

## *Taxing Energy Use 2019: Country Note – Japan*

*This note explains how Japan 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 Japan can be found in Chapter 2 of the report. Chapter 3 additionally shows effective carbon tax rates per tonne of CO<sub>2</sub>, and presents the corresponding carbon tax profiles for all countries. The report also contains StatLinks to the official data.*

### **Structure of energy taxation**

As at 1 July 2018, the main taxes on energy use in Japan are the following:

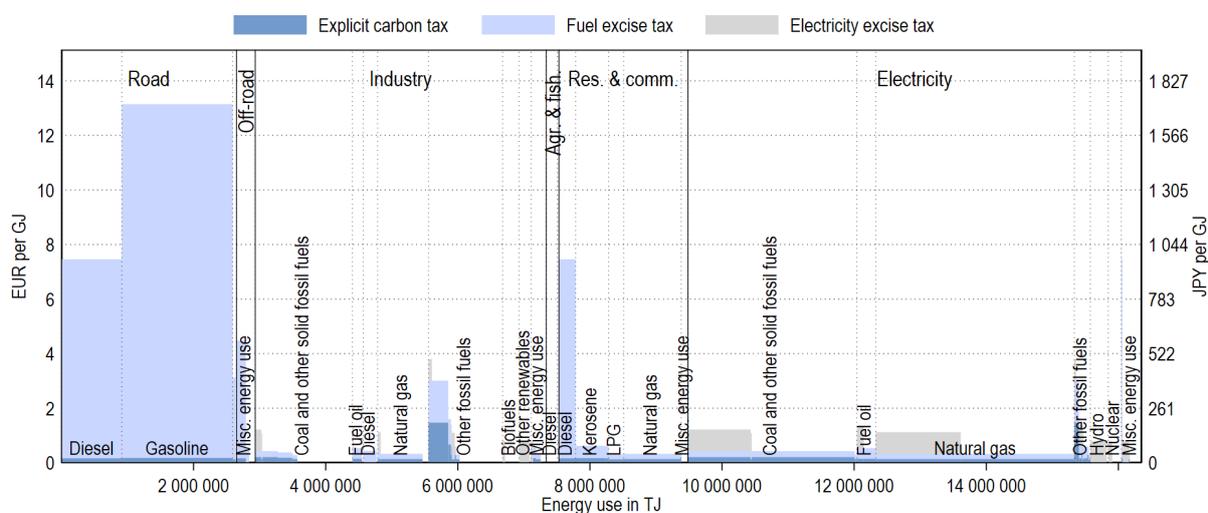
- The Petroleum and Coal Tax applies to fossil fuels, consisting of crude oil, coal, oil products imported, and hydrocarbon-based gases, including those fuels used for electricity generation. The Tax has a carbon tax component (Tax for Climate Change Mitigation) with a nominal tax rate of JPY 289 (~EUR 2.30) per tonne of CO<sub>2</sub>;
- The Diesel Oil Delivery Tax additionally applies to diesel used in road transport and in the residential and commercial sector;
- The Gasoline Tax and the Local Gasoline Tax additionally apply to gasoline used in road transport;
- The Oil Gas Tax additionally applies to LPG used in road transport;
- The Aircraft Fuel Tax additionally applies to aviation fuels used domestically;
- The Power Development Promotion Tax additionally applies to electricity sold.

In Japan, two emissions trading system (ETS) operate at the subnational level (OECD, 2018<sub>[1]</sub>). These are not included in Taxing Energy Use.

## Effective tax rates on energy use for different fuels and users

The taxes result in effective tax rates that can differ across energy products and uses, as described below. Figure 1 provides an overview of how energy and carbon taxes apply across the economy. Notice that whereas the carbon tax (as part of the Petroleum and Coal Tax) applies broadly throughout Japan, its rate is quite low and therefore barely visible in the figure. 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**

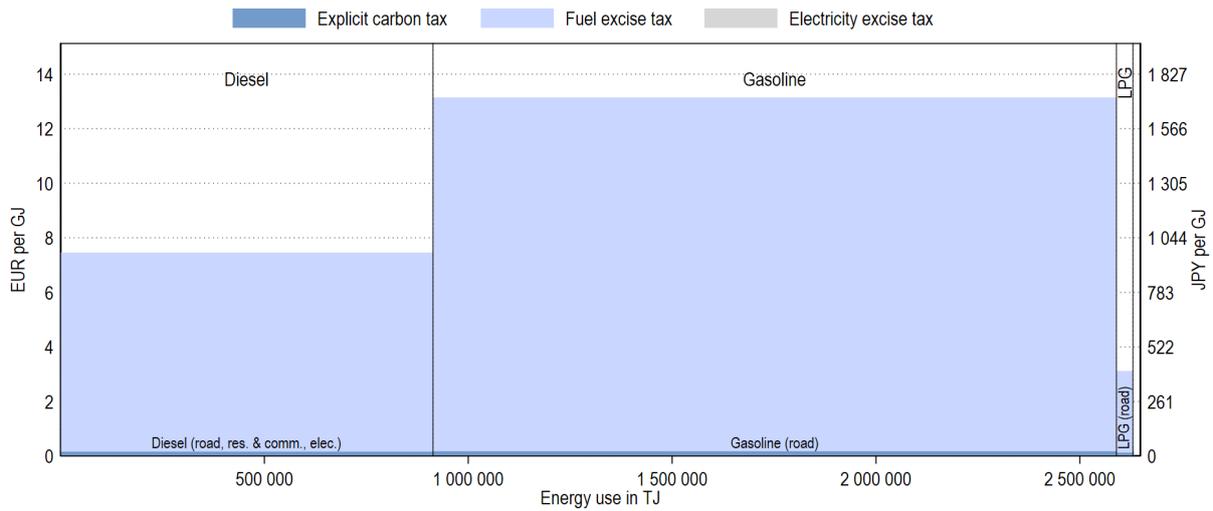


*Note:* Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018<sup>[2]</sup>), *World Energy Statistics and Balances*. Energy categories (labelled at the bottom) that represent less than 1% of a country's energy consumption are grouped into "misc. energy use" and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

**Road transport**

In the road sector, gasoline is taxed at the highest rate, followed by diesel fuel. The Oil Gas Tax applies to LPG used for automotive purposes, in addition to the Petroleum and Coal Tax. Natural gas (not visible in the figure) is only subject to the Petroleum and Coal Tax.

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

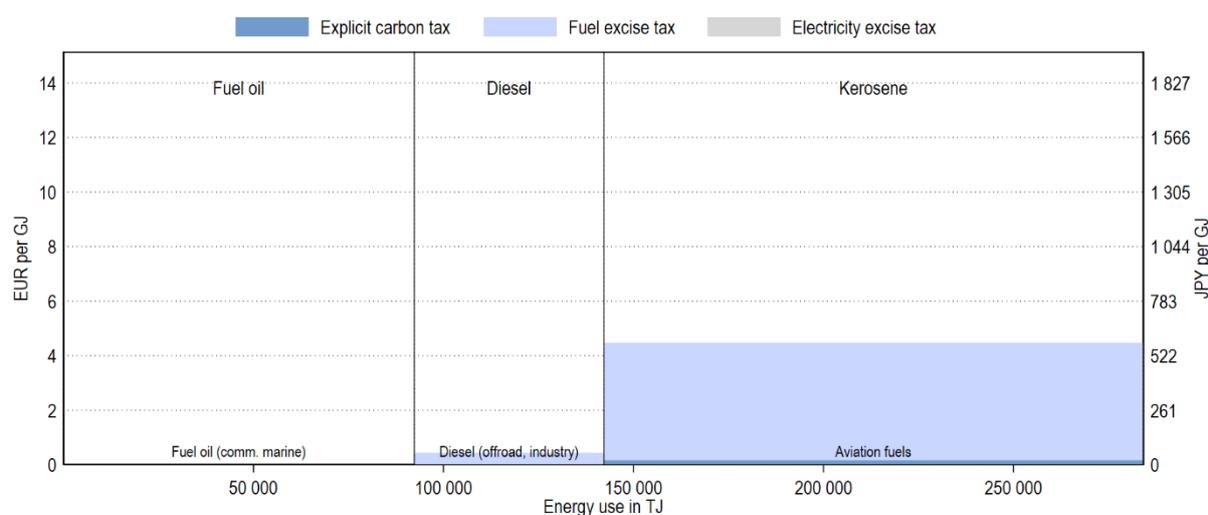


Note: Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018<sup>[2]</sup>), *World Energy Statistics and Balances*. Energy categories (labelled at the top) that represent less than 1% of a sector’s energy consumption are grouped into “misc. energy use” and may not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

### Off-road transport

In the off-road transport sector, fuel oil is tax exempt if used for coastal shipping or for regular ferry line service for general passengers. Diesel is subject to the Petroleum and Coal Tax, but without the carbon tax component if used by railway vehicles or used by ships. In addition to the Petroleum & Coal Tax, fuels used for domestic aviation (mainly kerosene) are subject to the Aircraft Fuel Tax, making kerosene the most highly taxed fuel in the off-road sector.<sup>1</sup>

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



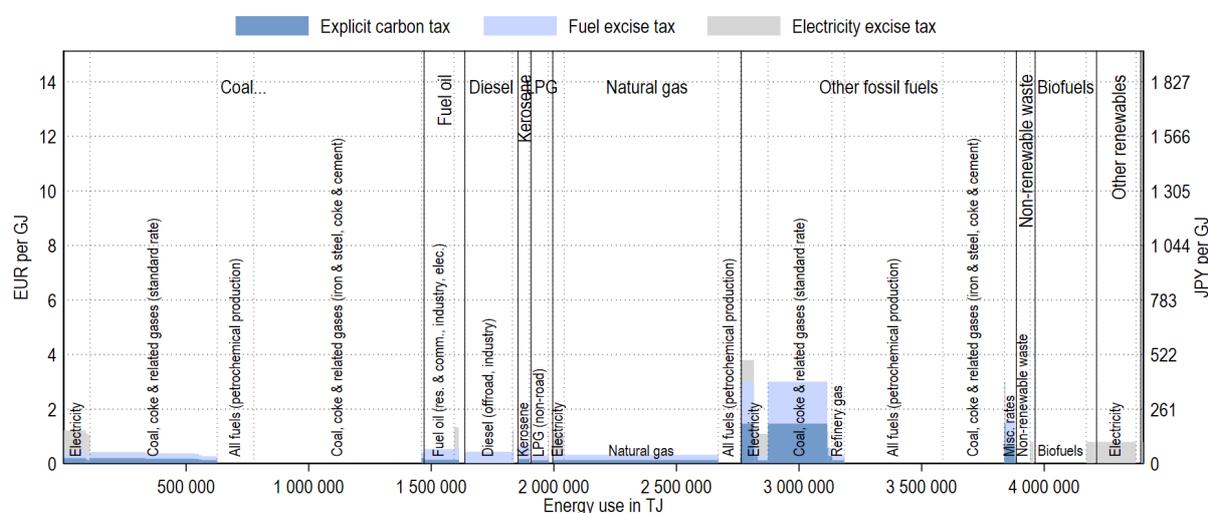
Note: Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018<sup>[2]</sup>), *World Energy Statistics and Balances*. Energy categories (labelled at the top) that represent less than 1% of a sector's energy consumption are grouped into "misc. energy use" and may not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

<sup>1</sup> There are, however, exemptions for traffic to and from Okinawa, which is exempt from the aviation fuel tax. In addition, aviation fuel to be used for domestic regular service is not subject to the carbon tax. Due to data limitations, these exemptions are not covered in TEU.

## Industry

In industry, fossil fuel use is subject to the Petroleum & Coal Tax. Coal and coke-related gases (part of “other fossil fuels”) are taxed at the same statutory rate as their solid fuel equivalents. However, given that these gases have a lower heating value, their effective tax rate is higher. Fossil fuels are untaxed when used in petrochemical production and coal, coke & related gases are untaxed when used for the production of iron and steel or coke and cement.<sup>2</sup> Electricity from autoproducer plants is subject to the Power Development Promotion Tax (“electricity excise tax”) if it is sold (see also, electricity section).

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



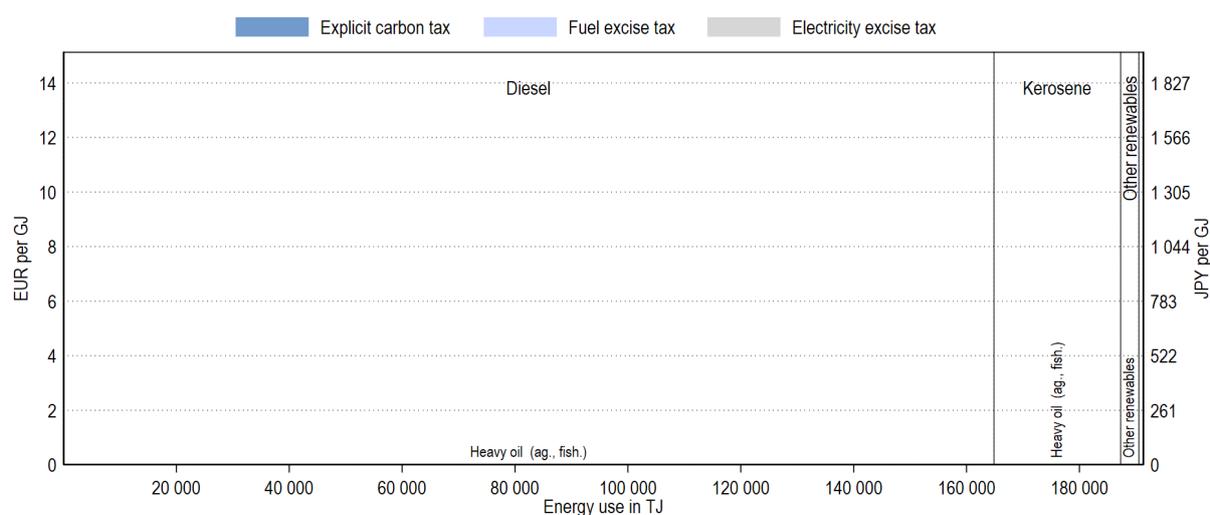
Note: Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018<sup>[2]</sup>), *World Energy Statistics and Balances*. Energy categories (labelled at the top) that represent less than 1% of a sector’s energy consumption are grouped into “misc. energy use” and may not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

<sup>2</sup> Imported coal is exempt from the petroleum and coal tax if it is used in power generation in the Okinawa prefecture, or for generating power for producing sodium hydroxide in sodium hydroxide plants, or for generating power for producing salt through ion-exchange membrane method in salt manufacturing plants. Due to data limitations, these exemptions are not covered in TEU.

### *Agriculture and fisheries*

In the agriculture and fisheries sectors, heavy oil (mainly diesel and kerosene) is untaxed. Renewables (here geothermal) are untaxed as in the other sectors. Light fuels, LPG and natural gas, are subject to the Petroleum & Coal Tax, but are rarely used (not visible in the figure).

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

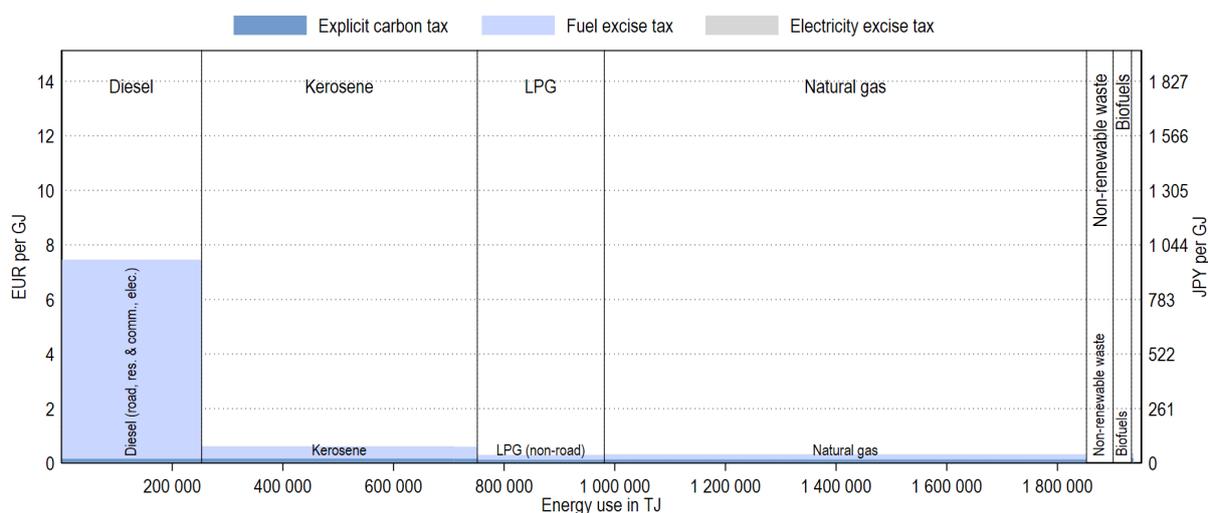


*Note:* Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018<sup>[2]</sup>), *World Energy Statistics and Balances*. Energy categories (labelled at the top) that represent less than 1% of a sector's energy consumption are grouped into "misc. energy use" and may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

### Residential and commercial

In the residential and commercial sector, fossil fuels are broadly subject to the Coal & Petroleum Tax. In addition, diesel oil is subject to the diesel oil delivery tax.

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

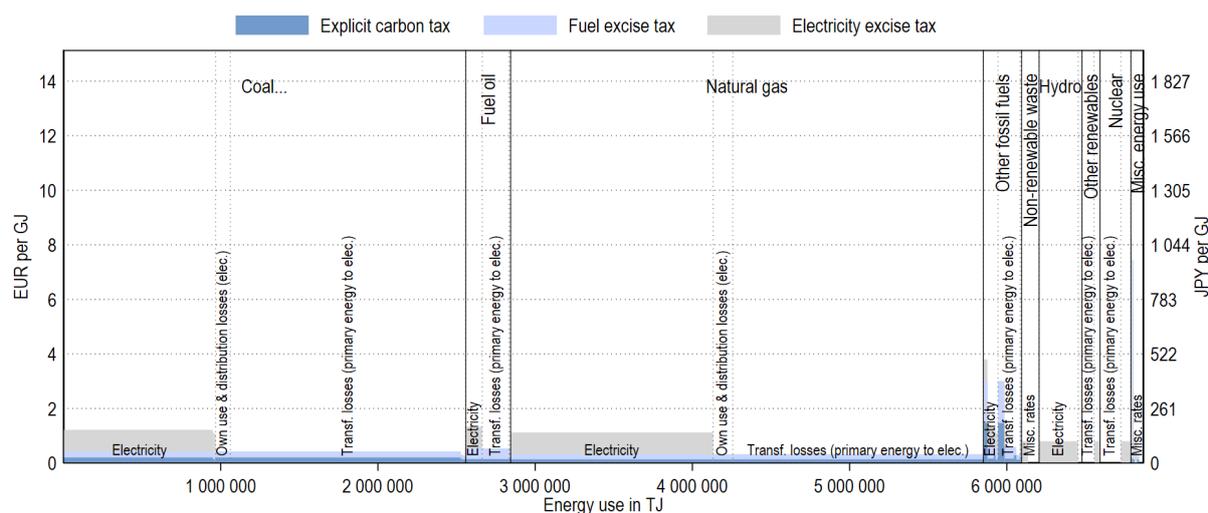


*Note:* Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018<sup>[2]</sup>), *World Energy Statistics and Balances*. Energy categories (labelled at the top) that represent less than 1% of a sector’s energy consumption are grouped into “misc. energy use” and may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

## Electricity

In the electricity sector, fossil fuels used to generate electricity both for own use and for sale are taxed. Waste, renewables, and nuclear are not directly taxed as primary sources of electricity.

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



Note: Tax rates applicable on 1 July 2018. Energy use data is for 2016 and adapted from IEA (2018<sup>[2]</sup>), *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.

## 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]