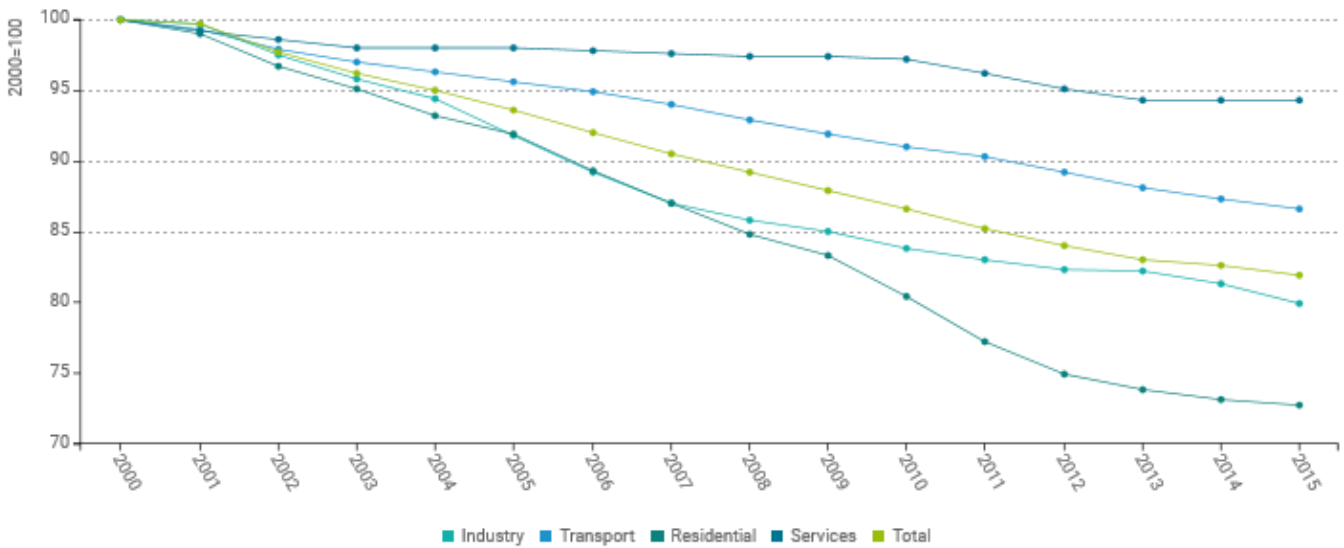


# Energy efficiency trends

## Energy efficiency trends of final consumers

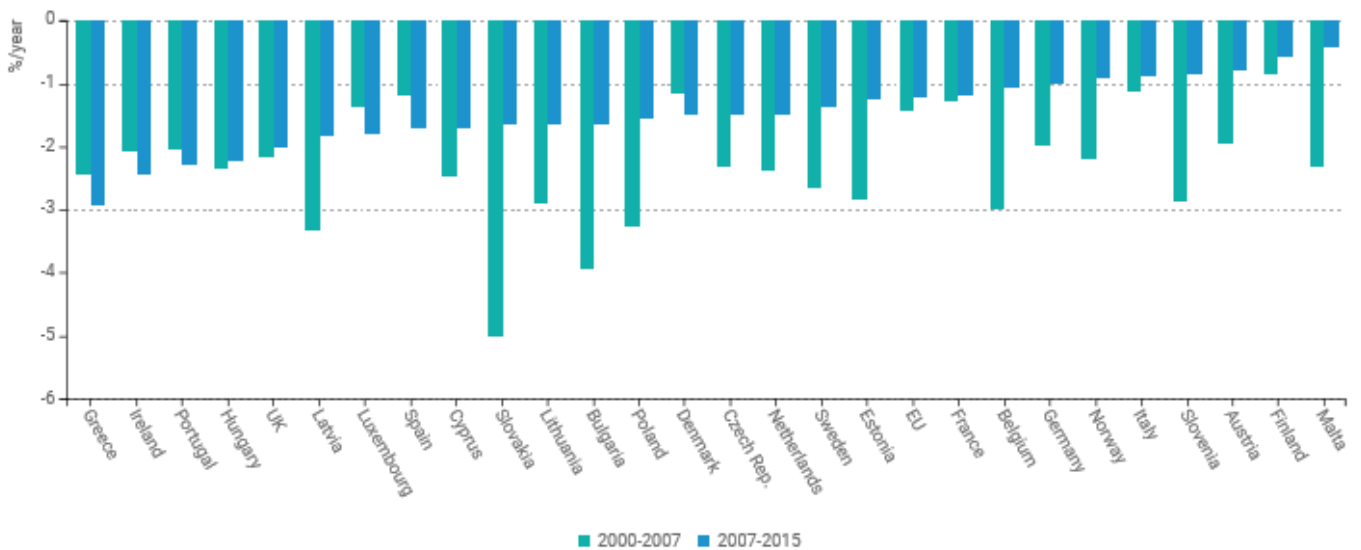
Energy efficiency of final consumers improved by 1.3%/year between 2000 and 2015, with a slight slowdown from 1.4%/year before 2007 to 1.1% /year since 2010 (ODEX=82 in 2015 --> 18% energy efficiency improvement or 1.3%/year). Larger gains for households (2.1%/year). Rate of improvement divided by 2 in industry, since the economic crisis (-1%/year since 2007 compared to 2% /year before). Regular but limited improvement in transport (1%/year): greater for cars than for trucks. Few “measurable” progress in services.

*Energy efficiency trends of final consumers (EU)*



Energy efficiency improvement above 1.5%/year since 2007 in 15 countries, of which 7 have accelerated their rate of improvement since 2007.

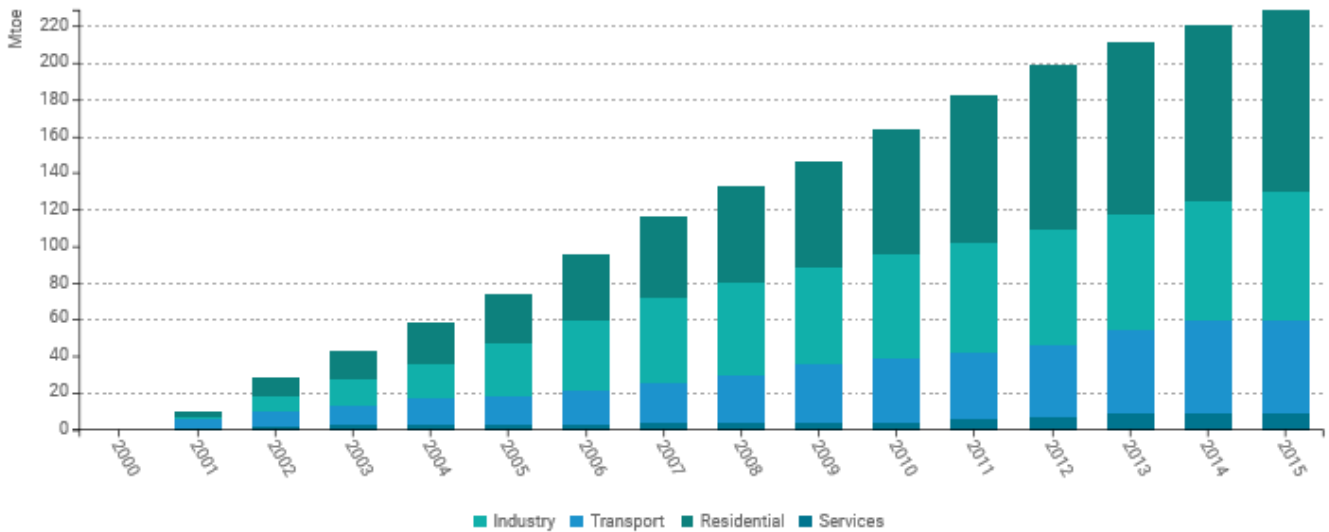
*Energy efficiency trends of final consumers (All countries)*



## Evaluation of energy savings

Around 230 Mtoe energy savings in 2015 compared to 2000 (i.e. 20% of final energy consumption). Without these savings the final energy consumption would have been 20% higher in 2015. Most of these savings come from households (44%), 30% from industry, 22% from transport and 4% from services.

*Energy savings in the EU*

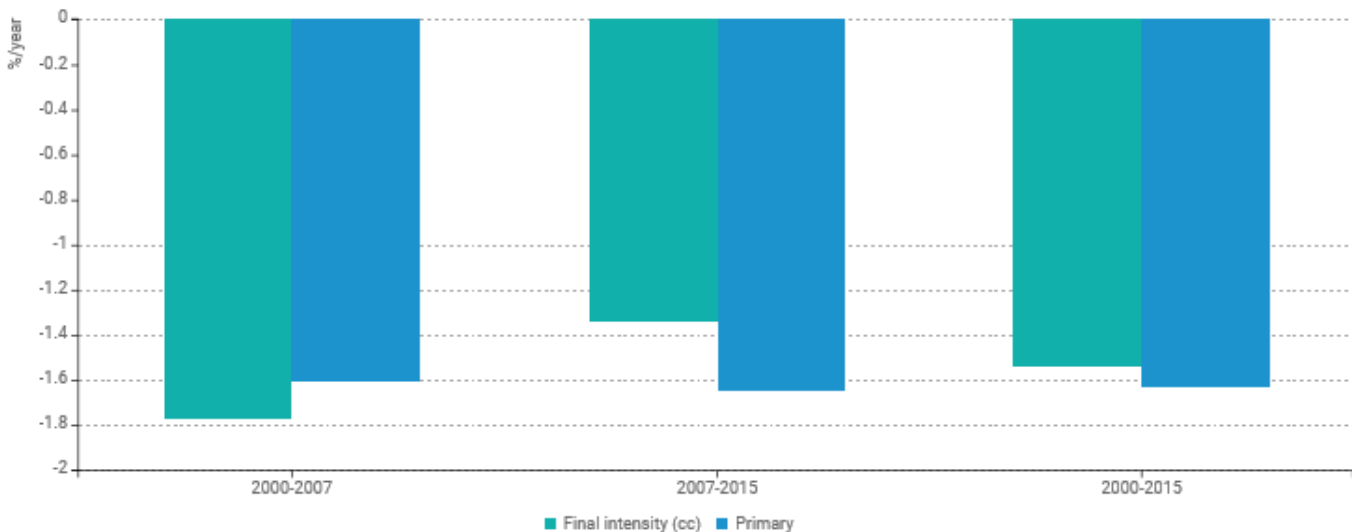


## Energy intensity

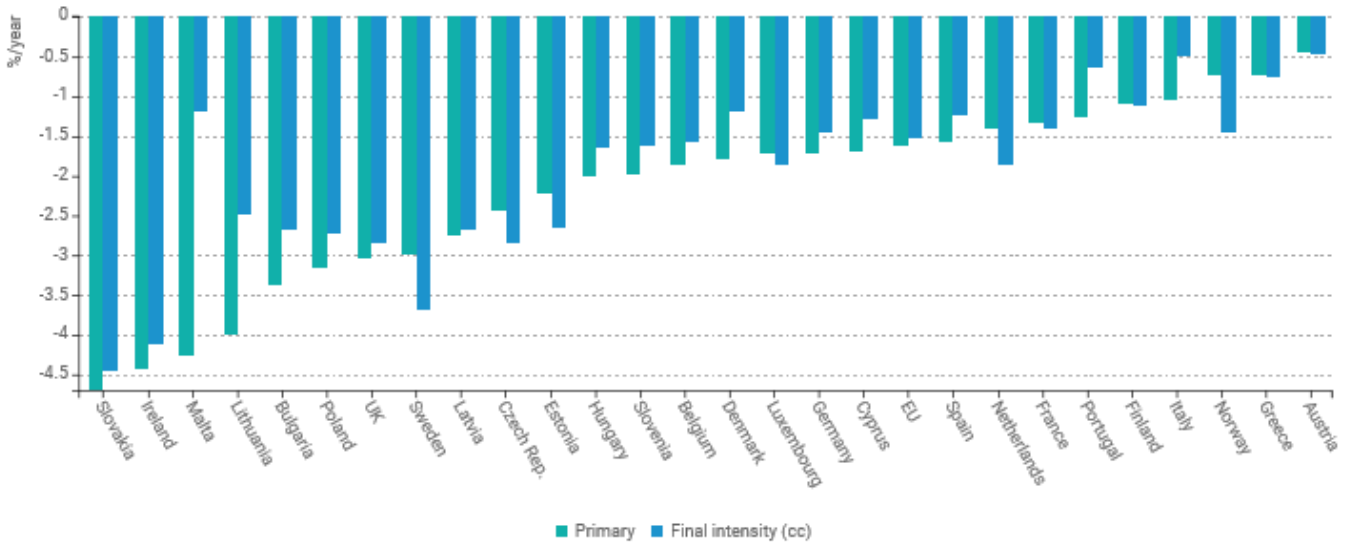
### Primary and final energy intensities trends

- Since 2000, the primary intensity decreased faster than the final intensity in 2/3 of countries as well as in the EU as a whole due to decreasing losses in the power sector (increase in thermal generation efficiency, more renewables, import increase etc).
- Reverse trend in 1/3 of countries, due to specific factors (eg increasing share of non-energy uses in The Netherlands, decreasing share of hydro in Sweden and Norway).

*Primary and final energy intensities trends in the EU (normal climate)*



### Primary and final energy intensities trends (2000-2015)

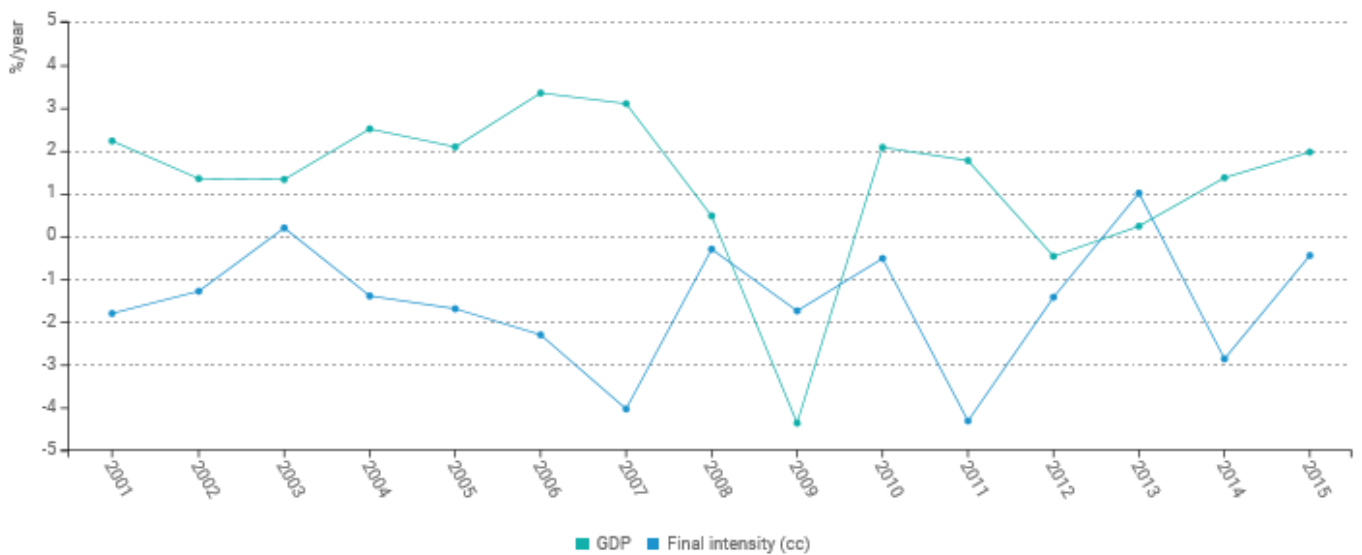


Note: Energy consumption at normal climate

### GDP and energy intensity

- Increasing final energy intensity when GDP growth falls under 2% : part of final consumption is not dependant on GDP; 2009 did not follow that trend because of deep structural changes in industry (greater contraction of activity in energy intensive branches).
- The highest the economic growth, the more rapid the decrease of the intensity; again, this did not happen in 2010 for instance as the significant rebound of activity was accompanied by an increase in the energy intensity.

### GDP and final energy intensity growth (EU)

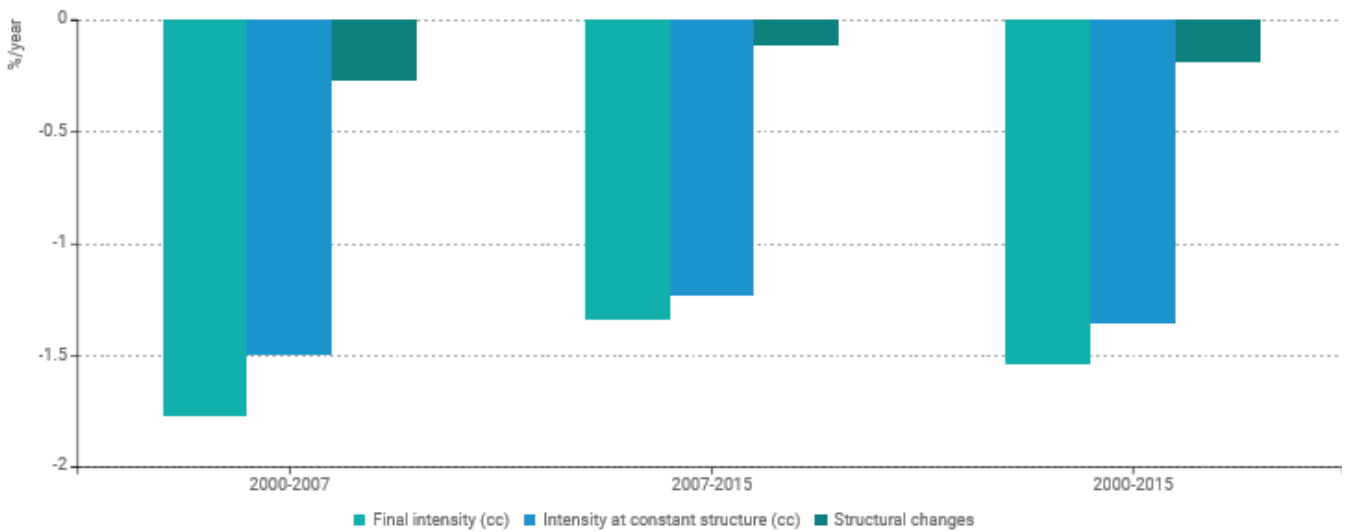


Note: Final energy intensity at normal climate

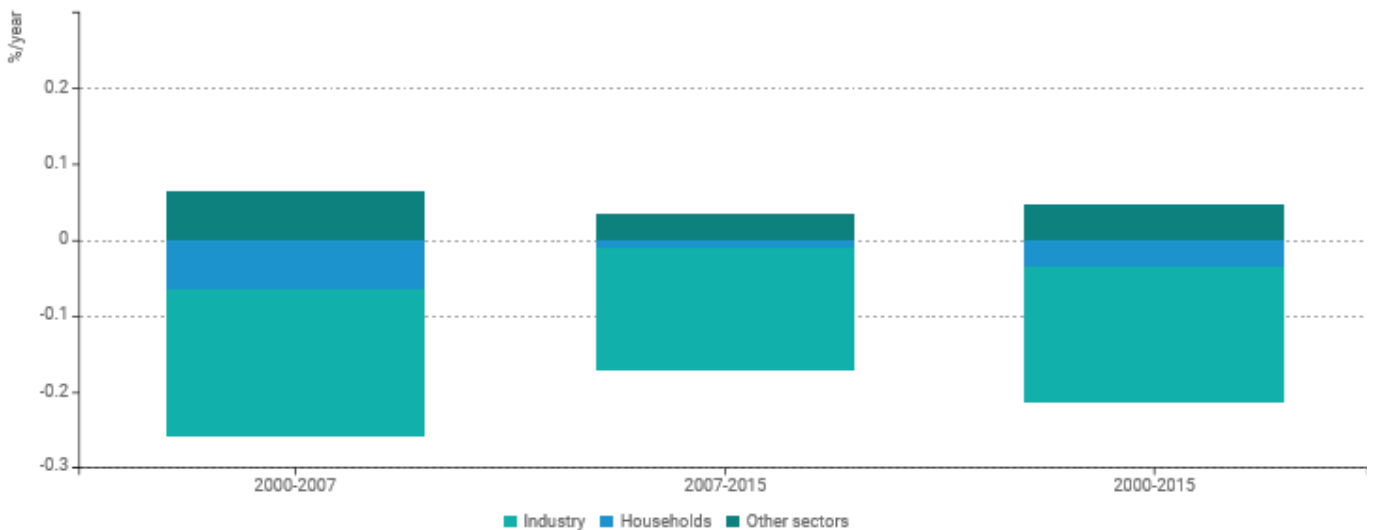
## Impact of structural changes on final intensity

- Structural changes only explain 15% of the final intensity decrease since 2000 (even less since 2007).
- Structural changes are mainly due to structural changes within industry to less energy intensive branches

*Impact of structural changes on the final intensity (EU)*

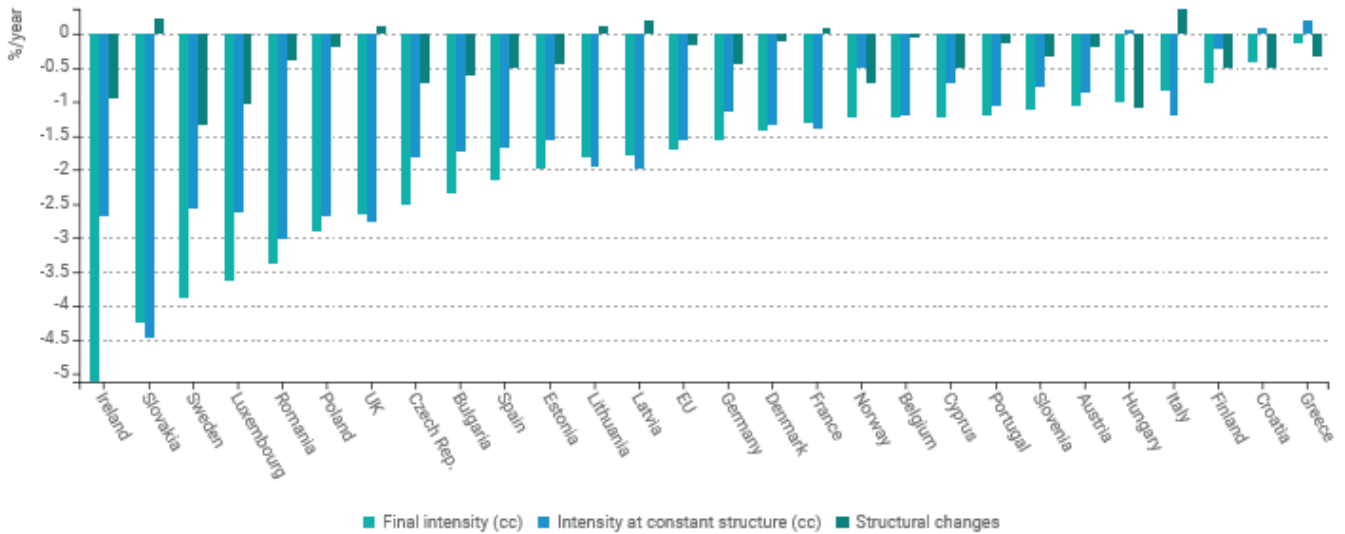


*Contribution of structural changes (EU)*



- Most countries have moved to less energy intensive sectors .
- In almost 1/4 of EU countries structural changes explained more than 20% of the final energy intensity decrease.
- In some countries, such as Sweden, Finland, Spain, Greece and Austria, they explain more than 50% of the intensity decrease.

### Impact of structural changes on the final intensity in EU countries (2005-2015)

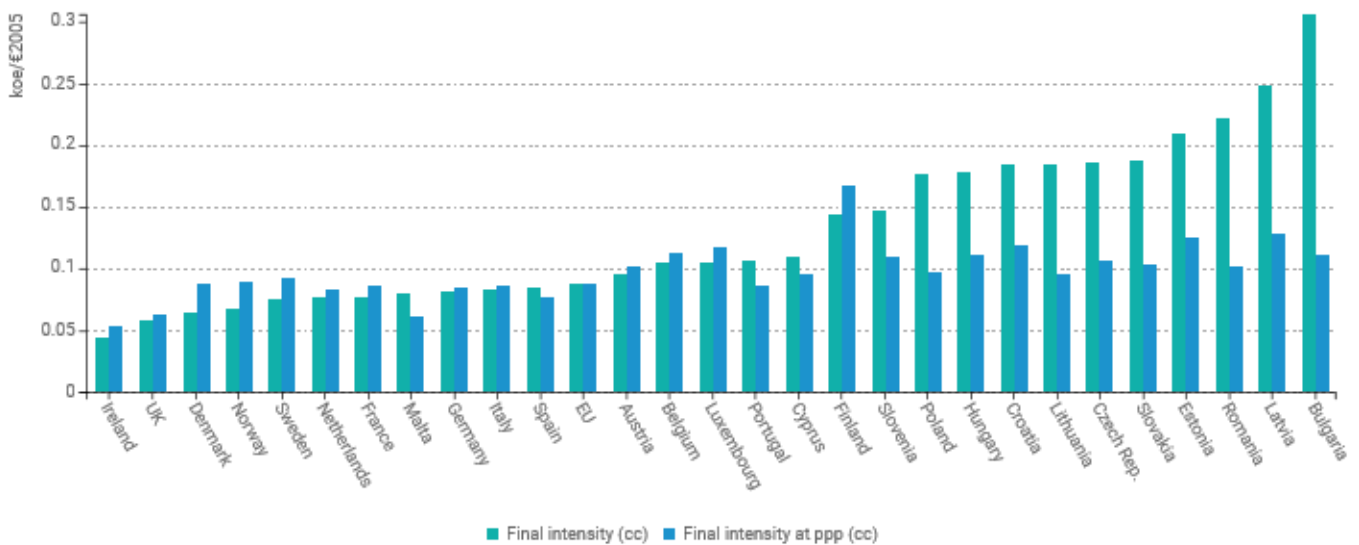


Note: Final energy intensity at normal climate (cc)

### Adjusted energy intensities

- After adjustment for differences in general price levels, by converting GDP at purchasing power parities (ppp), final intensities decrease for countries with low prices, such as Central Eastern or southern countries, which narrows the gap among EU countries : for instance, the adjusted intensity is twice lower than the observed one in Bulgaria, Lithuania, Latvia and Slovakia.

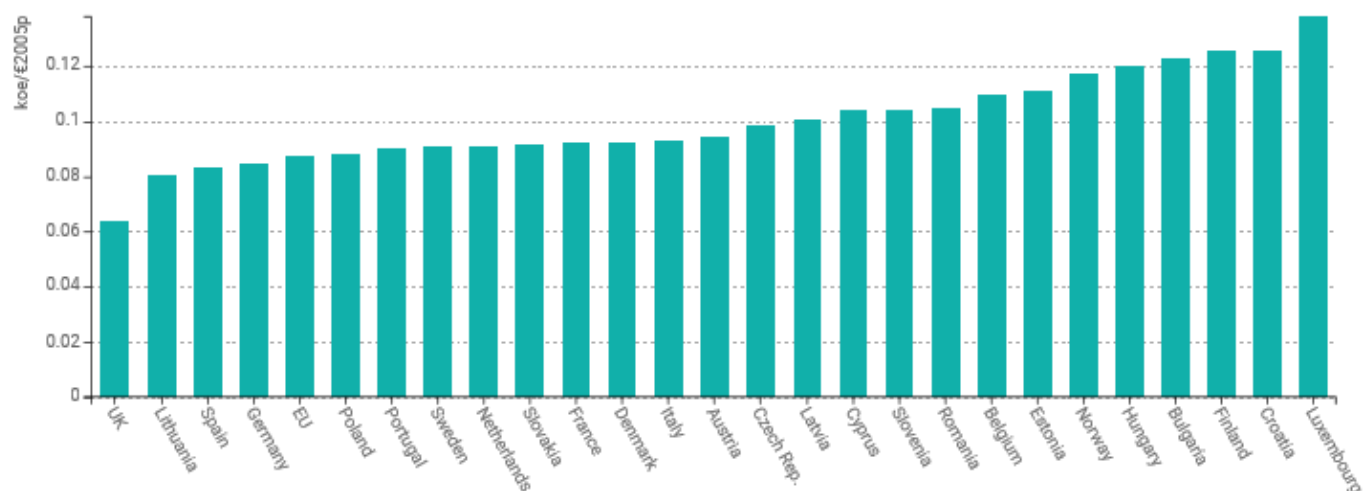
### Final energy intensities at ppp in 2015 (normal climate)



Some of the differences observed in the final energy intensity levels after ppp corrections can again be adjusted to account for some other quantifiable national characteristics, such as the climate and the structure of economic and industrial activities. This new adjustment, at EU average economic structure and climate, makes the comparison of final energy intensities more meaningful.



### Final energy intensities adjusted at ppp and EU average structure and climate (2015)

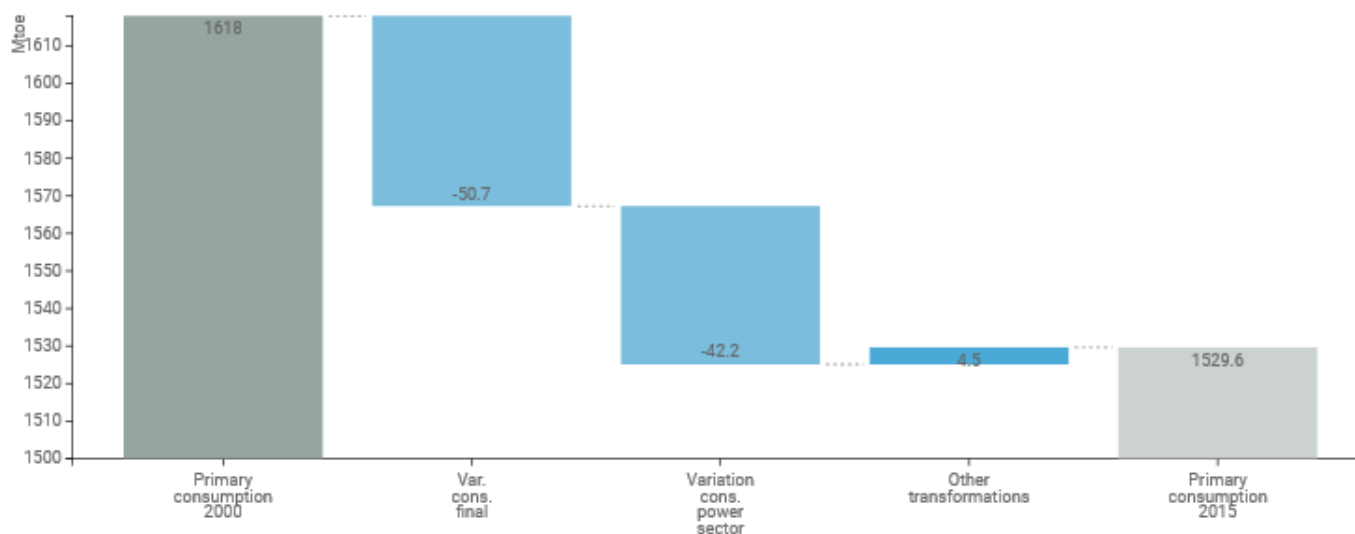


## Decomposition of energy consumption

### Drivers of energy consumption variation

Decreasing trend for the primary energy consumption by 88 Mtoe between 2000 and 2015 due to 2 combined effect, a reduction in the final consumption (-51 Mtoe) and of lower consumption in the power sector (-42 Mtoe).

### Variation in primary energy consumption (EU)



## Drivers of energy consumption variation

- The final energy consumption decreased by 60 Mtoe between 2000 and 2015.
- Increase in activity contributed to raise consumption by 102 Mtoe, lifestyles and demography by around 40 Mtoe each.
- Technical energy savings decreased the consumption by 232 Mtoe.

