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Odyssee MUREII

Co-funded by the Intelligent Energy Europe Programme of the European Union

ODYSSEE-MURE, a decision support tool for energy efficiency policy evaluation

Recent energy efficiency trends in the EU

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Danish workshop, May 28th 2018

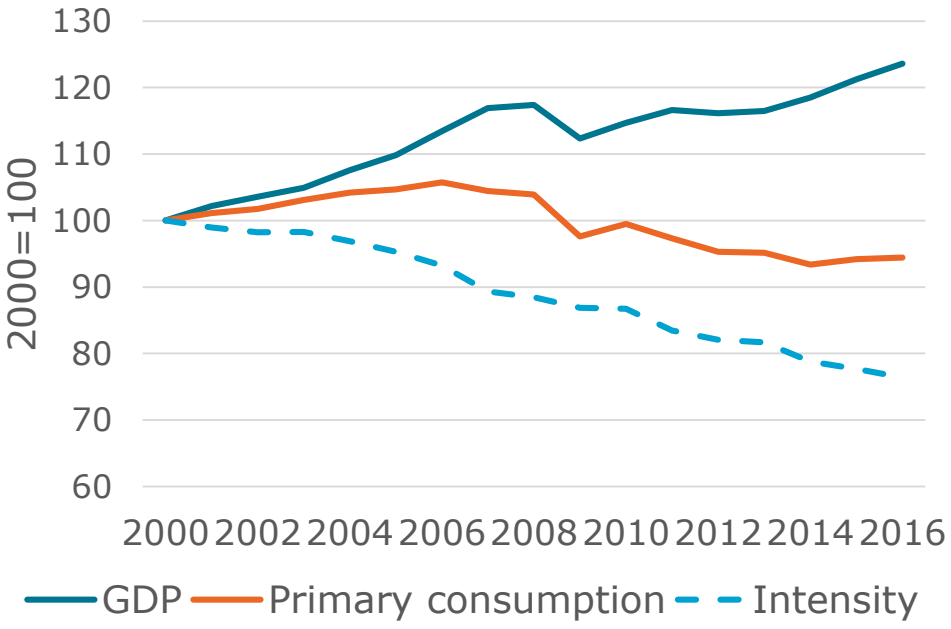
Outline

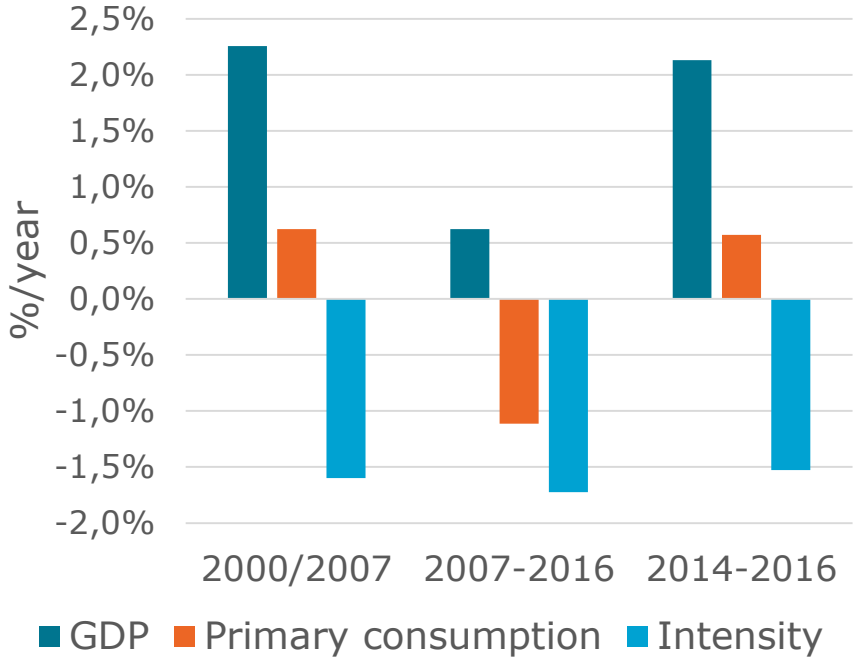
- Energy consumption trends
- Energy efficiency trends
- Drivers of consumption variation
- Energy intensity and structural changes

Energy consumption trends

- Slight progression of the primary consumption since 2014, 4 times slower than GDP, after a decrease of ~1%/yr between 2007 and 2014.
- Regular and rapid decrease of the primary energy intensity since 2000 (~1.7%/year)
- In 2016, EU primary energy consumption EU was closed to the 2020 efficiency target (4% higher).

Primary energy consumption and intensity vs GDP (EU 28)

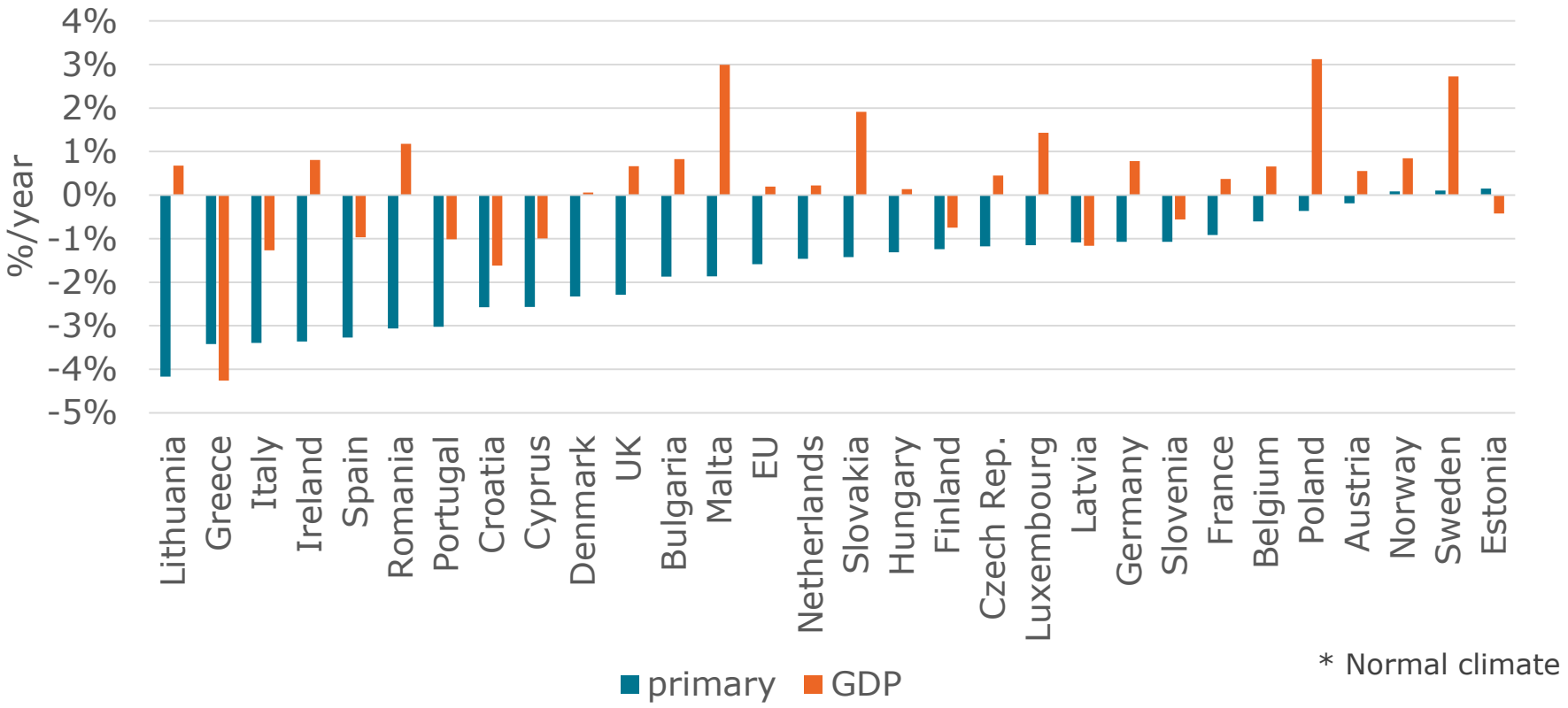




Consumption and intensity at normal climate, Source: Eurostat

- Decreasing trend of the primary consumption in all countries in the period of slow economic growth or recession*
  - ✓ Strong reduction, between -2 and -4%/yr in 11 countries;
  - ✓ Between -1 and -2%/yr in 12 countries

Variation of primary energy consumption* and GDP over 2007-2014

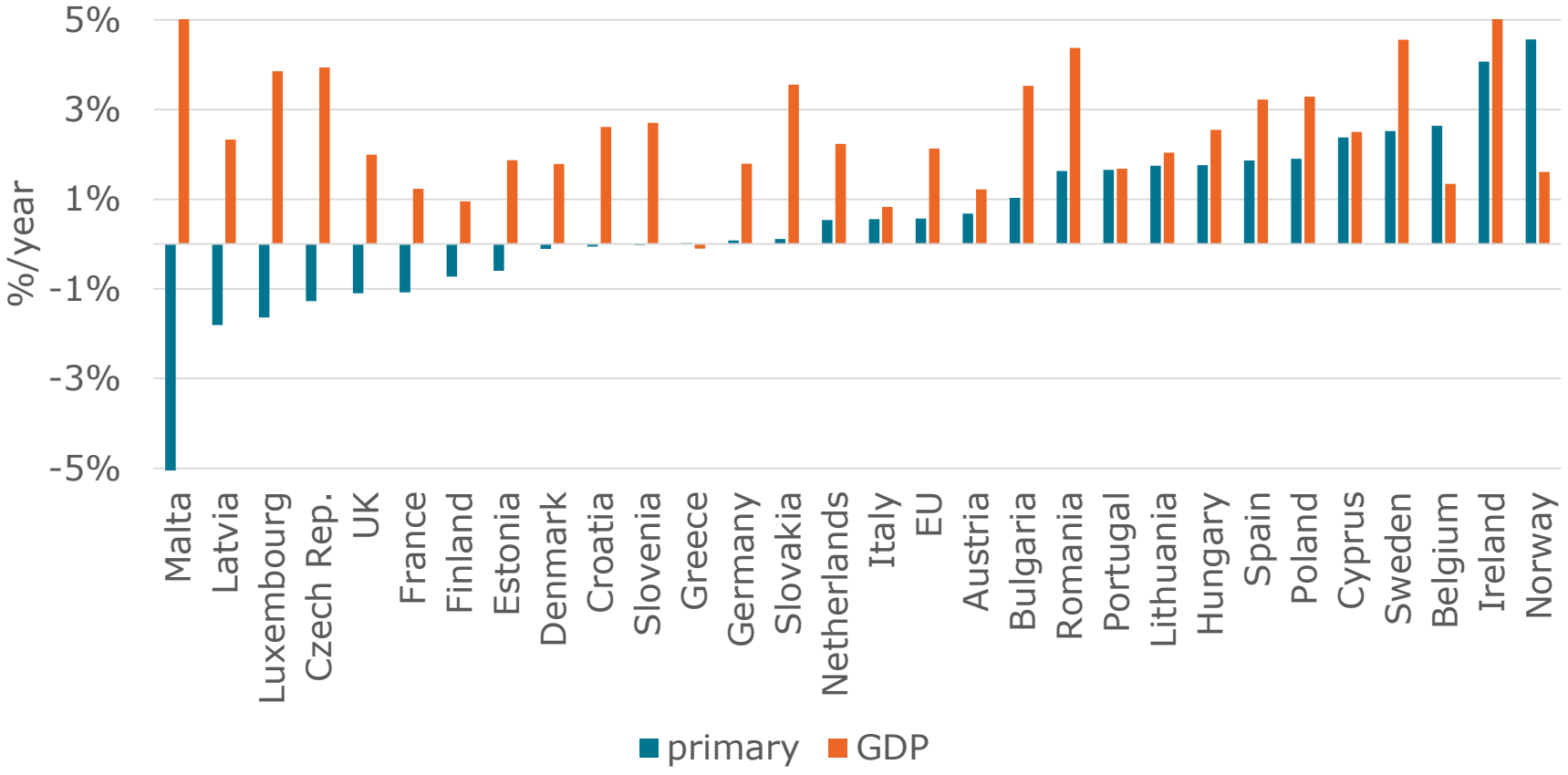


* Normal climate

**except in Poland, Sweden, Malta and Slovakia*

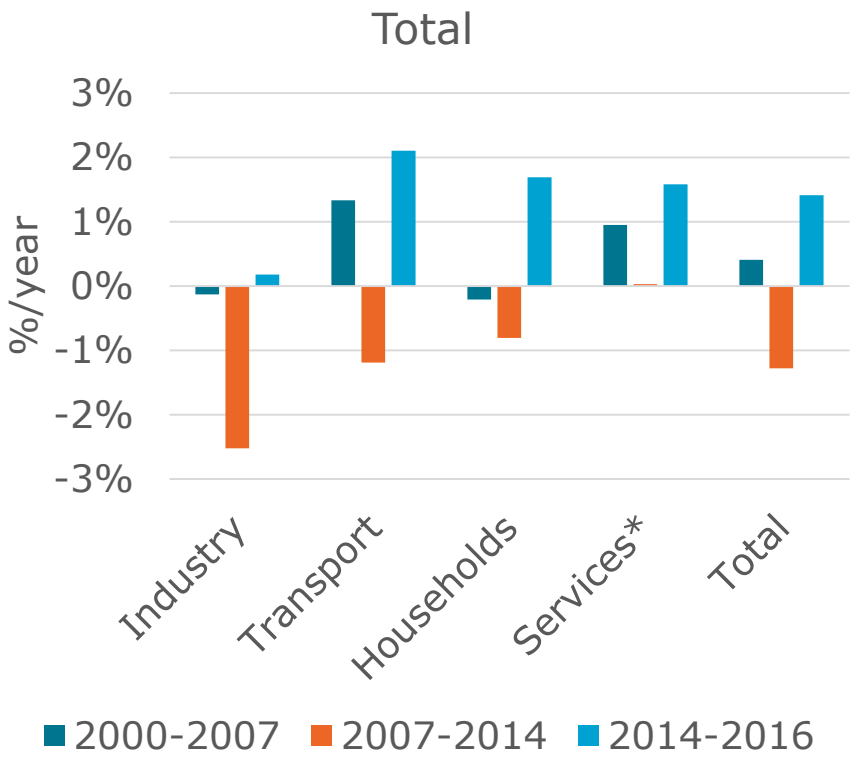
- Since 2014, with the economic recovery, increasing primary consumption in 18 countries as for the EU (that stood at 0.6%/year).
- For the other countries, decreasing consumption despite sustained economic GDP growth (except in France and Finland)

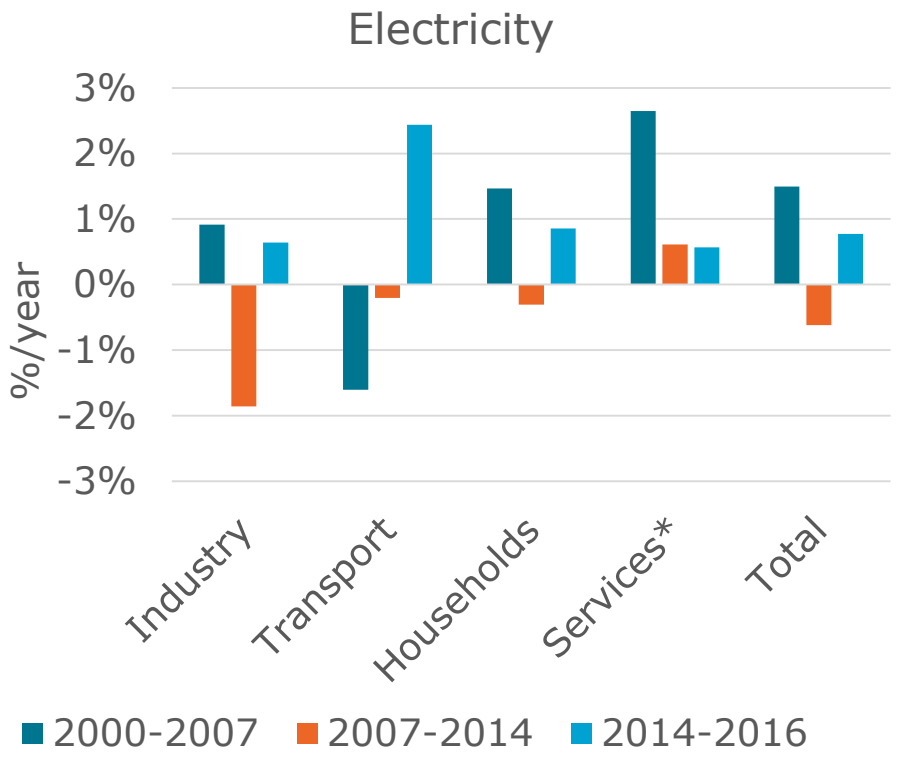
Variation of primary energy consumption* and GDP over 2014-2016



* Normal climate

- Decrease of the final consumption (total and electricity) from 2007 to 2014 in all sectors except services (-1.3%/yr for total, -0.6%/yr for electricity).
- Reverse trend since 2014: +1.4%/year for total but lower progression for electricity (0.8%/yr).



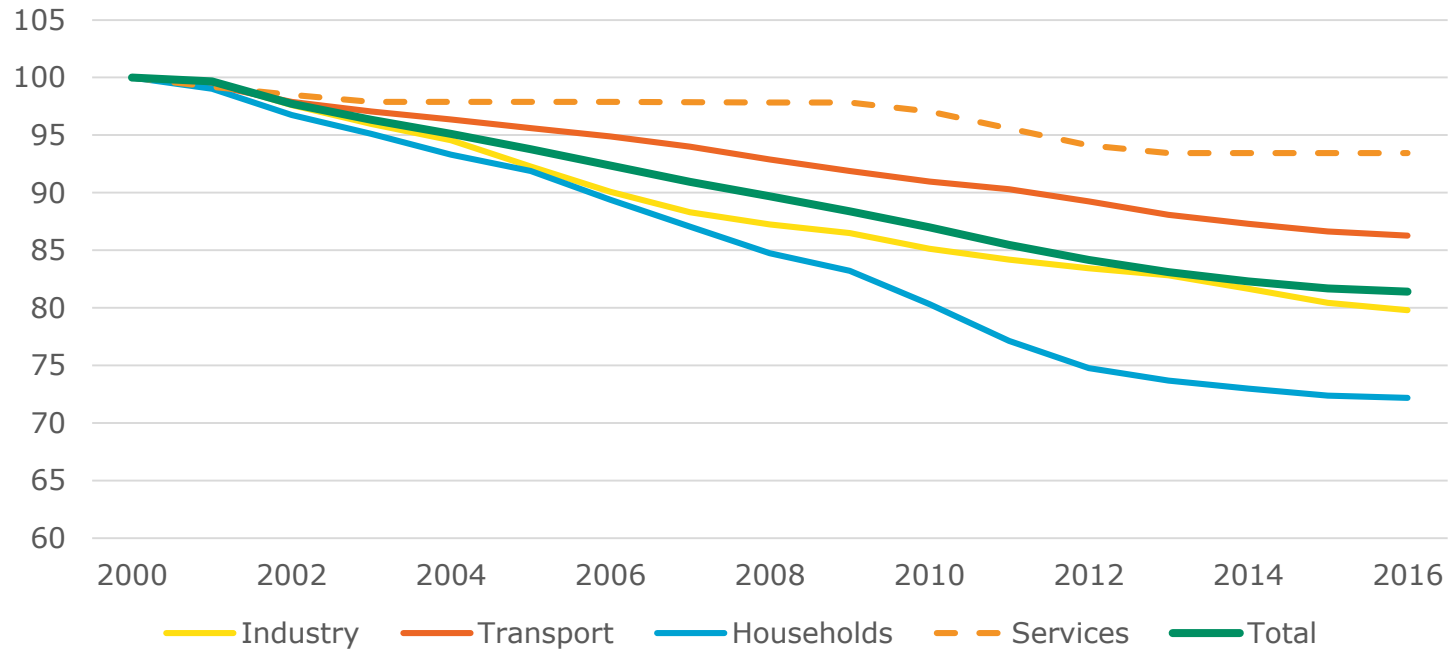


Households and services at normal climate (services include non-specified)

Energy efficiency trends

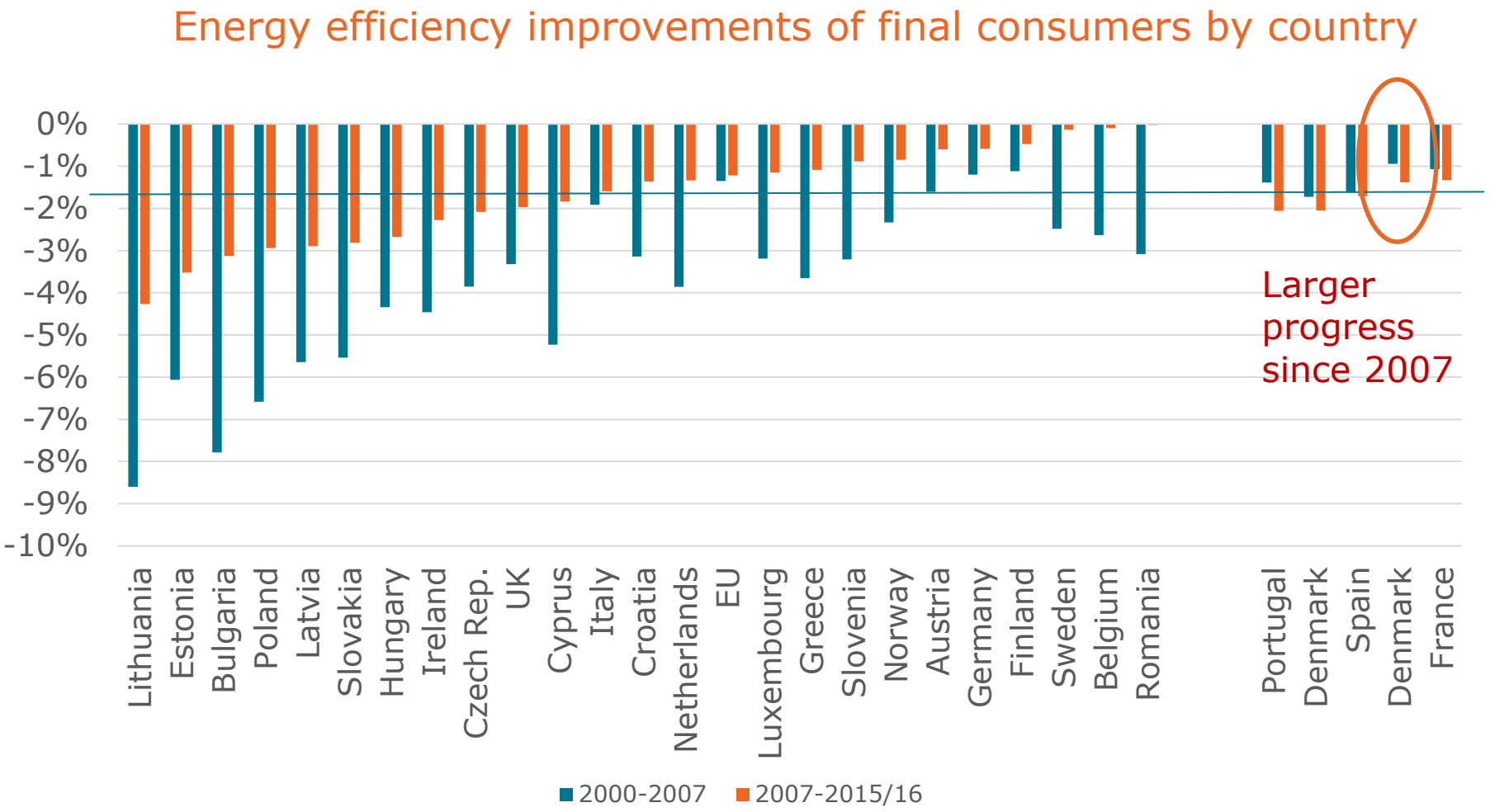
- Energy efficiency of final consumers improved by 1.3%/year between 2000 and 2016 (1.4%/yr before 2007 and between 2010-2014). Slight slow down between 2014-2016 (0.5%/year).
- Larger gains for households (2%/yr since 2000) with a slow down since 2012 (0.9 %/yr against 2.4%/yr over the previous period).
- Rate of improvement almost divided by 2 in industry, since 2007 (-1%/compared to 1.8%/yr before).
- Regular but limited improvement in transport (0.9%/year): greater for cars than for trucks.

Energy efficiency index (ODEX) for final consumers (EU)

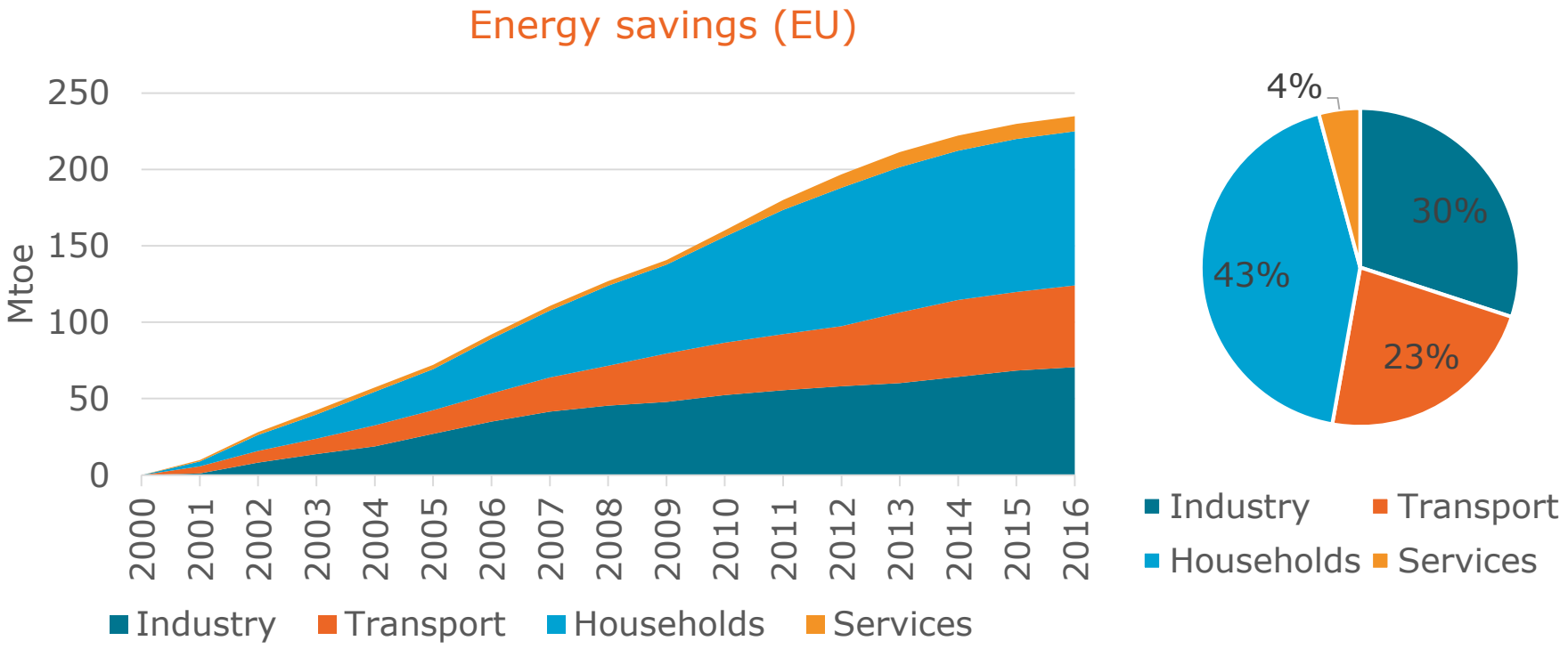


ODEX=81 in 2016 ➔ 19% energy efficiency improvement or 1.3%/yr

- Energy efficiency improvement above 1.5%/year since 2007 in 15 countries, of which 7 have accelerated their rate of improvement since 2007.
- To be compared to Article 7 target of EED.



- Around 235 Mtoe energy savings in 2016 compared to 2000 (i.e. 20% of final energy consumption).
- Without these savings the final energy consumption would have been 20% higher in 2016.
- Most of these savings come from households (43%), 30% from industry, 23% from transport and 4% from services.

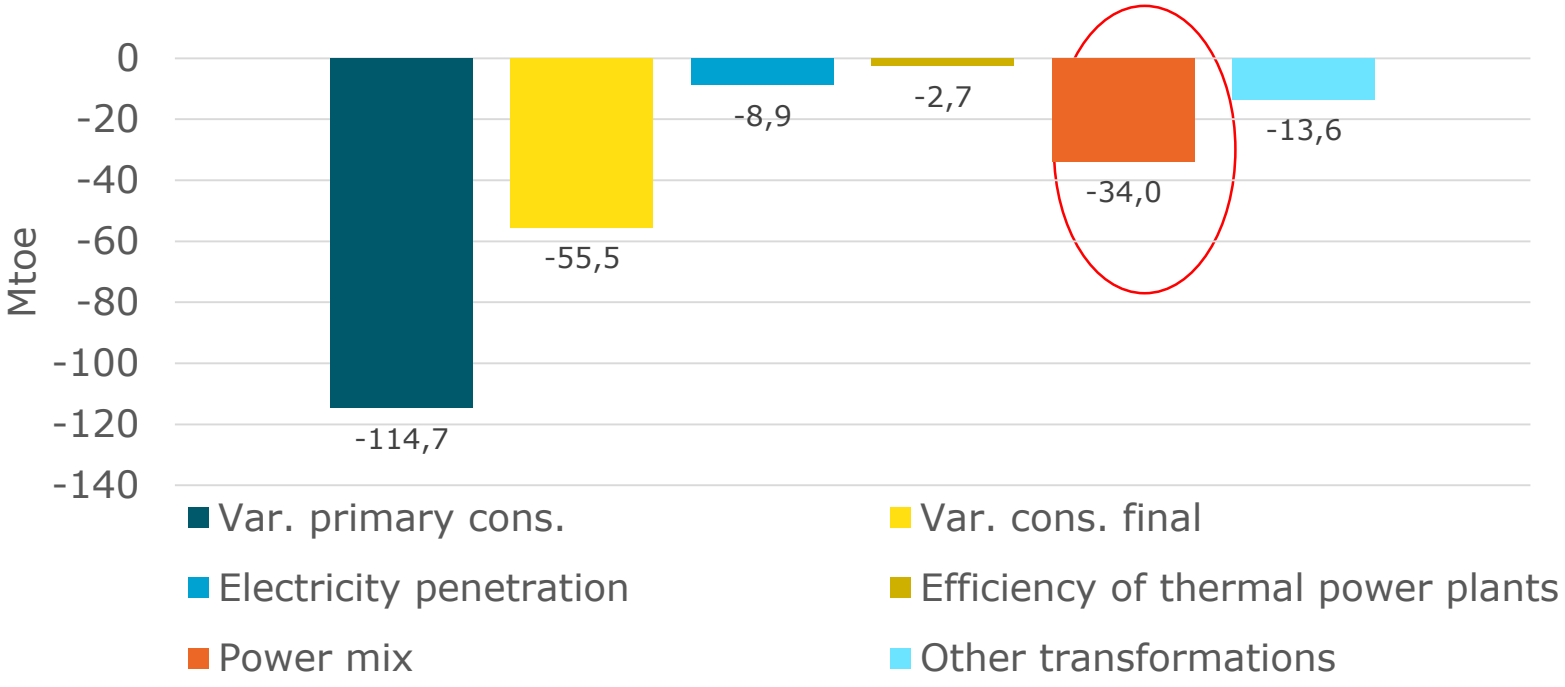


Drivers of consumption variation 2010-2016

▪The primary consumption decreased faster than the final consumption between 2010 and 2016.

▪This is mainly explained by a change in the power mix (higher share of renewables, lower share of nuclear).

Drivers of primary energy consumption variation (EU): 2010-2016

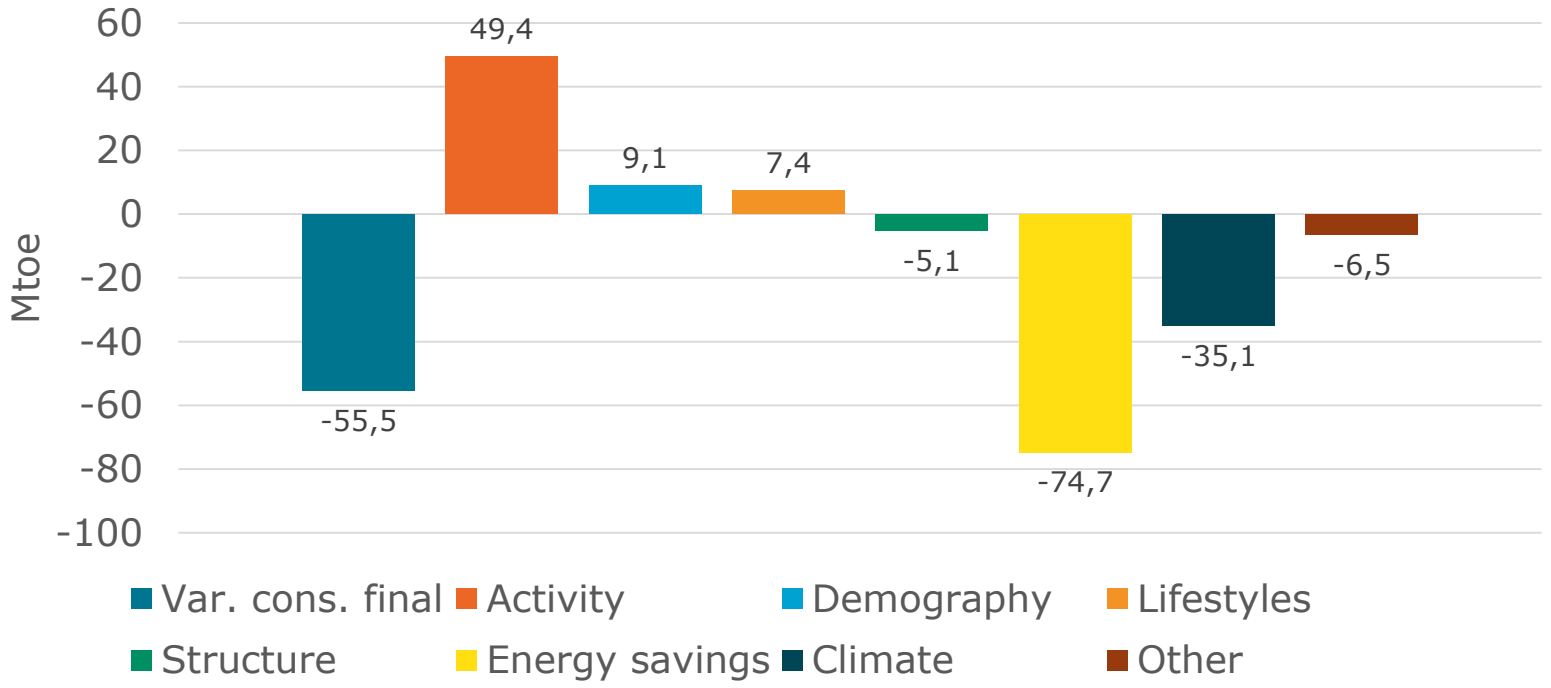


http://www.indicators.odyssee-mure.eu/decomposition.html

▪Between 2010 and 2016, 3 main factors contributed to raise the final energy consumption: 1) economic activity (by 50 Mtoe) demography (9 Mtoe) and lifestyles (appliance ownership and larger dwellings) (7 Mtoe). All these two factors have a lower impact than before.

▪Four factors offset these effects and contributed to lower consumption by 110 Mtoe, among which the largest are energy savings (75 Mtoe) and the colder climate in 2015 compared to 2010 (35 Mtoe). The magnitude of the climate is becoming quite large compared to the other factors.

Drivers of final energy consumption variation (EU): 2010-2016



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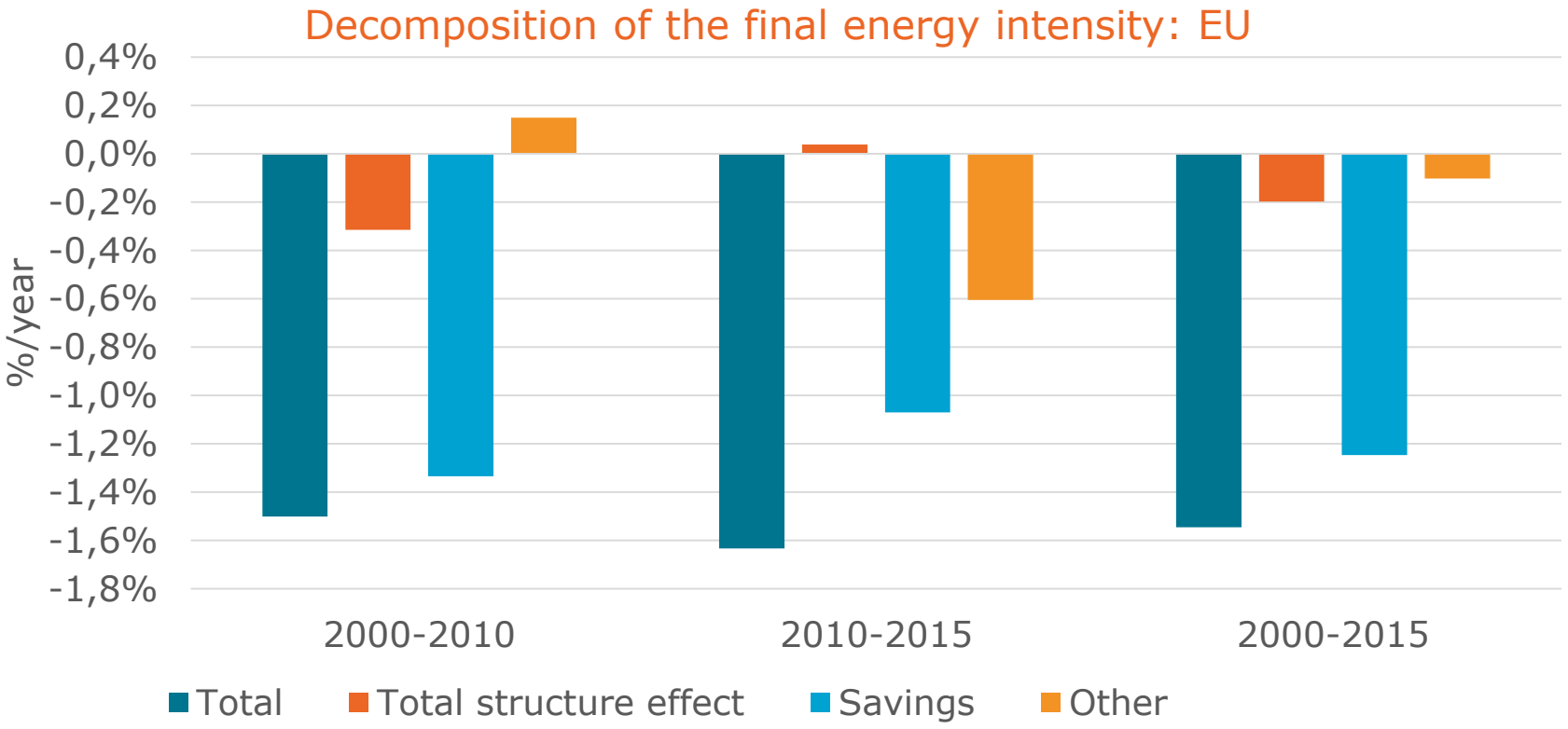
Energy intensity and structural changes

The final energy intensity can be explained by 3 factors:

- Structure effect (between main sectors in the GDP and between industrial branches),
- Energy savings and
- other effects.

Savings explained a large part of the intensity decrease (around 80%)

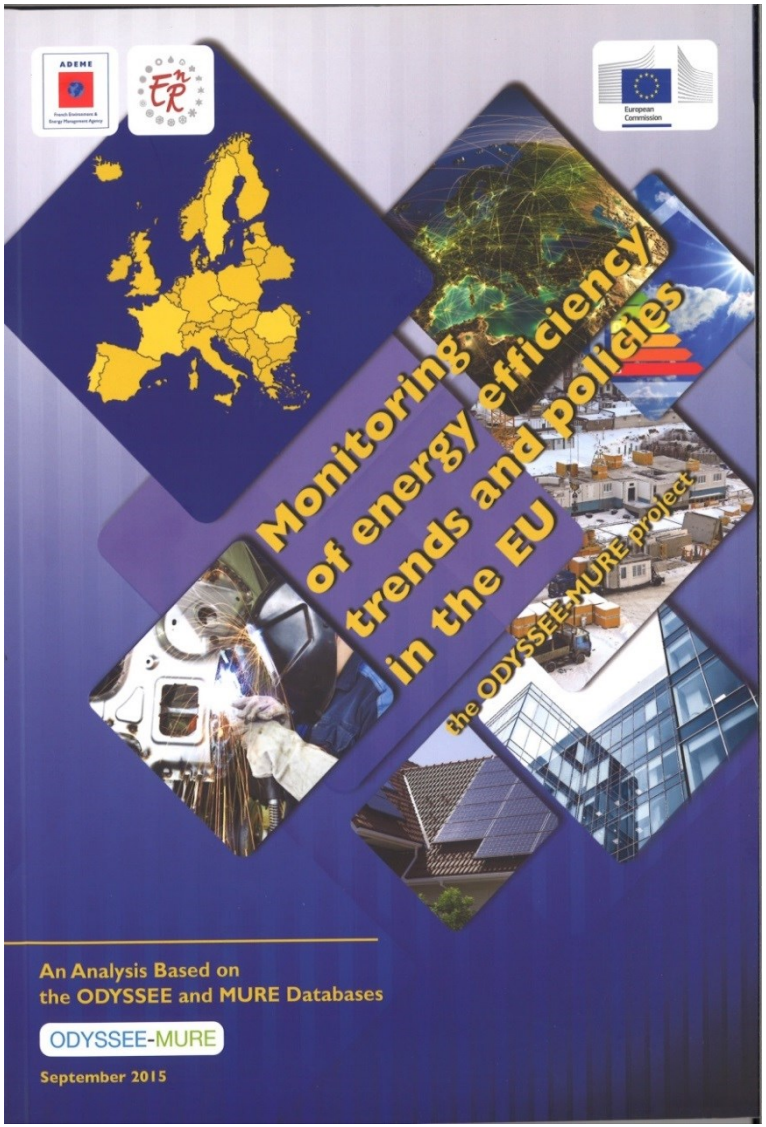


Conclusions

- The primary consumption target for 2020 should be easily reached, taking into account the present trends.

- The increasing share of renewables explains around 30% of the decrease in primary energy consumption reduction, while 60% of that reduction is coming from final consumers.

- Energy efficiency improved the most in sectors with strong regulations (households and cars) and the trend was not affected by the crisis and was even reinforced.



Thank you for your attention

For more information

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