

# 2015: Stable CO<sub>2</sub> emissions in the G20 thanks to energy efficiency and to the decline of coal share.

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Enerdata celebrates the 20<sup>th</sup> anniversary of its annual publication, “World Energy Trends.” Based on information for G20 countries, which represent 80% of the global demand, this analysis shows the key trends as well as the evolution of world markets.

After a surprising year in 2014, what do we learn from 2015?

- Are we moving towards stabilization of energy consumption and CO<sub>2</sub> emissions?
- Can we already see the effects of energy efficiency policies as well as the shift of energy sources towards a lower carbon mix?
- What lessons can we learn from major countries and zones (China, EU, USA, India...)?
- Are the current trends in line with the COP21 agreements?

### Key Points from Enerdata’s 2015 World Energy Trends Report...

#### **2.8%: The weakest economic growth since 2002!**

If the economic activity of OECD countries improved slightly (USA, EU...), that of non - OECD countries slowed down, particularly in China, and with some even declining (Brazil and Russia).

#### **+0.5%: Near stagnation of energy consumption**

As with last year, 2015 saw weak growth in energy consumption for G20 countries (10.8 Gtoe, or +0.5%, while the 10-year average exceeds 2%).

Within the OECD, consumption declined slightly. In non-OECD countries, the evolution becomes historic with an increase limited to 1.3%, compared to a 10-year average of 5%. Besides the direct impact of the economic downturn mentioned above, this result comes largely from China where the near stagnation of energy consumption confirms a trend beginning in 2014 towards a less energy-intensive economy.

#### **0: Stability of CO<sub>2</sub> emissions – cyclical or structural?**

After the surprising slowdown in 2014, 2015 also saw a stable level of CO<sub>2</sub>-energy emissions\* (27 GtCO<sub>2</sub>). A direct result from the stagnation in energy consumption, this figure also results from a slight modification in the power mix, in particular from the decline in coal consumption (China, USA...).

#### **-3 %: Decrease in the carbon intensity\*\* of the economy**

In 2015 we acknowledge a 3% decrease in carbon intensity compared to an historical average of -1.5%/year; this progress comes from a decrease in China (stability of energy consumption and decrease of coal share in the mix) and in the USA (more gas, less coal).

## **A trend still far away from climate change targets set at the COP21**

On the climate side, the stagnation of CO<sub>2</sub> emissions is good news compared to previous years. This is mainly due to the relative weakness of economic growth.

Achieving the goals discussed at the COP21 (1.5 to 2° temperature increase by the end of the century), in fact requires a lasting stagnation of global energy consumption and a strong reduction of CO<sub>2</sub> emissions. Thus, with a global GDP growth assumption of 3% per year, this would imply an average carbon intensity reduction target of 5 to 6% per year... (Source: EnerFuture Scenarios – Enerdata)

If energy consumption is stagnating, however, we find different trends according to the markets:

The **oil** market is particularly linked to the transport sector; the increase in demand recorded in 2015 (+2%) derives primarily from the increase in vehicle fleet (China, India...) and to a lesser extent from lower prices (particularly in the US).

The decline in investments in the upstream sector leaves us to predict, however, a decrease in mid-term production capacity and new pressure on supply/demand...

### **Gas demand remained stable in 2015**

The structural increase continues in the US (replacing coal); in a more cyclical manner, the demand benefitted from a colder climate in Europe but fell sharply in Russia (economic recession).

At the production level, the US is No. 1 worldwide before Russia, but with a downward trend for several months (shale gas).

### **Coal consumption decreases**

Confirming the surprise in 2014: thanks to a new decline observed in China (-3.7%) and in the US (-11%), and despite continued strong growth in India, demand for coal shrinks at the G20 level (-2.7%).

### **Stagnation of power consumption**

The demand in power has been stagnant for several years in developed countries. The result is more surprising for non-OECD countries, where growth shrinks significantly.

Is this a sign of a slowdown of the increasing weight of power in the overall mix?

### **Power mix continues its slow transformation**

In recent years, energy policies have shown visible effects: if coal remains at a stable and dominant position (43%), renewable energies (+6 points since 2000) and gas (+3 points) gain market share, mainly against nuclear (-6 points).

Investments in renewable energy continue, particularly in Asia. Wind power production becomes significant in the global power mix (4%), while solar PV represents 1%.

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\*: **CO<sub>2</sub>-energy**: emissions from energy combustion

### \*\*: **Carbon intensity of the economy**

Measuring the level of CO<sub>2</sub> emissions per unit of GDP, carbon intensity is the key indicator for measuring the structural evolution of diverse economies.

Carbon intensity evolves with:

- Energy intensity: energy consumption/unit of GDP
- Energy Carbon Factor: CO<sub>2</sub> emissions by energy unit



### About Enerdata:

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

We provide research, solutions, consulting and training to key energy actors worldwide.



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