Taxing Energy Use 2019: Country Note – Finland

This note explains how Finland taxes energy use. The note shows the distribution of effective energy tax rates – the sum of fuel excise taxes, explicit carbon taxes, and electricity excise taxes, net of applicable exemptions, rate reductions, and refunds – across all domestic energy use. It also details the country-specific assumptions made when calculating effective energy tax rates and matching tax rates to the corresponding energy base.

The note complements the Taxing Energy Use 2019 report that is available at http://oe.cd/TEU2019*. The report analyses where OECD and G20 countries stand in deploying energy and carbon taxes, tracks progress made, and makes actionable recommendations on how governments could do better to use taxes to reach environmental and climate goals.*

The general methodology employed to calculate effective energy tax rates and assign tax rates to the energy base is explained in Chapter 1 of the report. The official energy tax profile for Finland can be found in Chapter 2 of the report. Chapter 3 additionally shows effective carbon tax rates per tonne of CO_2, and presents the corresponding carbon tax profiles for all countries. The report also contains StatLinks to the official data.

Structure of energy taxation in Finland

Energy and carbon taxes in Finland are levied within the framework of the 2003 European Union (EU) Energy Tax Directive, which sets minimum rates for the taxation of energy products in EU member states. Within this framework, as at 1 July 2018, the main taxes on energy use in Finland are the following:

- An Energy Content Tax (Energiasisältövero), a Carbon Tax (Hiilidioksidivero) with a nominal rate of EUR 62 per tonne of CO_2, and a Security of Supply Payment (Huoltovarmuusmaksu) apply to liquid, solid and gaseous fossil fuels and biofuels;
- The Energy Content Tax and the Security of Supply Payment also apply to electricity consumption.
- An Oil Waste Fee (Öljyjätemaksu) applies to fossil waste.[1]

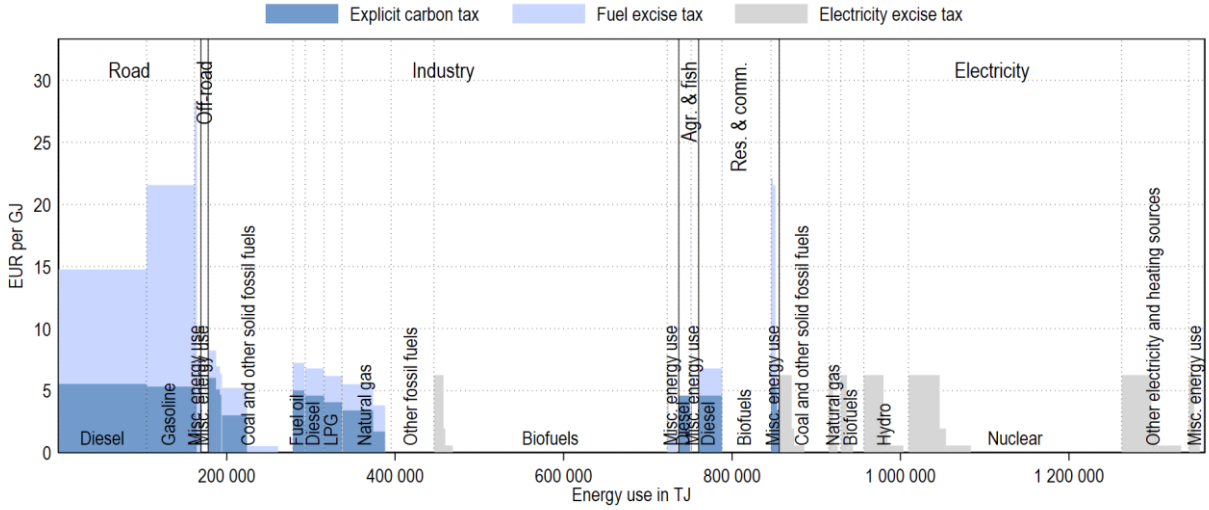
Finland participates in the EU emissions trading system (ETS) (OECD, 2018[1]). Permit prices are not shown in the energy tax profiles.

[1] The fee is earmarked to support the development of a nationwide waste disposal plant, and to the Oil Pollution Fund (öljysuojarahaston).

Effective tax rates on energy use in Finland

Tax rates can differ across energy products and users, as described below. Figure 1 provides an overview of how energy and CO_2 taxes apply to different energy categories across the economy. Electricity tax rates are differentiated by end user, irrespective of the power source that is used to generate the electricity (as described above and further discussed in the electricity section below). The remainder of this document discusses details on tax rates and tax bases for each of the six economic sectors.

Figure 1. Effective tax rates on energy use by sector and energy category

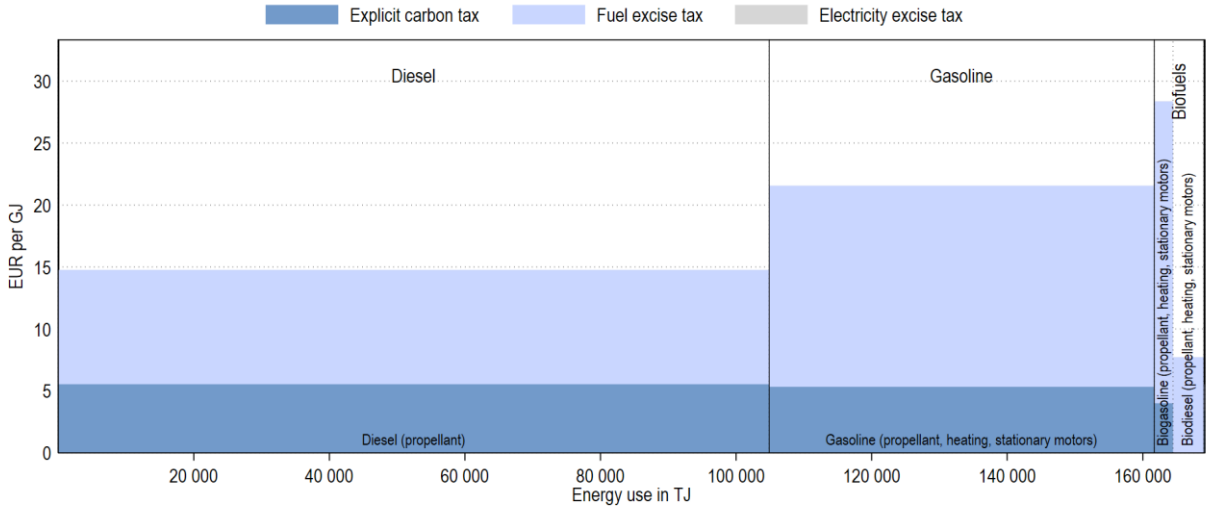


Note: Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018[2]), *World Energy Statistics and Balances*. Energy categories (labelled at the bottom) that represent less than 1% of a country's energy consumption are grouped into "misc. energy use" and may not be labelled.

Road

Figure 2 shows that within the road sector, gasoline is taxed at a higher effective tax rate than diesel.[2] The CO2-tax of biofuels (both biogasoline and biodiesel) is graduated based on EU's RES Directive sustainability criteria to three levels. Biofuels that fail to meet sustainability criteria are subject to the same CO_2 tax as corresponding fossil fuels. Biofuels that meet the sustainability criteria, "first generation biofuels" are subject to 50% of the CO_2 tax on equivalent fossil fuels. So called second generation biofuels (fuels from waste, lignin cellulose etc.) are not subject to CO_2 tax. For the average biogasoline sold in Finland the tax rate is 50% and for biodiesel it is 0; these are the rates included in TEU.[3]

Figure 2. Effective tax rates on energy use in the road sector



Note: Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018[2]), *World Energy Statistics and Balances.* Energy categories (labelled at the top) that represent less than 1% of a sector's energy consumption are grouped into "misc. energy use" and may not be labelled. Similarly, rate labels (shown at the bottom) are grouped into "misc. rates" using the same threshold.

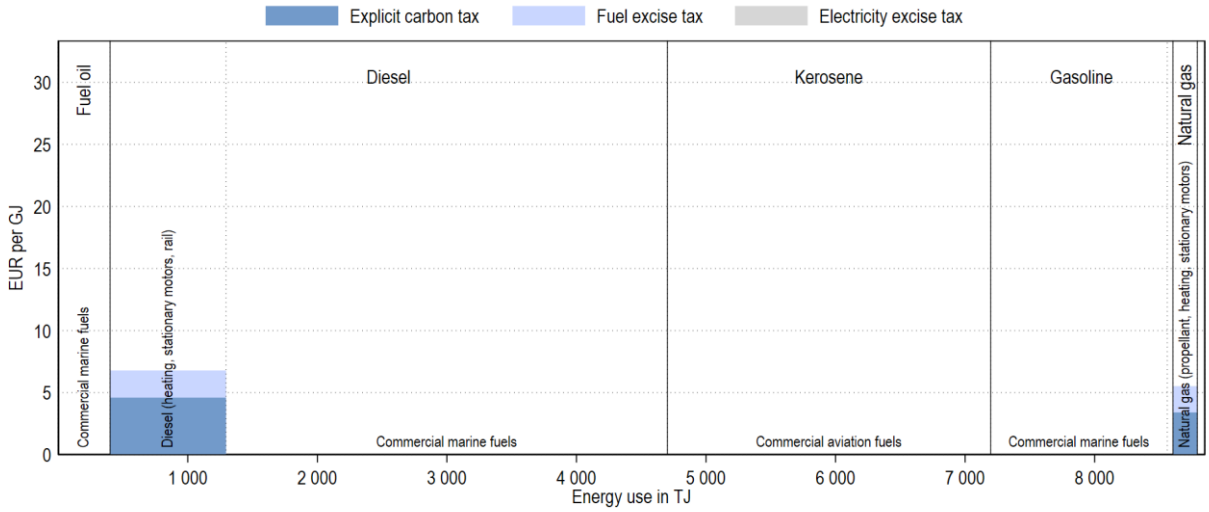
[2] TEU does not take into account that the most commonly used diesel fuel in Finland is paraffinic diesel oil which has lower tax rate per GJ than the common diesel (13.3 €/GJ vs 14.7 €/GJ). As a result, the effective tax rates on diesel reported in TEU should be seen as an upper bound of the actual rates. Also note that diesel-powered passenger cars are subject to annual duty taxes to offset the difference in fuel taxes for motorists.

[3] In TEU, biogasoline's effective energy tax rate is higher than the rate of its fossil fuel equivalent. However, in Finland the energy content tax is levied on fossil fuel and equivalent bioliquid (e.g. diesel and biodiesel) by the same criteria (€/GJ). This discrepancy is due to the fact that TEU uses different conversion factors to convert rates per litre into rates per GJ.

Off-road

Commercial marine and commercial aviation fuels are untaxed, as shown in **Error! Reference source not found.**.[4] Diesel used by railways is taxed at the non-road rate, i.e. the same as heating, non-road mobile machinery, stationary motors.

Figure 3. Effective tax rates on energy use in the off-road sector



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[4] Fossil fuels used in private pleasure craft and private planes are taxed (not modelled in TEU due to a lack of consumption data).

Industry

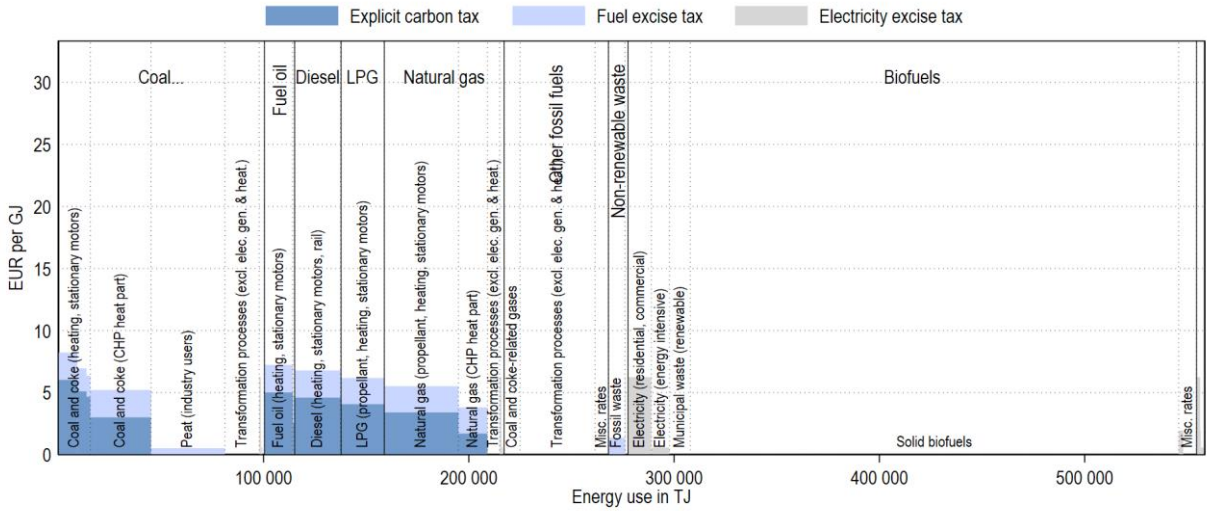
In the industry sector, fossil fuels are generally taxed when used for heating purposes as to fuel stationary combustion engines and non-road mobile machinery, as shown in Figure 4. However,

- Fuels used for heating in combined heat and power (CHP) generation benefit from a 50% reduction of the carbon tax;
- Peat products consumed by industry benefit from a reduced energy content tax and are not subject to the carbon tax;
- Fuels used for energy transformation processes other than heating are untaxed;
- Coal and coke related gases are not taxed.

Non renewable waste oil is subject to the Oil Waste Duty. Liquid biofuels are taxed, but their use is low compared to solid and gaseous biofuels, which are not taxed.

Electricity from industrial cogeneration is subject to the general electricity tax (see electricity section below).

Figure 4. Effective tax rates on energy use in the industry sector



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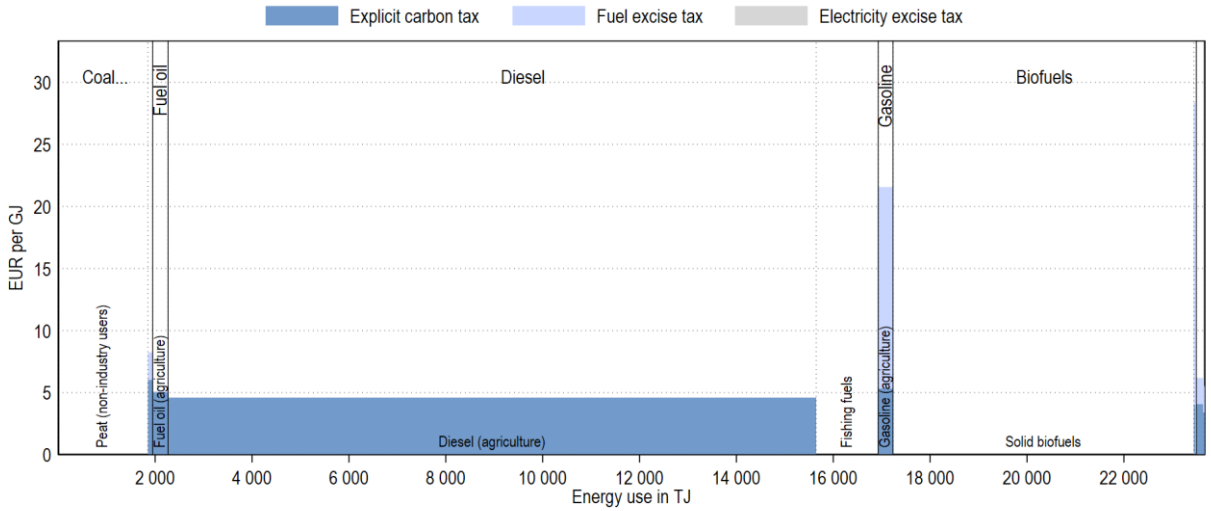
Agriculture and fisheries

Peat products used in agriculture and fisheries (Figure 5) are generally not taxed.[5] Coal is taxed (low use, so not labelled). Liquid fossil fuels used in agriculture are generally taxed, but benefit from a refund on the energy content tax (called "fuel excise tax" in TEU). Liquid fuels used for fishing purposes are untaxed. Solids biofuels are untaxed as in the other sectors.

Figure 5. Effective tax rates on energy use in the agriculture & fisheries sector



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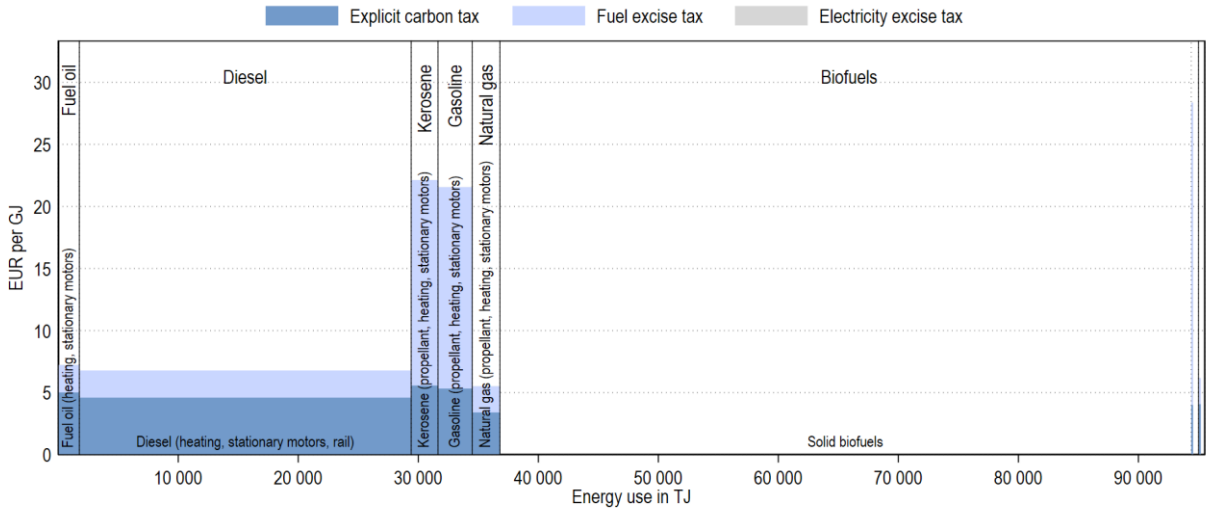
[5] They are, however, taxed when used in a power or heating plant for heat production or more than 5 000 MWh per year. It is assumed this only concerns peat use in the industry sector.

Residential and commercial

Fossil fuel use in the residential and commercial sectors (Figure 6) are subject to both Energy Content and CO_2 Tax.[6] Solid biofuels make up the largest share of energy use in the sector and are not taxed. Notice that TEU reports the energy use associated with electricity and district heating consumption in the industry and electricity sector as that is where the primary energy consumption occurs.

Figure 6. Effective tax rates on energy use in the residential & commercial sector



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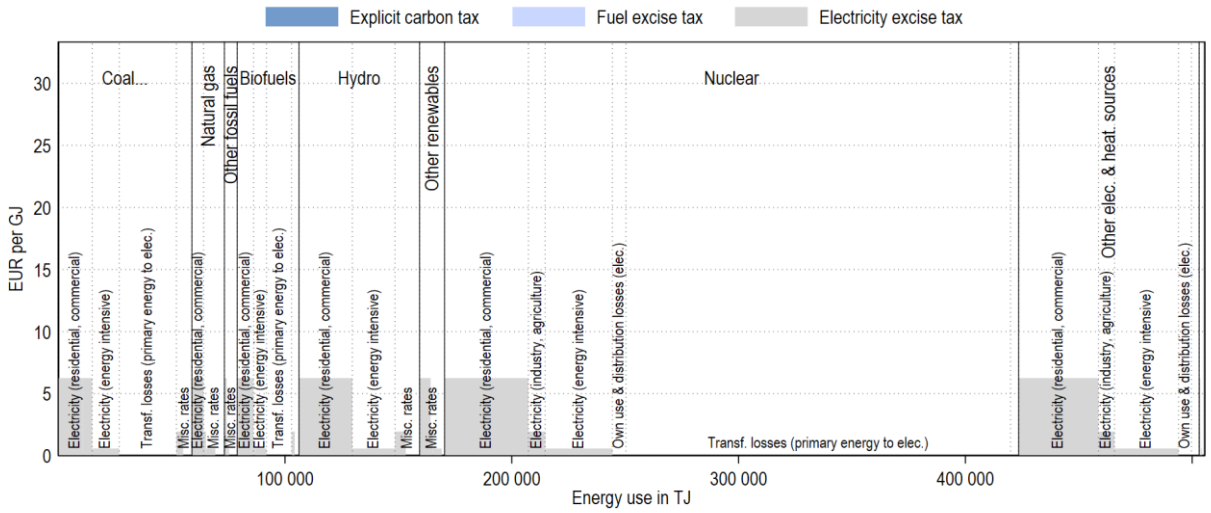
[6] TEU ignores the 1.5% of fossil fuel emissions that are covered according to *Effective Carbon Rates* (OECD, 2018[1]).

Electricity

Figure 7 shows how the electricity sector, as defined in TEU, is taxed in Finland. The fuels used to generate electricity are not taxed, but the electricity sector is generally covered by the EU ETS (OECD, 2018[1]).

The use of electricity, on the other hand, is subject to a tax per kWh, irrespective of the primary energy source from which the energy is generated. Electricity consumed by industry and agriculture have lower tax rate compared to electricity consumed by all other users. In addition to lower direct tax rate, energy intensive industrial businesses & greenhouses are eligible for partial tax refund from the electricity tax. Electricity consumed in railway transport is exempt.

Figure 7. Effective tax rates on energy use in the electricity sector



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References

IEA (2018), "Extended world energy balances", *IEA World Energy Statistics and Balances* (database), http://dx.doi.org/10.1787/data-00513-en (accessed on 16 October 2018). [2]

OECD (2018), *Effective Carbon Rates 2018: Pricing Carbon Emissions Through Taxes and Emissions Trading*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264305304-en. [1]