



2016: stable CO₂ emissions in the G20 countries

The energy mix remains overly carbon intensive despite the slight decrease of coal

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Enerdata releases its “Global Energy Trends” annual publication, the first analysis of 2016 figures available to energy market players. Based on G20 data (accounting for 80% of global demand), this analysis highlights the key evolutions of the global markets.

2014 and 2015 showed a trend change with the stabilisation of energy consumption and CO₂ emissions. Were these trends confirmed in 2016?

- Did the global economy become less and less energy intensive? Less and less carbon intensive?
- What are the dynamics according to the type of country?
- Are the current dynamics compatible with a 2°C objective at the end of the century?
- Which trends by type of energy can be observed?

Key Points from the Enerdata 2016 World Energy Trends Report ...

2.6%: a very weak economic growth!

There has been no economic recovery in the OECD countries (1.8%, or -0.4 pt / 2015), notably with a stable but reduced growth in the EU and a slight decline in the USA.

Outside the OECD, while China and India are around 6-7%, Brazil is still in recession and Russia is barely recovering.

+0.9%: slight recovery in energy consumption

The G20 consumption goes up to 10.9 Gtoe, after 2 years of stability. However, this is still significantly lower than the historical trends (+ 2% per year over the last 10 years).

Within the OECD, consumption is barely growing (+ 0.4%), driven in particular by South Korea, Turkey and Canada. It remains stable in the USA and the EU.

Outside the OECD, after a historical year of stability in 2015, 2016 saw a slight recovery (+ 1.4%, + 1pt), driven by strong growth in India (+ 4.4%) and the recovery in China (+ 1.4%).

0%: a new year of stable CO₂ emissions

For 3 years now, CO₂-energy* emissions of the G20 have remained stable around 26 GtCO₂.

The stagnation observed in 2016 stems from both weak economic growth, reductions in energy intensity and changes in the mix, and in particular the further decline of coal in China and the USA.

-2.7 %: decrease in the carbon intensity of the economy**

In 2016, one € or one \$ of global GDP generated 2.7% less CO₂ emissions than in 2015. This is less than in 2015 (-4%), but above the 10-year trend (-2%).

The most notable progress this year occurred in China, the United Kingdom, Mexico...

On the contrary, there is a deterioration (and an increase in emissions) in several countries: Turkey, Canada, Russia, Argentina, France ...

These results show trends still far from the climate targets of COP21

On the climate side, the confirmation of the CO₂ emissions stagnation is good news, although it is partly due to weak economic growth.

However, the achievement of the objectives outlined in COP21 (1.5 to 2°C increase in temperature by the end of the century) requires a significant reduction in emissions.

Thus, an assumption of global GDP growth of 3% per year would imply a reduction of carbon intensity by 5 to 6% per year, which is well above the current dynamics ... (source: Enerdata scenarios)

At the level of energy markets, the global recovery in consumption is taking shape in several ways:

The oil demand, mainly linked to the transport sector, continues to rise.

This increase, in line with the 2015 figures (1.4%), stems mainly from the strong growth of the vehicle fleet (China, India ...) and, to a lesser extent, the drop in prices (in particular in the USA).

2016 was also underpinned by a reversal of the trends in oil prices, as a result of the world output reduction.

Recovery for the natural gas market

After several years of stagnation, gas demand has increased (+2%), thanks to the rising penetration of gas in China and India, but also thanks to the strong growth in Europe (Germany, France, UK, etc.), allowed by a renewed competitiveness in relation to coal.

Gas has also continued to replace coal in the USA (+1%) and has stabilised in Russia.

Eventually, 2016 saw a significant increase in LNG market volumes, thanks in particular to the capacity increases in Australia.

New drop of coal consumption (-3,6%)

For the third consecutive year, coal has seen its consumption reduced in several major regions: China (-5%), the USA (-8%), the EU (-8%) and the UK. Only India, and to a lesser extent Turkey, Indonesia and Japan, have undergone a consumption increase.

Slight recovery in electricity consumption (+1%)

This recovery is the result of two separate trends, with a strong growth outside the OECD (+4%), driven by China and India (5-6%), and a stable demand in the OECD.

The electric mix continues its slow transformation

The electricity generation mix is evolving very slowly, with coal still accounting for 43%. Over the last few years, the declining weight of nuclear power and the growth of renewables, which now account for 24% (including hydraulics), is also beginning to be noticeable.

Investments in **renewable energies** are also carrying on, mainly in Asia. China in particular sees its wind-based or solar-based production grow very rapidly.

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*: **CO2-energy**: emissions linked with energy combustion (about 80% of CO₂ emissions)

****: Carbon intensity of the economy**

Measuring the level of CO₂ emissions per unit of GDP, carbon intensity is the key indicator for measuring the structural evolution of diverse economies towards a less energy-consuming and less carbon intensive development path.

Carbon intensity evolves with

- *Energy intensity*: energy consumption/unit of GDP
- *Energy Carbon Factor*: CO₂ emissions by energy unit



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Our experts help our clients tackle key energy and climate issues and make sound strategic and business decisions.

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