

Executive summary

Many forms of energy use are associated with environmental and health damages and contribute to climate change, so the social cost of energy use frequently exceeds private cost. Taxes on energy use – carbon taxes and other specific taxes on energy use – can make energy users pay for the full costs of pollution and climate change, so reducing harmful emissions at minimal cost, while also raising revenue that can fund vital government services. These considerations may affect policy design to an extent, but this report clearly shows that energy taxes continue falling well short of their potential to improve environmental and climate outcomes.

Based on OECD's *Taxing Energy Use* database, a unique dataset to compare coverage and magnitude of specific taxes on energy use across 42 OECD and G20 economies, six sectors and five main fuel types, this report assesses the magnitude and coverage of taxes on energy use in 2015, and considers change between 2012 and 2015. Together, the 42 countries represent approximately 80% of global energy use and CO₂ emissions associated with energy use. This uniquely detailed and comprehensive database is now available for 2012 and 2015.

Permit prices in CO₂ emissions trading system change the prices of energy use and carbon emissions in a way similar to the taxes included in *Taxing Energy Use*. These prices are not included here but in OECD's *Effective Carbon Rates*. However, they do little to change the findings presented here. *Taxing Energy Use* data is a key input for *Effective Carbon Rates*, but remains unique in its in-depth account of tax rates, particularly the breakdown by fuels.

The main findings are as follows: taxes are strongly heterogeneous, so are poorly described by country averages; almost all taxes are too low from an environmental point of view; taxes on coal often equal zero or nearly so; taxes in road transport are much higher than taxes in other sectors, but still are too low to cover external costs in nearly all cases; taxes tend to be higher where GDP per capita is higher but there are notable exceptions to this pattern; fuel taxes increased between 2012 and 2015 in some large countries, and first steps towards removing lower tax rates on diesel compared to gasoline are taken, but apart from that there are no signs that the polluter pays principle determines the energy tax landscape more strongly in 2015 than in 2012. The following paragraphs elaborate on these findings.

Energy taxes differ strongly between countries, sectors and fuels. This is the result of a mix of policy objectives and political economy factors, and it implies that consideration of average tax rates across sectors and fuels on a country level can be very misleading.

A bird's eye view of effective tax rates per tonne of CO₂ across all countries reveals that there is hardly any change in the tax rates on emissions outside the road transport sector. Taxes continue to be poorly aligned with environmental and climate costs of energy use, across all countries.

In road transport, 97% of emissions are taxed. The share of emissions taxed above climate costs increased from 46% in 2012 to 50% in 2015, and rates exceed EUR 50 per tCO₂ for 47% of emissions in 2015, compared to 37% in 2012. However, other negative side-effects suggest that taxes are at best approaching the right level in a few countries, but remain well below them in most. These changes mainly result from fuel tax reforms in China, India and Mexico.

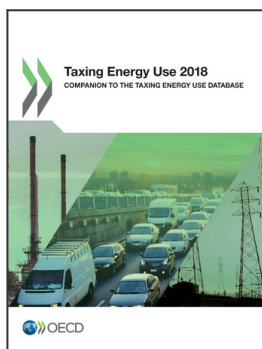
In the non-road sectors, which collectively account for 95% of carbon emissions from energy use, 81% of emissions are untaxed, and rates are below a truly low-end estimate of climate costs of EUR 30 per tCO₂ for 97% of emissions. Between 2012 and 2015, effective tax rates decline perceptibly in real terms in around half of the countries studied, implying small and probably unintentional steps away from the polluter pays principle. To varying degrees, this is the consequence of changes in the composition of the tax base across which rates are averaged (i.e. shifts to less taxed fuels or sectors), of exchange rate movements and of nominal rates not being adjusted for inflation.

Coal, which accounts for almost half of carbon emissions in the 42 countries, goes untaxed in many countries, and is taxed above EUR 5 per tCO₂ in just 5 of the countries studied. Taxes on oil products are relatively high for all uses – they exceed EUR 100 per tCO₂ on average across all sectors – but are particularly high in road transport, a sector which remains almost entirely dependent on oil products. Counter to what would be expected on environmental grounds, taxes on diesel for road use are lower than taxes on gasoline in all but two countries, but this pattern appears to start changing in several countries.

Rates tend to be higher in countries with higher per capita GDP, although some relatively high-income countries feature relatively low average tax rates on energy use. The carbon intensity of GDP is on average lower in countries with higher tax rates on energy use. However, energy use per capita and tax rates both tend to rise strongly with income, so that per capita CO₂ emissions still rise with income on average but less so, and sometimes reversing, as income grows.

Carbon tax coverage increased from 1 to 6% between 2012 and 2015, but rates exceed climate costs for just 0.3% of emissions overall. Transport fuel taxes consist overwhelmingly of excise taxes not named a carbon tax. The contribution of carbon taxes to total rates is larger in several – mainly European – countries outside of road transport. However, the distinction between excise taxes on energy and carbon taxes is mainly nominal, with little difference in terms of economic significance, even if salience of taxes can differ depending on their visibility and name.

In sum, apart from transport fuel tax increases in some large low to middle income economies, and some first steps towards aligning diesel taxes with gasoline taxes, there is no structural change to the pattern of taxes on energy use between 2012 and 2015. This is disconcerting, particularly because improving the environment and climate effectiveness of taxes on energy use is fully compatible with more effective pursuit of the other policy objectives that have shaped current taxation patterns. If and when compensation for higher energy costs is deemed necessary, lower tax rates or exemptions are not the way to provide it – targeted transfers, that maintain the environmental integrity of market-based instruments, are superior by far.



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