

Taxing Energy Use in the OECD

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Executive Summary

Energy is a critical component of modern economies. It is a central ingredient to production and an important element of consumer spending. Many forms of energy – particularly fossil fuels – also contribute to significant environmental problems, such as climate change and local air pollution.

Countries tax energy for many reasons: to internalise the externalities that result from its use; to raise revenue; or as a form of user charge. Regardless of the purpose of taxation, taxes change the relative prices of different forms of energy and thus patterns of energy use, with important economic and environmental consequences. Understanding the structure and level of energy taxes is therefore central to policy discussions regarding energy use.

This article describes a systematic comparative analysis of the structure and level of taxes on all energy use in the OECD, highlighting wide variations in effective tax rates on

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different forms and uses of energy across and within countries. These varying – and often weak – price signals suggest ample opportunities for reform of energy tax systems to achieve countries' environmental, economic, fiscal and social policy goals more effectively and cost-efficiently.

The analysis includes all energy use in the OECD, disaggregated by user (for example, industrial, household, and transport use) and source (for example, coal, oil products, natural gas, and renewables). It includes all taxes levied on the consumption of a unit of an energy product (such as excise taxes). Both tax rates and tax bases are recalculated on, alternately, an energy basis and a carbon basis.

OECD countries differ markedly in terms of both the composition of energy use and the way that energy use is taxed. Based on statutory rates in effect on 1 April 2012, economy-wide effective tax rates on energy range from EUR 0.18 per GJ (Mexico) to EUR 6.58 (Luxembourg), with a simple OECD average of EUR 3.28 (approximately 4.28 USD) per GJ. On a carbon basis, effective tax rates on energy range from EUR 2.80 per tonne of CO₂ (Mexico) to EUR 107.28 (Switzerland), with a simple OECD average of EUR 52.04 (approximately 67.86 USD) per tonne of CO₂.

Within countries there are substantial differences in the way different uses and sources of energy are taxed. In almost every country, energy products used in transport are taxed significantly more heavily than energy for heating or process use or electricity generation. Oil products tend to be taxed significantly more heavily and more frequently than other energy products, such as natural gas and coal. Coal faces the lowest effective rates in carbon terms and is often untaxed, despite its significant contribution to climate change and local air pollution;

The higher rates on transport energy may reflect the broader range of policy goals that governments may be seeking to address through energy taxes in this sector, such as reducing or mitigating congestion, traffic accidents and noise, or by the use of fuel taxes to fund (formally or informally) road construction and maintenance. Gasoline and diesel for road use face the highest tax rates of any fuels. However, despite the higher levels of carbon and local air pollutant emissions from the combustion of diesel, gasoline is taxed at higher rates than diesel in all OECD countries except the United States— on average almost 60% higher in carbon terms.

Several countries tax energy used by industry or in energy transformation at lower rates than the same energy products used for residential or commercial purposes, although this pattern is not universal. Exemptions for heating and process use of energy by certain sectors exist in many countries, notably for energy used in agriculture, fishing and forestry. The lower rates and exemptions applied to heating and process energy may reflect distributional or competitiveness concerns. However, since low rates and exemptions can distort energy use in an environmentally damaging manner, there may be better mechanisms for addressing these concerns.

Fuels used to generate electricity can be taxed directly, through fuel or excise taxes, or indirectly, through the taxation of electricity consumption. Where taxed directly, coal again faces lower rates than other generation fuels such as natural gas, biofuels and waste. However, taxes on the consumption of electricity are more common: 17 OECD countries tax only the consumption of electricity and 7 countries tax both the generation fuels and electricity consumption. Although a tax on electricity consumption may encourage electricity conservation, it does not provide

any signal in terms of the differing environmental impact of the various generation sources.

The wide variations in effective tax rates on energy use across the OECD and within individual countries between different uses and sources of energy result in wide differences (and often considerable weakness) in the environmental signals provided by energy taxes. In many cases the reasons for these variations are not at all obvious. Furthermore, some rates may not reflect the external costs associated with different forms of energy and energy use. These uneven price signals with respect to different energy products, and low rates and exemptions on some of them, suggest that in many OECD countries a reappraisal is warranted to explicitly determine whether current energy tax settings are appropriately adapted to environmental, fiscal, social and economic goals.