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Update on Energy Transition in the US: on the road to its INDC?

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US emissions of CO₂ from fossil fuel combustion fell by 3% in 2015 compared to 2014. In total, US CO₂ emissions from fossil fuel combustion have fallen by 12% since 2005. The fall in 2015 reversed the trend of 2013 and 2014, during which CO₂ emissions stagnated. The return to falling emissions is good news, but raises questions regarding the direction of the trend, its drivers and the implications for the achievement of the US's GHG emissions goals.

Continued transition in the power sector

The 3% drop in 2015 emissions was driven by a continued transition away from coal in the power sector. Power generation from coal dropped by 13%. Power generation from gas increased by 18%, or 21 TWh, while that from non-fossil sources increased by 13.5 TWh, including a spectacular 11.9 TWh growth from solar (50% year on year growth). The driver for the growth of gas was the continued very low price of gas relative to coal. The global decline in oil prices has also hit coal and gas prices. In 2013 and 2014, the balance of this trend was that coal remained competitive to gas in the US power sector. This trend finally reversed in 2015. Prices for natural gas to the electricity sector fell by 35% 2015 compared to 2014. This trend has continued in the first three months of 2016, with prices down by 32% compared to 2015. A word of warning is warranted here. Cyclical price-driven shifts are not a sustainable basis for decarbonisation of the power sector—further policy is required. The 2015 [Annual Energy Outlook](#) of the US Energy Information Agency projects that coal electricity will remain roughly stable 2015 until 2030, without the regulations of the Obama Administration's proposed 'Clean Power Plan' (CPP). The CPP is currently in abeyance, pending judgment from the Supreme Court. With the CPP, coal generation would continue to fall at about 3.6% per year in the decade 2020-2030. This confirms the analysis of the IDDRI-led [MILES project](#), which shows that the CPP is crucial to the continued reduction of coal in the US electricity sector. Secondly, there is a risk of lock-in into natural gas infrastructure, both production and consumption, which may help the US to achieve its GHG target for 2025 but foreclose options to deeply reduce emissions thereafter.

Concerns in the transport sector

The picture is more sombre in the transport sector. Here emissions were down 4% in 2015 on 2005 levels. However, emissions from the transport sector have risen by about 4.3% over the last few years compared to the low point reached in 2012. Part of this is due to the recovery of the American economy (although household wages have been stubbornly flat); most of it is due to the increase of driving activity due to the falling cost of oil, compounded by the negligible taxation of petrol in the US. Total final energy consumption in the transport sector is essentially back to its 2005 level in 2015. The University of Michigan maintains a monthly '[eco-driving index](#)' which enables to unpick these trends. It is composed of two parts: the first reflects the fuel economy of new car sales; the second reflects the distance driven by American drivers. The latter has been falling continuously, albeit at a slower rate as oil prices have fallen since mid-2014 (a fall of only 3 percentage points since beginning of 2014). On the other hand, the distance driven index has risen by 7 percentage points since the beginning of 2014. This highlights several challenges going forward. The end of the age of car dependence in the US has perhaps been declared prematurely. Infrastructure and urban structure provide powerful obstacles to shifting the transport system. The lack of structural incentives and 'automatic stabilizers' against oil price fluctuations, as would be provided by higher fuel taxes, is a real problem. Ultimately, the Obama Administration's regulations on fuel economy will continue to drive energy intensity improvements. But deeper decarbonisation of transport will require more substantial change, notably to decarbonize transport energy through the penetration of electric vehicles. Here the innovation push of companies like Tesla will have to be combined with further regulation. Whether there will be political will for this in a low-oil price environment is an open question.

What implications for the US INDC?

Discussing the implications of these trends for the [US INDC](#) is complicated by the fact that the latter pertains to all sectors and gases, whereas the trends discussed above pertain to CO₂ from energy. Nonetheless, if these trends continue in the next few years, the US would be in striking distance of its 2020 pledge made in Copenhagen. This would be very positive. It is also clear, however, that achieving the INDC will require the implementation of proposed regulations, currently stalled in the US Supreme Court, as well as new regulations. More importantly, achieving deeper cuts thereafter will require addressing issues of lock-in into emissions intensive sectors and technologies, and unlocking new reduction opportunities. The trends above are just the very first steps on a long road.

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