# Energy Prices

## April 2023 edition

## Database documentation

International Energy Agency

# INTERNATIONAL ENERGY AGENCY

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This document provides information regarding the 2023 IEA *Energy prices* package**.**

The *Energy prices* package is the IEA global prices database which covers data for end-use prices for different energy products and across sectors for 140 countries in the world.

The *Energy Prices* package is composed by two main databases:

*World energy prices* (*WEP*) database which covers 140 countries in the world;

*Energy prices and taxes for OECD countries* (*EPT*) database which focuses on data for OECD countries, with details about the end-use prices taxation breakdown.

This document can be found at: https://www.iea.org/data-and-statistics/data-product/energy-prices.

Selected data are and analysis are available though the data explorer: https://www.iea.org/data-and-statistics/data-tools/energy-prices-data-explorer.

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# Changes from last edition

## Geographical coverage

The 2023 edition of the *Energy Prices* package covers 140 countries in the world. It covers one additional country compared to the previous edition: Gabon

## Taxation

The 2023 edition the additional data file on taxation covers 71 countries, based on availability. This dataset is also available in IVT format.

These data are derived from research and in some instances may differ from data on total taxation submitted by national administrations and published within the *EPT* database.

## Revisions

### World energy prices

- As Croatia changed currency to euro (EUR) as of 1st January 2023, the whole prices time series for national currency has been converted to euro, using an irrevocable exchange rate of 7.5345

Prices may slightly differ compared with previous editions due to: revisions of the primary data by relevant agencies (prices and economic indicators); or methodological changes.

The main revisions for the 2023 edition are for the following data:

Due to improved methodologies, the prices were revised for:

- Lybia LPG prices;
- Mozambique kerosene prices;
- Burkina Faso kerosene prices;
- Egypt residual fuel oil prices.
- Zambia kerosene prices.

For additional information on methodological changes, pelase refer to the respective country notes.



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# Energy prices and taxes for OECD countries

Revisions for the latest publication of *Energy Prices and Taxes for OECD countries* product:

- Prices and taxes for natural gas in Austria were revised from 1Q2022 onwards.
- Prices and taxes for electricity in Austria were revised from 1Q2022 onwards.
- Prices and taxes for electricity for households in Finland were revised from 1Q2022 onwards.
- Prices for electricity for households in Iceland were revised from 1Q2017 onwards.
- Prices and taxes for natural gas for households in Spain were revised for 1Q2022.
- Prices and taxes for automotive diesel in Switzerland were revised from 1Q2020 onwards. Prices and taxes for premium unleaded 98 RON gasoline and premium unleaded 95 RON gasoline for households were revised too.
- Retail indices for oil products in Japan were revised from 1Q1978 onwards.
- Retail indices for oil products in Korea were revised from 1Q1985 onwards due to changing of the base year.
- Retail indices for natural gas in Korea were revised from 1Q1980 onwards. due to changing of the base year.
- Retail indices for electricity in Korea were revised from 1Q1978 onwards. due to changing of the base year.
- Wholesale indices for coal in the UK were revised from 1Q2017 onwards.
- Wholesale indices for oil products, natural gas, coal and electricity in Switzerland were revised from 1Q2020 onwards.
- Retail indices for oil products, natural gas and electricity in Switzerland were revised from 1Q2020 onwards.
- Wholesale indices for oil products in Denmark were revised from 4Q2021 onwards.



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- Electricity retail indices in Hungary were revised from 3Q2021 onwards.
- Real and nominal indices for total end-use energy prices for industry in Israel were revised from 2019 onwards.
- Real and nominal indices for electricity end-use prices for industry and households in Israel were revised from 2019 onwards.
- Real and nominal indices for automotive diesel end-use prices in Sweden were revised from 1Q2021 onwards.Real and nominal indices for unleaded gasoline for households were revised as well.
- Real and nominal indices for natural gas and electricity end-use prices in Sweden were revised from 3Q2021 onwards.
- Real indices of crude oil imports in national currency in Netherlands, Spain, Sweden and the US were revised from 1Q2022 onwards.



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# Database structure

The *Energy Prices* package is composed by two main databases;

| | Energy prices package | |
|---|---|---|
| Name of the database | **World energy prices (WEP)** | **Energy prices and taxes for OECD countries (EPT)** |
| Type of data | End-use prices and taxation information | End-use prices and taxation breakdown |
| Time granularity | Weekly, monthly, quarterly, yearly depending on the availability | Quarterly, yearly |
| Coverage | Global, 140 countries currently covered | OECD countries |
| Notes | End-use prices for industrial, commercial and electricity generation sectors include VAT | End-use prices for industrial and electricity generation sectors exclude VAT |
| Regular frequency of update | Yearly | Quarterly |

The overall methodology and assumptions apply to both databases with minor differences. Please note that data included in the *Energy prices and taxes for OECD countries* database for industry and electricity generation sector are reported as VAT exempt because for the final users VAT is refunded. On the contrast in the *World energy prices* database data include VAT also for those sectors to guarantee international comparability.

Refer to this document to understand the differences in the definitions. In each section you will find the applicability of the definition to the two databases or to a specific dataset.

Please note that all yearly prices included in *Energy prices and taxes for OECD countries* are not necessarily present in the *World Energy database* database. For complete details on data availability by country, product, sector and year, please refer to the accompanying Excel files. The EPT database covers all the OECD countries.



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# World energy prices (WEP) database

The *World energy prices* database includes annual, quarterly, monthly and weekly for 140 countries and regional aggregates. The database includes the following files in two formats (IVT and TXT):

### IEA Energy Prices Transport Fuels

**End-use energy prices for transport fuels in national currencies and US dollars**

It comprises four files for the four time granularities available: weekly, monthly, quarterly and yearly
Products included: Regular motor gasoline; Mid-grade motor gasoline; High-grade motor gasoline; Automotive Diesel.
Units: national currency/l; USD/l, USD (PPP)/l; 2015 USD/l; 2015 USD (PPP)/l).

### IEA Energy Prices Transport Fuels - Subnational

**End-use energy prices for transport fuels in national currencies and US dollars for selected subnational regions**
Products included: Regular motor gasoline, Mid-grade motor gasoline, High-grade motor gasoline, Automotive Diesel.
Countries covered: Argentina, Australia, Austria, Brazil, Canada, Chile, China, India, Kazakhstan, Nigeria, Pakistan, Poland, Russia, South Africa, Spain, Ukraine, the United States.
Units: national currency/l; USD/l, USD (PPP)/l; 2015 USD/l; 2015 USD (PPP)/l).

### IEA Energy Prices

**End-use energy prices in national currencies and US dollars**
It comprises four files for the four time granularities available: weekly, monthly, quarterly and yearly. Products included: electricity, natural gas, kerosene, LPG, fuel oil and coal.
Sectors covered: industry, commercial and residential.
Units: national currency/MWh; USD/MWh;USD (PPP)/MWh; 2015 USD/MWh; 2015 USD (PPP)/MWh).

### IEA Energy Prices Other Products

**End-use energy prices in national currencies and US dollars**
It comprises four files for the four time granularities available: weekly**,** monthly, quarterly and yearly. Energy prices for other



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products in list form, per physical unit.
Units: national currency/unit; USD/unit; USD (PPP)/unit.

**IEA Energy Prices Taxation Information** and
**IEA_Energy_Prices_Taxation_Information.xls**

Additional data file on taxation, covering 7 categories of taxes across sectors and products for 71 countries, depending on availability. Data are available in IVT and excel formats. The excel file contains also regulation data for gasoline, automotive diesel, LPG and electricity.

These data are derived from research and in some instances may differ from data on total taxation submitted by national administrations and published within the OECD Energy Prices and Taxes database.

**IEA_Energy_Prices_Data_Availability.xls**

Complete details on data availability by country, product, sector and year.

# Energy prices and taxes for OECD countries (EPT) database

The *Energy prices and taxes for OECD countries* database includes annual, quarterly and (for crude oil spot prices and import costs only) monthly data for 38 OECD countries and regional aggregates.

The database includes the following files in two formats (IVT and TXT):

**EPT_crude_import_country**

**Crude oil import costs and index by country**
Average costs of crude oil imports, cif; by geographic origin (2 measures).
Units: USD/bbl; index, national currency based 2015=100

**EPT_crude_import_type**

**Crude oil import costs by type of crude**
Average costs of OECD crude oil imports, cif; by type of crude (116 crude types maximum). Unit: USD/bbl.

**EPT_crude_spot**

**Crude oil spot prices**
Average crude oil spot market prices, fob; by crude



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product/geographic origin (11 grades or benchmarks).
Unit: USD/bbl.

### EPT_oil_products_spot

**Oil product spot prices**

Average oil product spot market prices; by crude product and geographic market (6 products and 3 markets).
Unit: USD/bbl.

### EPT_index

**Indices of real and nominal end-use energy prices**

Indices of real and nominal prices, by country; by sector (industry, households and both combined), by oil product (2 prices, 3 sectors, 9 oil product categories).
Unit: Index, 2015=100.

### EPT_prices_NC

**End-use energy prices and taxes in national currencies**

Energy end-use ex-tax prices, excise taxes, value added rates and taxes, total taxes and total prices including taxes; by sector (industry, households and electricity generation), by energy product (6 price measures, 3 sectors, 14 energy product categories).
Unit: National currency / energy unit.

### EPT_prices_NC_per_toe

**End-use energy prices and taxes in national currencies per toe**

Energy end-use ex-tax and total prices; by sector (industry, households and electricity generation), by energy product (2 price measures, 3 sectors, 14 energy product categories).
Unit: National currency / toe.

### EPT_prices_USD

**End-use energy prices and taxes in US dollars**

Energy end-use ex-tax and total prices; by sector (industry, households and electricity generation), by energy product, expressed in US dollars converted using average exchange rates per energy unit and tonnes of oil equivalent – and in US dollars, converted using annual purchasing power parities (PPPs) per energy unit (6 price measures, 3 sectors, 14 energy product categories).
Unit: US dollars / energy unit.



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**EPT_indicators**

**Consumer and producer price indices, exchange rates and purchasing power parities**

Consumer price indices – total; consumer price indices – energy; exchange rates to the US dollar; OECD purchasing power parities (PPPs) to the US dollar (5 indicators).

Unit: indices, 2015=100; exchange rates and PPPs, USD=1

**EPT_whole_re**

**Wholesale and retail price indices for energy products**

Wholesale and retail prices indices for Oil products, Electricity, Natural Gas and Coal (2 measures for 4 energy categories).

Unit: Index, latest national base year = 100.

**IEA_Energy_Prices_Taxation_Information**

**Taxation information for OECD and some non-OECD countries**

It covers 7 categories of taxes across sectors and products for 68 countries, of which 31 non-OECD, depending on availability.

Detailed definitions for each product as well as calculation methodologies are presented in chapters below.



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# End-use prices

## General notes

Energy represents a major expenditure for individual consumers, companies and the economy at large. Energy prices provide an indication of the economic significance of the different commercial transactions associated with energy use.

Energy commodity prices are notoriously volatile in the spot market, and this volatility is significantly reflected in the prices paid by consumers. End-use prices also vary greatly across countries due to differences in sources of supply and in taxation policy.

Given the importance of energy in our daily lives, governments can intervene in the price formation process through several mechanisms, including subsidies, fixed tariffs and differential taxation.

Governments can pursue several objectives when designing their taxation policy for energy products. Taxes on energy are a major source of revenue for several countries. Energy consumption is relatively price-inelastic in the short-term, making energy products an interesting target for taxation, as the resulting tax revenue is stable and predictable.

However, energy taxation often pursues objectives that go beyond revenue-raising. Taxes can be designed to internalise the social cost and compensate for negative externalities associated with energy use, such as the public health impact of local air pollution resulting from combustion processes. Moreover, taxes on energy products can be used by governments to send price signals aimed at changing consumption patterns, in both composition and volume, making them a powerful tool for increasing sustainability in energy production and consumption.

Given their relevance, volatility and country-specificity, accurate data on energy prices, including taxes, at a national level are an essential tool for policy makers, researchers, market analysts and, more broadly, all economic actors.

## Energy end-use prices: key concepts

Representativeness is a key challenge that has to be addressed in order to ensure the quality of data presented in this publication.



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End-use prices are defined as the average unit price effectively paid by a consumer category over a period of time.

End-use prices are therefore equal to the ratio of the total amount of money spent on purchasing a given product and the total sales volume of the same product over a period of time:

$$Average\ end\ use\ price = \frac{Total\ sales\ revenue}{Total\ volume\ sold}$$

End-use prices vary in time, across countries and across consumer categories. For example, industrial consumers tend to consume large amounts of energy products, resulting in lower unit prices through economies of scale.

When relevant, end-use prices include all the various forms of taxation that affect the final amount spent by end-users.

Taxes levied on energy consumption can differ in the way they are calculated. The two most distinct categories are *per unit* taxes, calculated as a fixed rate per volume or unit purchased, and *ad valorem* taxes, calculated as a percentage of the value of a good.

The Value Added Tax (VAT) and equivalent taxes are the most common *ad valorem* taxes levied on energy products. Usually, VAT is levied on all consumable goods at the same rate. However, governments can set differential VAT rates on certain energy products to encourage or discourage their consumption. Although the VAT is levied on all transactions at different stages of a finished product's manufacturing process, it is effectively charged on final consumption only, as most intermediate consumers are refunded for their VAT expenditures.

It is worth noting that the Sales tax in place in most of the United States is similar, but not fully equivalent, to the VAT. Sales tax is levied on the total price of a finished product at the retail level, whereas VAT is levied and refunded on every step of the manufacturing process, effectively taxing added value only.

Please note that data included in the *Energy prices and taxes* database for *industry* and *electricity generation* sector are reported as VAT exempt because for the final users VAT is refunded. On the contrast in the *World energy prices* database data include VAT also for those sectors to guarantee international comparability.

In many countries, subnational administrations can impose additional taxes to those levied at a national level, creating variations in taxation levels and, ultimately, to end-use prices within a country. This poses a challenge for the



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calculation of national average prices and taxes, as detailed information on consumption and prices for each administrative unit is required in order to compute a representative average.

# The IEA energy prices methodology

## General definitions of prices

End-use prices presented in this publication reflect, as accurately as possible, the unit price effectively paid by consumers over a period of time in a given country. For the *World energy prices* database only end-user prices are available.

## Methodology used for energy prices and taxes for OECD countries

In addition to the total end-use prices presented in the *World energy prices* database, *Energy prices and taxes for OECD countries* database presents also data on energy taxation at two levels of disaggregation. At a first level, end-use prices are disaggregated into ex-tax prices and total tax:

$$[End\ use\ price] = [Ex\ tax\ price] + [Total\ tax]$$

The **ex-tax price** is defined as the price component corresponding to all non-tax expenses, including manufacturing costs, distribution and network charges as well as the profit margins for the companies involved in the manufacturing chain.

The **total tax** is defined as the total tax expenditure per sales unit effectively paid by consumers, including national and subnational level taxes, and taking into consideration tax exemptions and returns.

The total tax component is further disaggregated into excise taxes and VAT (or equivalent):

$$[Total\ tax] = [Excise\ tax] + [VAT]$$

In *Energy prices and taxes for OECD countries* database, **excise taxes** are defined as all non-VAT or VAT-equivalent components levied on energy consumption. The vast majority of these taxes are calculated on a *per unit* basis. In practice, excise tax rates shown in this publication are the sum of a variety of taxes serving different purposes levied on an energy product. For a list of taxes included in the excise tax figures in this publication, please refer to the country-specific notes presented in Part II.B. The **VAT**, on the other hand, is made up of a single tax charge calculated



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on an *ad valorem* basis, corresponding or equivalent to the Value Added Tax system in place in most OECD countries.

VAT rates applicable to each product are used to calculate the VAT amount payable in each purchase. In general, the basis used for calculating the VAT amount includes both the ex-tax price and all non-VAT taxes:

$$[VAT] = VAT\ (\%) \times ([Ex\ tax\ price] + [Excise\ tax])$$

## Sources and collection methodology

Energy prices and taxes data are collected each quarter by the IEA from relevant official agencies in each country, or from trusted secondary sources such as national banks, regulatory authorities etc.

National sources include, but are not limited to, national energy ministries, central banks, ministries of economy, industry and finance, national competition authorities and national statistics agencies. Secondary sources include Eurostat and the European Commission for European countries, as well as country-specific sources detailed in the country notes.

At the national level, each agency collects primary energy prices and tax data according to its own methodology. These methodologies include, but are not limited to, pump surveys and company surveys.

**Pump surveys** are one of the most widely used methodologies for estimating average road fuel prices and is based on a survey of a limited amount of petrol stations spread throughout a country, constituting a representative sample for the territory covered. For each petrol station surveyed, posted end-use prices are collected and then used to compute an average value. Depending on the availability of consumption data, prices can be calculated a simple arithmetical average or a consumption-weighted average of the surveyed prices. Pump surveys provide a good estimation of the average end-use prices, but do not provide information regarding the average ex-tax price. When pump surveys are used, ex-tax prices are calculated by the relevant sources by subtracting the different tax components as listed in the official tax schedules. This is a source of minor errors, as the effective tax burden is often different than the legally defined values that do not consider tax rebates, exemptions and refunds.

**Company surveys** can often produce more representative figures than pump surveys, as there is normally a limited amount of companies commercialising fuels in a given country and information can usually be collected from all of them. In these surveys, companies report their sales volume and their revenues from fuel



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sales. The average prices obtained, by simply dividing total revenue from all companies by the total volume sold, manage to take into consideration regional variations as well as rebates affecting end-use prices that are not factored into the posted fuel price at a petrol station. Often, companies supply both ex-tax and total revenues, allowing the relevant data sources to obtain representative average end-use and ex-tax prices. By simply subtracting these values, the effective unit taxes paid by consumers can be calculated.

Natural gas and electricity prices are often collected through utility company surveys. Fuel prices for the electricity generation sector are often obtained by conducting a survey of all power generation companies.

Natural gas and electricity pose a specific challenge, as their end-use prices are often regulated through multiple tariffs which include fixed and variable components, as well as distinctions in pricing for different consumption categories (consumption bands). Most countries are able to supply average end-use prices through utility surveys. However, in some countries, average unit values do not exist and therefore selected tariff rates have been used. The weighted average of the tariffs approximates an average value per MWh.

In several countries, industrial consumers can purchase natural gas and electricity through private contracts instead of via the regulated market, with variable and often confidential pricing arrangements. This makes the calculation of average end-use prices for industrial consumers particularly challenging.

For country-specific exceptions and additional methodological information, please refer to the detailed country notes.

# Energy prices and taxes

## Energy end-use price indices

The indices published have been derived from the nominal end-use prices (including taxes) shown in the *Energy prices and taxes for OECD countries* of this package. The methodology for calculating the real and nominal indices of energy end-use prices is as follows:

For products where more than one price is available, a representative series is created for each country. The representative heavy fuel oil price is a combination of high sulphur fuel oil and low sulphur fuel oil. The representative motor gasoline price is a combination of the most consumed unleaded gasoline for recent time periods and leaded gasoline for earlier time periods.



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For oil, the industry index includes representative heavy fuel oil, light fuel oil and automotive diesel but not fuels used for electricity generation. The household index includes representative gasoline and light fuel oil.

For coal, the industry index includes representative steam coal and coking coal. The household index can also include steam coal.

Indices with the base year 2015=100 were computed for each price series from prices in national currencies and then aggregated over product groups, sectors and countries. The Paasche formula is used for index computation. The weights used are the physical quantities consumed, as published in the OECD/IEA *World Energy Statistics*. To calculate the real price index, the nominal prices are deflated with country-specific producer price indices (2015=100) for the industry sector and with country-specific consumer price indices (2015=100) for the household sector. The regional aggregates were calculated as the weighted averages of country specific indices, using consumption quantities as the weights.

Missing data for prices in national currencies were estimated for the index calculations. Certain series with data missing for approximately 10 years or more have been omitted.

The **consumer price index** (CPI), the **producer price index** (PPI) and the **consumer price index for energy** (CPI energy) were taken from the OECD *Main Economic Indicators*.

For non-OECD countries, the main source of CPIs is the International Monetary Fund (IMF), *International Financial Statistics*, 2021. As the IMF CPIs in this source are available with base year 2010=100, the IEA has rebased them so that 2015=100.

In 2Q2009 the OECD revised their methodology for the PPI, with the aim of improving the quality and comparability of PPIs.

For Australia, Belgium, Denmark, Hungary, Ireland, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Sweden and Switzerland, the series refer to the countries' total market.

For Austria, Canada, the Czech Republic, the European Union, France, Germany, Greece, Iceland, Italy, Japan, Korea, Mexico, Poland, Portugal, the Slovak Republic, Spain, Republic of Türkiye, the United Kingdom and the United States, the series now refer to the countries' domestic markets. This series is also used for the OECD total.



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Where new series begin more recently than series previously used, the historical data has been estimated using the growth rates of the old series.

## Energy end-use prices, taxes and price indices in national currencies

The data shown in this section are supplied directly by national sources or collected from trusted secondary sources, as described in the country-specific notes.

The prices and taxes data in this section are presented by country and product in national currency per sales unit.

All prices, taxes and indices for the most recent year, quarter and month might be preliminary and computed as the average of the available weeks, months. These prices, taxes and indices are revised and updated in the subsequent edition. Please refer to the country notes for the individual assumptions used.

## Wholesale and retail price indices

The producer price indices (PPI) and the consumer price indices (CPI) compiled by national statistical services often contain sub-indices for energy products. Where possible the sub-indices for oil products, electricity, natural gas and coal are published. Wholesale indices refer to industry (PPI) and retail indices refer to households (CPI). Growth rates of wholesale and retail price indices are usually close but not identical to those of similar indices which could be constructed from the absolute prices. Any differences in growth rates are due to differences in price surveys and weighting schemes used for the construction of the wholesale and retail price indices from indices of nominal energy end-use prices.

In the context of this publication, energy sub-indices of PPI and CPI are important instruments for cross-checking growth rates of absolute prices and for estimating the absolute prices, notably for electricity and natural gas prices for periods with missing price data. Wholesale and retail indices are presented in the base year of the original source.

## Conversion to euros

Prices and taxes data prior to the date of entry into the Economic and Monetary Union (EMU) have been converted from the former national currency using the appropriate irrevocable conversion rate. The irrevocable conversion rate at 1 January 1999 was used for all countries, except Greece (fixed rate as of



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1 January 2001), Slovenia (fixed rate as of 1 January 2007), the Slovak Republic (fixed rate as of 1 January 2009), Estonia (fixed rate as of 1 January 2011) and Croatia (fixed rate as of 1 January 2023).

| Country | Rate | Country | Rate |
|---|---|---|---|
| Austria | 13.7603 | Lithuania | 3.45280 |
| Belgium | 40.3399 | Latvia | 0.702804 |
| Estonia | 15.6466 | Luxembourg | 40.3399 |
| Finland | 5.94573 | Netherlands | 2.20371 |
| France | 6.55957 | Portugal | 200.482 |
| Germany | 1.95583 | Slovak Republic | 30.126 |
| Greece | 340.750 | Slovenia | 239.64 |
| Ireland | 0.787564 | Spain | 166.386 |
| Italy | 1 936.27 | Croatia | 7.5345 |

This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rate) is preserved. However, pre-EMU euros are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

The national currency prices have been converted to euros and rounded using IEA Secretariat rounding conventions depending on the product and flow (see below). The total prices have not, however, been recalculated and therefore small rounding errors may result.

| Product | Decimals | Product | Decimals |
|---|---|---|---|
| HFSO | 2 | Natural gas | 2 |
| LSFO | 2 | Steam coal | 2 |
| LFO | 2 | Coking coal | 2 |
| Diesel | 3 | Electricity | 4 |
| Gasoline | 3 | | |

For time periods prior to a country's adoption of the euro, the prices in USD have been obtained by applying notional euro to USD exchange rates. These notional rates were calculated by applying the irrevocable fixed euro rates to the former



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national currency exchange rates. Regional totals for all time periods have been calculated after all series were converted to USD.

To facilitate calculations from data in national currencies, the exchange rates shown for pre-EMU periods also incorporate the notional exchange rates.

## Energy end-use prices in USD/unit

In general, country differentials between national end-use prices expressed in USD are heavily influenced by exchange rate differentials. However, world market prices of primary fuels in USD are an important parameter for the pricing of final energy use, particularly for countries which rely heavily on energy imports. The difference between world market prices and national end-use prices in USD relates to the remaining pricing parameters, i.e. transformation and distribution costs, non-internationally tradable energy sources (mainly hydro-power, but also natural gas), market structures (e.g. mix of large- and small- purchase lots), and the pricing policies of central or local authorities, which naturally include the national tax policies.

For OECD member countries, energy prices in national currencies are converted to USD using yearly average exchange rates as published by the OECD *Main Economic Indicators, 2023*.

For non-OECD countries, energy prices in national currencies are converted to USD using '*Domestic Currency per U.S. Dollar, period average*' exchange rates, as published by the International Monetary Fund (IMF), *International Financial Statistics, 2023*.

## Energy end-use prices in USD/toe

In the *Energy prices and taxes for OECD countries* database, prices are also expressed in terms of the heat content of the fuel rather than price per (e.g. tonne, litre) physical unit. They have been calculated using the country specific calorific value (heat content). The net calorific value of a fuel (NCV) is the calorific value gross (GCV), less the heat content of the water formed during the combustion of the fuel. For coal and oil the net calorific values are some 5 per cent lower than the gross values; for natural gas they are 10 per cent lower.

For commercial purposes, specific varieties of a given fuel are usually characterised by the gross calorific value (GCV). For inter-fuel analysis the use of a net calorific value (NCV) is more appropriate. Prices on natural gas used in different sectors are based on the gross heat value. For all countries, a factor of



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0.086 is used to convert electricity from MWh to $10^7$ kcal, and a factor of 0.0774 is used to convert natural gas from MWh gross to $10^7$ kcal net heat equivalents. Please note that $10^7$ kcal equals to 1 toe (tonne of oil equivalent).

## Energy prices in USD (PPP)

International price comparisons based on exchange rates may not reflect the *relative purchasing power* in each currency. In other words, a given amount of money, when converted into different currencies at the purchasing power parity (PPP) rates, buys the same basket of goods and services in all countries compared. This includes consumer goods and services, government services, equipment goods and construction projects. Consumer items include food, beverages, tobacco, clothing, footwear, rents, water supply, gas, electricity, medical goods and services, furniture and furnishings, household appliances, personal transport equipment, fuel, transport services, recreational equipment, recreational and cultural services, telephone services, education services, goods and services for personal care and household operation, repair and maintenance services.

The PPP are triennial benchmark results developed jointly by the Statistics Directorate of the OECD and the Statistical Office of the European Communities (Eurostat). For more information on methodology, see here.

PPP rates data are derived from three sources:

- International Monetary Fund. 2023. World Economic Outlook, April 2023: A Rocky Recovery. Washington, DC, October. (IMF WEO)
- World Development Indicators. 2023. Washington, D.C. :The World Bank. (WB WDI)
- CEPII – CHELEM database. 2023. (CHELEM)

Data from IMF WEO are used as a primary source for the period starting in 1980; if not available, data gaps are filled based on the other sources, based on data availability and the hierarchy described below:

1) Data from IMF WEO
2) Data from WB WDI for countries not included in IMF WEO for any year
3) Data from CHELEM

## Energy prices in 2015 USD/unit and 2015 USD (PPP)/unit

In *World energy prices* database data are available also in 2015 USD/unit and 2015 USD (PPP)/unit. In fact, in order to allow for improved comparability over time, nominal prices have to be adjusted using appropriate deflators to account



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for changes in the value of a currency unit in a given country. The resulting time series are referred to prices in real or constant terms.

Prices for households, transport and commercial sector are deflated using Consumer Price Indices (CPIs) while prices for industry are deflated using Producer Price Indices (PPIs).

Price indices are calculated in relation to the price levels in a reference year, for which the index has a defined value of 100. Deflated price series are therefore expressed in local currency units of the reference year. The reference year for the CPIs and PPIs used in this database is 2015 and the deflated price series are therefore expressed in 2015 local currency units.

Once deflated, the price series are converted to 2015 USD and 2015 USD (PPP) by applying the 2015 conversion factors to each of their elements.

For OECD member countries, the CPI and PPIs used to deflate prices in national currencies were taken from the OECD *Main Economic Indicators, 2023*.

For non-OECD countries, the CPI and PPIs used to deflate prices in national currencies are based on the '*Consumer/Producer Price Index, All items, Index, 2010=100'* series, as published by the International Monetary Fund (IMF), *International Financial Statistics, 2023*, which the IEA has rebased to 2015=100.

The deflated time series in national currencies were also converted to 2015 USD and 2015 USD (PPP) using the conversion factors detailed in the sections above.

Time series for prices in real terms are currently available for gasoline, diesel and electricity.

## Regional averages

For gasoline, diesel and electricity, average yearly prices in selected regions were calculated as consumption-weighted averages of the country level data.

The weights used for this calculation are the physical quantities of fuels used, as published in the IEA *World Energy Statistics, 2023*.

Regional averages are only published if the available country level prices data account for 75% or more of the total consumption in the region.



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# Crude oil import costs and spot market prices

The following definitions apply to these four variables:

Crude Oil Import Costs (USD/bbl) and Index (Nat. Cur., 2015=100) by Country;
IEA Crude Oil Import Costs by Type of Crude (USD/bbl);
Crude Oil Spot Prices (USD/bbl);
Oil Product Spot Prices (USD/bbl);

shown in the files:

EPT_crude_import_country.IVT
EPT_crude_import_type.
EPT_crude_spot.IVT
EPT_oil_products_spot.IVT

Please consult the individual files for exact data coverage.

Spot prices are the main references used to set a price to an economic transaction involving the purchase of a commodity, such as crude oil or oil products. It is defined as the selling price for immediate rather than forward delivery in a given location.

Spot prices are the underlying variable in most pricing arrangements for crude oil trade. However, the actual prices paid for imports differ from spot prices due to crude quality considerations, transport and economies of scale, among other factors. The crude oil import costs presented in Part I are the effective import cost paid in a country per barrel of oil imported.



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# Crude oil import costs

Costs shown for crude oil imports into IEA countries are obtained by dividing value by volume recorded by customs administrations for each tariff position. Values recorded at the import stage include cost, insurance and freight (CIF) but exclude import duties.

# Notes on definitions and regulations for oil imports

## Crude Oil

Import costs of crude oil have been obtained from the monthly Crude Oil Import Register submitted to the IEA Secretariat.

Details on national duties and regulations for crude oil imports are given below. In general, imported products are subject to the same domestic taxes as domestically refined products (exception: Japan) or to import duties which are equivalent to these taxes (Australia, Switzerland).

Following are the typical product quality specifications of the 32 most imported crude oils into IEA countries.

**Source:** International Crude Oil Market Handbook 2010, Energy Intelligence Group).

| Product | API gravity ( ° ) | Sulphur (%) |
|---|---|---|
| Abu Dhabi Murban | 39.6 | 0.79 |
| Abu Dhabi Upper Zakum | 34.0 | 1.89 |
| Abu Dhabi Zakum | 40.9 | 1.03 |
| Algeria Saharan Blend | 45.7 | 0.10 |
| Azeri BTC | 36.6 | 0.16 |
| Brazil Marlim | 19.2 | 0.78 |
| Canada Heavy | 20.9 | 3.05 |
| Canada Light Sweet | 34.3 | 0.28 |
| Danish Blend | 33.6 | 0.26 |
| Iran Heavy | 29.5 | 1.99 |
| Iran Light | 33.4 | 1.36 |



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| Product | API gravity ( º ) | Sulphur (%) |
|---|---|---|
| Iraq Basrah Light | 30.2 | 2.52 |
| Iraq Kirkuk | 34.3 | 2.28 |
| Kazakhstan | 44.8 | 0.57 |
| Kuwait Blend | 30.5 | 2.60 |
| Libya Light | 42.1 | 0.15 |
| Libya Medium | 36.9 | 0.34 |
| Mexico Maya | 21.8 | 3.33 |
| Nigeria Light | 38.9 | 0.12 |
| Nigeria Medium | 30.9 | 0.21 |
| Norway Ekofisk | 38.0 | 0.21 |
| Norway Troll | 33.4 | 0.18 |
| Norway Oseberg | 37.8 | 0.27 |
| Qatar Marine | 32.7 | 1.85 |
| Saudi Arabia Heavy | 27.6 | 2.94 |
| Saudi Arabia Medium | 30.5 | 2.56 |
| Saudi Arabia Light | 33.0 | 1.83 |
| Saudi Arabia Berri | 39.5 | 1.07 |
| UK Forties | 40.3 | 0.56 |
| Urals | 31.8 | 1.35 |
| Venezuela Extra Heavy | 15.0 | 3.07 |
| Venezuela Medium | 27.0 | 1.54 |

Following are the typical specifications of other crude oils previously imported in significant quantities.

| | API gravity( º ) | Sulphur (%) |
|---|---|---|
| Mexico Olmeca | 38-39 | 0.79 |
| Norway Gullfaks | 37.5 | 0.23 |
| Norway Statfjord | 39.5 | 0.22 |
| Oman | 33.3 | 1.14 |
| Syria Light | 38.2 | 0.72 |



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| | API gravity( º ) | Sulphur (%) |
|---|---|---|
| UK Brent blend | 38.5 | 0.41 |
| Venezuela Light | 31.5 | 0.73 |

# Oil Products

## European Union

The European Union applies no quantitative restrictions (quotas) to crude and product imports. Crude oil imports are duty free, as are feedstocks for refining and petrochemical processing. Finished products are subject to duties. For HFO and gasoil (with a sulphur content greater than 0.2% by weight) it is 3.5%. For lighter products it is 4.7%, which is applied or not depending upon their origin.

Customs duty is not applied on imports from the EU, EFTA and ACP countries nor from Israel.

Under the General System of Preferences 2002-2004, (GSP) products from over 150 non-OECD countries, including the GCC, Venezuela and the ex-USSR Republics can be imported free of duty. The exceptions are Libya, Russia and Saudi Arabia whose finished products exports to the European Union are now subject to a full tariff.

Therefore, duty is applied on those products destined for consumption in the European Union and most imports from Saudi Arabia, Libya, Russia and some OECD countries (including the United States and Canada). The exception is gasoil (sulphur content not exceeding 0.2% by weight), for which the duty rate of 3.5% is reduced to zero for an indefinite period regardless of the origin of the product.

## Austria

### *Tariffs (ad valorem duty)*

Gasolines: 4.7%

Kerosenes: 4.7%

Gasoils: 0 - 3.5%

Fuel oils: ≥ 3.5%



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Imports from EFTA and EU countries are duty free. Other GATT countries are subject to a preferential treatment. There are no quantitative restrictions on imports.

**Source:** Ministry of Economic Affairs.

## France

France applies no restriction to crude or oil products imports. Nevertheless, certain oil products are subject to an import licence, except those coming from countries with preferential treatment or from the European Union.

## Ireland

From July 2001 onwards, oil companies are no longer obliged to purchase 20% of their gasoline and middle distillate requirements from the domestic refinery.

## Spain

Imports of oil products are subject to state trading but customs duties have been established recently. The right to import products is reserved to the company operator of the Oil Distribution Monopoly and to other firms if these have a delegated authority and necessary licences.

## Australia

Importers of oil products pay customs duty at a rate equal to the excise duty levied on domestically refined products.

There are no quantitative restrictions on imports.

## Canada

No duties are payable on petroleum product imports and there are no quantified restrictions.

## Japan

Updated using Facts Energy Insights, Issue 68, December 2005.

Crude Oil: The existing customs duties on crude oil (170 JPY/kilolitre) were abolished as of 1 April, 2006.



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Oil Products: The rates as of December 2005 are listed in the table below. The government is expected to eventually abolish all the customs duties on oil products, as they are by definition a temporary measure.

| Product | JPY/kl |
|---|---|
| Fuel oil A (< 0.3% sulphur) | 2 593 |
| Fuel oil A (> 0.3%) | 3 306 |
| Fuel oil C (< 0.3%) | 2 376 |
| Fuel oil C (> 0.3%) | 3 202 |
| Kerosene | 564 |
| Gas oil | 1 257 |
| Gasoline | 1 386 |

## Switzerland

Importers of oil products have to pay duties equivalent to the excise tax charged to domestic refiners when they deliver products to the domestic market. Products are not eligible for preferential tariff treatment. Refineries are treated as "before tax zones". Refined products are taxed as soon as they leave refinery areas.

Please find further information here.

## Republic of Türkiye

There is no restriction on crude oil or oil product imports and no custom duty for crude oil. The tax and fund rates on imported petroleum products and also products which are produced by using imported crude oil are given below. The excise tax and Fuel Price Stabilising Fund are fixed. In January 1996, Republic of Türkiye signed the Customs Union Agreement with the European Union. Therefore, customs duty is not applied on imports from the European Union, EFTA countries or Israel.

| | Customs duties (%) | VAT (%) | Excise tax | Fuel price stabilising fund |
|---|---|---|---|---|
| LPG | 0.7 | 18 | 363 808 | 9 000 |
| Unleaded gas. | 4.7 | 18 | 780 908 | - |
| Other gasoline | 4.7 | 18 | 793 124 | - |
| Kerosene | 4.7 | 18 | 491 700 | 10 600 |



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| | Customs duties (%) | VAT (%) | Excise tax | Fuel price stabilising fund |
|---|---|---|---|---|
| Jet fuel | 4.7 | 18 | - | - |
| Diesel fuel | 3.5 | 18 | 525 673 | - |
| Heating fuel | 3.5 | 18 | 222 475 | 500 |
| Fuel oil | 3.5 | 18 | 75 250 | - |

### United States

The main oil products do not fall under the US preferential system from which most OPEC countries are, inter alia, excluded.

| | Crude oil import duties | | Oil product tariffs | |
|---|---|---|---|---|
| | cents/bbl | cents/gal | cents/bbgal | cents/gal |
| > 25 API | 10.5 | 0.25 | x | x |
| < 25 API | 5.25 | 1.25 | x | x |
| Naphtha | x | x | 10.5 | 0.25 |
| Gasoline | x | x | 52.5 | 1.25 |
| Diesel oils | x | x | 10.5 | 0.25 |
| Heavy fuel | x | x | 10.5 | 0.25 |
| Lubricants | x | x | 84.0 | 2.00 |

x = not applicable.

# Crude oil spot prices[1]

The monthly, quarterly and yearly average crude oil spot prices are calculated from daily quotations from *Argus Crude*.

*Argus Crude* provides prices that are used in third-party contracts, risk management contracts (such as swaps), underlying futures settlement prices, internal price transfer, internal benchmarking, mark-to-market assessment and market analysis.

The assessed crude prices are based on prices from the open spot market whenever possible. Argus publishes prices that report and reflect prevailing levels for open-market arm's length transactions.

[1] Source: Based on Argus unless otherwise specified. Copyright © 2021 Argus Media Ltd - All rights reserved.



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Product quality specifications given below are based on *Argus Crude Methodology and Specifications Guide*, October 2015 and *Argus Americas Crude Methodology and Specifications Guide*, September 2015, http://www.argusmedia.com. The API density and sulphur content figures are typical values.

## North Sea

Set by the lowest of the Brent, Forties, Oseberg and Ekofisk components. Consequently it is not the price of a grade of crude but a benchmark established through a methodology. It therefore has no API density or sulphur specification: the lowest and highest values across the components are given for indicative purposes.

| | |
|---|---|
| Specification: | North Sea Dated, London close, midpoint, fob |
| Basis/Location: | Sullom Voe, Hound Point, Teeside, UK or Sture terminal |
| API Gravity: | 37.5º – 40.3º |
| Sulphur Content: | 0.23 – 0.56 |

## West Texas Intermediate (WTI)

| | |
|---|---|
| Specification: | WTI Formula Basis month 1, No time stamp, midpoint, fip |
| Basis/Location: | Cushing, Midland |
| API Gravity: | 40.0º |
| Sulphur Content: | 0.37 |

## West Texas Sour (WTS)

| | |
|---|---|
| Specification: | WTS weighted average month 1, Houston close, index, fip |
| Basis/Location: | Midland |
| API Gravity: | 38.0º |
| Sulphur Content: | 0.50 |



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## Light Louisiana Sweet (LLS)

Specification: LLS weighted average month 1, Houston close, index, fob

Basis/Location: Capline St. James

API Gravity: 38.5º

Sulphur Content: 0.39

## Arab Light

Product quality specifications based on *International Crude Oil Market Handbook 2010*, Energy Intelligence Group. Prices are as published in the IEA *Oil Market Report* prior to 2002.

Specification: Dated

Basis/Location: Ras Tanura, King Fahd, Juaymah

API Gravity: 33.0º

Sulphur Content: 1.83

## Dubai

Specification: Dubai month 1, Singapore close, midpoint, fob

Basis/Location: Dubai

API Gravity: 31.0º

Sulphur Content: 2.04

## Iran Light

Specification: Iranian Light dated, London close, midpoint, fob

Basis/Location: Sidi Kerir

API Gravity: 33.7º

Sulphur Content: 1.50

## Iran Heavy

Price: Iranian Heavy dated, London close, midpoint, fob



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Basis/Location: Sidi Kerir

API Gravity: 30.7º

Sulphur Content: 1.80

## Urals

Specification: Urals Med 80kt dated, London close, midpoint, cif

Basis/Location: Augusta, Italy

API Gravity: 30.9º

Sulphur Content: 1.33

## Minas

Specification: Minas prompt, Singapore close, midpoint, fob

Basis/Location: Indonesia

API Gravity: 35.0º

Sulphur Content: 0.08

## Tapis

Specification:Tapis prompt, London close, midpoint, fob

Basis/Location: Malaysia

API Gravity: 46.0º

Sulphur Content: 0.02



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# Oil product spot prices[2]

Oil product spot prices are calculated from daily quotations from *Argus*.

| Product | Market | Specifications |
|---|---|---|
| Gasoline | NW Europe<br>United States<br>Singapore | Gasoline Euro-bob oxy NWE prompt, London close, midpoint, barge, fob<br>Gasoline 93 V conv Colonial cycle 1, Houston close, midpoint, pipeline, fip<br>Gasoline 95r Singapore prompt, Singapore close, midpoint, fob |
| Gasoil | NW Europe<br>United States<br>Singapore | Gasoil heating oil German NWE prompt, London close, midpoint, barge, fob<br>Diesel 61 10ppm (ULS) Colonial pipeline cycle 1, Houston close, midpoint, pipeline, fip<br>0.05% Singapore prompt, Singapore close, midpoint, fob |
| Jet/Kero | NW Europe<br>United States<br>Singapore | Jet/kerosene NWE prompt, London close, midpoint, fob<br>Jet/kerosene 54 Colonial cycle 1, Houston close, midpoint, pipeline, fip<br>Jet/kerosene Singapore prompt, Singapore close, midpoint, fob |
| Naphtha | NW Europe<br>Singapore | Naphtha 65 para NWE prompt, London close, midpoint, barge, fob<br>Naphtha Singapore prompt, Singapore close, midpoint, fob |
| LSFO | NW Europe<br>Singapore | Fuel oil 1% NWE prompt, London close, midpoint, fob<br>Fuel oil LSWR V-500 Indonesia prompt, Singapore close, midpoint, fob |
| HSFO | NW Europe<br>United States<br>Singapore | Fuel oil 3.5% NWE prompt, London close, midpoint, fob<br>Fuel oil No 6, 3% USGC prompt, Houston close, midpoint, fob<br>Fuel Oil HS 380 cst cargo Singapore prompt, Singapore close, midpoint, fob |

## Conversion Factors

| Product | Product | Bbl/tonne |
|---|---|---|
| NW Europe | Gasoline | 8.35 |
| | Gasoil | 7.46 |
| | Jet/Kero | 7.88 |
| | Naphtha | 8.82 |
| | LSFO | 6.49 |
| | HSFO | 6.31 |
| Singapore | HSFO | 6.46 |

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# Sector definitions

| Flow | Short name | Definition |
|---|---|---|
| Electricity generation | ELGEN | Electricity generation refers to the prices paid by power generation companies to purchase fuels for electricity production for sale. |
| Industry | IND | Industry refers to large consumers in the industrial or manufacturing sectors purchasing energy in the wholesale market, often benefiting from economies of scale and VAT exemptions. |
| Transport | TRANS (WEP only) | Transport refers to the prices paid for automotive fuels.<br>In the *Energy prices and taxesfor OECD countries database*, transport fuels are categorized under households/industry sector depending on the use. Those prices are categorized as transport for the *World energy prices* database. |
| Residential/ households | RESID (WEP only)<br>HOUSEHOLDS (EPT only) | Includes consumption by households, excluding fuels used for transport for WEP databases. Includes households with employed persons [ISIC Rev. 4 Divisions 97 and 98] which are a small part of total residential consumption. |
| Commercial and public services | COMM (WEP only) | Commercial and public services refers to medium consumer such as tertiary activities, shops, offices etc. [ISIC Rev. 4 Divisions 33, 36-39, 45-47, 52, 53, 55-56, 58-66, 68-75, 77-82, 84 (excluding Class 8422), 85-88, 90-96 and 99] |
| Non-specified | NONSPEC (WEP only) | Non-specified refers to other final consumption sectors that are relevant at a national level in certain countries, as detailed in the corresponding country notes. |



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# Product definitions

| Product | Short name | Definition |
|---|---|---|
| Heavy fuel oils (EPT only)<br>Fuel oil (WEP only)<br>(t) | HSFO (EPT only)<br>LSFO (EPT only)<br>RESFUEL (WEP only) | Fuel oil defines oils that make up the distillation residue. It comprises all residual fuel oils, including those obtained by blending. Its kinematic viscosity is above 10 cSt at 80ºC. The flash point is always above 50ºC and the density is always higher than 0.90 kg/l.<br>The *Energy Prices and Taxes for OECD countries* database distinguishes between two types of heavy fuel oils:<br>• HIGH SULPHUR Fuel Oil (sulphur content 1% and above);<br>• LOW SULPHUR Fuel Oil (sulphur content less than 1%).<br>The World energy prices database has only one product, fuel oil, encompassing both high sulphur and low sulphur fuel oils. When both are available in EPT, low sulphur fuel oil is selected for industrial sector, and high sulphur fuel oil is selected for electricity generation sector. |
| Light fuel oil (kl) | LFO (EPT only) | Applicable only for *Energy prices and taxes for OECD countries* database, Light Fuel Oil comprises light distillate fuel oils. Light fuel oil can be used for heating purposes (heating oil).<br>OECD LFO data are recategorized as KEROSENE in WEP database. |
| Kerosene (kl) | KEROSENE (WEP only) | Applicable only to *World energy prices* databses, Kerosene comprises refined petroleum distillate intermediate in volatility between gasoline and gas/diesel oil. It is a medium oil distilling between 150oC and 300oC. Kerosene used for aircraft transport is excluded. |
| Steam coal (t) | BITCOAL | Steam coal is primary coal used for steam rising and space heating purposes (i.e., excluding Coking Coal). |
| Coking coal (t) | COKCOAL (EPT only) | Applicable only for *Energy prices and taxes for OECD countries* database.<br>Coking coal refers to bituminous coal with a quality that allows the production of a coke suitable to support a blast furnace charge. Its gross calorific value is equal to or greater than 24 000 kJ/kg on an ash-free but moist basis. |
| Liquefied petroleum gases (LPGs) (l) | LPG | Liquefied petroleum gases are the light hydrocarbon fraction of the paraffin series, derived from refinery processes, crude oil stabilisation plants and natural gas processing plants, comprising propane (C3H8) and butane (C4H10) or a combination of the two. They could also include propylene, butylene, isobutene and isobutylene. LPGs are normally liquefied under pressure for transportation and storage. |
| Gasolines (l) | GASOREG<br>GASOMID<br>GASOHIG<br>LEADPREM (EPT only)<br>LEADREG (EPT only) | Motor gasoline is light hydrocarbon oil for use in internal combustion engines such as motor vehicles, excluding aircraft. Motor gasoline is distilled between 35°C and 215°C and is used as a fuel for land based spark ignition engines. Motor gasoline may include additives, oxygenates and octane enhancers, including lead compounds such as TEL (tetraethyl lead) and TML (tetramethyl lead). Motor gasoline for this publication includes the liquid biofuel or ethanol blended with gasoline (if not otherwise specified in the country notes).<br>Data are presented for up to three different grades of gasoline: |



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| | | |
|---|---|---|
| | | · Regular gasoline (≤92 RON);<br>· Mid-grade gasoline (93-96 RON);<br>· High-grade gasoline (≥97 RON).<br>· Premium leaded gasoline;<br>· Regular leaded gasoline.<br>Note: RON grades for gasolines should be taken as indicative only. The specifications for the rating systems used vary by reporting country. Please see the country notes for details. The most common original measurement systems used are:<br>· RON = Research Octane Number;<br>· MON = Motor Octane Number;<br>· PON = Pump Octane Number.<br>Approximate equivalents: 92 RON = 84 MON, 95 RON = 87 MON, 98 RON = 90 MON. PON is the arithmetic average between RON and MON.<br>In the taxation information, only one type of gasoline is presented, “Gasoline”. It refers to the most common type of gasoline by country for which data are available, mostly mid-grade gasoline. The total price presented is mid-grade gasoline except for Armenia, Azerbaijan, India, Indonesia, Japan, Tajikistan and Uzbekistan where it is regular gasoline. |
| Diesel oil (l) | DIESEL | Diesel oil distils between 180°C and 380°C. Several grades are available depending on uses, this product refers to diesel oil for diesel compression ignition (cars, trucks, marine, etc.). It may include additives and or biofuels. |
| Natural gas (MWh GCV) | NATGAS | Natural gas comprises gases, occurring in underground deposits, whether liquefied or gaseous, consisting mainly of methane. It includes both "non-associated" gas originating from fields producing only hydrocarbons in gaseous form, and "associated" gas produced in association with crude oil as well as methane recovered from coal mines (colliery gas) or from coal seams (coal seam gas). |
| Electricity (MWh) | ELECTR | |
| Other | OTHER | Other refers to other products that are relevant at a national level, and may vary by country as detailed in the corresponding country notes. |



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# Taxation and pricing framework definitions

## Taxation categories (in file: IEA_Energy_Prices_Taxation_Information)

| Tax | Definition |
|---|---|
| Value-added taxes | Value-added tax (VAT) comprises to the general consumption tax assessed on the value added to goods and services. The information on this tax includes its applicability and its specific rate per energy product and consumer sector.<br>For several countries the Goods and Service Tax (GST) is considered as VAT. Please refer to section “Energy taxation database methodology” of the country notes at the end of this file. |
| Environmental taxes | Environmental taxes comprise all taxes and levies applicable to energy products with an environmental purpose, including carbon-related taxes (refer to Carbon definition). This includes for example soil remediation tax, sulphur tax, NO tax and CO2 tax. The information on this tax includes its applicability and the specific value per energy product and consumer sector. |
| Of which carbon taxes | Carbon taxes comprise to taxes and levies applied to energy products with the purpose of reducing and/or compensating the emission of greenhouse gas emissions. The information on this tax includes its applicability and the specific value per energy product and consumer sector. |
| Renewable support taxes | Renewable energy supply taxes comprise all taxes and levies applied with the aim of supporting the investment in renewable energy technologies. The information on this tax includes its applicability and the specific value per energy product and consumer sector. |
| Energy security taxes | Energy supply security taxes comprise all taxes and levies applied to energy products with the purpose of guaranteeing supply security (e.g. stock holding tax). The information on this tax includes its applicability and the specific value per energy product and consumer sector. |
| Social taxes | Social taxes comprise all taxes and levies applied to energy products whose revenue is used to support social policies, as the implementation of social tariffs, financing the education system, etc. The information on this tax includes its applicability and the specific value per energy product and consumer sector. |
| Other taxes | Other taxes comprise all excise taxes applied to energy products that are not included in the environmental, renewable energy supply, energy supply security and/or social taxes. The information on this tax includes its applicability and the specific value per energy product and consumer sector. |



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# Pricing framework categories (in file: IEA_Energy_Prices_Taxation_Information)

| Pricing classification | Definition |
|---|---|
| 1 | End-user price is fixed by the government or a subsidiary body. |
| 2 | End-user price is neither fully fixed nor liberalized but closely regulated by a mechanism (e.g.: capped price or a compensation scheme for strong variations of crude oil prices). |
| 3 | End-user price is fully liberalized and market based. |



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# Geographical coverage[3]

## Countries and regions

This document is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. In this publication, “country” refers to country or territory, as case may be.

| Country/Region | Short name | Definition |
|---|---|---|
| Africa | AFRICA | Includes Algeria; Angola; Benin; Botswana; Burkina Faso; Cabo Verde; Cameroon; Chad; the Republic of the Congo (Congo) ; the Democratic Republic of the Congo; Cote d’Ivoire; Egypt; Eritrea; Ethiopia; Gabon; Ghana; Kenya; Lesotho; Libya; Madagascar; Malawi; Mali; Mauritania; Mauritius; Morocco; Mozambique; Namibia; Niger; Nigeria; Rwanda; Senegal; the Seychelles; South Africa; South Sudan, Sudan; Swaziland; the United Republic of Tanzania (Tanzania); Togo; Tunisia; Uganda; Zambia; Zimbabwe. |
| Americas | AMERICAS | Includes Argentina; Belize; the Plurinational State of Bolivia (Bolivia); Brazil; Canada; Chile; Colombia; Costa Rica; Cuba; Curaçao; the Dominican Republic; Ecuador; El Salvador; Greenland; Guatemala; Haiti; Honduras; Jamaica; Mexico; Nicaragua; Paraguay; Peru; Suriname ; Trinidad and Tobago; the United States; Uruguay and the Bolivarian Republic of Venezuela (Venezuela). |
| Asia | ASIA | Includes Afghanistan, Armenia; Azerbaijan; Bahrain; Bangladesh; Brunei Darussalam; Cambodia; the People’s Republic of China; Cyprus4 ; Georgia; Hong Kong, China; India; Indonesia; the Islamic Republic of Iran; Iraq; Israel5 ; Japan; Jordan; the Democratic People’s Republic of Korea; Korea; Kazakhstan; Kuwait; Kyrgyzstan; Lao People’s Democratic Republic; Lebanon; Malaysia; Mongolia; Myanmar; Nepal; Oman; Pakistan; Papua New Guinea; the Philippines; Qatar; Saudi Arabia; Singapore; Sri Lanka; the Syrian Arab Republic; Tajikistan; Chinese Taipei; Thailand; Republic of Türkiye; Turkmenistan; the United Arab Emirates; Uzbekistan; Viet Nam; and Yemen. |

[3]. The regional definitions are taken from the IEA *World Energy Statistics* and reflect availability of energy consumption data. For prices, regional averages are only published if the available country level prices data account for 75% or more of the total consumption in the region.

[4] **Note** by Republic of Türkiye: The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Republic of Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Republic of Türkiye shall preserve its position concerning the “Cyprus issue”.

Note by all the European Union Member States of the OECD and the European Union:

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Republic of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

[5] The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.



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| Country/Region | Short name | Definition |
|---|---|---|
| Europe | EUROPE | Includes Albania; Andorra; Austria; Belarus; Belgium; Bosnia and Herzegovina; Bulgaria; Croatia; the Czech Republic; Denmark; Estonia; Finland; Republic of North Macedonia; France; Germany; Gibraltar; Greece; Hungary; Iceland; Ireland; Italy; Kosovo; Latvia; Lithuania; Luxembourg; Malta; the Republic of Moldova (Moldova); Montenegro; the Netherlands; Norway; Poland; Portugal; Romania; the Russian Federation; Serbia; the Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Ukraine and the United Kingdom. |
| Oceania | OCEANIA | Includes Australia and New Zealand. |
| World | WORLD | Includes Africa; Americas; Asia; Europe and Oceania. |
| OECD | OECD | Includes Australia; Austria; Belgium; Canada; Chile; the Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Japan; Korea; Latvia; Lithuania; Luxembourg; Mexico; the Netherlands; New Zealand; Norway; Poland; Portugal; the Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Republic of Türkiye; the United Kingdom and the United States.<br><br>Colombia is an OECD member starting from April 2020 but it is currently included in the OECD aggregates only in WEP databases. Costa Rica is an OECD member starting from May 2021 country but it is currently not included in the WEP and EPT OECD aggregates.<br>Please note that in the interest of having comparable data, all these countries are included despite different accession dates into the OECD. |
| G20 | G20 | Includes Argentina, Australia, Brazil, Canada, China (P.R. of China and Hong Kong, China), India, Indonesia, Japan, Korea, Mexico, Russian Federation, Saudi Arabia, South Africa, Republic of Türkiye, United States and European Union - 28. |
| European Union - 27 | EU27_2020 | Includes Austria; Belgium; Bulgaria; Croatia; Cyprus; the Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Latvia; Lithuania; Luxembourg; Malta; the Netherlands; Poland; Portugal; Romania; the Slovak Republic; Slovenia; Spain; and Sweden.<br>Please note that in the interest of having comparable data, all these countries are included for all time series despite different entry dates into the European Union. |
| IEA | IEATOT | Inlcudes IEA Europe, IEA Asia and Oceania, IEA North America |
| IEA Europe | IEAEUR | Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Republic of Türkiye and the United Kingdom. |
| IEA North America | IEANAM | Canada, Mexico and the United States. |
| IEA Asia and Oceania | IEAPAC | Australia, Japan, Korea and New Zealand. |



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| Country/Region | Short name | Definition |
|---|---|---|
| OECD | OECDTOT | OECD Europe, OECD Asia and Oceania, and OECD Americas. |
| OECD Americas | OECDAM | Canada, Colombia, Costa Rica, Chile, Mexico and the United States. |
| OECD Asia and Oceania | OECDAO | Australia, Israel[6], Japan, Korea and New Zealand. |
| OECD Europe | OECDEUR | Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Republic of Türkiye and the United Kingdom. |
| Afghanistan | MAFGHANIST | |
| Albania | ALBANIA | |
| Algeria | ALGERIA | |
| Andorra | MANDORRA | |
| Argentina | ARGENTINA | |
| Armenia | ARMENIA | |
| Australia | AUSTRALI | |
| Austria | AUSTRIA | |
| Azerbaijan | AZERBAIJAN | |
| Bahrain | BAHRAIN | |
| Bangladesh | BANGLADESH | |
| Belarus | BELARUS | |
| Belgium | BELGIUM | |
| Belize | MBELIZE | |
| Benin | BENIN | |
| Plurinational State of Bolivia | BOLIVIA | |
| Bosnia and Herzegovina | BOSNIAHERZ | |
| Botswana | BOTSWANA | |

[6] The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD and/or the IEA is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.



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| Country/Region | Short name | Definition |
|---|---|---|
| Brazil | BRAZIL | |
| Bulgaria | BULGARIA | |
| Burkina Faso | MBURKINAFA | |
| Cabo Verde | MCABOVERDE | |
| Cameroon | CAMEROON | |
| Canada | CANADA | |
| Chad | MCHAD | |
| Chile | CHILE | |
| People's Republic of China | CHINA | |
| Colombia | COLOMBIA | |
| Democratic Republic of the Congo | CONGOREP | |
| Costa Rica | COSTARICA | |
| Cote d'Ivoire | COTEIVOIRE | |
| Croatia | CROATIA | |
| Cyprus | CYPRUS | **Note by Republic of Türkiye:** The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Republic of Türkiye recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Republic of Türkiye shall preserve its position concerning the "Cyprus" issue. **Note by all the European Union Member States of the OECD and the European Union:** The Republic of Cyprus is recognised by all members of the United Nations with the exception of Republic of Türkiye. The information in this report relates to the area under the effective control of the Government of the Republic of Cyprus. |
| Czech Republic | CZECH | |
| Denmark | DENMARK | |
| Dominican Republic | DOMINICANR | |
| Ecuador | ECUADOR | |
| Egypt | EGYPT | |
| El Salvador | ELSALVADOR | |



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| Country/Region | Short name | Definition |
|---|---|---|
| Estonia | ESTONIA | |
| Ethiopia | ETHIOPIA | |
| Finland | FINLAND | |
| France | FRANCE | |
| Georgia | GEORGIA | |
| Gabon | GABON | |
| Germany | GERMANY | |
| Ghana | GHANA | |
| Greece | GREECE | |
| Greenland | MGREENLAND | |
| Guatemala | GUATEMALA | |
| Honduras | HONDURAS | |
| Hong Kong, China | HONGKONG | |
| Hungary | HUNGARY | |
| Iceland | ICELAND | |
| India | INDIA | |
| Indonesia | INDONESIA | |
| Islamic Republic of Iran | IRAN | |
| Ireland | IRELAND | |
| Israel | ISRAEL | The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law. |
| Italy | ITALY | |
| Jamaica | JAMAICA | |
| Japan | JAPAN | |
| Jordan | JORDAN | |
| Kazakhstan | KAZAKHSTAN | |
| Kenya | KENYA | |
| Korea | KOREA | |



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| Country/Region | Short name | Definition |
|---|---|---|
| Kosovo | KOSOVO | |
| Kyrgyzstan | KYRGYZSTAN | |
| Lao People's Democratic Republic | MLAO | |
| Latvia | LATVIA | |
| Lesotho | MLESOTHO | |
| Libya | LIBYA | |
| Lithuania | LITHUANIA | |
| Luxembourg | LUXEMBOU | |
| Madagascar | MADAGASCAR | |
| Malaysia | MALAYSIA | |
| Malawi | MMALAWI | |
| Mali | MMALI | |
| Malta | MALTA | |
| Mauritania | MMAURITANI | |
| Mauritius | MAURITIUS | |
| Mexico | MEXICO | |
| Republic of Moldova | MOLDOVA | The data presented do not include the districts from the left side of the river Nistru and municipality Bender. |
| Mongolia | MONGOLIA | |
| Montenegro | MONTENEGRO | |
| Morocco | MOROCCO | |
| Mozambique | MOZAMBIQUE | |
| Namibia | NAMIBIA | |
| Nepal | NEPAL | |
| Netherlands | NETHLAND | |
| New Zealand | NZ | |
| Nicaragua | NICARAGUA | |
| Niger | NIGER | |
| Nigeria | NIGERIA | |



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| Country/Region | Short name | Definition |
|---|---|---|
| Republic of North Macedonia | NORTHMACED | |
| Norway | NORWAY | |
| Oman | OMAN | |
| Pakistan | PAKISTAN | |
| Panama | PANAMA | |
| Papua New Guinea | MPAPUANG | |
| Paraguay | PARAGUAY | |
| Peru | PERU | |
| Philippines | PHILIPPINE | |
| Poland | POLAND | |
| Portugal | PORTUGAL | |
| Qatar | QATAR | |
| Romania | ROMANIA | |
| Russian Federation | RUSSIA | |
| Rwanda | RWANDA | |
| Saudi Arabia | SAUDIARABI | |
| Senegal | SENEGAL | |
| Serbia | SERBIA | |
| Seychelles | MSEYCHELLE | |
| Singapore | SINGAPORE | |
| Slovak Republic | SLOVAKIA | |
| Slovenia | SLOVENIA | |
| South Africa | SOUTHAFRIC | |
| Suriname | SURINAME | |
| Spain | SPAIN | |
| Sri Lanka | SRILANKA | |
| Sweden | SWEDEN | |
| Switzerland | SWITLAND | |



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| Country/Region | Short name | Definition |
|---|---|---|
| Chinese Taipei | TAIPEI | |
| Tajikistan | TAJIKISTAN | |
| United Republic of Tanzania | TANZANIA | |
| Thailand | THAILAND | |
| Togo | TOGO | |
| Tunisia | TUNISIA | |
| Republic of Türkiye | TURKEY | |
| Turkmenistan | TURKMENIST | |
| Ukraine | UKRAINE | |
| United Arab Emirates | UAE | |
| Uganda | UGANDA | |
| United Kingdom | UK | |
| United States | USA | |
| Uruguay | URUGUAY | |
| Uzbekistan | UZBEKISTAN | |
| Bolivarian Republic of Venezuela | VENEZUELA | |
| Viet Nam | VIETNAM | |
| Zambia | ZAMBIA | |
| Zimbabwe | ZIMBABWE | |



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# Country notes and sources

# OECD Countries

# Australia

## Sources

Data for all energy products, including energy price indices, are provided on a quarterly basis by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

Sub-national transport fuel prices are extracted from annual prices by state/territory, as published by the Australian Institute of Petroleum, commissioned by the DCCEEW.

## Data collection methodology

### Oil products

Wholesale fuel prices for oil products (e.g. automotive diesel, gasoline, LPG) are determined by the market with reference to import parity pricing models that take into account regional oil product prices as well as shipping costs (freight, wharfage, insurance) and any quality premium associated with compliance with Australian fuel standards.

The relationship between wholesale prices and retail prices varies depending on proximity to local refineries and import terminals, local market conditions (e.g. sales volumes) and the degree of competitive discounting.

Prices for automotive diesel, unleaded regular gasoline, unleaded premium gasoline (95 RON) and automotive LPG are derived by DCCEEW based on a quarterly report commissioned to the Australian Institute of Petroleum (AIP), which contains monthly average retail end-use fuel prices in the eight Australian state/territory capital cities. These cities account for 66% of Australia's total population, according to the Australian Bureau of Statistics (ABS) Population by Age and Sex, Regions of Australia, 2014 publication.



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A national weighted average price for each product is calculated using the monthly state prices from the AIP report and monthly state-level sales data from the DCCEEW's petroleum statistics.

Ex-tax prices are calculated by subtracting the applicable excise tax rates and the Goods and Services Tax (GST) from the end-use prices, sourced from the Australian Taxation Office (ATO).

As described in the Energy Taxation section of this document, oil products used for commercial purposes are subject to a series of tax credits, which reduce the effective tax rates paid by this consumer category. For this reason, total taxes effectively paid by commercial users are currently not available.

## Natural gas

Natural gas prices for industry, households and electricity generation are currently not available.

There is no single wholesale price for gas. A "transfer price" is calculated for the cost of gas that is used to produce LNG.

## Steam and coking coal

From 1990 onwards, coal prices for industry, households and electricity generation are currently not available.

## Electricity

Electricity prices for industry are currently not available.

Annual electricity prices for households correspond to fiscal years which run from 1 July to 30 June. For example, the annual price shown for 2013 refers to the period between 1 July 2012 and 30 June 2013.

Prices for households are sourced from the Australian Energy Market Commission's (AEMC) *Residential Electricity Price Trends,* and refer to the average expenditures per MWh received via a survey that samples households Australia-wide. These averages are weighted by the number of residential connections in each jurisdiction and are therefore considered to be most closely representative of the most populous jurisdictions of Australia.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively.



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Indices are sourced from the Australian Bureau of Statistics (ABS).

Wholesale indices refer to the Producer Price Index (PPI), *Input to the Manufacturing industries* (6427.0) series.

Retail indices refer to the Consumer Price Index (CPI), *weighted average of eight capital cities* (6401.0) series.

Retail indices for oil products refer to *automotive fuels* (series ID: A2328636K).

Wholesale and retail indices for electricity refer to *electricity*" (series ID: A2309192C and A2328141J, respectively).

Wholesale indices for natural gas refer to *natural gas* (series ID: A2309195K). Retail indices refer to *gas and other households fuels* (series ID: A2331921F).

# Energy taxation

## VAT

The Goods and Services Tax (GST), in place in Australia since 1 July 2000, is a VAT-equivalent *ad valorem* tax that is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry and electricity generation, and for automotive fuels for commercial use.

Since its introduction in 2000, the rate has been kept constant at 10% and applies to the excise-inclusive price of gasoline and diesel, biofuels and gaseous fuels.

| From | To | % |
|---|---|---|
| 01.07.00 | now | 10 |

## Excise tax

Excise taxes in Australia are levied at a national level on oil products.

The carbon pricing mechanism has been abolished from 1 July 2014 with the repeal of the Clean Energy Act 2011.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Fuel tax | × | × | × | × | × | | | | |

### *Fuel tax*

Fuel tax in Australia is a form of excise taxation applicable to oil products used for transportation or heating, as well as liquefied or compressed natural gas for transportation. In its current form, the fuel tax is legally defined in the Fuel Tax Act of 2006, which describes the system for fuel tax credits for commercial and non-commercial users. The Excise Act of 1901, the Excise Tariff Act of 1921, the Customs Act of 1901 and the Customs Tariff Act of 1995 establish the liability system for this tax.

Registered commercial entities and some non-profit organizations are entitled to fuel tax credits for taxable oil products used for conducting their commercial activities.

Fuel tax rates on fuel and oil products (other than aviation fuels) are currently indexed twice a year in line with the consumer price index (CPI). This indexation mechanism, in place since 1983, was interrupted in 2001 and re-introduced on 10 November 2014. Indexation currently takes place, every year, on around 1 February and 1 August. Excise rates remained unchanged in August 2020 as the CPI movement was less than one. In response to higher fuel prices that have resulted from international events, the excise rates for petrol, diesel and all other fuel and petroleum-based products (except aviation fuels) were halved from 30 March to 28 September 2022.

From 1 July 2016 onwards, domestically manufactured and imported ethanol and biodiesel are subject to fuel tax following the rates defined by the Excise Tariff Amendment (Ethanol and Biodiesel) Act 2015. Pursuant to these amendments, the excise rate on both ethanol and biodiesel is set as a percentage of the excise rate for gasoline. From 1 July 2022, the excise rate for ethanol and biodiesel is set at 32.77% and 23.333%, respectively, for the 2022-2023 financial year.

Gaseous fuels, including LPG, liquefied natural gas (LNG) and compressed natural gas (CNG), used for road transportation, are subject to fuel tax. Uses other than transportation are tax-free.



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The rates shown in the tax rate tables at the end of this section refer to non-commercial users not eligible for tax credits under the current legal framework.

Electricity generation is not taxed, but the fuels used for production are.

| From | To | Heavy fuel oil (AUD/tonne) | Light fuel oil (AUD/1000l) | Automotive diesel (AUD/l) | Gasoline (AUD/l) | Automotive LPG (AUD/l) |
|---|---|---|---|---|---|---|
| 07.08.97 | 31.07.98 | 432.29 | 427.97 | 0.42797 | 0.42797 | |
| 01.08.98 | 31.01.99 | 434.89 | 430.54 | 0.43054 | 0.43054 | |
| 01.02.99 | 31.07.99 | 437.93 | 433.55 | 0.43355 | 0.43355 | |
| 01.08.99 | 31.01.00 | 439.24 | 434.85 | 0.43485 | 0.43485 | |
| 01.02.00 | 30.06.00 | 445.83 | 441.37 | 0.44137 | 0.44137 | |
| 01.07.00 | 31.07.00 | 445.83 | 441.37 | 0.37481 | 0.44137 | |
| 01.08.00 | 31.01.01 | 385.03 | 381.18 | 0.38118 | 0.38118 | |
| 01.02.01 | 28.02.01 | 400.43 | 396.43 | 0.39643 | 0.39643 | |
| 01.03.01 | 30.11.11 | 385.28 | 381.43 | 0.38143 | 0.38143 | |
| 01.12.11 | 30.06.12 | 385.28 | 381.43 | 0.38143 | 0.38143 | 0.025 |
| 01.07.12 | 30.06.13 | 385.28 | 381.43 | 0.38143 | 0.38143 | 0.050 |
| 01.07.13 | 30.06.14 | 385.28 | 381.43 | 0.38143 | 0.38143 | 0.075 |
| 01.07.14 | 09.11.14 | 385.28 | 381.43 | 0.38143 | 0.38143 | 0.100 |
| 10.11.14 | 31.01.15 | 389.90 | 386.00 | 0.38600 | 0.38600 | 0.101 |
| 01.02.15 | 31.07.15 | 392.93 | 389.00 | 0.38900 | 0.38900 | 0.102 |
| 01.08.15 | 31.01.16 | 395.96 | 392.00 | 0.39200 | 0.39200 | 0.128 |
| 01.02.16 | 31.07.16 | 398.99 | 395.00 | 0.39500 | 0.39500 | 0.129 |
| 01.08.16 | 31.01.17 | 400.00 | 396.00 | 0.39600 | 0.39600 | 0.129 |
| 01.02.17 | 31.07.17 | 405.05 | 401.00 | 0.40100 | 0.40100 | 0.131 |
| 01.08.17 | 04.02.18 | 407.07 | 403.00 | 0.40300 | 0.40300 | 0.132 |
| 05.02.18 | 31.07.18 | 413.13 | 409.00 | 0.40900 | 0.40900 | 0.133 |
| 01.08.18 | 03.02.19 | 416.16 | 412.00 | 0.41200 | 0.41200 | 0.134 |
| 04.02.19 | 04.08.19 | 420.20 | 416.00 | 0.41600 | 0.41600 | 0.136 |
| 05.08.19 | 02.02.20 | 422.22 | 418.00 | 0.41800 | 0.41800 | 0.137 |
| 03.02.20 | 02.08.20 | 427.27 | 423.00 | 0.42300 | 0.42300 | 0.138 |
| 03.08.20 | 31.01.21 | 427.27 | 423.00 | 0.42300 | 0.42300 | 0.138 |



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| From | To | Heavy fuel oil (AUD/tonne) | Light fuel oil (AUD/1000l) | Automotive diesel (AUD/l) | Gasoline (AUD/l) | Automotive LPG (AUD/l) |
|---|---|---|---|---|---|---|
| 01.02.21 | 01.08.21 | 431.30 | 427.00 | 0.42700 | 0.42700 | 0.139 |
| 02.08.21 | 31.01.22 | 437.36 | 433.00 | 0.43300 | 0.43300 | 0.141 |
| 01.02.22 | 29.03.22 | 446.45 | 442.00 | 0.44200 | 0.44200 | 0.144 |
| 30.03.22 | 31.07.22 | 223.23 | 221.00 | 0.22100 | 0.22100 | 0.072 |
| 01.08.22 | 28.09.22 | 232.32 | 230.00 | 0.23000 | 0.23000 | 0.075 |
| 29.09.22 | 31.01.23 | 464.64 | 460.00 | 0.46000 | 0.46000 | 0.150 |
| 01.02.23 | 31.07.23 | 481.81 | 477.00 | 0.47700 | 0.47700 | 0.156 |

## Energy taxation database methodology

The Goods and Services Tax (GST), being a VAT-equivalent tax, is accounted for in the database as VAT. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation.

Fuel tax in Australia, a general excise tax, is included in the Other Taxes. It is applicable to all energy products with the exception of electricity and coal. The yearly values applicable to the different energy products were estimated as the average of the values applicable for a certain year weighted for the number of days they were in place. Values for commercial services and industry are not considered, as these sectors are entitled to receive fuel tax credits.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the following states and territories across Australia: New South Wales, Victoria, Queensland, South Australia, Western Australia, Northern Territory and Tasmania.

## Product specifications



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| | Automotive diesel | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline | Automotive LPG | Natural gas |
|---|---|---|---|---|---|
| Quality | Automotive diesel oil (ADO) | Premium unleaded petrol (PULP) | Unleaded petrol (ULP) | LPG | |
| Octane number | | 95 RON | 91 RON | | |
| Density (kg/l) | | | | 0.55 | |
| Sulphur content (%) | | | | | |
| GCV (kcal/$m^3$) | | | | | 9 506 |



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# Austria

## Sources

Data for light fuel oil for households, automotive diesel for non-commercial users and all gasoline grades are provided on a quarterly basis by the **Federal Ministry for Sustainability and Tourism (BMNT)**.

Data for heavy fuel oil for electricity generation, automotive diesel for commercial users, as well as light fuel oil, steam coal, natural gas and electricity for industry are provided on a quarterly basis by **Statistics Austria**.

All data for natural gas and electricity are provided on a quarterly basis by **E-Control** from 3Q2017 onwards.

Prices and taxes data for low sulphur fuel oil are based on weekly data published in the **European Commission's** *Weekly Oil Bulletin*.

Retail energy price indices are based on data published by **Eurostat**.

## Data collection methodology

### Oil products

Annual end-use for prices for heavy fuel oil for electricity generation, light fuel oil for industry and automotive diesel for commercial users are calculated by Statistics Austria based on a yearly survey of fuel quantities and expenditures incurred by around 3000 of the biggest industrial companies throughout the country. The survey is estimated to cover around 80% of total sectoral consumption.

End-use prices for these products are calculated as the ratio between total expenditure and total volumes consumed. The ex-tax price is then calculated by subtracting the applicable, legally established tax components from the end-use price.

Quarterly prices are estimated by Statistics Austria using the changes in the quarterly wholesale price index. Data are subsequently revised at the end of the yearly cycle.

Prices for low sulphur fuel oil are derived from data published in the European Commission's *Weekly Oil Bulletin*, which reports weekly ex-tax and end-use prices for a series of oil products in all EU countries.



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Quarterly and annual figures are calculated as simple arithmetical averages of the weekly data. Total taxes are calculated as the subtraction of the quarterly and annual ex-tax from the final prices. Excise taxes for non-commercial users are calculated by subtracting VAT from the calculated VAT figures. For commercial users, excise taxes are equal to the total tax, as they are exempt from VAT.

Prices for light fuel oil for households, automotive diesel for non-commercial users, regular unleaded gasoline and premium unleaded gasoline (98 and 95 RON) are derived from a weekly survey of pump prices, conducted in filling stations throughout the country every Monday by the Austrian Petroleum Industry Association. Prices for gasoline (95 RON) and diesel refer to blended fuels at a minimum rate of 4.6% and 6.6% for the biofuel component, respectively. The prices collected in this survey are then consumption-weighted to produce a weekly national average, which is then used to produce quarterly prices as the simple arithmetical average of the weekly prices.

Prices for high sulphur fuel oil for industry are not applicable, due to limited sectoral consumption levels.

## Natural gas

Up until 2Q2017, prices for industry are calculated by Statistics Austria based on a biannual survey of delivered quantities and realized revenues (including and excluding taxes). The respondents are natural gas suppliers and grid operators. The survey is estimated to cover around 80% of total sectoral consumption. Quarterly prices within each semester are assumed to be constant.

End-use prices are calculated as the ratio between total expenditure and total volumes consumed. By definition, this methodology includes all consumption bands. The ex-tax price is then calculated by subtracting the applicable, legally established tax components.

Quarterly prices are estimated by Statistics Austria using the changes in the quarterly wholesale price index. Data are subsequently revised at the end of the yearly cycle.

From 3Q2017 onwards, the prices for households and industry are calculated by E-Control on a biannual survey of realized prices and an annual survey of quantities. The respondents are all suppliers and network operators. The survey covers at least 95% of the non-household and nearly 100 % of the household consumption. In E-Control’s biannual survey the prices are broken down by different components. The different taxes and levies are collected separately. The



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prices and different taxes reported by the suppliers and network operators are weighted with the relative market-share within the consumption band.

The prices for natural gas used for electricity generation (public sector only) are collected by E-Control. The methodology for the calculation is the same as for industry and households.

## Steam and coking coal

Prices for steam coal are calculated by Statistics Austria based on a yearly survey of fuel quantities and expenditures incurred by around 3000 of the biggest industrial companies throughout the country. The survey is estimated to cover around 80% of total sectoral consumption.

End-use prices for these products are calculated as the ratio between total expenditure and total volumes consumed. By definition, this methodology includes all consumption bands. The ex-tax price is then calculated by subtracting the applicable, legally established tax components, from the end-use price.

Quarterly prices for these products are estimated by Statistics Austria using the changes in the quarterly wholesale price index. Data are subsequently revised at the end of the yearly cycle.

Prices for steam coal for households are not applicable, due to limited sectoral consumption levels.

Prices for coking coal for industry are confidential as consumption is limited to a single company.

## Electricity

Up until 2Q2017, prices for industry are calculated by Statistics Austria based on a biannual survey of quantities and realized revenues (including and excluding taxes). The respondents are electricity suppliers and grid operators. The survey is estimated to cover around 80% of total sectoral consumption. The reported prices include all consumption bands. Quarterly prices within each semester are assumed to be constant.

End-use prices are calculated as the ratio between total expenditure and total volumes consumed. By definition, this methodology includes all consumption bands. The ex-tax price is then calculated by subtracting the applicable, legally established tax components, from the end-use price.



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Quarterly prices are estimated by Statistics Austria using the changes in the quarterly wholesale price index. Data are subsequently revised at the end of the yearly cycle.

From 3Q2017 onwards, the prices for households and industry are calculated by E-Control on a biannual survey of realized prices and an annual survey of quantities. The respondents are all suppliers and network operators. The survey covers at least 95% of the non-household and nearly 100 % of the household consumption. In E-Control's biannual survey the prices are broken down by different components. The different taxes and levies are collected separately. The prices and different taxes reported by the suppliers and network operators are weighted with the relative market-share within the consumption band.

### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) produced by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722) series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for natural gas refer to the *gas* (cp0452) series.

Retail indices for coal refer to the *solid fuel* (cp0454) series.

## Energy taxation

### VAT

VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry, electricity generation and automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.01.73 | 31.12.80 | 8 |
| 01.01.81 | 31.12.83 | 13 |
| 01.01.84 | now | 20 |



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## Excise tax

Energy taxes are levied in accordance with the 2003 EU Energy Taxation Directive.

The excise taxes in Tables 1, 2 and 3 are the sum of all non-VAT tax components applicable to each product.

In the case of oil products, the excise tax consists of the mineral oil tax plus the emergency stock fee.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Mineral oil tax | × | × | × | × | × | | | | |
| Natural gas tax | | | | | | × | | | |
| Coal tax | | | | | | | × | | |
| Electricity tax | | | | | | | | | × |

### *Mineral oil tax (Mineralölsteuer)*

Excise taxation on oil products is legally defined, in its current form, in the Mineral Oil Tax Law of 1995 and its amendments.

Under the Mineral Oil Tax Law of 1995, oil products (mineral oils) used for heating or as propellants are subject to a mineral oil tax. Heavy fuel oil used for electricity generation is exempt.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|
| 01.01.92 | 31.12.93 | 14.5 | 47.0 | 0.220 | 0.291 |
| 01.01.94 | 30.04.95 | 14.5 | 47.0 | 0.220 | 0.328 |
| 01.05.95 | 31.12.01 | 36.3 | 69.0 | 0.283 | 0.408 |
| 01.01.02 | 31.12.03 | 36.0 | 69.0 | 0.282 | 0.407 |
| 01.01.04 | 30.09.05 | 60.0 | 98.0 | 0.302 | 0.417 |
| 01.10.05 | 30.06.07 | 60.0 | 98.0 | 0.325 | 0.417 |
| 01.07.07 | 31.12.10 | 60.0 | 98.0 | 0.375 | 0.475 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|
| 01.01.11 | 31.05.13 | 60.0 | 98.0 | 0.425 | 0.515 |
| 01.06.13 | Now | 60.0 | 98.0 | 0.397 | 0.482 |

### *Emergency Stock Fee (Pflichtnotstandsreservenabgabe)*

The Emergency Stock Fee is not a tax imposed by the state. These are the costs reported by the companies which are obliged to hold stocks to the Austrian Federal Association of the Oil Industry and the Austrian Federal Association of Energy Dealers. The costs are the prices agreed upon for transferring the stockholding obligations to a counterparty or to the Austrian Central Stockholding Entity (*Erdöllagergesellschaft mbH*). Based on these values, the two associations calculate weighted average values and in turn report them to the Federal Ministry for Sustainability and Tourism. The only legal element in this context is an upper limit to the tariff which the Austrian Central Stockholding Entity (*Erdöllagergesellschaft mbH*) is entitled to charge for taking over stockholding obligations.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/1000l) | Gasoline* (EUR/1000l) |
|---|---|---|---|---|---|
| 01.07.97 | 30.03.98 | | 7.1 | | |
| 01.04.98 | 31.10.98 | | 6.7 | | |
| 01.11.98 | 30.03.99 | | 6.7 | 6.7 | 6.5 |
| 01.04.99 | 30.03.00 | | 6.5 | 6.5 | 6.3 |
| 01.04.00 | 30.03.01 | | 7.1 | 7.1 | 6.7 |
| 01.04.01 | 31.12.01 | | 7.1 | 7.6 | 7.2 |
| 01.01.02 | 31.03.02 | | 7.6 | 7.6 | 7.2 |
| 01.04.02 | 31.03.03 | | 7.2 | 7.2 | 6.9 |
| 01.04.03 | 31.12.03 | | 8.1 | 8.1 | 7.7 |
| 01.01.04 | 31.03.05 | 7.7 | 8.1 | 8.1 | 7.7 |
| 01.04.05 | 31.03.06 | 7.7 | 9.0 | 9.0 | 8.1 |
| 01.04.06 | 31.03.07 | 7.7 | 10.3 | 10.3 | 9.6 |
| 01.04.07 | 31.03.08 | 7.7 | 10.3 | 10,3 | 9.1 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/1000l) | Gasoline* (EUR/1000l) |
|---|---|---|---|---|---|
| 01.04.08 | 31.03.09 | 7.7 | 11.4 | 11,4 | 10.3 |
| 01.04.09 | 31.03.10 | 7.7 | 10.9 | 10.9 | 9.7 |
| 01.04.10 | 31.03.11 | 7.7 | 11.2 | 11.2 | 10.1 |
| 01.04.11 | 31.03.12 | 7.7 | 11.2 | 11.5 | 10.4 |
| 01.04.12 | 31.03.13 | 7.7 | 11.2 | 11.9 | 10.7 |
| 01.04.13 | 31.03.14 | 7.7 | 11.2 | 12.4 | 11.2 |
| 01.04.14 | Now | 7.7 | 11.2 | 12.6 | 11.4 |

### *Natural gas tax (Erdgasabgabe)*

The natural gas tax system is legally defined in the Natural Gas Tax Law, which came into force on 1 April 1996. Natural gas is taxed throughout the country, with the exception of Jungholz (Tyrol) and Mittelberg (Vorarlberg).

Natural gas used for electricity generation and for non-energy uses is exempted from this tax. Several industrial sectors benefit from lower tax rates.

Tax rates are expressed in EUR/m$^3$. The tax rate table at the end of this section was converted to MWh GCV using the annual calorific value.

| From | To | Natural gas (EUR/MWh) |
|---|---|---|
| 01.07.96 | 31.12.01 | 4.206 |
| 01.01.02 | 31.12.03 | 4.528 |
| 01.01.04 | 31.12.12 | 5.898 |
| 01.01.13 | 31.12.13 | 5.893 |
| 01.01.14 | 31.12.14 | 5.872 |
| 01.01.15 | 31.12.15 | 5.861 |
| 01.01.16 | 31.12.16 | 5.836 |
| 01.01.17 | 31.12.19 | 5.841 |
| 01.01.20 | 31.12.20 | 5.825 |
| 01.01.21 | 31.12.21 | 5.836 |
| 01.01.22 | 30.04.22 | 5.830 |



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| From | To | Natural gas (EUR/MWh) |
|---|---|---|
| 01.05.22 | Now | 1.057 |

### *Coal tax (Kohleabgabe)*

The coal tax system is legally defined in the Coal Tax Law, which came into force on 20 August 2003. Coal is taxed throughout the country, with the exception of Jungholz (Tyrol) and Mittelberg (Vorarlberg).

Coking coal and steam coal used for electricity generation are exempted from this tax.

Since its introduction in 2003, the tax rate has been kept constant at 50 EUR/tonne.

### *Electricity tax (Elektrizitätsabgabe)*

The electricity tax system currently in place in Austria is legally defined in the Electricity Tax Law, which came into force on 1 April 1996. Electricity is taxed throughout the country, with the exception of Jungholz (Tyrol) and Mittelberg (Vorarlberg).

| From | To | Electricity (EUR/MWh) |
|---|---|---|
| 01.07.96 | 31.05.00 | 7.3 |
| 01.06.00 | 30.04.22 | 15.0 |
| 01.05.22 | Now | 1 |

### *Local tax (Gebrauchsabgabe)*

The local tax for electricity and natural gas is not obligatory in all towns and villages in Austria. Due to different regulations the tax is between 0% to 6% of the Ex-Tax price.

### *Renewables contribution (Ökostromförderbeitrag, since 28.07.21 Erneuerbaren-Förderbeitrag)*

The renewables contribution for electricity is defined in an ordinance each year. It is set as a uniform percentage applied to the system utilisation charge and the charge for system losses. Renewables contribution is collected throughout the country, with the exception of Jungholz (Tyrol) and Kleinwalsertal (Vorarlberg).



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| From | To | Percentage applied to the system utilisation charge and the charge for system losses |
|---|---|---|
| 01.01.12 | 31.12.12 | 15.40 % |
| 01.01.13 | 31.12.13 | 24.07 % |
| 01.01.14 | 31.12.14 | 32.65 % |
| 01.01.15 | 31.12.15 | 30.76 % |
| 01.01.16 | 31.12.16 | 37.11 % |
| 01.01.17 | 31.12.17 | 26.80 % |
| 01.01.18 | 31.12.18 | 24.58 % |
| 01.01.19 | 31.12.19 | 16.24 % |
| 01.01.20 | 31.12.20 | 25.68 % |
| 01.01.21 | 31.12.21 | 28,42% |
| 01.01.22 | Now | 0% |

### *Flat-rate renewables charge (Ökostrompauschale, since 28.07.21 Erneuerbaren-Förderpauschale)*

The flat-rate renewables charge for electricity is an annual flat rate payable per metering point; its amount varies depending on the grid level at which the metering point is connected. Low-income households may ask of an exemption from the charge. Flate-rate renewables charge is collected throughout the country, with the exception of Jungholz (Tyrol) and Kleinwalsertal (Vorarlberg).

| From | To | Electricity Network level 1-4 (EUR) | Electricity Network level 5 (EUR) | Electricity Network level 6 (EUR) | Electricity Network level 7 (EUR) |
|---|---|---|---|---|---|
| 01.01.12 | 31.12.2014 | 35,000.00 | 5,200.00 | 320.00 | 11.00 |
| 01.01.15 | 31.12.2017 | 104,444.00 | 15,517.00 | 955.00 | 33.00 |
| 01.01.18 | 31.12.20 | 90,287.70 | 13,414.17 | 825.49 | 28.38 |
| 01.01.21 | 31.12.21 | 114.438.65 | 17,002.31 | 1,046.30 | 35.97 |
| 01.01.22 | Now | 0 | 0 | 0 | 0 |



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### *Flat-rate CHP (KWK-Pauschale)*

The CHP surcharges are legally defined in CHP-Law which came into force on 1.2.2015. It is an annual flat rate for electricity payable per metering point; its amount varies depending on the grid level at which the metering point is connected. Flate-rate CHP is collected throughout the country, with the exception of Jungholz (Tyrol) and Kleinwalsertal (Vorarlberg).

| From | To | Electricity Network level 1-4 (EUR) | Electricity Network level 5 (EUR) | Electricity Network level 6 (EUR) | Electricity Network level 7 (EUR) |
|---|---|---|---|---|---|
| 01.02.15 | 31.12.20 | 4,950 | 745 | 43 | 1.25 |

### *Biomass contribution (Biomasseförderbeitrag)*

The biomass contribution for electricity is a regional contribution different in each province. It is set as a uniform percentage applied to the system utilisation charge and the charge for system losses.

| From | To | Province | Percentage applied to the system utilisation charge and the charge for system losses |
|---|---|---|---|
| 01.09.19 | 31.12.21 | Lower Austria | 26.50 % |
| 20.12.19 | 31.12.21 | Salzburg | 28.50 % |
| 12.11.19 | 31.12.21 | Styria | 9.00 % |
| 12.12.19 | 31.03.22 | Upper Austria | 5.63 % |
| 01.01.20 | 31.12.20 | Vienna | 7.00 % |
| 01.01.21 | 30.11.21 | Vienna | 14.75 % |
| 01.06.20 | 31.12.21 | Carinthia | 31.47 % |



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| From | To | Province | Non measured load (EUR/a) + (EUR/kWh) | Measured load (EUR/a) + (EUR/kWh) | Interruptible (EUR/kWh) |
|---|---|---|---|---|---|
| 01.01.20 | 19.05.20 | Tyrol | 0.031 + 0.0044 | 0.0417 + 0.0027 | 0.0039 |
| 20.05.20 | 30.04.21 | Tyrol | 0.0353 + 0.0053 | 0.0502 + 0.0031 | 0.0033 |

## Energy taxation database methodology

The VAT is applicable to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation.

Electricity sales are subject to renewable surcharges that are included in the database as Renewable Energy Supply. This are applicable to electricity sales for all consumer sectors. The applicable rates are not available.

In Austria, the Emergency Stock Fee is assumed as an Energy Security Tax. The tax is applicable to Diesel, Gasoline, Heavy and Light Fuel Oil. The yearly values applicable to the different energy products were estimated as the average of the values applicable for a certain year weighted for the number of days.

The remaining applicable taxes are assumed as Other Taxes, including Coal tax, Natural Gas tax, Mineral Oil tax, and Electricity tax. Electricity generation is exempt from all these taxes. For the remaining consumer sectors, the yearly values applicable to the different energy products were estimated as the average of the values applicable for a certain year weighted for the number of days.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are calculated by Statistics Austria based on data reported by the Association of the Austrian Petroleum Industry (FVMI). Prices are the arithmetic average of the minimum and maximum prices by region. Prices are presented for the following regions:

East (Upper Austria, Lower Austria, Vienna and northern Burgenland)

South (Eastern Tyrol, Carinthia, Styria and southern Burgenland)

West (Vorarlberg, northern Tyrol and Salzburg)



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# Product specifications

## Oil products

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil industry | Light fuel oil households | Automotive diesel |
|---|---|---|---|---|---|
| Quality | Heizöl schwer | Heizöl mittel | Heizöl extraleicht | Heizöl extraleicht | |
| Density (kg/l) | | 1 | 0.84 | 0.84 | 0.84 |
| Sulphur content (%) | <1 | <0.4 | 0.2 | 0.1 | <0.001 |

| | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline |
|---|---|---|---|
| Quality | Super Plus 98 | Euro Super 95 | |
| Octane number | 98 RON | 95 RON | 91 RON |
| Density (kg/l) | 0.75 | 0.75 | 0.75 |
| Sulphur content (%) | <0.001 | <0.001 | <0.001 |
| Lead content (g/l) | 0.013 | 0.013 | 0.013 |

## Natural gas

| | Natural gas |
|---|---|
| GCV (kcal/$m^3$) | 9 733 |



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# Belgium

## Sources

Prices and taxes data for all energy products as well as energy price indices, are provided on a quarterly basis by **the Federal Public Service for Economy, Small and medium-sized enterprises, Self-Employed and Energy** (**FPS Economy**)

## Data collection methodology

### Oil products

Oil product prices in Belgium are subject to maximum pump prices, calculated by the FPS Economy on a daily basis. Actual prices levels in the country are close to these maxima. In 2015, retail prices for transport fuels were, on average, 0.07 EUR/l below the maxima.

Ex-tax prices reported in the publication are based on these maximum prices for gasoline, diesel, LPG, LFO and heavy fuel oils. Ex-tax prices include the ex-refinery price, profit margins, stockholding fees and mandatory contributions to the social heating fund and to the fund for soil remediation of filling stations (BOFAS fee).

The applicable excise fees, as well as VAT for non-commercial consumers, are then added to the ex-tax prices to obtain final end-use prices.

From 2021 onwards, collected real prices are used to calculate the quarterly average for the transport fuels instead of the maximum prices.

### Natural gas

Prices refer to the Eurostat consumption bands D1, D2 and D3 for households; and bands I1, I2, I3, I4 and I5, for industry, covering the whole consumption spectrum. From 1Q2014 onwards, prices also include band I6.

National average prices are computed by the FPS Economy as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are biannual consumption figures per band collected through surveys.

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.



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Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Steam and coking coal

From 1Q2014 onwards, prices for steam coal for households and electricity generation are not applicable due to limited sectoral consumption levels.

From 2012 onwards, annual prices for steam coal and coking coal for industry, refer to use in the iron and steel sector, which is the main consumer of solid coal products in the country with a sectoral and global share of over 80% in 2016. These prices are collected through an annual survey.

From 2021 onwards, quarterly prices for steam coal and coking coal for industry are estimated based on the index Import prices in industry as published monthly by Eurostat. The quarterly prices are corrected after receiving the annual collected price data, for reasons of consistency.

## Electricity

Prices refer to the Eurostat consumption bands DA, DB, DC, DD and DE for households; and bands IA, IB, IC, ID, IE and IF, for industry, covering the whole consumption spectrum with the exception of band IG.

National average prices are computed by the FPS_Economy as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are biannual consumption figures per band collected through surveys.

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the monthly indices produced by the National Bank of Belgium (wholesale) and by FPS Economy (retail).

Wholesale indices for oil products refer to *manufacture of refined petroleum products* (raffinage de pétrole). Retail indices are a weighted average of the series



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referring to *propellants* (carburants), *liquid fuels* (combustibles liquids) and *petroleum gases* (gaz de pétrole).

Wholesale indices for electricity refer to *production, transmission and distribution of electricity* (production, transport et distribution d'électricité). Retail indices refer to *electricity* (électricité).

Wholesale indices for natural gas refer to *gas production and distribution* (production et distribution de gaz). Retail indices refer to *natural gas* (gaz naturel).

Wholesale indices for coal refer to *energy raw materials, coal* (matières énergétiques, charbon). Retail indices refer to *solid fuels* (combustibles solides).

# Energy taxation

## VAT

VAT (TVA/BTW) was introduced in Belgium on 1 January 1971. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry, electricity generation and automotive fuels for commercial use.

A reduced VAT rate applied to light fuel oil for households until 31 March 1992. Since 1 April 1992 until now a reduced VAT rate of 12% applies to coal. From 1 April 2014 until 31 August 2015 a reduced VAT rate of 6% applied to electricity. Since 1 March 2022 the VAT rate has been reduced to 6% for electricity and, one month later, also for natural gas. These two VAT reductions are temporary.

| From | To | General<br>% | Reduced Coal<br>% | Reduced Electricity<br>% | Reduced Gas<br>% |
|---|---|---|---|---|---|
| 01.04.92 | 31.12.93 | 19.5 | 12 | | |
| 01.01.94 | 31.12.95 | 20.5 | 12 | | |
| 01.01.96 | 31.03.14 | 21 | 12 | | |
| 01.04.14 | 31.08.15 | 21 | 12 | 6 | |
| 01.09.15 | 28.02.22 | 21 | 12 | | |
| 01.03.22 | 31.03.22 | 21 | 12 | 6 | |
| 01.04.22 | now | 21 | 12 | 6 | 6 |

## Excise tax

Excise taxes on commercial energy products in Belgium are levied in accordance with the 2003 EU Energy Taxation Directive.



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Automotive LPG for all consumers, as well as steam coal for households, are exempted from federal taxation.

Coal products with a ‘dual use’ are also exempted from federal taxation. The use of energy products for chemical reduction or electrolytic and metallurgical processes is considered dual use. The published prices for industry (iron and steel) are therefore exempt from federal taxation.

No special taxation exists for biofuels. Both pure biofuels and fossil-biofuel blends are subject to the same excise tases as fossil motor fuels.

In addition to the excise tax components applicable at a federal level, regional authorities in Belgium can levy additional fees on commercial energy products sales.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise tax (I) Excise duties on commercial energy products | × | × | × | × | | | × | × | |
| Exise tax (II) Energy fee | × | × | × | × | | × | × | × | × |
| Excise tax (III) Federal excise tax on natural gas and electricity | | | | | | × | | | × |
| BOFAS | | | × | × | | | | | |
| Social heating fund | | × | | | | | | | |
| Stockholding fee | × | × | × | × | | | | | |

### *Excise duties (Droit d’accise/Accijns)*

The current excise taxation system on energy products in Belgium is legally defined in its current form in the 27 June 2016 Law, which came in force on 30 June 2016.

Excise duties on commercial energy products in Belgium are expressed in a per-volume basis.



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Excise duties in Belgium include a self-adjusting mechanism to partially compensate for changes in the maximum price of the taxable goods.

The positive ‘click’, first introduced in August 2003, corrects the excise duty rates for gasoline and diesel so that every unitary drop in the maximum price is partially offset by a half-unit increase in the tax rate.

Conversely, the negative or inverse ‘click’, corrects the excise duty rates for gasoline and diesel so that every unitary rise in the maximum price is partially offset by a half-unit decrease in the tax rate, provided the maximum prices for these fuels are over a legally defined value.

In the tables at the end of this section, the excise duty rates shown for oil products include the energy fee described below.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|
| 10.01.05 | 03.02.05 | 15.00 | 18.49 | 0.3329 | 0.5642 |
| 04.02.05 | 08.02.05 | 15.00 | 18.49 | 0.3404 | 0.5642 |
| 09.02.05 | 08.04.05 | 15.00 | 18.49 | 0.3404 | 0.5742 |
| 09.04.05 | 13.04.05 | 15.00 | 18.49 | 0.3404 | 0.5862 |
| 14.04.05 | 15.04.05 | 15.00 | 18.49 | 0.3507 | 0.5862 |
| 16.04.05 | 20.04.05 | 15.00 | 18.49 | 0.3510 | 0.5922 |
| 21.04.05 | 09.05.05 | 15.00 | 18.49 | 0.3586 | 0.5922 |
| 10.05.05 | 17.05.05 | 15.00 | 18.49 | 0.3657 | 0.5922 |
| 18.05.05 | 05.07.05 | 15.00 | 18.49 | 0.3679 | 0.5922 |
| 06.07.05 | 12.08.05 | 15.00 | 18.49 | 0.3653 | 0.5922 |
| 13.08.05 | 17.08.05 | 15.00 | 18.49 | 0.3632 | 0.5922 |
| 18.08.05 | 01.09.05 | 15.00 | 18.49 | 0.3601 | 0.5922 |
| 02.09.05 | 16.09.05 | 15.00 | 18.49 | 0.3523 | 0.5922 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|
| 17.09.05 | 23.09.05 | 15.00 | 18.49 | 0.3500 | 0.5922 |
| 24.09.05 | 06.10.05 | 15.00 | 18.49 | 0.3444 | 0.5922 |
| 07.10.05 | 07.04.06 | 15.00 | 18.49 | 0.3413 | 0.5922 |
| 08.04.06 | 14.04.06 | 15.00 | 18.49 | 0.3404 | 0.5922 |
| 15.04.06 | 24.04.06 | 15.00 | 18.49 | 0.3366 | 0.5922 |
| 25.04.06 | 11.05.06 | 15.00 | 18.49 | 0.3324 | 0.5922 |
| 12.05.06 | 31.05.06 | 15.00 | 18.49 | 0.3312 | 0.5922 |
| 01.06.06 | 29.06.06 | 15.00 | 18.49 | 0.3295 | 0.5922 |
| 30.06.06 | 18.07.06 | 15.00 | 18.49 | 0.3267 | 0.5922 |
| 19.07.06 | 02.08.06 | 15.00 | 18.49 | 0.3237 | 0.5922 |
| 03.08.06 | 23.08.06 | 15.00 | 18.49 | 0.3194 | 0.5922 |
| 24.08.06 | 31.10.06 | 15.00 | 18.49 | 0.3180 | 0.5922 |
| 01.11.06 | 04.03.07 | 15.00 | 18.49 | 0.3282 | 0.5922 |
| 05.03.07 | 30.09.07 | 15.00 | 18.49 | 0.3311 | 0.5922 |
| 01.10.07 | 04.12.07 | 15.00 | 18.49 | 0.3334 | 0.6227 |
| 05.12.07 | 21.02.08 | 15.00 | 18.49 | 0.3179 | 0.6227 |
| 22.02.08 | 16.04.08 | 15.00 | 18.49 | 0.3179 | 0.6208 |
| 17.04.08 | 24.04.08 | 15.00 | 18.49 | 0.3179 | 0.6185 |
| 25.04.08 | 13.05.08 | 15.00 | 18.49 | 0.3179 | 0.6140 |
| 14.05.08 | 22.05.08 | 15.00 | 18.49 | 0.3179 | 0.6076 |
| 23.05.08 | 09.06.08 | 15.00 | 18.49 | 0.3179 | 0.6033 |
| 10.06.08 | 30.06.08 | 15.00 | 18.49 | 0.3179 | 0.5969 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|
| 01.07.08 | 28.08.08 | 15.00 | 18.49 | 0.3179 | 0.5967 |
| 29.08.08 | 15.09.08 | 15.00 | 18.49 | 0.3189 | 0.5929 |
| 16.09.08 | 09.01.09 | 15.00 | 18.49 | 0.3179 | 0.5856 |
| 10.01.09 | 20.01.09 | 15.00 | 18.49 | 0.3320 | 0.5856 |
| 21.01.09 | 13.02.09 | 15.00 | 18.49 | 0.3407 | 0.5856 |
| 14.02.09 | 20.02.09 | 15.00 | 18.49 | 0.3465 | 0.5856 |
| 21.02.09 | 23.02.09 | 15.00 | 18.49 | 0.3529 | 0.5856 |
| 24.02.09 | 31.03.09 | 15.00 | 18.49 | 0.3529 | 0.5985 |
| 01.04.09 | 29.04.09 | 15.00 | 18.49 | 0.3529 | 0.6014 |
| 30.04.09 | 19.06.09 | 15.00 | 18.49 | 0.3529 | 0.6114 |
| 20.06.09 | 18.01.10 | 15.00 | 18.49 | 0.3529 | 0.6136 |
| 19.01.10 | 27.01.10 | 15.00 | 18.49 | 0.3616 | 0.6136 |
| 28.01.10 | 13.04.10 | 15.00 | 18.49 | 0.3662 | 0.6136 |
| 14.04.10 | 17.05.10 | 15.00 | 18.49 | 0.3728 | 0.6136 |
| 18.05.10 | 25.05.10 | 15.00 | 18.49 | 0.3774 | 0.6136 |
| 26.05.10 | 03.01.11 | 15.00 | 18.49 | 0.3929 | 0.6136 |
| 04.01.11 | 24.01.11 | 15.00 | 18.49 | 0.4045 | 0.6136 |
| 25.01.11 | 19.04.11 | 15.00 | 18.49 | 0.4107 | 0.6136 |
| 20.04.11 | 05.05.11 | 15.00 | 18.49 | 0.4165 | 0.6136 |
| 06.05.11 | 12.05.11 | 15.00 | 18.49 | 0.4306 | 0.6136 |
| 13.05.11 | 09.11.11 | 15.00 | 18.49 | 0.4329 | 0.6136 |
| 10.11.11 | 16.11.11 | 15.00 | 18.49 | 0.4305 | 0.6136 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|
| 17.11.11 | 06.08.13 | 15.00 | 18.49 | 0.4277 | 0.6136 |
| 07.08.13 | 31.12.14 | 16.20 | 18.49 | 0.4277 | 0.6136 |
| 01.01.15 | 31.10.15 | 16.24 | 18.54 | 0.4288 | 0.6152 |
| 01.11.15 | 19.11.15 | 16.24 | 18.54 | 0.4315 | 0.6152 |
| 20.11.15 | 03.12.15 | 16.24 | 18.54 | 0.4381 | 0.6152 |
| 04.12.15 | 11.12.15 | 16.24 | 18.54 | 0.4518 | 0.6152 |
| 12.12.15 | 31.12.15 | 16.24 | 18.54 | 0.4648 | 0.5924 |
| 01.01.16 | 05.07.16 | 16.35 | 18.65 | 0.4648 | 0.6191 |
| 06.07.16 | 12.07.16 | 16.35 | 18.65 | 0.4706 | 0.6191 |
| 13.07.16 | 26.07.16 | 16.35 | 18.65 | 0.4789 | 0.6191 |
| 27.07.16 | 02.08.16 | 16.35 | 18.65 | 0.4864 | 0.6191 |
| 03.08.16 | 31.12.06 | 16.35 | 18.65 | 0.4969 | 0.6100 |
| 01.01.17 | 13.01.17 | 16.35 | 18.65 | 0.5077 | 0.6232 |
| 14.01.17 | 13.03.17 | 16.35 | 18.65 | 0.5131 | 0.6232 |
| 14.03.17 | 22.03.17 | 16.35 | 18.65 | 0.5255 | 0.6190 |
| 23.03.17 | 31.12.17 | 16.35 | 18.65 | 0.5300 | 0.6051 |
| 01.01.18 | 05.02.18 | 16.35 | 18.65 | 0.5385 | 0.6148 |
| 06.02.18 | 12.02.18 | 16.35 | 18.65 | 0.5456 | 0.6148 |
| 13.02.18 | 08.03.18 | 16.35 | 18.65 | 0.5601 | 0.6148 |
| 09.03.18 | 04.06.18 | 16.35 | 18.65 | 0.5659 | 0.6148 |
| 05.06.18 | 12.06.18 | 16.35 | 18.65 | 0.5738 | 0.6148 |
| 13.06.18 | 22.06.18 | 16.35 | 18.65 | 0.5775 | 0.6148 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|
| 23.06.18 | 10.07.18 | 16.35 | 18.65 | 0.5854 | 0.6148 |
| 11.07.18 | 18.07.18 | 16.35 | 18.65 | 0.5900 | 0.6148 |
| 19.07.18 | 18.03.22 | 16.35 | 18.65 | 0.6002 | 0.6002 |
| 19.03.22 | 09.09.22 | 16.35 | 18.65 | 0.4555 | 0.4555 |
| 10.09.22 | 27.09.22 | 16.35 | 18.65 | 0.4555 | 0.4886 |
| 28.09.22 | 06.10.22 | 16.35 | 18.65 | 0.4555 | 0.4993 |
| 07.10.22 | 20.10.22 | 16.35 | 18.65 | 0.4555 | 0.5092 |
| 21.10.22 | 27.10.22 | 16.35 | 18.65 | 0.4555 | 0.5394 |
| 28.10.22 | 09.11.22 | 16.35 | 18.65 | 0.4555 | 0.5563 |
| 10.11.22 | 16.11.22 | 16.35 | 18.65 | 0.4555 | 0.5877 |
| 17.11.22 | now | 16.35 | 18.65 | 0.4555 | 0.6002 |

### *Energy fee (Cotisation énergie/ Bijdrage op de energie)*

An additional excise tax component, which applies to oil products, natural gas, solid fuels and electricity, was established by the 23 July 1993 Law and subsequently modified by the 27 December 2005 Law.

Revenue collected from this tax is earmarked for “maintaining the financial health of the social security system”. Only low-tension users of electricity (<1 kV) are subject to this tax component. In consequence, most industrial consumers are exempted from it. In the low-voltage category, the law sets a reduced rate for professional consumers with environmental certificates (EAE).

For natural gas, all final consumers are subject to the energy fee. Tax rates distinguish professional and non-professional consumers, as well as those with environmental certificates.

In the tables at the end of this section, the energy fee is aggregated with the excise duty rates shown for oil products. Historical rates for electricity and natural gas are currently not available.



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### *Federal natural gas fee (Cotisation fédérale gaz naturel/Federale bijdrage aardgas) – until 31.12.2021*

An additional excise tax component on natural gas, known as the federal natural gas fee, was established in the 24 December 2002 Law, and subsequently modified by the 26 March 2014 Law and the 2 April 2014 Royal Decree.

The federal natural gas fee was charged to final consumers of natural gas and the revenues from it are earmarked for financing certain public service obligations of natural gas providers, and to cover costs linked to the regulation and control of natural gas markets in the country. Revenues from this tax component are collected and administered by the Regulatory Commission for Electricity and Natural Gas (CREG).

The applicable rates were expressed in a per kWh basis and were updated annually. Rates for the first 20 GWh of annual consumption were the same for households and industry.

Industry consumption beyond 20 GWh/year was taxed at 85% of the rate in the 20-50 GWh band; 80% of the rate in the 50-250 GWh band; 75% of the rate in the 250-1 000 GWh band, and 55% of the rate thereafter.

The resulting effective rate for industry was therefore dependent on the consumption of each industrial user.

The 26 March 2014 Law exempted natural gas used for electricity generation from this tax component.

Tax rates shown at the end of this section are taken from CREG's website and include fixed expenses (*frais forfaitaires/forfaitair kosten*).

### *Federal electricity fee (Cotisation fédérale éléctricité/ Federale bijdrage elektriciteit) – until 31.12.2021*

An additional excise tax component on electricity, known as the federal electricity fee, was established by the 29 April 1999 Law on the organisation of the electricity market, and subsequently modified by the Royal Decree of 24 March 2003.

The federal electricity fee was charged to final consumers of electricity and the revenues from it are earmarked for financing certain public service obligations of electricity providers, and to cover costs linked to the regulation and control of electricity markets in the country. Revenues from this tax component are collected and administered by the Regulatory Commission for Electricity and Natural Gas (CREG).



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The applicable rates were expressed in a per kWh basis and were updated annually. Rates for the first 20 MWh of annual consumption were the same for households and industry.

Industry consumption beyond 20 MWh/year was taxed at 85% of the rate in the 20-50 MWh band; 80% of the rate in the 50-1 000 MWh band; 75% of the rate in the 1 000-25 000 MWh band, and 55% of the rate thereafter.

The resulting effective rate for industry was therefore dependent on the consumption of each industrial user.

Tax rates shown at the end of this section are taken from CREG's website.

| From | To | Until 31.12.2021 Federal Natural gas fee (EUR/MWh) | Until 31.12.2021 Federal Electricity fee (EUR/MWh) |
|---|---|---|---|
| 01.01.04 | 31.12.04 | 0.1237 | 1.4485 |
| 01.01.05 | 31.03.05 | 0.1239 | 1.7331 |
| 01.04.05 | 30.04.05 | 0.1239 | 1.6488 |
| 01.05.05 | 30.09.05 | 0.1050 | 1.6488 |
| 01.10.05 | 31.12.05 | 0.1050 | 1.6621 |
| 01.01.06 | 31.12.06 | 0.1252 | 1.8987 |
| 01.01.07 | 31.12.07 | 0.1121 | 2.1080 |
| 01.01.08 | 31.12.08 | 0.1151 | 2.3537 |
| 01.01.09 | 31.12.09 | 0.1511 | 2.6194 |
| 01.01.10 | 31.12.10 | 0.1490 | 4.0685 |
| 01.01.11 | 31.12.11 | 0.1510 | 5.2648 |
| 01.01.12 | 20.01.12 | 0.1309 | 5.0854 |
| 21.01.12 | 31.03.12 | 0.1309 | 4.9761 |



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| From | To | Until 31.12.2021 Federal Natural gas fee (EUR/MWh) | Until 31.12.2021 Federal Electricity fee (EUR/MWh) |
|---|---|---|---|
| 01.04.12 | 31.12.12 | 0.1155 | 3.8597 |
| 01.01.13 | 31.12.13 | 0.1355 | 2.9781 |
| 01.01.14 | 31.08.14 | 0.3978 | 2.4714 |
| 01.09.14 | 31.12.14 | 0.6706 | 2.4714 |
| 01.01.15 | 31.12.15 | 0.7959 | 2.5310 |
| 01.01.16 | 31.12.16 | 0.6309 | 3.0033 |
| 01.01.17 | 31.12.17 | 0.5672 | 3.3705 |
| 01.01.18 | 31.12.18 | 0.5984 | 3.4439 |
| 01.01.19 | 31.12.19 | 0.6043 | 3.3461 |
| 01.01.20 | 31.12.20 | 0.7416 | 3.1428 |
| 01.01.21 | 31.12.21 | 0.6482 | 3.4700 |

### *Federal excise tax on natural gas which since 01.01.2022 replaces the Federal natural gas fee*

The federal excise tax on natural gas fee is charged to final consumers of natural gas.

The applicable rates are expressed in a per kWh basis and are inversely related to the yearly consumption (according to consumption band). Business and non-business consumption are subjected to different rates.

| From | To | Since 01.01.2022 Federal excise tax on Natural gas Business Maximum rate (EUR/MWh) | Since 01.01.2022 Federal excise tax on Natural gas Households Maximum rate (EUR/MWh) |
|---|---|---|---|
| 01.01.22 | now | 0.66 | 0.54 |



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### *Federal excise tax on electricity which since 01.01.2022 replaces the Federal electricity fee*

The federal excise tax on electricity is charged to final consumers of electricity.

The applicable rates are expressed in a per kWh basis and are inversely related to the yearly consumption (according to consumption band). Business and non-business consumption are subjected to different rates.

| From | To | Since 01.01.2022 Federal excise tax on Electricity Business Maximum rate (EUR/MWh) | Since 01.01.2022 Federal excise tax on Electricity Households Maximum rate (EUR/MWh) |
|---|---|---|---|
| 01.01.22 | now | 14.21 | 13.60 |

### *BOFAS fee (Fonds d'assainissement des sols des stations-service/ Bodemsaneringsfonds voor tankstations)*

The BOFAS fee is an obligatory fixed contribution levied on automotive diesel and gasoline sales since 2Q2004.The revenue is used for soil remediation in filling stations.

Since its introduction, the BOFAS fee has been levied at a rate of 0.00197 EUR/l for automotive diesel and 0.00322 EUR/l for gasoline.

The BOFAS fee contribution was reduced to 0 EUR/l for both automotive diesel and gasoline from 01/01/2018 onwards.

The BOFAS fee is included in the ex-tax prices presented in this publication.

### *Social heating fund fee (Fond social chauffage/ Sociaal Verwarmingsfonds)*

The Social heating fund fee is an obligatory fixed contribution levied on heating gasoil (light fuel oil) and other heating fuels since 2005. The revenue from this fee is used to subsidize domestic heating fuels for low-income households.

Since its introduction, the Social heating fund fee has been levied on light fuel oil sales at a rate of 1.6 EUR/1000l.

The Social heating fund fee is included in the ex-tax prices presented in this publication.



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### *Stockholding fee (contribution APETRA/ APETRA bijdrage)*

A strategic stockholding fee is levied on oil product sales. The revenue from this fee is used to cover the cost of maintaining the country's strategic reserves, managed by APETRA, the Belgian stockholding agency.

The fee is updated quarterly and distinguishes between three product categories. Category 1 includes all gasoline grades; Category 2 includes kerosene and gas/diesel oils and Category 3 includes heavy fuel oils.

The stockholding fee is included in the ex-tax prices presented in this publication.

| From | To | Category 1 (EUR/1000l) | Category 2 (EUR/1000l) | Category 3 (EUR/tonne) |
|---|---|---|---|---|
| 01.01.00 | 31.03.00 | 5.54 | 5.28 | 4.75 |
| 01.04.00 | 30.06.00 | 5.91 | 5.91 | 5.04 |
| 01.07.00 | 30.09.00 | 6.23 | 6.35 | 5.37 |
| 01.10.00 | 31.12.00 | 6.26 | 6.84 | 5.58 |
| 01.01.01 | 31.03.01 | 6.85 | 8.51 | 6.40 |
| 01.04.01 | 04.05.01 | 6.15 | 6.52 | 5.26 |
| 05.05.01 | 30.06.01 | 6.31 | 6.52 | 5.46 |
| 01.07.01 | 30.09.01 | 7.13 | 6.44 | 5.39 |
| 01.10.01 | 31.12.01 | 6.45 | 6.51 | 5.20 |
| 01.01.02 | 31.03.02 | 5.71 | 5.97 | 4.95 |
| 01.04.02 | 30.06.02 | 5.36 | 5.50 | 4.85 |
| 01.07.02 | 30.09.02 | 6.72 | 6.42 | 5.55 |
| 01.10.02 | 31.12.02 | 6.45 | 6.14 | 5.43 |
| 01.01.03 | 31.03.03 | 6.01 | 5.96 | 5.50 |
| 01.04.03 | 30.06.03 | 6.17 | 6.29 | 5.59 |



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| From | To | Category 1 (EUR/1000l) | Category 2 (EUR/1000l) | Category 3 (EUR/tonne) |
|---|---|---|---|---|
| 01.07.03 | 30.09.03 | 5.92 | 5.86 | 5.14 |
| 01.10.03 | 31.12.03 | 5.66 | 5.39 | 5.00 |
| 01.01.04 | 31.03.04 | 5.95 | 5.88 | 5.16 |
| 01.04.04 | 30.06.04 | 5.93 | 5.86 | 4.77 |
| 01.07.04 | 30.09.04 | 6.66 | 6.14 | 4.95 |
| 01.10.04 | 31.12.04 | 6.66 | 6.45 | 4.86 |
| 01.01.05 | 31.03.05 | 6.55 | 6.96 | 4.80 |
| 01.04.05 | 30.06.05 | 5.93 | 6.36 | 4.74 |
| 01.07.05 | 30.09.05 | 6.73 | 7.06 | 5.32 |
| 01.10.05 | 31.12.05 | 7.83 | 8.03 | 5.78 |
| 01.01.06 | 31.03.06 | 8.13 | 8.41 | 6.35 |
| 01.04.06 | 30.06.06 | 8.21 | 8.66 | 6.73 |
| 01.07.06 | 30.09.06 | 9.17 | 9.29 | 6.84 |
| 01.01.07 | 31.03.07 | 7.40 | 8.21 | 5.54 |
| 01.04.07 | 30.06.07 | 7.88 | 8.31 | 5.92 |
| 01.07.07 | 30.09.07 | 9.30 | 9.08 | 6.35 |
| 01.10.07 | 31.12.07 | 9.91 | 10.06 | 7.29 |
| 01.01.08 | 31.03.08 | 9.94 | 11.01 | 8.06 |
| 01.04.08 | 30.06.08 | 9.85 | 10.92 | 8.48 |
| 01.07.08 | 30.09.08 | 10.63 | 12.72 | 8.81 |



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| From | To | Category 1 (EUR/1000l) | Category 2 (EUR/1000l) | Category 3 (EUR/tonne) |
|---|---|---|---|---|
| 01.10.08 | 31.12.08 | 12.68 | 14.88 | 11.33 |
| 01.01.09 | 31.03.09 | 9.62 | 11.83 | 8.78 |
| 01.04.09 | 30.06.09 | 6.91 | 8.30 | 6.10 |
| 01.07.09 | 30.09.09 | 7.73 | 7.76 | 6.45 |
| 01.10.09 | 31.12.09 | 8.82 | 8.61 | 7.61 |
| 01.01.10 | 31.03.10 | 8.54 | 8.64 | 7.86 |
| 01.04.10 | 30.06.10 | 8.70 | 8.83 | 7.98 |
| 01.07.10 | 30.09.10 | 9.80 | 9.87 | 8.53 |
| 01.10.10 | 31.12.10 | 9.26 | 9.63 | 8.38 |
| 01.01.11 | 31.03.11 | 8.99 | 9.52 | 7.99 |
| 01.04.11 | 30.06.11 | 10.25 | 10.92 | 8.86 |
| 01.07.11 | 30.09.11 | 11.76 | 12.27 | 10.37 |
| 01.10.11 | 31.12.11 | 11.44 | 11.99 | 10.32 |
| 01.01.12 | 31.03.12 | 10.84 | 11.92 | 9.98 |
| 01.04.12 | 30.06.12 | 11.25 | 12.17 | 10.61 |
| 01.07.12 | 30.09.12 | 12.40 | 12.57 | 11.18 |
| 01.10.12 | 31.12.12 | 11.44 | 11.74 | 10.15 |
| 01.01.13 | 31.03.13 | 11.43 | 12.18 | 10.00 |
| 01.04.13 | 30.06.13 | 10.94 | 11.60 | 9.61 |
| 01.07.13 | 30.09.13 | 11.67 | 12.00 | 10.12 |



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| From | To | Category 1 (EUR/1000l) | Category 2 (EUR/1000l) | Category 3 (EUR/tonne) |
|---|---|---|---|---|
| 01.10.13 | 31.12.13 | 11.74 | 12.10 | 10.03 |
| 01.01.14 | 31.03.14 | 11.30 | 12.26 | 9.97 |
| 01.04.14 | 30.06.14 | 10.67 | 11.49 | 9.49 |
| 01.07.14 | 30.09.14 | 10.78 | 11.11 | 9.57 |
| 01.10.14 | 31.12.14 | 10.66 | 10.84 | 9.10 |
| 01.01.15 | 31.03.15 | 9.44 | 9.87 | 8.00 |
| 01.04.15 | 30.06.15 | 7.23 | 8.06 | 6.04 |
| 01.07.15 | 30.09.15 | 8.22 | 7.88 | 6.42 |
| 01.10.15 | 31.12.15 | 8.32 | 7.88 | 6.01 |
| 01.01.16 | 31.03.16 | 7.03 | 7.23 | 5.20 |
| 01.04.16 | 30.06.16 | 6.14 | 6.05 | 4.41 |
| 01.07.16 | 30.09.16 | 6.39 | 6.38 | 4.77 |
| 01.10.16 | 31.12.16 | 6.45 | 6.55 | 5.26 |
| 01.01.17 | 31.03.17 | 6.50 | 6.73 | 5.49 |
| 01.04.17 | 30.06.17 | 7.18 | 7.31 | 6.07 |
| 01.07.17 | 30.09.17 | 7.20 | 7.10 | 5.89 |
| 01.10.17 | 31.12.17 | 6.94 | 6.78 | 5.68 |
| 01.01.18 | 31.03.18 | 7.25 | 7.38 | 6.03 |
| 01.04.18 | 30.06.18 | 7.18 | 7.47 | 6.11 |
| 01.07.18 | 30.09.18 | 7.52 | 7.79 | 6.34 |



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| From | To | Category 1 (EUR/1000l) | Category 2 (EUR/1000l) | Category 3 (EUR/tonne) |
|---|---|---|---|---|
| 01.10.18 | 31.12.18 | 7.93 | 8.18 | 6.85 |
| 01.01.19 | 31.03.19 | 7.68 | 8.55 | 7.00 |
| 01.04.19 | 30.06.19 | 6.81 | 7.74 | 6.30 |
| 01.07.19 | 30.09.19 | 7.81 | 8.02 | 6.74 |
| 01.10.19 | 31.12.19 | 7.40 | 7.48 | 6.30 |
| 01.01.20 | 20.03.20 | 7.16 | 7.55 | 6.39 |
| 01.04.20 | 30.06.21 | 7.22 | 7.61 | 6.60 |
| 01.07.21 | 30.09.21 | 7.23 | 7.61 | 6.60 |
| 01.10.21 | 31.12.21 | 7.89 | 7.88 | 6.62 |
| 01.01.22 | 31.03.22 | 8.78 | 8.84 | 7.12 |
| 01.04.22 | 30.06.22 | 9.06 | 9.40 | 7.45 |
| 01.07.22 | 30.09.22 | 12.38 | 13.49 | 9.42 |
| 01.10.22 | 31.12.22 | 14.62 | 16.12 | 10.25 |
| 01.01.23 | now | 13.48 | 16.91 | 10.16 |

## Energy taxation database methodology

The VAT (TVA/BTW) is a VAT-equivalent tax in place since 1 January 1971. It is considered that a VAT is applicable to the different energy products since then. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation.

BOFAS fee, with the revenue being used for soil remediation, is considered to be an Environmental tax. It is applied to diesel and gasoline sales. Specific values are not provided, as this fee is already included in the ex-tax prices.



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Stockholding fee, as applied in Belgium, is assumed as an Energy Security tax. The tax is applied to gasoline (category 1), kerosene and diesel (category 2) and heavy fuel oil (category 3). The yearly values applicable to the different categories were estimated as the average of the values applicable for a certain year weighted for the number of days.

Social Heating Fund fee, with the revenue being used to subsidize domestic heating fuels, is assumed as a Social tax. Moreover, the Energy fee (applied to oil products, natural gas, solid fuels and electricity) is also assumed as a Social tax, as its revenue is used to maintain the financial health of the social security system. Industrial consumers are exempt from the energy fee applied to electricity consumption.

The remaining applicable taxes are assumed as Other taxes, including Excise duties for oil products, Electricity fee and Natural Gas fee. These are considered to be applicable to all consumer sectors with the exception of the residential users. The values of the Excise duties applied to the different energy products were estimated as the average of the values applicable for a certain year weighted for the number of days. The specific values for Electricity and Natural Gas fees were not estimated.

# Product specifications

## Oil products

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline |
|---|---|---|---|---|---|---|
| Quality | Fuel oil lourd | Fuel oil lourd | Gas oil chauffage | European Standard EN 590 | European Standard EN 228 | European Standard EN 228 |
| Density (kg/l) | 0.93 | 0.93 | 0.84 | 0.833 | 0.745 | 0.745 |
| Sulphur content (%) | 1 – 3 | 1 | 0.005 | 0.001 | 0.001 | 0.001 |
| NCV (kcal/kg) | 9 550 | 9 550 | 10 200 | 10 100 | 10 350 | 10 350 |
| Delivery size | <24 000 tonnes/year | 2 000 – 5 000 l | <24 000 tonnes/year | | | |



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## Coal

| | Steam coal *industry* | Steam coal *households* | Coking coal *industry* |
|---|---|---|---|
| Quality | | Anthracite 12/22 | |
| NCV (kcal/kg) | 6 300 | 6 800 | 7 000 |



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# Canada

## Sources

Prices and taxes data for all products, as well as energy price indices, are provided on a quarterly basis by **Natural Resources Canada (NRCan)**.

Sub-national transport fuel prices are derived from data extracted from Kent Group Ltd.

## Data collection methodology

From 1Q1993 onwards, prices refer to the monthly averages of the quarter. Prior to 1Q1993, prices refer to the first month of the quarter.

Provinces and municipalities in Canada can levy taxes within their jurisdiction, as described in the Energy Taxation section of this document. Tax amounts shown for the Goods and Services tax (GST) correspond to the federal portion of the tax applicable throughout the country. Excise taxes contain the provincial components of the applicable sales tax, as well as local excise taxes.

### Oil products

Ex-tax prices for high sulphur fuel oil and light fuel oil for industry are calculated by NRCan as the simple arithmetical average of the monthly average refinery terminal prices at Montreal and Toronto, after discounts. Provincial taxes are included in the excise tax figures and are estimated by the reporting agency as 4.3% of the ex-tax price. The GST amounts refer to the federal component only and are calculated as 5% of the ex-tax price. End-use prices are then calculated as the sum of the ex-tax prices and the applicable taxes.

End-use prices and total taxes for light fuel oil for households, automotive diesel for non-commercial use, unleaded premium gasoline 97 RON, unleaded premium gasoline 95 RON and unleaded regular gasoline, are calculated by NRCan as the simple arithmetical average of the monthly average national prices reported in NRCan's website. Provincial taxes are considered as part of excise taxes and are calculated as by subtracting the GST amount, calculated using the applicable federal rate, from the total taxes reported in NRCan's website.

Prices for automotive diesel for commercial use are based on the retail diesel prices used to calculate prices for non-commercial users. As most commercial users are exempt from provincial fuel taxes, average provincial taxes for the year are subtracted from the retail prices to obtain an end-use price for commercial



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users. The rest of the data is calculated using the same methodology as for other road fuels.

Prices for unleaded premium gasoline (95 RON) are derived from data published in the Kent Group's *Daily Pump Price Survey in Canada*, which reports daily end-use prices for a series of oil products in 70 cities across Canada, as well as a national average price computed as a weighted average of the prices in all provincial
capitals.

Quarterly and annual end-use prices are calculated as simple arithmetical averages of the data for every Tuesday of each period. Ex-tax prices are then computed by subtracting the applicable federal level excise taxes and the federal GST.

## Natural gas

Natural gas prices for industry and households are derived from the monthly unit prices for households and industry published by Statistics Canada (Table 25-10-0059-01).

Quarterly ex-tax prices for industry and households are calculated as simple arithmetical averages of the monthly data. The applicable GST rates are then used to calculate the GST amounts based on the quarterly end-use prices. Ex-tax prices are then calculated by subtracting the GST amounts from the end-use prices. Provincial sales taxes, as well as provincial excise taxes, are included in the ex-tax price.

Natural gas prices and taxes data for electricity generation are currently not available.

## Steam and coking coal

Steam and coking coal prices and taxes data are currently not available.

## Electricity

Since 1990, prices for households refer to the residential sector. Prices for industry are the weighted average of two tariff categories: 1 000 kW and 5 000 kW. The most recent prices are estimated by NRCan. The final data are available two years after the reference year.



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Prior to 1990, the prices shown in the main table are annual average revenues per MWh received by the Canadian utilities from all industrial sectors (including mining) and from households (and agricultural units of some provinces).

Annual end-use and ex-tax prices for households and industry are calculated as the simple arithmetical average of the electricity prices in 12 Canadian cities, published in Hydro Quebec's *Comparaison des prix de l'électricité dans les grandes villes nord-américaines* report.

Total taxes are then calculated by subtracting the average ex-tax prices from the average end-use prices for each sector. The disaggregation of total taxes into GST and excise taxes is currently not available.

### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the monthly data published by Statistics Canada.

Wholesale indices for oil products refer to Table 329-0075, series v79309138, *energy and petroleum products*. Retail indices refer to Table 326-0020, series v41691066 and v41691136, *weighted average of gasoline and fuel oil and other fuels*.

Wholesale indices for electricity refer to Table 329-0079, series v107792869, *electric power (non-residential)*. Retail indices refer to Table 326-0020, series v41691063, *electricity*.

Wholesale indices for natural gas refer to Table 330-0008, series v79310649, *natural gas*. Retail indices refer to Table 326-0020, series v41691065, natural gas.

Wholesale indices for coal refer to Table 330-0007, series v53434849, *coal (thermal)*.

## Energy taxation

### VAT

The Goods and Services Tax/Taxe sur les Produits et les Services (GST/TPS), a federal level, VAT-equivalent *ad valorem* tax, is levied on all transactions involving commercial energy products.

In addition to this federal level tax, Canadian provinces can levy an additional Provincial Sales Tax (PST). The revenue from this VAT-equivalent *ad valorem* tax is administered by the provincial authorities.



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On 1 April 1997, Newfoundland and Labrador, Nova Scotia and New Brunswick introduced a Harmonized Sales Tax/Taxe de Vente Harmonisée (HST/TVH), effectively merging their provincial sales taxes with the GST/TPS. The system was introduced in Ontario and British Columbia on 1 July 2010, and on 1 April 2013, in Prince Edward Island. On 1 April 2013, British Columbia reverted to the previous system following a provincial referendum. HST/TVH revenues are collected by the Canada Revenue Agency, which then transfers the provincial component back to the provinces.

In Canada's four Atlantic Provinces (Nova Scotia, Newfoundland and Labrador, New Brunswick and Prince Edward Island), natural gas and light fuel oil for heating are exempt from the provincial component of HST/TVH. For these products, only the GST/TPS rate applies.

Nunavut, Yukon and the Northwest Territories cannot levy PST on account of their non-provincial status. In these regions, only the GST/TPS applies.

Alberta is the only province where PST is effectively not levied.

In Quebec, both GST/TPS and the Quebec Sales Tax/ Taxe de vente du Québec (QST/TVQ) are collected by Revenu Québec, which then transfers GST revenue to the federal government.

The table at the end of this section shows the effective total VAT-equivalent tax levied in each province and territory.

## Excise tax

Excise taxes in Canada are levied on oil products at national and provincial levels. Three municipalities in Canada (Vancouver, Victoria and Montréal) levy additional taxes on fuel consumption sold within municipal boundaries. In general, provincial fuel taxes are set at a higher rate than federal taxes.

There are no national-level excise taxes on natural gas, coal and electricity.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Federal excise taxes | | | × | × | | | | | |



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### *Federal excise taxes*

Federal excise duties are levied on automotive diesel and gasoline. Fuel oil, compressed natural gas (CNG) and automotive LPG are exempt from federal excise taxes, but can be taxed at sub-national levels.

Federal excise taxes on automotive diesel were introduced in 1987. Since its introduction, the tax rate has been kept constant at 0.04 CAD/l.

Federal excise taxes on gasoline were introduced in 1995. Since its introduction, the tax rate has been kept constant at 0.1 CAD/l for all unleaded gasoline grades.

### *VAT-equivalent tax (%)*

| From | To | AB,NT,NU,YT | BC | MB | SK | QC | NB | NL | NS | ON | PE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01.04.97 | 30.06.06 | 7 | 14 | 14 | 12 | 12.5 | 15 | 15 | 15 | 15 | 17 |
| 01.07.06 | 31.12.07 | 6 | 13 | 13 | 11 | 12.5 | 14 | 14 | 14 | 14 | 16 |
| 01.01.08 | 30.06.10 | 5 | 12 | 12 | 10 | 12.5 | 13 | 13 | 13 | 13 | 15 |
| 01.07.10 | 31.12.10 | 5 | 12 | 12 | 10 | 12.5 | 13 | 13 | 15 | 13 | 15 |
| 01.01.11 | 31.12.11 | 5 | 12 | 12 | 10 | 13.5 | 13 | 13 | 15 | 13 | 15 |
| 01.01.12 | 31.12.12 | 5 | 12 | 12 | 10 | 14.5 | 13 | 13 | 15 | 13 | 15 |
| 01.01.13 | 31.03.13 | 5 | 12 | 12 | 10 | 14.975 | 13 | 13 | 15 | 13 | 15 |
| 01.04.13 | 30.06.13 | 5 | 12 | 12 | 10 | 14.975 | 13 | 13 | 15 | 13 | 14 |
| 01.07.13 | 31.03.16 | 5 | 12 | 13 | 10 | 14.975 | 13 | 13 | 15 | 13 | 14 |
| 01.04.16 | 30.06.16 | 5 | 12 | 13 | 10 | 14.975 | 15 | 13 | 15 | 13 | 14 |
| 01.07.16 | 30.09.16 | 5 | 12 | 13 | 10 | 14.975 | 15 | 15 | 15 | 13 | 14 |
| 01.10.16 | 30.06.19 | 5 | 12 | 13 | 10 | 14.975 | 15 | 15 | 15 | 13 | 15 |
| 01.07.19 | now | 5 | 12 | 12 | 11 | 14.975 | 15 | 15 | 15 | 13 | 15 |

Note: AB – Alberta, BC - British Columbia, MB – Manitoba, NB - New Brunswick, NL - Newfoundland and Labrador, NT - Northwest Territories, NS - Nova Scotia, NU – Nunavut, ON – Ontario, PE - Prince Edward Island, QC – Quebec, SK – Saskatchewan, YT - Yukon

### *Carbon Pollution Pricing*

Since 2019, every jurisdiction in Canada has a price on carbon pollution. Provinces or territories can implement a pricing system tailored to local needs or can choose the federal pricing system. The federal government sets minimum national stringency standards (the federal 'benchmark'), that all systems must meet to ensure they are comparable and effective in reducing greenhouse gas emissions.



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If a province or territory decides not to price pollution or proposes a system that does not meet these standards, the federal system is implemented instead.

Under the Greenhouse Gas Pollution Pricing Act (GGPPA) the federal pricing system has two parts: a regulatory charge on fossil fuels like gasoline and natural gas (the fuel charge), and a performance-based system for industries, (the Output-Based Pricing System).

The fuel charge rates are based on global warming potential factors and emission factors used by Environment and Climate Change Canada to report Canada's emissions to the United Nations Framework Convention on Climate Change. The rates also address the unique circumstances faced by Canada's territories, including high cost of living, challenges with food security and emerging economies. Reflecting the high-reliance of the territories on air transportation, the rates for aviation gasoline and aviation turbo fuel are set to $0 for listed territories.

### *Rates of Fuel Charge*

#### *Table 1 – Federal Fuel Charge Rates for Listed Provinces*

| Type | April 1, 2019 to March 31, 2020 ($20/tonne) | April 1, 2020 to March 31, 2021 ($30/tonne) | April 1, 2021 to March 31, 2022 ($40/tonne) | Beginning April 1, 2022 ($50/tonne) |
|---|---|---|---|---|
| Aviation gasoline | $0.0498 per litre | $0.0747 per litre | $0.0995 per litre | $0.1244 per litre |
| Aviation turbo fuel | $0.0516 per litre | $0.0775 per litre | $0.1033 per litre | $0.1291 per litre |
| Butane | $0.0356 per litre | $0.0534 per litre | $0.0712 per litre | $0.0890 per litre |
| Coke | $63.59 per tonne | $95.39 per tonne | $127.19 per tonne | $158.99 per tonne |
| Coke oven gas | $0.0140 per cubic metre | $0.0210 per cubic metre | $0.0280 per cubic metre | $0.0350 per cubic metre |
| Combustible waste | $39.95 per tonne | $59.92 per tonne | $79.89 per tonne | $99.87 per tonne |
| Ethane | $0.0204 per litre | $0.0306 per litre | $0.0408 per litre | $0.0509 per litre |
| Gas liquids | $0.0333 per litre | $0.0499 per litre | $0.0666 per litre | $0.0832 per litre |
| Gasoline | $0.0442 per litre | $0.0663 per litre | $0.0884 per litre | $0.1105 per litre |
| Heavy fuel oil | $0.0637 per litre | $0.0956 per litre | $0.1275 per litre | $0.1593 per litre |



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| | | | | |
|---|---|---|---|---|
| High heat value coal | $45.03 per tonne | $67.55 per tonne | $90.07 per tonne | $112.58 per tonne |
| Kerosene | $0.0516 per litre | $0.0775 per litre | $0.1033 per litre | $0.1291 per litre |
| Light fuel oil | $0.0537 per litre | $0.0805 per litre | $0.1073 per litre | $0.1341 per litre |
| Low heat value coal | $35.45 per tonne | $53.17 per tonne | $70.90 per tonne | $88.62 per tonne |
| Methanol | $0.0220 per litre | $0.0329 per litre | $0.0439 per litre | $0.0549 per litre |
| Naphtha | $0.0451 per litre | $0.0676 per litre | $0.0902 per litre | $0.1127 per litre |
| Natural gas, marketable | $0.0391 per cubic metre | $0.0587 per cubic metre | $0.0783 per cubic metre | $0.0979 per cubic metre |
| Natural gas, non-marketable | $0.0517 per cubic metre | $0.0776 per cubic metre | $0.1034 per cubic metre | $0.1293 per cubic metre |
| Petroleum coke | $0.0767 per litre | $0.1151 per litre | $0.1535 per litre | $0.1919 per litre |
| Pentanes plus | $0.0356 per litre | $0.0534 per litre | $0.0712 per litre | $0.0890 per litre |
| Propane | $0.0310 per litre | $0.0464 per litre | $0.0619 per litre | $0.0774 per litre |
| Still gas | $0.0540 per cubic metre | $0.0810 per cubic metre | $0.1080 per cubic metre | $0.1350 per cubic metre |

*Table 2 – Federal Fuel Charge Rates for Listed Territories*

| Type | July 1, 2019 to March 31, 2020 ($20/tonne) | April 1, 2020 to March 31, 2021 ($30/tonne) | April 1, 2021 to March 31, 2022 ($40/tonne) | Beginning April 1, 2022 ($50/tonne) |
|---|---|---|---|---|
| Aviation gasoline | $0.0 per litre | $0.0 per litre | $0.0 per litre | $0.0 per litre |
| Aviation turbo fuel | $0.0 per litre | $0.0 per litre | $0.0 per litre | $0.0 per litre |
| Butane | $0.0356 per litre | $0.0534 per litre | $0.0712 per litre | $0.0890 per litre |
| Coke | $63.59 per tonne | $95.39 per tonne | $127.19 per tonne | $158.99 per tonne |
| Coke oven gas | $0.0140 per cubic metre | $0.0210 per cubic metre | $0.0280 per cubic metre | $0.0350 per cubic metre |
| Combustible waste | $39.95 per tonne | $59.92 per tonne | $79.89 per tonne | $99.87 per tonne |
| Ethane | $0.0204 per litre | $0.0306 per litre | $0.0408 per litre | $0.0509 per litre |



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| | | | | |
|---|---|---|---|---|
| Gas liquids | $0.0333 per litre | $0.0499 per litre | $0.0666 per litre | $0.0832 per litre |
| Gasoline | $0.0442 per litre | $0.0663 per litre | $0.0884 per litre | $0.1105 per litre |
| Heavy fuel oil | $0.0637 per litre | $0.0956 per litre | $0.1275 per litre | $0.1593 per litre |
| High heat value coal | $45.03 per tonne | $67.55 per tonne | $90.07 per tonne | $112.58 per tonne |
| Kerosene | $0.0516 per litre | $0.0775 per litre | $0.1033 per litre | $0.1291 per litre |
| Light fuel oil | $0.0537 per litre | $0.0805 per litre | $0.1073 per litre | $0.1341 per litre |
| Low heat value coal | $35.45 per tonne | $53.17 per tonne | $70.90 per tonne | $88.62 per tonne |
| Methanol | $0.0220 per litre | $0.0329 per litre | $0.0439 per litre | $0.0549 per litre |
| Naphtha | $0.0451 per litre | $0.0676 per litre | $0.0902 per litre | $0.1127 per litre |
| Natural gas, marketable | $0.0391 per cubic metre | $0.0587 per cubic metre | $0.0783 per cubic metre | $0.0979 per cubic metre |
| Natural gas, non-marketable | $0.0517 per cubic metre | $0.0776 per cubic metre | $0.1034 per cubic metre | $0.1293 per cubic metre |
| Petroleum coke | $0.0767 per litre | $0.1151 per litre | $0.1535 per litre | $0.1919 per litre |
| Pentanes plus | $0.0356 per litre | $0.0534 per litre | $0.0712 per litre | $0.0890 per litre |
| Propane | $0.0310 per litre | $0.0464 per litre | $0.0619 per litre | $0.0774 per litre |
| Still gas | $0.0540 per cubic metre | $0.0810 per cubic metre | $0.1080 per cubic metre | $0.1350 per cubic metre |

## Energy taxation database methodology

The Goods and Services tax (GST) is a VAT-equivalent tax, applied to all energy products. The applicable rate was assumed equal to the one applied in Alberta, Northwest Territories, Nunavut and Yukon provinces (regions where only GST applies). The applicable rate was estimated as the average of the rates applicable for a certain year weighted for the number of days.

Environmental and Carbon taxes refer to the tax component introduced by the Greenhouse Gas Pollution Pricing Act, in 2018. The tax started to be charged in April 2019, and the applicable values were retrieved from the referred Canada



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Government Official website for the different energy products. As the rates are changed yearly on the 1st April, the yearly values are estimated as a time weighted average of the different rates applied within each year.

The excise taxes applicable at the national level are assumed as Other taxes. These apply to diesel and gasoline. The values applied to the different energy products were retrieved directly from the above policy framework note.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the following provinces and cities across Canada:

| Provinces | Cities |
|---|---|
| British Columbia | Toronto, ON |
| Alberta | Montreal, QC |
| Saskatchewan | Vancouver, BC |
| Manitoba | Calgary, AB |
| Ontario | Edmonton, AB |
| Quebec | Ottowa, ON |
| Newfoundland | Quebec, QC |
| New Brunswick | Hamilton, ON |
| Prince Edward Island | Winnipeg, MB |
| Nova Scotia | Kitchener, ON |
| Yukon | |
| Northwest Territories | |

Sub-national transport fuel prices are estimated as the average of the data for every Tuesday of each period. Where certain weekly data are not published, prices are estimated as the average of the weeks where data are available.



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Sub-national transport fuel prices for year 2019 refer to the average from January to November 2019.

# Product specifications

## Oil products

| | High sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (97 RON) gasoline | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline |
|---|---|---|---|---|---|---|
| Quality | HFO no. 6 | LFO no. 2 (furnace) | | Premium unleaded 91 RdON | Premium unleaded 89 RdON | Regular unleaded 87 RdON |
| Octane number | | | | 97 | 95 | 92 |
| Density (kg/l) | 0.95 | 0.83 | | | | |
| Magnesium content (g/l) | | | | 18 | 18 | 18 |
| Delivery size | Tank-wagon loads | | | | | |

## Natural gas and coal

| | Natural gas | Steam coal | Coking coal |
|---|---|---|---|
| NCV (kcal/kg) | | 7 127 | 7 164 |
| GCV (kcal/$m^3$) | 8 892 | | |



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# Chile

## Sources

Data for all energy products are provided on a quarterly basis by the **Ministry of Energy**.

## Data collection methodology

### Oil products

Prices for light fuel oil, automotive diesel, as well as regular and premium unleaded (97 and 95 RON) gasolines, are calculated by the Ministry of Energy based on the average end-use prices at filling stations published in the National Energy Commission's monthly *Precio Mensual Regional de Combustibles* report.

Ex-tax prices for all oil products are subsequently derived by the Ministry of Energy, based on the tax structures published in the National Energy Commission's monthly *Estructura de Precios de Combustibles en la Región Metropolitana* report. Unleaded premium gasoline (95 RON) taxes are used to calculate the ex-tax prices for unleaded premium gasoline (97 RON), as both grades are taxed at an equal rate.

Gasoline, automotive diesel and light fuel oil prices refer to the metropolitan region only.

Automotive LPG consumption in Chile is very low and limited to taxis and some industrial transport services. Automotive LPG prices therefore considered as not applicable.

### Natural gas

End-use prices are calculated by the Ministry of Energy based on the National Energy Commission's natural gas price reports. These reports are in turn based on the pricing information published by distribution companies on their websites.

Ex-tax prices for households are subsequently derived by the Ministry of Energy by subtracting VAT from the end-use price, as households are not subject to excise taxation.

From 1Q2015 onwards, prices refer to the weighted average of the prices charged by the three main natural gas providers in the country: Metrogas (in the metropolitan region of Santiago, covering 87.8% of national consumption in 2016),



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GasValpo (in the Valparaiso region, covering 8.1% of national consumption in 2016), and GasSur (Bío-Bío region, covering 3.3% of national consumption in 2016).

Until 4Q2014, prices for households refer to the metropolitan region of Santiago only.

Prices for industry are confidential as they are the result of private contracts between companies and natural gas providers.

## Steam and coking coal

Prices are calculated by the Ministry of Energy based on import statistics supplied by the National Customs Office. Prices exclude domestically produced coal.

## Electricity

Prices for industry are calculated by the Ministry of Energy based on the *Informe de Tarifas de Suministro Eléctrico para Clientes Regulados, Tarifa AT-4* published by different utilities. Prices include industrial consumers in the regulated market only (around 60% of total industrial consumption).

Prices for households are calculated by the Ministry of Energy based on the Informe de Tarifas de Suministro Eléctrico para Clientes Regulados, Tarifa BT-1 tramo de Equidad Tarifaria Residencial T0, published by different utilities.

Prices for the commercial sector are based on the Informe de Tarifas de Suministro Eléctrico para Clientes Regulados, Tarifa BT-2, published by different utilities.

From 1Q2017 onwards, prices for households ,industry and the commercial sector are calculated as weighted averages of the data reported by eight distribution companies, which cover more than the 86% of the total market share of the previous year. Companies considered are CGE (SIC3, SIC4, SIC5), SAESA (SIC6), CONAFE (SIC1), ELECDA (SING), CHILQUINTA (SIC2) and ENEL (SIC3). Until 4Q2016, the prices reported refer to prices charged by *Enel Distribución*, which covers the Metropolitan region of Santiago.

Ex-tax prices for households are subsequently derived by the Ministry of Energy by subtracting VAT from the end-use price, as households are not subject to excise taxation.



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### Energy price indices

Annual indices are 12-month averages. Quarterly indices refer to the 3-month average.

The retail index for oil products refers to a consumption-weighted average of the Consumer Price Indices (CPIs) for gasoline (Series ID 7.2.2.1.1, *Gasolina*)**,** diesel (Series ID 7.2.2.1.2, *Petróleo diesel*) and lubricants and oils for personal transport equipment (Series ID 7.2.2.2.1, *Lubricantes y aceites para el automóvil*).

The retail price index for electricity refers to the CPI for electricity (Series ID 4.4.1.1.1, *Electricidad*).

The retail price index for natural gas refers to the CPI for piped gas (Series ID 4.4.2.1.1, *Gas por red*).

The retail price index for coal refers to the CPI for coal (Series ID 4.4.3.1.1, *Carbón*).

## Energy taxation

### VAT

VAT (*IVA*) applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

In Chile, VAT is paid on the ex-tax price only, instead of the sum of ex-tax price and excise tax, as is the case in most countries.

| From | To | % |
|---|---|---|
| 01.01.98 | 30.09.03 | 18 |
| 01.10.03 | now | 19 |

### Excise tax

Gasoline and automotive diesel sales are subject to an excise taxation regime in which the final tax rate per litre is calculated as the sum of a fixed component (IEC) and a variable component (MEPCO) designed to protect consumers from variations in international prices. Light fuel oil is only subject to a variable tax component (FEPCO).

Natural gas, coal and electricity are not subject to any form of excise taxation.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| IEC | | | × | × | × | | | | |
| MEPCO | | | × | × | × | | | | |
| FEPCO | | × | | | | | | | |

### *Fuel tax (Impuesto Específico a los Combustibles - IEC)*

The IEC was introduced in 1986 by Law 18.502. The law sets a fixed rate for automotive diesel, gasoline, automotive LPG and automotive compressed natural gas (CNG), expressed in Unidades Tributarias Mensuales (UTM) per cubic meter. UTM are a floating currency unit, expressed in Chilean pesos, that is adjusted monthly in line with the consumer price index.

Diesel sales for off-road use are entitled to a full refund of the IEC, as set out by Law 18.502. Additionally, Law 19.764 establishes that transport companies who own or rent lorries with a gross weight exceeding 3 860 kg are entitled to a partial refund of their excise tax expenses.

The tax rates in pesos are therefore automatically indexed and calculated as 1.5 UTM/$m^3$ for diesel, 6 UTM/$m^3$ for all gasoline grades, 1.4 UTM/$m^3$ for automotive LPG and 1.93 UTM/1000$m^3$ for automotive compressed natural gas. These bases have remained stable since 2011.

### *Fuel price stabilization mechanism charges (Mecanismo de Estabilización de Precios de los Combustibles -MEPCO)*

The MEPCO was introduced in July 2014 to replace the SIPCO (*Sistema de Protección al Contribuyente del Impuesto Específico a los Combustibles*), which served a similar purpose in stabilizing variations in international market prices for fuels, given Chile's dependence on energy imports.

The characteristics of the system were established by the Law 20.765. Before its introduction, excise taxes for gasoline were calculated through the SIPCO system, which followed the FEPCO, detailed in the following section.



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This variable component can act either as a tax or as a subsidy (shown in this publication as a negative tax), depending on the comparison between a calculated "parity price" and a reference price, based on the West Texas Intermediate spot price and a refining differential. The main differences between the MEPCO and the SIPCO are the narrower price bands and that stabilization is applied to prices expressed in local currency instead of US dollars (the SIPCO was computed with prices expressed in US dollars).

Once calculated, this variable component is added or subtracted to the fixed component (IEC).

### *Oil product price stabilization fund charges (Fondo de Estabilización de Precios de Combustibles Derivados de Petróleo - FEPCO)*

The FEPCO was introduced in September 2005 as a temporary mechanism to stabilize variations in international market prices for oil products.

Since the introduction of the SIPCO, the FEPCO system is applied exclusively to fuel oil for households and is defined, in its current form, in Law 19.030 ("on the creation of the oil stabilization fund").

The mechanism for calculating the applicable tax rate involves calculating a "parity price", using historical data, and comparing it with a reference price. If the former is higher than the latter, the mechanism functions as a subsidy, resulting in a negative excise tax.

As IEC does not apply to light fuel oil, there is no fixed component in the excise taxes applicable to this fuel.

## Energy taxation database methodology

The VAT (IVA) applies to all energy products and it can be refunded for purchases for commercial purposes. The VAT is then assumed to be null for commercial services, industry and electricity generation. The applicable rate was estimated as the average of the rates applicable for a certain year weighted for the number of days.

Other taxes are only applicable to oil products (diesel, gasoline, LPG, kerosene and heavy fuel oil), as natural gas, electricity and coal sales are not subject to any excise tax. The specific values applied to the different energy products are not available.



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# Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the following 16 regions in Chile:

Metropolitana
Copiapó
Talca
Valdvia
Arica
La Serena
Chillán
Puerto Montt
Iquique
Valparaíso
Concepción
Coyhaique
Antofagasta
Rancagua
Temuco
Punta Arenas

Sub-national transport fuel prices are estimated as the average of the monthly prices for each region, as published by CNE. Where certain monthly data are not published, the annual prices are estimated as the average of months where data are available.

Sub-national transport fuel prices for year 2019 refer to the average from January to November 2019.

# Product specifications

## Oil products

| | Light fuel oil | Automotive diesel | Premium unleaded (97 RON) gasoline | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline | Automotive LPG |
|---|---|---|---|---|---|---|
| Quality | Kerosene doméstico | Petróleo diesel grado A1 | Gasolina 97 NOR | Gasolina 95 NOR | Gasolina 93 NOR | Gas licuado mezca comercial |



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| | Light fuel oil | Automotive diesel | Premium unleaded (97 RON) gasoline | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline | Automotive LPG |
|---|---|---|---|---|---|---|
| | | | sin plomo RM | sin plomo RM | sin plomo RM | |
| Density (kg/l) | 0.81 | 0.84 | 0.73 | 0.73 | 0.73 | 0.522 |
| Sulphur content (%) | <0.015 | <0.0015 | <0.0015 | <0.0015 | <0.0015 | |
| NCV (kcal/kg) | | 10 900 | | | | |
| Delivery size | <24 000 tonne/ year | | | | | |

## Natural gas and coal

| | Natural gas | Steam coal *electricity generation* |
|---|---|---|
| NCV (kcal/kg) | | 7 000 |
| GCV (kcal/$m^3$) | 9 341 | |



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# Colombia[7]

## Sources

For years 2004 to 2009, prices are derived from data extracted from the *Unidad de Planeación Minero Enérgetica* (UPME).

From year 2010 onwards, prices are extracted from *Sistema de Información de Petroleo y Gas Colombiano* (SIPG).

## Data methodology

### Oil products

Monthly prices refer to the Bogotá area and are retrieved directly from the UPME.

Bogotá represents about 20% of the country's total energy consumption, according to UPME's report *Proyección de Demanda de Combustibles en el Sector Transporte en Colombia, 2015*.

For months where no price is published by UPME, the monthly price is estimated as the average of the previous and subsequent months for which data are available.

For years 2004 to 2009 and from 2017 to 2019, annual prices for all products are derived as the average of monthly prices in a given year. For mid-grade gasoline, this methodology applies for years 2004 to 2019.

For years 2010 to 2016, the prices of regular gasoline and automotive diesel refer to the national average, as published by SIPG.

Prices for year 2021 refer to the aerage of monthly prices from January to October 2021.

## National pricing framework

Currently, electricity and natural gas are not subjected to taxation. However, public services in Colombia are subsidised.

[7] Colombia joined the OECD in April 2020. in this release, Colombia is not included in EPT database and aggregates, however selected data are available in the WEP database.



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## Subsidies

Public services in Colombia are arranged in socioeconomic groups from 1 to 6. Groups from 1 to 3 are subjected to subsidies and group 5 and 6 users are subjected to an extra payment called contribution. Group 4 users do not get subsidies nor pay contribution.

The subsidies are granted to user's consumption that is below to a "subsistence consumption" level. There are two levels of subsistence consumption according to a city location relative to sea level:

173 kWh for towns located under 1.000 m above sea level

130 kWh for towns located over 1.000 m above sea level.

The formula applied is the next one:

$$Price_s = UC * \%subsidy_s$$

Where:

$Price_S$ is the price with subsidy for the social group S;

UC is the unitary cost (tariff) of electricity.

The percentage of subsidy is the amount of subsidy according to socioeconomic strata:

| Group | % subsidy |
|---|---|
| 1 | 60 |
| 2 | 50 |
| 3 | 15 |

The price for group 4 users equals UC.

The price for groups 5 and 6 follows the next formula:

$$Price = UC * 1{,}2$$

For natural gas subsidies, and contribution work in the same way as electricity, but group 3 users do not have any subsidies.



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# Product specifications

| | Regular gasoline | Medium-grade gasoline |
|---|---|---|
| Quality | *Corriente* | *Extra* |
| Octane/Cetane number | 87 | 92 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Costa Rica

## Sources

Prices for all energy products and indices of energy products are collected from the Refinadora Costarricense de Petróleo (RECOPE) and later provided on a quarterly basis by the Ministry of Environment and Energy.

## Data methodology

### Oil products

Weekly prices are estimated as the time-weighted average of the daily price levels, based on historical prices and revision dates published by RECOPE.

Kerosene annual prices are derived as the time-weighted average of different revised prices in a given year.

### Electricity

End-use prices are are collected and provided on a quarterly basis by the Ministry of Environment and Energy.

## National pricing framework

### Oil products

In Costa Rica the import, refining and wholesale distribution of crude oil and oil products are a state monopoly, managed by the Costa Rican Oil Refinery Company (RECOPE), which shares belong entirely to the State. Nowadays, there is no national oil or oil derivatives refinery.

Fossil fuels prices are regulated and established monthly by the National Regulatory Authority (ARESEP) at the nation level. The same price is maintained for each fuel throughout the national territory, with no price difference in any part of the country. In this way, each price reported for each fossil fuel is the price of that fuel at the national level. The distribution and retail sales of fossil fuels are done by local companies (private owned) but are regulated by ARESEP. There is no VAT associated with these oil products but there is a VAT charge associated with the cost of land transportation, and this is added to the final cost of the products. All fossil fuels are subject to an excise tax (Impuesto Único sobre los Combustibles) that does not depend on the final product price, but is the largest



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tax on these products. This excise tax is used to finance road building and maintenance, finance the Red Cross operation, and the payment of environmental services, managed by the National Forest Financing Fund (FONAFIFO).

All fossil fuel prices are set ordinarily once a year, where the cost of the products at the international level, the cost of importation, and the cost of transportation and national distribution for retail sale are evaluated. But once a month the cost of the product and the exchange rate from the dollar to our local currency are adjusted, to then update the final retail sale price.

### Electricity

Almost 100% of the electricity generation comes from renewable sources, mainly hydropower, geothermal and wind generation, and there is an electricity exchange with the Central American countries when needed. Nationally, the country is divided into 8 electricity distribution zones concessioned to state-owned companies, municipalities or private cooperatives. All of them are authorized by law for electricity generation. The state-owned company (Costa Rican Electricity Institute, ICE) is allowed to open bidding processes for private generation, which will be sold to ICE. Transmission is a monopoly run by ICE.

Price of electricity is regulated and fixed by ARESEP according to the actual cost of generation, transmission, and distribution (service at cost scheme for tariffs). The final consumptions are charged by a 13% VAT and other excise tax. This last one, to finance the National Fire Department.

### Subsidies

Liquid Petroleum Gas, Fuel Oil, and Bitumen are subsidized by other oil derivatives that are distributed nationally. There is no direct transfer of funds from the Government to subsidize these products, these are a type of induced transfer paid by the rest of fossil fuels in order to lower end-use price relative to the full cost of supply of LPG, Fuel Oil and Bitumen products.

For electricity, the residential sector has a tax break if the final consumption is below 280 kWh per month.

## Product specifications

The specifications of petroleum products are established nationally by the Ministry of Environment and Energy of Costa Rica, but this also must be negotiated regionally in the Central American Integration System and the Central American



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Economic Integration System, since some commodities are regionally regulated by Central America Regulations, including fuels and other petroleum products.

| | Regular gasoline | Mid-grade gasoline | Automotive Diesel | LPG |
|---|---|---|---|---|
| Octane/Cetane number | 95 | 91 | 51 | |
| Sulphur content max, (mg/kg) | 50 | 50 | 50 | 140 |
| Density (kg/m$^3$) | 740 | 735 | 827 | 532 |



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# Czech Republic

## Sources

Data for all energy products, including energy price indices, are provided on a quarterly basis by the **Czech Statistical Office** (**CZSO**).

## Data collection methodology

The independent Czech Republic was formed on 1 January 1993. The prices and taxes listed before 1Q93 are for Czechoslovakia. Certain historical series have been revised by the Czech Administration.

### Oil products

Oil product prices are collected based on prices and quantities sold by a network of respondents throughout the Czech Republic.

Prices for transport fuels are collected from 9 oil companies and 3 stores, operating 1 515 public petrol stations, which represent more than 40% of all public petrol stations in the country. Approximate shares of surveyed enterprises in total road transport consumption of oil products are as follows: 60% for premium unleaded gasoline, 50% for automotive diesel and 86% for LPG.

In 2018, the geographical representativeness of prices for low sulphur fuel oil for industry is 77% and 68% for light fuel oil for industry.

### Natural gas

Prices of natural gas are surveyed by the national statistical questionnaire *Ceny E 6-04*.

Average prices of natural gas per consumption band are calculated as the weighted average of prices recorded by the most important natural gas traders weighted by their market shares in each bands.

Quarterly average prices for industry are calculated as weighted average of the average prices per consumption bands weighted by their share in annual consumption.

Natural gas prices for industry are estimated to be representative for 80-85% of total consumption in this segment. Prices for households are representative for 95% of total residential consumption.



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Since Q1 2022 much wider sample of suppliers and supplied tariff plans is surveyed in cooperation with national energy regulation office. It concluded in a price which is now much more representative on the market. Rise in price index takes into account changes in the survey sample.

## Steam and coking coal

Steam coal prices for industry and electricity generation, as well as coking coal prices for industry, are confidential.

The geographical and sectoral representativeness of prices for steam coal used in households are 100%. Prices are collected from 21 suppliers, of which 8 are located in Prague and 13 in the other regions.

## Electricity

Prices for households are surveyed from the price lists of major electricity traders, referring to selected households from all voltage networks.

Price lists contain all components of the price paid by households, including the price of electricity consumed, the monthly fees for the consumption point, the price for the volume of electricity distributed, the fee for input depending on the size of the main circuit breaker in front of the electricity meter, the renewable energy surcharge, the price of system services, the price of market operator services per consumption point, as well as excise taxes and VAT. Prices for households are representative for 85% of total residential consumption.

Quarterly average prices for industry are calculated as weighted average of the average prices per consumption bands weighted by their share in annual consumption.

Prices for industry are estimated to be representative for 80% of total consumption in the segment.

Saving tariff – subsidy for the payment of energy costs for household customers – was introduced by government decree for the months of October to December 2022. This subsidy is understood as a negative tax.

Fee for supported energy sources (POZE) – was waived for all end-consumers from October 2022 to December 2023 Price Decision of the Energy Regulatory Office No. 8/2022 of September 2, 2022 was released for October to December 2022.



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### Energy price indices

Wholesale price indices for oil products are Producer Price Indices (PPIs) for oil products excluding VAT and cost of transport to consumer and related costs.

Retail price indices for oil products are Consumer Price Indices (CPIs) for liquid fuels including VAT, excise tax, cost of transport to service stations and related costs.

Wholesale price indices for electricity are PPIs for electricity excluding VAT and including cost of transport to consumers and related costs.

Retail price indices for electricity are CPIs for electricity including VAT, cost of transport to consumers and related costs.

Retail price indices for natural gas are CPIs for natural gas including VAT, cost of transport to consumers and related costs.

Wholesale price indices for coal are PPIs for coal excluding VAT and cost of transfer to consumers and related costs. This index series has not been available since 2006.

Retail price indices for coal are CPIs for coal including VAT, cost of transport to consumer and related costs.

## Energy taxation

### VAT

VAT (*DPH*) is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.01.93 | 30.06.94 | 5 |
| 01.07.94 | 31.12.94 | 23 |
| 01.01.95 | 30.04.04 | 22 |
| 01.05.04 | 31.12.09 | 19 |
| 01.01.10 | 31.12.12 | 20 |
| 01.01.13 | now | 21 |



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There was a temporary waiver of 21% VAT for electricity and natural gas (LPG included) in November and December 2021 which resulted in lower amount assigned to VAT for these commodities.

## Excise tax

Excise taxes on commercial energy products in the Czech Republic are levied in accordance with the 2003 EU Energy Taxation Directive.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | | | | |
| Environmental tax | | | | | | × | × | × | × |

### *Excise duties (Spotřební daň)*

Excise duties on oil products (“mineral oils” in the Czech legislation), are defined in their current form in the Excise Tax Law (353/2003) and amendments, which first came in force on 1 January 2004.

Until 4Q2003, light fuel oil used for heating purposes was tax-free. From 1Q2004 onwards, light fuel oil used for heating purposes is subject to a partial refund on the applicable excise duties. The rates shown in the tables at the end of this section are net of rebates. However, the VAT amount is calculated applying the VAT percentual rates to the Excise Taxation before the rebates (for instance, since 1st June 2022 the VAT amount calculated has been based on 8 450 CZK/1000l instead of 660 CZK/1000l).

The proportion of bio-components is voluntary and taxed together with the main components (fossil fuels). There are only the maximum limits: 5% by volume in every fuel specimen of unleaded petrol and 7% by volume in diesel. Tax allownaces are only applicable to fuels with high percentage of biocomponents (e.g. diesel blends with no less than 30% of volume of rapeseed oil FAME), but these have marginal consumption and are not surveyed at present.



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| From | To | Heavy fuel oil (CZK/tonne) | Light fuel oil (CZK/1000l) | Automotive diesel (CZK/l) | Gasoline (CZK/l) | Automotive LPG (CZK/l) |
|---|---|---|---|---|---|---|
| 01.01.93 | 31.12.93 | | | 6.95 | 7.18 | 1.3 |
| 01.01.94 | 31.12.94 | | | 6.95 | 7.69 | 1.3 |
| 01.01.95 | 31.12.95 | | 660 | 7.03 | 7.77 | 1.3 |
| 01.01.96 | 31.12.97 | | 660 | 7.03 | 8.79 | 1.3 |
| 01.01.98 | 30.06.99 | | 660 | 7.33 | 9.84 | 1.57 |
| 01.07.99 | 31.12.03 | | 660 | 8.15 | 10.84 | 1.57 |
| 01.01.04 | 31.12.09 | 472 | 660 | 9.95 | 11.84 | 2.16 |
| 01.01.10 | 31.12.20 | 472 | 660 | 10.95 | 12.84 | 2.16 |
| 01.01.21 | 31.05.22 | 472 | 660 | 9.95 | 12.84 | 2.16 |
| 01.06.22 | 30.09.22 | 472 | 660 | 8.45 | 11.34 | 2.16 |
| 01.10.22 | Now | 472 | 66**0** | 8.45 | 12.84 | 2.16 |

### *Environmental tax (Ekologická daň)*

Electricity, natural gas and solid fuels are generally subject to an environmental tax, as defined in the Law for the Stabilisation of Public Budgets (261/2007) and amendments, which first came in force on 1 January 2008.

Natural gas used for electricity generation and for heating in households is tax-free.

| From | To | Natural gas (CZK/MWh) | Coal (CZK/tonne) | Electricity (CZK/MWh) |
|---|---|---|---|---|
| 01.01.08 | now | 30.60 | 90.69 | 28.30 |

## Energy taxation database methodology

The VAT (DHP) applies to all energy products and it can be refunded for purchases for commercial purposes. The VAT is then assumed to be null for commercial services, industry and electricity generation. The applicable rate was estimated as the average of the rates applicable for a certain year weighted for the number of days.

The Environmental tax applicable to natural gas, electricity and coal is included in the database. The use of natural gas for electricity generation and heating in households is exempt, thus the tax is assumed to be null for these consumer



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sectors. The tax values were retrieved directly from the above policy framework note.

Regarding Renewable Energy Supply tax, it is assumed that electricity consumption is subject to a tax, given the reference to a renewable energy surcharge imbedded in the final price. Specific values are not provided.

Other taxes comprise the Excise duties, applicable to all oil products. Exemptions include the use of light fuel oil for heating purposes. The applicable yearly values were estimated as the average of the tax values applicable for a certain year weighted for the number of days.

# Product specifications

## Oil products

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline |
|---|---|---|---|---|---|---|
| Quality | | | | | Super Plus 98 | Natural 95 |
| Density (kg/l) | 0.99 | 0.91 | 0.86 | 0.843 | 0.76 | 0.76 |
| Sulphur content (%) | <3 | <1 | <0.05 | <0.001 | | |
| NCV (kcal/kg) | 9 532 | 9 793 | 10 263 | 10 177 | 10 412 | 10 412 |

## Natural gas and coal

| | Natural gas | Steam coal *industry* | Steam coal *electricity generation* | Steam coal *households* | Coking coal |
|---|---|---|---|---|---|
| Quality | | Brown coal, industrial mixtures | Brown coal, industrial mixtures | Brown/nut coal no.1 | Brown coal, industrial mixtures |
| GCV (kcal/$m^3$) | 9 030 | | | | |
| CV (kcal/kg) | | 3 500 – 4 000 | 2 100 – 3 000 | 3 500 – 4 000 | 6 500 |



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# Denmark

## Sources

Prices and taxes data for oil products are provided on a quarterly basis by the Danish Competition and Consumer Authority (KFST). Prices and taxes data for natural gas and electricity for households are provided on a quarterly basis by the Danish Energy Agency (DEA). Energy price indices for oil products, natural gas, electricity and coal are derived from data extracted from the Statistics Denmark website.

## Data collection methodology

From 1Q1993 onwards, quarterly prices refer to the average of the daily prices. From 1Q1985 to 4Q1992, quarterly prices refer to the second month of each quarter. Prior to 1Q1985, prices refer to the first month of each quarter.

### Oil products

Monthly ex-tax prices for oil products are collected by KFST every quarter from the five largest companies in the retail and wholesale markets.

For low sulphur fuel oil, light fuel oil, automotive diesel, unleaded premium (95 RON) gasoline and regular unleaded gasoline, companies report their sales volumes to commercial and non-commercial users, their effective average ex-tax prices, and the effective discounts from their list prices. The average ex-tax prices are calculated as volume-weighted averages of the data submitted by companies. End-use prices are calculated by adding the applicable taxes to the ex-tax prices.

Heavy fuel oil use for electricity generation is currently negligible and prices are therefore not available.

### Natural gas

From 1Q2007 onwards, prices for industry refer to the Eurostat consumption bands I1, I2, I3, I4 and I5. Prices for households refer to the single unit price charged to the residential consumers, which does not depend on consumption, as reported to Eurostat.

National average prices for industry are computed by the DEA as consumption-weighted averages of the average prices per band published by Eurostat. From 2Q2017 onwards, the weights used for this calculation are the biannual



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consumption figures per band collected through surveys. Prior, the weights used for this calculation were the most recent available (maximum two years old).

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Electricity

From 1Q2008 onwards, prices refer to the Eurostat consumption bands DA, DB, DC, DD and DE for households; and bands IB, IC, ID, IE and IF, for industry.

National average prices for industry are computed by the DEA as consumption-weighted averages of the average prices per band published by Eurostat. From 2014 onwards, the weights used for this calculation are biannual consumption figures per band collected through surveys. Prior to 2014, the weights used for this calculation were the most recent available (maximum two years old).

National average prices for households are calculated as the simple average across consumption bands, as the consumption distribution across bands is currently not known.

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Energy price indices

Annual indices are 12-month averages. Quarterly indices refer to the 3-month average.

The wholesale index for oil products refers to the Producer Price Indices (PPIs) for gasoline, gas oil, heating oils, imported lubrication oils and other oils, calculated by the IEA using component indices and weights published by Statistics Denmark.

The retail index for oil products refers to a consumption-weighted average of the Consumer Price Indices (CPIs) for liquid fuels and fuels and lubricants for personal transport equipment.

The retail price index for electricity refers to the CPI for electricity.



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The retail price index for natural gas refers to the CPI for gas.

The retail price index for coal refers to the CPI for solid fuels.

# Energy taxation

## VAT

VAT (MOMS) applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.01.78 | 01.10.78 | 18 |
| 02.10.78 | 30.06.80 | 20 |
| 01.07.80 | 31.12.91 | 22 |
| 01.01.92 | Now | 25 |

## Excise tax

The legal framework in place in Denmark is consistent with the 2003 EU Energy Taxation Directive.

Starting in 2016, energy tax rates in Denmark have been indexed every year to reflect changes in the CPI, using the rates applicable to 2015 as a basis.

This CPI-indexation is used to update the tax rates for the Sulphur tax, Nitrogen oxide tax, Carbon dioxide tax, Mineral oil tax, Natural gas tax, Coal tax and Electricity tax.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Mineral oil tax | | × | × | × | × | | | | |
| $CO_2$ tax | × | × | × | × | × | × | × | × | |
| Nitrogen oxide tax | × | × | × | × | × | × | × | × | |



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| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Sulphur tax | × | | | | | | × | × | |
| Natural gas tax | | | | | | × | | | |
| Coal tax | | | | | | | × | × | |
| Electricity tax | | | | | | | | | × |

### *Mineral oil tax (Mineraolieafgift)*

The Mineral oil tax is legally defined in the Mineral Oil Tax Act (no. 1118 of 26 September 2014). It does not apply to fuels sold in the Faroe Islands or Greenland.

Industrial users are entitled to a full refund on their tax expenditures. Heavy fuel oil, used exclusively in industry, is therefore effectively tax free.

Fuels used for electricity generation are exempt as a specific tax is levied on electricity.

| From | To | Light fuel oil (DKK/1000l) | Automotive diesel (DKK/l) | Gasoline (DKK/l) |
|---|---|---|---|---|
| 01.01.05 | 31.12.07 | 1857 | 2.487 | 3.810 |
| 01.01.08 | 07.07.08 | 1890 | 2.598 | 3.879 |
| 08.07.08 | 31.12.08 | 1890 | 2.598 | 3.849 |
| 01.01.09 | 31.12.09 | 1924 | 2.479 | 3.959 |
| 01.01.10 | 28.10.10 | 2056 | 2.524 | 3.881 |
| 29.10.10 | 31.12.10 | 2056 | 2.524 | 3.815 |
| 01.01.11 | 31.12.11 | 2093 | 2.511 | 3.884 |
| 01.01.12 | 31.12.12 | 2131 | 2.521 | 3.954 |
| 01.01.13 | 31.01.13 | 2169 | 2.565 | 3.993 |
| 01.02.13 | 31.12.13 | 2531 | 2.565 | 3.993 |
| 01.01.14 | 31.12.14 | 2577 | 2.612 | 4.064 |
| 01.01.15 | 31.12.15 | 1955 | 2.660 | 4.137 |
| 01.01.16 | 31.12.16 | 1971 | 2.681 | 4.170 |
| 01.01.17 | 31.12.17 | 1982 | 2.697 | 4.193 |
| 01.01.18 | 31.12.18 | 1992 | 2.711 | 4.216 |



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| From | To | Light fuel oil (DKK/1000l) | Automotive diesel (DKK/l) | Gasoline (DKK/l) |
|---|---|---|---|---|
| 01.01.19 | 31.12.19 | 2016 | 2.742 | 4.265 |
| 01.01.20 | 31.12.20 | 2035 | 2.762 | 4.226 |
| 01.01.21 | 31.12.21 | 2252 | 2.793 | 4.263 |
| 01.01.22 | now | 2261 | 2.804 | 4.279 |

### *CO2 tax (Kuldioxidafgift)*

The CO2 tax is legally defined in the CO2 Tax Act (No. 321 of 4 April 2011). It does not apply to fuels sold in the Faroe Islands or Greenland.

| From | To | Heavy fuel oil (DKK/tonne) | Light fuel oil (DKK/1000l) | Automotive diesel (DKK/l) | Gasoline (DKK/l) | Natural gas (DKK/MWh) |
|---|---|---|---|---|---|---|
| 01.01.05 | 31.12.05 | 288 | 243 | 0.243 | 0.220 | |
| 01.01.06 | 31.12.06 | 288 | 243 | 0.243 | 0.220 | 16.2 |
| 01.01.07 | 31.12.07 | 288 | 243 | 0.243 | 0.220 | 16.5 |
| 01.01.08 | 31.12.08 | 293 | 247 | 0.247 | 0.224 | 16.5 |
| 01.01.09 | 31.12.09 | 298 | 252 | 0.252 | 0.228 | 16.8 |
| 01.01.10 | 28.10.10 | 493 | 413 | 0.413 | 0.373 | 28.7 |
| 29.10.10 | 31.12.10 | 493 | 413 | 0.413 | 0.355 | 28.7 |
| 01.01.11 | 31.05.11 | 502 | 420 | 0.420 | 0.361 | 29.2 |
| 01.06.11 | 31.12.11 | 502 | 420 | 0.391 | 0.361 | 29.2 |
| 01.01.12 | 31.12.12 | 511 | 428 | 0.399 | 0.367 | 29.8 |
| 01.01.13 | 31.12.13 | 520 | 435 | 0.405 | 0.374 | 30.3 |
| 01.01.14 | 31.12.14 | 529 | 443 | 0.413 | 0.381 | 30.8 |
| 01.01.15 | 31.12.15 | 539 | 451 | 0.420 | 0.388 | 31.4 |
| 01.01.16 | 31.12.16 | 543 | 455 | 0.423 | 0.391 | 31.6 |
| 01.01.17 | 31.12.17 | 547 | 457 | 0.426 | 0.393 | 31.8 |
| 01.01.18 | 31.12.18 | 549 | 460 | 0.428 | 0.395 | 31.9 |
| 01.01.19 | 31.12.19 | 556 | 465 | 0.433 | 0.400 | n.a. |
| 01.01.20 | 31.12.20 | 561 | 469 | 0.437 | 0.383 | n.a. |
| 01.01.21 | 31.12.21 | 565 | 474 | 0.441 | 0.386 | n.a. |



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| From | To | Heavy fuel oil (DKK/tonne) | Light fuel oil (DKK/1000l) | Automotive diesel (DKK/l) | Gasoline (DKK/l) | Natural gas (DKK/MWh) |
|---|---|---|---|---|---|---|
| 01.01.22 | Now | 568 | 475 | 0.443 | 0.388 | n.a. |

### *Nitrogen oxide tax (Kvælstofoxiderafgift)*

The Nitrogen oxide tax is legally defined in the Nitrogen Oxide Tax Act (no. 472 of 17 June 2008), which first came into effect on 1 January 2010. It does not apply to fuels sold in the Faroe Islands or Greenland.

Rates applicable to commercial energy products (except electricity) are derived from a tax rate expressed in Danish crowns per kilogram of NO2 equivalents. Introduction in 2010 at the rate of 5 DKK/kg, it was progressively raised to reach 26.4 DKK/kg in January 2015.

| From | To | Heavy fuel oil (DKK/tonne) | Light fuel oil (DKK/1000l) | Automotive diesel (DKK/l) | Gasoline (DKK/l) | Natural gas (DKK/MWh) |
|---|---|---|---|---|---|---|
| 01.01.14 | 31.12.14 | 147 | 46 | 0.046 | 0.043 | n.a. |
| 01.01.15 | 31.12.15 | 150 | 47 | 0.047 | 0.043 | 3.44 |
| 01.01.16 | 30.06.16 | 151 | 47 | 0.047 | 0.043 | 3.44 |
| 01.07.16 | 31.12.17 | 28 | 9 | 0.009 | 0.009 | 0.65 |
| 01.01.18 | 31.12.19 | 29 | 9 | 0.009 | 0.009 | 0.65 |
| 01.01.20 | now | 29 | 9 | 0.009 | 0.008 | n.a. |

### *Sulphur tax (Svovlafgift)*

The Sulphur tax is legally defined in the Sulphur Tax Act (no. 78 of 8 February 2006). It does not apply to fuels sold in the Faroe Islands or Greenland.

The tax applies to oil products and coal with sulphur content exceeding 0.05% in mass. Rates applicable to commercial energy products are derived from a tax rate expressed in Danish crowns per kilogram of sulphur. The current rate of 23 DKK/kg was reached after gradual increases of the tax rate since its introduction.

| From | To | Heavy fuel oil (DKK/tonne) |
|---|---|---|
| 01.01.00 | 31.12.07 | 100 |
| 01.01.08 | 31.12.08 | 102 |



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| From | To | Heavy fuel oil (DKK/tonne) |
|---|---|---|
| 01.01.09 | 31.12.09 | 104 |
| 01.01.10 | 31.12.10 | 105 |
| 01.01.11 | 31.12.11 | 107 |
| 01.01.12 | 31.12.12 | 109 |
| 01.01.13 | 31.12.13 | 111 |
| 01.01.14 | 31.12.14 | 113 |
| 01.01.15 | 31.12.15 | 115 |
| 01.01.16 | 31.12.16 | 116 |
| 01.01.17 | 31.12.17 | 116.5 |
| 01.01.18 | 31.12.18 | 117 |
| 01.01.19 | 31.12.19 | 118.5 |
| 01.01.20 | 31.12.20 | 119.5 |
| 01.01.21 | now | 121 |

### *Natural gas tax (Gasafgift)*

The Natural gas tax is legally defined in the Natural Gas Tax Act (no. 312 of 1 April 2011). Natural gas for electricity generation is exempt as a specific tax is levied on electricity.

| From | To | Natural gas (DKK/MWh) |
|---|---|---|
| 01.01.07 | 31.12.07 | 167.1 |
| 01.01.08 | 31.12.08 | 170.1 |
| 01.01.09 | 31.12.09 | 173.1 |
| 01.01.10 | 31.12.10 | 185.7 |
| 01.01.11 | 31.12.11 | 189.1 |
| 01.01.12 | 31.12.12 | 192.5 |
| 01.01.13 | 31.12.13 | 196.0 |
| 01.01.14 | 31.12.14 | 232.8 |
| 01.01.15 | 31.12.15 | 176.6 |
| 01.01.16 | 31.12.16 | 178.0 |



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| From | To | Natural gas (DKK/MWh) |
|---|---|---|
| 01.01.17 | 31.12.17 | 179.1 |
| 01.01.18 | 31.12.18 | 180.0 |
| 01.01.19 | 31.12.19 | 182.2 |
| 01.01.20 | 31.12.20 | 183.9 |
| 01.01.21 | 31.12.21 | 203.6 |
| 01.01.22 | 31.12.22 | 204.6 |

Tax rates are expressed in Danish crowns per Normal cubic meter ($Nm^3$), and a different tax rate applies depending on the calorific value of the fuel. In the tables shown at the end of this section, the rates for natural gas refer to a gross calorific value below 39.6 $MJ/Nm^3$.

### *Coal tax (Kulafgift)*

The Coal tax is legally defined in the Coal Tax Act (no. 1080 of 3 September 2015). It does not apply to fuels sold in the Faroe Islands or Greenland.

Coal used for electricity generation is exempt as a specific tax is levied on electricity. Coal used in chemical reduction processes, including coking coal, is also exempt.

### *Electricity tax (Elafgift)*

The Electricity tax is legally defined in the Electricity Tax Act (no. 310 of 1 April 2011). It does not apply to electricity sold in the Faroe Islands or Greenland.

Until 1 January 2014, the electricity tax included several minor surcharges *(tillægsafgift)* related to energy savings, distribution and $CO_2$ emissions. In the tables shown in this section, rates until 31 December 2013 include these minor components, which were subsequently integrated into the main electricity tax.

| From | To | Electricity *households* (DKK/MWh) |
|---|---|---|
| 01.01.07 | 31.12.07 | 666 |
| 01.01.08 | 31.12.08 | 675 |
| 01.01.09 | 31.12.09 | 685 |



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| From | To | Electricity *households* (DKK/MWh) |
|---|---|---|
| 01.01.10 | 31.12.10 | 721 |
| 01.01.11 | 31.12.11 | 793 |
| 01.01.12 | 31.12.12 | 806 |
| 01.01.13 | 31.12.13 | 820 |
| 01.01.14 | 31.12.14 | 833 |
| 01.01.15 | 31.12.15 | 878 |
| 01.01.16 | 31.12.16 | 885 |
| 01.01.17 | 31.12.17 | 910 |
| 01.01.18 | 31.12.18 | 914 |
| 01.01.19 | 31.12.19 | 884 |
| 01.01.20 | 31.12.20 | 892 |
| 01.01.21 | 31.12.21 | 900 |
| 01.01.22 | 31.12.22 | 903 |

## Energy taxation database methodology

The VAT (MOMS) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly rates were estimated as the average of the rates applied for a certain year weighted for the number of days.

Environmental tax comprises Sulphur tax, Nitrogen Oxide tax and CO2 tax. The specific values of each of these taxes applied to the different energy products were estimated as the average of the values applied for each year weighted for the number of days. The final yearly values were estimated as the sum of the yearly values of the different taxes. For coal, only the Sulphur tax applies. For natural gas, LPG, gasoline, diesel and light fuel oil, the Environmental tax comprises Nitrogen-Oxide tax and CO2 tax. For heavy fuel oil, all three taxes are included in the Environmental tax. Environmental tax does not apply to electricity consumption, even if until December 2013, the Electricity tax included a component associated with CO2 emissions.



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Carbon tax refers to the CO2 tax, as applied in Denmark. The tax is applicable to natural gas, LPG, gasoline, diesel, light fuel oil and heavy fuel oil. The yearly values applied to the different energy products were estimated as the average of the values applied for each year weighted for the number of days.

The remaining taxes were included in the database as Other taxes, including Mineral Oil tax, Coal tax, Natural Gas tax and Electricity tax. The specific values were estimated as the average of the values applied for each year weighted for the number of days. Exemptions include: the use of coal, natural gas, LPG and heavy fuel oil for electricity generation; and the use of LPG, light fuel oil and heavy fuel oil for industry. Values for Coal tax and Mineral Oil tax applied to LPG consumption were not provided

## Product specifications

| | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (95 RON) gasoline | Natural gas |
|---|---|---|---|---|---|
| Quality | Svær fuelolie | Fyringsolie | Diesel | | |
| Cetane number | | | 46 | | |
| Density (kg/l) | 0.975 | 0.8594 | 0.845 | | |
| Sulphur content (%) | 0.5 | | | | |
| Lead content (g/l) | | | | 0.05 | |
| NCV (kcal/kg) | 9 650 | 10 175 | 10 175 | | |
| GCV (kcal/$m^3$) | | | | | 10 509 |
| Delivery size (tonnes/year) | ≥ 1 000 | 2 - 5 | | | |



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# Estonia

## Sources

Prices and taxes data for oil products are based on weekly data published in the **European Commission's** *Weekly Oil Bulletin*.

Prices and taxes data for natural gas and electricity, as well as retail energy price indices, are based on data published by **Eurostat**.

## Data collection methodology

Prices and taxes prior to 1 January 2011, the date of entry into the Economic and Monetary Union, have been converted from Estonian krooni using the appropriate irrevocable conversion rate of 15.6466 EEK/EUR. This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rates) is preserved. However, pre-EMU euros are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

### Oil products

Oil product prices are derived from data published in the European Commission's *Weekly Oil Bulletin*, which reports weekly ex-tax and end-use prices for a series of oil products in all EU countries.

Quarterly and annual figures are calculated as arithmetical averages of the weekly data. Total taxes are calculated as the subtraction of the quarterly and annual ex-tax from the final prices. Excise taxes for non-commercial users are calculated by subtracting VAT from the total taxes. For commercial users, excise taxes are equal to total taxes, as they are exempt from VAT.

### Natural gas

Prices refer to the Eurostat consumption bands D1, D2 and D3 for households and I1, I2, I3, I4, I5 and I6 for industry. Prices are computed as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are consumption figures per band published in Eurostat's *Gas prices – price systems* report (2009).

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.



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Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

### Electricity

Prices refer to the Eurostat consumption bands DA, DB, DC, DD and DE for households; and IA, IB, IC, ID, IE, IF and IG, for industry. Prices are computed as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are consumption figures per band published in Eurostat's *Electricity prices – price systems* report (2009).

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722) series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for coal refer to the *solid fuel* (cp0454) series.

## Energy taxation

### VAT

VAT (*käibemaks*) applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industry and electricity generation and for automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.05.04 | 30.06.09 | 18 |
| 01.07.09 | now | 20 |



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## Excise tax

The legal framework for excise taxation on energy in place in Estonia is consistent with the 2003 EU Energy Taxation Directive.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | × | × | × |

### *Excise duties (Aktsiisid)*

The Alcohol, Tobacco, Fuel and Electricity Excise Duty Act, which came in force on 1 January 2008, establishes a list of commercial energy products subject to excise duties.

Gasoline, diesel, light and heavy fuel oils, LPG, natural gas, steam and coking coal, as well as electricity, are subject to an excise duty expressed in a volume or energy basis.

Natural gas for electricity generation and transport is not taxed.

| From | To | Heavy fuel oil (EUR/ tonne) | Light fuel oil (EUR/ 1000l) | Kerosene (EUR/ 1000l) | Automotivediesel (EUR/l) | Gasoline 95 RON (EUR/l) | Automotive LPG (EUR/l) | Natural gas (EUR/MWh) | Electricity (EUR/ MWh) |
|---|---|---|---|---|---|---|---|---|---|
| 01.02.16 | now | 58 | 121 | 330.1 | 0.448 | 0.465 | 0.070 | 3.62 | 4.47 |

# Energy taxation database methodology

The VAT (käibemaks) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly rates were estimated as the average of the rates applied for each year weighted for the number of days.

The Excise duties in place in Estonia are included under the Other taxes. The specific values applied to the different energy products are retrieved directly from



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the above policy framework note. Exemptions include: the use of natural gas for electricity generation and transportation. Values applied to the use of coal are not provided.



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# Finland

## Sources

Data for all energy products, including energy price indices, are provided on a quarterly basis by **Statistics Finland**.

## Data collection methodology

Prior to 4Q1985, prices refer to the first month of each quarter. From 1Q1986 to 4Q1992, prices refer to the second month of the quarter (except 3Q1988 prices which refer to July 1988).

From 1Q1993 onwards, prices refer to the monthly averages of the quarter. See individual products for exceptions.

### Oil products

Motor fuel prices were deregulated on 18 June 1984. Prior to that, motor fuels were subject to a uniform maximum pump price for the whole country.

End-use prices for light fuel oil, automotive diesel and unleaded premium gasoline (98 and 95 RON) are based on retail prices in 64 fuelling stations around Finland, surveyed by Statistics Finland between the 10$^{th}$ and 20$^{th}$ of each month. National average prices are produced as averages of the prices in each of the fuelling stations. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices. The automotive fuels contain biocomponents with varying excise tax rates. The total share of these is determined by legislation. The applicable excise tax is calculated using the tax data. In response to the energy price crisis, this share was temporarily lowered on July 8th, 2022. Presently available data is not sufficient to determine the tax rate.

Prior to 2Q1979, prices for road fuels referred to full-service petrol stations. From 2Q1979 onwards, prices refer to self-service filling stations.

### Natural gas

Ex-tax prices are based on tariffs charged by major natural gas distribution companies, which are weighted by market shares to produce an average ex-tax price. End-use prices are calculated by adding the applicable tax components to the ex-tax price.



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Until 4Q2000, prices shown for industry and households are average contract prices.

From 1Q2001 until 3Q2019, prices for industry and electricity generation are based on an annual consumption of 1 000 GWh, charged capacity of 167 MW and effective time of capacity use of 6 000 hours per year.

Natural gas markets opened up in Finland starting from 1st of January 2020, when Baltic Connector became operational. In consequence, the data collection was revised and new data is available from 2021 onwards. This data is based on the survey of gas end users conducted by Statistics Finland. Prices for industry and electricity generation refer to consumption category over 1 111 GWh.

## Steam and coking coal

Prices shown refer to hard coal delivered to consumers with an annual consumption of at least 40 000 tonnes.

It is an average import price that includes temporary storage in commercial ports and road transport cost.

## Electricity

From 1Q2022 onwards the price for household refers to the national average for consumption of 2500 – 4999 kWh/year in households. Data for household electricity prices are collected in compliance with the Eurostat methodology. This consumption band was chosen as it is closest to the consumer type used earlier.

From 1Q2007 onwards, prices for industry refer to the national average for a consumption of 2 000 to 19 999 MWh/year in medium-scale industries. Data for industrial electricity prices are collected in compliance with the Eurostat methodology.

Prices for households and industry were based on a survey conducted by Finland's Energy Authority, in which every distribution company in the country reports ex-tax prices. Prices are then weighted by the market share of each company to produce national average ex-tax prices. End-use prices are calculated by adding the applicable tax components to the ex-tax price.

Until 4Q2006, prices for industry refer to the national average for a consumption of 2 000 MWh/year of high voltage over at least 4 000 hours/year in a medium-scale industry.



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Until 4Q2022, prices for households refer to electricity used for non-heating purposes in a single house (120 $m^2$) at a rate of 5.0 MWh/year with 3x25A.

### Energy price indices

Annual indices are 12-month averages. From 1Q1993 onwards, quarterly indices refer to the 3-month average of the quarter. Prior to 4Q1992, quarterly indices refer to the second month.

For oil products, the wholesale index refers to the manufacture of refined petroleum products (Series ID: 232, NACE2002) and the retail index to light fuel oil (Series ID: 04.5.3.1.1.1, COICOP2005).

For electricity, the wholesale index refers to the production and distribution of electricity (Series ID: 401, NACE2002) and the retail index refers to electricity (Series ID: 04.5.1, COICOP2005).

For coal, the wholesale index refers to mining and agglomeration of hard coal (Series ID: 101, NACE2002).

## Energy taxation

### VAT

VAT (*ALV/MOMS*) applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry, electricity generation and automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.6.94 | 30.06.10 | 22.00 |
| 01.07.10 | 31.12.12 | 23.00 |
| 01.01.13 | now | 24.00 |

Temporary lower VAT rates are applied for electrical energy (10 %) from December 2022 to April 2023.

### Excise tax

The legal framework for energy taxation in Finland comprises the Act on Excise Duty on Liquid Fuels (1472/1994), the Act on Excise Duty on Electricity and selected fuels (1260/1996), the Act on Defence of Security of Supply (1390/1992) and the Act on the Oil Pollution Compensation Fund (1406/2004). The legal



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framework in place in Finland is consistent with the 2003 EU Energy Taxation Directive.

A comprehensive reform of energy taxation in Finland came into force on 1 January 2011, energy taxation in Finland is based on each fuel's energy content and lifetime $CO_2$ emissions.

Fuels used for electricity generation are tax-free. Fuels used for combined electricity and heat generation are taxed at 50% of the values applicable to general consumption.

Fuels used for electricity generation, most of the products based on biomass and fuels used in aviation and maritime are tax-free. Excise duties on fuels used for heat in combined electricity and heat generation are reduced by 7,63 €/MWh.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Energy content tax | × | × | × | × | × | × | × | × | |
| $CO_2$ tax | × | × | × | × | × | × | × | × | |
| Energy tax | | | | | | | | | × |
| Strategic stockpile fees | × | × | × | × | × | × | × | × | × |
| Oil pollution fees | *For imports/transit* | | | | | | | | |

### *Energy content tax (Energiasisältövero/Energiinnehållsskatt)*

An energy content tax was introduced with the energy taxation reform that came into force on 1 January 2011. It generally applies to combustible fuels. Rates are based on the calorific value of each fuel.

| From | To | Heavy fuel oil (EUR/1000l) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Natural gas (EUR/MWh) | Coal (EUR/tonne) |
|---|---|---|---|---|---|---|---|
| 01.01.11 | 31.12.11 | 87.90 | 77.00 | 0.3605 | 0.5036 | 3.00 | 54.54 |
| 01.01.12 | 31.12.12 | 87.90 | 77.00 | 0.3070 | 0.5036 | 3.00 | 54.54 |
| 01.01.13 | 31.12.14 | 75.90 | 66.50 | 0.3070 | 0.5036 | 4.45 | 47.10 |



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| From | To | Heavy fuel oil (EUR/1000l) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Natural gas (EUR/MWh) | Coal (EUR/tonne) |
|---|---|---|---|---|---|---|---|
| 01.01.15 | 31.12.15 | 75.90 | 66.50 | 0.3165 | 0.5120 | 6.65 | 47.10 |
| 01.01.16 | 31.12.16 | 75.90 | 66.50 | 0.3165 | 0.5120 | 6.65 | 47.10 |
| 01.01.17 | 31.12.17 | 80.50 | 70.50 | 0.3277 | 0.5219 | 7.05 | 49.93 |
| 01.01.18 | 31.12.18 | 85.60 | 75.00 | 0.3277 | 0.5219 | 7.50 | 53.13 |
| 01.01.19 | 31.07.20 | 85.60 | 76.30 | 0.3277 | 0.5219 | 7.63 | 52.77 |
| 01.08.20 | 31.12.20 | 85.60 | 76.30 | 0.3457 | 0.5379 | 7.63 | 52.77 |
| 01.01.21 | now | 115.90 | 103.30 | 0.3457 | 0.5379 | 10.33 | 71.45 |

### *CO2 tax (Hiilidioksidivero/Koldioxidskatt)*

A $CO_2$ tax was introduced with the energy taxation reform that came into force on 1 January 2011. It generally applies to combustible fuels.

Rates are based on the specific $CO_2$ emissions resulting from combustion of each fuel.

| From | To | Heavy fuel oil (EUR/1000 l) | Light fuel oil (EUR/1000 l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Natural gas (EUR/MWh) | Coal (EUR/tonne) |
|---|---|---|---|---|---|---|---|
| 01.01.11 | 31.12.11 | 97.20 | 80.00 | 0.0000 | 0.1166 | 5.94 | 72.37 |
| 01.01.12 | 31.12.12 | 97.20 | 80.00 | 0.1590 | 0.1400 | 5.94 | 72.37 |
| 01.01.13 | 31.12.13 | 113.40 | 93.40 | 0.1590 | 0.1400 | 6.93 | 84.43 |
| 01.01.14 | 31.12.14 | 113.40 | 93.40 | 0.1861 | 0.1625 | 6.93 | 84.43 |
| 01.01.15 | 31.12.15 | 142.50 | 117.40 | 0.1861 | 0.1625 | 8.71 | 106.14 |
| 01.01.16 | 31.12.16 | 174.90 | 144.00 | 0.1861 | 0.1625 | 10.69 | 130.26 |
| 01.01.17 | 31.12.17 | 187.80 | 154.70 | 0.1990 | 0.1738 | 11.48 | 139.91 |
| 01.01.18 | 31.12.18 | 200.80 | 165.40 | 0.1990 | 0.1738 | 12.28 | 149.56 |
| 01.01.19 | 31.07.20 | 186.70 | 169.00 | 0.1990 | 0.1738 | 12.94 | 147.81 |
| 01.08.20 | now | 186.70 | 169.00 | 0.2456 | 0.2149 | 12.94 | 147.81 |



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### *Energy tax (Energiavero/Energiskatt)*

Electricity consumption in Finland is subject to an energy tax, with a reduced tax rate for industry, mining, agriculture, server rooms and data centres. Peat and tall oil are subject to specific energy tax.

| From | To | Electricity *industry* (EUR/MWh) | Electricity *households* (EUR/MWh) |
|---|---|---|---|
| 01.01.11 | 31.12.12 | 6.90 | 16.90 |
| 01.01.13 | 31.12.13 | 6.90 | 16.90 |
| 01.01.14 | 31.12.14 | 6.90 | 18.90 |
| 01.01.15 | 31.12.15 | 6.90 | 22.40 |
| 01.01.16 | 31.02.16 | 6.90 | 22.40 |
| 01.03.16 | 31.12.20 | 6.90 | 22.40 |
| 01.01.21 | now | 0.05 | 22.40 |

### *Strategic stockpile fees (Huoltovarmuusmaksut/Försörjningsberedskaps avgifter)*

A strategic stockpile fee is levied on liquid fuels, electricity, coal and natural gas. The purpose of the strategic stockpile fee is to ensure that the functions essential to the livelihood of Finland's population, the country's economy and national defense can be maintained in an emergency.

| From | To | Heavy fuel oil (EUR/ 1000l) | Light fuel oil (EUR/ 1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Natural gas (EUR/ MWh) | Coal (EUR/ tonne) | Electricity (EUR/ MWh) |
|---|---|---|---|---|---|---|---|---|
| 01.01.97 | now | 2.80 | 3.50 | 0.0035 | 0.0068 | 0.084 | 1.18 | 0.13 |

### *Oil pollution fees (Öljysuojamaksut/Oljeskydds avgifter)*

Imported oil products, as well as oil products transiting through the country, are subject to a mandatory contribution to the Oil Pollution Compensation Fund, used to cover for expenses linked with oil pollution and environmental restauration. If the assets of the Fund exceed the set capital requirement, collection of the fee will be suspended.

The oil pollution fees are levied on a flat per tonne basis, which is then converted to a volume basis using the appropriate densities.



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| From | To | Heavy fuel oil (EUR/1000l) | Light fuel oil (EUR/1000l) |
|---|---|---|---|
| 01.01.90 | 31.12.04 | 0.3700 | 0.3100 |
| 01.01.05 | 31.12.09 | 0.5000 | 0.4200 |
| 01.01.10 | 29.02.20 | 1.5000 | 1.2600 |
| 01.03.20 | now | 0.0000 | 0.0000 |

### *Tax refunds (Veron palautus/Skatteåterbäring)*

The energy content and CO2 tax are given for the fossil component of the liquid fuels. In practise, the fuels consist of varying mixture of components with differing tax rates. The estimate of the overall tax rate is given in the tables. Further, energy taxes are often accompanied with a refund scheme. For instance, the refund scheme for electricity covers 40% of all the electricity taxes and 80% of the electricity taxes of the industry. Thus, nominal tax rates differ from effective tax rates.

## Energy taxation database methodology

The VAT (ALV/MOMS) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly rates were estimated as the average of the rates applied for each year weighted for the number of days.

Environmental tax comprises two tax components – CO2 tax and Oil Pollution fees. The yearly values for each of these taxes were estimated as the weighted average of the values applied for each year for the number of days. The purchase of energy products for electricity generation is exempt of both these taxes. For oil products, Environmental tax includes both CO2 tax and Oil Pollution fee. For the remaining energy products, with the exception of electricity, it comprises CO2 tax only.

Carbon tax refers to the CO2 tax, as applied in Finland. Applies to all energy products, except electricity. The purchase of the remaining energy products for electricity generation is also exempt. The yearly values were estimated as the average of the values applied for each year weighted for the number of days.

Energy Supply Security tax comprises the Strategic Stockpile fees, levied on liquid fuels, electricity, coal and natural gas. The values applied to the different energy



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products were retrieved directly from the above note on policy framework. The purchase of the energy products for electricity generation is exempt.

The remaining excise taxes are included under the Other taxes, including Energy Content tax and Energy tax. The Energy tax applies to electricity consumption, and the values applied were retrieved from the above note on policy framework. The Energy content tax applies to the remaining energy products and the values applied to the different energy products were also retrieved directly from the above note on policy framework. Exemptions include: the use of natural gas for electricity generation and transportation.

## Product specifications

| | Light fuel oil | Natural gas | Steam coal |
|---|---|---|---|
| Density (kg/l) | 0.84 | | |
| NCV (kcal/kg) | | | 5 430 |
| GCV (kcal/$m^3$) | | 10 476 | |



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# France

## Sources

Prices and taxes data for oil products, natural gas and electricity, as well as all energy price indices, are provided on a quarterly basis by the **Ministry of Energy Transition**. The geographical scope of the data provided is metropolitan France, except for steam coal prices for electricity generation, which are related to the whole French territory, including overseas departments.

## Data collection methodology

From 1Q1990 onwards, prices refer to the weekly averages of the quarter. From 1Q1985 to 4Q1989, prices refer to the second month of each quarter. Prior to 1Q1985, prices refer to the first month of each quarter.

### Oil products

Oil product prices, with the exception of unleaded premium gasoline (98 RON) and light fuel oil for industry, are derived from the European Commission's *Weekly Oil Bulletin*, which reports weekly ex-tax and end-use prices.

Quarterly and annual figures are calculated as arithmetical averages of the weekly data. Total taxes are calculated by subtracting the ex-tax prices from the final prices. Excise taxes for non-commercial users are calculated by subtracting VAT from the total taxes. For commercial users, excise taxes are equal to total taxes, as they are exempt from VAT.

Prices for light fuel oil for industry are derived from monthly prices for "*fioul domestique, livraisons de plus de 27 000 litres*" published on the Ministry's website.

Quarterly and annual data are calculated as simple arithmetical averages of the weekly ex-tax and total prices published by the Ministry. Excise tax rates are calculated as the residual of the subtraction of the ex-tax and total prices, as industrial users are VAT-exempt.

Prices for unleaded premium gasoline (98 RON) are derived from monthly prices for "*supercarburant sans plomb 98*" published on the Ministry's website.

Quarterly and annual ex-tax prices are calculated as arithmetical averages of the monthly ex-tax prices published by the Ministry. Total taxes are calculated by



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subtracting the ex-tax price from the final price. Excise taxes for non-commercial users are calculated by subtracting the VAT from the total taxes.

Oil products end-use weekly prices available in the *World Energy Prices* were corrected from April 2022 onwards to correctly reflect the government measures due to increased energy prices.

## Natural gas

From 1Q2007 to 1Q2020, prices refer to the Eurostat consumption bands D1, D2 and D3 for households; and bands I1, I2, I3, I4 and I5, for non-households. Prices refer to those charged to household and final non-household customers buying natural gas for their own use that is distributed through the main gas network. Prices cover the whole consumption spectrum for households. For non-households, annualized consumption above 4 000 TJ (1 111.11 GWh PCS) is excluded. From 1Q2020 onwards all consumption bands are included.

Prices include all household and final non-household customers of natural gas. Customers who use natural gas only for electricity generation in power plants or in combined heat and power (CHP) plants or for non-energy purposes (e.g. for use in the chemicals industry) are excluded.

National average prices are computed by the Ministry as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are biannual consumption figures per band collected through surveys.

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Electricity

From 1Q2007 to 4Q2019, prices refer to the Eurostat consumption bands DA, DB, DC, DD and DE for households; and bands IA, IB, IC, ID, IE and IF, for non-households. Prices refer to those charged to household and final non-household customers buying electricity for their own use. Prices cover the whole consumption spectrum for households. For non-households, annualized consumption above 150 GWh is excluded. From 1Q2020 onwards, all consumption bands are included.



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Prices include all household and final non-household customers of electricity. Electricity generated and subsequently consumed by autoproducers are excluded from the reporting obligation.

National average prices are computed by the Ministry as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are biannual consumption figures per band collected through surveys. Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Coal

Steam coal prices for electricity generation refer to the coal used by main activity electricity producers, auto¬producers and coal used for cogeneration.

Steam coal for industry prices refer to the coal used by industry, including heat producers (main activity and autoproducers) and excluding electricity generation.

Coking coal for industry prices do not include the cost of transport. However, in general consumption takes place in the port cities where the coal is received.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the price indices listed below, as published in the **French National Institute of Statistics and Economic Studies'** (INSEE) website.

Wholesale indices for oil products refer to the following time series: Indice de prix de production de l'industrie française pour le marché français - CPF 19.20 - Produits du raffinage du pétrole - Prix de base - Base 2015 - Données mensuelles brutes, Series ID: 010534157.

Retail indices for oil products refer to the following time series: Indice des prix à la consommation - Secteurs conjoncturels, mensuel, ensemble des ménages, métropole, base 2015 - Énergie: Produits pétroliers, Series ID: 001764295.

Wholesale indices for electricity refer to the following time series: Indice de prix de production de l'industrie française pour le marché français - CPF 35.1 - Électricité, transport et distribution d'électricité - Prix de base  Base 2015- Données mensuelles brutes, Series ID: 010534418.



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Retail indices for electricity refer to the following time series: Indice des prix à la consommation (Mensuel, Ensemble des ménages, Métropole, Base 2015) - Nomenclature COICOP : 04.5.1 – Électricité, Series ID: 001764003

Wholesale indices for natural gas refer to the following time series: Indice de prix de production de l'industrie française pour le marché français - CPF 35.23 - Commerce du gaz par conduites - Prix de base - Base 2015 - Données mensuelles brutes, Series ID: 010534422.

Retail indices for natural gas refer to the following time series: Indice des prix à la consommation (Mensuel, Ensemble des ménages, Métropole, Base 2015) - Nomenclature COICOP : 04.5.2.1 - Gaz de ville, Series ID: 001764006.

Wholesale indices for coal refer to the following time series: Indice de prix d'importation de produits industriels - CPF 05.10 - Houille - Toutes zones - Base 2015 - Données mensuelles brutes - Series ID: 010535630.

Retail indices for coal refer to the following time series: Indice des prix à la consommation (Mensuel, Ensemble des ménages, Métropole, Base 2015) - Nomenclature COICOP : 04.5.4 - Combustibles solides, Series ID: 001764010.

# Energy taxation

## VAT

VAT *(TVA)* applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

The fixed components in electricity and natural gas tariffs in France are subject to a reduced VAT rate.

| From | To | General % |
|---|---|---|
| 01.11.88 | 31.12.94 | 18.6 |
| 01.01.95 | 31.07.95 | 18.6 |
| 01.08.95 | 31.12.98 | 20.6 |
| 01.01.99 | 31.03.00 | 20.6 |
| 01.04.00 | 31.12.13 | 19.6 |
| 01.01.14 | now | 20 |



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## Excise tax

The taxation of energy products is governed by European law, and in particular by European directives (EU) 2020/262 of December 19, 2019 governing excise duties (energy, alcohol and tobacco) and 2003/96/EC of October 27, 2003 on the taxation of energy, known as “DTE”.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise tax on energitical products / TICPE | × | × | × | × | × | | × | × | |
| Excise tax on natural gaz/TICGN | | | | | | × | | | |
| Excice tax on electricity/TICFE | | | | | | | | | × |
| TCCFE | | | | | | | | | × |
| TDCFE | | | | | | | | | × |
| Excise tax on coal / TICC | | | | | | | × | × | |

### *Contribution Climat-Énergie*

A carbon component (also known as the Contribution Climat-Énergie or CCE) was introduced in France in 2014. It is a component of domestic consumption taxes (TIC) on fossil fuels (coal, natural gas and oil products), proportional to their carbon content. From an initial amount of €7/t of $CO_2$, it has been re-evaluated each year to reach €44.60 in 2018. It has been frozen since 2019. Some economic sectors benefit from total or partial exemptions.

### *Excise tax on energitical products / formerly internal consumption tax on energy products (Taxe intérieure de consommation sur les produits énergétiques - TICPE)*

Until December 31, 2021, the excise tax on energy products other than natural gas and coal in metropolitan France was called the domestic consumption tax on energy products (TICPE), and was provided for by articles 265 and following of the Customs Code.



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Since January 1, 2022, the excise tax levied on energy products other than natural gas and coal in metropolitan France is no longer covered by the Customs Code. It is now detailed in the articles of Chapter II of Title I of Book III of the Code of Taxes on Goods and Services (CIBS).

The TICPE had replaced the TIPP (domestic tax on oil products) in 2011. This new name had been motivated by the taxation of superethanol E85, which only contains a maximum of 15% of petroleum products. Since January 1, 2022, the excise tax levied on energy products other than natural gas and coal in metropolitan France has replaced the TICPE.

Measures have been taken to reduce the gap between diesel and gasoline taxes. The 2015 Finance Law raised the taxation on gasoline by 0.02 EUR/l. Excise duty on diesel increased by almost 0.04 EUR/l in 2015. Between 2014 and 2017, in total, the tax differential between diesel and gasoline (E10) will have been reduced by 0.06 EUR/l to 0.12 EUR/l. In 2016, Excise duty rates for automotive diesel and gasoline stood at 0.511 EUR/l and 0.648 EUR/l, respectively.

Since 1 January 2007, the regional governments of France had been allowed to decide on the applicability of a fraction of the national TICPE rate levied on sales of unleaded premium gasolines (up to 0.0177 EUR/l) and diesel (up to 0.0115 EUR/l) in their regional territories. Since 1 January 2017, The rate of the oil product excise has been increased by 0,0177 EUR/l on gasolines and by 0,0115 EUR/l on diesel and allocated to regions depending on sales in each region.

Additionally, since 2011, regional councils and the Corsican assembly can increase the applicable rates levied on sales of unleaded premium gasolines (up to 0.0073 EUR/l) and diesel (up to 0.0135 EUR/l) in their regional territories. The revenue from this increase is earmarked for financing infrastructure projects in the regions.

In Corsica, excise duty rates for unleaded premium gasolines are reduced by 0.01 EUR/litre (Art. 265 quinquies of the Code des Douanes).

Between 1 October 2000 and 21 July 2002, the TIPP rates were reviewed every two months to compensate for variations in crude oil spot prices, using dated Brent as a benchmark. When the price of crude increased by more than 10%, the amount of TIPP decreased by the same amount. Conversely, when the price of benchmark crude oil decreased by more than 10%, the TIPP increased by the same amount. Since 22 July 2002, the TIPP no longer depends on the price of oil.



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| From | To | Fuel oil (EUR/tonne) | Light fuel oil[3] EUR/1000l | Automotive diesel (EUR/l) | Gasoline 98 RON[1] and 95 RON[1] (EUR/l) | Gasoline 95 RON E10[2] (EUR/l) | Automotive LPG (EUR/100kg net) |
|---|---|---|---|---|---|---|---|
| 15.04.93 | 31.12.93 | HTS 19,7/ BTS 14,2 | NA | 0.2654 | 0.4423 | NA | NA |
| 01.01.94 | 31.12.94 | HTS 21,4/ BTS 15,4 | NA | 0.3205 | 0.5023 | NA | NA |
| 01.01.95 | 31.12.95 | HTS 21,7/ BTS 15,7 | NA | 0.3259 | 0.5446 | NA | NA |
| 01.01.96 | 31.12.96 | HTS 22,1/BTS 16,0 | NA | 0.3457 | 0.5644 | NA | NA |
| 01.01.97 | 31.12.97 | HTS 22,6/BTS 16,3 | NA | 0.3549 | 0.5736 | NA | NA |
| 01.01.98 | 31.12.98 | HTS 22,9/ BTS 16,6 | NA | 0.3671 | 0.5858 | NA | NA |
| 01.01.99 | 31.12.99 | HTS 23,1/ BTS 16,7 | NA | 0.3783 | 0.5863 | NA | NA |
| 01.01.00 | 31.12.02 | HTS 23,2/BTS 16,8 | NA | 0.389 | 0.5863 | NA | 10.02 |
| 01.01.03 | 31.12.03 | 18.50 | NA | 0.3919 | 0.5892 | NA | 10.76 |
| 01.01.04 | 31.12.05 | 18.50 | NA | 0.4169 | 0.5892 | NA | 10.76 |
| 01.01.06 | 31.12.07 | 18.50 | NA | 0.4284 | 0.6069 | NA | 10.76 |
| 01.01.08 | 28.12.08 | 18.50 | 56.60 | 0.4284 | 0.6069 | NA | 10.76 |
| 29.12.08 | 31.12.10 | 18.50 | 56.60 | 0.4284 | 0.6069 | 0.6069 | 10.76 |
| 01.01.11 | 31.03.14 | 18.50 | 56.60 | 0.4284 | 0.6069 | 0.6069 | 10.76 |
| 01.04.14 | 31.12.14 | 21.90 | 56.60 | 0.4284 | 0.6069 | 0.6069 | 10.76 |
| 01.01.15 | 31.12.15 | 45.30 | 76.40 | 0.4682 | 0.6241 | 0.6241 | 13.00 |
| 01.01.16 | 31.12.16 | 68.80 | 96.30 | 0.4981 | 0.6412 | 0.6212 | 13.97 |
| 01.01.17 | 31.01.17 | 95.40 | 118.90 | 0.5307 | 0.6507 | 0.6307 | 16.50 |
| 01.01.18 | 31.12.21 | 139.50 | 156.20 | 0.5940 | 0.6829 | 0.6629 | 20.71 |

Source: article 265 of the customs code. 1 containaing up to 5% of ethanol. 2 constaining up to 10% of ethanol. 3 Customs code index 21. HTS: High Sulfur Content. BTS : low Sulfur content

Since January 1, 2022, the unit amount of the tax excluding VAT, which has remained unchanged since January 1, 2018, is expressed in €/MWh:



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| From | To | Fuel oil | Light fuel oil | Automotive diesel | Gasoline 98 RON[1] and 95 RON[1] | Gasoline 95 RON E10 | Automotive LPG |
|---|---|---|---|---|---|---|---|
| 01.01.22 | Now | 12.555 | 15.62 | 0.5940 | 0.76826 | 0.76826 | 16.208 |

### *Excise tax on natural gas / formerly internal consumption tax on natural gas (Taxe Intérieure sur Consommation de Gaz Naturel - TICGN)*

Since its introduction in 1986, this tax has been known under several names. Tax rates and exemptions have varied several times since its introduction.

Until December 31, 2021, the excise tax on natural gas resulting from the application of the Energy Tax Directive was called the domestic consumption tax on natural gas (TICGN), and was provided for by Article 266 quinquies of the Customs Code.

As of January 1, 2022, the excise tax on natural gas is no longer covered by the Customs Code. It is now detailed in the articles of Chapter II of Title I of Book III of the Code of Taxes on Goods and Services (CIBS).

From 1 April 2014, the Excise tax on natural gas (formerly TICGN) applies to natural gas consumption by both industry and households, the latter having previously been exempted. There are reduced rates, allowed by the Energy Taxation Directive, designed to preserve the competitiveness of certain economic sectors, such as activities covered by the greenhouse gas emissions trading scheme for energy-intensive companies. In addition, certain industrial processes and activities benefit from a zero rate of excise tax on natural gas used as fuel. Thus, natural gas used in electricity generation and refineries is exempted.

Between 1 April 2008 and 31 March 2014, the Excise tax applied to all customers, except for households using gas for heating (including collective heating), public premises (exempt until 1 January 2009) and some specific industrial uses of gas (including power generation).

Prior to 1 April 2008, it applied to industrial consumers whose consumption was greater than 18 000 GJ/year, and was paid on the difference between the actual consumption and a threshold of 17 280 GJ/year.

Starting 1 January 2021, the exemption for Excise tax for natural gas used as fuel in connection with a biogas guarantee of origin is replaced by a reduction in the full rate of Excise tax in proportion to the rate of biogas injected in natural gas networks.



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The normal excise rate is thus lowered from 8.45 €/MWh in 2021 to 8.43 €/MWh in 2021 and 8.41 €/MWh in 2022 for all consumers.

| From | To | Natural gas *industry* (EUR/MWh | Natural gas *households* (EUR/MWh |
|---|---|---|---|
| 11.01.95 | 10.01.96 | 1.12 | 0 |
| 11.01.96 | 10.01.97 | 1.14 | 0 |
| 11.01.97 | 10.01.98 | 1.16 | 0 |
| 11.01.98 | 10.01.99 | 1.17 | 0 |
| 11.01.99 | 10.01.00 | 1.18 | 0 |
| 11.01.00 | 10.01.01 | 1.19 | 0 |
| 11.01.01 | 31.03.14 | 1.19 | 0 |
| 01.04.14 | 31.12.14 | 1.27 | 1.27 |
| 01.01.15 | 31.12.15 | 2.64 | 2.64 |
| 01.01.16 | 31.12.16 | 4.34 | 4.34 |
| 01.01.17 | 31.12.17 | 5.88 | 5.88 |
| 01.01.18 | 31.12.20 | 8.45 | 8.45 |
| 01.01.21 | 31.12.21 | 8.43 | 8.43 |
| 01.01.22 | Now | 8.41 | 8.41 |

### *Excise tax on electicity/ formerly internal consumption tax on electricity (Taxe intérieure sur la consommation finale d'électricité – TICFE)*

Until December 31, 2021, the excise tax on electricity resulting from the application of the Energy Tax Directive was called the domestic tax on the final consumption of electricity (TICFE), and was provided for by Article 266 quinquies C of the Customs Code.

As of January 1, 2022, the excise tax on electricity is no longer covered by the Customs Code. It is now detailed in the articles of Chapter II of Title I of Book III of the Code of Taxes on Goods and Services (CIBS).

Reduced rates, allowed by the Energy Taxation Directive, have been introduced to protect the competitiveness of businesses. A special zero rate of excise tax on electricity is provided for electricity of renewable origin produced by small-scale facilities and consumed by the producer under the conditions set out in Article L.



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312-87 of the CIBS. In addition, certain industrial processes and activities benefit from a zero rate of excise tax on electricity consumed.

The TICFE was first introduced on 1 January 2011, and applied to high voltage industrial users (250 to 10 000 kVA) exclusively, at a flat rate of 0.5 EUR/MWh.

On January 1 2016, the contribution to public electricity service (*Contribution au service public de l'électricité - CSPE*), which had applied to all consumer categories in France, was incorporated into the TICFE, extending its applicability to all electricity consumers in France.

On January 1, 2022, the departmental tax on final consumption of electricity (see above) is integrated as an increase in the excise tax on electricity.

In a context of sharply rising energy prices, Article 29 of Law No. 2021-1900 of December 30, 2021 on finance for 2022 establishes a tariff shield. The objective is to contain the increase in electricity prices to 4% of the regulated electricity sales tariff applicable on August 1, 2021, which remains unchanged until January 31, 2022. This article provides, from February 1, 2022 to January 31, 2023, the reduction of the excise tax on electricity (reduction of the rates applicable on January 1, 2022), within the limits of the minimums set by the directive on energy taxation, that is to say 0.5 € / MWh for professionals and 1 € / MWh for individuals.

In table shown at the end of this section, the TICFE rates for residential consumers for the periods prior to 1 January 2016 correspond to the CSPE. For these periods, the normal rates shown for industry are the sum of CSPE and the flat TICFE rate valid until 31 December 2015.

| From | To | Electricity *industry* (EUR/MWh) | Electricity *households* (EUR/MWh) |
|---|---|---|---|
| 01.01.11 | 30.07.11 | 8 | 7.5 |
| 31.07.11 | 30.06.12 | 9.5 | 9.0 |
| 01.07.12 | 31.12.12 | 11 | 10.5 |
| 01.01.13 | 31.12.13 | 14 | 13.5 |
| 01.01.14 | 31.12.14 | 17 | 16.5 |
| 01.01.15 | 31.12.15 | 20 | 19.5 |
| 01.01.16 | 31.12.21 | 22.5 | 22.5 |
| 01.01.22 | 31.01.22 | 23,5625 (22,5 for high voltage > 250kVA) | 25.6875 |
| 01.02.22 | now | 0.5 | 1 |



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### *Municipal consumption tax on electricity (Taxe communale sur la consommation finale d'électricité - TCCFE)*

The TCCFE, a regional tax on electricity levied at a municipal (commune) level, was introduced on 1 January 2011 and it has been part of the electricity national excise tax since 1 January 2022.

Industrial consumers consuming at high-voltage (>250 kVA) were exempted from this tax component.

Municipalities in France were free to set the applicable rates within a legally defined band.

Tax rates were calculated by multiplying a base rate by a multiplier coefficient (Tax rate = base rate x multiplier coefficient).

For commercial consumers (<=36 kVA) and for non-commercial consumers (<=250 kVA), the base rate was 0.75 EUR/MWh between 2011 and 2018, 0.76 EUR/MWh in 2019 and 0.77 EUR/MWh in 2020. Currently, the base rate is 0.78 EUR/MWh. Between 2011 and 2019, the base rate was 0.25 EUR/MWh for commercial consumers (>36 kVA and <=250 kVA). Currently the base rate is 0.26 EUR/MWh for commercial consumers (>36 kVA and <=250 kVA).

The community concerned could change the multiplier coefficient per vote each year. The multiplier coefficient was set between 0 and 8.5 from 2015 to 2020. The possible values of multiplier coefficients are 4, 6, 8 and 8.5 in 2021 and 6, 8 and 8.5 in 2022.

Between 2012 and 2015, the upper limit of the multiplier coefficient is updated in proportion to the average consumer price index.

From 2016, the base rate is updated in proportion to the average consumer price index but no longer the multiplier coefficient.

The tables at the end of this section show the maximum TCCFE rates.

### *Departmental consumption tax on electricity (Taxe départementale sur la consommation finale d'électricité - TDCFE)*

The TDCFE, a regional tax on electricity levied at a departmental (*département*) level, was introduced on 1 January 2011 and it has been part of the electricity national excise tax since 1 January 2022.

Industrial users consuming at high-voltage (>250 kVA) were exempted from this tax component.



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Departments in France were free to set the applicable rates within a legally defined band until 2020.

Tax rates were calculated by multiplying a base rate by a multiplier coefficient.

Tax rate = base rate x multiplier coefficient

For commercial consumers (<=36 kVA) and for non-commercial consumers (<=250 kVA), the base rate was, 0.75 EUR/MWh between 2011 and 2018, 0.76 EUR/MWh in 2019 and 0.77 EUR/MWh in 2020. Currently, the base rate is 0.78 EUR/MWh.

For commercial consumers (>36 kVA and <=250 kVA) the base rate was 0.25 EUR/MWh between 2011 and 2019. Currently the base rate is 0.26 EUR/MWh.

Until 2020, the community concerned could change the multiplier coefficient per vote each year. They set the multiplier coefficient between 2 and 4.25 (upper limit fixed since 2015). From 2021 onwards, there is a single multiplier coefficient 4.25.

Between 2012 and 2015, the upper limit of the multiplier coefficient is updated in proportion to the average consumer price index.

From 2016, the base rate is updated in proportion to the average consumer price index but no longer the multiplier coefficient.

The tables at the end of this section show the maximum TDCFE rates until 2020 and the effective TDCFE rates in 2021.

### *Reform of taxation of local electricity consumption (2021)*

Taxation on final consumption of electricity, which includes a national tax and local taxes (communal – TCCFE - and departmental - TDCFE) was reviewed in depth in 2021. The aim is to simplify the collection of these taxes by making them merging, i.e. integrating local taxes into the TICFE. The reform will be implemented in three stages over a period of two years. On 1 January 2021, the TDCFE tariffs are aligned and the TCCFE tariffs begin to converge. On 1 January 2022, the TDCFE is integrated into the TICFE and TCCFE tariffs continue to converge. Finally, by 1 January 2023, the convergence of TCCFE rates is completed and the TCCFE is in turn integrated into the TICFE.



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| From | To | TCCFE *households* (EUR/MWh) | TCCFE *industry* (EUR/MWh) | TDCFE *households*[1] (EUR/MWh) | TDCFE *industry*[1] (EUR/MWh) |
|---|---|---|---|---|---|
| 01.01.11 | 31.12.11 | 6 | 2 | 3 | 1 |
| 01.01.12 | 31.12.12 | 6.09 | 2.03 | 3.045 | 1.015 |
| 01.01.13 | 31.12.13 | 6.21 | 2.07 | 3.105 | 1.035 |
| 01.01.14 | 31.12.14 | 6.33 | 2.11 | 3.165 | 1.055 |
| 01.01.15 | 31.12.18 | 6.375 | 2.125 | 3.1875 | 1.0625 |
| 01.01.19 | 31.12.19 | 6.46 | 2.125 | 3.23 | 1.0625 |
| 01.01.20 | 31.12.20 | 6.545 | 2.21 | 3.2725 | 1.105 |
| 01.01.21 | 31.12.21 | 6.63 | 2.21 | 3.315 | 1.105 |
| 01.01.22 | now | 6.63 | 2.21 | - | - |

1: On 1 January 2022, the TDCFE is integrated into the Excise tax on electricity

### *Excise tax on coal/ formerly internal consumption tax on coal (Taxe intérieure de consommation sur le charbon – TICC)*

Until December 31, 2021, the excise tax on coal was called the Internal consumption tax on coal (TICN), and was provided for by Article 266 quinquies B of the Customs Code.

As of January 1, 2022, the excise tax on coal is no longer covered by the Customs Code. It is now detailed in the articles of Chapter II of Title I of Book III of the Code of Taxes on Goods and Services (CIBS).

Steam coal used for electricity generation is exempt from the TICC. The excise tax on this product corresponds to a tax payed by the users (which are the electricity producers) in the overseas departments.

Industry users that have energy intensive activities and are eligible for greenhouse gas quotas benefit from a reduced rate of TICC.

| From | To | Coal *industry* (EUR/MWh) | Coal *households* (EUR/MWh) |
|---|---|---|---|
| 01.01.11 | 31.12.11 | 1.19 | |
| 01.01.12 | 31.12.12 | 1.19 | |
| 01.01.13 | 31.12.13 | 1.19 | |
| 01.01.14 | 31.03.14 | 1.19 | |



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| From | To | Coal *industry* (EUR/MWh) | Coal *households* (EUR/MWh) |
|---|---|---|---|
| 01.04.14 | 31.12.14 | 2.29 | 2.29 |
| 01.01.15 | 31.12.15 | 4.75 | 4.75 |
| 01.01.16 | 31.12.16 | 7.21 | 7.21 |
| 01.01.17 | 31.12.17 | 9.99 | 9.99 |
| 01.01.18 | now | 14.62 | 14.62 |

# Energy taxation database methodology

The VAT (TVA) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. Specific rates are not provided.

The yearly values of the different taxes on the different energy products were estimated as the average of the values applied for each year weighted for the number of days. The values provided for the taxes that are levied at other than national level refer to the maximum rates, and so the database also refers to the maximum applicable rates.

# Product specifications

## Oil products

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (97 RON) gasoline | Premium unleaded (95 RON) gasoline | LPG |
|---|---|---|---|---|---|---|---|
| Quality | Fuel oil No. 2, ordinaire HTS | Fuel oil No. 2, ordinaire BTS | Fuel oil domestique | Gazole | Supercarburant sans plomb 98 | Supercarburant sans plomb 95 | GPL carburant |
| Density (kg/l) | | | 0.845 | 0.835 | 0.74 | 0.74 | |
| Sulphur content (%) | <2 | <1 | | | | | |
| Lead content (g/l) | | | | | 0.4 | 0.4 | |



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| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (97 RON) gasoline | Premium unleaded (95 RON) gasoline | LPG |
|---|---|---|---|---|---|---|---|
| NCV (kcal/kg) | 9 750 | 9 750 | 10 100 | | | | |
| Delivery size | < 24 000 tonne/year | < 24 000 tonne/year | 2 – 5 kl Scale C1 | | | | |

## Natural gas

| | Natural gas |
|---|---|
| GCV (kcal/$m^3$) | 8 400 |



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# Germany

## Sources

Data for all energy products are provided on a quarterly basis by the German **Federal Ministry for Economic Affairs and Climate Action (BMWK)**.

Retail energy price indices are derived from data extracted from the **Eurostat** website.

## Data collection methodology

From 1Q1993 onwards, prices refer to the monthly averages of the quarter. From 1Q1985 to 4Q1992, prices refer to the second month of the quarter. Prior to 1Q1985, prices refer to the first month of each quarter.

### Oil products

Prices and taxes data are based on surveys carried out by the Federal Statistical Office (DESTATIS) and the German LPG Association (DVFG).

Ex-tax prices include all non-tax price components, including the mandatory contribution to the emergency storage fund (EBV).

Prices for low sulphur fuel oil refer to annual consumption of 201 - 2 000 tonnes and are averages of all German refiners (approximately 60 to 80% of total consumption). Prices include the cost of transport within a 30 km radius of refineries and storage facilities. Approximately 80% of all volumes sold are consumed within this area.

Prices for heavy fuel oil for electricity generation include average transport costs, which amount to 7.67 EUR/tonne for a 650-tonne barge. Since 3Q2011 prices are confidential due to there being only one market contractor in the country for this product.

Prices for light fuel oil refer to the average of all German refiners, which amounts to approximately 60 to 80% of total consumption.

Prices for automotive diesel refer to the average pump price for diesel marketed by all German refiners.

Price for unleaded gasoline (98 and 95 RON) refer to the average pump price for premium gasoline marketed by all German refiners and is the weighted average of full-service and self-service pump prices.



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## Natural gas

Prices and taxes data for households are based on surveys carried out by the Federal Statistical Office (DESTATIS). Prices and taxes data for industry are based on surveys carried out by the Federal Association of Energy and Water Management (BDEW) until second quarter of 2019. From the third quarter of 2019 onwards, prices and taxes are reported by the Federal Statistical Office (DESTATIS) based on its own surveys. Therefore, no conclusions can be drawn on the development compared to the second quarter of 2019 and before.

Prices refer to the DESTATIS consumption band 1 600 $m^3$ for households and Eurostat consumption band I4 for industry (annual consumption 100 000 – 1 000 000 GJ).

Until 4Q2007, prices shown are annual average revenues per MWh received by gas utilities from industry, public electric power stations and households.

## Steam and coking coal

About 40% of total coal input to German power stations is steam coal; the remainder being lignite. Most of the lignite comes from mines owned by utilities and does not have a market price.

From 1996 onwards, prices for steam coal refer to imported steam coal. Prior to 1996, prices refer to the weighted average, calculated by the IEA, using domestic and import prices for steam coal.

Prices for coking coal are ex-mine prices and reflect special contracts with the steel industry. The coking coal price for other industrial sectors is estimated, by the reporting source, to be approximately 20% greater.

## Electricity

Prices and taxes data are based on surveys carried out by the Federal Statistical Office (DESTATIS).

Prices refer to the Eurostat consumption band DC for households (annual consumption 2 500 – 5 000 kWh) and ID for industry (annual consumption 2 000 – 20 000 MWh).

Until 4Q2007, prices shown are annual average revenues per MWh received by gas utilities from industry, public power stations and households.



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### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the "*liquid fuels*" (cp0453) and "*fuels and lubricants for personal transport equipment*" (cp0722) series. Relative weights used for the calculations are taken from the associated item weights series (*prc_hicp_inw*), published by Eurostat.

Retail indices for electricity refer to the "*electricity*" (cp0451) series.

Retail indices for natural gas refer to the "*gas*" (cp0452) series.

Retail indices for coal refer to the "*solid fuel*" (cp0454) series.

## Energy taxation

### VAT

VAT (*MwSt*) is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.01.78 | 30.06.79 | 12 |
| 01.07.79 | 30.06.83 | 13 |
| 01.07.83 | 31.12.92 | 14 |
| 01.01.93 | 31.03.98 | 15 |
| 01.04.98 | 31.12.06 | 16 |
| 01.01.07 | 30.06.20 | 19 |
| 01.07.20 | 31.12.20 | 16 |
| 01.01.21 | now | 19 |

### Excise tax

Energy taxes in Germany are levied in accordance with the 2003 EU Energy Taxation Directive.

The excise tax columns in Tables 1, 2 and 3 is the sum of all non-VAT tax components applicable to each product.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | × | × | × |

### *Excise duties (Verbrauchsteuern)*

Excise taxation on commercial energy products is legally defined, in its current form, in the Energy Duty Act, in force since 1 August 2006. This law replaced the former Mineral Oil Tax Law, which had been in place since 1 April 1939.

The Energy Duty Act regulates the taxation of all fossil and non-fossil commercial energy products sold in the country, with the exception of the island of Heligoland and the exclave of Büsingen.

Refined oil products, natural gas, coal and renewable energy products, used for heating or as a propellant, are subject to excise taxes pursuant to the Energy Duty Act. Tax rates are legally expressed in EUR per 1000 kg for LPG, per MWh GCV for natural gas and per GJ for coal. In the tax rate tables at the end of this section, rates were converted to other units using the densities and calorific capacities presented in the Product specification section of this document.

Coals used for electricity generation and as coking coal for metallurgic processes are exempt from excise duties (Chapter 3, Art. 37). Until 31 December 2010, coal used for domestic heating was also exempt.

Natural gas excise duty rates differ depending on whether the gas is used for domestic heating, industrial processes or as a propellant.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|
| 01.04.99 | 31.12.99 | 15.34 | 61.35 | 0.3477 | 0.5320 |
| 01.01.00 | 31.12.00 | 15.34 | 61.35 | 0.3784 | 0.5620 |
| 01.01.01 | 31.12.01 | 17.89 | 61.35 | 0.409 | 0.5930 |
| 01.01.02 | 31.12.02 | 17.89 | 61.35 | 0.4397 | 0.6238 |
| 01.01.03 | now | 25 | 61.35 | 0.4704 | 0.6545 |



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| From | To | Automotive LPG (EUR/l) | Natural gas *industry* (EUR/MWh) | Natural gas *households* (EUR/MWh) | Coal (EUR/tonne) |
|---|---|---|---|---|---|
| 01.04.99 | 31.12.99 | 0.092 | n.a. | n.a. | 9.55 |
| 01.01.00 | 31.12.00 | 0.092 | n.a. | n.a. | 9.55 |
| 01.01.01 | 31.12.01 | 0.092 | n.a. | n.a. | 9.55 |
| 01.01.02 | 31.12.02 | 0.092 | n.a. | n.a. | 9.55 |
| 01.01.03 | 31.12.03 | 0.092 | n.a. | 3.476 | 9.55 |
| 01.01.04 | 31.12.18 | 0.092 | n.a. | 5.500 | 9.55 |
| 01.01.19 | 31.12.19 | 0.115 | n.a. | 5.500 | 9.55 |
| 01.01.20 | 31.12.20 | 0.139 | n.a. | 5.500 | 9.55 |
| 01.01.21 | 31.12.21 | 0.162 | n.a. | 5.500 | 9.55 |
| 01.01.22 | now | 0.186 | n.a. | 5.500 | 9.55 |

### *Electricity taxes and levies (Steuern und Abgaben auf Strom)*

Electricity consumption in Germany is subject to a series of taxes and levies. The main components making up the total taxes on electricity applicable to households and industry are summarized below.

Pursuant to the German Renewable Energy Law (EEG), an EEG-surcharge (*EEG-Umlage*) is levied on electricity sold to all consumer categories, with significant reductions for eligible electricity-cost-intensive industries, as a mechanism to finance the feed-in tariffs that support the country's renewable energy producers. Introduced in 2010, the annual rate for this levy is derived from the difference between the wholesale electricity market price and the often higher feed-in tariff for renewable energy. As of 1 July 2022, the EEG-surcharge was abolished, i.e. it is not paid by consumers anymore but by the Federal budget.

Similarly, a CHP levy (*KWK-Umlage*) is levied on all electricity sales at a rate derived from the difference between the wholesale electricity market price and the higher feed-in tariff for CHP plants. This levy is legally defined, in its current form, in the CHP Law of 2016. Only eligible combined heat and power plants feeding their electricity to the public grid are entitled to the financing derived from this levy.



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Additionally, a concession fee is levied on electricity sales to finance the occupation of land and public or private property by the infrastructure needed to generate, transport and distribute electricity.

In addition to these fees and levies, the Electricity tax *(Stromsteuer)* has been in place in Germany since 1 April 1999 and is legally defined in the Electricity Duty Act of 24 March 1999. Depending on the sector and the use, reliefs, rate reductions and exemptions of the tax are granted. E.g. German industry benefits from several tax reliefs and exemptions.

Due to the complexity of the German electricity taxation system, the tax rate tables at the end of this chapter shows rates for the Electricity tax component only, as applicable to general consumption.

| From | To | Electricity (EUR/MWh) |
|---|---|---|
| 01.04.99 | 31.12.99 | 10.23 |
| 01.01.00 | 31.12.00 | 12.78 |
| 01.01.01 | 31.12.01 | 15.34 |
| 01.01.02 | 31.12.02 | 17.90 |
| 01.01.03 | now | 20.50 |

### *Fuel emissions trading act (BEHG)*

From 1 January 2021 onwards the $CO_2$ levies stipulated by the Fuel emission trading act are included in the excise taxation.

| From | To | Light fuel oil (EUR/l) | Automotive diesel (EUR/l) | Premium unleaded (98 RON) gasoline (EUR/l) | Premium unleaded (95 RON) gasoline (EUR/l) | Natural Gas for households (EUR/kWh) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|---|
| 01.01.21 | 31.12.21 | 0.0669 | 0.0665 | 0.05475 | 0.05475 | 0.00455 | 0.03775 |
| 01.01.22 | now | 0.0803 | 0.0798 | 0.0657 | 0.0657 | 0.00546 | 0.0453 |

## Energy taxation database methodology

The VAT (MwSt) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable



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rates are estimated as the average of the rates applied within each year weighted for the number of days.

The German Renewable Energy surcharge (EEG-Umlage) applied until 30 June 2022 to electricity sales, with reductions for eligible electricity-cost-intensive industries; it was abolished as of 1 July 2022. Specific values are not provided. Specific values are not provided.

There is an obligation of contributing to the emergency storage fund for oil products, being then assumed that an Energy Supply Security levy (Erdölbevorratungsbeitrag) is applied to these energy products. Specific values are not provided.

The remaining excise taxes and levies applicable to the different energy products are assumed as Other taxes and levies. This includes: Excise duties (applicable to oil products, natural gas and coal); CHP levy, Concession fee and Electricity tax (applicable to electricity consumption). Coal used for electricity generation and for metallurgic processes are exempt of Excise duties. Depending on sector and company-specific parameters (e.g. electricity/energy consumption as well as wage cost intensity), the industry sector is partially exempt from electricity tax (or energy tax). The specific yearly values for Excise duties and Electricity tax were estimated as the average of the values applied for each year weighted for the number of days. Values for CHP levy and Concession fee were not provided.

# Product specifications

## Oil products

| | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline | Automotive LPG |
|---|---|---|---|---|---|---|---|
| Quality | Heizöl schwer | Heizöl extraleicht | | Super Plus 98 | Euro Super 95 | | |
| Density (kg/l) | 0.99 | 0.87 | 0.82 - 0.845 | 0.72 - 0.77 | 0.72 - 0.77 | 0.72 - 0.77 | 0.51 |
| Sulphur content (%) | <1 | | | | | | |
| Lead content (g/l) | | | | 0.005 | 0.005 | 0.15 | |
| NCV (kcal/kg) | 9 800 | 10 200 | | | | | |



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| | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline | Automotive LPG |
|---|---|---|---|---|---|---|---|
| Delivery size | | 4 – 5 kl | | | | | |

## Natural gas and coal

| | Natural gas | Steam coal *industry* | Steam coal *electricity generation* | Steam coal *households* | Coking coal |
|---|---|---|---|---|---|
| Quality | | Grosskohle (from Ruhrkohle AG) | Fett Feinkohle (from Ruhrkohle AG) | Zechenbrechkoks 3 | Kokskohle (from Ruhrkohle AG) |
| Volatile matter (%) | | 20 - 30 | 20 - 30 | | 26.5 |
| Ash content (%) | | 3 - 5 | 6 - 8 | | <8 |
| Moisture content (%) | | 3 - 6 | 8 - 10 | | <10 |
| Sulphur content (%) | | 1 | 0.95 | | 0.95 |
| NCV (kcal/kg) | | | 6 914 – 7 000 | 6 210 | |
| GCV (kcal/kg)* | 8 400 | 7 000 | | | 6 950 |
| Delivery size (kg) | | | | 3 000 | |

*kcal/m3 for natural gas



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# Greece

## Sources

Prices and taxes data for all energy products are provided on a quarterly basis by the **Ministry of Environment and Energy (the Ministry)**.

Energy price indices are provided on a quarterly basis by the **Hellenic Statistical** Authority.

## Data collection methodology

### Oil products

End-use prices for all oil products are based on weekly reports of the National Observatory for Prices, which are averaged for each quarter by the Ministry. Refinery prices are provided on a daily basis for each product, based on international prices (Platts). For each product, a premium is added to include additional refinery operating costs and profit margins.

Ex-tax prices are calculated by the Ministry by subtracting the applicable taxes, as described in the Energy taxation section of this document, from the end-use prices.

In accordance with law 2960/2001 (National Customs Code) as amended, light fuel oil consumption for heating only takes place during the winter period (defined as the period between 15 October and 30 April) and is subject to a reduced excise duty rate. Consequently, data for the third quarter is shown as not applicable. Data for the second quarter only include April, except for 2Q2020, 2Q2021 and 2Q2022 where the above period was extended.

### Natural gas

From 2016 onwards, quarterly prices and taxes are calculated as a consumption-weighted average of all the consumption bands reported to Eurostat. Annual prices are calculated as the simple averages of quarterly prices.

Data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.



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Prior to 2016, prices and taxes for natural gas are derived by the Ministry on a quarterly basis from a survey covering all natural gas retail companies in the country.

Due to energy crisis, prices for 2022 include support measures. The relevant allowances are reported in the excise taxes component. Households consumers were entitled of a government subsidy for the consumption of natural gas during the 1st semester of 2022 irrespectively of the consumption band. The same applies to non households consumers from January up to October. The level of the subsidy was different for the two categories of consumers and for each month, according to the following table:

| Month | Household (€/MWh) | Non-households (€/MWh) |
|---|---|---|
| January 2022 | 20 € | 30 € |
| February 2022 | 20 € | 20 € |
| March 2022 | 40 € | 30 € |
| April 2022 | 20 € | 40 € |
| May 2022 | 20 € | 20 € |
| June 2022 | 20 € | 20 € |
| July 2022 | - | 30 € |
| August 2022 | - | 30 € |
| September 2022 | - | 30 € |
| October 2022 | - | 40 € |

## Steam and coking coal

Steam coal used for electricity generation in Greece is mainly lignite, mined on-site by the power generations. As such, prices are not applicable, as there is no economic transaction between the mine and the power plant.

From 1Q2015 onwards, steam and coking coal prices for industry are not applicable, due to limited sectoral consumption levels.

Steam coal prices for households are not applicable, due to limited sectoral consumption levels.



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## Electricity

From 2019 onwards, quarterly prices and taxes are calculated as a consumption-weighted average of all the consumption bands reported to Eurostat. Annual prices are calculated as the simple averages of quarterly prices.

From 3Q2007 to 4Q2018, prices refer to the Eurostat consumption band DC for households (annual consumption: 2 500 – 5 000 kWh) and ID for industry (annual consumption: 2 000 – 20 000 MWh).

Data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

No information is available from 2Q2006 to 2Q2007. Prior to 2Q2006, prices refer to annual average revenues per MWh from all utilities for sales to industry and households.

Due to energy crisis, prices for 2022 include support measures. The relevant allowances are reported in the excise taxes component. All consumers (household and non-household) were entitled of a government subsidy for the consumption of electricity during 2022 , according to the following table:

| Month | Household ( €/MWh) | Non-households (€/MWh), expect <35 kVA |
|---|---|---|
| January 2022 | 0-155 kWh →160 €<br>156-310 kWh →120 € | 65 € |
| February 2022 | 0-140 kWh →150 €<br>141-280 kWh →110 € | 65 € |
| March 2022 | 0-155 kWh →150 €<br>156-310 kWh →110 € | 65 € |
| April 2022 | 0-150 kWh →270 €<br>151-300 kWh →210 € | 130 € |
| May 2022 | 0-155 kWh →205 €<br>156-310 kWh →160 €<br>>310 kWh →100 € | 120 € |
| June 2022 | 0-150 kWh →185 €<br>151-300 kWh →140 €<br>>300 kWh →100 € | 100 € |



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| | | |
|---|---|---|
| July 2022 | 200 € | 148 € |
| August 2022 | 337 € | 250 € |
| September 2022 | 639 € | 342 € |
| October 2022 | 0-500 kWh → 436 €<br>501-1000 kWh → 386 €*<br>>1001 kWh → 336 €* | 230 € |
| November 2022 | 0-500 kWh → 238 €<br>501-1000 kWh → 188 €*<br>>1001 kWh →98 €* | 50 € |
| December 2022 | 0-500 kWh → 221 €<br>501-1000 kWh →171 €*<br>>1001 kWh → 81 €* | 34 € |

*There is an extra allowance of 50 €/MWh in case the consumption is decreased by 15% compared to the corresponding period of the previous year.

Specific measures have been set for some consumers categories, for example consumers at the reduced Social Residential Tariff.

In addition to the above, an extra financial allowance was offered (Power Pass) to household customers who met certain conditions. This allowance could not exceed 600 euros per beneficiary.

## Energy price indices

Annual indices are 12-month averages. From 1Q1993 onwards, quarterly indices refer to the three-month average of the quarter. Prior to 1Q1993, indices refer to the second month of each quarter.

Prices for the wholesale indices collected for products sold on the domestic market are basic prices, excluding VAT, duties and other taxes, and including subsidies on products. Deductible taxes directly linked to turnover, are excluded.

Wholesale indices for oil products refer to the weighted-average of the Producer Price Index (PPI) series for heavy fuel oil and diesel. Retail indices refer to the weighted-average of the Consumer Price Index (CPI) series for heating oil and gasoline.

Wholesale indices for electricity refer to the weighted averages of the PPI series for electricity used in industry, services, agriculture and other uses (public lighting, traction power supply system) in low, middle and high voltage consumption. Retail indices refer to the Harmonised Indices of Consumer Prices (HICP) series for *electricity* (cp0451).



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Wholesale and retail indices for natural gas refer to the PPI and CPI series, respectively, for natural gas.

Wholesale indices for coal refer to the PPI series for lignite. Retail indices refer to the HICP series for *solid fuels* (cp0454).

# Energy taxation

## VAT

VAT *(ΦΠΑ)* applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

A reduced VAT rate applies to natural gas and electricity.

| From | To | General % | Reduced % |
|---|---|---|---|
| 15.03.10 | 30.06.10 | 21 | 10 |
| 01.07.10 | 31.12.10 | 23 | 11 |
| 01.01.11 | 31.05.16 | 23 | 13 |
| 01.06.16 | 19.05.19 | 24 | 13 |
| 20.05.19 | now | 24 | 6 |

## Excise tax

Excise taxation on energy and the main provisions on excise duty rates on energy products are laid down in the National Customs Code (Law 2960/2001, Governmental Gazette A 265, articles 72-78) as amended. The legal framework is consistent with the 2003 EU Energy Taxation Directive.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | × | × | × |
| Public service obligation charges | | | | | | | | | × |



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| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Special levy on pollutant emissions | | | | | | | | | × |

### *Excise duties (Ειδικός Φόρος Κατανάλωσης - ΕΦΚ)*

Excise duties are currently levied on oil products, natural gas, coal and electricity, used for transportation or heating.

Diesel used for heating during winter (defined as the period between 15 October and 30 April) is subject to a reduced excise duty rate.

Natural gas used for heating is subject to excise duties since 1 September 2011. Natural gas used for transportation or electricity generation is exempt.

Coal (used for heating and for other uses) is subject to Excise duties. Coal used in electricity generation, as well as mineralogical and metallurgical processes and for chemical reduction is exempt.

Electricity is subject to excise duties since 2 May 2010. According to Law 3833/2010 they are set at a fixed rate of 2,2 €/MWh for household and 5 €/MWh for non household consumers.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Natural gas *households* (EUR/MWh) | Natural gas *industry* (EUR/MWh) | Electricity *household* (EUR/MWh) | Electricity non household (EUR/MWh) |
|---|---|---|---|---|---|---|---|---|---|
| 01.01.09 | 25.06.09 | 19 | | 0.302 | 0.359 | | | | |
| 26.06.09 | 14.10.09 | 19 | | 0.302 | 0.410 | | | | |
| 15.10.09 | 08.02.10 | 19 | 21 | 0.302 | 0.410 | | | | |
| 09.02.10 | 03.03.10 | 19 | 21 | 0.352 | 0.530 | | | | |
| 04.03.10 | 01.05.10 | 19 | 21 | 0.382 | 0.610 | | | 2.2 | 5 |
| 02.05.10 | 26.06.11 | 19 | 21 | 0.412 | 0.670 | | | 2.2 | 5 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Natural gas *households* (EUR/MWh) | Natural gas *industry* (EUR/MWh) | Electricity *household* (EUR/MWh) | Electricity non household (EUR/MWh) |
|---|---|---|---|---|---|---|---|---|---|
| 27.06.11 | 31.08.11 | 38 | 21 | 0.412 | 0.670 | | | 2.2 | 5 |
| 01.09.11 | 14.10.11 | 38 | 21 | 0.412 | 0.670 | 5.4 | 5.4 | 2.2 | 5 |
| 15.10.11 | 14.10.12 | 38 | 60 | 0.412 | 0.670 | 5.4 | 5.4 | 2.2 | 5 |
| 15.10.12 | 14.10.14 | 38 | 330 | 0.330 | 0.670 | 5.4 | 5.4 | 2.2 | 5 |
| 15.10.14 | 14.10.16 | 38 | 230 | 0.330 | 0.670 | 5.4 | 5.4 | 2.2 | 5 |
| 15.10.16 | 31.12.16 | 38 | 280 | 0.330 | 0.670 | 5.4 | 5.4 | 2.2 | 5 |
| 01.01.17 | now | 38 | 280 | 0.410 | 0.700 | 1.1 | 5.4 | 2.2 | 5 |

### *Public service obligation charges (Χρεώσεις που αφορούν τις Υπηρεσίες Κοινής Ωφέλειας - ΥΚΩ)*

Electricity consumers are subject to a Public service obligation charge levied, as a mechanism for financing the cost of public service obligations.

Electricity suppliers in Greece have the obligation to supply residents of the non-interconnected islands at the same prices as in the mainland, despite higher production costs. Additionally, large families and economically vulnerable consumers are entitled to a discounted social tariff.

For industrial consumers, rates differentiate between low, middle and high voltage consumption, while for household customers from 03.12.2019 and onwards the following apply:

| Household Consumption | €/MWh |
|---|---|
| 0-1600 KWh / 4 months | 6.9 |
| 1601-2000 KWh / 4 months | 50.0 |
| >2001 KWh / 4 months | 85.0 |



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### *Special Duty*

According to Law 2093/92, natural gas, electricity and liquid fuels supply companies are obliged to collect the Special Duty, currently at 5‰, in their bills and render it to the Greek Customs Authorities.

The Special Duty is calculated in the “actual” bills based on the consumed quantity, surcharged by the excise duty. The Special Duty is not subject to VAT and also does not include the special levy on pollutant emissions.

### *Special levy on pollutant emissions (Ειδικό Τέλος Μείωσης Εκπομπών Αερίων Ρύπων - ETMEAP)*

Electricity consumers are subject to an additional tax component to support the financial incentives to renewable electricity generation and high-efficiency combined heat and power facilities.

From 2019 onwards, the national legislation set a fixed rate of 17€/MWh. Reduced rates are applied for specific consumers' categories.

*Supply Security Levy (Τέλος Ασφάλειας Εφοδιασμού)*

According to national legislation (Law 3054/2002,as ammended) there is the obligation of contributing to the storage fund for oil products which lies with the importers of crude oil and petroleum products destined for consumption in the internal market and with the refineries. The charge is calculated as 1.2% of the refinery price.

Supply Security Levy is applied also on natural gas. The charge is not fixed and is calculated by the Regulatory Authority for Energy (PAE).

## Energy taxation database methodology

The VAT (ΦΠΑ) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is null for commercial services, industry and electricity generation. The reduced rate is applied to electricity and natural gas, while the general rate is applied to the remaining energy products

Renewable Energy Supply tax comprises special levy on pollutant emissions (Ειδικό Τέλος Μείωσης Εκπομπών Αερίων Ρύπων - ETMEAP), as the respective revenue is used to support the financial incentives to renewable electricity generation and high-efficiency combined heat and power facilities.



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Social tax includes the public service obligation charges (Χρεώσεις που αφορούν τις Υπηρεσίες Κοινής Ωφέλειας - ΥΚΩ) applied to electricity consumers, which are a mechanism for financing the cost of public service obligations.

The remaining excise taxes and levies applicable to the different energy products are reported as Other taxes.

Due to the obligation of contributing to the emergency storage fund for oil products, the *Supply Security Levy (Τέλος Ασφάλειας Εφοδιασμού)* is applied. It is also applied to natural gas.

Other taxes comprises the remaining excise taxes and levies applicable to the different energy products, including Excise duties (Ειδικός Φόρος Κατανάλωσης - ΕΦΚ) and Special duty. Excise duties are applicable to oil products, natural gas, coal and electricity. Exemptions include use of coal for electricity generation and some industrial processes, and the use of natural gas for transportation and electricity generation. Regarding the Special duty, it is applicable to electricity, natural gas and liquid fuels.

## Product specifications

| | Low sulphur fuel oil | Light fuel oil *industry* | Automotive diesel | Premium unleaded (95 RON) gasoline | Premium leaded gasoline | Natural gas |
|---|---|---|---|---|---|---|
| Octane number | | Fuel oil no. 3 and 5 | | 95 | 96 | |
| Density (kg/l) | | 0.991 – 0.995 | 0.820 – 0.845 | 0.72 – 0.775 | | |
| Sulphur content (%) | 1.5 | < 1 | < 0.001 | < 0.001 | | |
| Lead content (g/l) | | | | < 0.005 | 0.15 | |
| GCV (kcal/m$^3$) | | | | | | 8 776 – 11 796 (pipeline)<br>9 601 – 10 910 (LNG) |
| Delivery size | 46 000 tonne/y | 2 000 – 5 000 l (Athens area) | | | | |



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# Hungary

## Sources

Data for all energy products, including energy price indices, are provided on a quarterly basis by the **Energy and Public Utility Regulatory Authority** (**MEKH**).

## Data collection methodology

### Oil products

Oil product prices are based on periodical surveys covering the largest fuel providers in the country. In the surveys, companies report revenues related to fuel sales and total sales volumes. Ex-tax prices are calculated as the ratio of the sum of revenues from fuel sales and the total volumes sold.

End-use prices are computed by adding to ex-tax prices the applicable tax components. For commercial users, the tax elements are the excise duty and the stockholding fee, as described in the Energy Taxation section of this document. For non-commercial users, VAT is added to the tax.

The company surveys used to calculate the data are estimated to cover around 82-85% of fuel sales for gasoline, 85-90% for automotive diesel, and 100% for fuel oil.

From 1 April 1996 onwards, leaded regular gasoline (92 RON) is not sold in Hungary. Since 1 May 2004, unleaded regular (91 RON) is no longer consumed. Since 1 May 2007, unleaded premium gasoline (98 RON) is no longer sold by the country's major fuel retailers.

There was a price cap of 480 HUF/liter introduced for ESZ-95 quality motor gasoline and road diesel from 15th November 2021. In addition, the excise duty and the stockholding fee of motor gasoline and road diesel were reduced, from 28th February 2022 onwards.

From 13th March 2022, sales at high pressure dispensers and as a part of 94/2022. (III. 10.) Government Decree 1 (a) and b), were excluded from regulated motor gasoline and road diesel retail price. From 27th May 2022, regulated motor gasoline and road diesel price is provided only for vehicles registered in Hungary.



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## Natural gas

Ex-tax prices are based on periodical surveys of natural gas traders and universal service providers. Ex-tax prices are calculated as the ratio of the sum of revenues from natural gas sales and the total volumes sold. The company survey covers 100% of natural gas sales in Hungary.

End-use prices are computed by adding to the ex-tax prices the applicable tax components. For households, the only tax component is VAT. For industry, the tax components only include the excise duties.

Differently from oil products, the stockholding fee described in the Energy Taxation section of this document is included in the ex-tax price for natural gas.

Automatic subsidies for households were abolished on 1 January 2007, which had been reflected in lower ex-tax prices. Due to this, there appears to be an abnormal increase in prices for households between 4Q2006 and 1Q2007, when there was in fact no change in the cost.

## Steam and coking coal

Coal-fuelled thermal power plants in Hungary tend to source their fuel from their own coal mines, resulting in confidential prices for the electricity generation sector.

Steam coal prices for households are estimated based on data for the year 2000 and updated using the monthly consumer price index for coal produced by the Central Statistical Office.

## Electricity

Ex-tax prices are based on periodical surveys of electricity traders, universal service providers and distribution system operators. The company survey is estimated to cover 100% of electricity sales in Hungary.

Ex-tax prices per consumption band are calculated as the ratio of revenues and the total volumes sold in each band. Prices for households and industry presented in this publication are consumption-weighted averages for all relevant consumption bands.

End-use prices are computed by adding to the ex-tax prices the applicable tax components.



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### Energy price indices

The indices are calculated from weekly surveyed data. Annual indices are 52-week averages. Quarterly indices are averages of all weeks in the quarter.

For oil products, the indices from 3Q2007 onwards refer to a weighted average of premium unleaded gasoline (95 RON), automotive diesel and low sulphur fuel oil.

Prior to 3Q2007, the indices also included premium unleaded gasoline (98 RON) prices.

The retail indices for coal refer to steam coal.

## Energy taxation

### VAT

VAT (*ÁFA*) is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry and electricity generation, as well as for automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.01.93 | 31.07.93 | 6 |
| 01.08.93 | 31.12.94 | 10 |
| 01.01.95 | 31.12.03 | 12 |
| 01.01.04 | 31.08.06 | 15 |
| 01.09.06 | 30.06.09 | 20 |
| 01.07.09 | 31.12.11 | 25 |
| 01.01.12 | now | 27 |

### Excise tax

Energy taxes in Hungary are levied in accordance with the 2003 EU Energy Taxation Directive.

Natural gas, electricity and coal for households, as well as natural gas and coal for electricity generation, are not subject to excise taxes.

LFO is subject to the same taxation regime as automotive diesel.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | × | × | × |
| Stockholding fee | × | × | × | × | | × | | | |
| Other electricity taxes | | | | | | | | | × |

### *Excise duties (Jövedéki adó)*

Excise duties generally are levied on oil products and compressed natural gas (CNG). From 1 July 2017 onwards, this tax is also levied on natural gas, coal and electricity used for commercial purposes. Tax rates for natural gas, coal and electricity are legally expressed in HUF per GJ, tonnes and MWh, respectively.

Excise duties on fuels used in agriculture are refunded at an 82% rate.

In terms of coal the national tax rate is based on weight and quantity which used by households is exempted.

| From | To | Heavy fuel oil (HUF/ tonne) | Automotive diesel (HUF/l) | Automotive diesel (administrative price) (HUF/l) | Gasoline (HUF/l) | Gasoline (administrative price) (HUF/l) | Automotive LPG (HUF/l) |
|---|---|---|---|---|---|---|---|
| 01.01.03 | 31.12.04 | | 82.00 | | n.a. | | n.a. |
| 01.01.05 | 30.06.09 | | 85.00 | | n.a. | | n.a. |
| 01.01.10 | 30.10.11 | | 90.40 | | n.a. | | n.a. |
| 01.11.11 | 31.12.14 | | 97.35 | | 120 | | n.a. |
| 01.01.15 | 30.09.16 | | 110.35 | | 120 | | 34.488 |
| 01.10.16 | 31.03.17 | 4 665 | 120.35 | | 125 | | 34.488 |
| 01.04.17 | 30.06.17 | 4 655 | 110.35 | | 120 | | 34.488 |
| 01.07.17 | 30.06.20 | 4 655 | 110.35 | | 120 | | 34.488 |
| 01.07.20 | 31.03.21 | 4 655 | 120.35 | | 125 | | 34.488 |
| 01.04.21 | 28.02.22 | 4 655 | 110.35 | | 120 | | 34.488 |
| 28.02.22 | 10.03.22 | 4655 | 110.35 | 105.35 | 120 | 115 | 34.488 |
| 10.03.22 | 01.07.22 | 4655 | 110.35 | 85.35 | 120 | 95 | 34.488 |
| 01.07.22 | 06.12.22 | 4655 | 110.35 | 85.35 | 120 | 95 | 34.488 |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 06.12.22 | now | 4655 | 110.35 | x | 120 | x | 34.88 |

| From | To | Natural gas (HUF/ MWh) | Coal (HUF/ tonne) | Electricity (HUF/MWh) |
|---|---|---|---|---|
| 01.01.03 | 31.12.04 | | | |
| 01.01.05 | 30.06.09 | | | |
| 01.01.10 | 30.10.11 | | | |
| 01.11.11 | 31.12.14 | | | |
| 01.01.15 | 30.09.16 | | | |
| 01.10.16 | 31.03.17 | | | |
| 01.04.17 | 30.06.17 | | | |
| 01.07.17 | 30.06.20 | 303.8 | 2 516 | 310.05 |
| 01.07.20 | 31.03.21 | 303.8 | 2 516 | 310.05 |
| 01.04.21 | 28.02.22 | 303.8 | 2 516 | 310.05 |
| 28.02.22 | 10.03.22 | 303.8 | 2 516 | 310.05 |
| 10.03.22 | 01.07.22 | 303.8 | 2516 | 310.05 |
| 01.07.22 | now | 303.8 | 2905 | 310.05 |

### *Energy tax (Energiaadó)*

An energy tax is levied on natural gas, coal and electricity used for commercial purposes. Tax rates for natural gas, coal and electricity are legally expressed in HUF per GJ, tonnes and MWh, respectively.

This tax was abolished on 30 June 2017.

| From | To | Natural gas (HUF/MWh) | Coal (HUF/tonne) | Electricity (HUF/MWh) |
|---|---|---|---|---|
| 01.01.04 | 31.12.07 | 202 | | 186.0 |
| 01.01.08 | 31.12.09 | 272 | | 252.0 |
| 01.01.10 | 31.12.14 | 290 | 2390 | 295.0 |
| 01.01.15 | 31.12.16 | 306 | 2516 | 310.5 |
| 01.01.17 | 30.06.17 | 303.8 | 2516 | 310.5 |

### *Carbon tax*

Currently there is no carbon tax in Hungary.



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### *Stockholding fee (Készletezési díj)*

A strategic stockholding fee has been levied on liquid fuels sales in Hungary since 1 January 2003. The revenue from this fee is used to cover the cost of maintaining the country's strategic reserves.

On 1 January 2004, this fee was extended to natural gas sales to support the stockpiling of this fuel.

### *Other electricity taxes*

In addition to the energy tax, three additional tax components are levied on electricity sales to industry.

On 1 January 2008, a fee to support the restructuring of the coal industry ("coal cent") was introduced. Simultaneously, a second fee was introduced to support the reduced electricity prices granted to pensioners and employees of the electricity industry.

On 1 January 2011, a third fee on electricity sales to end-users was introduced to support new cogeneration units ("cogeneration restructuring fee").

From 1 January 2019, the "coal cent" is reduced to zero.

VAT is not levied on these three components. From 1 January 2013, all taxes in electricity (including the energy tax) have applied to industrial users only.

In July 2022, the Hungarian government decreed the creation of a special natural gas reserve (about 750 million m3).

To create and maintain the special natural gas stock, a new special natural gas stockholding fee was introduced, which must be paid after natural gas consumption in the winter period of 2022-23. The special member contribution was introduced in addition to the "normal" security storage fee (HUF 179.95/MWh). Its fee between October 1, 2022 and December 31, 2022 is HUF 726.42/MWh.

| From | To | Heavy fuel oil (HUF/tonne) | Automotive diesel (HUF/l) | Gasoline (HUF/l) | Natural gas (HUF/MWh) |
|---|---|---|---|---|---|
| 01.01.03 | 31.07.03 | 2 750 | 3.237 | 3.289 | |
| 01.08.03 | 31.12.03 | 3 025 | 3.237 | 3.289 | |
| 01.01.04 | 30.06.04 | 3 025 | 3.237 | 3.289 | |
| 01.07.04 | 31.12.07 | 3 025 | 2.988 | 2.977 | |



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| From | To | Heavy fuel oil (HUF/tonne) | Automotive diesel (HUF/l) | Gasoline (HUF/l) | Natural gas (HUF/MWh) |
|---|---|---|---|---|---|
| 01.01.08 | 31.08.09 | 2 500 | 2.573 | 2.646 | |
| 01.09.09 | 30.09.09 | 2 750 | 2.830 | 2.911 | |
| 01.10.09 | 31.12.09 | 3 075 | 3.166 | 3.256 | |
| 01.01.10 | 31.12.11 | 3 075 | 3.166 | 3.256 | |
| 01.10.11 | 31.12.14 | 3 075 | 3.205 | 3.300 | 196.00 |
| 01.01.15 | 31.05.15 | 1 275 | 1.405 | 1.500 | 211.00 |
| 01.06.15 | 30.04.16 | 1 275 | 1.405 | 1.500 | 232.00 |
| 01.05.16 | 30.09.16 | 1 275 | 1.405 | 1.500 | 255.00 |
| 01.10.16 | 31.12.16 | 1 275 | 1.405 | 1.500 | 303.00 |
| 01.01.17 | 30.09.17 | 1 486 | 1.616 | 1.725 | 365.00 |
| 01.10.17 | 31.12.17 | 1 486 | 1.616 | 1.725 | 328.24 |
| 01.01.18 | 31.12.19 | 2.303 | 2.505 | 2.674 | 292.13 |
| 01.01.20 | 31.05.20 | 2.303 | 2.505 | 2.674 | 257.07 |
| 01.06.20 | 31.12.21 | 2.303 | 3.883 | 4.145 | 257.07 |
| 01.01.22 | 01.07.22 | 2.303 | 3.883 | 4.145 | 179.95 |
| 01.07.22 | 30.09.22 | 2.303 | 0.1864 | 0.1990 | 179.95 |
| 01.10.22 | 31.12.22 | 2.303 | 0.1864 | 0.1990 | 179.95 |

| From | To | Coal cent (HUF/MWh) | Support for reduced electricity prices to pensioners and employees of the electricity industry (HUF/MWh) | Cogeneration restructuring fee (HUF/MWh) |
|---|---|---|---|---|
| 01.01.08 | 31.12.08 | 225 | 110 | |
| 01.01.09 | 31.12.09 | 200 | 120 | |
| 01.01.10 | 31.12.10 | 230 | 90 | |
| 01.01.11 | 03.04.13 | 190 | 70 | 1200 |
| 04.04.13 | 31.10.13 | 80 | 70 | 1310 |
| 01.11.13 | 31.12.14 | 170 | 200 | 1710 |
| 01.01.15 | 31.12.15 | 210 | 130 | 2080 |
| 01.01.16 | 31.12.16 | 250 | 70 | 1750 |



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| From | To | Coal cent (HUF/MWh) | Support for reduced electricity prices to pensioners and employees of the electricity industry (HUF/MWh) | Cogeneration restructuring fee (HUF/MWh) |
|---|---|---|---|---|
| 01.01.17 | 22.12.17 | 160 | 100 | 1750 |
| 23.12.17 | 31.12.18 | 50 | 90 | 810 |
| 01.01.19 | now | 0 | 80 | 810 |

## Energy taxation database methodology

The VAT (ÁFA) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the rates applied within each year weighted for the number of days.

Regarding excise taxes, residential users are exempt of all taxes applicable to natural gas, electricity and coal. The use of natural gas and coal for electricity generation is also exempt of all excise taxes applied at national level.

Energy Supply Security tax comprises the Stockholding fee (Készletezési díj), levied on liquid fuels since 2003 and on natural gas since 2004. The yearly values applied to heavy fuel oil, diesel, gasoline and natural gas are estimated as the average of the different values applied for each year weighted for the number of days. Specific values for kerosene and LPG are not provided.

Social tax includes a tax component introduced in electricity sales for industry to support the reduced electricity prices granted to pensioners and employees of the electricity industry. It is assumed that electricity purchases for industry are subject to a social tax since 2008. The yearly values are estimated as the average of the different values applied for each year weighted for the number of days.

Other taxes comprise the remaining excise taxes and levies applied to the different energy products, including: Excise duties, Energy tax and Additional fees to electricity sales to industry. Energy tax (Energiaadó) was applicable to natural gas, coal and electricity, being substituted by the Excise duties in July 2017. Excise duties (Jövedéki adó) are applicable to oil products, natural gas, coal and electricity. Additional fees to electricity sales to industry include “coal cent” and “cogeneration restructuring fee”. The values for each component are estimated as the average of the values applied for each year weighted for the number of days. The total value applied to the different energy products is estimated as the sum of



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the different individual components applied to the different products and consumer sectors.

# Product specifications

## Oil products

| | Low sulphur fuel oil | Automotive diesel | Premium unleaded (97 RON) gasoline | Premium unleaded (95 RON) gasoline |
|---|---|---|---|---|
| Density (kg/l) | 0.973 | 0.83 | 0.72 - 0.75 | 0.72 - 0.75 |
| Sulphur content (%) | <1 | <0.001 | | |
| Lead content (g/l) | | | <0.005 | <0.005 |
| NCV (kcal/kg) | | 10 221 | | |

## Natural gas and coal

| | Natural gas | Steam coal *industry* | Steam coal *electricity generation* | Steam coal *households* |
|---|---|---|---|---|
| Quality | | Lignite | | |
| NCV (kcal/kg) | | 3 323 | 1 643 | 3 078 |
| GCV (kcal/$m^3$) | 9 221.8 | | | |



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# Iceland

## Sources

Prices for transport fuels, light fuel oil, and electricity in households (up to 2Q2016) are extracted from **Statistics Iceland's** website.

Retail energy price indices and electricity for households (from 2Q2016 onwards) are derived from data extracted from the **Eurostat** website.

## Data collection methodology

### Oil products

Quarterly end-use prices refer to the first month of the quarter. From year 2008 onwards, prices for transport fuels and light fuel oil are collected in the middle of the reference month. Prior to year 2008, prices were collected on the first two days of the month.

Annual prices are the average of the quarterly data.

### Electricity

Quarterly end-use prices refer to the first month of the quarter. From year 2008 to 2Q2016, prices for electricity in households are collected in the middle of the reference month. Prior to year 2008, prices were collected on the first two days of the month.

Prices for electricity in households refer to Reykjavik (up to 2Q2016).

From 1Q2017 onwards, prices refer to the Eurostat consumption bands weighted by annual consumption.

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated by subtracting prices excluding taxes from prices including non-VAT taxes, as published by Eurostat.

Annual prices are the average of the quarterly data.



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### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) produced by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the "*liquid fuels"* (cp0453) and "*fuels and lubricants for personal transport equipment"* (cp0722) series. The relative weights used for the calculations are taken from the associated item weights series (*prc_hicp_inw*), published by Eurostat.

Retail indices for electricity refer to the "***electricity"*** (cp0451) series.

## Energy taxation

### VAT

VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry, electricity generation and automotive fuels for commercial use.

There are two VAT rates (*virðisaukaskattur*) in Iceland: general and reduced. Transport fuels are taxed at the general rate. Fuel oil and electricity for space heating are taxed at the reduced rate.

| From | To | General % | Reduced % |
|---|---|---|---|
| 01.01.10 | 31.12.14 | 25.5 | 7 |
| 01.01.15 | now | 24 | 11 |

### Excise tax

The legislation for excise taxes, introduced in Iceland in 1987, is embedded in a number of acts depending on product category.

#### *Tax applicability table (not exhaustive)*

| | LFO | Diesel | Gasoline | Electricity |
|---|---|---|---|---|
| General excise tax | | x | x | |
| Supplementary road tax | | x | x | |
| Carbon tax | x | x | x | x |



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| | LFO | Diesel | Gasoline | Electricity |
|---|---|---|---|---|
| Energy tax | | | | x |

### *General excise tax (Almennt vörugjald af eldsneyti)*

The general excise tax is one of two excise taxes in Iceland applicable to transport fuels and governed by Act No. 29/1993 Law on Excise Tax on Vehicles, Fuel, etc. (*Lögum nr. 29/1993 Lög um vörugjald af ökutækjum, eldsneyti o.fl.*). Light fuel oil used for heating in households is exempted from this tax.

### *Supplementary road tax (Sérstakt vörugjald af eldsneyti)*

The supplementary road tax is the second excise tax applicable to transport fuels. Revenues from this tax are used for road construction and maintenance.

### *Carbon tax (Kolefnisgjald á fljótandi jarðefnaeldsneyti)*

The carbon tax, introduced in 2010, is an environmental tax applicable to transport fuels, fuel oil, aviation fuels, electricity and hot water. It is governed by the Environmental and Natural Resources Tax Act *(Lög um umhverfis- og auðlindaskatta).*

### *Energy tax (Skattur af raforku og heitu vatni)*

The energy tax, introduced in 2010, is an environmental tax applicable to sales of electricity and hot water. It is governed by the Environmental and Natural Resources Tax Act (*Lög um umhverfis- og auðlindaskatta).*

## Energy taxation database methodology

The VAT applies to transport fuels, fuel oil and electricity. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The reduced rate is applied to fuel oil and electricity for space heating, which is assumed as corresponding to the use of fuel oil and electricity by residential users. The yearly applicable rates are estimated as the average of the rates applied within each year weighted for the number of days.

Environmental tax comprises the Energy tax (Skattur af raforku og heitu vatni) and the Carbon tax (Kolefnis-gjald á fljótandi jarðefnaeldsneyti). The first is applicable



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to electricity and hot water sales; the second is applicable to transport fuels, fuel oil, electricity and hot water. Specific values are not provided.

As a Carbon tax is applicable to different energy products, this applicability is also considered under the Carbon category, since 2010. The specific values are not provided.

# Product specifications

## Oil products

| | Premium unleaded (95 RON) gasoline |
|---|---|
| Quality | Blýlaust bensín |
| Density (kg/l) | |
| Sulphur content (%) | <.001 |
| Lead content (g/l) | <0.005 |
| NCV (kcal/kg) | |
| GCV (kcal/$m^3$) | |
| Delivery size (l) | |



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# Ireland

## Sources

Data for all energy products, including energy price indices, are provided on a quarterly basis by the **Sustainable Energy Authority of Ireland** (**SEAI**).

## Data collection methodology

From 2Q2000 onwards, prices refer to mid-month, averaged over three months. From 4Q1985 to 1Q2000, prices refer to the second month of each quarter. Prior to 4Q1985, prices refer to the first month of each quarter.

### Oil products

For heavy fuel oil for electricity generation, prices refer to fuel purchased in the quarter, from 1Q2009 onwards. Prices refer to list prices per litre converted to tonnes with all taxes included. Discounts are not included in these prices and may be applied by the companies.

For fuel oil for industry, prices refer to average prices, from 2Q2016 onwards. Discounts and rebates are not accounted for in the prices but may be applied by the companies. From 1Q1983 to 1Q2016, prices take into account the average rebate for medium-sized industries. Prior to 1Q1983, prices shown are maximum prices.

For fuel oil for households, prices refer to average prices, from 2Q1984 onwards. A large number of Irish home heating oil is kerosene rather than heating gasoil. The final prices are calculated based on domestic kerosene prices taken from www.cheapestoil.ie, a website that covers the whole of Ireland. The difference between list prices for kerosene and gasoil, provided on a voluntary basis by two large oil companies, is added to the calculated average kerosene price to determine average prices.

For automotive diesel and gasoline, end-use prices refer to the retail pump prices displayed at the filling stations, including all taxes. Data is national average retail weekly price supplied by one oil company.

Price control mechanisms for transport fuels were abolished on 1 October 1991. The obligation for retailers to buy 20% of fuels from domestic refineries was abolished in July 2001.



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## Natural gas

From 2Q1983 onwards, prices refer to Dublin and other areas in line with the historic expansion of the gas grid. Prior to 2Q1983, prices refer to Cork city, the only area with natural gas at the time.

For industry, prices refer to average revenues per MWh for all industrial and commercial sales.

For electricity generation, prices refer to the average expenditure of electrical power plants on gas purchased for public supply. These prices are currently confidential.

For households, prices refer to the average revenues per MWh, including standing charges.

All natural gas suppliers in the country are surveyed every quarter.

## Steam and coking coal

Steam coal prices for households are collected quarterly under the SEAI Fuel Cost Comparison Survey, which covers major coal suppliers only and includes all applicable taxes and levies. Domestic sales of coal are collected monthly through a survey conducted under the EU Energy Statistics Regulation and used as weights to calculate average quarterly and annual prices. Ex-tax prices are calculated by subtracting VAT and the applicable excise taxes from the end-use prices.

Steam coal prices for households refer to the average price for coal delivered to households in Dublin. The type of coal varies over time according to supply. Blended coal types also occur. From 1 September 1990 onwards, bituminous coal is banned from sale in the Dublin area.

Since 2009, there is only one power plant in Ireland using steam coal for electricity generation and prices are therefore confidential.

## Electricity

Prices of electricity are weighted averages of the prices charged by suppliers, using suppliers' market shares as weights. All electricity suppliers in the country are surveyed every quarter.

Electricity prices for industry refer to average revenues per MWh received by utilities from all high-voltage consumers (all industrial sectors).



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Electricity prices for households refer to average revenues per MWh received by utilities from all low-voltage consumers. For Q2 2022 a rebate of 200 euros per household was included.

### Energy price indices

Quarterly wholesale indices are calculated by summing the indices for the three months in each quarter and calculating an average index.

Quarterly retail indices refer to those of mid-February, mid-May, mid-August, and mid-November of each year.

Annual indices are averages of the four quarters of the year.

Wholesale and retail indices for oil products include domestic heating oil, gasoline, automotive diesel and motor oil. Automotive LPG is included up to December 2001.

Retail prices for electricity, natural gas and coal refer to prices for households.

## Energy taxation

### VAT

VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use. A higher VAT rate applies to automotive diesel and gasoline sales.

VAT rate for Gas and Electricity bills was reduced from 13.5% to 9% from May 2022 until the end of October 2022.

| From | To | General % | Automotive diesel Gasoline % |
|---|---|---|---|
| 01.03.91 | 31.12.00 | 12.5 | 21.0 |
| 01.01.01 | 28.02.02 | 12.5 | 20.0 |
| 01.03.02 | 31.12.02 | 12.5 | 21.0 |
| 01.01.03 | 30.11.08 | 13.5 | 21.0 |
| 01.12.08 | 31.12.09 | 13.5 | 21.5 |
| 01.01.10 | 31.12.11 | 13.5 | 21.0 |
| 01.01.12 | 31.08.20 | 13.5 | 23.0 |



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| From | To | General % | Automotive diesel Gasoline % |
|---|---|---|---|
| 01.09.20 | 28.02.21 | 13.5 | 21.0 |
| 01.03.21 | 30.04.22 | 13.5 | 23.0 |
| 01.05.22 | Now | 9 Gas & Electricity<br>13.5 general VAT rate | 23.0 |

## Excise tax

Excise taxes on commercial energy products in Ireland are levied in accordance with the 2003 EU Energy Taxation Directive.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Mineral oil tax | × | × | × | × | × | | | | |
| NORA levy | × | × | × | × | | | | | |
| Natural gas carbon tax | | | | | | × | | | |
| Solid fuel carbon tax | | | | | | | × | × | |
| Electricity tax | | | | | | | | | × |

### *Mineral oil tax*

Excise duties levied on the sale of mineral oils in Ireland are legally defined in Chapter 1 of Part 2 of the Finance Act 1999. This tax came into force on 1 January 2000.

Currently, the rates for each oil product covered by this tax consist of a non-carbon component and a carbon charge. The effective rates are the sum of both components.

The carbon component of this tax was introduced for gasoline and diesel on 10 December 2009. The tax was subsequently extended to all other non-transport oil products on 1 May 2010.



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil *households* (EUR/1000l) | Light fuel oil *industry* (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) |
|---|---|---|---|---|---|---|
| 07.12.00 | 05.12.01 | n.a. | n.a. | 32.12 | 0.249 | 0.349 |
| 06.12.01 | 04.12.02 | n.a. | n.a. | 32.12 | 0.302 | 0.401 |
| 05.12.02 | 03.12.03 | n.a. | n.a. | 32.12 | 0.327 | 0.401 |
| 04.12.03 | 14.10.08 | n.a. | n.a. | 32.12 | 0.368 | 0.443 |
| 15.10.08 | 08.04.09 | n.a. | n.a. | 32.12 | 0.368 | 0.509 |
| 09.04.09 | 09.12.09 | n.a. | n.a. | 32.12 | 0.409 | 0.509 |
| 10.12.09 | 30.04.10 | n.a. | n.a. | 37.36 | 0.449 | 0.543 |
| 01.05.10 | 07.12.10 | n.a. | 88.66 | 88.66 | 0.449 | 0.543 |
| 08.12.10 | 06.12.11 | n.a. | 88.66 | 88.66 | 0.466 | 0.576 |
| 07.12.11 | 30.04.12 | n.a. | 88.66 | 88.66 | 0.479 | 0.588 |
| 01.05.12 | 08.10.19 | 80.74 | 102.28 | 102.28 | 0.479 | 0.588 |
| 09.10.19 | 30.04.20 | 80.74 | 102.28 | 102.28 | 0.495 | 0.602 |
| 01.05.20 | 13.10.20 | 100.28 | 117.78 | 117.78 | 0.495 | 0.602 |
| 14.10.20 | 30.04.21 | 100.28 | 117.78 | 117.78 | 0.515 | 0.619 |
| 01.05.21 | 12.10.21 | 124.5 | 138.17 | 138.17 | 0.515 | 0.619 |
| 13.10.21 | 31.03.22 | 124.5 | 138.17 | 138.17 | 0.535 | 0.637 |
| 01.04.22 | 30.04.22 | 124.5 | 120.55 | 120.55 | 0.405 | 0.466 |
| 01.05.22 | 11.10.22 | 148.88 | 111.14 | 111.14 | 0.405 | 0.466 |
| 12.10.22 | now | 148.88 | 111.14 | 111.14 | 0.425 | 0.483 |

### *NORA levy*

The National Oil Reserves Agency (NORA) was established as a standalone agency under the NORA Act 2007. Its function is to arrange for the holding of national strategic oil stocks at a level determined annually by the Ministry, for supply in an emergency.

The levy is paid by oil marketing companies and oil consumers on their relevant disposals of oil products in the State. Currently the NORA levy applies to most oil products except LPG.

Historically averaging 0.00476 EUR/l, the levy was increased to 0.01 EUR/l on 1 November 2007 and to 0.02 EUR/l on 1 October 2009. A temporary reduction to 0.001 EUR/litre was introduced from 12/10/2022 - 28/3/2023.



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### *Natural gas carbon tax*

The natural gas carbon tax in Ireland is legally defined in Chapter 2 of Part 3 of the Finance Act 2010 (as amended). The Natural Gas Carbon Tax Regulations 2010 deal with administration aspects of the tax. This tax came into force on 1 May 2010.

The current tax rate is derived from the rate of 41 EUR per tonne of $CO_2$ emitted that has been applied to fuels.

Natural gas for electricity generation, chemical reductions, and electrolytic and metallurgical processes is exempted from this tax.

A partial relief from the tax is granted for natural gas delivered for use in an installation that is covered by a greenhouse gas emissions permit issued by the Environmental Protection Agency (EPA).

| From | To | Natural gas (EUR/MWh, GCV) |
|---|---|---|
| 01.05.10 | 30.04.10 | 2.77 |
| 01.05.12 | 30.04.13 | 3.70 |
| 01.05.13 | 30.04.14 | 3.70 |
| 01.05.14 | 30.04.20 | 3.70 |
| 01.05.20 | 30.04.21 | 4.71 |
| 01.05.21 | 30.04.22 | 6.06 |
| 01.05.22 | now | 7.41 |

### *Solid fuel carbon tax*

The Solid fuel gas carbon tax in Ireland is legally defined in Chapter 2 of Part 3 of the Finance Act 2010, and amendments. This tax came into force on 1 May 2013.

The current tax rate is derived from the rate of 41 EUR per tonne of $CO_2$ emitted that generally applies to fuels.

Coal used for electricity generation is exempt from this tax.

A partial relief from the tax is granted for coal used in an installation that is covered by a greenhouse gas emissions permit issued by the Environmental Protection Agency (EPA).



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| From | To | Coal (EUR/tonne) |
|---|---|---|
| 01.05.10 | 30.04.10 | |
| 01.05.12 | 30.04.13 | |
| 01.05.13 | 30.04.14 | 26.33 |
| 01.05.14 | 30.04.20 | 52.67 |
| 01.05.20 | 30.04.21 | 68.48 |
| 01.05.21 | 30.04.22 | 88.23 |
| 01.05.22 | now | 107.98 |

### *Electricity tax*

The Electricity tax in Ireland is legally defined in Chapter 1 of Part 2 of the Finance Act 2008 (as amended). This tax came into force on 1 October 2008.

Electricity used in households and chemical reduction, in electrolytic or metallurgical processes, is exempted from this tax.

| From | To | Electricity *industry* (EUR/MWh) |
|---|---|---|
| 01.10.08 | 31.12.19 | 0.5 |
| 01.01.20 | now | 1.0 |

## Energy taxation database methodology

The VAT applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. A higher rate is applied to diesel and gasoline sales. The yearly applicable rates are estimated as the average of the rates applied within each year weighted for the number of days.

In Ireland, the Environmental tax is equivalent to the Carbon tax. They both comprise the Natural gas and Solid fuel carbon tax and a carbon component from the Mineral Oil tax. Natural gas carbon tax applies to natural gas sales, ex-cept for electricity generation and some industrial processes. Similarly, the Coal carbon tax applies to all coal sales, with exception of the sales for electricity generation. The Mineral Oil tax applies to transport fuels since 2009 and to other oil products since 2010. The values for the first two are estimated as the average of the specific values applied for each year weighted for the number of days. The values for the carbon component of the Mineral Oil tax are not provided.



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Energy Supply Security tax comprises the National Oil Reserves Agency (NORA) levy, as this is applied to hold national strategic oil stocks. This tax applies to all oil products, except to LPG. The yearly values are estimated as average of the values applied for each year weighted by the number of days.

Other taxes comprise the remaining excise taxes and levies applied to the different energy products, including: the Mineral oil tax and the Electricity tax. The first came into force on 1 January 2000 and applies to all oil products. Electricity tax applies to electricity consumption since 2008, with the exception of residential users and some industrial processes which are exempt. The yearly values of both taxes are estimated as averages of the specific values applied for each year weighted for the number of days.

## Product specifications

| | High sulphur fuel oil | Light fuel oil *industry* | Natural gas | Coking coal |
|---|---|---|---|---|
| Quality | Heavy fuel oil with sulphur content of 1% or higher. | | | Smokeless coal |
| Density (kg/l) | 0.94 | 0.845 | | |
| Sulphur content (%) | > 1 | | | |
| Lead content (g/l) | | | | |
| NCV (kcal/kg) | 9 849 | 10 344 | | |
| GCV (kcal/$m^3$) | | | 9 412 | |
| Delivery size | 25 tonnes | ≥ 5 000 l | | |



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# Israel

## Sources

Data for all energy products are provided on a quarterly basis by the **Central Bureau of Statistics (CBS)**.

## Data collection methodology

The statistical data for Israel are supplied by and on the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

The electricity sector is dominated by one company, the Israel Electric Corporation (IEC), which produces about 90% of the country's electricity. Additionally, some smaller power companies purchase electricity from or sell it to the IEC, or to final consumers.

Prices for heavy fuel oil, steam coal and natural gas for electricity generation are based on IEC reports, which provide the best available estimate since no supply side data are available.

### Oil products

For heavy fuel oil for electricity generation, prices are based on a quarterly report by the IEC.

The IEC used to be the main user of heavy fuel oil in Israel. As of 2004, following the beginning of natural gas supply, natural gas gradually replaced fuel oil and gas oil for electricity generation. This trend was interrupted in two years: 2011 due to the interruption of imports; and 2012 because of depletion of the fields (see the section on natural gas below). As of 2013, once natural gas supply began from new fields, no major consumption of heavy fuel oil was expected for electricity generation by the IEC. Minor quantities of fuel oil are expected to be used for operational needs.

For premium leaded (96 RON) gasoline, prices are not available since 2009.

### Natural gas

Natural gas is used primarily for electricity generation, and the IEC is its main consumer.



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Production and supply began in February 2004. Imports from Egypt started in May 2014. Since March 2012, following supply interruptions, imports from Egypt ceased. During 2012, there was a depletion of Israeli fields leading to a severe supply shortage. From 2013 onwards, the shortage was partially replaced by imports of liquefied natural gas (LNG). As of 2013, natural gas supply began from new Israeli fields and has been growing constantly since then. As of 2017, natural gas export began from Israel to neighboring countries.

### Steam and coking coal

Coal is used almost entirely for electricity generation by the IEC.

### Electricity

Electricity prices for industry and households are calculated by CBS based on the proportion of electricity sold by the IEC each month.

There are no prices available for electricity sold by small electricity producers, either to industry or to households.

## Energy taxation

### VAT

VAT *(מ"מע)* applies to all energy products since its introduction in 1976. The VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.08.82 | 31.05.85 | 15.0 |
| 01.06.85 | 30.09.85 | 17.0 |
| 01.10.85 | 28.02.90 | 15.0 |
| 01.03.90 | 31.12.90 | 16.0 |
| 01.01.91 | 31.12.92 | 18.0 |
| 01.01.93 | 14.06.02 | 17.0 |
| 15.06.02 | 29.02.04 | 18.0 |
| 01.03.04 | 31.08.05 | 17.0 |
| 01.09.05 | 30.06.06 | 16.5 |



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| From | To | % |
|---|---|---|
| 01.07.06 | 30.06.09 | 15.5 |
| 01.07.09 | 31.12.09 | 16.5 |
| 01.01.10 | 31.08.12 | 16.0 |
| 01.09.12 | 01.06.13 | 17.0 |
| 02.06.13 | 30.09.15 | 18.0 |
| 01.10.15 | now | 17.0 |

## Excise tax

Excise taxation on commercial energy products consists of a single component.

Electricity consumption is not subject to excise taxation, but fuels used for electricity generation are, effectively functioning as a tax on electricity.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise taxes | × | × | × | × | × | × | × | × | |

### *Excise duties (בלו)*

Excise duties apply to oil products, natural gas and coal. Applicable rates are determined by the Customs and VAT department of the Ministry of Finance. In its current form, excise duties on commercial energy products are legally defined in the 2004 Law on Excise Duties on Fuels.

| From | To | Heavy fuel oil (NIS/ tonne) | Light fuel oil (NIS/ 1000l) | Automotive diesel (NIS/l) | Gasoline (NIS/l) | Automotive LPG (NIS/l) | Natural gas (NIS/ MWh) | Coal (NIS/ tonne) |
|---|---|---|---|---|---|---|---|---|
| 01.01.08 | 31.03.08 | 12.90 | 1683.93 | 1.6839 | | | 14.70 | |
| 01.04.08 | 30.06.08 | 12.95 | 1690.54 | 1.6905 | | | 14.76 | |
| 01.07.08 | 30.09.08 | 13.27 | 1731.85 | 1.7319 | | | 15.12 | |
| 01.10.08 | 31.12.08 | 13.55 | 2099.75 | 2.0998 | | | 15.44 | |
| 01.01.09 | 31.03.09 | 13.49 | 2089.94 | 2.0899 | | | 15.37 | |
| 01.04.09 | 30.06.09 | 13.39 | 2074.84 | 2.0748 | | | 15.26 | |



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| From | To | Heavy fuel oil (NIS/ tonne) | Light fuel oil (NIS/ 1000l) | Automotive diesel (NIS/l) | Gasoline (NIS/l) | Automotive LPG (NIS/l) | Natural gas (NIS/ MWh) | Coal (NIS/ tonne) |
|---|---|---|---|---|---|---|---|---|
| 01.07.09 | 30.09.09 | 13.64 | 2114.03 | 2.1140 | | | 15.55 | |
| 01.10.09 | 31.12.09 | 13.97 | 2500.51 | 2.5005 | | | 15.93 | |
| 01.01.10 | 31.03.10 | 14.00 | 2505.27 | 2.5053 | | | 15.96 | |
| 01.04.10 | 31.08.10 | 13.87 | 2481.46 | 2.4815 | | | 15.81 | |
| 01.09.10 | 31.12.10 | 14.16 | 2533.85 | 2.5339 | | | 16.14 | |
| 01.01.11 | 13.02.11 | 14.32 | 2764.68 | 2.7647 | 3.0855 | 0.0615 | 16.32 | 43.29 |
| 14.02.11 | 30.04.11 | 14.32 | 2764.68 | 2.7647 | 2.8855 | 0.0615 | 16.32 | 43.29 |
| 01.05.11 | 31.07.11 | 14.47 | 2794.29 | 2.7943 | 2.9165 | 0.0622 | 16.49 | 43.75 |
| 01.08.11 | 31.08.11 | 14.47 | 2794.29 | 2.7943 | 2.6492 | 0.0622 | 16.49 | 43.75 |
| 01.09.11 | 30.09.11 | 14.64 | 2827.00 | 2.8270 | 2.8634 | 0.0629 | 16.68 | 44.26 |
| 01.10.11 | 31.12.11 | 14.64 | 2827.00 | 2.8270 | 2.9506 | 0.0629 | 16.68 | 44.26 |
| 01.01.12 | 29.02.12 | 14.68 | 2835.18 | 2.8352 | 2.9591 | 0.0631 | 16.73 | 44.39 |
| 01.03.12 | 31.03.12 | 14.68 | 2835.18 | 2.8352 | 2.8799 | 0.0631 | 16.73 | 44.39 |
| 01.04.12 | 30.04.12 | 14.68 | 2835.18 | 2.8352 | 2.7426 | 0.0631 | 16.73 | 44.39 |
| 01.05.12 | 30.06.12 | 14.74 | 2846.08 | 2.8461 | 2.8407 | 0.0633 | 16.79 | 44.54 |
| 01.07.12 | 31.08.12 | 14.74 | 2846.08 | 2.8461 | 2.9705 | 0.0633 | 16.79 | 44.54 |
| 01.09.12 | 31.12.13 | 14.84 | 2865.16 | 2.8652 | 2.9904 | 0.0638 | 16.90 | 44.86 |
| 01.01.13 | 30.04.13 | 14.90 | 2876.06 | 2.8761 | 3.0018 | 0.0640 | 16.96 | 45.03 |
| 01.05.13 | 31.08.13 | 14.93 | 2882.22 | 2.8822 | 3.0082 | 0.0641 | 17.00 | 45.13 |
| 01.09.13 | 31.12.13 | 15.17 | 2928.11 | 2.9281 | 3.0561 | 0.0652 | 17.27 | 45.85 |
| 01.01.14 | 30.04.14 | 15.18 | 2930.98 | 2.9310 | 3.0591 | 0.0652 | 17.29 | 45.89 |
| 01.05.14 | 31.08.14 | 15.12 | 2919.51 | 2.9195 | 3.0472 | 0.0650 | 17.22 | 45.71 |
| 01.09.14 | 31.12.14 | 15.21 | 2936.72 | 2.9367 | 3.0651 | 0.0653 | 17.32 | 45.98 |
| 01.01.15 | 30.04.15 | 15.17 | 2928.12 | 2.9281 | 3.0561 | 0.0652 | 17.27 | 45.85 |
| 01.05.15 | 31.08.15 | 14.97 | 2890.15 | 2.8902 | 3.0165 | 0.0643 | 17.05 | 45.26 |
| 01.09.15 | 31.12.15 | 15.17 | 2928.18 | 2.9282 | 3.0562 | 0.0652 | 17.27 | 45.86 |
| 01.01.16 | 30.04.16 | 15.03 | 2901.85 | 2.9019 | 3.0287 | 0.0646 | 17.11 | 45.45 |
| 01.05.16 | 31.08.16 | 14.86 | 2869.67 | 2.8804 | 2.9951 | 0.0639 | 16.92 | 44.95 |
| 01.09.16 | 31.12.16 | 15.07 | 2910.62 | 2.8833 | 3.0379 | 0.0648 | 17.16 | 45.59 |



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| From | To | Heavy fuel oil (NIS/ tonne) | Light fuel oil (NIS/ 1000l) | Automotive diesel (NIS/l) | Gasoline (NIS/l) | Automotive LPG (NIS/l) | Natural gas (NIS/ MWh) | Coal (NIS/ tonne) |
|---|---|---|---|---|---|---|---|---|
| 01.01.17 | 30.04.17 | 14.98 | 2893.07 | 2.8931 | 3.0196 | 0.0648 | 17.06 | 45.32 |
| 01.05.17 | 31.08.17 | 14.99 | 2895.96 | 2.8959 | 3.0226 | 0.1194 | 17.08 | 45.37 |
| 01.09.17 | 31.12.17 | 14.96 | 2890.17 | 2.8901 | 3.0165 | 0.1191 | 17.05 | 45.28 |
| 01.01.18 | 31.08.18 | 15.02 | 2901.74 | 2.9017 | 3.0286 | 0.1196 | 17.12 | 45.46 |
| 01.09.18 | 31.12.18 | 15.17 | 2930.67 | 2.9307 | 3.0387 | | 17.29 | 45.91 |
| 01.01.19 | 30.04.19 | 15.2 | 2936.46 | 2.9365 | 3.06485 | | 17.32 | 46 |
| 01.05.19 | 31.08.19 | 15.23 | 2942.45 | 2.9425 | 3.0711 | | 17.36 | 46.09 |
| 01.09.19 | 31.12.19 | 15.25 | 2945.37 | 2.9454 | 3.07415 | | 17.38 | 46.14 |
| 01.01.20 | 01.05.20 | 15.25 | 2945.37 | 2.9454 | 3.07415 | | 17.38 | 46.14 |
| 01.05.20 | 31.08.20 | 15.23 | 2942.45 | 2.9425 | 3.0711 | | 17.36 | 46.09 |
| 01.09.20 | 31.12.20 | 15.15 | 2927.84 | 2.9278 | 3.05585 | | 17.27 | 45.86 |
| 01.01.21 | 30.04.21 | 15.15 | 2927.84 | 2.9278 | 3.05585 | | 17.27 | 102.92 |
| 01.05.21 | 31.08.21 | 15.26 | 2948.35 | 2.9483 | 3.07725 | | 17.39 | 103.64 |
| 01.09.21 | 31.12.21 | 15.44 | 2983.52 | 2.9835 | 3.11396 | | 17.60 | 104.88 |
| 01.01.22 | 30.04.22 | 15.52 | 2998.17 | 2.9981 | 3.12925 | | 17.69 | 105.40 |
| 01.05.22 | 31.08.22 | 15.79 | 2616.05 | 2.6161 | 2.74944 | | 18 | 1.02 |
| 01.09.22 | 31.12.22 | 16.2 5 | 2691.44 | 2.691 | 2.42138 | | 18.52 | 1.03 |
| 01.01.23 | now | 16.34 | 3125.39 | 3.12539 | 2.90127 | | 18.62 | 1.06 |

# Energy taxation database methodology

The VAT applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the rates applied within each year weighted for the number of days.

As no disaggregation of the excise duties is provided, these are assumed as Other taxes. The yearly values are estimated as the average of the different values applied for each year weighted for the number of days.



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# Italy

## Sources

Prices and taxes data for oil products are provided on a quarterly basis and prices for natural gas and electricity are provided biannually by the **Ministry of Economic Development**.

Retail energy price indices are based on data published by **Eurostat**.

## Data collection methodology

From 1Q1990 onwards, prices refer to weekly averages of the quarter. From 1Q1985 to 4Q1989 prices refer to the second month of each quarter. Prior to 1Q1985, prices refer to the first month of each quarter.

### Oil products

From May 1994 onwards, oil product prices are completely deregulated and set by oil companies. From May 1986 until April 1994, prices for gasoline and light fuel oil followed EU averages automatically, while fuel oil prices were free market prices.

For heavy fuel oil for electricity generation, prices are confidential from 4Q1996 onwards. Prior to 4Q1996, prices refer to the annual and quarterly average expenditure per tonne incurred by ENEL for all oil consumed (including transport).

For low sulphur fuel oil, light fuel oil, automotive diesel, premium unleaded (95 RON) gasoline and automotive LPG, end-use and ex-tax prices are collected by the reporting agency through a weekly survey of the ten largest oil companies in the country and a selection of fuel traders, independent operators and around thirty supermarkets with fuel selling facilities. Companies report their weekly weighted average prices based on sales volumes recorded for different modes of self-service.

Excise taxes are then calculated by the reporting agency as the subtraction of the ex-tax prices from the end-use prices, including VAT when applicable.

The surveyed sample is estimated to cover over 95% of all sales for each of the products. The market share of each company is based on quantities sold in the previous year, collected by the Ministry through a monthly survey on consumption of petroleum products in Italy.



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## Natural gas

Before the liberalisation of the gas market in Italy, the prices for natural gas sales were calculated in accordance with national agreements established between the Societá Nazionale Metanodotti (SNAM) and the most representative industrial association (Confindustria and Confapi).

As a result of liberalisation, new prices are negotiated between the different sellers and the buyers. Pricing systems are different for each seller but the access to public facilities (transmission networks, storages, liquefied natural gas (LNG) plants and local distribution networks) is regulated by tariffs determined based on criteria set by the Energy Regulator (*Autorità per l'energia elettrica e il gas*).

Data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Prices for industry, from 1Q2010 onwards, are calculated by the Ministry based on the disaggregated data transmitted by individual electricity sales company pursuant to the Italian Regulatory Authority for Energy, Networks and Environment Resolution 20 November 2008, ARG/elt 167/08 and subsequent amendments. Average prices are calculated as consumption-weighted averages of the average prices for each consumption band, which are consistent with the Eurostat methodology.

From 1Q2004 to 4Q2009, prices for industry refer to the weighted average of users with continuous contracts (*industria continuo*) and non-continuous contracts (*industria interrompibile*). Between 1Q2000 and 4Q2003, prices for industry were confidential. Prior to 4Q1999, prices for industry refer to the annual average revenues per MWh received by distributors from industry.

For households, tariffs charged by local distribution companies (LDCs) to companies that sell gas are determined on the basis of a procedure set by the Energy Regulator and have to be published by the LDCs. These prices differ from town to town. The commodity charge is updated every three months with reference to the average quotations of gasoil, LSFO and crude oil of the six months before the month of supply. Since January 2003, natural gas prices for households can be renegotiated by users. The Energy Regulator established a reference price that the selling company, previously acting as part of the local distribution company, must continue to offer to local customers unless they change their supplier.

Prices for households from 1Q2010 to 4Q2018, are calculated by the Ministry, based on the disaggregated data transmitted by individual natural gas sales companies pursuant to the Italian Regulatory Authority for Energy, Networks and



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Environment Resolution of 4 June 2009, ARG/gas 64/09 and subsequent amendments.

From 1Q2019 onwards, data are calculated by the Ministry, based on the disaggregated data transmitted by individual natural gas sales company pursuant to the Italian Regulatory Authority for Energy, Networks and Environment Resolution 29 March 2018, 168/2018/R/com. Average prices are calculated as consumption-weighted averages of the average prices per consumption band, which are consistent with the Eurostat methodology.

From 1Q2004 to 4Q2009, prices for households refer to the weighted average of all users. Prices between 1Q2000 and 4Q2003 were confidential. Prior to 4Q1999, annual prices refer to annual average revenues per MWh received by distributors from households.

Price and tax information for electricity generation is confidential since 1995.

The Italian Government has implemented extraordinary and temporary measures to contain the exceptional increases in energy prices with the allocation of resources from the State Budget. More precisely, the Government has adopted various measures starting from the second half of 2021, which were then continued and, in some cases, strengthened during 2022.

The measures began in 2021 with legislative decree 73/2021 and continued in the same year with legislative decree 130/2021. Further measures were then arranged for the current year, initially with the Budget Law for 2022 and then with the legislative decrees 4, 17, 21, 80, 115 and 144 of 2022. It was therefore possible to reduce or to set to zero the price components aimed to cover the general system charges in the electricity sector (ASOS and ARIM tariffs) and in the natural gas sector (RE, GS e UG3 tariffs) for household users and non-household users until 2022.

## Steam and coking coal

For steam coal for industry, prices refer to first month of each quarter, from 1Q1983 onwards. Prior to 1Q1983, prices refer to quarterly averages. Prices refer to the average import price including insurance and freight.

For steam coal for electricity generation, prices refer to half-yearly averages of hard coal imported from third countries, from 2002 onwards, generation. Prior to



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2000, prices refer to annual and quarterly average expenditure per tonne incurred by ENEL for consumption of steam coal (including transport).

Steam coal prices for households refer to the wholesale price in Milan.

Coking coal prices for industry refer to the average import price including insurance and freight.

## Electricity

From 1Q2008 to 4Q2018, data are calculated by the Ministry, based on the disaggregated data transmitted by individual electricity sales company pursuant to the Italian Regulatory Authority for Energy, Networks and Environment Resolution 20 November 2008, ARG/elt 167/08 and subsequent amendments.

From 1Q2019 onwards, data are calculated by the Ministry, based on the disaggregated data transmitted by individual electricity sales company pursuant to the Italian Regulatory Authority for Energy, Networks and Environment Resolution 29 March 2018, 168/2018/R/com.

Average prices are calculated as consumption-weighted averages of the average prices per consumption band, which are consistent with the Eurostat methodology.

Data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Until 4Q2007, prices for industry and households refer to annual average revenues received by ENEL Servizio Elettrico (ESE) from each consumer sector.

The Italian Government has implemented extraordinary and temporary measures to contain the exceptional increases in energy prices with the allocation of resources from the State Budget. More precisely, the Government has adopted various measures starting from the second half of 2021, which were then continued and, in some cases, strengthened during 2022.

The measures began in 2021 with legislative decree 73/2021 and continued in the same year with legislative decree 130/2021. Further measures were then arranged for the current year, initially with the Budget Law for 2022 and then with the legislative decrees 4, 17, 21, 80, 115 and 144 of 2022. It was therefore possible to reduce or to set to zero the price components aimed to cover the general system charges in the electricity sector (ASOS and ARIM tariffs) and in the natural gas sector (RE, GS e UG3 tariffs) for household users and non-household users until 2022.



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### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722) series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for natural gas refer to the *gas* (cp0452) series.

Retail indices for coal refer to the *solid fuel* (cp0454) series.

## Energy taxation

### VAT

VAT (*IVA*) applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

VAT is levied at a reduced rate for electricity consumption in the residential sector, as well as in agriculture, manufacturing and extractive activities.

The reduced VAT rate also applies, since 2008, to residential natural gas consumption below 480$m^3$/year, as well as in agriculture, manufacturing and extractive activities.

Under usual conditions, the VAT rate applied to gas consumption is:

- 10% for annual consumption up to 480 m3, and 22% over this threshold for household users;
- 10% for non-household users.

Starting from October 2021, the Italian Government has implemented extraordinary measures to contain the effects of gas price increases. Together with other measures, the Government temporarily reduced the VAT rate applicable to the supply of gas for civil and industrial uses to 5%, in the invoices issued for consumption of October, November and December 2021 (decree-law of 27 September 2021, no. 130, art. 2, paragraph 1, converted into Law n. 171/21).



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This reduction was then further extended to cover consumption until June 2022 (for the first quarter of 2022 with the budget law of December 30, 2021, no.234, paragraph 506, and for the second quarter of 2022 with the decree-law of March 1, 2022, no. 17, art. 2, paragraph 1 converted into Law n.34/2022).

The same reduction was then extended again to cover consumption until December 2022 (with the Legislative Decrees n. 80/2022 and n.115/2022).

| From | To | General % | Reduced % |
|---|---|---|---|
| 01.01.78 | 31.12.80 | 14 | |
| 01.01.81 | 31.12.82 | 15 | |
| 01.01.83 | 19.03.85 | 18 | |
| 20.03.85 | 31.07.88 | 18 | 10 |
| 01.08.88 | 30.09.97 | 19 | 10 |
| 01.10.97 | 16.09.11 | 20 | 10 |
| 17.09.11 | 30.09.13 | 21 | 10 |
| 01.10.13 | now | 22 | 10 |

## Excise tax

The legal framework in place in Italy is consistent with the 2003 EU Energy Taxation Directive.

A single indirect tax, referred to as the excise duty, is levied on consumption of oil products, natural gas, coal and electricity. Additional regional tax components on electricity were abolished on 1 April 2012. Additional regional tax components on natural gas consumption are still in place.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | × | | × |



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### *Excise duties (Accise)*

The current excise duty system in place for oil products, natural gas, coal and electricity in Italy was introduced by the Legislative Decree no.26 of 2 February 2007, which came in force on 1 June 2007.

For oil products, tax rates distinguish between final uses. The rates for heavy fuel oil shown in the tax tables at the end of section refer to light sulphur fuel oil (*olio combustibile BTZ*).

For natural gas, consumption by households in the south of Italy is taxed at a lower rate than in the rest of the country. This reduced rate covers the territories of the former Mezzogiorno Fund (*Cassa del Mezzogiorno*), as listed in Article 1 of the Presidential Decree no. 218 of 6 March 1978. Excise duty rates for natural gas used in industry are not regionalized. Tax rates for both industry and households vary for different consumption bands and are expressed in EUR/$m^3$.

In addition to the excise duties on natural gas, a regional component is levied in most regions of the country. These additional taxes cannot exceed 50% of the value of the national excise tax. Natural gas used for chemical reduction, metallurgical and mineralogical processes is exempt. Natural gas used for electricity production is taxed at a reduced rate.

Coal used for electricity generation is taxed at a rate of 2.60 EUR/tonne. Coal used in chemical reduction processed is exempt. Coke has the same tax treatment as coal.

For electricity in households, consumption below 150 kWh when capacity is below 3 kW is exempt from excise duties. The rates for electricity for households shown in the tax tables at the end of section refer to residential consumers with a monthly consumption exceeding 150 kWh.

For electricity in industry, the first 200 MWh of monthly electricity consumption are taxed proportionally to consumption. For users with a monthly consumption below 1 200 MWh, consumption beyond 200 MWh is taxed at a lower rate per MWh. For users with a monthly consumption exceeding 1 200 MWh, consumption beyond 200 MWh is taxed at a flat monthly fee amounting to 4 820 EUR as of November 2016. The rates for electricity for industry shown in the tax tables at the end of section refer to industrial consumers with a monthly consumption not exceeding 200 MWh.

Regional taxes on electricity, which had been levied in addition to the national tax, were abolished on 1 January 2012 for most regions. On 1 April 2012, regional



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taxes in the remaining autonomous provinces and special regional entities were abolished.

| From | To | Heavy fuel oil (EUR/ tonne) | Light fuel oil (EUR/ 1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) | Coal *industry* (EUR/ tonne) | Electricity *households* (EUR/ MWh) | Electricity *industry* (EUR/ MWh) |
|---|---|---|---|---|---|---|---|---|---|
| 01.01.09 | 05.04.11 | 31.39 | 403.21 | 0.423 | 0.564 | 0.125 | 4.6 | 4.7 | 3.1 |
| 06.04.11 | 27.06.11 | 31.39 | 403.21 | 0.430 | 0.571 | 0.125 | 4.6 | 4.7 | 3.1 |
| 28.06.11 | 30.06.11 | 31.39 | 403.21 | 0.470 | 0.611 | 0.125 | 4.6 | 4.7 | 3.1 |
| 01.07.11 | 31.10.11 | 31.39 | 403.21 | 0.472 | 0.613 | 0.125 | 4.6 | 4.7 | 3.1 |
| 01.11.11 | 31.12.11 | 31.39 | 403.21 | 0.481 | 0.622 | 0.125 | 4.6 | 4.7 | 3.1 |
| 01.01.12 | 31.05.12 | 31.39 | 403.21 | 0.593 | 0.704 | 0.147 | 4.6 | 22.7 | 12.1 |
| 01.06.12 | 07.06.12 | 31.39 | 403.21 | 0.593 | 0.704 | 0.147 | 4.6 | 22.7 | 12.5 |
| 08.06.12 | 10.08.12 | 31.39 | 403.21 | 0.613 | 0.724 | 0.147 | 4.6 | 22.7 | 12.5 |
| 11.08.12 | 28.14.14 | 31.39 | 403.21 | 0.617 | 0.728 | 0.147 | 4.6 | 22.7 | 12.5 |
| 01.03.14 | 31.12.14 | 31.39 | 403.21 | 0.620 | 0.731 | 0.147 | 4.6 | 22.7 | 12.5 |
| 01.01.15 | now | 31.39 | 403.21 | 0.617 | 0.728 | 0.147 | 4.6 | 22.7 | 12.5 |

## Energy taxation database methodology

The VAT (IVA) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. A reduced rate is considered for electricity consumption in the residential sector and industry. It is also considered a reduced rate for natural gas use in the residential sector and in industry, from 2008 onwards. The yearly applicable rates are estimated as the average of the rates applied within each year weighted for the number of days.

As no disaggregation of the excise duties is provided, these are assumed as Other taxes. The yearly values are estimated as the average of the different values applied for each year weighted for the number of days.



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# Product specifications

## Oil products

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Automotive LPG |
|---|---|---|---|---|---|---|---|
| Quality | Olio combustibile ATZ | Olio combustibile BTZ | Gasolio riscaldamento (Regime di sorveglianza "Fascia C") | Gasolio autotrazione | | | |
| Density (kg/l) | 0.94 - 0.97 | 0.94 - 0.97 | 0.82 - 0.84 | 0.82 - 0.84 | 0.72 - 0.76 | 0.72 - 0.76 | 0.549 |
| Sulphur content (%) | 3 – 4 | 1 | | | | | |
| Lead content (g/l) | | | | | ≤ 0.6 | ≤ 0.6 | |
| NCV (kcal/kg) | 9 600 | 9 800 | 10 210 | | | | |
| Delivery size | < 24 000 tonne/year | < 24 000 tonne/year | 2 – 5 kl | | | | |

## Natural gas and coal

| | Natural gas | Steam coal *industry* | Steam coal *electricity generation* | Steam coal *households* | Coking coal |
|---|---|---|---|---|---|
| Grain size | | | | | 0/30 mm |
| Volatile matter (%) | | | | | 21 |
| Ash content (%) | | 14 – 16 | | | 6 |
| Moisture content (%) | | | | | 5 |
| Sulphur content (%) | | 1 | | | 1 |
| NCV (kcal/kg) | | 6 162 | 5 900 | 5 900 | 6 650 |
| GCV (kcal/kg)* | 9 100 | 6 890 | | | 7 000 |

*kcal/m3 for natural gas.



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# Japan

## Sources

Prices and taxes data for all energy products are provided on a quarterly basis by the **Ministry of Economy, Trade and Industry (METI)**.

Wholesale price indices are extracted from the **Bank of Japan** website.

Retail price indices are extracted from the **Statistics Japan** website.

## Data collection methodology

### Oil products

For high and low sulphur fuel oil, prices for industry refer to arithmetical average prices based on surveys by METI in Tokyo, Osaka and Nagoya. Prices for heavy fuel oil for electricity generation refer to average annual expenditure per tonne incurred by nine major electric power companies.

For light fuel oil for industry and automotive diesel for commercial users, prices are collected by METI in a monthly survey covering around 1 500 filling stations throughout Japan. Quarterly and annual prices are calculated as arithmetical averages of the weekly data, excluding the top 2.5% and bottom 2.5% values.

For light fuel oil for households, gasoline and automotive diesel for non-commercial, prices users are derived from a weekly METI survey of approximately 2 000 filling stations throughout Japan. Quarterly and annual prices are calculated as arithmetical averages of the weekly data.

### Natural gas

As of 2014, natural gas sold in Japan was a mix of oil-based gas (3.4%) and natural gas (96.6%).

Prices are derived from fiscal year average revenues per MWh starting in April (i.e. 2015 data refer to April 2015 –March 2016). Prices are derived from data submitted by three major gas utilities from industry and households. Industry includes commercial and wholesale use.

### Steam and coking coal

For steam coal, prices from 1Q1995 onwards refer to imports. Prior to 1Q1995, prices refer to weighted averages of import prices and domestic prices. Prices are



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produced by METI based on monthly customs statistics of monthly average unit values and volumes for tariff positions 2701.12-099, 2701.19-010 and 2701.19-090.

Coking coal prices, from 1Q1990 onwards refer to imports. Prior to 1Q1990, prices refer to the weighted average of domestic and imported coking coal prices. Domestic prices refer to the average of various free-gate prices to major domestic steel mills, and were adjusted from an original fiscal year to a calendar year base. Prices are produced by METI based on monthly customs statistics stating monthly average unit values and volumes for tariff positions 2701.12-011, 2701.12 019, 2701.12-091 and 2701.12-092.

Coal consumed in the iron and steel sector is exempted from excise taxation, provided that companies file an application to the Japanese government. The prices shown in the tables do not consider this exemption, as the impact on the overall average cannot be calculated.

## Electricity

Prices shown for industry and households refer to fiscal years starting in April (i.e. 2015 data refer to April 2015 – March 2016). End-use prices are average revenues per MWh of the ten major electric power companies under contracts for "*power*" (industry and commercial) and for "*light*" (households).

After the liberalisation of the electricity market in 2000, large companies are able to purchase electricity directly in the open market. Prices shown do not take into account electricity purchases in the free market, however, the general electricity utility companies covered by survey are responsible for around 94% of total electricity sales as of May 2016.

Energy price indices

Annual indices are 12-month averages. Quarterly indices refer to the 3-month average.

Wholesale indices for oil products refer to petroleum products (Series PR'PRCG10_2200630001). Prior to 1Q2000, data refer to the domestic wholesale price index, petroleum products total. Retail indices for oil products refer to petroleum products.

Wholesale indices for electricity refer to electric power (Series PR'PRCG10_2202230001). Prior to 1Q2000, data refer to the domestic wholesale price index. Retail indices for electricity refer to electricity.



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Wholesale indices for natural gas refer to gas (Series PR'PRCG10_2202230002). Prior to 1Q2000, data refer to the domestic wholesale price index, gas for big users. Retail indices for natural gas refer to gas. Wholesale indices for coal refer to coal products (Series PR'PRCG10_2200640006).

# Energy taxation

## VAT

For the purposes of this publication, Consumption tax (消費税) is considered to be equivalent to the VAT of other OECD countries.

Introduced in 1989, the Consumption tax applies to all energy products and is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry and electricity generation and for automotive fuels for commercial use.

Consumption tax

| From | To | General % |
|---|---|---|
| 01.04.89 | 31.03.97 | 3 |
| 01.04.97 | 31.03.14 | 5 |
| 01.04.14 | 30.09.19 | 8 |
| 01.10.19 | now | 10 |

## Excise tax

In addition to the general consumption tax, energy taxation in Japan comprises several taxes that apply to specific commercial energy products based on their intended use.

The excise tax figures shown in this publication are the sum of the applicable taxes.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | Kerosene | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Petroleum and coal tax | × | × | × | × | × | × | × | | |



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| | HSFO/LSFO | Kerosene | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline and local gasoline tax | | | | × | | | | | |
| Diesel tax | | | × | | | | | | |
| LPG tax | | | | | × | | | | |
| Promotion of power resources development tax | | | | | | | | | × |

### *Petroleum and coal tax (石油石炭税)*

Introduced in 1978, the Petroleum and coal tax (when first introduced, this tax was called the Petroleum tax and didn't apply to coal, in 2003, it changed to current form.) applies to a number of energy carriers with differentiated rates for oil products, natural gas and coal. The tax revenue resulting from the application of this tax is meant to finance ensuring a stable fuel supply (including stockpiling of imported fuels), promoting energy efficiency and renewable energy.

This tax has some of exemptions, for example, coking coal used in companies in the iron and steel and the cement sectors is eligible for an exemption to this tax if they file an application to the Japanese government. Similarly, LSFO used in agriculture, fishing and forestry can be exempted. Coal used for electricity generation in the Okinawa prefecture is also exempted.

In October 2012, a special provision for the Tax for climate change mitigation, a $CO_2$ content based tax component, was introduced in the Petroleum and coal tax, based initially on a 95 JPY/tonne of $CO_2$ and progressively increased to reach 289 JPY/tonne of $CO_2$ in 2016.

The revenue from this tax component is earmarked for financing energy saving measures and greenhouse gas emissions reduction initiatives.

| From | To | Oil products (JPY/l) | LPG (JPY/l) | Natural gas (JPY/MWh) | Coal (JPY/tonne) |
|---|---|---|---|---|---|
| 01.10.03 | 31.03.05 | 2.040 | 0.448 | 65.70 | 230 |
| 01.04.05 | 31.03.07 | 2.040 | 0.5264 | 75.09 | 460 |
| 01.04.07 | 30.09.12 | 2.040 | 0.6048 | 84.48 | 700 |
| 01.10.12 | 31.03.14 | 2.290 | 0.7504 | 104.81 | 920 |



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| From | To | Oil products (JPY/l) | LPG (JPY/l) | Natural gas (JPY/MWh) | Coal (JPY/tonne) |
|---|---|---|---|---|---|
| 01.04.14 | 31.03.16 | 2.540 | 0.896 | 125.15 | 1140 |
| 01.04.16 | Now | 2.800 | 1.0416 | 145.49 | 1370 |

### *Gasoline tax and local gasoline tax (揮発油税 / 地方揮発油税)*

Introduced in 1957, the volatile oil tax, or Gasoline tax, applies to oil products with a specific gravity not exceeding 0.8017 at 15°C. The Gasoline Tax Act explicitly exempts kerosene sales from this tax, despite its physical properties being within the range of its application.

The resulting tax revenue is earmarked for the central government's general finances.

An additional component, referred to as the local gasoline tax, is levied simultaneously at a lower rate by the local administrations. The tax rate for this tax component is flat across the country and set through national legal instruments.

| From | To | Gasoline tax JPY/l | Local gasoline tax JPY/l |
|---|---|---|---|
| 01.06.79 | 30.11.93 | 45.6 | 8.2 |
| 01.12.93 | 31.03.08 | 48.6 | 5.2 |
| 01.04.08 | 30.04.08 | 24.3 | 4.4 |
| 01.05.08 | now | 48.6 | 5.2 |

### *Diesel tax (軽油引取税)*

Introduced in 1957, the light oil delivery tax, or diesel tax, applies to oil products with a specific gravity between 0.8017 and 0.8762 at 15°C. In contrast with other tax components, the diesel tax is not part of the base to calculate the consumption tax.

The revenue from this tax component is split equally between central and local government and is used for general finances.

| From | To | JPY/l |
|---|---|---|
| 01.06.79 | 30.11.93 | 24.3 |
| 01.12.93 | 31.03.08 | 32.1 |
| 01.04.08 | 30.04.08 | 15.0 |



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| From | To | JPY/l |
|---|---|---|
| 01.05.08 | now | 32.1 |

### *LPG tax (石油ガス税)*

Introduced in 1965, the petroleum gas tax, or LPG tax, applies specifically to LPG used for road transport. The resulting tax revenue is used for general government finances.

The law establishes a rate per kilogram and specifies that volume conversions should use a density of 0.56 kg/l for taxation purposes.

| From | To | JPY/l |
|---|---|---|
| 01.01.70 | now | 9.8 |

### *Promotion of power resources development tax (電源開発促進税)*

Introduced in 1974, the Promotion of power resources development tax applies specifically to electricity consumption in all sectors of the economy. The resulting tax revenue is used to encourage diversification in the power generation segment and to ensure safety of the neighbouring areas of power plants.

A flat rate applies to electricity consumption regardless of its use.

| From | To | JPY/MWh |
|---|---|---|
| 01.11.74 | 30.06.80 | 85 |
| 01.07.80 | 30.09.83 | 300 |
| 01.10.83 | 30.09.03 | 445 |
| 01.10.03 | 31.03.05 | 425 |
| 01.04.05 | 31.03.07 | 400 |
| 01.04.07 | now | 375 |

### *Carbon Taxation (炭素税)*

In October 2012, a special provision for the Tax for climate change mitigation, a $CO_2$ content-based tax component, was introduced in the Petroleum and coal tax, based initially on a 95 JPY/tonne of $CO_2$ and progressively increased to reach 289 JPY/tonne of $CO_2$ in 2016. This provision, together with other fuel excise taxes, amount to an effective carbon rate of JPY 4057 (2018FY).



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Japan has made clear to utilize carbon pricing which is conducive to growth, and carbon taxes, along with emission trading systems, are currently under professional and technical discussions on whether it is possible to design a system that will promote investment and contribute to growth in terms of both price signalling and revenue generation, while taking into account the added cost borne by companies.

## Energy taxation database methodology

The Consumption tax (消費税) is a VAT-equivalent tax that applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the rates applied within each year weighted for the number of days.

In Japan, Environmental tax and Carbon tax categories are equivalent, as they both comprise the Tax for climate change mitigation, introduced in 2012. As this tax applies to oil products, natural gas and coal, it is assumed that an Environmental/Carbon tax is applicable to this products from 2012 onwards. Specific yearly values were retrieved from documents published by the Japanese Ministry of the Environment.

Energy Supply Security tax comprises the Petroleum and Coal tax, as its revenue is meant to finance stockpiling of imported fuels in order to secure a stable and inexpensive supple in the country. It applies to oil products, natural gas and coal, with the exception of some industrial and agricultural processes and the use of coal for electricity generation in Okinawa prefecture. It was assumed that this tax applies to all energy products and consumer sectors, with the exception of the industry sector and the use of coal in electricity generation. The yearly applicable values are estimated as the average of the different values applied within each year weighted for the number of days.

The remaining taxes and levies are assumed as Other taxes, including: Gasoline tax (揮発油税), Diesel tax (軽油引取税), LPG tax (石油ガス税) and Promotion of power resources development tax (電源開発促進税). Local Gasoline taxes are not included. The yearly values for each of these taxes are estimated as the average of the different values applied for each year weighted for the number of days.



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# Product specifications

## Oil products

| | High sulphur fuel oil | Heavy fuel oil *electricity generation* | Low sulphur fuel oil | Light fuel oil *industry* | Kerosene *households* | Automotive LPG |
|---|---|---|---|---|---|---|
| Quality | Fuel oil C | | Fuel oil A | | Kerosene | |
| Density (kg/l) | 0.95 | 0.95 | 0.95 | | 0.8 | 0.56 |
| Sulphur content (%) | <3 | 0.66 | <1 | | | |
| Delivery size (l) | | | | 8 000 | 18 | |

## Natural gas and coal

| | Natural gas | Steam coal *industry* | Coking coal |
|---|---|---|---|
| Sulphur content (%) | | 0.71 | |
| NCV (kcal/kg) | | 6 139 | |
| GCV (kcal/kg)* | 11 000 | 5 375 | 6 928 |

*kcal/m3 for natural gas



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# Korea

## Sources

Prices and taxes data for oil products are provided on a quarterly basis by the **Korea National Oil Company (KNOC)**.

Natural gas and electricity prices are provided on a quarterly basis by the **Korea Energy Economics Institute (KEEI)**.

Energy price indices are collected from the **Bank of Korea** website.

## Data collection methodology

### Oil products

For premium and regular gasoline, automotive diesel, LPG and kerosene for households, end-use prices are collected using an electronic reporting system known as VAN (value-added network). Around 94% of the country's filling stations report their credit card transaction data through this system. After sorting and validation, the data are transmitted to the KNOC's servers. The rest of the country's filling stations use other data transmission methods such as the Automatic Response System (ARS) and a direct input on the KNOC's website. Prices data transmission to the KNOC, a public company, is an obligation for all oil product sellers under Korea's Oil Act. Therefore, average end-use prices include all oil product sellers in the country and are highly representative.

Ex-tax prices and tax components are subsequently derived by KNOC using the applicable tax rates, as set by the relevant legislation.

Distribution and production of light fuel oil for industry in Korea was banned by law on 1 July 2011.

### Natural gas

Ex-tax prices are derived from monthly revenues for natural gas sales to households and industry, provided by natural gas distribution companies throughout the country and published by the Korea City Gas Association in the *Monthly City Gas Statistics* and *Annual City Gas Statistics* reports.

Natural gas prices are based on the price tables and sales figures published by the Korea City Gas Association, which include the individual consumption tax.



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Therefore, ex-tax prices shown in the tables include the individual consumption tax.

Prices for households refer to individual and central heating but exclude natural gas used for cooking. Quarterly prices for households are computed using provisional values.

Prices for electricity generation are derived from monthly revenues for natural gas sold to electric utilities by the Korea Gas Corporation (KOGAS).

Quarterly prices for households from 1Q2001 to 4Q2012 are not available.

## Electricity

From 1Q1997 onwards, prices are derived from monthly revenues for electricity sales to industry and households, published by the Korea Electric Power Corporation (KEPCO) in its *Monthly Report on Major Electric Power Statistics*.

Quarterly prices for households from 1Q1997 to 4Q2002 are not available.

## Energy price indices

Quarterly and annual indices are computed as arithmetical averages of the relevant monthly indices, as published in the Bank of Korea's Economic Statistics System website.

Wholesale price indices for oil products refer to the Producer price indices (basic groups), refined petroleum products series. Retail price indices refer to the Consumer price indices (all cities), fuels and lubricants for personal transport equipment series, which include gasoline, diesel and automotive LPG.

Wholesale price indices for electricity refer to the *Producer price indices (basic groups), electric power* series. Retail price indices refer to the *Consumer price indices (all cities), electricity* series.

Wholesale price indices for natural gas refer to the *Producer price indices (item groups), natural gas* series. Retail price indices refer to the *Consumer price indices (all cities), city gas* series.

Wholesale price indices for coal refer to the *Producer price indices (basic groups), anthracite* series. Retail price indices refer to the *Consumer price indices (all cities), briquet* series.



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# Energy taxation

## VAT

According to the Restriction of Special Taxation Act, VAT (부가세) is refunded for purchases for commercial purposes such as the farming and fishing industry and electricity generation sectors. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

VAT was introduced on 1 July 1977 at a rate of 10%. In contrast with other OECD countries, where rates were revised upwards on several occasions in the last decades, the VAT rate in Korea has been kept constant since its introduction.

| From | To | General % |
|---|---|---|
| 01.07.77 | now | 10 |

## Excise tax

Depending on the product, fuels sales to end-users in Korea are subject to a series of taxes set at differential rates.

Electricity consumption in Korea is not taxed, but fuels used to generate electricity are. Fuels used to produce commercial heat are not taxed.

The excise tax columns in Tables 1, 2 and 3 is the sum of the applicable tax components.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | Kerosene | Diesel | Premium gasoline | Regular gasoline | LPG | Natural gas | Coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Transportation, energy and environment tax | | | × | × | × | | | | |
| Individual consumption tax | × | × | | | | × | × | × | |
| Education tax | × | × | × | × | × | × | × | × | |
| Motor fuel tax | | | × | × | × | | | | |
| Sales charges | | | | × | | × | | | |
| Electric power industry base fund | | | | | | | | | × |



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### *Transportation, energy and environment tax(교통·에너지·환경세)*

The transportation, energy and environment tax levied on gasoline and diesel sales is the largest excise tax component for these products. The revenue from this tax is earmarked for energy and transportation infrastructure and environmental protection, among others.

Established on 31 December 1993 by the Transportation, Energy and Environment Tax Law, this tax came into force on 1 January 1994. Rates for gasoline and diesel are expressed on a volume basis and are regularly updated through presidential decrees.

| From | To | Automotive diesel (KRW/l) | Gasoline (KRW/l) |
|---|---|---|---|
| 01.01.97 | 08.01.98 | 48 | 414 |
| 09.01.98 | 02.05.98 | 85 | 455 |
| 03.05.98 | 16.09.98 | 110 | 591 |
| 17.09.98 | 05.05.99 | 160 | 691 |
| 06.05.99 | 31.12.99 | 160 | 651 |
| 01.01.00 | 01.03.00 | 155 | 630 |
| 02.03.00 | 30.04.00 | 137 | 600 |
| 01.05.00 | 30.06.01 | 155 | 630 |
| 01.07.01 | 30.06.02 | 185 | 588 |
| 01.07.02 | 30.06.03 | 232 | 586 |
| 01.07.03 | 29.02.04 | 261 | 572 |
| 01.03.04 | 30.06.04 | 255 | 559 |
| 01.07.04 | 07.07.05 | 287 | 559 |
| 08.07.05 | 30.06.06 | 323 | 545 |
| 01.07.06 | 22.07.07 | 349.25 | 535 |
| 23.07.07 | 09.03.08 | 354.42 | 526 |
| 10.03.08 | 06.10.08 | 331.65 | 505 |
| 07.10.08 | 31.12.08 | 324.72 | 472 |
| 01.01.09 | 20.05.09 | 358.54 | 462 |
| 21.05.09 | 18.11.09 | 369.38 | 514 |
| 19.11.09 | 31.12.09 | 369.38 | 529 |



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| From | To | Automotive diesel (KRW/l) | Gasoline (KRW/l) |
|---|---|---|---|
| 01.01.10 | 31.12.11 | 367.5 | 529 |
| 01.01.12 | 05.11.18 | 375 | 529 |
| 06.11.18 | 06.05.19 | 319 | 450 |
| 07.05.19 | 31.08.19 | 349 | 492 |
| 01.09.19 | now | 375 | 529 |

### *Individual consumption tax (개별소비세)*

The individual consumption tax was introduced on 22 December 1976 and came into effect on 1 July 1977. Currently, it is levied on kerosene, heavy fuel oil, LPG, coal and natural gas sales in Korea and is the largest excise tax component for these products. The revenue from this tax is earmarked used for general government spending.

Rates are expressed on a per litre basis for kerosene and heavy fuel oil, and on a per kilogram basis for LPG and natural gas. Propane and butane, the two main hydrocarbons in LPG, are subject to different tax rates.

| From | To | Heavy fuel oil (KRW/tonne) | Kerosene (KRW/1000l) | Automotive LPG (KRW/l) | Propane (KRW/tonne) | Butane (KRW/tonne) |
|---|---|---|---|---|---|---|
| 01.01.97 | 31.12.97 | | 25000 | | 18000 | 18000 |
| 01.01.98 | 08.01.98 | | 25000 | 23.36 | 40000 | 40000 |
| 09.01.98 | 01.03.00 | | 60000 | 23.36 | 40000 | 40000 |
| 02.03.00 | 30.04.00 | | 43000 | 23.36 | 40000 | 40000 |
| 01.05.00 | 30.06.01 | | 60000 | 23.36 | 40000 | 40000 |
| 01.07.01 | 30.06.02 | 3176.9 | 82000 | 66.58 | 40000 | 114000 |
| 01.07.02 | 30.06.03 | 6353.9 | 107000 | 118.55 | 40000 | 203000 |
| 01.07.03 | 30.06.04 | 9530.8 | 131000 | 173.45 | 40000 | 297000 |
| 01.07.04 | 30.06.05 | 11648.8 | 154000 | 223.09 | 40000 | 382000 |
| 01.07.05 | 07.07.05 | 15884.7 | 178000 | 223.09 | 40000 | 382000 |
| 08.07.05 | 31.12.05 | 15884.7 | 154000 | 223.09 | 40000 | 382000 |
| 01.01.06 | 30.06.07 | 15884.7 | 154000 | 178.70 | 40000 | 306000 |
| 01.07.06 | 22.07.07 | 18002.6 | 134000 | 178.70 | 40000 | 306000 |



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| From | To | Heavy fuel oil (KRW/tonne) | Kerosene (KRW/1000l) | Automotive LPG (KRW/l) | Propane (KRW/tonne) | Butane (KRW/tonne) |
|---|---|---|---|---|---|---|
| 23.07.07 | 31.12.07 | 18002.6 | 134000 | 160.60 | 40000 | 275000 |
| 01.01.08 | 29.02.08 | 18002.6 | 63000 | 160.60 | 28000 | 275000 |
| 01.03.08 | 09.03.08 | 18002.6 | 90000 | 160.60 | 28000 | 275000 |
| 10.03.08 | 27.03.08 | 18002.6 | 90000 | 147.17 | 28000 | 252000 |
| 28.03.08 | 30.06.08 | 18002.6 | 90000 | 147.17 | 20000 | 252000 |
| 01.03.08 | 30.11.08 | 18002.6 | 90000 | 147.17 | 20000 | 252000 |
| 01.12.08 | 31.12.08 | 18002.6 | 63000 | 147.17 | 14000 | 252000 |
| 01.01.09 | 28.02.09 | 18002.6 | 63000 | 160.60 | 14000 | 275000 |
| 01.03.09 | 18.11.09 | 18002.6 | 90000 | 160.60 | 20000 | 275000 |
| 19.11.09 | 31.12.11 | 18002.6 | 90000 | 160.60 | 20000 | 275000 |
| 01.01.12 | 30.04.12 | 18002.6 | 90000 | 160.60 | 14000 | 275000 |
| 01.05.12 | 30.06.14 | 18002.6 | 90000 | 160.60 | 20000 | 275000 |
| 01.07.14 | 05.11.18 | 18002.6 | 63000 | 160.60 | 14000 | 275000 |
| 06.11.18 | 06.05.19 | 18002.6 | 63000 | 136.66 | 14000 | 234000 |
| 07.05.19 | 31.08.19 | 18002.6 | 63000 | 149.50 | 14000 | 256000 |
| 01.09.19 | now | 18002.6 | 63000 | 160.60 | 14000 | 275000 |

### *Education tax (교육세)*

The education tax was introduced on 5 December 1981 and came into effect on 1 January 1982. Currently, it is levied on all fuel sales and calculated as 15% of the individual consumption tax or the transportation, energy and environment tax, as applicable. The revenue from this tax is earmarked for government spending on education.

### *Motor fuel tax (주행세)*

The motor fuel tax was introduced on 28 December 1999 and came into effect on 1 January 2000. Currently, it is levied on gasoline and diesel sales, and is calculated as 26% of the transportation, energy and environment tax amount as applicable. The revenue from this tax is earmarked for financing subsidized fuel prices for commercial users, among other uses.



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### *Sales charges (판매부과금)*

Premium gasoline and automotive LPG are subject to a sales charge set at a fixed rate of 36 KRW/l and 36.37 KRW/l, respectively.

| From | To | Premium gasoline (KRW/l) | Kerosene (KRW/1000l) | Automotive LPG (KRW/l) |
|---|---|---|---|---|
| 01.01.97 | 31.12.97 | 36 | 20000 | |
| 01.01.98 | 30.06.01 | 36 | 20000 | 11.68 |
| 01.07.01 | 30.06.02 | 36 | 23000 | 11.11 |
| 01.07.02 | 30.06.03 | 36 | 23000 | 15.15 |
| 01.07.03 | 30.06.04 | 36 | 23000 | 17.18 |
| 01.07.04 | 31.12.05 | 36 | 23000 | 25.58 |
| 01.01.06 | 31.12.07 | 36 | 23000 | 36.37 |
| 01.01.08 | Now | 36 | 0 | 36.37 |

### *Electric power industry base fund (전력기금)*

The electric power industry base fund is a mandatory *ad-valorem* contribution levied on electricity consumed in the residential and non-residential sectors. It is legally defined in the Electric Utility Act (Art. 48) and was introduced in Korea in 2001.

The tax rate is legally limited to 6.5% of the ex-tax electricity price (Art. 51). The applicable tax rate, set through successive enforcement decrees, was set at 3.23% from June 2001, 4.59% from January 2002, and 3.7% from January 2016 onwards. This tax is not applied to the VAT calculation.

Pursuant to Article 49 of the Electric Utility Act, the revenue from this tax is used to support the development of renewable energy sources, the implementation of demand-side management policies, the supply of electricity to remote regions and R&D in the electricity sector.

## Energy taxation database methodology

The VAT (부가세) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable



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rate is constant at 10% since its implementation, thus this value is directly included in the database.

Environmental tax comprises a component of the Transportation, Energy and Environment tax (교통·에너지·환경세), levied on gasoline and diesel sales. The revenue of this tax is earmarked not only for environmental protection but also for energy and transportation infrastructure and other. Thus, while assumed that there is an environmental that is applied on transport fuels, specific values are not provided.

Renewable Energy Supply tax comprises the Electric power industry base fund (전력기금) levied on electricity consumption. Even if the revenue of this tax is not solely used to support the investment in renewable energy technologies, it is assumed that this is its main purpose. The applicable values are estimated using the applicable rates along with the ex-tax prices available in the *Energy Prices and Taxes for OECD countries* database.

Social tax comprises the education tax, levied on all energy products with the exception of electricity. The values applied to the different energy products are estimated using the applicable rates along with the values of the individual consumption tax and the transportation, energy and environment tax. The yearly values are estimated as the average of the different values applied within each year weighted for the number of days.

Other taxes comprise all the remaining excise taxes and levies applied to the different energy products. This includes: transportation, energy and environment tax, individual consumption tax, motor fuel tax and sales charges. The yearly values for each of the individual taxes are estimated as the average of the different values applied within each year weighted for the number of days. The total value applied to each energy products and consumer sector is estimated by summing the yearly values of all the individual taxes that are applicable. Specific values for the individual consumption tax applied to coal and natural gas are not provided.



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# Product specifications

## Oil products

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil *industry* | Kerosene *households* | Automotive diesel | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline | Automotive LPG |
|---|---|---|---|---|---|---|---|---|
| Quality | Bunker type C > 3.0% | Bunker type C < 1.0% | Heating oil | Kerosene | | | | Butane |
| Density (kg/l) | 0.944 | 0.944 | 0.87 | 0.87 | 0.84 | 0.74 | 0.74 | 0.584 |
| Sulphur content (%) | >3 | <1 | | | | | | |
| NCV (kcal/kg) | 9 203 | 9 203 | 8 117 | 8 356 | 8 476 | 7 164 | | |

## Natural gas

| | Natural gas |
|---|---|
| GCV (kcal/$m^3$) | 10 400 |



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# Latvia

## Sources

Prices and taxes data for oil products are based on weekly data published in the **European Commission's** *Weekly Oil Bulletin*.

Prices and taxes data for natural gas and electricity are provided on a biannual basis by the **Central Statistical Bureau of Latvia (CSB)**.

Retail energy price indices, are based on data published by **Eurostat**.

## Data collection methodology

Prices and taxes prior to 1 January 2014, the date of entry into the Economic and Monetary Union, have been converted from Latvian lats using the appropriate irrevocable conversion rate of 0.702804 LVL/EUR. This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rates) is preserved. However, pre-EMU euros are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

### Oil products

Oil product prices are derived from data published in the European Commission's *Weekly Oil Bulletin*, which reports weekly ex-tax and end-use prices for a series of oil products in all EU countries.

Quarterly and annual figures are calculated as arithmetical averages of the weekly data. Total taxes are calculated as the subtraction of the quarterly and annual ex-tax from the end-use prices. Excise taxes for non-commercial users are calculated by subtracting the VAT from the total taxes. For commercial users, excise taxes are equal to the total taxes, as they are exempt from the VAT.

### Natural gas

From 3Q2007 onwards, prices refer to the Eurostat consumption bands D1, D2 and D3 for households; and bands I1, I2, I3, I4 and I5 (no values for this bands starting from 2$^{nd}$ half of 2018), for industry, covering the whole consumption spectrum for households.

National average prices are computed by CSB as consumption-weighted averages of the average prices per band published by Eurostat. The weights used



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for this calculation are biannual consumption figures per band collected through surveys.

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

Latvia uses a significant share of natural gas for cogeneration power plants. However, prices for natural gas used for electricity generation are confidential from 2Q2017 onwards.

## Electricity

From 3Q2007 onwards, prices refer to the Eurostat consumption bands DA, DB, DC, DD and DE for households; and bands IA, IB, IC, ID, IE and IF, for industry, covering the whole consumption spectrum for households.

National average prices are computed by CSB as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are biannual consumption figures per band collected through surveys.

Eurostat data are bi-annual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722) series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for natural gas refer to the *gas* (cp0452) series.



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# Energy taxation

## VAT

VAT *(PVN)* applies to all energy products. The VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry and electricity generation and for automotive fuels for commercial use.

| From | To | General % |
|---|---|---|
| 01.05.04 | 30.06.06 | 18 |
| 01.07.06 | 31.12.08 | 5 |
| 01.01.09 | 31.12.10 | 10 |
| 01.01.11 | 30.06.11 | 12 |
| 01.07.11 | 30.06.12 | 22 |
| 01.07.12 | now | 21 |

## Excise tax

The legal framework for excise taxation on energy in place in Latvia is consistent with the 2003 EU Energy Taxation Directive.

Excise duties are regulated by the On Excise Duties Law, which came into force on 1 May 2004.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | | | |
| Electricity tax | | | | | | | | | × |
| Mandatory procurement component | | | | | | | | | × |
| Regulation of public utilities fee | | | | | | × | | | × |
| Maintenance of emergency stocks fee | × | × | × | × | × | | | | |



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### *Excise duties (Akcīzes nodoklis)*

The law on Excise Duties establishes the list of commercial oil products taxable by the excise duty including gasoline, automotive diesel, light and heavy fuel oils, LPG and natural gas (expressed on a volume or energy basis).

The excise duty applicable for natural gas used as the heating fuel is 1.65 EUR/MWh (based on the highest heating value of natural gas).

The excise duty applicable for natural gas used as heating fuel in industrial manufacturing processes and other processes related to manufacturing, for operation of technological equipment, for retreatment of agricultural raw materials, and for the provision of heat for technological purposes in industrial manufacturing premises and premises for pretreatment of agricultural raw materials is 0.55 EUR/MWh (based on the highest higher heating value of natural gas).

The excise duties in the table below are based on the European Commission's Excise Duty Tables.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/ 1000l) | Automotive diesel (EUR/l) | Unleaded gasoline (EUR/l) | Automotive LPG (EUR/kg) | Natural gas (EUR/MWh) |
|---|---|---|---|---|---|---|---|
| 01.01.14 | 31.12.15 | 15.65 | 56.91 | 0.333 | 0.411 | 0.161 | 1.65 |
| 01.01.16 | 31.12.17 | 15.65 | 56.91 | 0.341 | 0.436 | 0.206 | 1.65 |
| 01.01.18 | 31.12.19 | 15.65 | 56.91 | 0.372 | 0.476 | 0.244 | 1.65 |
| 01.01.20 | now | 15.65 | 56.91 | 0.414 | 0.509 | 0.285 | 1.65 |

### *Electricity tax (Elektroenerģijas nodoklis)*

The Electricity Tax Law, which came into force on 1 January 2007, establishes a tax on electricity traders. Taxes are paid by electricity traders and direct buyers from market exchanges. Industrial autoproducers (excluding autoproducers with capacity above 2 MW) and producers that use excise products (including coal) for electricity production are exempted from this tax. Electricity for lighting as well as for use in households and public transport are also exempted from this tax.

| From | To | Electricity (EUR/MWh) |
|---|---|---|
| 01.01.14 | now | 1.01 |



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### *Mandatory procurement component (Obligātā iepirkuma komponente)*

The mandatory procurement component of electricity (MPC) is a government support mechanism for producers of renewable or combined heat and power (CHP) electricity. The MPC is financed by electricity end-users. The Electricity Market Act provides that entitites which produce electricity from renewable energy sources or provide efficient production of electricity by using renewable energy sources, may acquire the rights to sell produced electricity within the framework of compulsory purchase.

From 2018 onwards, the MPC contains two parts: a fixed component for connection (depending on connection capacity) and a variable component (depending on customer consumption). The MPC is approved by the Public Utilities Commission (*Sabiedrisko pakalpojumu regulēšanas komisija*).

| From | To | MPC (EUR/kWh) | Fixed component for producers of electricity from CHP (EUR/kWh) | Fixed component for producers of electricity from renewable energy resources (EUR/kwh) | Average variable component on capacity for end users (EUR/kwh |
|---|---|---|---|---|---|
| 01.04.12 | 31.03.12 | 0.0123 | 0.00940 | 0.00290 | x |
| 01.04.13 | 31.03.13 | 0.02679 | 0.01890 | 0.00800 | x |
| 01.04.14 | 31.03.14 | 0.02679 | 0.01737 | 0.00942 | x |
| 01.04.15 | 31.12.15 | 0.02679 | 0.01671 | 0.01008 | x |
| 01.04.16 | 31.03.17 | 0.02679 | 0.01625 | 0.01054 | x |
| 01.04.17 | 31.12.17 | 0.02679 | 0.01185 | 0.01494 | x |
| 01.01.18 | 30.06.18 | 0.02579 | 0.00434 | 0.01029 | 0.01116 |
| 01.07.18 | 31.12.18 | 0.02268 | 0.00434 | 0.01029 | 0.00805 |
| 01.01.19 | 31.12.19 | 0.02268 | 0.00599 | 0.00875 | 0.00794 |
| 01.01.20 | 31.12.20 | 0.02268 | 0.00704 | 0.00772 | 0.00792 |
| 01.01.21 | 31.12.21 | 0.01751 | 0.00098 | 0.00834 | 0.00819 |

### *Regulation of public utilities fee (Valsts nodeva par sabiedrisko pakalpojumu regulēšanu)*

A public utility provider pays a state fee for public service regulation in accordance with the Cabinet of Ministers Regulations No. 1623 on the *Rate of the State Fee*



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*for Public Utilities Regulation and the Payment Procedure of the Fee* of 22 December 2009.

The fee is paid by merchants and the rate is 0.2% of the respective net turnover of the relevant public service provided by a public utility provider in the previous calendar year. The minimum rate is 200 EUR.

### *Maintenance of Emergency Stocks fee*

The Cabinet of Ministers Regulations No. 450 Regarding the Amount of the State Petroleum Product Stocks, the Amount of the State Fee to be Paid for the Maintenance of Emergency Stocks, and the Procedures for the Calculation, Payment and Administration Thereof regulate the state fee for motor gasoline, aviation gasoline, LPG, kerosene, diesel oil, kerosene-type jet fuel, and fuel oil. The state fee is paid by merchants at a rate of 12.35 EUR for each tonne of Category I, II, and III petroleum products released for consumption and consumed within the territory of the Republic of Latvia.

## Energy taxation database methodology

The VAT (PVN) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Renewable Energy Supply tax includes the Mandatory Procurement component (Obligātā iepirkuma komponente), as it consists on a government support mechanism for producers of renewable or combined heat and power (CHP) electricity. It is assumed that is applies to all electricity end-users and the applicable values are constant from January 2019 onwards.

Energy Supply Security tax comprises the Maintenance of Emergency Stocks fee. It applies to gasoline, diesel, LPG, kerosene and fuel oil. The values applied to the different energy products are estimated based on the rate per unit of weight and the density of each of the products, available in the ETP documentation.

The remaining excise taxes and levies are assumed as Other taxes. This includes: Excise duties (Akcīzes nodoklis) and Electricity tax (Elektroenerģijas nodoklis). The individual values of these taxes are estimated as the average of the different values applied within each year weighted for the number of days.



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The Regulation of public entities fee (Valsts nodeva par sabiedrisko pakalpojumu regulēšanu) is not included in any of the categories considered, as it is paid by the merchants and not by the final user



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# Lithuania

## Sources

Prices and taxes data for oil products are based on weekly data published in the **European Commission's** *Weekly Oil Bulletin*.

Prices and taxes data for natural gas and electricity are based on data published by **Eurostat** until 2019, and are submitted by **Statistics Lithuania** from 2020 onwaards..

Retail energy price indices are based on data published by **Eurostat**.

## Data collection methodology

Prices and taxes prior to 1 January 2015, the date of entry into the Economic and Monetary Union, have been converted from Lithuanian litai using the appropriate irrevocable conversion rate of 3.45280 LTL/EUR. This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rates) is preserved. However, pre-EMU euros are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

### Oil products

Oil product prices are derived from data published in the European Commission's *Weekly Oil Bulletin*, which reports weekly ex-tax and end-use prices for a series of oil products in all EU countries.

Quarterly and annual figures are calculated as arithmetical averages of the weekly data. Total taxes are calculated as the subtraction of the quarterly and annual ex-tax from the end-use prices. Excise taxes for non-commercial users are calculated by subtracting the VAT from the total taxes. VAT being refunded for commercial purposes, value is taken equal to zero, hence excise taxes are equal to the total taxes for them.

### Natural gas

From 3Q2007 to 4Q2019, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and band I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ).



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From 1Q2020 onwards, prices are submitted by Statistics Lithunia and refer to the Eurostat consumption bands D1, D2, D3 for households; and bands I1, I2, I3, I4, I5 and I6, for non-households.

National average prices are computed by Statistics Lithuania as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are bi-annual consumption figures per band collected through surveys.

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Electricity

From 3Q2007 to 4Q2019, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh); and band IB for industry (annual consumption: 20 MWh – 500 MWh).

From 1Q2020 onwards, prices are submitted by Statistics Lithunia and refer to the Eurostat consumption bands DA, DB, DC, DD, DE for households; and bands IA, IB, IC, ID, IE and IF, for non-households.

National average prices are computed by Statistics Lithuania as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are bi-annual consumption figures per band collected through surveys.

Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722)



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series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for natural gas refer to the *gas* (cp0452) series.

# Energy taxation

## VAT

VAT *(Pridėtinės vertės mokestis)* is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry and electricity generation and for automotive fuels for commercial use.

There are two VAT rates in Lithuania: standard and reduced. All energy products are taxed at the standard rate.

| From | To | General % |
|---|---|---|
| 01.05.94 | 31.12.08 | 18 |
| 01.01.09 | 31.08.09 | 19 |
| 01.09.09 | now | 21 |

## Excise tax

The legal framework for excise taxation on energy in place in Lithuania is consistent with the 2003 EU Energy Taxation Directive.

Excise duties are regulated by the Republic of Lithuania Law Amending the Law on Excise Duties No. IX-569, adopted on 30 October 2001.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | x | x | x |

### *Excise duties*

The Lithuanian Law on Excise Duty establishes a list of commercial oil products subject to excise duties. Gasoline, diesel and light fuel oil are subject to an excise



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duty expressed on a volume basis and natural gas is subject to an excise duty expressed on an energy basis. Heavy fuel oil, LPG, steam coal and coking coal are subject to an excise duty expressed on a mass basis. Electricity is subject to an excise duty expressed on an energy basis.

Consumption of electricity by households and electricity sold or transmitted to entities using electricity in electricity-intensive processes, as well as electricity from renewable sources are exempted from excise duty. Consumption of natural gas for CHP is exempted from excise duties. Domestic LPG supplied in cylinder is also exempted from excise duties.

| From | To | Unleaded gasoline (EUR/l) | Leaded gasoline (EUR/l) | Automotive diesel (EUR/l) | Light Fuel Oil (households) (EUR/ 1000l) | Light Fuel Oil (industry) (EUR/ 1000l) | Automotive LPG (EUR/ tonne) | Automotive CNG (EUR/MWh) |
|---|---|---|---|---|---|---|---|---|
| 01.01.2004 | 30.04.2004 | 0.282[1] | | 0.244[2] | | | | |
| 01.05.2004 | 31.12.2006 | 0.282[1] | 0.414[1] | 0.244[2] | 20.92[2] | 20.92[2] | 125.12 | 10.00 |
| 01.01.2007 | 31.12.2007 | 0.282[1] | 0.414[1] | 0.244[2] | 20.92[2] | 20.92[2] | 125.12 | 10.00 |
| 01.01.2008 | 21.12.2008 | 0.32322 | 0.42111 | 0.27427 | 21.14 | 21.14 | 125.12 | 10.00 |
| 01.01.2009 | 21.07.2009 | 0.43443 | 0.57924 | 0.33017 | 21.14 | 21.14 | 304.1 | 24.33 |
| 01.08.2009 | 31.12.2009 | 0.43443 | 0.57924 | 0.27427 | 21.14 | 21.14 | 304.1 | 24.33 |
| 01.01.2010 | 19.04.2010 | 0.43443 | 0.57924 | 0.27427 | 21.14 | 21.14 | 304.1 | 24.33 |
| 20.04.2010 | 31.12.2010 | 0.43443 | 0.57924 | 0.27427 | 21.14 | 21.14 | 304.1 | 20.87 |
| 01.01.2011 | 31.12.2012 | 0.43443 | 0.57924 | 0.30207 | 21.14 | 21.14 | 304.1 | 20.87 |
| 01.01.2013 | 30.06.2015 | 0.43443 | 0.57924 | 0.33017 | 21.14 | 21.14 | 304.1 | 20.87 |
| 01.07.2015 | 31.12.2015 | 0.43443 | 0.57924 | 0.33017 | 21.14 | 21.14 | 304.1 | 20.87 |
| 01.01.2016 | 31.12.2017 | 0.43443 | 0.57924 | 0.33017 | 21.14 | 21.14 | 304.1 | 23.60 |
| 01.01.2018 | 31.01.2019 | 0.43443 | 0.57924 | 0.347 | 21.14 | 21.14 | 304.1 | 0 |
| 01.01.2020 | now | 0.466 | 0.57924 | 0.372 | 21.14 | 21.14 | 304.1 | 0 |

| From | To | Steam coal (households) (EUR/t) | Steam coal (industry) (EUR/t) | Natural Gas (households) (EUR/MWh) | Natural Gas (industry) (EUR/ MWh) | Electricity (households) (EUR/ MWh) | Electricity (industry) (EUR/ MWh) | Heavy fuel oil (EUR/ tonne) |
|---|---|---|---|---|---|---|---|---|
| 01.01.2004 | 30.04.2004 | 0 | 0 | 0 | 0 | 0 | 0 | 15.06 |



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| From | To | Steam coal (households) (EUR/t) | Steam coal (industry) (EUR/t) | Natural Gas (households) (EUR/MWh) | Natural Gas (industry) (EUR/MWh) | Electricity (households) (EUR/MWh) | Electricity (industry) (EUR/MWh) | Heavy fuel oil (EUR/tonne) |
|---|---|---|---|---|---|---|---|---|
| 01.05.2004 | 31.12.2006 | 0 | 0 | 0 | 0 | 0 | 0 | 15.06 |
| 01.01.2007 | 31.12.2007 | 0 | 3.77 | 0 | 0 | 0 | 0 | 15.06 |
| 01.01.2008 | 21.12.2008 | 7.53 | 3.77 | 0 | 0 | 0 | 0 | 15.06 |
| 01.01.2009 | 21.07.2009 | 7.53 | 3.77 | 0 | 0 | 0 | 0 | 15.06 |
| 01.08.2009 | 31.12.2009 | 7.53 | 3.77 | 0 | 0 | 0 | 0 | 15.06 |
| 01.01.2010 | 19.04.2010 | 7.53 | 3.77 | 0 | 0 | 0 | 0.52 | 15.06 |
| 20.04.2010 | 31.12.2010 | 7.53 | 3.77 | 0 | 0 | 0 | 0.52 | 15.06 |
| 01.01.2011 | 31.12.2012 | 7.53 | 3.77 | 0 | 0 | 0 | 0.52 | 15.06 |
| 01.01.2013 | 30.06.2015 | 7.53 | 3.77 | 0 | 0 | 0 | 0.52 | 15.06 |
| 01.07.2015 | 31.12.2015 | 7.53 | 3.77 | 0 | 0 | 0 | 0.52 | 15.06 |
| 01.01.2016 | 31.12.2017 | 7.53 | 3.77 | 0 | 0.54 | 0 | 0.52 | 15.06 |
| 01.01.2018 | 31.01.2019 | 7.53 | 3.77 | 0 | 0.54 | 0 | 0.52 | 15.06 |
| 01.01.2020 | now | 7.53 | 3.77 | 0 | 0.54 | 0 | 0.52 | 15.06 |

Source: Republic of Lithuania law on excise duty No. IX-569, adopted on 30 October 2001. 1 Using a density of 0.74. 2 Using a density of 0.84. 3 Domestic consumers and aid receivers as per Law on Charity and Aid are exempted from excise tax on electricity and natural gas. 4 Households are exempted from excise duty on coal, coke and lignite until 31/12/2017.

## Energy taxation database methodology

The VAT (Pridėtinės vertės mokestis) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

As no information on the disaggregation of excise taxes is available, all excise taxes are assumed as Other taxes. It is considered that Other Taxes are applicable to all energy products, except for electricity sold to households. Specific values are not provided.



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# Luxembourg

## Sources

Prices and taxes data for all products, as well as all energy price indices, are provided on a quarterly basis by the **National Institute of Statistics and Economic Studies of the Grand Duchy of Luxembourg** (**STATEC**).

## Data collection methodology

From 4Q1989 onwards, quarterly prices refer to the average of weekly prices. Prior to 4Q1989, prices refer to the second month of each quarter.

### Oil products

Luxembourg maintains a maximum price-setting mechanism for oil products. In compliance with an agreement between the Luxembourgish State and the oil importing companies, a maximum price is set for oil products sold to final consumers, including gasoline, automotive diesel, heating oil and LPG.

The formula is based on the spot price of oil products, to which are added a standard cost of transport from Antwerp to Luxembourg, a standard distribution margin for the market actors, and the cost of compulsory storage. Companies are free to set prices below the maximum daily levels set by the Ministry of the Economy.

End-use prices for oil products are collected through monthly consumer price surveys. Ex tax prices are calculated by subtracting the applicable tax components from the end-use prices.

LFO end-use weekly prices available in the *World Energy Prices* were corrected from April 2022 onwards to correctly reflect the government measures due to increased energy prices.

From 1Q1994 onwards, high sulphur fuel oil consumption in industry has been negligible. Prices and taxes data from this date onwards are therefore marked as not applicable.

### Natural gas

Prices shown are calculated through a biannual survey where utilities report average revenues per MWh from all high-voltage customers (industry) and all low-



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voltage consumers (households). Prices include all consumption bands and are representative for the whole country.

### Electricity

Prices shown are calculated through a biannual survey where utilities report average revenues per MWh from all high-voltage customers (industry) and all low-voltage consumers (households). Prices include all consumption bands and are representative for the whole country.

### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the monthly indices produced by STATEC.

Retail indices for oil products are a weighted average of the series referring to heating oil and gasoline.

Retail indices for electricity and natural gas refer to utility tariffs for residential consumers.

Retail indices for coal refer to minimal consumption.

## Energy taxation

### VAT

VAT *(TVA)* in Luxembourg is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

Light fuel oil for households, coal and other kerosene are subject to a reduced VAT rate (14%). Natural gas and electricity are taxed as well, but a lower reduced VAT rate ( 8%).

| From | To | General % | Reduced % |
|---|---|---|---|
| 01.01.93 | 31.12.04 | 12 | 12 |
| 01.01.05 | 31.12.14 | 15 | 12 |
| 01.01.15 | now | 17 | 8 and 14 |



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## Excise tax

Excise taxes on commercial energy products in Luxembourg are levied in accordance with the 2003 EU Energy Taxation Directive.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | | | × |
| Public service obligation compensation mechanism | | | | | | | | | × |

### *Excise duties (Droits d'accise)*

Excise duties levied on energy products consist of two distinct components.

The first component, referred to as the UEBL component, is levied at the same rate as in Belgium, pursuant to the terms of the Belgian-Luxembourgish Economic Union (UEBL). The rates for this component correspond to the ordinary excise duties levied in Belgium, excluding special excise taxes and other contributions.

The current system for the UEBL component is legally defined in the Ministerial regulations of 4 August 2004. These regulations were updated as a consequence of the publication of the Royal Belgian decree of 29 February 2004. As of 2016, the UEBL component applied to gasoline, automotive diesel, heavy fuel oil and light fuel oil for industrial use.

The second component, referred to as the autonomous component, is levied on commercial energy product sales. This component is legally defined, in its current form, in the Law of 17 December 2010. The autonomous component is further subdivided into several categories applicable to certain commercial energy products. Gasoline and diesel sales are subject to a "social contribution" (*contribution sociale*) and a "climate change contribution" (*contribution changement climatique*). In the Law of 19 December 2020, the "climate change contribution" has been renamed "CO2 taxes". The table below shows the corresponding values by products. Light fuel oil for households is subject to a control fee (*redevance de contrôle*), while electricity and natural gas are subject to consumption taxes (*taxe sur la consommation*).



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Compressed natural gas (CNG) and natural gas for combined heat and power generation is tax-free. Residential and industrial consumption are taxed at different rates. In the tables at the end of this section, “households” refers to an annual consumption below 550 MWh GCV and “industry” refers to an annual consumption over 550 MWh GCV.

Large natural gas consumers participating in the European Trading System (ETS), as well as those investing in energy efficiency, are subject to reduced tax rates not shown in the tables at the end of this section.

Steam and coking coal are exempt from all excise tax components.

Tax rates for electricity vary depending on annual consumption. In the tables at the end of this section, “households” refers to an annual consumption below 25 MWh and “industry” refers to an annual consumption over 25 MWh. Electricity consumption for metallurgical and mineral processes is tax-free.

Total excise duties by energy product

| From | To | Heavy fuel oil (EUR/ tonne) | Light fuel oil households (EUR/1000l) | Light fuel oil industry (EUR/ 1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EURL/l) |
|---|---|---|---|---|---|---|---|
| 01.01.05 | 31.12.05 | 15 | 10 | 21 | 0.265 | 0.442 | 0.054 |
| 01.01.06 | 31.12.06 | 15 | 10 | 21 | 0.278 | 0.442 | 0.054 |
| 01.01.07 | 31.12.07 | 15 | 10 | 21 | 0.29 | 0.462 | 0.054 |
| 01.01.08 | 31.12.09 | 15 | 10 | 21 | 0.302 | 0.462 | 0.054 |
| 01.01.10 | 31.12.10 | 15 | 10 | 21 | 0.31 | 0.462 | 0.054 |
| 01.01.11 | 31.12.11 | 15 | 10 | 21 | 0.32 | 0.462 | 0.054 |
| 01.01.12 | 30.09.12 | 15 | 10 | 21 | 0.33 | 0.462 | 0.054 |
| 01.10.12 | 30.04.19 | 15 | 10 | 21 | 0.335 | 0.462 | 0.054 |
| 01.05.19 | 31.12.20 | 15 | 10 | 21 | 0.355 | 0.472 | 0.054 |
| 01.01.21 | 31.12.21 | 77 | 64 | 70 | 0.404 | 0.516 | 0.114 |
| 01.01.22 | now | 92 | 77 | 83 | 0.417 | 0.527 | 0.129 |

| From | To | Natural gas households (EUR/MWh) | Natural gas *industry* (EUR/MWh) | Electricity households (EUR/MWh) | Electricity *industry* (EUR/MWh) |
|---|---|---|---|---|---|
| 01.01.05 | 31.12.05 | 0 | 0 | 2.36 | 1.66 |



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| From | To | Natural gas households (EUR/MWh) | Natural gas *industry* (EUR/MWh) | Electricity households (EUR/MWh) | Electricity *industry* (EUR/MWh) |
|---|---|---|---|---|---|
| 01.01.06 | 31.12.06 | 0 | 0 | 1 | 0.5 |
| 01.01.07 | now | 1.08 | 0.54 | 1 | 0.5 |
| 01.01.21 | 31.12.21 | 5.08 | 4.54 | 1 | 0.5 |
| 01.01.22 | now | 6.08 | 5.54 | 1 | 0.5 |

### *CO2 tax by energy product (former climate change contribution, Law of 19 December 2020)*

| From | To | Heavy fuel oil (EUR/ tonne) | Light fuel oil households (EUR/1000l) | Light fuel oil industry (EUR/ 1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/kg) |
|---|---|---|---|---|---|---|---|
| 01.01.07 | 31.12.07 | - | - | - | 12.5 | 20 | - |
| 01.01.08 | 30.04.19 | - | - | - | 25 | 20 | - |
| 01.05.19 | 31.12.21 | - | - | - | 35 | 25 | - |
| 01.01.21 | 31.12.21 | 61.92 | 53.55 | 49.42 | 84.42 | 68.24 | 0.060 |
| 01.01.22 | now | 77.4 | 69.89 | 61.54 | 96.54 | 79.05 | 0.075 |

| From | To | Natural gas households (EUR/MWh) | Natural gas *industry* (EUR/MWh) | Electricity households (EUR/MWh) | Electricity *industry* (EUR/MWh) |
|---|---|---|---|---|---|
| 01.01.21 | 31.12.21 | 4 | 4 | - | - |
| 01.01.22 | now | 5 | 5 | - | - |

### *Public service obligation compensation mechanism (Mécanisme de compensation pour obligation de service public)*

Electrical companies are subject to a series of public service obligations (*obligations de service public*), financed through an additional indirect tax levied on electricity consumption.

Currently, the only public service obligation applicable to electrical companies relates to the obligation to purchase all electricity produced from renewable sources or high efficiency CHP units. The additional costs borne by some companies as a result of said obligation are offset by the revenue from this tax, designed as a way to ensure a fair competition between different market players.



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In its current form, the public service obligation compensation mechanism is legally defined in the Law of 1 August 2007, on the organisation of the electrical market, and the Grand-Ducal regulation of 31 March 2010. Tax rates for households and industry are updated annually by the Luxembourgish Institute for Regulation.

Tax rates for electricity vary depending on annual consumption. In the tables at the end of this section, *households* refers to an annual consumption below 25 MWh and *industry* refers to an annual consumption above 25 MWh.

| From | To | Electricity *households* (EUR/MWh) | Electricity *industry* (EUR/MWh) |
|---|---|---|---|
| 01.01.08 | 31.12.08 | 8.80 | 3.00 |
| 01.01.09 | 31.12.09 | 11.20 | 3.60 |
| 01.01.10 | 31.12.10 | 20.00 | 6.20 |
| 01.01.11 | 31.12.12 | 12.70 | 3.80 |
| 01.01.13 | 31.12.13 | 11.40 | 3.80 |
| 01.01.14 | 31.12.14 | 19.90 | 6.20 |
| 01.01.15 | 31.12.15 | 29.50 | 8.10 |
| 01.01.16 | 31.01.17 | 23.50 | 8.10 |
| 01.02.17 | 31.01.18 | 31.80 | 8.90 |
| 01.02.18 | 31.01.19 | 25,4 | 9,1 |
| 01.02.19 | 31.01.20 | 33 | 8,40 |
| 01.02.20 | 31.12.20 | 36,30 | 10,90 |
| 01.01.21 | 31.12.21 | 36,30 | 12,10 |
| 01.01.22 | now | 18,50 | 7,20 |

## Energy taxation database methodology

The VAT (TVA) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Environmental tax comprises the excise tax-component associated with climate change contribution (renamed CO2 tax in 2021), applied to gasoline and diesel sales. It is assumed that it is in place since January 2007.



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Renewable Energy Supply tax comprises the additional indirect tax levied in electricity users that finances the Public service obligation compensation mechanism (Mécanisme de compensation pour obligation de service public). The yearly values are estimated as the average of the different values applied within each year weighted by the number of days. It is assumed that the Household rate applies to transportation and residential purposes, while Industry rates apply to commercial and industry users.

Social tax comprises the social contribution (contribution sociale) applicable to gasoline and diesel, a tax-component from the excise taxes. Specific values are not provided.

Other taxes refer to all the remaining excise duties and levies that are applied to the different energy products. Exemptions include: the use of coal; the use of natural gas for CHP; and the use of electricity for metallurgical and mineral processes. As the values for the specific components for climate change and social contribution are not provided, it is not possible to estimate the applicable value associated with Other taxes for gasoline and diesel. For the remaining energy products, the yearly values are estimated as the average of the excise duties values applied within each year weighted by the number of days.

## Product specifications

| | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Automotive LPG | Natural gas |
|---|---|---|---|---|---|---|
| Quality | Gasoil chauffage | Gasoil carburant | Essence | Essence | GLP carburant | |
| Density (kg/l) | 0.845 | 0.85 | 0.76 | 0.755 | 0.53 | |
| Sulphur content (%) | | ≤1 | | | | |
| Lead content (g/l) | | | | 0.002 | 0.005 | |
| NCV (kcal/kg) | 10 250 | 10 147 | 10 281 | 10 281 | 10 987 | |
| GCV (kcal/$m^3$) | | | | | | 8 700 |
| Delivery size (l) | 1 500 – 2 000 | | | | | |



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# Mexico

## Sources

Data for all energy products, as well as energy price indices, are provided on a quarterly basis by the **Secretariat of Energy (SENER)**.

## Data collection methodology

### Oil products

Prices for all oil products are national averages.

Heavy fuel oil and light fuel oil end-use prices are currently set by PEMEX, which reports average monthly prices to SENER. Quarterly and annual prices are calculated as simple arithmetical averages of the monthly data. Ex-tax prices are calculated by subtracting VAT from the end-use prices, as these products are only used in industry and electricity generation sectors.

For automotive diesel and gasoline, maximum end-use prices have been set every month by the Ministry of Finance and Public Credit *(Secretaría de Hacienda y Crédito Público – SHCP)* until November 2017. From this date onwards, with the finalization of gasoline and diesel market liberalization, the final price is determined by retailers and is regulated by the Energy Regulatory Commission (*Comisión Reguladora de Energía – CRE).*

For non-commercial users, VAT is subtracted from the end-use price. The disaggregation between the ex-tax price and the excise tax applicable to automotive fuels is currently not available.

### Natural gas

As of January 2017, there were no surveys on natural-gas end-use prices for households.

Prices for households refer to the prices paid by natural gas distribution companies. From June 2017, the CRE approved the elimination of the maximum price of natural gas for households.

Due to pending methodological issues in the reporting source, prices for industry are not available from 4Q2009 onwards.



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## Steam and coking coal

Steam coal prices for electricity generation refer to the amounts paid by the Federal Comission for Electricitiy *(Comisión Federal de Electricidad - CFE)* to the Río
Escondido coal mining company *(Minera Carbonífera Río Escondido - MICARE)*, excluding the cost of handling and disposal of ashes.

## Electricity

End-use prices are calculated by SENER based on monthly electricity sales data to industry and households. End-use prices are calculated by dividing revenue from sales by the sales volume for the three months of each quarter.

Prices for industry include all medium and high-voltage consumption bands. Ex-tax prices for industry match end-use prices, as electricity consumption is not taxed and VAT is refunded to industrial consumers.

Prices for households include consumption bands 1A, 1B, 1C, 1D, 1E, 1F and DAC. Ex-tax prices are calculated by subtracting VAT from the average end-use prices.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the monthly energy prices indices produced by INEGI *(Instituto Nacional de Estadística y Geografía)*.

Wholesale indices refer to the monthly national indices of producer prices, price indices for generic goods *(Índice nacional de precios productor, índices de precios de productos genéricos)*, June 2012=100 (SCIAN 2007).

Retail indices refer to the monthly national consumer prices indices by purpose of expenditure *(Índice nacional de precios al consumidor, nacional, por objeto del gasto)*, December 2012=100.

Wholesale indices for oil products refer to LPG, gasoline, automotive diesel, jet fuel, fuel oil and other oil products. Retail indices refer to LPG prices only.

Wholesale indices for electricity refer to industrial electricity prices at medium voltage. Retail indices refer to residential electricity prices.

Wholesale indices for natural gas refer to “dry gas” prices. Retail indices refer to “natural gas”. Wholesale indices for coal refer to “coal”.



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# Energy taxation

## VAT

VAT *(IVA)* applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

In Mexico, the VAT is paid on the ex-tax price only, instead of the sum of ex-tax price and excise tax, as is the case in most countries.

| From | To | General % |
|---|---|---|
| 01.01.80 | 31.12.82 | 10 |
| 01.01.83 | 11.09.91 | 15 |
| 11.10.91 | 31.03.95 | 10 |
| 01.04.95 | 31.12.09 | 15 |
| 01.01.10 | Now | 16 |

## Excise tax

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| IEPS | | | × | × | | | | | |

### *Tax on production and services (Impuesto específico sobre producción y servicios - IEPS)*

The IEPS is an excise tax applied to the sale of automotive fuels used for final consumption.

Prior to 2016, the IEPS rates published by the SHCP were designed to protect consumers from price movements in commodity markets. Therefore, IEPS could work as a tax or a subsidy, depending on the price differences between local production costs and an international benchmark.



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In 2016, the IEPS calculation methodology was updated to establish an orderly transition towards market liberalization in 2018, as set out by the wider energy reform in the country.

For the years 2016 and 2017, monthly tax rates will remain more or less stable, linking commodity spot prices with final prices for oil products, but still restricting price movements to some extent, in order to avoid large variations.

Due to the rate adjusting mechanism in place, historical IEPS tax rates are currently not available.

## Energy taxation database methodology

The VAT (IVA) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Environmental and Carbon taxes are equivalent and comprise the component of fossil fuels from the tax on production and services (IEPS – Combustibles Fósiles). This applies to all fossil fuels, except natural gas. The applicable rates are updated on an yearly basis, and the yearly values were retrieved from the official database on Mexican Legislation.

Other taxes refers to the remaining components from the tax on production and services applied to gasoline and diesel. The applicable rates are updated on an yearly basis, and the yearly values were retrieved from the official database on Mexican Legislation (http://www.diputados.gob.mx/LeyesBiblio/ref/lieps.htm). The values applied to gasoline were estimated as the average of the yearly values applied to regular and premium gasoline.

## Product specifications

### Oil products

| | High sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline |
|---|---|---|---|---|---|
| Quality | Combustoleo pesado | Diesel industrial bajo azufre | Pemex diesel | Pemex premium | Pemex magna |



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| | High sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline |
|---|---|---|---|---|---|
| PON number* | | | | 92 | 87 |
| Cetane index | | | >48 | | |
| Density (kg/l) | 0.982 | 0.852 | 0.852 | 0.707 | 0.729 |
| Sulphur content (%) | <4 | <0.05 | <0.05 | <0.05 | <0.1 |
| NCV (kcal/kg) | 10 139 | 10 849 | 10 849 | | |

*The PON number is the average of the RON and Motor Octane Number (MON).

## Natural gas and coal

| | Natural gas | Steam coal *electricity generation* |
|---|---|---|
| Quality | | Carbón MICARE, sub-bituminous coal |
| Ash content (%) | | 38.55 |
| Moisture content (%) | | 4.16 |
| Sulphur content (%) | | 1.01 |
| GCV (kcal/m3) | 8 460 | |
| NCV (kcal/kg) | | 4 575 |



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# Netherlands

## Sources

Prices and taxes data for transportation fuels, natural gas and electricity for households, as well as energy price indices, are provided on a quarterly basis by the **Central Bureau of Statistics** (**CBS**).

Prices and taxes data for low sulphur fuel oil and light fuel oil are based on weekly data published in the **European Commission's** *Weekly Oil Bulletin*.

Prices and taxes data for natural gas and electricity for industry are based on data published by **Eurostat**.

## Data collection methodology

From 1Q1984 onwards, prices refer to the average of the daily prices. Prior to 1Q1984, prices refer to the first month of the quarter.

### Oil products

For low sulphur fuel oil and light fuel oil, prices are derived from the European Commission's *Weekly Oil Bulletin*, which reports weekly ex-tax and total prices. Quarterly and annual figures are calculated as arithmetical averages of the weekly data. Total taxes are calculated as the subtraction of the ex-tax prices from the final prices. Excise taxes for non-commercial users are calculated by subtracting VAT from the total taxes. For commercial users, excise taxes are equal to total taxes, as they are exempt from VAT.

For automotive diesel, unleaded premium (95 RON) gasoline and automotive LPG, end-use prices are average of prices gathered from most filling stations in the country. Prices refer to self-service pumps. Ex-tax prices are calculated by subtracting the applicable tax components from the end-use prices.

Prices for premium unleaded (98RON) gasoline, from 1Q2010 onwards, are not available since the traded volumes in the country are negligible.

### Natural gas

For industry, prices refer to the Eurostat consumption band I4 for industry (annual consumption: 100 000 – 1 000 000 GJ), which represented 23% of total consumption in 2008.



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Eurostat data are biannual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated by subtracting prices excluding taxes from prices including non-VAT taxes, as published by Eurostat.

Until 4Q2006, prices refer to large-consumers based on an annual consumption of 25 million $m^3$. Industries with an assumed consumption of 25 million $m^3$ were subject to a tariff for the first 10 million $m^3$, and a lower tariff for the remaining 15 million $m^3$.

For households, prices and taxes for households are calculated by CBS using an annual consumption of 2 000 standard $m^3$ ($Sm^3$) and include standing charges and the average tariffs of all distributors during the period. The applicable tax components are then added to the ex-tax price to obtain the end-use price.

## Coal

Coal prices are currently not available.

## Electricity

For industry, prices refer to the Eurostat consumption band ID for industry (annual consumption: 2 000 – 20 000 MWh), which represented 25% of total consumption in 2008.

Eurostat data are bi-annual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated by subtracting prices excluding taxes from prices including non-VAT taxes, as published by Eurostat.

For households, prices refer to the average tariff per MWh charged by distributors. Excise taxes on electricity for households consist of a variable component, proportional to consumption, and a fixed yearly discount, independent of consumption. For the purpose of calculating an effective excise tax rate per MWh, an average consumption of 3 MWh per year is assumed. Because of this assumption, excise tax rates for electricity can be negative for certain quarters.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the monthly indices produced by CBS.



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Retail indices are chained series that have been extended backwards from 4Q2002. Therefore, the value in the base year may not be exactly equal to 100.

Wholesale indices for oil products refer to the Producer Prices Indices (PPIs) for *oil refinery products*. Retail indices refer to the Consumer Prices Indices (CPIs) for *fuels and lubricant*s.

Wholesale and retail indices for electricity refer to the PPIs and CPIs for electricity, respectively.

Wholesale indices for natural gas refer to the PPIs for liquid and gaseous natural gas. Retail indices refer to the CPIs for gas.

# Energy taxation

## VAT

VAT *(BTW)* was introduced on 1 January 1969 through the Value Added Tax Act 1968. The VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | General % |
|---|---|---|
| 01.01.78 | 31.12.83 | 18.0 |
| 01.01.84 | 30.09.86 | 19.0 |
| 01.10.86 | 31.12.88 | 20.0 |
| 01.01.89 | 30.09.92 | 18.5 |
| 01.10.92 | 31.12.00 | 17.5 |
| 01.01.01 | 30.09.12 | 19.0 |
| 01.10.12 | Now | 21.0 |

## Excise tax

Excise taxes on commercial energy products are levied in accordance with the 2003 EU Energy Taxation Directive.

Excise taxes in the Netherlands comprise excise duties, stockholding fees and environmental taxes.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | | | | |
| Stockholding fee | | × | × | × | × | | | | |
| Energy tax | | | | | | × | | | × |
| Coal tax | | | | | | | × | × | |

### *Excise duties (Accijns)*

The current excise taxation system on energy products is legally defined in the Excise Duties Act of 1991, which came into effect on 14 November 1991.

Excise duties apply to gasoline, automotive diesel, light and heavy fuel oil and automotive LPG. There is no separate excise rate for biofuels in the Excise Duties Act, and so the excise rate for biofuels is that of the closest fossil fuel. A partial rebate scheme was introduced for the excise duty on biofuels, to compensate for the lower energy content per unit compared to fossil fuels.

For light fuel oil, automotive diesel and LPG, large consumers as well as churches, non-profit associations and greenhouses without access to natural gas, paid excise duties on these products at a discounted rate until 1 January 2013.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|
| 01.01.11 | 31.12.11 | 33.89 | 423.6 | 0.4236 | 0.71827 | 0.082 |
| 01.01.12 | 31.12.12 | 34.47 | 430.8 | 0.4308 | 0.73048 | 0.088 |
| 01.01.13 | 31.12.13 | 35.23 | 440.28 | 0.44028 | 0.74655 | 0.095 |
| 01.01.14 | 31.12.14 | 35.83 | 477.76 | 0.47776 | 0.75924 | 0.174 |
| 01.01.15 | 31.12.15 | 36.15 | 482.06 | 0.48206 | 0.76607 | 0.181 |
| 01.01.16 | 31.12.16 | 36.33 | 484.47 | 0.48447 | 0.76990 | 0.182 |
| 01.01.17 | 31.12.17 | 36.44 | 485.92 | 0.48592 | 0.77221 | 0.182 |
| 01.01.18 | 31.12.18 | 36.73 | 489.81 | 0.48981 | 0.77839 | 0.184 |
| 01.01.19 | 31.12.19 | 37.17 | 495.69 | 0.49569 | 0.78773 | 0.186 |
| 01.01.20 | 31.12.20 | 37,76 | 503.62 | 0.50362 | 0.80033 | 0.189 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|
| 01.01.21 | 31.12.21 | 38.36 | 521.68 | 0.52168 | 0.81314 | 0.193 |
| 01.01.22 | 31.03.22 | 38.86 | 528.46 | 0.52846 | 0.82371 | 0.195 |
| 01.04.22 | Now | 38.86 | 528.46 | 0.41746 | 0.68075 | 0.161 |

### *Stockholding fee (Voorraadheffing)*

The Stockholding fee was introduced on 1 August 2009 on gasoline, automotive diesel, light fuel oil and LPG sales. This fee is used to finance infrastructure spending and operations of the country's stockholding obligations, pursuant to its membership to the IEA.

The Netherlands' strategic oil stocks are managed by COVA *(Centraal Orgaan Voorraadvorming Aardolieproducten)*, an independent national non–profit organisation, legally established through the 2012 Oil Stockpiling Act (Chapter 2, Art. 15-22).

| From | To | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|
| 01.08.09 | 31.03.13 | 5.9 | 0.0059 | 0.0059 | 0.0059 |
| 01.04.13 | now | 8.0 | 0.008 | 0.008 | 0.008 |

### *Energy tax (Energiebelasting)*

The Energy tax is an environmental tax *(milieubelasting)* that applies to natural gas and electricity consumption. It is legally defined in the Environmental Taxes Act, which first came into effect on 1 January 1995, as amended.

The tax applies to natural gas and electricity, whether it is purchased via a distribution system operator or in the free market, except for natural gas used for electricity production.

The tax comprises two variable components, expressed per consumption unit ($Sm^3$ for natural gas and kWh for electricity), and a fixed annual credit *(belastingvermindering)*

The first component consists of a base rate that depends on the consumption band, and certain activities, like greenhouses, benefit from a reduced rate for natural gas. The second component, introduced on 1 January 2013, consists of a



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renewable energy storage support contribution *(opslag duurzame energie)*. The fixed annual tax credit *(belastingvermindering)* is deducted from the energy tax payments on electricity for households. The justification for this system is that the Administration considers that energy use, to a certain extent, is a basic need. Tax credit being a negative component of the excise tax, its increase combined with decrease in taxation has led in 1Q2020 to negative values for excise tax. Tax credits for other electricity consumers were abolished on 1 January 2015. Tax credits for natural gas consumption were abolished on 1 January 2008.

In the tax rate tables shown at the end of this section, the rates per MWh include both variable components for standard users.

### *Energy tax (Energiebelasting) - Natural gas*

| From | To | Categories | | | | | | Annual discount (EUR) |
|---|---|---|---|---|---|---|---|---|
| | | I (EUR/MWh) | II (EUR/MWh) | III (EUR/MWh) | IV (EUR/MWh) | V (EUR/MWh) | VI (EUR/MWh) | |
| 01.01.02 | 31.12.02 | 13.77 | 7.01 | 2.18 | 1.08 | 0.72 | 0.72 | 96.00 |
| 01.01.03 | 31.12.03 | 14.27 | 7.26 | 2.26 | 1.13 | 0.75 | 0.75 | 96.84 |
| 01.01.04 | 31.12.04 | 14.62 | 7.44 | 2.32 | 1.16 | 1.08 | 0.77 | 98.18 |
| 01.01.05 | 31.12.05 | 15.29 | 10.43 | 3.18 | 1.18 | 1.09 | 0.78 | 0 |
| 01.01.06 | 31.12.06 | 15.42 | 12.67 | 3.48 | 1.19 | 1.10 | 0.79 | 0 |
| 01.01.07 | 31.12.07 | 15.67 | 13.72 | 3.80 | 1.21 | 1.12 | 0.80 | 0 |
| 01.01.08 | 30.06.08 | 15.89 | 13.92 | 3.86 | 1.23 | 1.15 | 0.81 | 0 |
| 01.07.08 | 31.12.08 | 15.89 | 13.92 | 3.86 | 1.23 | 1.15 | 0.89 | 0 |
| 01.01.09 | 31.12.09 | 16.16 | 14.17 | 3.93 | 1.25 | 1.17 | 0.82 | 0 |
| 01.01.10 | 31.12.10 | 16.66 | 14.43 | 4.00 | 1.27 | 1.19 | 0.84 | 0 |
| 01.01.11 | 31.12.11 | 16.77 | 14.52 | 4.02 | 1.28 | 1.20 | 0.84 | 0 |
| 01.01.12 | 31.12.12 | 17.05 | 14.76 | 4.09 | 1.30 | 1.22 | 0.85 | 0 |
| 01.01.13 | 31.12.13 | 19.29 | 19.29 | 4.58 | 1.67 | 1.20 | 1.20 | 0 |
| 01.01.14 | 31.12.14 | 19.84 | 19.84 | 4.73 | 1.72 | 1.24 | 1.24 | 0 |
| 01.01.15 | 31.12.15 | 20.31 | 20.31 | 7.22 | 2.61 | 1.27 | 1.27 | 0 |
| 01.01.16 | 31.12.16 | 26.90 | 26.90 | 7.54 | 2.73 | 1.33 | 1.33 | 0 |
| 01.01.17 | 31.12.17 | 27.41 | 27.41 | 7.10 | 2.59 | 1.37 | 1.37 | 0 |



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| From | To | Categories | | | | | | Annual discount (EUR) |
|---|---|---|---|---|---|---|---|---|
| | | I (EUR/MWh) | II (EUR/MWh) | III (EUR/MWh) | IV (EUR/MWh) | V (EUR/MWh) | VI (EUR/MWh) | |
| 01.01.18 | 31.12.18 | 29.45 | 29.45 | 7.67 | 2.80 | 1.90 | 1.90 | 0 |
| 01.01.19 | 31.12.19 | 35.22 | 35.22 | 8.30 | 3.03 | 1.62 | 1.62 | 0 |
| 01.01.20 | 31.12.20 | 41.82 | 41.82 | 8.73 | 4.52 | 3.41 | 3.41 | 0 |
| 01.01.21 | 31.12.21 | 44.16 | 44.16 | 9.05 | 4.76 | 3.63 | 3.63 | 0 |
| 01.01.22 | now | 45.80 | 45.80 | 9.17 | 4.83 | 3.69 | 3.69 | 0 |

## *Energy tax (Energiebelasting) - Electricity*

| From | To | Categories | | | | | |
|---|---|---|---|---|---|---|---|
| | | I (EUR/MWh) | II (EUR/MWh) | III (EUR/MWh) | IV (EUR/MWh) | V (EUR/MWh) | VI (EUR/MWh) |
| 01.01.01 | 31.12.01 | 58.30 | 19.40 | 5.90 | | | 45.38 |
| 01.01.02 | 31.12.02 | 60.10 | 20.00 | 6.10 | | | 46.00 |
| 01.01.03 | 31.12.03 | 63.90 | 20.70 | 6.30 | | | 46.00 |
| 01.01.04 | 31.12.04 | 65.40 | 21.20 | 6.50 | 1.00 | 0.50 | 46.00 |
| 01.01.05 | 31.12.05 | 69.90 | 26.30 | 8.60 | 1.00 | 0.50 | 46.00 |
| 01.01.06 | 31.12.06 | 70.50 | 34.30 | 9.40 | 1.00 | 0.50 | 48.16 |
| 01.01.07 | 31.12.07 | 71.60 | 36.90 | 10.20 | 1.00 | 0.50 | 100.82 |
| 01.01.08 | 30.06.08 | 75.20 | 37.50 | 10.40 | 1.00 | 0.50 | 100.82 |
| 01.07.08 | 31.12.08 | 75.20 | 37.50 | 10.40 | 1.00 | 0.50 | 199.00 |
| 01.01.09 | 31.12.09 | 108.50 | 39.80 | 10.60 | 1.00 | 0.50 | 318.62 |
| 01.01.10 | 31.12.10 | 111.40 | 40.60 | 10.80 | 1.00 | 0.50 | 318.62 |
| 01.01.11 | 31.12.11 | 112.10 | 40.80 | 10.90 | 1.00 | 0.50 | 318.62 |
| 01.01.12 | 31.12.12 | 114.00 | 41.50 | 11.10 | 1.00 | 0.50 | 318.62 |
| 01.01.13 | 31.12.13 | 117.60 | 43.80 | 11.70 | 1.02 | 0.52 | 318.62 |
| 01.01.14 | 31.12.14 | 120.80 | 45.80 | 12.20 | 1.03 | 0.53 | 318.62 |
| 01.01.15 | 31.12.15 | 123.20 | 51.50 | 13.70 | 1.06 | 0.56 | 311.84 |
| 01.01.16 | 31.12.16 | 106.30 | 56.96 | 15.21 | 1.15 | 0.61 | 310.81 |



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| From | To | Categories | | | | | |
|---|---|---|---|---|---|---|---|
| | | I (EUR/MWh) | II (EUR/MWh) | III (EUR/MWh) | IV (EUR/MWh) | V (EUR/MWh) | VI (EUR/MWh) |
| 01.01.17 | 31.12.17 | 107.70 | 61.31 | 16.35 | 1.20 | 0.66 | 308.54 |
| 01.01.18 | 31.12.18 | 117.78 | 70.74 | 18.84 | 1.35 | 0.76 | 308.54 |
| 01.01.19 | 31.12.19 | 117.50 | 81.17 | 21.61 | 1.47 | 0.88 | 257.54 |
| 01.01.20 | 31.12.20 | 125.00 | 88.33 | 34.03 | 1.51 | 0.95 | 435.68 |
| 01.01.21 | 31.12.21 | 124.28 | 92.74 | 36.25 | 1.53 | 0.96 | 461.62 |
| 01.01.22 | now | 67.29 | 85.41 | 34.79 | 1.64 | 1.07 | 681.63 |

### *Coal tax (Kolenbelasting)*

The Coal tax in the Netherlands is an environmental tax *(milieubelasting)* that applies to coal consumption. It is legally defined in the Environmental Taxes Act, as amended, which came in force on 1 January 1995. Rates are expressed on a per tonne basis.

| From | To | Coal (EUR/tonne) |
|---|---|---|
| 01.01.09 | 31.12.09 | 13.17 |
| 01.01.10 | 31.12.10 | 13.42 |
| 01.01.11 | 31.12.11 | 13.50 |
| 01.01.12 | 31.12.12 | 13.73 |
| 01.01.13 | 31.12.13 | 14.03 |
| 01.01.14 | 31.12.14 | 14.27 |
| 01.01.15 | 31.12.15 | 14.40 |
| 01.01.16 | 31.12.16 | 14.47 |
| 01.01.17 | 31.12.17 | 14.51 |
| 01.01.18 | 31.12.18 | 14.63 |
| 01.01.19 | 31.12.19 | 14.81 |
| 01.01.20 | 31.12.20 | 15.05 |
| 01.01.21 | 31.12.21 | 15.29 |
| 01.01.22 | now | 15.49 |



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# Energy taxation database methodology

The VAT (BTW) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Environmental tax comprises the Energy tax (Energiebelasting) and the Coal tax (Kolenbelasting). It is considered that an environmental tax applies to the consumption of natural gas, electricity and coal. Exemptions include the use of natural gas for electricity generation. The yearly values of the coal tax are estimated as the average of the different values applied within each year weighted by the number of days.

Renewable energy supply tax comprises one component of the Energy tax, which consists of a renewable energy storage support contribution (opslag duurzame energie). This component was implemented in January 2013, and the use of natural gas for electricity generation is exempt. Specific values are not provided.

Energy supply security tax corresponds to the Stockholding fee (Voorraadheffing), applied to gasoline, automotive diesel, light fuel oil and LPG sales. The yearly values are estimated as the average of the different values applied within each year weighted by the number of days.

Other taxes comprise the Excise duties (Accijns). These apply to gasoline, automotive diesel, light and heavy fuel oil and automotive LPG. The yearly values for the different energy products are estimated as the average of the different values applied within each year weighted by the number of days.

# Product specifications

## Oil products

| | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Automotive LPG |
|---|---|---|---|---|---|---|
| Quality | | HBO I | | Euro 98 | Euro 95 | |
| Density (kg/l) | | 0.84 | 0.84 | 0.745 | 0.745 | 0.53 |



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| | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Automotive LPG |
|---|---|---|---|---|---|---|
| Sulphur content (%) | < 1 | | | | | |
| NCV (kcal/kg) | 9 760 | 10 100 | | | | |
| Delivery size | 25 000 tonne/y | 3 000 – 5 000 l | | | | |

## Natural gas and coal

| | Natural gas | Steam coal industry electricity generation | Steam coal (households) |
|---|---|---|---|
| Quality | | Hard coal | Anthracite |
| GCV (kcal/$m^3$) | 8 406 | | |
| NCV (kcal/kg) | | 7 000 | |



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# New Zealand

## Sources

Prices and taxes data for all energy products are provided on a quarterly basis by the **Ministry of Business, Innovation and Employment (MBIE).**

Energy price indices are provided on a quarterly basis by **Statistics New Zealand**.

## Data collection methodology

Prior to 1Q1986, prices refer to the end of the quarter. From 1Q1986 to 4Q1989, prices refer to the second month of the quarter. From 1Q1990 onwards, prices refer to quarterly averages.

Data collection for all products covers the whole country. For all products, MBIE collects enduse prices and calculates the ex-tax price by subtracting the applicable taxes from the end-use prices.

### Oil products

From 3Q1987 onwards, oil product prices refer to market prices (no price control). Prior to 3Q1987, prices refer to retail prices set by Government regulation.

For high sulphur fuel oil, low sulphur fuel oil and automotive diesel for commercial users, prices are calculated based on a quarterly price survey of the four largest oil companies in the country and monthly sales data for the same companies collected by MBIE analysts. These two series are combined to obtain quarterly and annual average price series, weighted by each company's market share.

For automotive diesel for non-commercial users, premium unleaded (95 RON) gasoline and regular unleaded gasoline, quarterly prices are collected by Statistics New Zealand. Prices are net of discounts obtained through supermarkets and loyalty schemes.

Since 1998, electricity generation from heavy fuel oil, used for peak capacity, has been negligible.

### Natural gas

For industry and households, prices are calculated by dividing the total sales revenues by total consumption, based on data obtained in quarterly surveys of retailers.



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For electricity generation, prices are confidential.

## Steam and coking coal

For steam and coking coal prices for industry and electricity generation, prices are confidential.

## Electricity

For industry and households, prices are calculated by adding sales revenues, obtained in quarterly surveys of electricity retailers, and dividing the total by sectoral consumption data obtained in the same survey.

For industry, MBIE supplements the information with quarterly data on large industrial consumers connected to the national grid and purchasing electricity directly in an open market, supplied by Transpower, the national grid operator.

Electricity distribution companies supply additional detailed information regarding directly invoiced customers on an annual basis. As these companies reconcile their financial accounts in March each year, there is a mismatch between the sources. In order to ensure consistency with historical series, MBIE can only produce annual electricity data.

## Energy price indices

Wholesale indices refer to the Producer Price Indices (PPIs). Retail indices refer to the Consumer Price Indices (CPIs). Both indices are produced by Statistics New Zealand on a quarterly basis.

Annual figures are averages of the quarterly data shown.

PPI indices for oil products refer to Series PPIQ.SQUCC5110. Prices for petrol and diesel make up 63% of the index, with other (non-crude) petroleum oils making up a further 30% which include other fuel oils such as aviation fuel, light fuel oil and lubricating oils. Prices for this index are collected from the three major oil product retailers in New Zealand.

Retail indices for oil products refer to petrol (Series CPIQ.SE907202).

PPI indices for electricity refer to Series PPIQ.SPB17100M. These are quarterly average prices for electricity sold to business customers. Prices for this index are collected from the five major electricity retailers in New Zealand.

Retail indices for electricity refer to electricity (Series CPIQ.SE904501).



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PPI indices for natural gas refer to Series PPIQ.SPB12000E. This index comprised of quarterly average prices for gas sold to business customers and weighted average prices for regional gas sales. Prices for this index are collected from the four major gas retailers in New Zealand.

Retail indices for natural gas refer to gas (Series CPIQ.SE904502).

Wholesale indices for coal are not released due to confidentiality reasons.

Retail indices for coal refer to solid fuels (Series CPIQ.SE904503).

# Energy taxation

## GST

The Goods and services tax (*GST*) applies to all energy products. The GST is refunded for purchases for commercial consumers. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.10.86 | 30.06.89 | 10.0 |
| 01.07.89 | 30.09.10 | 12.5 |
| 01.10.10 | Now | 15.0 |

## Excise tax

The Energy (Fuels, Levies, and References) Act (1989/140) sets out the basic legal framework for the energy taxation system.

In general, excise taxes imposed on energy products are applied for the purposes of covering the costs incurred by the administration as a result of energy use.

Automotive diesel is not taxed at the pump, as diesel-powered vehicle owners are subject to annual Road User Charges (RUC), paid on a per-kilometer basis and contribute to the Accident Compensation Corporation (ACC) through annual licensing fees. These charges are not included in the excise tax column for automotive diesel. Similarly, bioethanol is subject to excise duty but biodiesel is subject to the RUC. The combination of levies is set so that the average gasoline-powered vehicle pays a similar amount to what is paid by diesel-powered vehicle owners.



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Electricity and fuels used for electricity generation are not taxed. Fuels for heating and process uses are, in general, either not taxed or subject to a full refund, and are therefore not included in the excise tax column in this publication.

Levies are exclusive of goods and services tax under the Goods and Services Tax Act 1985.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| National land transport fund | | | | × | × | | | | |
| Accident compensation corporation levy | | | | × | | | | | |
| Petroleum or engine fuel monitoring levy | | | × | × | | | | | |
| Local authorities fuel tax | | | × | × | | | | | |
| Regional fuel tax | | | × | × | | | | | |
| Energy resources levy | | | | | × | × | × | × | |
| Wholesale gas levy | | | | | | × | | | |

### *National land transport fund*

Land transport funding is governed by the Land Transport Management Act 2003 and subsequent amendments.

The revenue collected goes to the National Land Transport Fund to fund the National Land Transport Programme, which focuses on building and maintaining New Zealand's transport network.

| From | To | Gasoline (NZD/l) |
|---|---|---|
| 15.05.98 | 30.06.00 | 0.136 |
| 01.07.00 | 28.02.02 | 0.135 |
| 01.03.02 | 30.09.04 | 0.177 |



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| From | To | Gasoline (NZD/l) |
|---|---|---|
| 01.10.04 | 31.03.05 | 0.175 |
| 01.04.05 | 31.03.06 | 0.225 |
| 01.04.06 | 31.03.07 | 0.232 |
| 01.04.07 | 30.09.08 | 0.238 |
| 01.10.08 | 30.09.09 | 0.425 |
| 01.10.09 | 30.09.10 | 0.455 |
| 01.10.10 | 31.07.12 | 0.485 |
| 01.08.12 | 30.06.13 | 0.505 |
| 01.07.13 | 30.06.14 | 0.535 |
| 01.07.14 | 30.06.15 | 0.565 |
| 01.07.15 | 29.09.18 | 0.595 |
| 30.09.18 | 30.06.19 | 0.630 |
| 01.07.19 | 30.06.20 | 0.665 |
| 01.07.20 | 14.03.22 | 0.700 |
| 15.03.22 | now | 0.450 |

### *Accident compensation corporation levy*

The Accident Compensation Corporation (ACC) levy was introduced on 1 July 2003, to cover the cost of accidents and rehabilitation for victims of accidents in public roads, and is financed by annual licensing fees and levies on road fuels.

| From | To | Gasoline (NZD/l) |
|---|---|---|
| 01.10.91 | 19.03.01 | 0.020 |
| 20.03.01 | 30.06.01 | 0.030 |
| 01.07.01 | 30.06.03 | 0.023 |
| 01.07.03 | 30.06.05 | 0.051 |
| 01.07.05 | 30.06.07 | 0.058 |
| 01.07.07 | 30.06.08 | 0.073 |
| 01.07.08 | 30.06.09 | 0.093 |
| 01.07.09 | 30.06.15 | 0.099 |
| 01.07.15 | 30.05.17 | 0.069 |



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| From | To | Gasoline (NZD/l) |
|---|---|---|
| 01.06.17 | now | 0.060 |

### *Petroleum or engine fuel monitoring levy*

An additional levy applies to transportation fuels. In 2016, the Energy (Fuels, Levies, and References) Act (1989/140) was amended to eliminate the previous maximum rate of 0.00045 NZD/l.

The Petroleum or engine fuel monitoring levy is a funding mechanism for New Zealand's IEA oil stockholding obligations, which were previously funded through general taxation.

| From | To | Automotive diesel (NZD/l) | Gasoline (NZD/l) |
|---|---|---|---|
| 01.01.89 | 30.09.08 | 0.00025 | 0.00025 |
| 01.10.08 | 30.06.16 | 0.00045 | 0.00045 |
| 01.07.16 | 30.06.17 | 0.00200 | 0.00200 |
| 01.07.17 | 30.06.19 | 0.00300 | 0.00300 |
| 01.07.19 | 30.06.20 | 0.00600 | 0.00600 |
| 01.07.20 | 30.06.21 | 0.00610 | 0.00610 |
| 01.07.21 | 30.06.21 | 0.00590 | 0.00590 |
| 01.07.22 | now | 0.0065 | 0.0065 |

### *Local authorities fuel tax*

Cities and district councils impose an additional tax on transportation fuels, available for general local government expenditure. The tax rate, on a per litre basis, does not vary across the country and is relatively stable in time.

| From | To | Automotive diesel (NZD/l) | Gasoline (NZD/l) |
|---|---|---|---|
| 01.02.71 | Now | 0.0033 | 0.0066 |

### *Regional fuel tax*

In 2018, the Land Transport Management Act (2003/118) was amended to allow for regional transport fuel taxes. These taxes apply to all transport fuel sales within a given administrative region, with some exceptions depending on end use. The maximum rate of regional fuel tax is 0.10 NZD/l.



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The amendment allows for the immediate introduction of a regional fuel tax in the Auckland region. Other regions may introduce regional fuel taxes from 1 January 2021.

On 1 July 2018 Auckland introduced a regional fuel tax of 0.10 NZD/l. The 1Q2019 publication is the first to include the Auckland regional fuel tax in the calculation of prices. A national weighted-average of this tax has been calculated using population as at 30 June 2018 as the weights. Previously published data which did not include the Auckland regional fuel tax have been revised accordingly.

| From | To | All transport fuels (NZD/l) | National-weighted average (NZD/l) |
|---|---|---|---|
| 01.07.18 | 30.06.19 | 0.10 | 0.0338 |
| 01.07.19 | 30.06.20 | 0.10 | 0.0337 |
| 01.07.20 | Now | 0.10 | 0.0338 |

### *Energy resources levy*

The Energy resources levy, established by the Energy Resources Levy Act (1976/71) applies to locally produced coal, as well as natural gas and LPG produced from certain fields.

Natural gas produced in fields discovered after 1 January 1986 is exempt.

Since its introduction on 1 January 1977, this levy has remained at a flat rate of 1.5 NZD/tonne for South Island lignite, 2 NZD/tonne for all other local coal qualities, and 0.45 NZD/GJ for natural gas.

### *Wholesale gas levy*

Under the Energy (Fuels, Levies, and References) Act (1989/140), natural gas used for electricity generation is exempt from levies. This Act also establishes a maximum tax rate of 0.02 NZD/GJ.

Under the Gas Levy (1992/124), the Gas Industry Company (the gas industry co-regulator) can recommend the natural gas levy rates imposed on industrial consumers on a per GJ basis.

Retail natural gas consumers are subject to a fixed annual levy independent of consumption.



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| From | To | Natural gas *industry* (NZD/MWh) |
|---|---|---|
| 01.07.05 | 30.06.06 | 0.054 |
| 01.07.06 | 30.06.07 | 0.064 |
| 01.07.07 | 30.06.08 | 0.069 |
| 01.07.08 | 30.06.09 | 0.064 |
| 01.07.09 | 30.06.10 | 0.060 |
| 01.07.10 | 30.06.11 | 0.066 |
| 01.07.11 | 30.06.12 | 0.060 |
| 01.07.12 | 30.06.13 | 0.063 |
| 01.07.13 | 30.06.14 | 0.059 |
| 01.07.14 | 30.06.15 | 0.047 |
| 01.07.15 | 30.06.13 | 0.040 |
| 01.07.16 | 30.06.17 | 0.041 |
| 01.07.17 | 30.06.18 | 0.044 |
| 01.07.18 | 30.06.19 | 0.045 |
| 01.07.19 | 30.06.20 | 0.041 |
| 01.07.20 | 30.06.21 | 0.040 |
| 01.07.21 | 30.06.22 | 0.041 |
| 01.07.22 | now | 0.050 |

## Energy taxation database methodology

The Goods and Services tax (GST) is a VAT equivalent tax that applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Energy supply security tax corresponds to the Petroleum or engine fuel monitoring levy, applied to gasoline and automotive diesel. The yearly values are estimated as the average of the different values applied within each year weighted by the number of days.

Other taxes comprise the remaining excise duties and levies applied to the sale of the different energy products. These include: the National land transport fund



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(applied to gasoline and automotive LPG); the Accident compensation corporation levy (applied to gasoline); the Local authorities and Regional fuel taxes (applied to gasoline and diesel); and the Wholesale gas levy (applied to the use of natural gas by industry). The use of electricity (in general) and the use of energy products for electricity generation are exempt of all excise taxes. Moreover, the fuels for heating and process uses are also exempt. The yearly values for each of the individual taxes are estimated as the average of the different values applied within each year weighted by the number of days. Specifically for the Regional fuel tax, the values used in the estimation refer to the national average of the applicable values (weighted for the regional population). The total value of the Other taxes applicable to the different energy products corresponds to the sum of the values of the individual taxes.

## Product specifications

| | High sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (95 RON) gasoline | Regular unleaded gasoline | Natural gas | Steam coal |
|---|---|---|---|---|---|---|---|
| Quality | Heavy fuel oil | Blended heating oil | Automotive gasoil | | | | Bituminous coal |
| Octane number | | | | 95 | 91 | | |
| Density (kg/l) | 0.945 | 0.824 | 0.822 | 0.757 | 0.739 | | |
| Sulphur content (%) | <3 | <2 | <0.01 | <0.005 | <0.005 | | |
| NCV (kcal/kg) | | | | | | | |
| GCV (kcal/$m^3$) | 10 129 | 10 366 | 10 297 | 10 466 | 10 296 | | 6 836 |



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# Norway

## Sources

Prices and taxes data for oil products are provided on a quarterly basis by **Statistics Norway**.

Prices and taxes data for electricity are provided on a quarterly basis by the **Ministry of Petroleum and Energy (the Ministry)**.

Energy price indices are derived from data extracted from the **Statistics Norway** website.

## Data collection methodology

From 1Q1993 onwards, prices refer to the average of the weekly prices. From 1Q1986 to 4Q1992, prices refer to the second month of the quarter. From 1Q1983 to 4Q1986, prices refer to the first month of the quarter. Prior to 1Q1983, prices are quarterly averages.

Annual averages for oil and electricity are final and represent the official statistics. The most recent quarterly prices are provisional.

### Oil products

For light fuel oil, automotive diesel and unleaded premium (95 RON) gasoline, end-use prices are based on electronic data received on a monthly basis from a representative population of distributors and producers. Ex-tax prices are calculated by subtracting the applicable taxes from the end-use prices, based on information from the Norwegian Petroleum Institute.

The use of light fuel oil was banned in Norway on 1st January 2020; data are consequently not applicable from 1Q2020 onwards.

Oil vendors are required to meet a certain percentage of biofuels in the total motor fuels sold. For the year 2022 this requirement is 24.5 % for road transport fuels. So called advanced or 2. generation biofuels (produced from waste products unusable for food or animal feed) count as double, so the physical share of biofuels is estimated to range from 12.5 to 15.5 % in 2022.

### Natural gas

Prices for industry and households are currently not available.



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Prices for electricity generation are not available, as power generation from natural gas is negligible.

## Electricity

The network components of electricity prices are collected by the Norwegian Water Resources and Energy Directorate (NVE), a government agency within the Ministry, from all distribution system operators (DSOs).

Prices for households refer to national averages computed by NVE based on characteristics of the DSOs and an estimated annual consumption of 20 000 kWh. The whole country is covered.

Prices for industry are based on annual wholesale prices collected from Nord Pool, the largest electricity exchange in Northern Europe. A mark-up on the wholesale price is computed by NVE, including a yearly increase in the cost of renewable energy certificates. The estimation is checked against the data available in a price comparison tool managed by the Norwegian Consumer Council.

The applicable tax components are then added to these price estimates, resulting in a final price.

## Energy price indices

Annual indices are 12-month averages. From 1Q1993 onwards, quarterly indices refer to the 3-month average. Until 4Q1992, indices refer to the second month of the quarter.

Wholesale price indices for oil products refer to the Producer Price Index (PPI), refined petroleum products, domestic market. Retail price indices for oil products refer to the weighted average of the Consumer Price Indices (CPIs) for *fuels* and *lubricants for personal transport equipment and liquid fuels*.

Retail prices indices for electricity refer to the CPI for electricity.

Wholesale price indices for coal refer to the PPI for *coal, coke and briquette* in the domestic market. Retail prices indices for coal refer to the CPI for *solid fuels*.



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# Energy taxation

## VAT

VAT *(MVA)* applies to all energy products. The VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry, electricity generation and automotive fuels for commercial use.

| From | To | General % |
|---|---|---|
| 01.01.70 | 31.12.92 | 20 |
| 01.01.93 | 31.12.94 | 22 |
| 01.01.95 | 31.12.00 | 23 |
| 01.01.01 | 31.12.04 | 24 |
| 01.01.05 | now | 25 |

## Excise tax

Excise taxation on energy in Norway consists of five different tax components. The current excise taxation system is legally defined by the Act of 19 May 1933 no. 11 on Excise Duties and the Regulations on Excise Taxation of 20 December 2001, as amended, which came in force on 1 January 2002.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Road use tax | | | × | × | × | | | | |
| Basic tax | × | × | | | | | | | |
| $CO_2$ tax | × | × | × | × | × | × | × | × | |
| Sulphur tax | × | × | × | × | × | | | | |
| Electricity consumption tax | | | | | | | | | × |

### *Road use tax (Veibruksavgift)*

A Road use duty was introduced in 2011, replacing the duties on diesel and gasoline that had been in place in Norway since 1993 and 1933, respectively.



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In its current form, the road use duty is legally defined in the Act of 19 May 1933 n°11 on Excise Duties, as amended. Gasoline, automotive diesel, liquid biofuels, automotive LPG and compressed natural gas (CNG) are subject to this tax. Hydrogen and electricity used for transportation are exempt.

| From | To | Automotive diesel (NOK/l) | Gasoline (NOK/l) | Automotive LPG (NOK/kg) |
|---|---|---|---|---|
| 01.01.11 | 31.12.11 | 3.62 | 4.62 | |
| 01.01.12 | 31.12.12 | 3.68 | 4.69 | |
| 01.01.13 | 31.12.13 | 3.75 | 4.78 | |
| 01.01.14 | 30.06.15 | 3.82 | 4.87 | |
| 01.07.15 | 31.12.15 | 3.36 | 4.87 | |
| 01.01.16 | 30.06.16 | 3.44 | 4.99 | |
| 01.07.16 | 31.12.16 | 3.44 | 4.99 | 0.69 |
| 01.01.17 | 31.12.17 | 3.80 | 5.19 | 1.43 |
| 01.01.18 | 31.12.18 | 3.75 | 5.17 | 2.23 |
| 01.01.19 | 31.12.19 | 3.81 | 5.25 | 2.98 |
| 01.01.20 | 31.12.20 | 3.62 | 4.91 | 3.48 |
| 01.01.21 | 31.12.21 | 3.58 | 5.01 | 4.27 |
| 01.01.22 | now | 3.52 | 4.95 | 5.05 |

### *Basic tax (Grunnavgift)*

The Basic tax, applicable to oil products not used in transportation, was introduced in Norway in 2000.

This tax component was introduced simultaneously to a significant increase in the electricity consumption tax rate, as a way of discouraging the use of mineral oils for heating in favour of electricity.

Oil products used in the pulp and paper industry are taxed at a reduced rate. Jet fuel and oil products subject to the road use tax are exempt.

| From | To | Heavy fuel oil (NOK/1000l) | Light fuel oil (NOK/1000l) |
|---|---|---|---|
| 01.01.00 | 31.12.00 | 190 | 190 |
| 01.01.01 | 31.12.01 | 382 | 382 |



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| From | To | Heavy fuel oil (NOK/1000l) | Light fuel oil (NOK/1000l) |
|---|---|---|---|
| 01.01.02 | 31.12.02 | 389 | 389 |
| 01.01.03 | 31.12.03 | 398 | 398 |
| 01.01.04 | 31.12.04 | 405 | 405 |
| 01.01.05 | 31.12.05 | 414 | 414 |
| 01.01.06 | 31.12.06 | 421 | 421 |
| 01.01.07 | 31.12.07 | 429 | 429 |
| 01.01.08 | 31.12.08 | 845 | 845 |
| 01.01.09 | 31.12.09 | 870 | 870 |
| 01.01.10 | 31.12.10 | 886 | 886 |
| 01.01.11 | 31.12.11 | 983 | 983 |
| 01.01.12 | 31.12.12 | 999 | 999 |
| 01.01.13 | 31.12.13 | 1018 | 1018 |
| 01.01.14 | 31.12.14 | 1557 | 1557 |
| 01.01.15 | 31.12.15 | 1590 | 1590 |
| 01.01.16 | 31.12.16 | 1630 | 1630 |
| 01.01.17 | 31.12.17 | 1603 | 1603 |
| 01.01.18 | 31.12.18 | 1630 | 1630 |
| 01.01.19 | 31.12.19 | 1650 | 1650 |
| 01.01.20 | 31.12.20 | 1680 | 1680 |
| 01.01.21 | 31.12.21 | 1740 | 1740 |
| 01.01.22 | noe | 1760 | 1760 |

### *$CO_2$ tax ($CO_2$-avgift)*

A $CO_2$ tax was introduced in 1991 through the Law of 21 December 1990 on Taxes on $CO_2$ Emissions. It applies to oil products, natural gas and coal. Liquid biofuels are exempt of the $CO_2$ tax.

Consumers participating in the Emissions Trading System (ETS) are subject to reduced tax rates (not shown in the tables at the end of this section).



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| From | To | Heavy fuel oil (NOK/ tonne) | Light fuel oil (NOK/ 1000l) | Automotive diesel (NOK/l) | Gasoline (NOK/l) | Automotive LPG (NOK/kg) | Natural gas (NOK /Sm$^3$) | Coal (NOK/ tonne) |
|---|---|---|---|---|---|---|---|---|
| 01.01.91 | 31.12.91 | | | | 0.600 | | | |
| 01.01.92 | 31.12.92 | | | | 0.800 | | | |
| 01.01.93 | 31.12.93 | | | | 0.800 | | | 400 |
| 01.01.94 | 31.12.94 | | | | 0.820 | | | 410 |
| 01.01.95 | 31.12.95 | 415 | 415 | 0.415 | 0.830 | | | 415 |
| 01.01.96 | 31.12.96 | 425 | 425 | 0.425 | 0.850 | | | 425 |
| 01.01.97 | 31.12.97 | 435 | 435 | 0.435 | 0.870 | | | 435 |
| 01.01.98 | 31.12.98 | 445 | 445 | 0.445 | 0.890 | | | 445 |
| 01.01.99 | 31.12.99 | 460 | 460 | 0.460 | 0.920 | | | 460 |
| 01.01.00 | 31.12.00 | 470 | 470 | 0.470 | 0.940 | | | 470 |
| 01.01.01 | 31.12.01 | 480 | 480 | 0.480 | 0.720 | | | 480 |
| 01.01.02 | 31.12.02 | 490 | 490 | 0.490 | 0.730 | | | 490 |
| 01.01.03 | 31.12.03 | 500 | 500 | 0.500 | 0.750 | | | 500 |
| 01.01.04 | 31.12.04 | 510 | 510 | 0.510 | 0.760 | | | 500 |
| 01.01.05 | 31.12.05 | 520 | 520 | 0.520 | 0.780 | | | 500 |
| 01.01.06 | 31.12.06 | 530 | 530 | 0.530 | 0.790 | | | 500 |
| 01.01.07 | 31.12.07 | 540 | 540 | 0.540 | 0.800 | | | 500 |
| 01.01.08 | 31.12.08 | 550 | 550 | 0.550 | 0.820 | | | 500 |
| 01.01.09 | 31.12.09 | 570 | 570 | 0.570 | 0.840 | | | 500 |
| 01.01.10 | 31.12.10 | 580 | 580 | 0.580 | 0.860 | 0.650 | | 500 |
| 01.01.11 | 31.12.11 | 590 | 590 | 0.590 | 0.880 | 0.660 | 0.440 | 500 |
| 01.01.12 | 31.12.12 | 600 | 600 | 0.600 | 0.890 | 0.670 | 0.450 | 500 |
| 01.01.13 | 31.12.13 | 610 | 610 | 0.610 | 0.910 | 0.680 | 0.460 | 500 |
| 01.01.14 | 31.12.14 | 880 | 880 | 0.620 | 0.930 | 0.990 | 0.660 | 500 |
| 01.01.15 | 30.06.15 | 900 | 900 | 1.090 | 0.950 | 1.010 | 0.670 | 500 |
| 01.07.15 | 31.12.15 | 900 | 900 | 1.090 | 0.950 | 1.230 | 0.820 | 500 |
| 01.01.16 | 31.12.17 | 920 | 920 | 1.120 | 0.970 | 1.260 | 0.840 | 500 |
| 01.01.17 | 31.12.17 | 1200 | 1200 | 1.200 | 1.040 | 1.350 | 0.900 | |
| 01.01.18 | 31.12.18 | 1330 | 1330 | 1.330 | 1.160 | 1.500 | 1.000 | |



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| From | To | Heavy fuel oil (NOK/ tonne) | Light fuel oil (NOK/ 1000l) | Automotive diesel (NOK/l) | Gasoline (NOK/l) | Automotive LPG (NOK/kg) | Natural gas (NOK /Sm$^3$) | Coal (NOK/ tonne) |
|---|---|---|---|---|---|---|---|---|
| 01.01.19 | 31.12.19 | 1350 | 1350 | 1.350 | 1.180 | 1.520 | 1.020 | |
| 01.01.20 | 31.12.20 | 1450 | 1450 | 1.450 | 1.260 | 1.630 | 1,080 | |
| 01.01.21 | 31.12.21 | 1580 | 1580 | 1.580 | 1.370 | 1.770 | 1,170 | |
| 01.01.22 | now | 2050 | 2.050 | 2.050 | 1.780 | 2.300 | 1.520 | |

### *Sulphur tax (Svovelavgift)*

The Sulphur tax was introduced in 1970. It is levied on oil products containing more than 0.05% sulphur on a mass basis. The tax rate increases with increments of 0.25% of sulphur content.

The tax is refunded if the sulphur content is removed before the product is consumed.

### *Electricity consumption tax (Forbruksavgift på elektrisk kraft)*

An Electricity consumption tax was introduced in Norway in 1951.

A reduced tax rate applies to industry, as well as to commercial customers in Finnmark and Nord-Troms. Households in Finnmark and Nord-Troms, as well as certain power-intensive industrial processes, are exempt from.

The rates shown in the table at the end of this section refer to households in regions other than Finnmark and Nord-Troms.

| From | To | Electricity (NOK/MWh) |
|---|---|---|
| 01.05.74 | 30.06.78 | 10.0 |
| 01.07.78 | 31.12.80 | 20.0 |
| 01.01.81 | 31.12.82 | 22.0 |
| 01.01.83 | 31.12.83 | 25.0 |
| 01.01.84 | 31.12.84 | 27.0 |
| 01.01.85 | 31.12.85 | 29.0 |
| 01.01.86 | 30.06.86 | 31.0 |
| 01.07.86 | 31.12.86 | 32.0 |
| 01.01.87 | 31.12.87 | 34.0 |



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| From | To | Electricity (NOK/MWh) |
|---|---|---|
| 01.01.88 | 31.12.88 | 36.0 |
| 01.01.89 | 31.12.89 | 37.0 |
| 01.01.90 | 31.12.90 | 38.5 |
| 01.01.91 | 31.12.91 | 40.0 |
| 01.01.92 | 31.12.92 | 41.5 |
| 01.01.93 | 31.12.93 | 46.0 |
| 01.01.94 | 31.12.94 | 51.0 |
| 01.01.95 | 31.12.95 | 52.0 |
| 01.01.96 | 31.12.96 | 53.0 |
| 01.01.97 | 31.12.97 | 56.2 |
| 01.01.98 | 31.12.98 | 57.5 |
| 01.01.99 | 31.12.99 | 59.4 |
| 01.01.00 | 31.12.00 | 85.6 |
| 01.01.01 | 31.12.01 | 113.0 |
| 01.01.02 | 31.12.02 | 93.0 |
| 01.01.03 | 31.12.03 | 95.0 |
| 01.01.04 | 31.12.04 | 96.7 |
| 01.01.05 | 31.12.05 | 98.8 |
| 01.01.06 | 31.12.06 | 100.5 |
| 01.01.07 | 31.12.07 | 102.3 |
| 01.01.08 | 31.12.08 | 105.0 |
| 01.01.09 | 31.12.09 | 108.2 |
| 01.01.10 | 31.12.10 | 110.1 |
| 01.01.11 | 31.12.11 | 112.1 |
| 01.01.12 | 31.12.12 | 113.9 |
| 01.01.13 | 31.12.13 | 116.1 |
| 01.01.14 | 31.12.14 | 123.9 |
| 01.01.15 | 31.06.15 | 136.5 |
| 01.07.15 | 31.12.15 | 141.5 |
| 01.01.16 | 31.12.17 | 160.0 |



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| From | To | Electricity (NOK/MWh) |
|---|---|---|
| 01.01.18 | 31.12.18 | 165.8 |
| 01.01.19 | 31.12.19 | 158.3 |
| 01.01.20 | 31.12.20 | 161.3 |
| 01.01.21 | 31.12.21 | 166.9 |
| 01.01.22 | 31.03.22 | 89.1 |
| 01.04.22 | 31.12.22 | 154.1 |

## Energy taxation database methodology

VAT (MVA) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial pur-poses, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Environmental tax comprises the CO2 tax (CO2-avgift) and the Sulphur tax (Svovelavgift). The first applies to heavy and light fuel oil, diesel, gasoline, LPG, natural gas and coal. The second applies to heavy fuel oil. The yearly values of the CO2 tax are estimated as the average of the different values applied within each year weighted by the number of days. The values for the Sulphur tax are not provided.

Carbon tax refers to the CO2 tax, applied in Norway. The yearly values are equivalent to the ones estimated for the Environmental tax, as Sulphur tax values are not provided.

Other taxes comprise the remaining excise duties and levies applied to the sale of the different energy products. These include: the Road use tax (applied to gasoline, diesel and automotive LPG); the Basic tax (applied to heavy and light fuel oil); and the Electricity consumption tax (applied to electricity). The yearly values for each of the individual tax-es are estimated as the average of the different values applied within each year weighted by the number of days. Spe-cifically for the Electricity consumption tax, these refer to households in regions other than Finnmark and Nord-Troms, the values applicable to purchases for commercial purposes are not provided.



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# Product specifications

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil *industry* | Light fuel oil *households* |
|---|---|---|---|---|
| Quality | Fuel oil no. 6 | | Fuel oil no. 2 | Fuel oil no. 1 |
| Density (kg/l) | 0.98 | 0.82 – 0.86 | 0.85 | 0.83 |
| Sulphur content (%) | 1 | < 0.2 | | |
| NCV (kcal/kg) | | 9 974 | | |
| Delivery size (l) | | 2 400 – 3 999 | | |



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# Poland

## Sources

Data for all energy products, including energy price indices, are provided on a quarterly basis by the **Energy Market Agency (ARE)**.

## Data collection methodology

### Oil products

Ex-tax prices for all oil products, with the exception of light fuel oil for households, are derived from regular statistical surveys conducted by ARE covering practically 100% of consumption. The applicable tax components are then added to the ex-tax prices to calculate end-use prices.

For high and low sulphur fuel oil, quarterly and annual end-use prices are average prices per tonne paid by industry to distributors.

For heavy fuel oil for electricity generation, prices from 1Q2004 onwards are weighted averages of the prices paid by electricity generators to distributors for high and low sulphur fuel oils. Prior to 2004, prices shown for electricity generation were the equal to prices per tonne of high sulphur fuel oil paid to distributors.

For light fuel oil for industry, prices refer to the average list prices from major distributors.

For automotive diesel, gasoline and automotive LPG, prices refer to pump prices at filling stations owned by the major distributors.

For light fuel oil for households, end-use prices are derived from regular statistical survey of retailers conducted by the Central Statistical Office. Ex-tax prices are then calculated by subtracting the applicable tax components from the end-use prices.

Oil products end-use weekly prices available in the *World Energy Prices* were corrected from February 2022 onwards to correctly reflect the government measures due to increased energy prices.

### Natural gas

For households and industry, prices refer to average expenditures per MWh of natural gas (high methane) paid to the sellers. Ex-tax prices and excise taxes for



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natural gas are derived from a statistical survey, which covers practically 100% of total consumption.

Prices shown for the electricity generation sector are weighted averages of high and low methane natural gas prices paid to the sellers by electricity generators.

Prices for electricity generation are derived from a statistical survey limited to five major natural gas-fired power plants, which cover around 90% of consumption for electricity generation. As described in the Energy taxation section of this document, natural gas used for electricity generation is not taxed. Therefore, end-use prices and ex-tax prices are equal.

## Steam and coking coal

For steam coal for households, end-use prices are derived from a statistical survey of retailers conducted by the Central Statistical Office. Ex-tax prices are then calculated by subtracting the applicable tax components from the end-use prices.

For steam coal for industry and electricity generation, as well as coking coal for industry, end-use prices are derived from a statistical survey.

As described in the Energy taxation section of this document, coal used for electricity generation is not taxed. Therefore, end-use prices and ex-tax prices are equal.

Due to the numerous tax exemptions listed in the Energy taxation section of this document, the reporting agency is currently unable to estimate ex-tax prices or average excise taxes for steam and coking coal for industry. These are therefore shown as not available from 2012 onwards.

## Electricity

For industry and households, prices refer to annual and quarterly average expenditures per MWh paid to the electricity utilities. Ex-tax prices for electricity are derived from a statistical survey covering practically 100% of total consumption. The applicable tax components are then added to the ex-tax prices to calculate end-use prices.

## Energy price indices

The retail price index for oil products includes gasoline, lubricants and oils. For natural gas, the index includes both piped and bottled gas.



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# Energy taxation

## VAT

VAT *(VAT or PTU)* is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

Oil products used in transportation have been subject to the general VAT rate since its introduction in 1993.

Commercial energy products for other uses were subject to a reduced VAT rate, which was abolished on 1 January 1998.

| From | To | General % | Reduced % |
|---|---|---|---|
| 05.07.93 | 31.12.95 | 22 | 7 |
| 01.01.96 | 31.12.96 | 22 | 12 |
| 01.01.97 | 31.12.97 | 22 | 17 |
| 01.01.98 | 31.12.10 | 22 | |
| 01.01.11 | Now | 23 | |

From 01.01.22 to 31.12.22 VAT for electricity was reduced from 23% to 5%.

From 01.01.22 to 31.01.22 VAT for gas was reduced from 23% to 8%.

From 01.02.22 to 31.12.22 VAT for gas was reduced from 8% to 0%.

From 01.02.22 to 31.12.22 VAT for oil products was reduced from 23% to 8%.

## Excise tax

Energy taxes in Poland are levied in accordance with the 2003 EU Energy Taxation Directive.

The excise tax columns in Tables 1, 2 and 3 is the sum of two tax components (excise duties and fuel surcharge).



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | × | × | × |
| Fuel surcharge | | | × | × | × | | | | |

### *Excise duties (Podatek akcyzowy)*

Excise duties are levied on road fuels, oil products for heat raising, natural gas, steam and coking coal, as well as electricity.

In general, fuels used for transportation and industrial purposes are taxed at a higher rate than those used for heating.

Excise duties are set by the Ministry of Finance and are updated annually.

The following uses of natural gas and coal are exempt from excise duties:

for electricity generation;
for producing secondary energy products;
for passenger and freight rail transport;
for production of power and heat in co-generation;
in farm work;
in horticulture;
in forestry and fishing;
in mineralogical processes;
in electrolytic processes;
in metallurgy;
in chemical reduction.

In addition to this list, natural gas and coal used for heating by energy-intensive facilities that have introduced measures aimed at environmental protection, as well as consumption by specific types of users (households, public administration authorities, armed forces, hospitals, outpatient clinics, public benefit organizations) are exempted.

Electricity generated from renewable sources is exempt from the excise duty. There are excise duty reductions for the industrial consumers which belong to the



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specified list of branches and whose annual cost of electricity purchases is above 3% of the total industrial production value. From 01.01.22 to 31.07.22 household consumers are exempt from excise duty.

| From | To | Heavy fuel oil (PLN/tonne) | Light fuel oil (PLN/1000l) | Automotive diesel (PLN/l) | Gasoline (PLN/l) |
|---|---|---|---|---|---|
| 01.01.00 | 31.12.00 | | 110.83 | 0.804 | 1.145 |
| 01.01.01 | 31.12.01 | | 127.08 | 0.844 | 1.314 |
| 01.01.02 | 31.12.02 | | 160.00 | 0.891 | 1.385 |
| 01.01.03 | 31.12.03 | | 195.00 | 0.914 | 1.419 |
| 01.01.04 | 31.12.04 | | 197.00 | 1.014 | 1.483 |
| 01.01.05 | 31.12.05 | 60 | 233.00 | 1.099 | 1.492 |
| 01.01.06 | 31.12.06 | 60 | 233.00 | 1.097 | 1.315 |
| 01.01.07 | 31.12.07 | 60 | 233.00 | 1.099 | 1.565 |
| 01.01.08 | 31.12.08 | 60 | 233.00 | 1.099 | 1.565 |
| 01.01.09 | 31.12.09 | 60 | 233.00 | 1.048 | 1.565 |
| 01.01.10 | 31.12.10 | 64 | 232.00 | 1.048 | 1.565 |
| 01.01.11 | 31.12.11 | 64 | 232.00 | 1.048 | 1.565 |
| 01.01.12 | 31.12.12 | 64 | 232.00 | 1.196 | 1.565 |
| 01.01.13 | 31.12.13 | 64 | 232.00 | 1.196 | 1.565 |
| 01.01.14 | 31.12.14 | 64 | 232.00 | 1.196 | 1.565 |
| 01.01.15 | 31.12.15 | 64 | 232.00 | 1.171 | 1.540 |
| 01.01.16 | 31.12.18 | 64 | 232.00 | 1.171 | 1.540 |
| 01.01.19 | 31.12.19 | 64 | 232.00 | 1.171 | 1.540 |
| 01.01.20 | 29.02.20 | 64 | 232.00 | 1.168 | 1.537 |
| 01.03.20 | 31.12.20 | 64 | 232.00 | 1.151 | 1.520 |
| 01.01.21 | 19.12.21 | 64 | 232.00 | 1.145 | 1.514 |
| 20.12.21 | 31.12.21 | 64 | 232.00 | 1.065 | 1.369 |
| 01.01.22 | 31.05.22 | 64 | 232.00 | 1.104 | 1.413 |



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| From | To | Automotive LPG (PLN/l) | Natural gas (PLN/MWh) | Coal (PLN/tonne) | Electricity (PLN/MWh) |
|---|---|---|---|---|---|
| 01.01.00 | 31.12.00 | | | | |
| 01.01.01 | 31.12.01 | | | | |
| 01.01.02 | 31.12.02 | 0.1600 | | | 15 |
| 01.01.03 | 31.12.03 | 0.1940 | | | 20 |
| 01.01.04 | 31.12.04 | 0.3220 | | | 20 |
| 01.01.05 | 31.12.05 | 0.3900 | | | 20 |
| 01.01.06 | 31.12.06 | 0.3895 | | | 20 |
| 01.01.07 | 31.12.07 | 0.3906 | | | 20 |
| 01.01.08 | 31.12.08 | 0.3906 | | | 20 |
| 01.01.09 | 31.12.09 | 0.3906 | | | 20 |
| 01.01.10 | 31.12.10 | 0.3906 | | | 20 |
| 01.01.11 | 31.12.11 | 0.3906 | | | 20 |
| 01.01.12 | 31.12.12 | 0.3906 | | | 20 |
| 01.01.13 | 31.12.13 | 0.3906 | | | 20 |
| 01.01.14 | 31.12.14 | 0.3764 | 1.2006 | | 20 |
| 01.01.15 | 31.12.15 | 0.3764 | 1.0261 | | 20 |
| 01.01.16 | 31.12.18 | 0.3764 | 0.8693 | | 20 |
| 01.01.19 | 31.12.19 | 0.3764 | 0.7466 | | 5 |
| 01.01.20 | 29.02.20 | 0.3747 | 0.9203 | | 5 |
| 01.03.20 | 31.03.20 | 0.3652 | 0.9203 | | 5 |
| 01.04.20 | 30.06.20 | 0.3652 | 0.66886 | | 5 |
| 01.07.20 | 30.09.20 | 0.3652 | 0.59826 | | 5 |
| 01.10.20 | 31.12.20 | 0.3652 | 0.75634 | | 5 |
| 01.01.21 | 31.03.21 | 0.3598 | 0.96331 | | 5 |
| 01.04.21 | 30.06.21 | 0.3598 | 0.84282 | | 5 |
| 01.07.21 | 30.09.21 | 0.3598 | 0.884 | | 5 |
| 01.10.21 | 19.12.21 | 0.3598 | 0.87377 | | 5 |
| 20.12.21 | 31.12.21 | 0.20335 | 0.87377 | | 5 |
| 01.01.22 | 31.03.22 | 0.2132 | 0,98274 | | 4,60 |



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| From | To | Automotive LPG (PLN/l) | Natural gas (PLN/MWh) | Coal (PLN/tonne) | Electricity (PLN/MWh) |
|---|---|---|---|---|---|
| 01.04.22 | 30.06.22 | 0,2132 | 1,04617 | | 4,60 |
| 01.07.22 | 30.09.22 | 0,2132 | 1,19979 | | 4,60 |
| 01.10.22 | 31.12.22 | 0,2132 | 1,18645 | | 4,60 |

### *Environmental tax (for electricity)*

Electricity prices are subject to an environmental tax, defined as the sum of levy on CO2 emissions and the real excise tax from the end-use prices survey.

| From | To | Households (PLN/KWh) | Industry (PLN/KWh) |
|---|---|---|---|
| 01.01.17 | 31.12.17 | 0.0383 | 0.0307 |
| 01.01.18 | 31.12.18 | 0.0471 | 0.0393 |
| 01.01.19 | 31.12.19 | 0.0431 | 0.0438 |
| 01.01.20 | 31.12.20 | 0.0759 | 0.0768 |
| 01.01.21 | 31.12.21 | 0.1033 | 0.1026 |

### *Fuel surcharge (Opłata paliwowa)*

In addition to the excise duties described above, an additional tax is levied on road fuels, including automotive diesel, gasoline and automotive LPG.

The fuel surcharge is set by the Ministry of Infrastructure and Construction and is usually updated annually.

| From | To | Automotive diesel (PLN/l) | Gasoline (PLN/l) | Automotive LPG (PLN/l) |
|---|---|---|---|---|
| 01.01.00 | 31.12.00 | 0.08873 | 0.07854 | |
| 01.01.01 | 31.12.01 | 0.08873 | 0.07854 | |
| 01.01.02 | 31.12.02 | 0.08873 | 0.07854 | 0.05901 |
| 01.01.03 | 31.12.03 | 0.08873 | 0.07854 | 0.05901 |
| 01.01.04 | 31.12.04 | 0.08873 | 0.07854 | 0.05901 |
| 01.01.05 | 31.12.05 | 0.08873 | 0.07854 | 0.05901 |
| 01.01.06 | 31.12.06 | 0.09095 | 0.08051 | 0.06049 |
| 01.01.07 | 31.12.07 | 0.09177 | 0.08123 | 0.06103 |



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| From | To | Automotive diesel (PLN/l) | Gasoline (PLN/l) | Automotive LPG (PLN/l) |
|---|---|---|---|---|
| 01.01.08 | 31.12.08 | 0.09369 | 0.08294 | 0.06231 |
| 01.01.09 | 31.12.09 | 0.09643 | 0.08659 | 0.06506 |
| 01.01.10 | 31.12.10 | 0.23399 | 0.09287 | 0.06734 |
| 01.01.11 | 31.12.11 | 0.23984 | 0.09519 | 0.06902 |
| 01.01.12 | 31.12.12 | 0.24992 | 0.09919 | 0.07192 |
| 01.01.13 | 31.12.13 | 0.25992 | 0.10316 | 0.07480 |
| 01.01.14 | 31.12.14 | 0.26252 | 0.10420 | 0.07556 |
| 01.01.15 | 31.12.17 | 0.28805 | 0.12941 | 0.08972 |
| 01.01.18 | 31.12.18 | 0.29305 | 0.13140 | 0.09116 |
| 01.01.19 | 31.12.19 | 0.29761 | 0.13321 | 0.09248 |
| 01.01.20 | 29.02.20 | 0.30634 | 0.13849 | 0.09581 |
| 01.03.20 | 31.12.20 | 0.32334 | 0.15549 | 0.10537 |
| 01.01.21 | now | 0.33853 | 0.16514 | 0.11075 |

## Energy taxation database methodology

VAT (PTU), when established, was applied to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. Transportation fuels are subject to the general rate. The remaining energy products were subject to a reduced rate, which was abolished in 1 January 1998. It is assumed that energy products for uses other than transport are exempt of VAT since 1998. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Other taxes comprise the remaining excise duties and levies applied to the sale of the different energy products, including Excise duties (Podatek akcyzowy) and the Fuel surcharge (Opłata paliwowa). The first applies to all energy products; nonetheless, given the referred exemptions, it is assumed that it does apply to the use of natural gas and coal for electricity generation and households. The fuel surcharge applies to road transportation fuels (diesel, gasoline and automotive LPG). The yearly values for each of the individual taxes are estimated as the average of the different values applied within each year weighted by the number of days. The total yearly values for the different energy products correspond to the



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sum of the individual values for road transportation fuels, and to the values of the excise duties for the remaining fuels.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the following 16 provinces (voivodeship) in Poland:

Dolnoslaskie

Lodzkie

Podkarpackie

Swietokrzyskie

Kujawsko-pomorskie

Malopolskie

Podlaskie

Warminsko-mazurskie

Lubelskie

Mazowieckie

Pomorskie

Wielkopolskie

Lubuskie

Opolskie

Slaskie

Zachodnio-pomorskie

## Product specifications

### Oil products

| | High sulphur fuel oil | Heavy fuel oil *electricity generation* | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline |
|---|---|---|---|---|---|---|---|
| Quality | Ciężki olej opałowy | Ciężki olej opałowy | Ciężki olej opałowy niskosiarkowy | Ekoterm Plus, Lotos Red | Olej napędowy | Super Plus 98 | Euro Super 95 |
| Density (kg/l) | 0.94 | 0.94 | 0.925 | 0.837 | 0.832 | 0.748 | 0.748 |
| Sulphur content (%) | 1 - 3 | <3 | <1 | <0.1 | ≤ 0.001 | | |



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| | High sulphur fuel oil | Heavy fuel oil *electricity generation* | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline |
|---|---|---|---|---|---|---|---|
| NCV (kcal/kg) | 9 772 | 9 869 | 9 906 | 10 270 | 10 270 | 10 698 | 10 698 |

## Natural gas and coal

| | Natural gas | Steam coal *industry* | Steam coal *electricity generation* | Steam coal *households* | Cooking coal |
|---|---|---|---|---|---|
| Quality | | Węgiel energetyczny dla przemysłu | Węgiel energetyczny dla elektrowni cieplnych zawodowych | Węgiel energetyczny dla gospodarstw domowych | Węgiel dla koksowni |
| NCV (kcal/kg) | | 5 494 | 5 156 | 5 971 | 7 031 |
| GCV (kcal/$m^3$) | 9 441 | | | | |



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# Portugal

## Sources

Prices and taxes data for all products are provided on a quarterly basis by the **Directorate General for Energy and Geology (DGEG).**

Prices and taxes data for natural gas and electricity and retail energy price indices are based on data published by **Eurostat**.

## Data collection methodology

From 1Q1993 onwards, prices refer to the monthly average of the quarter. From 1Q1986 to 4Q1992, prices refer to the second month of each quarter. Prior to 1Q1986, prices refer to the first month of each quarter.

### Oil products

On 1 January 2004, all oil product prices were liberalised. Until 31 December 2003, unleaded premium (95 RON) gasoline and automotive diesel and diesel for off-road use had maximum prices set by the government. Prior to 1 January 1991, all energy prices, except coal, were determined by the government.

Heavy fuel oil sales in Portugal were discontinued in January 2003 and replaced by low sulphur fuel oil.

For low sulphur fuel oil for industry, end-used prices are based on a weekly survey covering three out of four companies selling this product in the country. Quarterly and annual end-use prices are calculated as consumption-weighted averages of the weekly prices, using sales data for the previous year. Ex-tax prices are calculated by the reporting agency by subtracting the applicable taxes from the end-use prices.

For light fuel oil for households, automotive diesel, unleaded premium (95 RON) gasoline and automotive LPG, end-use prices are, from 1Q2009 onwards, based on retail prices reported by about 3 000 filling stations throughout continental Portugal, available at www.precoscombustiveis.dgeg.gov.pt. Filling stations are required to report changes in prices to DGEG before their implementation. Prices are automatically calculated on a daily basis by DGEG using sales data (Monthly), as well as information on discounts applied to fuel sales (previous year), to produce a national average price. Ex-tax prices are calculated by the reporting agency by subtracting the applicable taxes from the end-use prices.



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Starting form 2021 advanced biofuels and gases with renewable origin have been exempt from excise taxation. The exmpetion is realised through a refund mechanism for the tax paid. In 2021 the estimated share of biocomponents by energy content was 6.7 % in diesel and 1.7 % in gasoline.

## Natural gas

Prior to 4Q2007, prices refer the unweighted average, but according to the categories of consumers duly typified (Council Directive 90/377/CEE of 29 June 1990), referring to the situations at the beginning of each semester (1 January and 1 July).

From 1Q2008 to 4Q2016, data are calculated according to the methodology under the application of Community Directive 2008/92/EC of 28 October.

From 1Q2017 onwards, data are calculated according to Regulation (EU) 2016/1952 of 26 October. According to the Regulation, prices refer to the price paid by industrial and households consumers for natural gas by consumption band. Prices are weighted by the market share of each consumption band.

Prices from July 2007 onwards refer to the Eurostat consumption band I3 (annual consumption 10 000 – 100 000 GJ) for industry; and band D2 for households (annual consumption 20 – 200 GJ), which are considered to be the most representative consumption bands for each sector by Eurostat.

Eurostat data are bi-annual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

## Steam and coking coal

For steam coal, prices for industry from 2010 onwards refer to anthracite consumed mainly in the chemical industry. Prices between 2004 and 2009 are unavailable. Prior to 2004, prices refer to coal consumed in the cement industry.

For steam coal, prices for electricity generation from 1996 onwards refer to the average price of imported coal, as there is no domestic production during this period. Prices between 1984 and 1995 refer to the weighted average of imported and domestically produced coal delivered to power stations. Prior to 1984, prices refer to coal delivered to power stations.

Steam coal prices for households are currently not available.



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For coking coal, prices from 2004 onwards refer mainly to consumption in the cement industry. Prior to 2004, prices refer to average quarterly import prices (CIF) for coking coal bought by large industrial consumers.

Prices for coking coal and anthracite for industry are confidential due to low consumption.

## Electricity

Prior to 4Q2007, prices refer the unweighted average, but according to the categories of consumers duly typified (Council Directive 90/377/CEE of 29 June 1990), referring to the situations at the beginning of each semester (1 January and 1 July).

From 1Q2008 to 4Q2016, data are calculated according to the methodology under the application of Community Directive 2008/92/EC of 28 October.

From 1Q2017 onwards, data are calculated according to Regulation (EU) 2016/1952 of 26 October. According to the regulation, prices refer to the price paid by industrial and households consumers for electricity by consumption band.

Prices refer to the Eurostat consumption band IC (annual consumption 500 - 2 000 MWh) for industry; and band DC for households (annual consumption 2 500 – 5 000 kWh), which are considered to be the most representative consumption bands for each sector by Eurostat.

Prices are weighted according to the consumption of each consumption band.

Eurostat data are bi-annual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Note for electricity industry:

In the 1st half of 2022, there were negative values in the case of taxes, these values resulted from the prices verified in the wholesale electricity markets, which presented values well above the historical values and well above the values of the "feed-in tariff" associated with the mechanism of the PRE (Special Regime Production) mechanism, thus justifying the existence of a “benefit” for the electrical system that manifests itself through negative % of the component renewable taxes and capacity taxes.



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### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722) series. Weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for natural gas refer to the *gas* (cp0452) series.

Retail indices for coal refer to the *solid fuel* (cp0454) series.

## Energy taxation

### VAT

VAT *(IVA)* applies to all energy products. VAT is refunded for purchases for industry. Therefore, it is not included in prices shown for industry and electricity generation. For transport fuels *for* commercial use, only 50% of the VAT expenditure is refunded.

Until 1 January 2011, natural gas and electricity sales were taxed at a reduced VAT rate.

Since 1st July, 2019, the fixed component for electricity and natural gas supplies is taxed at the reduced VAT rate, 6% in the Mainland and 4% and 5%, respectively, in the Autonomous Regions of the Azores and Madeira, for consumers who, have a contracted power that does not exceed 3,45 kVA for electricity, and have low pressure connections with consumption that does not exceed 10,000 $m^3$ annually for natural gas.

Light fuel oil was taxed at a reduced rate until 1 January 2012.

Until 1991, only 50% of VAT was *reimbursed* to industry and to commercial users of transport fuels.

The table below shows the applicable VAT rates in continental Portugal. The *autonomous* regions of Azores and Madeira benefit from reduced VAT rates.



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| From | To | General % | Natural gas Electricity % | Light fuel oil % |
|---|---|---|---|---|
| 05.06.02 | 30.06.05 | 19 | 5 | 12 |
| 01.07.05 | 30.06.08 | 21 | 5 | 12 |
| 01.07.08 | 30.06.10 | 20 | 5 | 12 |
| 01.07.10 | 31.12.10 | 21 | 6 | 13 |
| 01.01.11 | 30.09.11 | 23 | 6 | 13 |
| 01.10.11 | 31.12.11 | 23 | 23 | 13 |
| 01.01.12 | now | 23 | 23 | 23 |

## Excise tax

The legal framework for excise taxation on energy is consistent with the 2003 EU Energy Taxation Directive.

The total excise tax is the sum of different applicable excise taxation as showed into the table below.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| ISP | × | × | × | × | × | × | × | × | × |
| Road Service Contribution | | | x | x | x | | | | |
| $CO_2$ tax | x | x | x | x | x | x | x | x | |
| Renewable taxes* | | | | | | x | | | x |
| Capacity taxes* | | | | | | x | | | x |
| All other taxes, fees, levies and charges* | | | | | | x | | | x |

### *Tax on energy and petroleum products (ISP)*

Tax on energy and petroleum products (ISP) was introduced on 1 June 1994. The applicable rates, exemptions and rebates are listed in the Special Consumption Tax Code *(Código dos Impostos Especiais de Consumo – CIEC and Portaria nº 117-A/2008 of 8 February 2008)*.



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Originally, the ISP was only applied to oil products. Then it was expanded to cover electricity and coal on 1st January 2012 and natural gas on 1st January 2013.

| From | To | Low sulphur fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline 95 RON (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|
| 01.01.04 | 12.02.04 | 13.26 | 89.65 | 0.2998 | 0.5176 | 0.0510 |
| 13.02.04 | 31.12.04 | 15.00 | 89.65 | 0.3083 | 0.5226 | 0.0510 |
| 01.01.05 | 09.06.05 | 15.00 | 89.65 | 0.3083 | 0.5226 | 0.0520 |
| 10.06.05 | 31.12.05 | 15.30 | 91.44 | 0.3144 | 0.5330 | 0.0520 |
| 01.01.06 | 18.01.06 | 15.30 | 91.44 | 0.3144 | 0.5330 | 0.0532 |
| 19.01.06 | 31.12.06 | 15.30 | 91.44 | 0.3394 | 0.5580 | 0.0532 |
| 01.01.07 | 07.01.07 | 15.30 | 91.44 | 0.3394 | 0.5580 | 0.0543 |
| 08.01.07 | 22.02.07 | 15.30 | 91.44 | 0.3644 | 0.5830 | 0.0543 |
| 23.02.07 | 31.12.07 | 15.30 | 137.20 | 0.3644 | 0.5830 | 0.0543 |
| 01.01.08 | 09.01.08 | 15.30 | 137.20 | 0.2784 | 0.5190 | 0.0555 |
| 10.01.08 | 31.12.08 | 15.30 | 176.18 | 0.2784 | 0.5190 | 0.0555 |
| 01.01.10 | 28.04.10 | 15.30 | 176.18 | 0.2784 | 0.5190 | 0.0555 |
| 29.04.10 | 11.08.10 | 15.30 | 176.18 | 0.2784 | 0.5190 | 0.0559 |
| 12.08.10 | 31.08.10 | 15.30 | 176.18 | 0.2784 | 0.5190 | 0.0559 |
| 01.09.10 | 31.12.10 | 15.30 | 213.83 | 0.2784 | 0.5190 | 0.0559 |
| 01.01.11 | 11.03.11 | 15.30 | 213.83 | 0.2784 | 0.5190 | 0.0638 |
| 12.03.11 | 31.12.11 | 15.30 | 251.48 | 0.2784 | 0.5190 | 0.0638 |
| 01.01.12 | 31.12.12 | 15.65 | 292.46 | 0.2784 | 0.5190 | 0.0652 |
| 01.01.13 | 27.02.13 | 15.65 | 292.46 | 0.2784 | 0.5190 | 0.0652 |
| 28.02.13 | 31.12.13 | 15.65 | 330.00 | 0.2784 | 0.5190 | 0.0652 |
| 01.01.14 | 31.12.14 | 15.65 | 330.00 | 0.2784 | 0.5190 | 0.0652 |
| 01.01.15 | 31.12.15 | 15.65 | 330.00 | 0.2784 | 0.5190 | 0.0652 |
| 01.01.16 | 11.02.16 | 15.65 | 330.00 | 0.2784 | 0.5190 | 0.0652 |
| 12.02.16 | 12.05.16 | 15.65 | 330.00 | 0.3384 | 0.5790 | 0.0652 |
| 13.05.16 | 16.11.16 | 15.65 | 330.00 | 0.3284 | 0.5690 | 0.0652 |
| 17.11.16 | 31.12.16 | 15.65 | 330.00 | 0.3184 | 0.5690 | 0.0652 |
| 01.01.17 | 31.12.17 | 15.65 | 330.00 | 0.3384 | 0.5490 | 0.0672 |



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| From | To | Low sulphur fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline 95 RON (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|
| 01.01.18 | 31.12.18 | 15.65 | 330.00 | 0.3432 | 0.5566 | 0.0681 |
| 01.01.19 | 31.12.19 | 15.65 | 330.00 | 0.3432 | 0.5266 | 0.0681 |
| 01.01.20 | 31.01.20 | 15.65 | 330.00 | 0.3432 | 0.5266 | 0.0681 |
| 01.01.21 | 15.10.21 | 15.65 | 330.00 | 0.3432 | 0.5266 | 0.0681 |
| 16.10.21 | 13.03.22 | 15.65 | 330.00 | 0.3332 | 0.5066 | 0.0681 |
| 14.03.22 | 27.03.22 | | | 0.30883 | 0.48992 | |
| 28.03.22 | 01.05.22 | | | 0.29598 | | |
| 02.05.22 | 08.05.22 | | | 0.18058 | 0.36378 | |
| 09.05.22 | 22.05.22 | | | 0.16837 | 0.34370 | |
| 23.05.22 | 29.05.22 | | | | 0.33149 | |
| 30.05.22 | 05.06.22 | | | | 0.32676 | |
| 06.06.22 | 19.06.22 | | | 0.16584 | 0.32277 | |
| 20.06.22 | 26.06.22 | | | 0.16280 | 0.31314 | |
| 27.06.22 | 03.07.22 | | | | 0.31606 | |
| 04.07.22 | 04.09.22 | | | | 0.31606 | |
| 05.09.22 | 02.10.22 | | | 0.16280 | 0.31606 | |
| 04.10.22 | 06.11.22 | | | 0.16348 | 0.36052 | |
| 07.11.22 | 04.12.22 | | | 0.13259 | 0.34921 | |
| 05.12.22 | 31.12.22 | | | 0.17196 | 0.37287 | |

Note: New Excise duties (ISP) for gasoline and automotive diesel oil, in 2021 and 2022: According to the extraordinary context of increased fuel prices in the second half of 2021, the Portuguese Government introduced in 16th october 2021, on an extraordinary and temporary basis, a reduction of the tax on petroleum products (ISP) applicable to gasoline and diesel oil, in order to ensure that the additional gain in terms of VAT arising from the increase in fuel prices, was fully returned to consumers through a proportional reduction in ISP unit rates.

As part of the package of extraordinary measures that have been approved to face the context of rising prices, the Government determined a new decrease in ISP unit rates, applicable to unleaded gasoline and diesel oil, equivalent to what would result from a reduction in the VAT rate from 23% to 13%.



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| From | To | Natural gas (EUR/MWh) | Coal (EUR/tonne) | Coal el. gen. (EUR/tonne) | Electricity (EUR/MWh) |
|---|---|---|---|---|---|
| 01.01.04 | 12.02.04 | | | | |
| 13.02.04 | 31.12.04 | | | | |
| 01.01.05 | 09.06.05 | | | | |
| 10.06.05 | 31.12.05 | | | | |
| 01.01.06 | 18.01.06 | | | | |
| 19.01.06 | 31.12.06 | | | | |
| 01.01.07 | 07.01.07 | | | | |
| 08.01.07 | 22.02.07 | | | | |
| 23.02.07 | 31.12.07 | | | | |
| 01.01.08 | 09.01.08 | | 4.16 | | |
| 10.01.08 | 31.12.08 | | 4.16 | | |
| 01.01.10 | 28.04.10 | | 4.16 | | |
| 29.04.10 | 11.08.10 | | 4.16 | | |
| 12.08.10 | 31.08.10 | | 4.16 | | |
| 01.09.10 | 31.12.10 | | 4.16 | | |
| 01.01.11 | 11.03.11 | | 4.16 | | |
| 12.03.11 | 31.12.11 | | 4.16 | | |
| 01.01.12 | 31.12.12 | | 4.26 | | 1.00 |
| 01.01.13 | 27.02.13 | 1.080 | 4.26 | | 1.00 |
| 28.02.13 | 31.12.13 | 1.080 | 4.26 | | 1.00 |
| 01.01.14 | 31.12.14 | 1.080 | 4.26 | | 1.00 |
| 01.01.15 | 31.12.15 | 1.080 | 4.26 | | 1.00 |
| 01.01.16 | 11.02.16 | 1.080 | 4.26 | | 1.00 |
| 12.02.16 | 12.05.16 | 1.080 | 4.26 | | 1.00 |
| 13.05.16 | 16.11.16 | 1.080 | 4.26 | | 1.00 |
| 17.11.16 | 31.12.16 | 1.080 | 4.26 | | 1.00 |
| 01.01.17 | 31.12.17 | 1.091 | 4.26 | | 1.00 |
| 01.01.18 | 31.12.18 | 1.105 | 4.26 | 0.426 | 1.00 |
| 01.01.19 | 31.12.19 | 1.105 | 4.26 | 1.065 | 1.00 |



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| From | To | Natural gas (EUR/MWh) | Coal (EUR/tonne) | Coal el. gen. (EUR/tonne) | Electricity (EUR/MWh) |
|---|---|---|---|---|---|
| 01.01.20 | now | 1.105 | 4.26 | 2.130 | 1.00 |

Coal used for power generation:
For 2018: 10% of the normal ISP tax applied to coal;
For 2019: 25% of the normal ISP tax applied to coal;
For 2020: 50% of normal ISP tax applied to coal.

### *Road Service Contribution (contribuição de serviço rodoviário)*

The Road Service Contribution was created by the Law nr.º 55/2007, of 31 August, with the purpose of financing the national road network. This tax is only applicable for motor fuels.

| From | To | Automotive diesel (EUR/l) | Gasoline 95 RON (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|
| 01.01.08 | 31.12.11 | 0.086 | 0.064 | - |
| 01.01.12 | 31.12.12 | 0.088 | 0.065 | - |
| 01.01.13 | 31.12.13 | 0.089 | 0.066 | - |
| 01.01.14 | 31.12.14 | 0.091 | 0.067 | 0.053 |
| 01.01.15 | now | 0.111 | 0.087 | 0.063 |

### *Carbon tax (CO2 tax)*

The Carbon tax was introduced by the Law n.º82-D/2014 of 31 December. The Carbon tax is applicable to all energy products.

| From | To | Low sulphur fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline 95 RON (EUR/l) |
|---|---|---|---|---|---|
| 01.01.15 | 31.12.15 | 15.7586 | 12.5970 | 0.0126 | 0.0116 |
| 01.01.16 | 31.12.16 | 20.6503 | 16.5073 | 0.0165 | 0.0152 |
| 01.01.17 | 31.12.17 | 21.2076 | 16.9528 | 0.0170 | 0.0156 |
| 01.01.18 | 31.12.18 | 21.2076 | 16.9528 | 0.0170 | 0.0156 |
| 01.01.19 | 14.02.20 | 39.4430 | 31.5297 | 0.0315 | 0.0289 |
| 15.02.20 | 31.12.20 | 73.1244 | 58.4538 | 0.0585 | 0.0537 |
| 01.01.21 | now | 74.0594 | 59.2012 | 0.0592 | 0.0543 |



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| From | To | Automotive LPG (EUR/l) | Natural gas (EUR/MWh) | Coal (EUR/tonne) | Coal* power gen. (EUR/tonne) |
|---|---|---|---|---|---|
| 01.01.15 | 31.12.15 | 0.0075 | 1.0279 | 11.5323 | - |
| 01.01.16 | 31.12.16 | 0.0099 | 1.3470 | 15.1120 | - |
| 01.01.17 | 31.12.17 | 0.0101 | 1.3833 | 15.5198 | - |
| 01.01.18 | 31.12.18 | 0.0101 | 1.3833 | 15.5198 | 1.5520 |
| 01.01.19 | 14.02.20 | 0.0189 | 2.5728 | 28.8646 | 2.8321 |
| 15.02.20 | 31.12.20 | 0.0350 | 4.7697 | 53.5129 | 5.6642 |
| 01.01.21 | now | 0.0354 | 4.8307 | 54.1971 | 8.4963 |

*Coal used for power generation: In 2018 it was applied 10%, 2019 25%,in 2020 50% and in 2021 75% of the normal carbon tax applied to coal, calculated using a tax rate of 6,85 EUR/tonneCO2 in 2018 and 5 EUR/tonneCO2 in 2019, 2020 and 2021.

### *Other taxes fees, levies and charges*

For electricity and Natural Gas with new Regulation was created a new component comprising taxes, fees, levies and charges beyond ISP and Carbon tax.

These taxes, fees, levies or charges were introduced to support the following actions: promotion of renewable energy sources, energy efficiency and CHP generation, capacity payments, energy security and generation adequacy, coal industry restructuring, taxes on electricity distribution, stranded costs and levies on financing energy regulatory authorities or market and system operators;

All other taxes, fees, levies or charges not covered by any of the previous five categories: support for district heating; local or regional fiscal charges; island compensation; concession fees relating to licenses and fees for the occupation of land and public or private property by networks or other devices.

The tax rates shown in the tables at the end of this section are the sum of the ISP, Road Service Levy and Carbon tax and do not apply to the islands of Azores and Madeira.

## Energy taxation database methodology

The VAT (IVA) applies to all energy products. As the applicable tax rate is fully refunded for purchases for industry, it is assumed to be null for industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Environmental and Carbon taxes are equivalent, as the only applicable tax with environmental purposes is the Carbon tax. It applies to all energy products, except



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electricity. The yearly values applied to the different energy products are estimated as the average of the different values applied within each year weighted for the number of days.

It is assumed that a Renewable Energy Supply tax is applied to the consumption of natural gas and electricity since 2015. This refers to a tax component implemented at the same time as the Carbon tax with the objective to support the promotion of renewable energy sources, energy efficiency and CHP generation. Specific values are not provided.

It is also considered that an Energy Supply Security tax is applicable to the consumption of natural gas and electricity, as a tax complemented was introduced in 2015 with the objective to support capacity payments, energy security and generation adequacy. Specific values are not provided.

The remaining excise taxes and levies are assumed as Other taxes. This includes: Tax on energy and petroleum products (ISP) and Road Service Contribution (contribuição de serviço rodoviário). Exemptions include all energy products used for electricity generation (as listed in the Special Consumption Tax Code (DL 566/99). Yearly values for each of the taxes are estimated as the average of the different values applied within each year weighted for the number of days. For diesel, gasoline and automotive LPG, the value of Other taxes is estimated as the average of the yearly values of both taxes.

# Product specifications

## Oil products

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Automotive LPG |
|---|---|---|---|---|---|---|---|
| Quality | Fuelóleo | Fuelóleo | Gasóleo de aquecimento | Gasóleo | | | GPL Auto |
| Cetane number | | | | <51 | | | |
| Density (kg/l) | 1.00 | 1.00 | 0.845 | 0.84 | 0.754 | 0.746 | |
| Sulphur content (%) | 1 – 3.5 | < 1 | < 0.1 | < 0.005 | | | < 0.005 |
| NCV (kcal/kg) | 9 600 | 9 554 | | | | | 10 987 |



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## Natural gas and coal

| | Natural gas *industry households* | Natural gas *electricity generation* | Steam coal *electricity generation* |
|---|---|---|---|
| Ash content (%) | | | 38 |
| Moisture content (%) | | | 10 |
| GCV | 10 063 kcal/std $m^3$ | 10 063 kcal/std $m^3$ | 7 197 kcal/kg |



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# Slovak Republic

## Sources

Data for all energy products are provided on a quarterly basis by the **Ministry of Economy of the Slovak Republic** (**MHSR**).

Retail energy price indices are based on data published by **Eurostat**.

## Data collection methodology

Prices and taxes prior to 1 January 2009, the date of entry into the Economic and Monetary Union (EMU), have been converted from Slovak koruny using the irrevocable conversion rate of 30.1260 SKK/EUR. This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rates) is preserved. However, pre-EMU euros are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

From 1Q1993 onwards, prices and taxes refer to the independent Slovak Republic. Prior to 1Q1993, prices and taxes refer to the former Czechoslovakia.

### Oil products

From 2Q2000 onwards, high sulphur fuel oil is no longer consumed in industry or for electricity generation.

For low sulphur fuel oil, automotive diesel and premium unleaded (95 RON) gasoline, end-use prices are computed by MHSR based on monthly data submitted by Slovnaft, estimated to have a market share of 35% for low sulphur fuel oil, 59% for automotive diesel and 69% for premium unleaded (95 RON) gasoline, as of March 2017. The current minimum mandatory share of biofuels in diesel is 6.9% and in gasoline it is 9.0% of the fuel composition. Ex-tax prices are calculated by MHSR by subtracting the applicable tax components from the end-use prices.

For light fuel oil, prices for industry from 4Q2016 onwards are not applicable, as domestic sales of this product were stopped. For 2016, annual data refer to the first three quarters of the year. Prior to 4Q2016, end-use prices were computed by MHSR based on monthly data submitted by Slovnaft. Ex-tax prices were calculated by MHSR by subtracting the applicable tax components from the end-use prices.



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For automotive LPG, end-use prices are computed by MHSR based on monthly data submitted by Probugas, which is estimated to 30% market share for this product. Ex-tax prices are calculated by MHSR by subtracting the applicable tax components from the end-use prices.

## Natural gas

End-use prices are computed based on monthly data supplied by major natural distribution companies, covering all natural gas consumption in the country.

For each sector, monthly ex-tax unit prices for each company are calculated by MHSR by adding network and distribution charges to the unit supply cost. Unit prices are then multiplied by the reported sales volumes. Total monthly revenues are then summed for the quarter and ex-tax prices are calculated as the ratio between total revenues and total sales. Applicable excise taxes and the VAT are then added to the ex-tax price to calculate the end-use prices.

## Steam and coking coal

Steam coal prices for industry refer to the quarterly final prices collected by the Statistical Office of the Slovak Republic (SUSR).

## Electricity

End-use prices are computed based on monthly data supplied by three major and 18 minor regional electricity distribution companies, covering all consumption in the country.

For each sector, monthly ex-tax unit prices for each company are calculated by MHSR by adding network and distribution charges to the unit supply cost. Unit prices are then multiplied by the reported sales volumes. Total monthly revenues are then summed for the quarter and ex-tax prices are calculated as the ratio between total revenues and total sales. Applicable excise taxes and the VAT are then added to the ex-tax price to calculate the end-use prices.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722)



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series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for natural gas refer to the *gas* (cp0452) series.

Retail indices for coal refer to the *solid fuel* (cp0454) series.

# Energy taxation

## VAT

VAT *(DPH)* is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for industry, electricity generation and automotive fuels for commercial use.

Prior to 1 January 2004, gasoline and automotive diesel were subject to the general VAT rate while other fuels were taxed at a reduced rate. From 1 January 2004 onwards, the VAT is levied at the same rate for all commercial energy products.

| From | To | General % | Reduced % |
|---|---|---|---|
| 01.07.99 | 31.12.02 | 23 | 10 |
| 01.01.03 | 31.12.03 | 20 | 14 |
| 01.01.04 | 31.12.10 | 19 | |
| 01.01.11 | Now | 20 | |

## Excise tax

Excise taxes on commercial energy products are levied in accordance with the 2003 EU Energy Taxation Directive.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | × | × | × |



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### *Excise duties (Spotrebné dane)*

Excise duties on oil products are legally defined in their current form in the Excise Duty Act (98/2004) and amendments, which first came in force on 1 May 2004.

Excise duties on coal, natural gas and electricity are legally defined in the Excise Duty Act for Electricity, Coal and Natural Gas (609/2007), which came in force on 1 July 2008, expanding the scope of the previous Excise Duty Act, which was limited to mineral. Biofuel components in blends volumetric for diesel and gasoline are subject to the same level of excise duties as fossil fuel components (no excise duty reduction or exemption for biofuel blend).

Electricity and natural gas for households, as well as coal and natural gas for electricity generation, are exempt.

Low sulphur fuel oil and light fuel oil used in industry are subject to excise taxes, but the taxes are fully refunded to the companies.

| From | To | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) | Natural gas (EUR/MWh) | Coal (EUR/tonne) | Electricity (EUR/MWh) |
|---|---|---|---|---|---|---|---|
| 01.03.04 | 30.06.08 | 0.4813 | 0.5145 | 0.1414 | 0 | 0 | 0 |
| 01.07.08 | 31.12.09 | 0.4813 | 0.5145 | 0 | 0.66 | 10.62 | 0.66 |
| 01.01.10 | 31.01.10 | 0.4813 | 0.5145 | 0 | 1.32 | 10.62 | 1.32 |
| 01.02.10 | 31.12.10 | 0.3680 | 0.5145 | 0 | 1.32 | 10.62 | 1.32 |
| 01.01.11 | 31.01.18 | 0.3680 | 0.5145 | 0.092 | 1.32 | 10.62 | 1.32 |
| 01.02.18 | now | 0.3680 | 0.5140 | 0.092 | 1.32 | 10.62 | 1.32 |

## Energy taxation database methodology

VAT (DPH) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. Before 2004, reduced rate applies to all energy products except diesel and gasoline, which are subject to the general rate. Since 2004, the general rate applies to all energy products. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Other taxes comprise the excise duties (Spotrebné dane), applied to the sale of all energy products. Exemptions include the use of natural gas and electricity in households and the use of natural gas and coal for electricity generation. As the excise duties applicable to heavy and light fuel oil for industry are fully refundable,



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it is assumed that industry is exempt of these taxes. The yearly values are estimated as the average of the different values applied within each year weighted by the number of days.

## Product specifications

| | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (95 RON) gasoline | Automotive LPG | Natural gas | Steam coal |
|---|---|---|---|---|---|---|---|
| Quality | | | | Benzin 95 / Euro Super | | | Hnedé uhlie |
| Density (kg/l) | 0.99 | 0.91 | 0.815 - 0.845 | 0.720 - 0.775 | 0.503 | | |
| Sulphur content (%) | < 1 | < 1 | | | | | |
| NCV (kcal/kg) | 9 699 | 10 101 | | | | | 6 023 |
| GCV (kcal/$m^3$) | | | | | | 8 972 | |



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# Slovenia

## Sources

Data for all energy products are provided on a quarterly basis by the Statistical Office of the Republic of Slovenia (SURS), in cooperation with the Ministry of Infrastructure (the Ministry).

Retail energy price indices are based on data published by **Eurostat**.

## Data collection methodology

Prices and taxes prior to 1 January 2007, the date of entry into the Economic and Monetary Union (EMU), have been converted from Slovenian Tolars using the appropriate irrevocable conversion rate of 239.640 SIT/EUR. This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rates) is preserved. However, pre-EMU euros are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

### Oil products

From 1st October 2020 full liberalization of the market is in force, since then all petroleum products prices are subject to market pricing.

For all oil products, quarterly and annual prices are calculated as weighted averages of weekly prices reported in the European Commission's *Weekly Oil Bulletin.*

For Unleaded premium (95 RON and 98 RON) gasoline, end-use prices are collected by the Ministry on a weekly basis from three largest retail operators on the market, estimated to cover 95 % of the demand.

For Automotive Diesel Oil, end-use prices are collected by the Ministry on a weekly basis from four largest retail operators on the market, estimated to cover 90 % of the demand.

For Automotive LPG, end-use prices are collected by the Ministry on a weekly basis from ten largest retail operators on the market, estimated to cover 95% of the demand.



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For Light fuel oil for heating, end-use prices are collected by the Ministry on a weekly basis from three largest retail operators on the market, estimated to cover 88% of the demand.

Ex-tax prices for all oil products are subsequently calculated by subtracting the applicable duties, taxes and VAT from the end use prices.

Prices for low sulphur fuel oil from 1st January 2020 are no longer reported, because product is no longer for sale due to insignificant demand on the market.

## Natural gas

All natural gas distributors and network operators have the obligation to report their prices on a quarterly basis through an online survey conducted by SURS. In this survey, companies report revenues from sales and quantities sold in each consumption band on an ex-tax level. They also report revenues from excise tax, environmental tax and other levies on ex-VAT level. Using this information, ex-tax prices for industry and households, excise taxes and VAT amounts are calculated by SURS as consumption weighted averages.

As a result, prices shown in this publication are considered to be representative for 100% of the consumption in each sector.

## Steam and coking coal

For industry and electricity generation, prices for steam coal are confidential.

Due to low consumption levels of coking coal and steam coal for households, prices for these series are considered as not applicable.

## Electricity

All electricity distributors and network operators have the obligation to report their prices on a monthly basis through an online survey conducted by the Ministry, pursuant to the country's Energy Act. In this survey, companies report revenues from sales and quantities sold in each consumption band on an ex-tax level. They also report revenues from excise tax and other levies on ex-VAT level. Using this information, prices for industry and households are calculated by the Ministry as consumption weighted averages.

As a result, prices shown in this publication are considered to be representative for 100% of the consumption in each sector.



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### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722) series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for natural gas refer to the *gas* (cp0452) series.

Retail indices for coal refer to the *solid fuel* (cp0454) series.

## Energy taxation

### VAT

VAT (*DDV*) is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | % | Product |
|---|---|---|---|
| 01.05.04 | 30.06.13 | 20 | All |
| 01.07.13 | 31.08.22 | 22 | All |
| 01.09.22 | 31.05.23 | 9.5 | Electricity, natural gas, steam coal, firewood |
| 01.09.22 | 31.05.23 | 22 | Automotive diesel, gasoline, automotive LPG, light fuel oil |

### Excise tax

Excise taxes on commercial energy products in Slovenia are levied in accordance with the 2003 EU Energy Taxation Directive.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Excise duties | × | × | × | × | × | × | × | × | × |

### *Excise duties*

Excise duties on commercial energy products are legally defined in the Excise Duty Act, which was first introduced on 1 July 1999. Excise duties are levied on the sales of oil products, natural gas, solid fuels and electricity, among other products. Rates are expressed on a volume or mass basis for oil products and natural gas, and on an energy basis for electricity and solid fuels. Biofuel components in blends volumetric for diesel and gasoline are subject to the same level of excise duties as fossil fuel components (no excise duty reduction or exemption for biofuel blend).

Automotive diesel used for commercial transportation is subject to a partial refund on the excise duties paid at the pump.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|
| 01.01.10 | 31.01.10 | 15.02 | 62.00 | 0.43200 | 0.48951 | 0.07118 |
| 01.02.10 | 08.03.10 | 15.02 | 62.00 | 0.43200 | 0.48951 | 0.07117 |
| 09.03.10 | 17.05.10 | 15.02 | 62.00 | 0.41200 | 0.46951 | 0.07117 |
| 18.05.10 | 31.05.10 | 15.02 | 62.00 | 0.41700 | 0.47451 | 0.07117 |
| 01.06.10 | 14.06.10 | 15.02 | 85.40 | 0.42200 | 0.47951 | 0.07117 |
| 15.06.10 | 12.07.10 | 15.02 | 85.40 | 0.42700 | 0.48451 | 0.07117 |
| 13.07.10 | 26.07.10 | 15.02 | 85.40 | 0.43700 | 0.49451 | 0.07117 |
| 27.07.10 | 20.09.10 | 15.02 | 85.40 | 0.44450 | 0.49951 | 0.07117 |
| 21.09.10 | 04.10.10 | 15.02 | 77.61 | 0.43708 | 0.49170 | 0.07117 |
| 05.10.10 | 18.10.10 | 15.02 | 84.28 | 0.44409 | 0.51266 | 0.07117 |
| 19.10.10 | 13.12.10 | 15.02 | 80.85 | 0.43985 | 0.49815 | 0.07117 |
| 14.12.10 | 24.01.11 | 15.02 | 70.54 | 0.42021 | 0.47801 | 0.07117 |
| 25.01.11 | 07.02.11 | 15.02 | 70.54 | 0.39447 | 0.45698 | 0.07117 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|
| 08.02.11 | 21.02.11 | 15.02 | 72.48 | 0.39957 | 0.48290 | 0.07117 |
| 22.02.11 | 07.03.11 | 15.02 | 70.67 | 0.37886 | 0.46496 | 0.07117 |
| 08.03.11 | 21.03.11 | 15.02 | 70.67 | 0.34524 | 0.42985 | 0.07117 |
| 22.03.11 | 18.04.11 | 15.02 | 70.67 | 0.33043 | 0.42985 | 0.07117 |
| 19.04.11 | 16.05.11 | 15.02 | 70.67 | 0.33043 | 0.40638 | 0.07117 |
| 17.05.11 | 25.07.11 | 15.02 | 78.49 | 0.35116 | 0.41714 | 0.07117 |
| 26.07.11 | 08.08.11 | 15.02 | 70.50 | 0.33096 | 0.39764 | 0.07117 |
| 09.08.11 | 22.08.11 | 15.02 | 86.44 | 0.34624 | 0.41074 | 0.07117 |
| 23.08.11 | 05.09.11 | 15.02 | 104.54 | 0.37920 | 0.44244 | 0.07117 |
| 06.09.11 | 19.09.11 | 15.02 | 87.49 | 0.36437 | 0.42089 | 0.07117 |
| 20.09.11 | 03.10.11 | 15.02 | 72.53 | 0.34443 | 0.41479 | 0.07117 |
| 04.10.11 | 02.11.11 | 15.02 | 93.51 | 0.36979 | 0.45953 | 0.07117 |
| 24.10.11 | 02.11.11 | 15.02 | 93.51 | 0.36979 | 0.45953 | 0.07118 |
| 03.11.11 | 14.11.11 | 15.02 | 75.82 | 0.35349 | 0.46246 | 0.07118 |
| 15.11.11 | 28.11.11 | 15.02 | 70.73 | 0.34528 | 0.47573 | 0.07118 |
| 29.11.11 | 12.12.11 | 15.02 | 55.56 | 0.33998 | 0.49067 | 0.07118 |
| 13.12.11 | 27.12.11 | 15.02 | 67.32 | 0.35212 | 0.49067 | 0.07118 |
| 28.12.11 | 09.01.12 | 15.02 | 81.02 | 0.36221 | 0.49067 | 0.07118 |
| 10.01.12 | 28.05.12 | 15.02 | 70.49 | 0.36221 | 0.49067 | 0.07124 |
| 29.05.12 | 11.06.12 | 15.02 | 80.86 | 0.37097 | 0.49698 | 0.07124 |
| 12.06.12 | 17.09.12 | 15.02 | 90.05 | 0.38169 | 0.50242 | 0.07124 |
| 18.09.12 | 01.10.12 | 15.02 | 97.40 | 0.38597 | 0.51522 | 0.07124 |
| 02.10.12 | 10.12.12 | 15.02 | 105.00 | 0.40226 | 0.54167 | 0.07124 |
| 11.12.12 | 24.12.12 | 15.02 | 105.00 | 0.40923 | 0.54594 | 0.07124 |
| 25.12.12 | 18.02.13 | 15.02 | 105.00 | 0.41640 | 0.54594 | 0.07124 |
| 14.01.13 | 18.02.13 | 15.02 | 105.00 | 0.41640 | 0.54594 | 0.07131 |
| 19.02.13 | 02.04.13 | 15.02 | 86.85 | 0.39987 | 0.52737 | 0.07131 |
| 03.04.13 | 15.04.13 | 15.02 | 92.29 | 0.41095 | 0.52737 | 0.07131 |
| 16.04.13 | 27.05.13 | 15.02 | 96.74 | 0.41760 | 0.54496 | 0.07131 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|
| 28.05.13 | 22.07.13 | 15.02 | 88.72 | 0.40888 | 0.53139 | 0.07131 |
| 23.07.13 | 05.08.13 | 15.02 | 77.52 | 0.39548 | 0.51161 | 0.07131 |
| 06.08.13 | 02.09.13 | 15.02 | 86.16 | 0.40409 | 0.52133 | 0.07131 |
| 03.09.13 | 11.11.13 | 15.02 | 81.60 | 0.39930 | 0.51416 | 0.07131 |
| 12.11.13 | 19.01.14 | 15.02 | 86.91 | 0.40488 | 0.51416 | 0.07131 |
| 20.01.14 | 05.02.14 | 15.02 | 86.91 | 0.40488 | 0.51416 | 0.07134 |
| 06.02.14 | 17.03.14 | 15.02 | 86.91 | 0.37507 | 0.51416 | 0.07134 |
| 18.03.14 | 14.04.14 | 15.02 | 102.65 | 0.40512 | 0.51416 | 0.07134 |
| 15.04.14 | 23.06.14 | 15.02 | 104.89 | 0.42277 | 0.52452 | 0.07277 |
| 24.06.14 | 07.07.14 | 15.02 | 95.65 | 0.41292 | 0.51495 | 0.07277 |
| 08.07.14 | 29.09.14 | 15.02 | 95.65 | 0.40990 | 0.50411 | 0.07277 |
| 30.09.14 | 13.10.14 | 15.02 | 108.39 | 0.42059 | 0.51405 | 0.07277 |
| 14.10.14 | 27.10.14 | 15.02 | 119.39 | 0.42845 | 0.52163 | 0.07277 |
| 28.10.14 | 22.12.14 | 15.02 | 142.37 | 0.45037 | 0.55339 | 0.07277 |
| 23.12.14 | 05.01.15 | 15.02 | 142.37 | 0.46010 | 0.56385 | 0.07277 |
| 06.01.15 | 16.02.15 | 15.02 | 142.37 | 0.44971 | 0.55425 | 0.07277 |
| 26.01.15 | 16.02.15 | 15.02 | 142.37 | 0.44971 | 0.55425 | 0.07282 |
| 17.02.15 | 02.03.15 | 15.02 | 124.63 | 0.43442 | 0.53806 | 0.07282 |
| 03.03.15 | 16.03.15 | 15.02 | 105.80 | 0.40998 | 0.51520 | 0.07282 |
| 17.03.15 | 08.06.15 | 15.02 | 105.80 | 0.40998 | 0.50310 | 0.07282 |
| 09.06.15 | 22.06.15 | 15.02 | 105.80 | 0.40998 | 0.49348 | 0.07282 |
| 23.06.15 | 03.08.15 | 15.02 | 105.80 | 0.40998 | 0.48606 | 0.07282 |
| 04.08.15 | 31.08.15 | 15.02 | 114.64 | 0.41746 | 0.50378 | 0.07282 |
| 01.09.15 | 28.09.15 | 15.02 | 138.67 | 0.41746 | 0.50378 | 0.07282 |
| 29.09.15 | 26.10.15 | 15.02 | 152.15 | 0.41746 | 0.50378 | 0.07282 |
| 27.10.15 | 01.02.16 | 15.02 | 157.50 | 0.41746 | 0.50378 | 0.07282 |
| 02.02.16 | 31.03.16 | 15.02 | 157.50 | 0.42605 | 0.50780 | 0.07282 |
| 01.04.16 | 30.06.16 | 15.02 | 157.50 | 0.42650 | 0.50780 | 0.07282 |
| 01.07.16 | 08.01.17 | 15.02 | 157.50 | 0.42605 | 0.50780 | 0.07282 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline (EUR/l) | Automotive LPG (EUR/l) |
|---|---|---|---|---|---|---|
| 09.01.17 | 21.05.18 | 15.02 | 157.50 | 0.42605 | 0.50780 | 0.07281 |
| 22.05.18 | 31.12.19 | 15.02 | 157.50 | 0.39272 | 0.47829 | 0.07281 |
| 01.01.20 | 06.04.20 | n/a | 157.50 | 0.39272 | 0.47829 | 0.07281 |
| 07.04.20 | 20.04.20 | n/a | 157.50 | 0.40531 | 0.51089 | 0.07281 |
| 21.04.20 | 04.05.20 | n/a | 157.50 | 0.41879 | 0.50218 | 0.07281 |
| 05.05.20 | 18.05.20 | n/a | 157.50 | 0.46703 | 0.51421 | 0.07281 |
| 19.05.20 | 01.06.20 | n/a | 157.50 | 0.43279 | 0.47305 | 0.07281 |
| 02.06.20 | 15.06.20 | n/a | 157.50 | 0.39956 | 0.43561 | 0.07281 |
| 16.06.20 | 29.06.20 | n/a | 157.50 | 0.38069 | 0.41325 | 0.07281 |
| 30.06.20 | 13.07.20 | n/a | 157.50 | 0.35794 | 0.38513 | 0.07281 |
| 14.07.20 | 27.07.20 | n/a | 157.50 | 0.34663 | 0.37987 | 0.07281 |
| 28.07.20 | 10.08.20 | n/a | 157.50 | 0.34523 | 0.38051 | 0.07281 |
| 11.08.20 | 24.08.20 | n/a | 157.50 | 0.34941 | 0.38796 | 0.07281 |
| 25.08.20 | 07.09.20 | n/a | 157.50 | 0.35349 | 0.37214 | 0.07281 |
| 08.09.20 | 21.09.20 | n/a | 157.50 | 0.36442 | 0.36842 | 0.07281 |
| 22.09.20 | 31.01.22 | n/a | 157.50 | 0.38767 | 0.37701 | 0.07281 |
| 01.02.22 | 16.01.22 | n/a | 78.75 | 0.33000 | 0.35900 | 0.07281 |
| 17.01.22 | 30.01.22 | n/a | 91.44 | 0,33207 | 0.35900 | 0.07281 |
| 31.01.22 | 13.02.22 | n/a | 78.75 | 0.33000 | 0.35900 | 0.07281 |
| 14.01.22 | 27.02.22 | n/a | 116.00 | 0.38600 | 0.37900 | 0.07281 |
| 28.02.22 | 13.03.22 | n/a | 121.90 | 0.40633 | 0.37900 | 0.07281 |

| From | To | Electricity households (EUR/MWh) | Electricity industry (EUR/MWh) | Natural gas households (EUR/MWh) | Natural gas industry (EUR/MWh) |
|---|---|---|---|---|---|
| 01.01.10 | 31.07.10 | 1.00 | 0.50 | 0.57099 | 0.57099 |
| 01.08.10 | 14.04.14 | 3.05 | 3.05 | 1.71298 | 1.71298 |
| 15.04.14 | 31.03.15 | 3.05 | 3.05 | 1.75105 | 1.75105 |
| 01.04.15 | 30.06.15 | 3.05 | 3.05 | 1.75105 | 1.39893 |
| 01.07.15 | 30.09.15 | 3.05 | 3.05 | 1.75105 | 1.41797 |



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| From | To | Electricity households (EUR/MWh) | Electricity industry (EUR/MWh) | Natural gas households (EUR/MWh) | Natural gas industry (EUR/MWh) |
|---|---|---|---|---|---|
| 01.10.15 | 31.12.15 | 3.05 | 3.05 | 1.75105 | 1.62733 |
| 01.01.16 | 31.03.16 | 3.05 | 3.05 | 1.75105 | 1.41797 |
| 01.04.16 | 30.06.16 | 3.05 | 3.05 | 1.75105 | 1.37990 |
| 01.07.16 | 30.09.16 | 3.05 | 3.05 | 1.75105 | 1.27522 |
| 01.10.16 | 31.12.16 | 3.05 | 3.05 | 1.75105 | 1.32280 |
| 01.01.17 | 30.03.17 | 3.05 | 3.05 | 1.75105 | 1.15150 |
| 01.04.17 | 30.06.17 | 3.05 | 3.05 | 1.75105 | 1.26570 |
| 01.07.17 | 30.09.17 | 3.05 | 3.05 | 1.75105 | 1.13247 |
| 01.10.17 | 31.12.17 | 3.05 | 3.05 | 1.75105 | 1.37990 |
| 01.01.18 | 31.03.18 | 3.05 | 3.05 | 1.75105 | 1.07537 |
| 01.04.18 | 30.06.18 | 3.05 | 3.05 | 1.75105 | 0.95166 |
| 01.07.18 | 30.09.18 | 3.05 | 3.05 | 1.75105 | 1.14199 |
| 01.10.18 | 31.12.18 | 3.05 | 3.05 | 1.75105 | 1.15150 |
| 01.01.19 | 30.06.19 | 3.05 | 3.05 | 1.75105 | 1.39893 |
| 01.07.19 | 30.09.19 | 3.05 | 3.05 | 1.75105 | 1.34183 |
| 01.10.19 | 31.12.19 | 3.05 | 3.05 | 1.75105 | 1.38942 |
| 01.01.20 | 31.03.20 | 3.05 | 3.05 | 1.75105 | 1.39977 |
| 01.04.20 | 29.06.20 | 3.05 | 3.05 | 1.75105 | 1.40571 |
| 30.06.20 | 30.09.20 | 3.05 | 3.05 | 1.75105 | 1.53959 |
| 30.09.20 | 31.03.21 | 3.05 | 3.05 | 1.75105 | 1.40929 |
| 01.04.21 | 30.06.21 | 3.05 | 3.05 | 1.75105 | 1.50138 |
| 01.07.21 | 30.09.21 | 3.05 | 3.05 | 1.75105 | 1.35752 |
| 01.10.21 | 31.01.22 | 3.05 | 3.05 | 1.75105 | 1.41767 |
| 01.02.22 | 31.03.22 | 1.525 | 1.525 | 0.85500 | 0.85500 |
| 01.04.22 | 30.06.22 | 1.525 | 1.525 | 0.87269 | 0.71413 |
| 01.07.22 | 30.09.22 | 1.525 | 1.525 | 0,88121 | 0.76133 |
| 01.10.22 | 31.12.22 | 1.525 | 1.525 | 0.85500 | 0.69196 |

Notes: n/a – not applicable. Electricity – industry: The displayed data corresponds to band IC (500 MWh < Consumption < 2 000 MWh). Natural gas – industry: The displayed data corresponds to band I3 (10 000 GJ < Consumption < 100 000 GJ).



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### *Other indirect taxes (Ostale dajatve)*

| Valid from 13.09.2022 | Environmental $CO_2$ tax | Compensation for Commodity Reserves | Contribution for RES and CHP | Contribution for energy efficiency | Contribution for electricity market operator |
|---|---|---|---|---|---|
| Heavy fuel oil (EUR/tonne) | n/a | n/a | n/a | n/a | n/a |
| Light fuel oil (EUR/1000 l) | 0.00 | 11.66 | 9.90 | 8.00 | n/a |
| Automotive diesel (EUR/l) | 0.00 | 0.01166 | 0.000 | 0.008 | n/a |
| Gasoline Euro 95 (EUR/l) | 0.00 | 0.01222 | 0.001 | 0.00736 | n/a |
| Automotive LPG (EUR/l) | 0.02865 | n/a | 0.00724 | 0.00584 | n/a |
| Electricity - Households (EUR/MWh) | n/a | n/a | 50% of tariff item * | 0.80000 | 0.13000 |
| Electricity – Industry (EUR/MWh) | n/a | n/a | Price depends on the tariff item * | 0.80000 | 0.13000 |
| Natural gas - Households (EUR/MWh) | 0.00 | n/a | 0.99000 | 0.80000 | n/a |
| Natural gas - Industry (EUR/MWh) | 0.00 | n/a | 0.81026 | 0.74428 | n/a |

Notes:
n/a – not applicable.
Electricity – industry: The displayed data corresponds to band IC (500 MWh < Consumption < 2 000 MWh).
Natural gas – industry: The displayed data corresponds to band I3 (10 000 GJ < Consumption < 100 000 GJ).

Electricity – households and industry - the price of the tariff item is calculated per kW of billing power of final customer on a monthly basis (EUR/kW/month).
* 50 % reduction of tariff price for Contribution for RES and CHP in force from 1.9.2022 valid only for households and small business companies as for them regulation of electricity price is in force from 1.9.2022 until 30. 8. 2023.
Environmental CO2 tax - for Automotive diesel, Motor gasoline, Light fuel oil and Natural gas is from 13.9.2022 temporarily suspended.
Contribution for RES and CHP – from 24. 6. 2022 onwards for standard Gasoline (EURO-95) at points of sale where regulated prices apply (at gas stations outside motorways and expressways) the payment of RES+CHP contribution is exempted, for standard all Automotive diesel (standard and premium) the contribution of RES+CHP is exempted at all points of sale.

## Energy taxation database methodology

VAT (DDV) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.



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Environmental tax and Carbon tax correspond to the Environmental CO2 tax, applied to all energy products, except electricity and coal.

Renewable energy supply tax comprises the Contribution for renewable energy sources and cogeneration of heat and power and the Contribution for energy efficiency. Both apply to all energy products, except to the use of coal. The individual values of both these taxes are retrieved directly from the above note on policy framework, and the overall value corresponds to the sum of the two. Specific values for electricity of the Contribution for RES and CHP and for the use of natural gas in industry of both taxes are not provided.

Energy supply security tax corresponds to the Compensation for commodity reserves, applied to heavy and light fuel oil, diesel and gasoline.

Other taxes comprise the excise duties (Trošarine), applied to the sale of all energy products, and the Contribution for electricity market operator, applied to electricity consumption. The yearly values associated with the excise duties are estimated as the average of the different values applied within each year weighted by the number of days.

# Product specifications

## Oil products

| | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline | Automotive LPG |
|---|---|---|---|---|---|---|
| Quality | | Kurilno olje ELKO | Dizel | Euro Super 100 | Euro Super 95 | Avtoplin |
| Density (kg/l) | | <0.860 | 0.820 - 0.845 | 0.720 - 0.775 | 0.720 - 0.775 | 0.540 - 0.570 |
| Sulphur content (%) | <1 | <10 | <10 | <10 | <10 | <30 |
| Lead content (g/l) | | | - | <0.005 | <0.005 | - |
| NCV (kcal/kg) | | 10 175 | 10 175 | 10 473 | 10 473 | 10 930 |



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# Spain

## Sources

Prices and taxes data for oil products are derived from weekly data published in the **European Commission's** *Weekly Oil Bulletin*.

Prices and taxes data for natural gas and electricity are provided on a quarterly basis by the **Ministry for the Ecological Transition and the Demographic Challenge (the Ministry)**.

Retail energy price indices are based on data published by **Eurostat**.

## Data collection methodology

From 1Q1993 onwards, prices refer to average of the weekly prices. From 1Q1986 to 4Q1992, prices refer to the second month of each quarter. Prior to 1Q1986, prices refer to the first month of each quarter.

### Oil products

Oil product prices are derived from the European Commission's *Weekly Oil Bulletin*, which reports weekly ex-tax and total prices. Quarterly and annual figures are calculated as arithmetical averages of the weekly data.

Quarterly and annual figures are calculated as arithmetical averages of the weekly data. Total taxes are calculated by subtracting of the ex-tax prices from the end-use prices. Excise taxes for non-commercial users are calculated by subtracting VAT from the total taxes. For commercial users, excise taxes are equal to total taxes, as they are exempt from VAT.

Excise tax rates include both national and regional tax components (until 1 January 2019, when regional tax components were eliminated). Excise tax rates for automotive diesel do not consider the partial refunds granted to the professional transportation sector.

Oil products end-use weekly prices available in the *World Energy Prices* were corrected from April 2022 onwards to correctly reflect the government measures due to increased energy prices.

### Natural gas

For industry and households, ex-tax prices are computed as consumption-weighted averages of the average prices reported by all natural gas distributors to



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the Ministry. Suppliers have the obligation to report data to the Ministry. Prices shown cover at least 95% of total consumption in Spain. Total prices are calculated by adding the applicable tax components to the ex-tax prices.

In October 2021, the gas system tariffs changed in Spain. Therefore since Q4 2021, industry prices refer to an annual consumption between 15 and 50 GWh. In the case of households, prices refer to an annual consumption between 5 000 and 15 000 kWh.

## Electricity

For industry and households, annual electricity prices from 1979 to 2007 were provided by the relevant Ministry, known under different names during this period.

From 1Q2008 onwards, prices refer to the Eurostat consumption bands DA, DB, DC, DD and DE for households; and bands IA, IB, IC, ID, IE, IF and IG, for industry, covering the whole consumption spectrum for households.

National average prices are computed by the Ministry as consumption-weighted averages of the average prices per band published by Eurostat. The weights used for this calculation are bi-annual consumption figures per band collected through surveys.

Eurostat data are bi-annual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

Excise taxes are calculated as the subtraction of the prices excluding taxes from the prices including non-VAT taxes, as published by Eurostat.

## Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the Harmonised Indices of Consumer Prices (HICP) published by Eurostat.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722) series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat.

Retail indices for electricity refer to the *electricity* (cp0451) series.

Retail indices for natural gas refer to the *gas* (cp0452) series.



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# Energy taxation

## VAT

VAT *(IVA)* applies to all energy products. The VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industry, electricity generation and automotive fuels for commercial use in the *Energy prices and taxes for OECD countries* database.

In order to deal with rising prices, during the second semester of 2021 the Spanish government has reduced VAT from 21% to 10% for electricity households with 10 kW or less. Almost all household consumers meet this requirement, so the average VAT applied to all domestic consumers has passed form 11,01% on the previous semester to 10% in the first two quarters of 2022. Furthermore, form 1 July 2022 the VAT Tax for households has been further reduced to 5%.

| From | To | Rate for electricity households % | General % |
|---|---|---|---|
| 01.01.86 | 31.12.91 | 12 | 12 |
| 01.01.92 | 31.07.92 | 13 | 13 |
| 01.08.92 | 31.12.94 | 15 | 15 |
| 01.01.95 | 30.06.10 | 16 | 16 |
| 01.07.10 | 31.08.12 | 18 | 18 |
| 01.09.12 | 23.06.21 | 21 | 21 |
| 24.06.21 | 31.06.22 | 10 (with slight variations) | 21 |
| 01.07.22 | Now | 5 | 21 |

From October 2022 to December 2023, the Spanish government reduced the VAT rates from 21% to 5% for households gas consumers due to the increase in prices.

## Excise tax

The legal framework for excise taxation on energy in place in Spain is consistent with the 2003 EU Energy Taxation Directive.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| IEH | × | × | × | × | × | × | | | |
| IEC | | | | | | | × | | |
| IEE | | | | | | | | | × |

### *Special tax on hydrocarbons (Impuesto especial sobre hidrocarburos - IEH)*

The Special tax on hydrocarbons (IEH) consists of a series of indirect taxes set out in the Special Taxes Law (38/1992) and applies to oil products and natural gas. The IEH was introduced on 1 January 1993 as a national component and expanded in 2002 to include regional components. However, regional components have been abolished since 1 January 2019. Law establishes distinct tax rates for transportation and heating.

The national component applies to oil product and natural gas sales in the country, with the exception of the Canary Islands and the autonomous cities of Ceuta and Melilla which have separate tax regimes. This component distinguishes between general uses and special uses, the sum of which is the applicable rate for most uses.

The professional transportation sector receives partial refunds on both national and regional tax components for diesel (Art. 52 bis). Fuels used for electricity generation are tax-free.

The rates are expressed on a volume basis for oil products and natural gas, with the exception of heavy fuel oil, for which rates are expressed on a mass basis. The tax rates shown in the table at the end of this section refer to the national component only and are the sum of the special and the general components.

| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline 95 RON (EUR/l) |
|---|---|---|---|---|---|
| 03.10.99 | 31.12.02 | 13.43 | 144.5 | 0.270 | 0.372 |
| 01.01.03 | 17.01.07 | 13.43 | 78.71 | 0.270 | 0.372 |
| 18.01.07 | 12.06.09 | 14 | 78.71 | 0.278 | 0.372 |
| 13.06.09 | 31.12.12 | 14 | 78.71 | 0.307 | 0.401 |



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| From | To | Heavy fuel oil (EUR/tonne) | Light fuel oil (EUR/1000l) | Automotive diesel (EUR/l) | Gasoline 95 RON (EUR/l) |
|---|---|---|---|---|---|
| 01.01.13 | 31.12.18 | 15 | 78.71 | 0.331 | 0.424 |
| 01.01.19 | now | 17 | 96.71 | 0.379 | 0.473 |

| From | To | Automotive LPG (EUR/l) | Natural Gas *households* (EUR/MWh) | Natural Gas *industry* (EUR/MWh) |
|---|---|---|---|---|
| 03.10.99 | 31.12.02 | 0.0322 | 0 | 0 |
| 01.01.03 | 17.01.07 | 0.0322 | 0 | 0 |
| 18.01.07 | 12.06.09 | 0.0322 | 0 | 0 |
| 13.06.09 | 31.12.12 | 0.0322 | 0 | 0 |
| 01.01.13 | 31.12.18 | 0.0322 | 2.34 | 0.54 |
| 01.01.19 | now | 0.0342 | 2.34 | 0.54 |

### *Special tax on coal (Impuesto especial sobre el carbón - IEC)*

An excise tax on coal consumption has been in place in Spain since 20 November 2005, through an amendment to the Special Taxes Law (Art. 75 through 88).

Residential use, as well as industrial use for chemical reductions, electrolytic and metallurgical processes, is exempt from this tax. Coking coal is therefore tax-free in Spain.

Tax rates are expressed on an energy content basis (GJ). Since 20 November 2015, the applicable tax rate for coal consumption in the industrial sector has been 0.15 EUR/GJ.

| From | To | Coal for Industry (EUR/GJ) |
|---|---|---|
| 20.11.05 | now | 0.15 |

### *Special tax on electricity (Impuesto especial sobre la electricidad - IEE)*

The Special tax on electricity (IEE), an *ad-valorem* tax, has been in place since 1 January 1998. In contrast with other taxes detailed in the Special Taxes Law, the special tax on electricity applies in the whole country, including the Canary Islands, Ceuta and Melilla. The IEE rate is set at 5.1127% (Art 99.1).



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Additionally, the law sets a minimum rate of 0.5 EUR/MWh and 1 EUR/MWh for industrial and residential use, respectively, to be applied if the total tax calculated as a percentage of the price, was lower.

As with the VAT tax and in order to deal with rising prices, during part of the second semester of 2021 the Spanish government has reduced IEE from 5.1127% to 0,5% (the minimum allowed by the European Commission).

| From | To | General % |
|---|---|---|
| 01.01.98 | 13.09.21 | 5.1127 |
| 14.09.21 | now | 0.5 |

## Energy taxation database methodology

VAT (IVA) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

The yearly values are estimated as the average of the values applied within each year, weighted by the number of days. These refer to the sum of the special and the general components applied at the national level.

Other taxes comprise the Special tax on coal (Impuesto especial sobre el carbón - IEC) and the Special tax on electricity (Impuesto especial sobre la electricidad - IEE). The IEC applies to steam coal and, so, it is assumed that it is applicable to the use of coal in industry and for electricity generation. The applicable value is constant since it im-plementation. The IEE is an ad-valorem tax applied to electricity consumption. The yearly values are estimated using the applicable rate (5.1127%) and the ex-tax energy prices for the residential and industry sectors available in the IEA ETP database.

## Sub-national transport fuel prices

Sub-national transport fuel prices are presented for the following 17 regions (Comunidades Autónomas) in Spain:

Andalucia

Aragon

Asturias

Baleares



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Cantabria
Castilla y Leon
Castilla-La Mancha
Cataluña
Comunidad Valenciana
Extremadura
Galicia
La Rioja
Madrid
Murcia
Navarra
Pais Vasco
Canarias

# Product specifications

## Oil products

| | High sulphur fuel oil | Low sulphur fuel oil | Light fuel oil | Automotive diesel |
|---|---|---|---|---|
| Quality | Fuel oil no. 2 | | Gasoleo C | Gasoleo A |
| Density (kg/l) | | | 0.855 | 0.87 |
| Sulphur content (%) | <3.5 | <1 | | |
| NCV (kcal/kg) | 9 400 | | | 10 175 |

## Natural gas and coal

| | Natural gas | Steam coal *industry* |
|---|---|---|
| Quality | | Standard coal PA |
| Ash content (%) | | 6 |
| Moisture content (%) | | 14 |
| Sulphur content (%) | | 0.8 |
| GCV (kcal/$m^3$) | 10 204 | |



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# Sweden

## Sources

Energy price indices except for natural gas, are provided on a quarterly basis by **Statistics Sweden**.

Prices and taxes data for low sulphur fuel oil are derived from weekly data published in the **European Commission's** *Weekly Oil Bulletin*.

Prices and taxes data for natural gas and electricity, as well as energy price indices for natural gas, are derived from data extracted from the **Eurostat** website.

## Data collection methodology

From 1Q1994 onwards, quarterly prices refer to quarterly averages. From 1Q1984 to 4Q1993 prices refer to the second month of each quarter. Prior to 1Q1984, prices refer to the first month of each quarter.

### Oil products

For low sulphur fuel oil, prices are derived from the European Commission's *Weekly Oil Bulletin*, which reports weekly ex-tax and total prices. Quarterly and annual figures are calculated as arithmetical averages of the weekly data. Total taxes are calculated by subtracting the ex-tax prices from the end-use prices. Excise taxes are equal to total taxes, as industry does not pay VAT.

### Natural gas

Prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 - 200 GJ) and I4 for industry (annual consumption: 100 000 - 1 000 000 GJ). Eurostat data are bi-annual, therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q.

### Coal

Coal prices for industry are confidential from 2013 onwards.

### Electricity

From 1Q2007 onwards, prices refer to the Eurostat consumption band DD for households (annual consumption: 5 000 – 15 000 kWh) and ID for industry (annual consumption: 2 000 – 20 000 MWh). Data are bi-annual,



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therefore, prices for 1Q and 2Q are the same, as are those for 3Q and 4Q. No information is available from 1998 to 2006.

Prior to 1998, prices refer to annual average ex-tax revenues per MWh of all public utilities from total deliveries to manufacturing industry, mining, and quarrying (industry), and from low-voltage deliveries to households and commerce (households).

### Energy price indices

Annual indices are 12-month averages. Quarterly indices refer to the 3-month average. The retail index refers to a consumption-weighted average of the consumer price indices for gasoline and heating oil (light fuel oil).

The retail price index for natural gas refers to the Eurostat Harmonised Index of Consumer Prices for *gas* (cp0452).

## Energy taxation

### VAT

VAT *(Moms)* applies to all energy products. VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | % |
|---|---|---|
| 01.03.90 | 30.06.90 | 23.46 |
| 01.07.90 | now | 25.00 |

### Excise tax

Excise taxation on energy consists of three different tax components, based on the energy, $CO_2$ and sulphur contents of each product, as established by the Energy Tax Act (1994:1776), which came into force on 1 January 1995.

The legal framework is consistent with the 2003 EU Energy Taxation Directive.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Energy tax | × | × | × | × | × | × | × | × | × |
| $CO_2$ tax | × | × | × | × | × | × | × | × | |
| Sulphur tax | × | × | × | × | × | | × | × | |

### *Energy tax (Energiskatt)*

The Energy tax is paid on transportation fuels, fuel oil, natural gas, steaming and coking coal, electricity and certain liquid biofuels.

Compressed natural gas (CNG) for transportation is exempt.

Electricity used in manufacturing processes and greenhouses is taxed at a reduced rate. Electricity used for chemical reductions and electrolytic processes is tax-free.

Certain northern municipalities are subject to a reduced energy tax rate on electricity to compensate for increased electricity needs. All municipalities in Jämtland, Norrbotten, Västerbotten counties, as well as certain municipalities in Dalarna, Gävleborg, Värmland and Västernorrland counties, benefit from reduced rates. The tax rates shown for electricity at the end of this section refer to the general rates applicable in all other regions.

Liquid fuels containing a fraction of biofuels were taxed at a lower rate until 1 July 2018, when the tax reduction on the biofuel fraction in gasoline and automotive diesel was removed. Biofuels themselves are exempt from excise taxes.

| From | To | Automotive diesel (SEK/l) | Gasoline (SEK/l) | Natural gas (SEK/Mm$^3$) | Coal (SEK/tonne) | Electricity (SEK/MWh) |
|---|---|---|---|---|---|---|
| 01.01.00 | 31.12.00 | 1.864 | | 241 | 316 | 162 |
| 01.01.01 | 31.12.01 | 1.512 | 3.26 | 223 | 293 | 181 |
| 01.01.02 | 31.12.02 | 1.323 | 3.16 | 229 | 301 | 198 |
| 01.01.03 | 31.12.03 | 1.004 | 2.94 | 233 | 307 | 227 |



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| From | To | Automotive diesel (SEK/l) | Gasoline (SEK/l) | Natural gas (SEK/Mm$^3$) | Coal (SEK/tonne) | Electricity (SEK/MWh) |
|---|---|---|---|---|---|---|
| 01.01.04 | 31.12.04 | 0.733 | 2.68 | 237 | 312 | 241 |
| 01.01.05 | 31.12.05 | 1.036 | 2.84 | 238 | 313 | 254 |
| 01.01.06 | 31.12.06 | 1.042 | 2.86 | 239 | 315 | 261 |
| 01.01.07 | 31.12.07 | 1.057 | 2.90 | 243 | 319 | 265 |
| 01.01.08 | 31.12.08 | 1.277 | 2.95 | 247 | 325 | 270 |
| 01.01.09 | 31.12.09 | 1.332 | 3.08 | 258 | 339 | 282 |
| 01.01.10 | 31.12.10 | 1.322 | 3.06 | 256 | 336 | 280 |
| 01.01.11 | 31.12.11 | 1.524 | 3.06 | 880 | 605 | 283 |
| 01.01.12 | 31.12.12 | 1.566 | 3.14 | 904 | 622 | 290 |
| 01.01.13 | 31.12.13 | 1.762 | 3.13 | 903 | 621 | 293 |
| 01.01.14 | 31.12.14 | 1.759 | 3.13 | 902 | 620 | 293 |
| 01.01.15 | 31.12.15 | 1.833 | 3.25 | 939 | 646 | 294 |
| 01.01.16 | 31.12.16 | 2.355 | 3.72 | 935 | 643 | 292 |
| 01.01.17 | 31.12.17 | 2.490 | 3.88 | 945 | 650 | 295 |
| 01.01.18 | 30.06.18 | 2.648 | 4.08 | 961 | 661 | 331 |
| 01.07.18 | 31.12.18 | 2.341 | 3.87 | 961 | 661 | 331 |
| 01.01.19 | 30.06.19 | 2.480 | 4.08 | 981 | 675 | 347 |
| 01.07.19 | 31.12.19 | 2.389 | 3.95 | 981 | 675 | 347 |
| 01.01.20 | 31.12.20 | 2.461 | 4.10 | 998 | 687 | 353 |
| 01.01.21 | 31.12.21 | 2.478 | 4.13 | 1005 | 692 | 356 |
| 01.01.22 | 30.04.22 | 2.511 | 4.18 | 1018 | 701 | 360 |
| 01.05.22 | 30.09.22 | 1.061 | 2.73 | 1018 | 701 | 360 |
| 01.10.22 | Now | 2.111 | 3.78 | 1018 | 701 | 360 |

### *CO2 tax (Koldioxidskatt)*

The $CO_2$ tax applies to all energy products except electricity.

The $CO_2$ tax is paid per emission of one kilo of carbon dioxide on all fuels except biomass and peat. Industrial users who are a part of the European Trading System (ETS) for $CO_2$ emissions are exempt.



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| From | To | Automotive diesel (SEK/l) | Gasoline (SEK/l) | Natural gas (SEK/Mm$^3$) | Coal (SEK/tonne) |
|---|---|---|---|---|---|
| 01.01.00 | 31.12.00 | 1.058 | 0.86 | 792 | 920 |
| 01.01.01 | 31.12.01 | 1.527 | 1.24 | 1144 | 1329 |
| 01.01.02 | 31.12.02 | 1.798 | 1.46 | 1346 | 1564 |
| 01.01.03 | 31.12.03 | 2.174 | 1.77 | 1628 | 1892 |
| 01.01.04 | 31.12.04 | 2.598 | 2.11 | 1946 | 2260 |
| 01.01.05 | 31.12.05 | 2.609 | 2.12 | 1954 | 2270 |
| 01.01.06 | 31.12.06 | 2.623 | 2.13 | 1965 | 2282 |
| 01.01.07 | 31.12.07 | 2.663 | 2.16 | 1994 | 2317 |
| 01.01.08 | 31.12.08 | 2.883 | 2.34 | 2159 | 2509 |
| 01.01.09 | 31.12.09 | 3.007 | 2.44 | 2252 | 2617 |
| 01.01.10 | 31.12.10 | 3.013 | 2.44 | 2256 | 2622 |
| 01.01.11 | 31.12.11 | 3.017 | 2.44 | 2259 | 2625 |
| 01.01.12 | 31.12.12 | 3.100 | 2.51 | 2321 | 2697 |
| 01.01.13 | 31.12.13 | 3.093 | 2.50 | 2316 | 2691 |
| 01.01.14 | 31.12.14 | 3.088 | 2.50 | 2313 | 2687 |
| 01.01.15 | 31.12.15 | 3.218 | 2.60 | 2409 | 2800 |
| 01.01.16 | 31.12.16 | 3.204 | 2.59 | 2399 | 2788 |
| 01.01.17 | 31.12.18 | 3.237 | 2.62 | 2424 | 2817 |
| 01.01.18 | 30.06.18 | 3.292 | 2.66 | 2645 | 2865 |
| 01.07.18 | 31.12.18 | 2.191 | 2.57 | 2465 | 2865 |
| 01.01.19 | 31.12.19 | 2.236 | 2.62 | 2516 | 2924 |
| 01.01.20 | 31.12.20 | 2.246 | 2.59 | 2561 | 2976 |
| 01.01.21 | 31.12.21 | 2.262 | 2.61 | 2579 | 2997 |
| 01.01.22 | now | 2.292 | 2.64 | 2613 | 3037 |

### *Sulphur tax (Svavelskatt)*

An additional tax component, proportional to a fuel's sulphur content, is levied on oil products and solid fuels, with differentiated rates.

For oil products, a flat rate of 27 SEK per 0.1% of sulphur content (in mass, rounded upwards), has been in place since 1 January 1991. From this date until



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31 December 2001, oil products with less than 0.1% sulphur, were exempt. The threshold was lowered to 0.05% on 1 January 2002. Solid fuels are taxed at a flat rate of 30 SEK per kilogramme of sulphur in a tonne of fuel.

## Energy taxation database methodology

VAT (Moms) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Environmental tax comprises the CO2 tax (Koldioxidskatt) and the Sulphur tax (Svavelskatt). The first applies to all energy products except electricity. The yearly values applied to the different energy products are estimated as the av-erage of the values applied within each year weighted by the number of days. Specific values for fuel oil and LPG are not provided. The Sulphur tax applies to oil products and solid fuels. The specific values are not provided. Thus, the values considered for the environmental tax correspond solely to the values of the CO2 tax.

Carbon tax corresponds to the CO2 tax. Thus, the estimated values are equivalent to the ones estimated for the environmental tax.

Other taxes comprise the Energy tax (Energiskatt), applied to all energy products considered in the database. Exemptions include the use of compressed natural gas in transportation and the use of electricity in some industrial processes. As a reduced rate is applied to the use of electricity for manufacturing but no specific values are provided, the applicable tax value in this case is not included in the database. Specific values for fuel oil and LPG are also not provided. The remaining yearly values are estimated as the average of the values applied within each year weighted by the number of days.

## Product specifications

| | Low sulphur fuel oil | Light fuel oil | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline |
|---|---|---|---|---|
| Quality | No. 5 heavy Fuel Oil | Eldningsolja 1 | Bensin 98 oktan, blyfri | Bensin 95 oktan, blyfri |
| Density (kg/l) | 0.94 | 0.845 | | |
| Sulphur content (%) | <0.3 | <0.2 | | |



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# Switzerland

## Sources

Data for all products, as well as energy price indices, are provided on a quarterly basis by the **Swiss Federal Office of Energy (SFOE)**.

## Data collection methodology

Prior to 1Q1983 and from 1Q1993 onwards, prices refer to the averages of the monthly prices. From 1Q1986 up to 4Q1992, prices refer to the second month of each quarter. From 1Q1983 to 4Q1985, prices refer to the first month of the quarter.

### Oil products

Ex-tax prices include a mandatory contribution to finance Switzerland's oil emergency reserves, collected by Carbura, a private corporation operating under statutes approved by the Swiss government.

For low sulphur fuel oil, prices from 1Q2015 onwards are not available, as consumption has been negligible during this period. Prices from January 1993 onwards refer to the final "at-the-door" prices in Zürich, including all expenses. Until December 1992, prices refer to the national average. Prices for light fuel oil are average wholesale prices from 1Q1994 onwards. Prior to 1Q1994, prices for industry refer to the national average prices for all lots larger than 20 000 l/year. For households, reported data are average prices for representative lots of 3 000-6 000 l.

For light fuel oil, automotive diesel and unleaded premium (95 and 98 RON) gasoline, ex-tax prices are collected by the Swiss Federal Statistical Office (FSO) through monthly surveys to the only refinery in Switzerland and a sample of the most important fuel importers. Respondents report the prices charged to final consumers, excluding VAT and excise taxes. End-use prices are subsequently calculated by adding the applicable tax components to the ex-tax prices.

### Natural gas

For industry and households, ex-tax prices include a mandatory contribution for natural gas security collected by Provisiogas, a private corporation operating under statutes approved by the Swiss government.



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Ex-tax prices are collected by the FSO through a survey of the most important natural gas distribution companies. Respondents report the price charged to end-consumers excluding the VAT, but including other taxes. End-use prices are then calculated by adding the applicable tax components to the ex-tax prices.

For industry, prices refer to consumer category VIII, with an annual consumption of 11.63 GWh (maximum load 6 000 kW), based on interruptible contracts. Prices are based on information submitted by the FSO to the SFOE. For larger consumers with annual consumption above 250 GWh, prices are about 40% lower than those for the consumer category VIII.

For households, prices refer to consumer category II, with an annual consumption of 20 MWh and apply to space heating (gas boilers with a maximum load of 15 kW), as well as water heating and cooking. Prices are based on information submitted by the FSO to the SFOE. Prices for consumer category I, referring to “cooking only” (annual consumption of approximately 1 MWh) are 3.5 times higher. Since December 2005, the FSO no longer submits prices for this consumer category.

## Steam and coking coal

For steam coal for households and electricity generation, as well as for coking coal for industry, prices are considered as not applicable due to low consumption levels.

For steam coal for industry, ex-tax prices are collected by the FSO on a monthly basis. Data refer to prices at the Swiss border. End-use prices are then calculated by adding the applicable tax components to the ex-tax prices.

The CO2 tax on fossil fuels, applicable to coal consump¬tion, is not shown in the excise tax column as most coal-consuming industries are subject to the carbon emission trading system and are thus exempt from this levy.

## Electricity

For industry and households, ex-tax prices are collected by the FSO through a survey of the most important electricity distribution companies. Respondents report the price charged to end-consumers excluding VAT, but not other taxes. End-use prices are then calculated by adding the applicable tax components to the ex-tax prices. Electricity prices for consumers below 100 MWh are regulated and adjusted once a year.



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For industry, prices from 2000 onwards refer to an annual consumption of 10 000 - 20 000 MWh. Electricity prices are based on Elcom surveys. FSO carries out a special annual survey in February for customers with electricity demand above 3 GWh per year. Tariffs for larger consumers (with an annual consumption over 20 GWh), are at least 0.01 CHF/kWh lower than the prices shown in the tables.

Average annual prices for the previous year are collected each February. Therefore, prices for the most recent year are provisional. Prior to 1998, tariffs refer to annual consumption of 15 000 MWh, maximum load 5 000 kWh.

For households, prices refer to an annual consumption of 4.5 MWh.

## Energy price indices

From 1Q1993 onwards, quarterly indices refer to the 3-month average of the quarter. From 1Q1986 to 4Q1992, indices refer to the second month of the quarter. Prior to 1Q1986, indices refer to the first month of each quarter.

From 1986 onwards, annual indices are quarterly averages. Previously they were 12-month averages.

Indices are calculated based on the monthly Producer and Consumer Price Indices produced by the FSO, which are then sent to the SFOE. The FSO's wholesale price index is based on producer and import prices. The survey methodology can be found here.

Wholesale and retail indices for oil products are a weighted-average of heating oil, gasoline and diesel. Wholesale indices refer to *mineral oil products* (Series ID 19). Retail indices refer to *petroleum products* (Series ID 112_101).

Wholesale indices for electricity refer to *electricity for businesses, industry and services* (Series ID 35.10.2.). Retail indices refer to *electricity for households* (Series ID 35.10.1).

Wholesale indices for natural gas refer to *natural gas for businesses, industry and services* (Series ID 35.20.2.). Retail indices refer to *natural gas for households* (Series ID 35.20.1).

Wholesale indices for coal refer to c*oal* (Series ID 05).



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# Energy taxation

## VAT

VAT *(TVA/MwSt/IVA)* is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

| From | To | General % |
|---|---|---|
| 01.01.95 | 31.12.98 | 6.5 |
| 01.01.99 | 31.12.00 | 7.5 |
| 01.01.01 | 31.12.10 | 7.6 |
| 01.01.11 | 31.12.17 | 8.0 |
| 01.01.18 | now | 7.7 |

## Excise tax

The excise tax columns in Tables 1, 2 and 3 is the sum of all non-VAT tax components applicable to each product.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Mineral oil tax | × | × | × | × | × | × | | | |
| $CO_2$ tax on fossil fuels | × | × | | | | × | × | × | |
| Compensation for $CO_2$ emissions on motor fuel oils | | | × | × | | | | | |
| Electricity network surcharge | | | | | | | | | × |

### *Mineral oil tax (Impôt sur les huiles minerales/ Mineralölsteuer/ Imposta sugli oli minerali)*

The Mineral oil tax is legally defined in the Mineral Oil Tax Law of 21 June 1996, as amended, which came into force on 1 January 1997. It currently applies to heavy and light fuel oil, automotive diesel, gasoline, LPG and natural gas used as transportation fuel. For NGV, the fee is converted from CHF/t to CHF/MWh using



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the typical conversion factor used by Federal Department of Finance of 14.64 MWh/t.

The mineral oil tax is an indirect consumption tax levied on the final sales. The applicable tax rate depends on products and uses. Exemptions and partial reimbursements are available for certain commercial activities, such as agriculture and fishing, under certain conditions.

Automotive diesel and gasoline are subject to an additional surcharge of 0.3 CHF/L, which is included in the rates shown in the table at the end of this section.

In order to compensate the revenue losses due to the tax exemption for biofuels, the Swiss Government increased the mineral oil tax by 3.7 cts/Liter; this increase applies as of 1 January 2021 and is valid until end of 2028[8].

| From | To | Heavy fuel oil (CHF/tonne) | Light fuel oil (CHF/1000l) | Automotive diesel (CHF/l) | Gasoline (CHF/l) |
|---|---|---|---|---|---|
| 01.07.95 | 31.12.96 | 3.70 | 3.05 | 0.754 | 0.715 |
| 01.01.97 | 31.12.97 | 3.60 | 3.00 | 0.759 | 0.719 |
| 01.01.98 | 31.12.99 | 3.60 | 3.00 | 0.759 | 0.727 |
| 01.01.00 | 30.06.08 | 3.60 | 3.00 | 0.759 | 0.731 |
| 01.07.08 | 30.09.10 | 3.60 | 3.00 | 0.759 | 0.731 |
| 01.10.10 | 31.12.2020 | 3.60 | 3.00 | 0.759 | 0.731 |
| 01.10.21 | now | 3.60 | 3.00 | 0.796 | 0.768 |

| From | To | Automotive LPG (CHF/l) | Natural gas for transport (CHF/t) | Natural gas for transport (CHF/MWh) |
|---|---|---|---|---|
| 01.07.95 | 31.12.96 | n.a. | 809 | 55.1 |
| 01.01.97 | 31.12.97 | n.a. | 809 | 55.1 |
| 01.01.98 | 31.12.99 | n.a. | 809 | 55.1 |
| 01.01.00 | 30.06.08 | n.a. | 809 | 55.1 |
| 01.07.08 | 30.09.10 | n.a. | 222.2 | 15.1 |
| 01.10.10 | now | n.a. | 222.2 | 15.1 |

[8] Le Conseil fédéral augmente les taux d'impôt de l'essence et de l'huile diesel de 3,7 centimes par litre (admin.ch)



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### *$CO_2$ levy on fossil fuels (Taxe sur le $CO_2$ sur les combustibles fossiles / $CO_2$-Abgabe auf fossilen Brennstoffen / Tassa sul $CO_2$ sui combustibili fossili)*

The CO2 levy is a key instrument for achieving statutory CO2 emissions targets. This incentive tax on fossil combustible fuels, such as heating oil and natural gas, has been levied since 2008. In making fossil fuels more expensive, it creates an incentive to use them more economically and choose more carbon-neutral or low carbon energy sources. Two thirds of the revenue from the levy is redistributed annually to the population and the economy regardless of the amount of energy consumed[9].

The initial level of the levy was 12 CHF per tonne of $CO_2$ emissions and was raised, on 1 January 2010, to 36 CHF. On 1 January 2014, it was raised to 60 CHF per tonne, to 84 CHF per tonne on 1 January 2016, to 96 CHF per tonne on 1 January 2018 and to 120 CHF per tonne on 1 January 2022.

This levy was introduced purely as an incentive, but from 2010 onwards one third of the annual yield (but no more than 300 million CHF) is earmarked to fund $CO_2$-effective measures in buildings (renovations, heating with renewable energies). With the Energy Strategy 2050 (Energy Law as of 1 January 2018), the maximum ear-marking for the building programme has been raised from 300 to 450 million CHF. The rest is reimbursed to households (reduced health care premiums) and to companies (reduced old-age pension contributions).

Large industrial customers are exempted from the $CO_2$ tax by the Federal Government, provided they commit to limit their emissions of greenhouse gases. Companies in the Swiss emission trading system (ETS) are also exempted from the $CO_2$ tax.

| From | To | Heavy fuel oil (CHF/tonne) | Light fuel oil (CHF/1000l) | Natural gas for heating (CHF/MWh) |
|---|---|---|---|---|
| 01.01.13 | 31.12.13 | 114.20 | 95.50 | 6.48 |
| 01.01.14 | 31.12.14 | 190.20 | 159.0 | 10.93 |
| 01.01.15 | 31.12.15 | 190.20 | 159.0 | 10.93 |
| 01.01.16 | 31.12.17 | 266.00 | 222.6 | 15.17 |
| 01.01.18 | 31.12.21 | 304.00 | 259.3 | 17.75 |
| 01.01.18 | now | 379.8 | 324 | 22.18 |

[9] CO2 levy (admin.ch)



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### *Compensation for $CO_2$ emissions on motor fuel oil (Compensation des émissions de $CO_2$ des carburants / Kompensation der $CO_2$-Emissionen von Treibstoffen/ Compensazione delle emissioni di $CO_2$ dall'impiego dei carburanti)*

From 1 October 2005 to 31 August 2012, a surcharge of 0.015 CHF/l was levied on gasoline and diesel by the Climate Cent Foundation of the Swiss Oil Association. This surcharge was not considered a tax according to OECD definitions, as it was levied by a private body on a non-governmental basis. The revenues from this surcharge served for domestic and foreign emission-mitigating projects as well as to purchase international $CO_2$ emissions certificates.

The entry into force of the $CO_2$ Emissions Reduction Ordinance on 1 January 2013 replaced this levy with an obligation for fuel importers to compensate for a part of their $CO_2$ emissions.

Starting 2014, importers of motor fuel oil must take measures within the framework of the Swiss $CO_2$ law in order to compensate for the part of $CO_2$ emissions caused by road transportation. For this purpose, the Swiss Oil Association has established the Foundation for Climate Protection and Carbon Offset.

For 2014 and 2015, the percentage of compensation has been fixed at 2% and it will be increased gradually until it reaches 12% in 2021[10]. The resulting tax surcharge levied on fuels may not exceed 0.05 CHF/l.

This surcharge was estimated, by the reporting agency, at 0.015 CHF/l in 2014, and 0.018 to 0.019 CHF/l since 2015 up to now.

| From | To | Automotive diesel (CHF/l) | Gasoline (CHF/l) |
|---|---|---|---|
| 01.01.14 | 31.12.14 | 0.015 | 0.015 |
| 01.01.15 | now | 0.019 | 0.019 |

### *Renewable electricity production support levy*

The Renewable electricity production support levy or network surcharge has been levied since 1 January 2009.

Electricity produced from small-scale hydropower, photo-voltaic, wind, geothermic, biomass and waste from biomass can be fed into the electricity network at a cost-covering remuneration. To finance the difference between the

[10] Compensation obligation for fuel importers (admin.ch)



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latter and market price, a tax (network surcharge) is levied since 1 January 2009 on electricity. With the Energy Strategy 2050, the cost covering feed-in-tariff has been changed to a non recurrent remuneration and will be phased out after 2022[11].

The amount of this tax is set each year by the Swiss Federal Office of Energy. With the Energy Strategy 2050, this tax was raised from 1.5 cents/kWh to 2.3 cents/kWh as of 1 January 2018, in line with the maximum set by the law.

| From | To | Electricity (CHF/MWh) |
|---|---|---|
| 01.01.09 | 31.12.13 | 4.50 |
| 01.01.14 | 31.12.14 | 6.00 |
| 01.01.15 | 31.12.15 | 11.0 |
| 01.01.16 | 31.12.17 | 13.0 |
| 01.01.17 | 31.12.17 | 15.0 |
| 01.01.18 | now | 23.0 |

## Energy taxation database methodology

VAT (TVA/MwSt/IVA) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Environmental tax and Carbon levy are equivalent, comprising the CO2 levy on fossil fuels and the Compensation for CO2 emissions on motor fuel oil importers. The first applies to oil products, natural gas, coal and other fossil fuels used for heating purposes, process heat and electricity generation. Thus, transportation fuels are exempt. The second is levied on transportation fuels such as gasoline and diesel. The yearly values for both taxes are estimated as the average of the values applied within each year weighted by the number of days.

The support for renewable electricity generation is funded by a surcharge on the levy for grid usage and amouns to 2.3 cts/kWh, since 1 Januar 2018. This is applied to electricity consumption, with exemptions for large electricity

[11] Non-recurrent remuneration (admin.ch)



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consumers[12]s. The yearly values are estimated as the average of the different values applied within each year, weighted by the number of days.

Other taxes comprise the Mineral oil tax, applied to heavy and light fuel oil, automotive diesel, gasoline, LPG and natural gas used for transportation. As applicable exemptions and refunds do not cover any consumer sector in full, these are not considered in the database. Yearly values are estimated as the average of the values applied within each year weighted by the number of days.

# Product specifications

## Oil products

| | Low sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline |
|---|---|---|---|---|---|
| Quality | | Heizöl extraleicht | Dieselöl, Schwefelgehalt bis 0.001% | Autobenzin mindestens 98 ROZ | Autobenzin mindestens 95 ROZ |
| Density (kg/l) | | 0.845 | 0.835 | 0.744 | 0.744 |
| Sulphur content (%) | 1 | <0.2 | 0.001 | | |
| Lead content (g/l) | | | | 0.005 | 0.005 |

## Natural gas and coal

| | Natural gas | Steam coal *industry* |
|---|---|---|
| Quality | | Finekohle |
| Grain size (mm) | | 0 – 50 |
| NCV (kcal/kg) | | 6 000 |
| GCV (kcal/m$^3$) | 9 560 | |
| GCV (MWh/kg) | 14.67 | |

[12] Rückerstattung Netzzuschlag (admin.ch)



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# Türkiye

## Sources

Prices and taxes data for all products, as well as wholesale energy price indices, are provided on a quarterly basis by the **Ministry of Energy and Natural Resources**.

Retail energy price indices are based on data published by **Eurostat**.

## Data collection methodology

From 1Q1988 onwards, prices refer to the monthly averages of the quarter. Prior to 1Q1988, prices refer to the second month of the quarter.

### Oil products

Prices for all oil products are calculated by the reporting institution based on data from the Energy Market Regulatory Authority (EMRA). Data refer to prices in Ankara.

Filling stations report changes in end-use prices for oil products to EMRA through an internet portal. Ex-tax prices are calculated by subtracting the applicable tax components from the end-use prices.

Due to its central location in the country, prices in Ankara are considered to be similar to prices found in other cities and therefore representative for the whole country.

### Natural gas

Prices for natural gas are calculated by the reporting institution based on data from the Directorate General of Petroleum Pipeline Corporation (BOTAŞ).

For industry and electricity generation, prices include all the relevant consumption bands and refer to the whole country. For industry, the relevant consumption bands correspond to the Eurostat consumption bands I1, I2, I3, I4, I5 and I6.

Prices for households refers to Ankara only.



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## Steam and coking coal

For steam and coking coal, prices are calculated by the reporting institution based on data from the Turkish Hard Coal Enterprises (TTK) and Turkish Coal Enterprises (TKİ)..

For steam coal, prices refer to lignite, which is the predominant type of coal produced and consumed. Prior to 1992, data on taxes are not available and therefore not included in the prices.

## Electricity

Data are calculated by the reporting institution based on data supplied by EMRA, which sets quarterly ex-tax prices for households, industry, services and agriculture. End-use prices are then calculated by the reporting institution by adding the applicable taxes to the ex-tax prices.

Electricity users with an annual consumption above 1 200 kWh are free to choose an alternative supplier company. Data of eligible consumers are not included in the data, but price levels are considered to be very similar to those reported by EMRA.

## Energy price indices

Annual wholesale indices are 12-month averages. From 1Q1993 onwards, quarterly wholesale indices refer to the three-month average of the monthly Producer Price Indices (PPIs) produced by the Turkish Statistical Institute for Statistics (TurkStat). Prior to 1Q1993, quarterly wholesale indices refer to the second month of each quarter.

Retail indices for oil products refer to a consumption-weighted average of the *liquid fuels* (cp0453) and *fuels and lubricants for personal transport equipment* (cp0722) series. Relative weights used for the calculations are taken from the associated item weights series (prc_hicp_inw), published by Eurostat. Wholesale indices refer to the *chemicals and petroleum products* PPI series.

Retail indices for electricity refer to a consumption-weighted average of the *electricity* (cp0451) series. Wholesale indices refer to the electricity PPI series.

Retail indices for natural gas refer to a consumption-weighted average of the *gas* (cp0452) series.

Retail indices for coal refer to a consumption-weighted average of the *solid fuel* (cp0454) series. Wholesale indices refer to the *coal mining* PPI series.



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# Energy taxation

## VAT

VAT *(KDV)* applies to all energy products. The VAT system currently in place in Türkiye was introduced on 1 January 1985 (Law No.3065, Official Gazette No. 18563 dated 02.11.1984).

In contrast to other OECD countries, VAT is not refunded for commercial and industry use. Therefore, it is shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use.

All electricity generating facilities using renewable sources are entitled to value-added tax and customs duty exemptions.

As of March 1, 2022, the VAT rate for electricity use of households decreased from 18% to 8%.

| From | To | % |
|---|---|---|
| 01.01.86 | 31.12.91 | 12 |
| 01.01.92 | 31.07.92 | 13 |
| 01.08.92 | 31.12.94 | 15 |
| 01.01.95 | 30.06.10 | 16 |
| 01.07.10 | 31.08.12 | 18 |
| 01.09.12 | now | 18 |

## Excise tax

Excise taxation on all commercial energy products, except for electricity, consists of a single tax component levied on a volume basis.

Excise taxes on electricity are levied on an advalorem basis and consist of three different components described below.

Steam and coking coal consumption is not subject to excise taxes.



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### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| ÖTV | × | × | × | × | × | × | | | |
| ETV | | | | | | | | | × |

### *Special consumption tax (Özel Tüketim Vergisi – ÖTV)*

The Special consumption tax (ÖTV) applies to a number of energy and non-energy products, as described in the Special Consumption Tax Law (Law No. 4760, Official Gazette No. 24783 dated 12 June 2002).

Pursuant to this law, oil products (gasoline, diesel, fuel oil and LPG) and natural gas are subject to ÖTV at rates that vary according to product specifications and usage (List I). The ÖTV also covers land, sea and air vehicles, as well as beverages, tobacco and many other consumer goods.

Natural gas for domestic use is exempt from special consumption taxes.

Diesel used in maritime and aviation is exempt.

Bioethanol and biodiesel produced from domestic crops are exempt from ÖTV when incorporated in gasoline or diesel fuel up to 2%. Electric vehicles, as well as fuels used for exploration and production activities are exempt.

| From | To | Heavy fuel oil (TL/tonne) | Light fuel oil (TL/1000l) | Automotive diesel * (TL/l) | Gasoline* (TL/l) | Automotive LPG* (TL/l) | Natural gas (TL/MWh) |
|---|---|---|---|---|---|---|---|
| 01.01.10 | 17.05.12 | 224 | 760.5 | 1.305 | 1.892 | n.a. | 2.162 |
| 18.05.12 | 21.09.12 | 224 | 760.5 | 1.295 | 1.877 | 0.717 | 2.162 |
| 22.09.12 | 07.09.16 | 224 | 936.7 | 1.595 | 2.177 | 0.886 | 2.162 |
| 08.09.16 | 22.05.18 | 224 | 1136.7 | 1.795 | 2.377 | 0.998 | 2.162 |
| 23.05.18 | 30.06.18 | 224 | 1136.7 | 1,7083 | 2,2811 | 0,9033 | 2.162 |
| 01.07.18 | 30.09.18 | 224 | 1136.7 | 1,3347 | 1,9473 | 0,4673 | 2,162 |
| 01.10.18 | 31.12.18 | 224 | 1136.7 | 1,4757 | 2,2273 | 0,6271 | 2,162 |
| 01.01.19 | 31.03.19 | 224 | 1136.7 | 1,7945 | 2,3765 | 0,9846 | 2,162 |
| 01.04.19 | 30.06.19 | 224 | 1136.7 | 1,6234 | 2,2126 | 0,899 | 2,162 |
| 01.07.19 | 30.09.19 | 224 | 1136.7 | 1,7793 | 2,3692 | 0,9957 | 2,162 |



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| From | To | Heavy fuel oil (TL/tonne) | Light fuel oil (TL/1000l) | Automotive diesel * (TL/l) | Gasoline* (TL/l) | Automotive LPG* (TL/l) | Natural gas (TL/MWh) |
|---|---|---|---|---|---|---|---|
| 01.10.19 | 31.12.19 | 224 | 1136.7 | 1,7713 | 2,3765 | 0,9822 | 2,162 |
| 01.01.20 | 31.03.20 | 224 | 1136.7 | 1,8864 | 2,4292 | 0,8819 | 2,162 |
| 01.04.20 | 30.06.20 | 224 | 1136.7 | 2,0559 | 2,5265 | 0,9830 | 2,162 |
| 01.07.20 | 30.09.20 | 224 | 1136.7 | 2,0559 | 2,5265 | 0,9830 | 2,162 |
| 01.10.20 | 31.12.20 | 224 | 1136.7 | 2,0099 | 2,5201 | 0,6122 | 2,162 |
| 01.01.21 | 31.03.21 | 224 | 1136.7 | 1,5904 | 1,9995 | 0,2482 | 2,162 |
| 01.04.21 | 30.06.21 | 224 | 1136.7 | 1,0005 | 1,1449 | 0,1690 | 2,162 |
| 01.07.21 | 30.09.21 | 224 | 1136,7 | 0,8184 | 0,8428 | 0 | 2,162 |
| 01.10.21 | 31.12.21 | 224 | 1136,7 | 0,1743 | 0,21 | 0,0758 | 2,162 |
| 01.01.22 | 31.03.22 | 224 | 1136 | 2,0559 | 2,20599 | 0,9957 | 2,162 |

*The sliding scale system has been implemented in diesel, gasoline and LPG since May 2018. From this date, the special consumption tax is calculated using the weighted average method.

### *Electricity consumption tax (Elektrik Tüketim Vergisi – ETV)*

Similarly to the taxation system for oil products and natural gas, electricity in Türkiye is subject to an Electricity consumption tax (ETV). The revenue from this tax is earmarked for municipalities.

In contrast to the excise taxation system for oil products and natural gas, taxes on electricity are levied on an *advalorem* basis.

Since its introduction, the tax rate has been kept constant at 1% for industry and 5% for both households and businesses.

### *Energy fund fee (Enerji fonu)*

In addition to the previously described ETV, an additional *ad-valorem* tax, known as the Energy fund fee, is levied on electricity consumption by all costumers, as described in the Energy Fund Law (No. 3096), which first came into force on 1 April 1984.

The revenue from this tax is earmarked for R&D in the energy sector, as well as to finance public spending on energy-related infrastructure.

Since its introduction, the tax rate has been kept constant at 1% for all consumer segments. The tax rate is 0.7% since 01.01.2021. As of January 1, 2022, Energy Fund Fee was repealed.



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### *TRT fee (TRT Payı)*

A third *advalorem* tax, known as the TRT fee, is levied on electricity consumption by all customers. The revenue from this tax is earmarked for the Turkish Radio and Television Corporation (TRT).

Since its introduction, the tax rate has been kept constant at 2% for all consumer segments except industry consumers. The TRT fee was repealed for industry consumers in July 2017. As of January 1, 2022, TRT share was repealed in electricity use in the residential sector.

## Energy taxation database methodology

VAT (KDV) applies to all energy products. As refund is not foreseen for any consumer sector, the VAT is considered to be applicable to all sectors. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

All excise duties applied to the energy products are considered as Other taxes. These include the Special consumption tax (ÖTV), the Electricity consumption tax (ETV), the Energy fund fee and the TRT fee. The ÖTV applies to oil products and natural gas, and it is assumed to be null for natural gas for domestic use and for all fuels for industry and electricity generation (as production activities are exempt). The yearly values are estimated as the average of the values applied within each year weighted by the number of days. The remaining taxes and levies apply only to electricity consumption and are ad-valorem taxes. Thus, the yearly values are estimated using the applicable rates for each tax and the ex-tax prices for electricity available in the EPT database.

## Product specifications

### Oil products

| | High sulphur fuel oil | Light fuel oil | Automotive diesel | Unleaded premium (95 RON) gasoline | Automotive LPG |
|---|---|---|---|---|---|
| Quality | Fuel oil No. 6 | No. 1 light fuel, Gazyağı | Motorin | Kurşunsuz benzin 95 oktan | Sıvılaştırılmış petrol gazı |
| Density (kg/l) | 0.97 | 0.8 | 0.85 | 0.775 | 0.56 |



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| | High sulphur fuel oil | Light fuel oil | Automotive diesel | Unleaded premium (95 RON) gasoline | Automotive LPG |
|---|---|---|---|---|---|
| Sulphur content (%) | | | | 0.1 | |
| Lead content (g/l) | | | | 0.013 | |
| NCV (kcal/kg) | 9 600 | 10 450 | 10 350 | 10 700 | |

## Natural gas and coal

| | Natural gas | Steam coal *industry households* | Steam coal *electricity generation* | Cooking coal |
|---|---|---|---|---|
| Quality | Doğal gaz | Lignite | Lignite | |
| NCV (kcal/kg) | | 4 250 | 2 000 | 6 100 |
| GCV (kcal/m$^3$) | 9 155 | | | |



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# United Kingdom

## Sources

Data for all energy products, including energy price indices, are provided on a quarterly basis by the **Department for Business, Energy and Industrial Strategy (BEIS)**.

## Data collection methodology

Prices refer to the United Kingdom unless otherwise specified.

### Oil products

For heavy fuel oil for electricity generation, prices are based on quarterly surveys carried out among major power companies, where companies provide volume and value data of purchased fuels. End-use prices are calculated by the reporting agency as the ratio between total expenditures and total purchased volumes. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices. Prices shown exclude fuels used to initiate combustion of heavy fuel.

For light fuel oil for industry, prices are based on quarterly surveys carried out among 600 manufacturing industries in Great Britain. In these surveys, companies provide volume and value data of purchased fuels. End-use prices are calculated by the reporting agency as the ratio between total expenditures and total purchased volumes. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

For light fuel oil for households, automotive diesel and unleaded premium (98 and 95 RON) gasoline, prices are based on monthly surveys carried out among major oil product suppliers (including supermarkets). In these surveys, companies report their average selling prices. Reported prices are weighted by annual sales volumes to produce average end-use prices. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

### Natural gas

For industry, prices are based on monthly surveys carried out among major natural gas suppliers. In these surveys, companies provide value and volume data for natural gas sold to industry in all consumption bands. End-use prices are calculated by the reporting agency as the ratio between total sales value



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and total sales volume. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

For households, prices are based on annual surveys carried out among domestic natural gas suppliers who provide average prices and customer numbers. Quarterly data are derived using the annual figures and the quarterly consumer price index growth rates for natural gas. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

For electricity generation, prices are based on quarterly surveys carried out among major electric power companies. In these surveys, companies provide volume and value data of purchased fuels. End-use prices are calculated by the reporting agency as the ratio between total expenditures and total purchased volumes. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

## Steam and coking coal

For industry, prices are based on quarterly surveys carried out among 600 manufacturing industries in Great Britain. In these surveys, companies provide volume and value data of purchased fuels. End-use prices are calculated by the reporting agency as the ratio between total expenditures and total purchased volumes. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

For households, prices were collected by the reporting agency from the Office for National Statistics' survey of monthly coal prices for households, covering local retailers in up to 146 areas throughout the United King-dom. Ex-tax prices are derived by subtracting the appli-cable tax components from the end-use prices. Coal was removed from the CPI basket in 2022 as sales of domestic coal is to be banned in 2023.

For electricity generation, prices are based on quarterly surveys carried out among major electric power companies. In these surveys, companies provide volume and value data of purchased steam coal. End-use prices are calculated by the reporting agency as the ratio between total expenditures and total purchased volumes. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

## Electricity

For industry, prices are based on monthly surveys carried out among major electricity suppliers. In these surveys, companies provide value and volume data



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for electricity sold to industry in all consumption bands. End-use prices are calculated by the reporting agency as the ratio between total sales value and total sales volume. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

For households, prices are based on annual surveys carried out among domestic electricity suppliers who provide average prices and customer numbers. Quarterly data are derived using the annual figures and the quarterly consumer price index growth rates for electricity. Ex-tax prices are derived by subtracting the applicable tax components from the end-use prices.

### Energy price indices

Annual indices are 12-month averages.

From 1Q1996 onwards, retail price indices correspond to Consumer Price Indices (CPIs) taken from the Office for National Statistics' *Consumer Price Inflation bulletin*. Wholesale indices are based on the corresponding fuel price indices for the industrial sector, published in BEIS's *Quarterly Energy Prices.*

Wholesale indices for oil products refer to the weighted average of medium fuel oil, gas oil, aviation fuel (AVTUR) and diesel (DERV). Retail indices refer to the weighted average of ULSP (ultra-low sulphur petrol), ULSD (ultra-low sulphur diesel) and motor oil.

Wholesale indices for electricity are based on the average unit value (excluding VAT) of sales to industrial customers.

Wholesale indices for natural gas are based on the average unit value (excluding VAT) of sales to industrial customers of natural gas.

Wholesale indices for coal are based on the average unit value (excluding VAT) of sales to industrial customers of coal, whereas retail indices refer to smokeless fuel and coal.

## Energy taxation

### VAT

VAT is refunded for purchases for commercial purposes. Therefore, it is not included in prices shown for the industrial and electricity generation sectors, as well as for automotive fuels for commercial use. A reduced VAT rate applies to light fuel oil, natural gas, coal and electricity sold to domestic users.



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| From | To | General % | Reduced % |
|---|---|---|---|
| 01.04.94 | 31.08.97 | 17.5 | 8 |
| 01.09.97 | 30.11.08 | 17.5 | 5 |
| 01.12.08 | 31.12.09 | 15 | 5 |
| 01.01.10 | 03.01.11 | 17.5 | 5 |
| 04.01.11 | Now | 20 | 5 |

## Excise tax

Excise taxes on commercial energy products are levied in accordance with the 2003 EU Energy Taxation Directive.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbon oil duty | × | × | × | × | × | | | | |
| Climate change levy | | | | | × | × | × | × | × |

### *Hydrocarbon oil duty*

The Hydrocarbon oil duty currently in place was legally established by the Hydrocarbon Oil Duties Act 1979. It applies to heavy and light fuel oil, automotive diesel, gasoline and compressed natural gas (CNG) and LPG used for transportation and heat-raising.

| From | To | Heavy fuel oil (GBP/tonne) | Light fuel oil (GBP/1000l) | Automotive diesel (GBP/l) | Gasoline (GBP/l) | Automotive LPG (GBP/kg) |
|---|---|---|---|---|---|---|
| 01.04.04 | 02.12.04 | 38.890 | 42.200 | 0.4710 | 0.4710 | n.a. |
| 03.12.04 | 05.12.05 | 49.070 | 52.200 | 0.4710 | 0.4710 | n.a. |
| 06.12.05 | 06.12.06 | 61.490 | 64.400 | 0.4710 | 0.4710 | n.a. |
| 07.12.06 | 30.09.07 | 74.210 | 76.900 | 0.4835 | 0.4835 | 0.1221 |
| 01.10.07 | 30.11.08 | 94.570 | 96.900 | 0.5035 | 0.5035 | 0.1649 |
| 01.12.08 | 31.03.09 | 98.340 | 100.70 | 0.5235 | 0.5235 | 0.2077 |



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| From | To | Heavy fuel oil (GBP/tonne) | Light fuel oil (GBP/1000l) | Automotive diesel (GBP/l) | Gasoline (GBP/l) | Automotive LPG (GBP/kg) |
|---|---|---|---|---|---|---|
| 01.04.09 | 31.08.09 | 101.80 | 104.20 | 0.5419 | 0.5419 | 0.2482 |
| 01.09.09 | 31.03.10 | 105.57 | 108.00 | 0.5619 | 0.5619 | 0.2767 |
| 01.04.10 | 30.09.10 | 107.40 | 109.90 | 0.5719 | 0.5719 | 0.3053 |
| 01.10.10 | 31.12.10 | 109.33 | 111.80 | 0.5819 | 0.5819 | 0.3195 |
| 01.01.11 | 22.03.11 | 110.76 | 113.30 | 0.5895 | 0.5895 | 0.3304 |
| 23.03.11 | 22.03.22 | 108.82 | 111.40 | 0.5795 | 0.5795 | 0.3161 |
| 23.03.22 | Now | 99.36 | 101.80 | 0.5295 | 0.5295 | 0.2888 |

### *Climate Change Levy*

Introduced on 1 April 2001, the Climate Change Levy is legally defined in the Finance Act 2000. Depending on their use, electricity, natural gas, LPG and solid fuel sales are subject to this tax. The Climate Change Levy applies to commercial and industrial uses only. Households, transportation, and non-energy uses are exempt.

Originally, electricity generated from renewable sources and from approved cogeneration schemes was not taxed, but this exemption was lifted on 1 August 2015.

Currently, the legislation sets two rate levels for this levy and a series of discounts for certain users. The first rate, also called the main rate, applies to general consumption of the taxable fuels by commercial, industrial or agricultural users. Discounts in this rate are applicable to energy-intensive businesses with a climate change agreement (CCA) in place with the Environmental Protection Agency. As of 1st April 2020, holders of a CCA are entitled to the following discount rates: 92% for electricity and 81% for natural gas, 77% for LPG and 81% for solid fuel.

The second rate came into effect on 1 April 2013 and applies to fuels used for electricity generation and combined heat and power generation, which were previously exempt. This second rate is referred to as the carbon price support (CPS) rate and is considerably lower than the main rate. Small generators, stand-by generators and generating stations in Northern Ireland are exempt from this tax component.



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| From | To | Natural gas (GBP/MWh) | Coal (GBP/tonne) | Electricity (GBP/MWh) | Automotive LPG (GBP/tonne) |
|---|---|---|---|---|---|
| 01.04.01 | 31.03.07 | 1.50 | 11.70 | 4.30 | 9.600 |
| 01.04.07 | 31.03.08 | 1.54 | 12.01 | 4.41 | 9.850 |
| 01.04.08 | 31.03.09 | 1.59 | 12.42 | 4.56 | 10.18 |
| 01.04.09 | 31.03.11 | 1.64 | 12.81 | 4.70 | 10.50 |
| 01.04.11 | 31.03.12 | 1.69 | 13.21 | 4.85 | 10.83 |
| 01.04.12 | 31.03.13 | 1.77 | 13.87 | 5.09 | 11.37 |
| 01.04.13 | 31.03.14 | 1.82 | 14.29 | 5.24 | 11.72 |
| 01.04.14 | 31.03.15 | 1.88 | 14.76 | 5.41 | 12.10 |
| 01.04.15 | 31.03.16 | 1.93 | 15.12 | 5.54 | 12.40 |
| 01.04.16 | 31.03.17 | 1.95 | 15.26 | 5.59 | 12.51 |
| 01.04.17 | 31.03.18 | 1.98 | 15.51 | 5.68 | 12.72 |
| 01.04.18 | 31.03.19 | 2.03 | 15.91 | 5.83 | 13.04 |
| 01.04.19 | 31.03.20 | 3.39 | 26.53 | 8.47 | 21.75 |
| 01.04.20 | 31.03.21 | 4.06 | 31.74 | 8.11 | 21.75 |
| 01.04.21 | 31.03.22 | 4.65 | 36.40 | 7.75 | 21.75 |
| 01.04.22 | 31.03.23 | 5.68 | 44.49 | 7.75 | 21.75 |

## Energy taxation database methodology

The VAT applies to all energy products. As the applicable tax rate is fully refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The yearly applicable rates are estimated as the average of the different rates applied within each year weighted for the number of days.

Environmental tax comprises the Climate Change levy, applied to electricity, natural gas, LPG and coal for commercial and industrial users. Use of energy products for electricity generation was exempt of this levy until March 2013, and from then onwards a reduced rate is applied. The yearly values are estimated as the average of the different values applied within each year weighted for the number of days.

As the Climate Change levy may be seen as a Carbon tax, it is assumed that both Environmental and Carbon taxes are equivalent in the UK.



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Other taxes comprises the Hydrocarbon tax, applied to heavy and light fuel oil, diesel, gasoline and LPG. The yearly values are estimated as the average of the different values applied within each year weighted for the number of days.

# Product specifications

## Oil products

| | High sulphur fuel oil | Light fuel oil | Automotive diesel | Premium unleaded (98 RON) gasoline | Premium unleaded (95 RON) gasoline |
|---|---|---|---|---|---|
| Quality | Heavy fuel oil, class G | Heating gasoil, class D | Ultra-low sulphur diesel, Class A | Super unleaded 98 RON | Ultra low-sulphur petrol, 95 RON |
| Density (kg/l) | 0.98 | 0.847 | 0.845 | 0.736 - 0.739 | 0.736 - 0.739 |
| Sulphur content (%) | 2-3 | | | | |
| NCV (kcal/kg) | 9 870 | 10 260 | | | |
| Delivery size (tonne/year) | <24 000 | | | | |

## Natural gas and coal

| | Natural gas | Steam coal *industry* | Steam coal *electricity generation* |
|---|---|---|---|
| Sulphur content (%) | | 0.5 - 2.6 | |
| Ash content (%) | | 3 - 19 | |
| Water content (%) | | | |
| NCV (kcal/kg) | | | 5 653 |
| GCV (kcal/kg)* | 8 400 | 5 280 - 7 930 | |

*kcal/m3 for natural gas



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# United States

## Sources

Prices and taxes data for all products are provided on a quarterly basis by the **Energy Information Administration (EIA)**.

Energy price indices are extracted from the **Bureau of Labor Statistics (BLS)** website.

## Data collection methodology

From 1Q1993 onwards, the most recent quarterly average is based on historical prices for two months of the quarterly period and an estimate of the third month. These monthly data are then averaged for the publication quarter.

Prices from 4Q1984 to 4Q1992 refer to the second month of the quarter. Prior to 4Q1984, prices refer to the first month of the quarter.

### Oil products

The general state sales taxes are always levied on sales of non-transport fuels to non-commercial users. Sales of transport fuels to commercial users are generally exempt from the general sales tax because special transport fuel taxes exist in all states and in some municipalities. However, in about eight states both taxes are cumulated. The estimates of national weighted average rates and amounts take account of this situation as far as possible. In addition to the above, a federal fuel tax applies to transport fuels, as described in the Energy taxation section of this document.

The excise taxes for transport fuels are calculated using the excise taxes data published by the EIA on *Federal and State Motor Fuel Taxes* and U.S. Department of Transportation's Federal Highway Administration on *Highway Statistics*. The excise taxes are the sum of the federal and state taxes as well as the excise tax portion of the "other taxes and fees" category. The state excise taxes and the excise portion of the "other taxes and fees" category are calculated as the weighted average based on gross volume taxed.

For heavy fuel oil for industry, prices refer to the average of high sulphur fuel oil and low sulphur fuel oil monthly prices collected by the EIA using Form EIA-782A, *Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report*, among 95 sample refining units. Monthly data is published in the EIA's *Petroleum Marketing Monthly*, table "U.S. Refiner Residual Fuel Oil Prices" and *Monthly*



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*Energy Review*, table “Refiner Prices of Residual Fuel Oil” column “Sulfur Greater than 1 Percent, Sales to End-Users”.

For heavy fuel oil for electricity generation, prices refer to the average expenditure per tonne on heavy fuel oils no. 4, 5 and 6 and topped crude by electric utilities with more than 50 MW of capacity. Prior to 1983, prices refer to utilities with capacity of more than 25 MW. Prices are surveyed by the EIA. From 2008 onwards, prices are collected every month by the EIA using Form EIA-923, *Power Plant Operations Report*. Prior to 2008, monthly survey using Form FERC-423, *Monthly Report of Cost and Quality of Fuels for Electric Plants.* Monthly data is published in the EIA’s, *Electric Power Monthly*, table “Receipts, Average Cost, and Quality of Fossil Fuels: Electric Utilities” and *Monthly Energy Review*, table “Cost of Fossil Fuel Receipts at Electric Generating Plants”.

For light fuel oil for industry, prices cover the whole distillate end-use market; 25% of it is handled by refiners and 75% by resellers and retailers. Prices are collected every month by the EIA using Form EIA-782A, *Refiners’/Gas Plant Operators’ Monthly Petroleum Product Sales Report* among 95 sample refining units and, until February 2011, using Form EIA-782B, *Resellers’/Retailers’ Monthly Petroleum Product Sales Report*. Monthly data is published in the EIA’s *Petroleum Marketing Monthly*, table “U.S. No. 2 Distillate Prices by Sales Type”, column “Industrial Consumers”.

For light fuel oil for households, prices are regularly surveyed in a nationwide sample of households and include all fees, taxes and rebates. Data are collected by the BLS in 85 urban areas representing 80% of the total population. Data are published in the BLS’ *CPI Detailed Report*, monthly.

For automotive diesel, prices refer to the sum of an official ex-tax price and an estimate of the total tax amount, including federal, state and local taxes among others. The ex-tax price corresponds to the average charged by refinery-owned retail outlets. These outlets represent about 20%-30% of the total market.

From 2Q1994 onwards, prices are collected every week by the EIA using Form EIA-888, *On-Highway Diesel Fuel Price Survey*. Weekly data is published in the EIA’s *Weekly Petroleum Status Report*; table “U.S. Retail Motor Gasoline and On-Highway Diesel Fuel Prices”. Prior to 2Q1994, prices were collected every month by the EIA using Form EIA-782A, *Refiners’/Gas Plant Operators’ Monthly Petroleum Product Sales Report* among 95 sample refining units and Form EIA-782B, *Resellers’/Retailers’ Monthly Petroleum Product Sales Report* among 2000 respondents. Monthly data was published in the EIA’s *Petroleum Marketing Monthly*.



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For regular and premium unleaded gasoline, prices refer to the city retail price, average of full, mini and self-service stations. Data are collected by the EIA using Form EIA-878, *Motor Gasoline Price Survey* among 1000 sample units. Data are published in the EIA's *Monthly Energy Review,* table 9.4 "Motor Gasoline Retail Prices, U.S. City Average", and *Weekly Petroleum Status Report,* table 14 "U.S. Retail Motor Gasoline and On-Highway Diesel Fuel Prices". Prior to 1994, prices were collected by the BLS' *Monthly Retail Price Survey* for the purpose of computing the national consumer price index. Filling stations in 85 urban areas were surveyed, covering about 80% of the total U.S. population. Data were published in the DOE-EIA's *Monthly Energy Review* and *Weekly Petroleum Status Report*.

## Natural gas

Taxes are included in the prices for households, industry and electricity generation. They mostly refer to general sales taxes levied by the States. The rates range between 2% and 6% and their national average is currently unknown.

For industry and households, prices are calculated on gas that is both delivered and sold to these customers. Prices are collected by the EIA using Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Customers* and EIA-910, *Monthly Natural Gas Marketers Survey*, addressed to a sample of approximately 400 natural gas companies. The sample includes interstate pipeline companies, intrastate pipeline companies, and local distribution companies. Data are published in the DOE-EIA's *Natural Gas Monthly*, tables 20 (*Average Price of Natural Gas Sold to Residential Consumers, by State*) and 21 (*Average Price of Natural Gas Sold to Industrial Consumers, by State*).

For electricity generation, prices refer to monthly average expenditures per MWh incurred by power companies for all natural gas purchases. The price shown includes small quantities of coke oven gas, refinery gas and blast furnace gas. Prices are collected by the EIA using Form EIA-923, *Power Plant Operations Report*, addressed to electric power companies. Prior to 2008, prices were collected by the EIA using Form EIA-423, *Monthly Cost and Quality of Fuels for Electric Plants Report* and FERC Form 423: *Monthly Report of Cost and Quality of Fuels for Electric Plants Report*. Data are published in the DOE-EIA's *Electric Power Monthly*, table "Receipts, Average Cost, and Quality of Fossil Fuels: Total (All Sectors)" and *Monthly Energy Review*, table "Cost of Fossil Fuel Receipts at Electric Generating Plants".



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## Steam and coking coal

Taxes on coal consist of severance taxes (a percentage of the value of production, which vary from state to state), and federal taxes (in the form of a corporate income tax, levied in the range from 15% to 35%). The national average of these taxes is not available.

Prices for steam coal for industry refer to the quarterly average expenditure per tonne paid by industrial plants, including taxes. Data are collected by the EIA using Form EIA-3, *Quarterly Coal Consumption and Quality Report, Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Coal Users*. Data are published in the EIA's *Quarterly Coal Report*, tables "Average Price of Coal Receipts at Coke Plants by Census Division", "Average Price of Coal Receipts at Other Industrial Plants by Census Division and State" and "Average Price of Coal Receipts at Commercial and Institutional Users by Census Division and State".

Prices for steam coal for electricity generation refer to the quarterly average of expenditure per tonne incurred by Electric Power companies for all kinds of coal purchased, including taxes if applicable. Data are collected by the EIA using Form EIA-923, *Power Plant Operations Report*, addressed to utilities. Data are published in the EIA's *Electric Power Monthly Report*, table "Receipts, Average Cost, and Quality of Fossil Fuels: Total (All Sectors)".

From 1980 onwards, prices for coking coal for industry refer to the quarterly average expenditure per tonne for coking coal incurred by coke plants. Prior to 1980, prices refer to the average export price (FOB) for Customs Commodity Schedule E No. 3222020. Data are collected by the EIA using Form EIA-3, Quarterly Survey of Industrial, Commercial and Institutional Coal Users. Data are published in the EIA's *Quarterly Coal Report*, tables "Average Price of Coal Receipts at Coke Plants by Census Division", "Average Price of Coal Receipts at Other Industrial Plants by Census Division and State" and "Average Price of Coal Receipts at Commercial and Institutional Users by Census Division and State".

## Electricity

From 1Q1984 onwards, electricity prices refer to the second month of each quarter. Prior to 4Q1983, prices refer to the first month of each quarter.

Prices shown include taxes, which are mostly general sales taxes levied by the states; their rates are between 2% and 6%, but their national weighted average is unknown.



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Prices shown for industry and households are the monthly average revenues per MWh received by privately owned power companies from the industry and households.
Prices are subject to significant seasonal upswings in the summer months as a result of heavy demand for air conditioning.

Monthly prices are collected by the EIA using Form EIA-861M, *Monthly Electric Utility Sales and Revenue Report with State Distributions*. Data are published in the EIA's *Monthly Energy Review*, table "Average Retail Prices of Electricity".

From January 1986, national average price estimates are based on data, as reported through a statistically derived sample of both publicly and privately owned utilities, which respond on the Form EIA-861, *Annual Electric Power Industry Report.* Prices from 1980 through 1985 cover selected privately owned electric utilities in Class A whose electric operating revenue were 100 million USD or more during the previous year. Prices for 1979 cover privately owned electric utilities in Classes A and B.

### Energy price indices

Annual and quarterly indices are 12-month and 3-month averages, respectively, of the monthly data published by the Bureau of Labor Statistics.

Wholesale indices for oil products refer to "*Petroleum products, refined"* (commodity code 057). Retail indices refer to the average of "*gasoline, all types (U.S. city average)"* and "*fuel oil (U.S. city average)"* series, weighted by quantities.

Wholesale indices for electricity refer to "*Industrial electric power"* (commodity code 0543). Retail indices refer to "*Electricity (U.S. city average)"*.

Wholesale indices for natural gas refer to "*Natural gas"* (commodity code 0531). Retail indices refer "*Utility (piped) gas service (U.S. city average)"*.

Wholesale indices for coal refer to "*Coal"* (commodity code 051).

## Energy taxation

### VAT

Sales taxes are levied by states and some other local administrations. There is no federal sales tax. Computing an average sales tax as regards to individual commercial energy products would require disaggregated consumption data for each product, which are currently not available.



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## Excise tax

In addition to state and local excise taxes, which in most states make up the majority of the total, the federal government levies a national excise tax on transport fuels.

A federal manufacturer's tax applies to coal. There are no federal excise taxes on other oil products, natural gas, and electricity.

### *Tax applicability table (not exhaustive)*

| | HSFO/LSFO | LFO | Diesel | Gasoline | LPG | Natural gas | Steam coal | Coking coal | Electricity |
|---|---|---|---|---|---|---|---|---|---|
| Federal fuel tax | | | × | × | × | | | | |
| Manufacturers tax | | | | | | | × | × | |

### *Federal fuel tax*

The federal fuel tax currently applies to all grades of gasoline and automotive diesel. Federal taxes on gasoline were introduced on 21 June 1932, while taxation on diesel was introduced on 1 November 1951. Alternative transport fuels, such as automotive LPG and compressed natural gas (CNG), are currently taxed at the same rate as gasoline.

Most of the revenue raised is dedicated to the Federal Highway Trust Fund for the financing of highway and transit programs.

Until 31 December 2004, gasohol (a mixture of gasoline and ethanol) was taxed at a lower rate than gasoline. On 1 January 2005, the tax rate was raised to match that of gasoline.

Between 1 October 1997 and 30 September 2016, an additional 0.001 USD/gallon was levied on sales of gasoline and diesel to finance the Leaking Underground Storage Tank (LUST) Trust Fund. The LUST tax expired on 31 December 1995 but was reinstated as of 1 October 1997.

| From | To | Automotive diesel (USD/l) | Gasoline (USD/l) |
|---|---|---|---|
| 01.01.96 | 30.09.97 | 0.0642 | 0.0483 |



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| From | To | Automotive diesel (USD/l) | Gasoline (USD/l) |
|---|---|---|---|
| 01.10.97 | 30.09.16 | 0.0645 | 0.0486 |
| 01.10.16 | Now | 0.0114 | 0.0114 |

### *Manufacturer's tax*

A federal manufacturer's tax applies to the first sale of coal mined in the United States. The tax doesn't apply to sales of lignite and imported coal. Tax revenues are dedicated to the Black Lung Disability Trust Fund.

Production from underground mines is taxed at a higher rate than production from surface mines.

If the selling price for coal is below 25 USD/tonne (underground) or 12.5 USD/tonne (surface), the applicable tax rate is 4.4% of the selling price, to be applied proportionally for portions of a tonne. If the selling price is above these limits, coal is taxes at 1.10 USD/tonne (underground) and 0.55 USD/tonne (surface).

## Energy taxation database methodology

The Sales taxes are VAT-equivalent taxes that apply to all energy products. These are applied at the State and/or local level; there is no Federal Sales tax in place. A global specific values cannot be easily estimated..

Environmental tax comprises the additional levy implemented to finance the Leaking Underground Storage Tank (LUST) Trust Fund. This levy is included in the Federal Fuel tax, as an additional component. It was applied to diesel and gasoline at a constant rate of 0.001 USD/gallon.

The category "Other taxes" comprises the Federal Fuel tax, as it is the only excise tax applicable at a Federal level. The yearly values were estimated as the average of the different values applied within each year weighted for the number of days, minus the value of the additional component for the LUST Trust Fund (already included as an Environmental tax).

### Sub-national transport fuel prices

Sub-national transport fuel prices are presented for the following regions, states and cities across the United States:



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### Gasoline (regular, midgrade and high-grade)

East Coast
New England (PADD 1A)
Central Atlantic (PADD 1B)
Lower Atlantic (PADD 1C)
Midwest
Gulf Coast
Rocky Mountain
West Coast
California
Colorado
Florida
Massachusetts
Minnesota
New York
Ohio
Texas
Washington
Boston, MA
Chicago
Cleveland, OH
Denver
Houston
Los Angeles
Miami, FL
New York City
San Francisco
Seattle, WA

### Automotive diesel

East Coast
New England (PADD 1A)
Central Atlantic (PADD 1B)
Lower Atlantic (PADD 1C)
Midwest



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Gulf Coast

Rocky Mountain

West Coast

California

West Coast (PADD 5) except California

Sub-national transport fuel prices are estimated as the average of the data for every Monday of each period. Where certain weekly data are not published, prices are estimated as the average of the weeks where data are available.

Sub-national transport fuel prices for year 2019 refer to the average from January to November 2019.

# Product specifications

## Oil products

| | Heavy fuel oil *industry* | Heavy fuel oil *electricity* generation | Light fuel oil | Automotive diesel | Premium unleaded (97 RON) gasoline |
|---|---|---|---|---|---|
| Quality | Residual fuel oil no. 5 and 6 (defined in ASTM D396) includes navy special fuel and bunker oil | Heavy fuel oils no. 4, 5 and 6 and topped crude | No. 2 fuel oil (defined in ASTM D396) | No. 2 distillate (diesel fuel) | Premium unleaded 93 RdON |
| Octane number | | | | | 97 |
| Density (kg/l) | 0.944 | 0.944 | | 0.82 | |
| Sulphur content (%) | ≥1 | | | | |
| NCV (kcal/kg) | | 9 988 | 10 760 | | |

## Natural gas and coal

| | Natural gas | Steam coal | Coking coal |
|---|---|---|---|
| Quality | | Bituminous coal | |
| Ash content (%) | | | 4 – 8 |
| Moisture content (%) | | | 2 – 6 |



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| | Natural gas | Steam coal | Coking coal |
|---|---|---|---|
| Volatility (%) | | | 16 - 34 |
| GCV (kcal/$m^3$) | 9 139 | | |
| NCV (kcal/kg) | | | 7 090 |



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# Non-OECD countries

# Afghanistan

## Sources

Prices are derived from data extracted from the Islamic Republic of Afghanistan's Central Statistical Office's *National Consumer Price Index* publications.

## Data methodology

Prices for all products refer to Kabul.

Monthly prices refer to the average monthly prices published by the Islamic Republic of Afghanistan's Central Statistical Office's publications. Annual prices are estimated as the average of monthly prices.

### Oil products

Annual prices for automotive diesel and LPG for households for year 2013 refer to the average from March to December 2013.

Annual prices for regular gasoline for year 2016 refers to the average from March to December 2016.

Prices for LPG in households are converted from AFN/kg to AFN/l using a density of 0.542 kg/l.

### Charcoal and fuelwood

Coal for residential use product refers to charcoal, while "Other" product refers to firewood.

Prices for charcoal and firewood for households for year 2013 refer to the average from March to December 2013.

Prices for charcoal for year 2016 refer to the average from January to March 2016.

Prices for firewood for households for 2021 refer to the monthly prices from January to March of the respective year.



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# Albania

## Sources

Prices for electricity are derived from data extracted from the Eurostat website.

## Data methodology

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh).

Annual prices are the average of the biannual data.



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# Algeria

## Sources

Prices are derived from data submitted by the National Agency for the Promotion and Rationalization of the Use of Energy (*Agence Nationale pour la Promotion et la Rationalisation de l'Utilisation de l'Energie – APRUE*) of the Ministry of Energy.

## Data methodology

### Oil products

Prices for mid-grade gasoline refer to leaded (95 RON) gasoline.

Prices for high-grade gasoline refer to leaded (98 RON). Prices for high-grade unleaded gasoline (98 RON) are reported in the *Other Products* IVT file. Prices for LPG in households are converted from DZD/tonne to DZD/l using a density of 0.560 kg/l.

### Natural gas

Prices for natural gas in households refer to the low pressure tariff (*basse pression*) with supply pressure equal to 25 millibars.

Prices for natural gas used in the commercial sector refer to the medium pressure tariff (*moyenne pression*) with supply pressure between 0.025 and 1.3 bar.

Prices for natural gas in industry refer to the high pressure tariff (*haute pression*) with supply pressure at greater than or equal to 4 bar.

Prices for natural gas are converted from DZD/thermie to DZD/MWh GCV using a conversion factor of 0.001163 MWh per thermie.

### Electricity

Prices for electricity in households refer to the low tension tariff (*basse tension*).

Prices for electricity used in the commercial sector refer to the medium tension tariff (*moyenne tension*) and is an average of prices for services and some industry.

Prices for electricity in the industry refer to the high tension tariff (*haute tension*).



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# Product specifications

| | Mid-grade gasoline | High-grade leaded gasoline | High-grade unleaded gasoline | Automotive diesel | LPG |
|---|---|---|---|---|---|
| Quality | Essence normale | Essence super | Essence sans plomb | Gasoil | GPL |
| Octane/Cetane number | 95 | 98 | 98 | < 49 | |
| Density (kg/l) | 0.710-0.765 | 0.730-0.770 | 0.725-0.780 | 0.810-0.860 | 0.56 |
| Sulphur content (%) | | | | 0.035 | 0.0015 |
| Lead content (g/l) | 0.87 | 0.87 | | 0.86 | 0.083 |
| NCV (kcal/l) | | | | | 6104 |

| | Natural gas |
|---|---|
| GCV (kcal/$m^3$) | 11 |



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# Andorra

## Sources

Prices are derived from *Departement d'Estadística*.

## Data methodology

### Oil products

Monthly prices are retrieved directly from the data published by the Departement d'Estadística.

Yearly prices are calculated as arithmetical average of the monthly prices

Prices for the year 2009 refer to the average of monthly prices from March to December 2009.

## Product specifications

| | Mid-grade gasoline | High-grade | Automotive diesel | Heating oil |
|---|---|---|---|---|
| Quality | Gasolina sense plom de 95 | Gasolina sense plom de 98 | Gasoil | Gasoil de calefacció |
| Octane/Cetane number | 95 | 98 | | |
| Density (kg/l) | | | | |
| Sulphur content (%) | | | | |
| Lead content (g/l) | | | | |



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# Argentina

## Sources

Prices for all energy products are submitted on a quarterly basis by the Secretariat of Energy and Mining (the Secretariat).

Sub-national transport fuel prices are derived from data submitted by the Secretariat.

## National pricing framework

### Oil products

Consumer prices for transport fuels in Argentina are set freely by distributors but are primarily determined by crude oil prices in the local market, which were decoupled from international benchmarks.

Local crude prices were kept at low levels in a context of high international prices through successive changes in the export duty regime. In 2004, export duties were increased to 45% of the export price for periods when the West Texas Intermediate (WTI) benchmark was over 45 USD/barrel (Secretariat of Economy, Resolution 532/2004). In 2007, export duties were raised again, effectively establishing a fixed export price of 42 USD/barrel for WTI prices over 60.9 USD/barrel (Secretariat of Economy, Resolution 394/2007). During this period, local market conditions for crude oil were complemented with occasional government intervention in the retail market to prevent or delay price increases. In April 2013, pump prices were subjected to a temporary price cap, which was in place until November 2013 (Secretariat of Internal Trade, Resolution 35/2013).

Export restrictions were lifted progressively from 2012 to encourage upstream investments, effectively increasing local crude prices. In 2014, as crude prices fell in international markets, the government encouraged price accords between crude producers and refiners to support the local petroleum industry. Local crude price benchmarks would remain higher than in international market until price liberalisation on 1 October 2017.

On 1 January 2017, the government set out a plan for a transition to a liberalised market, establishing a path for local crude oil prices to converge to international benchmarks. Crude oil and fuel markets were liberalised on 1 October 2017 and transport fuels have been market-priced since.



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### *Taxes*

Fuel taxes, introduced by Law 23.966, set fixed rates for gasoline, automotive diesel, kerosene and natural gas for transport (CNG). Some regions such as Patagonia are exempted from this tax due to special regulations.

From 2018 onwards, in accordance with Law 27.430, the Fuel taxes were changed into two taxes whose fix rates are updateable quarterly based on the Consumer Price Index – IPC (*Indice de Precios al Consumidor*). The Liquid Fuel Tax is applied to gasoline, automotive diesel and kerosene. The Carbon Dioxide Tax is applied to gasoline, automotive diesel, kerosene, fuel oil, and steam coal.

Each province also applies a sales tax (and other local taxes), with rates varying between 1% and 4%.

Furthermore, VAT (*Impuesto al valor agregado - IVA)* applies to all energy products. The VAT is regulated by Law 23.349 at a rate currently at 21%, in most cases, and is not included in prices shown for the industrial and electricity generation sectors. In Argentina, VAT for gasoline and diesel is paid on the ex-tax price and on part of the excise tax only, instead of the sum of ex-tax price and excise tax, as is the case in most countries.

## Electricity

According to the Secretariat, tariffs are based on three components: generation costs, transport and distribution. Generation costs are calculated by the *Compañía Administradora del Mercado Mayorista Eléctrico* (CAMMESA) as stipulated in Law 24.065/1991. Transport costs are fixed by tariff review and distribution costs are fixed by each province by local tariff reviews.

A process of normalization of the electricity market began in 2016, completing integral tariff reviews for transportation and distribution costs and the reduction and reallocation of subsidies.

# Energy taxation database methodology

The taxation breakdown was performed based on the above note on policy framework and additional information from the Ministry of Justice.

The VAT (*Impuesto al Valor Agregado – IVA*) applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation.



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Environmental and Carbon taxes are equivalent in this case, comprising the Carbon Dioxide tax (*Impuesto al dioxido de carbono*), implemented in 2018. It applies to gasoline, diesel, kerosene, fuel oil and steam coal; and fuels used for electricity generation are exempt. The applicable rates are provided in the respective legislation - Ley Nº 23.966.

The Other taxes category includes the Liquid fuels tax (*Impuesto sobre los combustibles líquidos*). This applies to gasoline, diesel and kerosene. The applicable rates are provided in the respective legislation - Ley Nº 23.966.

# Data methodology

## Oil products

Prices for mid and high-grade gasolines, automotive diesel, fuel oil and kerosene are calculated by the Secretariat based on the average end-use prices at filling stations registered in the Federal Fuel Information System (*Sistema de Información Federal de Combustibles, Resolución 1104/04*). Transport fuel prices are reported for the metropolitan region of Buenos Aires, which are considered to be representative for price levels nationwide.

Prices for fuel oil and kerosene, used almost exclusively in industry, refer to the average wholesale price in the country, including applicable excise taxes.

## Natural gas

Prices are calculated monthly by the Secretariat based on the tariffs published by distribution companies. These prices include the costs of natural gas, transport and distribution services. Quarterly and annual prices are calculated as averages of the monthly data.

Prices for households are calculated using the average consumption and the prices reported in the AMBA, which are considered to be representative for price levels nationwide.

Prices for electricity generation are based on the prices recorded by the Secretariat (*Resolución 1/2018 Precios del Gas Natural*).

Prices for electricity generation are based on the prices paid by CAMMESA (*Compañia Administradora del Mercado Mayorista Eléctrico*).



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Prices for transport are reported for the average end-use prices at filling stations in the AMBA, which are considered to be representative for price levels nationwide.

A significant portion of natural gas prices for industry result from private contracts between companies and natural gas providers, and are, therefore, confidential.

### Electricity

For households and industry, prices are based on the monthly data the Secretariat obtains from the regulators for the Metropolitan Area of Buenos Aires and from local distribution companies in the provinces of Córdoba, Mendoza and Santa Fe.

Tariffs for each of these regions are presented based on average consumption levels for households and industry. For each province, the average consumption has been estimated to be between 190 and 250 kWh for households and between 200 and 400 MWh for industry.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the following provinces of Argentina:

Regular and mid-grade gasoline and automotive diesel:

Buenos Aires
Capital Federal
Catamarca
Chaco
Chubut
Cordoba
Corrientes
Entre Rios
Formosa
Jujuy
La Pampa
La Rioja
Mendoza
Misiones
Neuquen
Rio Negro



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Salta
San Juan
San Luis
Santa Cruz
Santa Fe
Santiago del Estero
Tierra del Fuego

Natural gas:

Buenos Aires
Capital Federal
Catamarca
Chubut
Cordoba
Entre Rios
Jujuy
La Pampa
La Rioja
Mendoza
Neuquen
Rio Negro
Salta
San Juan
San Luis
Santa Fe
Santiago del Estero
Tierra del Fuego
Tucuman

Sub-national transport fuel prices are estimated as the average of monthly prices, submitted by the Secretariat.



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# Product specifications

| | Mid-grade gasoline | High-grade gasoline | Automotive diesel | CNG | Kerosene |
|---|---|---|---|---|---|
| Quality | Nafta grado 2 | Nafta grado 3 | Gasoil grado 2 | GNC | Kerosene doméstico |
| Octane/Cetane number | 95* | 97* | 50 | | |
| Density (kg/l) | 0.73 | 0.74 | 0.85 | | 0.8 |
| Sulphur content (%) | <1.5 | <0.5 | <15 | | |
| NCV (kcal/kg) | 10 600 | 10 600 | 10 155 | | 10 500 |
| GCV (kcal/$m^3$) | | | | 9 300 | |
| Biofuel blend (% vol) | 10 | 10 | 12 | | |

* Hydrocarbon Secretariat resolution 6/2016 sets minimum octane ratings of 93 and 95 RON for regular and mid-grade gasoline, respectively. In practice, 95 and 97 RON are the most common specifications for these gasoline grades, representing over 90% of the total sales volume.



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# Armenia

## Sources

Prices for oil products are submitted by the National Statistical Service of the Republic of Armenia.

Prices for natural gas and electricity are derived from data extracted from the Public Services Regulatory Commission (PSRC).

## National pricing framework

### Oil products

Armenia does not have proved reserves of natural gas or oil and imports all types of oil products. The oil products market is completely liberalised and prices are based on demand and supply.

### Natural gas

Natural gas is the main energy carrier in Armenia. Natural gas tariffs are regulated by the Public Services Regulatory Commission (PSRC) on a cost-plus basis that allows a set rate of return for the operators after accounting for fixed and variable costs. Tariffs are differentiated according to the volume of consumed gas. There are also special natural gas and electricity tariffs for households with low income, and special natural gas tariffs for greenhouses for agriculture purposes during the winter.

### Electricity

Electricity tariffs are regulated by PSRC. Tariffs are not differentiated by sector of use but by the time of the day (day/night tariffs), and by consumer voltage. Averaged prices paid by consumer may be different due to different consumption patterns.

### Taxes

On 1st January 2018, the excise tax on diesel fuel was reduced from 32,500 drams to 13,000 drams per tonne, but instead a 20% VAT was introduced. For one tonne of gasoline the total tax, which includes both VAT and excise tax, tax amount is defined at 135,000 drams.



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On January 1, 2018, the excise tax on compressed natural gas used as fuel by almost 70% of vehicles in Armenia has been increased from 8,330 drams to 25,000 drams per thousand cubic meters.

Electricity is only taxed by VAT.

### Subsidies

There are no direct subsidies on energy products.

## Data methodology

### Electricity and Natural gas

The total amount of money paid and the total energy consumed is reported to the PSRC, disaggregated by sector. For each sector, natural and electricity prices are estimated as the total amount of money paid divided by the total energy consumed.

| | Calorific value (kcal/ $m^3$ GCV) |
|---|---|
| 2011-2014 | 9011 |
| 2015 | 9202 |
| 2016 | 9198 |
| 2017 | 9199 |
| 2018 | 9148 |
| 2019 | 9262 |
| 2020 | 9199 |
| 2021 | 9303 |
| 2022 | 9152 |

## Product specifications

| | Regular gasoline |
|---|---|
| Quality | |
| Octane/Cetane number | 92 |
| Density (kg/l) | |



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| | Regular gasoline |
|---|---|
| Sulphur content (%) | |
| Lead content (g/l) | |

# References

*Public Services Regulatory Commission*, www.psrc.am

*Tax Code of the Republic of Armenia*, http://www.arlis.am/DocumentView.aspx?docid=109017

http://www.irtek.am/views/act.aspx?aid=150068#p16



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# Azerbaijan

## Sources

Prices for oil products are extracted from the State Statistical Committee of the Republic of Azerbaijan and *Tariff (price) Council of Azerbaijan Republic*.

Prices for natural gas and electricity are derived from data extracted from the *State Statistical Committee of the Republic of Azerbaijan*.

## National pricing framework

### Oil products

Petroleum products prices are regulated by a collegial executive body, *The Tariff (price) Council.* Its creation was confirmed by the Decree No. 341 of 26 December 2005, the Statute on Tariff (Price) Council of the Azerbaijan Republic, accordingly with the Cabinet of Ministers Resolution No. 178, date 28 September, 2005 on "List of Goods (Works, Services) the Prices (Tariffs) of which are Regulated by the State". All petroleum products are sold at a regulated price, which are differentiated by production, wholesale and retail prices, except premium gasoline which is imported to the country. According to the decision of the Cabinet of Ministers of the Republic of Azerbaijan dated 31 March 2013, gasoline with octane number equal to 95 or above is not regulated by the government, such as Premium Euro-95 gasoline sold since April 2014. Gasoline produced domestically including 95 Octane (AI-95) is however regulated.

#### *Electricity*

The Government of Azerbaijan owns and manages the energy sector in Azerbaijan, and is committed to sector reform with the aim of improving system efficiency, supply reliability, and transparency. As the first reform step in 2015, all power distribution assets and functions were entirely separated from the state-owned company Azerenerji OJSC and transferred to another state-owned company Azerishiq OJSC (formerly Bakielektrikshebeke OJSC, i.e., Baku Electric Company).

Electricity tariffs (wholesale and retail) are set by Tariff Council comprised of representatives from line ministries. The sector is almost entirely state controlled, and separate prices for wholesale electricity, transmission, and distribution are assigned. The price for electricity is set at 0.08 AZN/kWh for consumers (population) whose consumption is under 200 kWh/month. Consumption in



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between 200-300 kWh/ is charged 0.09 AZN and 0.13 AZN in case of exceeding 300 kWh. The electricity price is the sum of the wholesale price that includes generation and transmission costs, which is 0.05 AZN/kWh, and the distribution tariff, “transit transmission tariff”, charged by regional DSOs at a price fixed at 0.02 AZN/kWh. For consumers who use more than 300 kWh per month, i.e. 72% of consumers according to the government, the price is 0.13 AZN/kWh.

## Taxes

Gasoline, diesel and all energy products are subject to a 18% VAT rate in the country.

Regular gasoline and automotive diesel are subject to customs and excise duties imposed uniformly across the country by the Cabinet of Ministers.

Excise rates were determined as 47 USD/t for 95 gasoline, 70.5 USD/t for 98 premium gasoline and 117.6 USD/t for diesel and regular gasoline according to the Cabinet of Ministers decision number 574, date 21 December 2017 on Changes and Approval of the Excise Rates of the Imported goods. The customs duties for 95 and 98 octane numbers imported gasoline were also reduced from 15% to 0%, in order to allow the import of gasoline meeting high European standards (“Premium Euro-95” and “Super Euro-98”) to the country with comparatively lower prices and its sale with market prices. The share of gasoline with 95 and higher octane numbers is approximately 10% of the domestic consumption.

Electricity is subject to several taxation regimes which are VAT, profit tax, property tax, road tax, land tax, import tax and export tax. Small businesses can pay a single tax under a simplified scheme and there is also a withholding tax (WHT) on repatriation of profits by foreign companies. The electricity tariffs in Azerbaijan covers only VAT and there is not another tax regime for electricity. It is levied on consumption and is charged by the utilities to consumers within the determined tariffs.

## Subsidies

Each year, Azerenerji (Generation Company) and Azerishiq (DSO) receives government budget support to implement part of capital expenditure programs. To enhance its operational and financial performance, Azerenerji is undertaking various actions including 1) rehabilitating the regional distribution network to reduce technical losses and operational costs; 2) installing prepaid meters in all residential customers; 3) expanding power exports to Georgia, Republic of



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Türkiye, and the Russian Federation; 4) taking further steps in the corporatisation process, including the introduction of enterprise resource planning, enhancing internal audit and control, and budgeting and planning functions; and 5) attempting to obtain a corporate credit rating and diversifying its financing channels. The gas used in power generation is heavily subsidized by the government.

# Data methodology

## Natural gas

Prices for natural gas for households refer to the first subscriber group ( consumption less than 1 700 m3/year before May 2019, less than 2 200 m3/year from May 2019 onwards) and are converted from AZN/m3 to AZN/MWh GCV using a calorific value of 92.2 m3/MWh GCV. Natural gas tariffs for consumers (population) is 120 AZN for 1200 m3. Consumption between 1200 m3 and 2500 m3 is 200 AZN and exceeding 2500 m3 is charged 250 AZN.

# Product specifications

| | Regular gasoline |
|---|---|
| Quality | |
| Octane/Cetane number | 92 |
| Density (kg/l) | |
| Sulphur content (%) | |
| Lead content (g/l) | |

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# Bahrain

## Sources

Prices are submitted by the Ministry of Oil (MOO).

## Data methodology

### Oil products

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

The price of high-grade gasoline in year 2016 is based on its price as announced on its introduction to the market on 25 April 2016 and the price level on 4 July 2016.

### Natural gas

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted averages of the price levels in a given year.

Prices for natural gas in industry for years 2006 to 2014 refer to historical customers and do not include prices for new customers. Prices for new customers were 1.94 BHD/MWh GCV for years 2007 to 2009 and 3.24 BHD/MWh GCV for years 2010 to 2015. Prices for both historical and new customers were unified in 2015.

Prices are converted from USD/MWh GCV to BHD/MWh GCV using exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2022.



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# Product specifications

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline | Natural gas |
|---|---|---|---|---|
| Quality | | | | |
| Octane/Cetane number | 91 | 95 | 98 | |
| Density (kg/l) | | | | |
| Sulphur content (%) | | | | |
| Lead content (g/l) | | | | |
| GCV (kcal/$m^3$) | | | | 7 609 |



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# Bangladesh

## Sources

For years 2006 to 2015, prices are derived from data extracted from the report *Energy Sector in Bangladesh: An agenda for reforms*, published by the International Institute for Sustainable Development (IISD).

From year 2016 onwards, prices are derived from data extracted from the Bangladesh Petroleum Corporation (BPC).

## Data methodology

### Oil products

Prices are set, and price revisions occur unevenly over time.

For years 2006 to 2015, monthy prices are retrieved directly from the IISD publication. From 2016 onwards, monthly prices are estimated as the time-weighed average of the daily price levels.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

Prices for residual fuel oil are converted from BDT/l to BDT/tonne using a specific volume of 1 059 l/tonne.

Prices for LPG are converted from BDT/cylinder to BDT/litre with 12 kg cylinders using a density of 0.542 kg/litre

The price of residual fuel oil in year 2008 is based on its price as announced on 1 July 2008.



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# Product specifications

| | Regular gasoline | Diesel | Residual fuel oil | LPG |
|---|---|---|---|---|
| Quality | | | | |
| Octane/Cetane number | 91 | | | |
| Density (kg/l) | 0.72-0.775 | | 0.944 | 0.542 |
| Sulphur content (%) | <0.1 | <0.5 | | |
| Lead content (g/l) | <0.013 | | | |



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# Belarus

## Sources

Prices are derived from data extracted from the National Statistical Committee of the Republic of Belarus (Belstat).

Prices for coal (peat) and fuelwood for households for years 2012 and 2017 are extracted from the *Prices on the Consumer Market in the Republic of Belarus* 2018 publication of Belstat. From 2018 onwards, prices are derived from data extracted from Belstat.

## Data methodology

The Belarusian ruble underwent a redenomination in 2016 at a rate of 1 BYN equivalent to 10 000 BYR. Prices presented here for all years are in BYN.

### Oil products

Annual prices are estimated as the average of monthly prices, which are calculated by Belstat as the geometric average of the prices in the provinces (*oblasts*) of Brest, Vitebsk, Gomel, Hrodno, Minskaya and Mogilev, and in the city of Minsk.

Prices for gasoline refer to the average of several gasoline grades' prices.

Prices for the year 2021 refer to the prices from January to October 2021.

### Electricity

Annual prices are estimated as the average of monthly prices.

Prices for electricity in households refer to households not equipped with electric stoves.

### Prices for the year 2021 refer to the prices from January to October 2021.

### Natural gas

Monthly expenditures per person for natural gas in households are averaged to find annual expenditures per person.



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Annual prices are then estimated based on consumption data from the IEA's *World Energy Balances* 2018 edition and population data from *World Development Indicators*, The World Bank, Washington, D.C., 2018.

Prices for natural gas in households refer to apartments without devices for individual recording of natural gas consumption.

## Prices for year 2021 refer to the prices from January to October 2021.

## Coal (peat) and fuelwood

Prices for years 2012 to 2017 refer to December prices.

Prices for year 2021 refer to the prices from January to October 2021.Prices are converted from BYN/$m^3$ to BYN/tonne using a density of 0.546 tonne/$m^3$, a weighted-average density based on the structure of sales of fuelwood to the population in 2016.



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# Belize

## Sources

Prices are derived from data extracted from the Guatemalan Ministry of Energy and Mines (MEM) for countries in Central America.

## Data methodology

### Oil products

Monthly prices for all oil products are retrieved from the data reported by the Guatemalan Ministry of Energy and Mines.

Annual prices are derived as the average of the monthly prices in a given year.

Prices are converted from USD/l to BZD/l using exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2020.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 88 | >=95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Benin

## Sources

Prices for oil products are derived from data extracted from the National Institute of Statistics and Economic Analysis' (*L'Institut National de la Statistique et de l'Analyse Economique - INSAE*) monthly publications *Indice Harmonisé des Prix à la Consommation*.

Prices for electricity are submitted by the Ministry of Energy, Water and Mines.

## National pricing framework

### Oil Products

Petroleum products prices are fixed monthly by the government according to crude oil price and country exchange rate. The national distribution oil company *Société Nationale de Commercialisation des Produits Pétroliers* (SONACOP) is in charge of the commercialization of the petroleum products.

## Data methodology

### Oil Products

Prices for gasoline, kerosene and LPG refer to prices fixed by the government.

Prices for diesel, non-specified sector gasoline, non-specified sector kerosene and non-specified sector LPG refer to prices published by INSAE which account also for other supplies beyond SONACOP sales (e.g. smuggled gasoline, *essence kpayo).*

Prices refer to the city of Cotonou.

Prices for kerosene in households refer to kerosene sold in bulk.

Prices for LPG in households in 12-kg cylinders are converted from XOF/kg to XOF/l using a density of 0.542 kg/l.

Annual prices are estimated as the average of weekly or monthly prices.

### Electricity

Prices for households refer to the tariff *Basse Tension Tranche 1* (consumption between 20 and 250 kWh per month).



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Prices for industry refer to the tariff Moyenne Tension 1 M1E – Industries pures coupure totale a la pointe.

Prices for the commercial sector refer to the tariff Moyenne Tension 1 M1B – Hôtel, services, commerces dont PS comprise entre 200 et 630 KVA (coupure totale).

## Product specifications

| | Regular gasoline | LPG |
|---|---|---|
| Quality | | |
| Octane/Cetane number | >91 | |
| Density (kg/l) | | 0.542 |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Plurinational State of Bolivia

## Sources

Prices are derived from data extracted from the *Agencia Nacional de Hidrocarburos* (ANH).

## Data methodology

### Oil products

Weekly prices are estimated as the time-weighted average of the daily price levels.

Annual prices are derived as the average of the weekly prices in a given year.

Prices for LPG in households are converted from BOB/kg to BOB/l using a density of 0.542 kg/l.

Prices for 2021 refer to the average of the monthly prices between January and November 2021.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | LPG |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 87 | 95 | |
| Density (kg/l) | | | 0.542 |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Bosnia and Herzegovina

## Sources

Prices for electricity and natural gas are derived from data extracted from the Eurostat website.

## Data methodology

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.

### Natural gas

From year 2007 onwards, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ).

Annual prices are the average of the biannual data.



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# Botswana

## Sources

Prices for gasoline, diesel, LPG, kerosene, coal and fuelwood are submitted by the National Statistical Office.

Prices for electricity are derived from data extracted from the Botswana Power Corporation, the state-owned and sole electricity supplier in the country (annual reports in the Sources folder and here: https://www.bpc.bw/about-bpc/annual-reports).

## Data methodology

### Oil products

Annual prices are calculated as the time-average of the monthly prices in a given year.

Prices for LPG refer to the price of the 19 kg cylinder, converted from BPW/cylinder to BPW/l using density (0.542 kg/l).

### Electricity

Prices are derived as the total revenue divided by the sales volume for each sector in a given year.

### Coal and fuelwood

Annual prices are calculated as the time-average of the monthly prices in a given year. Prices for coal for households refer to charcoal.

| | Mid-grade gasoline | LPG | Kerosene for households |
|---|---|---|---|
| Quality | | | Paraffin |
| Octane/Cetane number | 93-95 | | |
| Density (kg/l) | | 0.542 | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Brazil

## Sources

Prices for mid-grade gasoline, automotive diesel, hydrated ethanol, LPG for households and NGV are derived from data extracted from the National Agency for Oil, Gas and Biofuels (*Agência Nacional do Petróleo, Gás Natural e Biocombustíveis* – ANP).

Prices for electricity are extracted from the National Agency for Electric Energy (*Agência Nacional de Energia Elétrica* – ANEEL).

Prices for fuel oil, natural gas for households and industry and steam coal are submitted by the Ministry of Mines and Energy (*Ministério de Minas e Energia* – MME).

Sub-national transport fuel prices are derived from data extracted from the ANP.

## National pricing framework

### Oil products and biofuels

Transport fuels in Brazil are market-priced but are determined to a large extent by ex-refinery prices set by Petrobras, a predominantly state-owned oil company. Petrobras, the country's only refinery owner, sets domestic prices at the refineries' exit, above and below import parity levels, in order to cover all costs and the company's margin. (Fagundes de Almeida, 2015).

In addition to the ex-refinery fuel prices, end-use prices for mid-grade gasoline and automotive diesel include costs for blended biodiesel and anhydrous ethanol, respectively. Biofuel blending has been mandatory since 1976 for gasoline, with legally-determined cuts being raised over time from 10% to 27% for gasoline in 2015 (Governo do Brasil, 2015). Biodiesel blending has been mandatory since 2008 having started with a share of 5% and being, in February 2020, at 11%. In October 2021, the blending percentage of 13% that was being practiced changed to 10% due to the strong cost increase in soy, the main raw material in the production of biodiesel. The Government has already determined that in 2022 the percentage of 10% will continue. Thus, the orientation of the National Energy Policy Council that the biofuel share in biodiesel should reach 15% by 2023, rising by 1% each year, may be revised.



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The orientation of the National Energy Policy Council is that the biofuel share in biodiesl reaches 15% in 2023, rising 1 percentage point each year.. Flexible fuel vehicles, which can run on any gasoline/ethanol blend as well as pure hydrated ethanol, have been growing in popularity in Brazil since their introduction in 2003. Biodiesel and ethanol – hydrated or anhydrous – are market-priced (Petrobras, 2018).

In addition to oil product and biofuel costs, end-use prices for transport fuels also include transportation costs, commercial margins and federal and state-level taxes, which explain most of the price variations within the country (Fagundes de Almeida, 2015).

## Natural gas

State governments regulate natural gas distribution activities and retail prices through regulatory agencies that approve, on a yearly basis, price adjustments to consider inflation, distribution margins and tariffs of gas distribution companies. Due to different legislations, there is no uniform natural gas distribution tariff in Brazil (Gomes, 2014).

State-level regulation permits natural gas distributors to pass on supply prices to end-users and charge a distribution margin that takes into account asset depreciation, ongoing investments, operational and financial costs. Some agencies allow a five-year margin review process and enforce efficiency conditions (Gomes, 2014).

The price of natural gas at the pump is usually set between 60% and 70% of the price of transport fuels on a cubic meter to litre basis. For instance, in November 2013, natural gas at the pump cost 1.792 BRL/$m^3$ compared with 2.841 BRL/l for mid-grade gasoline (Gomes, 2014).

## Electricity

The Agência Nacional de Energia Elétrica (ANEEL) regulates the power industry in Brazil and is responsible for approving electricity tariffs that aim to ensure utilities have adequate revenue to cover efficient operating costs, remunerate investments for capacity expansion and guarantee quality service. Prices for electricity reflect utility costs (generation, transmission and distribution) as well as sector charges and taxes (ANEEL, 2018a).

To calculate tariffs, utility costs are classified into two types: Portion A (*Parcela A*) and Portion B (*Parcela B*). Portion A involves costs related to generation and transmission activities and sector charges, which are mostly instituted by law and



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are beyond the control of a utility's management (ANEEL, 2018b). Sector charges are implemented to meet specific objectives; examples include the Incentive Program for Alternative Energy Sources (*Programa de Incentivo às Fontes Alternativas de Energia Elétrica – PROINFA*) (ANEEL, 2018c) and the Energy Development Account (*Conta de Desenvolvimento Energético* – CDE*)*, used to stimulate the universalization of electricity service in Brazil (ANEEL, 2018d). Portion B involves utility distribution costs that are subject to the utility's own management practices and is comprised of operational costs, depreciation, investment remuneration, and other revenues from ancillary activities. Portion B costs are usually reviewed, in a process called "tariff review," every four years, depending on the provisions stated in the concession agreement. In between reviews, tariff adjustments are done annually to re-establish the purchasing power of utilities (ANEEL, 2018e).

## Taxes

The *Contribuições de Intervenção no Domínio Econômico* (CIDE) is a consumption-based federal fuel tax. As of March 2017, the CIDE rate on mid-grade gasoline was 0.1 BRL/l, 0.05 BRL/l on automotive diesel, and zero for LPG, ethanol, and natural gas (Paes, 2017).

The Contribuição para os Programas de Integração Social e de Formulação do Patrimônio do Servidor Público (PIS/PASEP) and Contribuição para o Financiamento da Seguridade Social (COFINS) are federal taxes for social security contributions. As of 2015, depending on the oil product, their rates were applied between 1% and 47.4% of the gross revenues earned by all types of legal entities in Brazil (OECD, n.d.).

A state-level tax, Imposto sobre Operações Relativas à Circulação de Mercadorias e Serviços de Transporte Interestadual e Intermunicipal e de Comunicações (ICMS), is a VAT-equivalent tax that varies between 12% and 30%, depending on the product and the state of consumption (OECD, n.d.).

In addition to federal and state taxes, electricity prices are also subject to a municipal tax *Contribuição para o Custeio do Serviço de Iluminação Pública* (COSIP), which is a contribution for the cost of expanding, operating, and maintaining public lighting services (ANEEL, 2016).



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# Data methodology

## Oil products and biofuel

The National Agency of Petroleum, Natural Gas and Biofuels (ANP) is the regulatory agency of the sector.

Currently, the survey *Levantamento de Preços e de Margens de Comercialização de Combustíveis* (LPMCC), conducted by the ANP, covers regular gasoline, hydrated ethanol fuel (AEHC), non-additivated diesel oil, S-10 diesel oil, natural gasfor vehicles (NGV) and liquefied petroleum gas (LPG - 13-kilo cylinder), surveyed at around 25.000 retailers, in a little less than 500 locations, in accordance with procedures established by ANP Decree 202 of August 15, 2000.

The data covers every state in the country, as well as the Federal District of Brasília. Respondents submit data to the ANP electronically.

The ANP publishes average weekly and monthly prices at the municipal, state and national levels. State and national level data are then calculated by the ANP as consumption-weighted averages of the municipal level data, using weekly sales volumes supplied by oil product distributors. The IEA calculates annual prices for in Brazil as consumption-weighted averages of the monthly prices published by the ANP. The weights used in this estimation are monthly national consumption volumes published by the ANP.

Prices for LPG for households refer to 13 kg cylinders and are converted from BRL/kg to BRL/l using a density of 0.55 kg/l.

Prices for fuel oil for industry are submitted by the MME. The MME calculates prices as the average of the monthly data published in the MME's Monthly Energy Bulletin (*Boletim Mensal de Energia)*. Prices are submitted in USD/MBtu and are converted by the IEA into BRL/tonne using a calorific value of 9 590 kcal/kg (NCV) and exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2020.

Prices for fuel oil for industry refer to the state of São Paulo.

## Natural gas

Prices for natural gas are submitted by the MME. The MME calculates prices as the average of the monthly data published in the MME's Monthly Energy Bulletin (*Boletim Mensal de Energia)*. Prices are submitted in USD/MBtu and are converted by the IEA into BRL/MWh GCV using exchange rates published in the



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*International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2020.

Prices for natural gas for industry refer to an average consumption of 20 000 $m^3$/day.

### Electricity

Prices refer to the annual average prices published by ANEEL (*Tarifa média de fornecimento com tributos*) for households, industry and the commercial sector (*Comercial, serviços e outras*).

Annual prices are calculated by ANEEL as the total revenue divided by the electricity sales to a particular category in a given year. The prices include all applicable taxes.

### Steam coal

Prices for steam coal are submitted by the MME. The MME calculates prices as the average of the monthly data published in the MME's Monthly Energy Bulletin (*Boletim Mensal de Energia)*. Prices refer to the average of all types of imported coal, which represents 80% of Brazil's total coal consumption and is mostly used in industry (about 80%). Prices are submitted in USD/tonne and are converted by the IEA into BRL/tonne using exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2019.

## Energy taxation database methodology

The taxation breakdown was performed based on the above note on policy framework and OECD database on policy instruments.

The Imposto sobre Operações Relativas à Circulação de Mercadorias e Serviços de Transporte Interestadual e Intermunicipal e de Comunicações (ICMS) is a VAT equivalent tax that applies to all energy products. As the applicable tax rate is refunded for purchases for commercial purposes, it is assumed to be null for commercial services, industry and electricity generation. The specific values are not provided.

Renewable Energy Supply tax comprises two distinct charges applied to electricity consumption since 2002. The Proinfa (Programa de Incentivo às Fontes Alternativas de Energia Elétrica) and the Energy Development Charge (Conta para o Desenvolvimento Energético). Specific values for both taxes are not provided.



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Social tax includes PIS/PASEP (Contribuição para os Programas de Integração Social e de Formulação do Patrimônio do Servidor Público) and COFINS (Contribuição para o Financiamento da Seguridade Social). Both these taxes apply to all energy products, without exemptions. Specific values are not provided.

The Other taxes category includes the remaining excise taxes and levies applied to the different energy products. This comprises: the Fuel consumption tax (applied to electricity consumption); the Excise tax on fuels (applied to oil products); the royalties on oil and natural gas (applied to heavy fuel oil and natural gas); and the CIDE (Contribuições de Intervenção de Domínio Econômico) (applied to gasoline, diesel, LPG and natural gas). Specific values are not provided.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the 26 states and Federal District of Brazil:

Acre
Alagoas
Amapá
Amazonas
Bahia
Ceará
Distrito Federal
Espírito Santo
Goiás
Maranhão
Mato Grosso
Mato Grosso do Sul
Minas Gerais
Pará
Paraíba
Paraná
Pernambuco
Piauí
Rio de Janeiro
Rio Grande do Norte
Rio Grande do Sul



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Rondônia

Roraima

Santa Catarina

São Paulo

Sergipe

Tocantins

Sub-national transport fuel prices are estimated as consumption-weighted averages of the monthly prices published by the ANP. The weights used in this estimation are the monthly consumption volumes for the respective state, as published by the ANP.

# Product specifications

## Oil products

| | Automotive diesel | Mid-grade gasoline | LPG | Fuel oil for industry |
|---|---|---|---|---|
| Quality | S50 | Gasolina comum | | |
| Octane/Cetane number | >46 | 95 | | |
| Density (kg/l) | 0.82-0.85 | | 0.55 | 1 |
| Biofuel content (%) | 8 | 27 | | |
| Sulphur content (%) | 0.005 | | | |
| Lead content (g/l) | | 0.03 | | |

## Biofuels

| | Hydrated ethanol |
|---|---|
| Quality | Etanol hidratado carburante |
| Water content (%) | <7.5 |
| Density at 20°C (kg/l) | 0.805-0.811 |



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# Bulgaria

## Sources

Prices for oil products are derived from weekly data published in the European Commission's *Weekly Oil Bulletin.*

Prices for electricity and natural gas are derived from data extracted from the Eurostat website.

## Data methodology

### Oil products

Prices shown are the prices most frequently charged, based on a weighted average, reported to administration by Lukoil-Neftochim Burgas refinery.

Prices for kerosene refer to delivered consumer prices for deliveries of 2 000 to 5 000 litres (for offtakes of less than 2 000 litres the industrial sector may be taken into consideration).

Prices for residual fuel oil refer to high-sulphur fuel oil.

Annual prices are derived as the average of the weekly data in a given year.

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DD for households (annual consumption: 5 000 kWh – 15 000 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.

### From the source, the derived price for 2007 refers to the price of the second semester.Natural gas

From year 2007 onwards, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ).

Annual prices are the average of the biannual data.

From the source, the derived price for 2007 refers to the price of the second semester.



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# Product specifications

| | Automotive diesel | Mid-grade gasoline | Kerosene |
|---|---|---|---|
| Quality | Automotive gas oil | Euro Super 95 | Heating gas oil |
| Octane/Cetane number | | 95 | |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Burkina Faso

## Sources

Oil products prices are derived from *Institut National de la Statistique et de la Démographie (INSD),* extracted from Société Nationale Burkinabè d'Hydrocarbures (SONABHY).

## Data methodology

### Oil products

Data are provided annually by the Annuaire Statistique National from INSD.

From 2009 onwards, average monthly prices for Gasoline, Diesel, and Coal (Residential) are directly retrieved from the quarterly publications from ISND "Bulletin trimestriel de conjoncture". For Kerosene (Residential), monthly prices are available since 1999.

## Product specifications

| | Regular gasoline | Automotive Diesel | Kerosene |
|---|---|---|---|
| Quality | Super | | |
| Octane/Cetane number | 91 | | |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Cabo Verde

## Sources

Prices for all products are submitted by the *Ministério da Indústria, Comércio e Energia*.

## Data methodology

### Oil Products

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

Prices for LPG are converted from CVE/kg to CVE/l using a density of 0.57 kg/l.

Prices for other transport refer to diesel oil prices for national marine transportation.

Prices for other electricity generation refer to diesel oil prices for electricity generation.

As from 2020, fuel oil refers to low sulphur fuel oil, in line with IMO 2020.

### Electricity

Prices for households refer to the average of the prices of the two consumption sub-categories (<=60 kWh/month and >60 kWh/month) within the low-voltage domestic tariff.

Prices for the commercial sector refer to the low-voltage special tariff for light industry and commercial consumers.

Prices for industry refer to the medium-voltage tariff.

Prices for other industrial refer to electricity prices for water desalination.



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# Product specifications

| | Mid-grade gasoline | Automotive diesel | LPG | Kerosene | Fuel oil |
|---|---|---|---|---|---|
| Quality | | | | Petroleo | Fuel oil 380 |
| Octane/Cetane number | >=95 | | | | |
| Density (kg/l) | 0.75-0.78 | 0.82-0.855 | 0.57 | 0.8 | 0.991 (min) |
| Sulphur content (%) | 0.05 (until 2021) 0.005 (from 2022) | 0.1 (max until 2021) 0.005 (max from 2022) | 0.15 (max) | 0.5 (max) | 0.5 (max) |
| Lead content (g/l) | 0.013 (max until 2021) 0.005 (max from 2022) | | | | |



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# Cameroon

## Sources

Oil products prices are taken from the “Caisse de stabilisation des prix des hydrocarbures” (CSPH).

## Data methodology

### Oil Products

Prices are set monthly by the government and published by the CSPH The prices included in the database refer to the retail prices from the Douala Depot, including taxes. As the established prices are applicable for the whole month, weekly prices are estimated as the time-weighted average of the price levels in a given week.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

### Electricity

Prices are set by the “Agence de Régulation du Secteur de l’Electricité” (ARSEL). Yearly prices are not available.

## Energy taxation database methodology

Tax disaggregation is available for Diesel, Gasoline and Kerosene (for residential purposes), being based on the monthly publication from CSPH.

The VAT is applicable to the Diesel, Gasoline and Kerosene at a fixed rate of 19.25%.

The Environmental tax corresponds to the charge associated with “Waste incurred in the course of transportation”, which is applicable to Gasoline, Diesel and Domestic Kerosene. The yearly values are the same for the three energy products, being estimated as the time-weighted average of the monthly values presented by the CSPH.

The Energy Security of Supply tax refers to the sum of the Emergency Petroleum Fund tax and the Petrol Reserve Upkeeping Charge, both applicable to Gasoline, Diesel and Kerosene. The yearly values applicable to the different energy products are estimated as the time-weighted average of the monthly values presented by the CSPH.



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Other taxes include the Special tax, applied to Gasoline and Diesel. The applicable yearly values are estimated as the time-weighted average of the monthly values presented by the CSPH.

## Product specifications

| | Mid-grade gasoline | Automotive diesel | LPG | Kerosene | Fuel oil |
|---|---|---|---|---|---|
| Quality | | | | | |
| Octane/Cetane number | 95 | 45 | | | |
| Density (kg/l) | | 0.82-0.88 | 0.58 | 0.775-0.84 | 0.995 |
| Sulphur content (%) | < 0.25 | < 1 | | | |
| Lead content (g/l) | < 0.6 | | | | |



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# Chad

## Sources

Prices for all products are derived from data extracted from the Institut National de la Statistique, des Études Économiques et Démographiques' (INSEED) monthly publications *Bulletin Mensuel de l'Indice National des Prix à la Consommation des Ménages*. Prices for years 2015 and 2016 are estimated based on the information in INSEED's *2016 Note Annuelle des Statistiques des Prix à la Consommation au Tchad*.

## Data methodology

Prices refer to the city of N'Djamena.

### Oil products

Annual prices are estimated as the average of monthly prices. Prices for 2017 are based on the price for all motnhs except May and June. Prices for 2018 are based on the prices for all months except August. Prices for 2019 are based on the prices from January to December except June. Prices for 2021 refer to monthly prices from January to June.

Prices for LPG in households refer to 6 kg cylinders and are converted from XOF/kg to XOF/l using a density of 0.542 kg/l.

### Electricity

Prices for electricity in households refer to the first block (*première tranche*).

Annual prices are estimated as the average of monthly prices. Prices for 2017 are based on the price for all motnhs except May, June, August and December. Prices for 2019 are based on the prices from January to December except October.

## Product specifications

| | Regular gasoline | LPG |
|---|---|---|
| Quality | *Essence* | |
| Octane/Cetane number | | |



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| | Regular gasoline | LPG |
|---|---|---|
| Density (kg/l) | | 0.542 |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# People's Republic of China

## Sources

Prices for oil products are validated using data extracted from Provincial Price Bureaus (PPB) and the National Bureau of Statistics of China (NBS).

Prices for liquefied natural gas and coal are extracted from the NBS publication *Market Prices of Important Means of Production in Circulation*.

Until 2018, prices for electricity were extracted from the *Annual National Electricity Price Regulatory Circular* (年度全国电力价格情况监管通报) of the National Energy Administration (NEA). From the year 2019 onwards, residential electricity prices have been estimated based on the tariffs published by the regional branches of the China State Grid Corporation and China Souhtern Power Grid Company.

Sub-national transport fuel prices are derived from data extracted from Provincial Price Bureaus (PPB) and the National Bureau of Statistics of China (NBS).

## National pricing framework

### Oil products

China has historically adopted a price-control mechanism, favouring a gradual approach towards oil product price deregulation. The government employs measures to divert the oil sector between state control and market operation, thereby retaining the power to decide and adjust the extent and scope of market activities (Fattouh, Santos de Oliveira & Sen, 2015).

Before 1981, oil products were sold at a single price determined by the government. In 1982, a dual-track pricing system was introduced with one "in-quota" price, set below the international crude price, for specified quantities of oil products to be sold within the domestic market (military, agriculture, and large state-owned enterprises) and another "market" price for any surplus beyond the quota fixed by the state. Due to this system's resulting unintended price arbitrage that affected China's national oil companies' (NOCs) finances, it was abolished in 1994 and government price control of oil products in each city was reinstated (Fattouh et al., 2015).

In 1998, oil product prices were set according to the average FOB Singaporean crude oil price and enterprises were allowed to determine their wholesale and



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retail prices, with the government limiting the difference between the two. This mechanism ended in 2001 and domestic oil product prices were linked to those in the markets of Singapore, Rotterdam, and New York, with price adjustments realized only when oil product price changes exceeded ±8%. Later in 2005, the government adopted an oil product price reform, taking into account a weighted average of Dubai, Brent, and Minas crude oil prices, average crude processing costs, reasonable rates of return, taxes and fees. It was revealed in 2008 that the oil product prices would be adjusted "once average CFR (cost and freight) prices of the international crude markets over a minimum of 22 consecutive working days moved outside a 4% fluctuation from the previous period's weighted crude basket average" (Zana and Petroleum, Natural Gas and Biofuels National Regulatory Agency (Brazil) [ANP], 2012).

Despite the government retaining explicit control over pricing policies and ensuring the competitiveness of the NOCs, the price reform moved closer to full marketization when in 2013, the government shortened the price adjustment cycle to 10 working days, cancelled the 4% fluctuation threshold, and adjusted the varieties of crude used to calculate changes in the domestic oil product price, thereby allowing for more frequent adjustments to oil product prices. In this mechanism, oil product prices were adjusted whenever the international crude prices changed to a point that oil product retail prices also changed to greater than 8 USD/tonne. If, however, the international crude price changes exceeded 130 USD/bbl, oil product prices were not adjusted (Fattouh et al., 2015).

Under the current pricing mechanism, if international crude prices changed by more than 50 CNY/tonne and remain at that level for 10 consecutive working days, the domestic prices of oil products will be adjusted accordingly. Moreover, oil product prices will not be adjusted when international crude prices fall below 40 USD/bbl or rise above 130 USD/bbl ("China Sets Floor for Retail Fuel Pricing," 2016).

The government directly controls retail prices for oil products, mainly through the regulation of refining margins. The NDRC, the agency that determines and publishes cap prices for each province or municipality, sets the maximum retail price (MRP) by ensuring a retail margin of 300 CNY/tonne, which accordingly ensures the maximum wholesale price to be equivalent of the retail price less 300 CNY/tonne. Wholesalers and retailers can vary their prices below these price ceilings. In an effort to prevent speculation, the government has not revealed the exact formula; however, the MRP generally takes into account the refinery gate price (based on a 10-day moving average of a basket of international crude prices), distribution costs, margins and taxes (Fattouh et al., 2015).



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These MRPs are then published by the respective PPBs. The variations in provincial MRPs are largely driven by transportation costs (Elliott, Sun & Zhu, n.d).

### *Taxes*

Implemented in 1994 via the Interim Regulations on Consumption Tax (Investment Promotion Agency of Ministry of Commerce [CIPA], 1993) and further amended in 2008 (Economic and Commercial Counsellor's Office of the Embassy of the People's Republic of China in the Republic of Singapore, 2008), the consumption tax applies to oil products, depending on the sales quantity, and in addition to VAT. In January 2015, the consumption tax on gasoline was 1.52 CNY/l and 1.2 CNY/l on automotive diesel ("China Raises Consumption Tax on Oil Products", 2015).

In 2018, VAT on the sale and import of oil products is charged at a standard rate of 16%, which from 1 April 2019 will be lowered to 13% (State Taxation Administration of the People's Republic of China, 2019).

### *Subsidies*

The government provides subsidies for certain economic sectors to compensate them for increases in the price of oil products. Public transportation, fisheries, and state-owned forestry firms are subsidized when the wholesale price for gasoline rises above 4 400 CNY/tonne and diesel above 3 870 CNY/tonne. Moreover, for rural roads, ocean fishing entities, and water transportation firms, the government covers half of the incremental costs when the wholesale price for gasoline is between 4 400 CNY/tonne and 5 480 CNY/tonne and diesel is between 3 870 CNY/tonne and 5 070 CNY/tonne. When the prices surpass these upper limits, the government pays for the entire incremental cost using federal revenues. *Ad hoc* subsidies are also employed; for example, in 2012, a temporary monthly subsidy of 300 CNY/tonne was given to taxi drivers throughout the country to compensate for the rise in transport fuel prices (Fattouh et al., 2015).

## Electricity

The power market in China was traditionally vertically-integrated, with the government having monopoly over generation, transmission, distribution and applying a flat tariff. Owing to the rapid development of its economy and growth in total energy consumption, of which electricity consumption is the main driving force, China has, since 1985, adopted several pricing policies over the years to improve economic and utilization efficiencies and alleviate the demand on energy supply (Wang, Zhou & Yang, 2017).



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Since 2004, electricity prices have been linked to price of coal, which is the most important fuel for power generation in China. The mechanism is that the electricity price is modified when coal price changes a minimum of 5% in the last period (i.e., within six months). If the coal price change is below 5% in the last period, it will be calculated to the subsequent period until it reaches 5%. Electricity prices were increased twice in May 2005 and June 2006, but this mechanism was suspended due to concerns over inflation (Yang, Meng & Zhou, 2018).

In 2015, the generation and retail parts of the power supply chain were opened to foreign investment and market competition. Transmission and distribution, whose prices are set by the administrative department of the State Council, remain government-controlled (Wang et al., 2017).

Also in 2015, the Central Committee of the Communist Party of China and the Sate Council of China issued the Document No.9 *Several Opinions on Further Deepening Electricity System Reform,* setting China on a path towards a market based power system (Gue et al., 2020). In 2022, it is estimated that 61% of the electricity generation was traded in markets.

The wholesale market is led by bilateral mid-to-long-term contracts, at 79% of the total traded volume (IEA, 2023). For commercial and industrial consumers with an electricity connection below 10 kV, a proxy power purchase price has been established, as these users cannot yet trade in the power market. The proxy purchase prices are set monthly by the grid companies, based on the forecasted consumption in the coming month and the average market prices realised in the previous month. Also customers with a connection over 10 kV can purchase through the proxy system, but they are penalised with a 1.5 times higher price, to incentivise high-consuming users to trade in the markets (NDRC, 2021).

In 2022, the NDRC and NEA released the Document No. 118 *Guiding Opinions to Accelerate Unified National Power Market System*. It sets the target of completing a unified national electricity market system by 2030 and indicates the continued expansion of the role of markets in the Chinese power system (NDRC & NEA, 2022), (IEA, 2023).

After initially applying the Residential Tiered Electricity Price Policy (RTEP) in pilot schemes in select provinces with large electricity demand (Zhejiang and Fujian in 2004 and Sichuan in 2006) and conducting several surveys to include public opinion on accelerating electricity pricing reforms, the RTEP was formally implemented in 29 provinces, municipalities, and autonomous regions of China in 2012. The NDRC announced that the RTEP assures stable electricity prices for 80% of households in the country (Wang et al., 2017).



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The RTEP categorizes electricity consumption into three tiers. The first tier is for basic electricity demand. The second tier is for consumption that is 50 – 140% higher than the first tier with an increase of 0.05 CNY/kWh from the basic price. The third tier is for consumption that is 150 – 230% higher than the first tier with an increase of 0.3 CNY/kWh from the basic price. Moreover, a free tier provides 10-15 kWh of electricity per month for low-income families. With the guidance of the tiered pricing that the NDRC issues, each region can establish its own tiered pricing scheme that reflects its own economic development and social environment. Most provinces and cities keep the basic price unchanged (Wang et al., 2017).

Retail prices are classified according to 8 types of users: residential and non-residential users, large-scale industrial, general industrial and non-industrial users, commercial users, wholesale users, and agricultural users (Wang et al., 2017).

In addition to tiered pricing, 28 provinces, municipalities, and autonomous regions except Tibet, Guizhou, and Guangxi have implemented time-of-use (TOU) pricing, which had been used in China since the 1990s (Yang et al., 2018).

### *Taxes*

According to the NDRC, a standard VAT rate of 16% applies to prices for electricity in households. Other fees, mainly for welfare, include major water conservancy fund, rural grid load repayment fund, renewal energy development fund, major reservoir resettlement fund (collected by the central government), and the urban public utility additional fee (collected by the provincial governments).

### *Subsidies*

China has historically employed a cross-subsidization system for electricity pricing wherein industrial and commercial electricity prices subsidize residential electricity prices. Compared to most developed countries where the ratio of the residential and industrial electricity price is around 1.5 – 2, the ratio in China is around 0.8 – 0.9. With the cost of residential electricity being lower than that of industrial electricity, cross-subsidization impedes industrial growth and diminishes overall social welfare. China hopes to resolve this issue with its adoption of the RTEP (Wang et al., 2017).



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# Data methodology

## Oil products

Daily price levels for each province or municipality are retrieved from the Provincial Price Bureaus (PPB), which are then weighted by the consumption in the respective province or municipality to obtain the daily national average retail prices of the transport fuels. Weekly and annual prices are estimated as the time-weighted average of the daily price levels.

Between 2012 and 2014, approximately 92% of the national consumption (Beijing and Shanghai excluded) is covered in the estimation for retail prices of regular gasoline. For year 2015, 97% of the national consumption is covered (with only Beijing excluded). From year 2016 onwards, the estimations for the retail prices of regular gasoline include all provinces and municipalities, with the exception of the Tibet Autonomous Region, for which consumption data are not available.

For years 2009 to 2012, estimations for prices of mid-grade gasoline, high-grade gasoline and automotive diesel include the provinces of Hubei, Jiangsu, Liaoning, Shaanxi, Shandong, and Sichuan and the municipalities of Beijing, Chongqing, Shanghai, and Tianjin, which cover about 50% of the national consumption of automotive gasoline and 40% of automotive diesel. From year 2013 onwards, the estimations for the retail prices of these transport fuels include all provinces and municipalities, with the exception of the Tibet Autonomous Region, for which consumption data are not available.

From 2017 onwards, the prices are weighted using consumption data from 2016, in accordance with the available data from the NBS.

The national average prices for Liquefied Petrolem Gas (LPG) are retrieved from the Market Prices of Important Means of Production in Circulation publication released by the NBS three times a month. The market prices include the producer price, as well as the circulation expenses, profits and taxes of the enterprises. (NBS, 2023).

The prices retrieved from NBS are used to calculate weekly prices as time-weighetd averages. The average monthly prices are derived from the time-weighted weekly prices and the average yearly prices are derived from the average monthly prices.



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## Liquefied Natural Gas

The national average priecs for Liquefied Natural Gas (LNG) are retrieved from the Market Prices of Important Means of Production in Circulation publication released by the NBS. The prices retrieved from NBS are used to calculate weekly prices as time-weighted averages.

The average monthly prices are derived from the time-weighted weekly prices and the average yearly prices are derived from the average monthly prices.

## Coal

Coal prices are derived from the NBS Market Prices of Important Means of Production in Circulation publication.

The IEA Energy Balances Conversion Factors for China are used to identify the average Net Calorific Value for coal in industrial use (IEA, 2022). The Shanxi Mixed Coal is selected as the most representative in industrial use (NBS, 2023). The prices retrieved from NBS are used to calculate weekly prices as time-weighted averages.

The average monthly prices are derived from the time-weighted weekly prices and the average yearly prices are derived from the average monthly prices.

## Electricity

Until the year 2018, electricity prices were retrieved from the Annual National Electricity Price Regulatory Circular published by the NEA.

The NEA calculated these prices as the weighted-average prices of State Grid, China Southern Power Grid and Inner Mongolia Power Group.

These prices include taxes but exclude government funds, which are additional charges to support public services. Prices for the commercial sector refer to general industry and commerce.

For 2019, prices for residential electricity have been assumed constant. No price variations were observed in the prices of the city of Beijing and this was considered representative.

From 2020 onwards, the prices for residential electricity have been estimated from the tiered residential prices published by the regional branches of the State Grid Company and Southern Power Grid Company.



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The NDRC guideline for the RTEP price scheme is that the first price tier should cover 80% of the consumers, the second tier 15% and the highest tier 5% of consumers. A 2021 study using data from the Chinese Residential Energy Consumption Survey of 2014 found out that in the surveyed group, 80.4% of the households were placed on the first tier, 15.4% fell on the second tier and 4.2% of household were placed on the third tier (Jia et al., 2021). Another study using household electricity consumption data from four provinces, Jilin, Ningxia, Tianjin and Guanxi, estimated that with 2011 consumption figures, 11.5% of the consumers reached the second and third tiers (Wang & Yu, 2021). This would imply, that at least in the first years of the RTEP policy, the share of households on the first tier was actually higher than 80%. However, as the residential electricity consumption and household incomes have kept growing since 2011, it is estimated that households which formerly fell on the first price tier, have been moving to the second and third price tiers. Having studied survey data from the China Family Panel Studies Project up to 2018, Wang et al. conclude that the price tier thresholds are still at reasonable levels (Wang et al. 2022).

For the residential price estimates calculated, the 80.4% - 15.4% - 4.2% split between the price tiers derived by Jia et al. in 2021 is used. The residential tariff tables for each province and region are retrieved from the respective web pages of the provincial and regional branches of the State Grid Corporation and the Southern Power Grid Company. For each province or region, the three price tiers corresponding to these assumptions are retrieved and an average price is formed by weighting the prices with the corresponding split. A national average price is estimated by weighting the provincial prices with the population of each province, as reported by the NBS (NBS, 2023). For provinces served by the Southern Power Grid Company, prices are collected for large provincial cities and counties and a population-weighted average price is calculated in a similar manner as the population-weighted national price.

## Energy taxation database methodology

The VAT-equivalent tax applied in China is applicable to all energy products. Since 2009, the applicable tax rate is refunded for purchases for commercial purposes, and so it is assumed to be null for commercial services, industry and electricity generation from that year onwards. The considered applicable rates are 16% in 2018 and 13% since April 2019 (State Taxation Administration of the People's Republic of China, 2019). Electricity consumption by residential users is subject to a constant rate of 16% (according to the NDRC).



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The Other taxes category includes the Consumption tax, applied to oil products since 1994. The values applicable for diesel and gasoline in 2015 were retrieved from the above note on policy framework. The remaining values are not provided.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the following 31 provinces and municipalities across the People's Republic of China:

Anhui
Beijing
Chongqing
Fujian
Gansu
Guangdong
Guangxi
Guizhou
Hainan
Hebei
Heilongjiang
Henan
Hubei
Hunan
Inner Mongolia
Jiangsu
Jiangxi
Jilin
Liaoning
Ningxia
Qinghai
Shaanxi
Shandong
Shanghai
Shanxi
Sichuan
Tianjin
Tibet
Xinjiang



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Yunnan

Zhejian

Sub-national transport fuel prices are estimated as the time-weighted average of the daily price levels in a given year.

| | Automotive diesel | Regular gasoline | Mid-grade gasoline | High-grade gasoline |
|---|---|---|---|---|
| Quality | | | | |
| Octane/Cetane number | 47-51 | 89 | 92 | 95 |
| Density (kg/l) | 0.79-0.85 | 0.72-0.775 | 0.72-0.775 | 0.72-0.775 |
| Sulphur content (%) | 0.001 | 0.001 | 0.001 | 0.001 |
| Lead content (g/l) | | 0.005 | 0.005 | 0.005 |

* From 1 January 2023 onwards, The National Emission Standard VIB has been in place for gasoline. The VIB standards replaced the VIA standards, which were in place from 1 January 2019 to 31 December 2022. For diesel, the corresponding standard VI has been in place since 1 January 2019.

Compared to the tier V standards which the VI standards replaced, the content of aromatic hydrocarbons has been reduced both in gasoline and diesel fuels. The properties listed in this table haven't changed since the introduction of V standards.

The V standards replaced the Stage IV standards in 1 January 2017. The IV standards had octane numbers of 90, 93 and 97 for regular, mid-grade, and high-grade gasoline, respectively, and a cetane number between 45 and 49 for automotive diesel. Both transport fuels had a maximum sulphur content of 0.005%.

| | LPG | LNG | Coal |
|---|---|---|---|
| Net Calorific Value (kcal/kg) | | | 5000 |
| Methane content | | ≥75% | |
| Density (kg/ $m^3$) | 564 | 430 | |
| Saturated Vapor Pressure (kpa) | 1380-1430 | | |

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# Côte d'Ivoire

## Sources

Oil products prices are derived from data extracted from the Direction Générale des Hydrocarbures (DGH) of the *Ministère des Mines et de l'Energie*.

Electricity prices for households are derived from tariffs specified in the Arrete Interministeriel Portant Modification des Tarifs de L'Electricité of the *Autorité Nationale de Régulation du Secteur de L'Electricité de Côte d'Ivoire* (ANARE-CI).

Coal prices for households are derived from data extracted from the monthly publication of *Institut National de la Statistique* (INS).

## Data methodology

### Oil products

Annual prices are derived as the average of the monthly prices in a given year. Weekly prices are estimated as the time-weighted average of the prices applicable in a given week.

Prices for LPG refer to the price of the 12.5 kg cylinder, converted from XOF/cylinder to XOF/l using a density of 0.542 kg/l.

### Electricity

Yearly prices for residential electricity are based on the general residential pre-paid electricity tariff for households with a single phase connection, living in the capital Abidjan. The tariff includes taxes, a capacity fee, rural electrification fees and a waste collection fee. For the capacity fee, the households are assumed to subscribe to a 1.1 kVA plan.

### Coal

Coal refers to charcoal – *charbon de bois*.

Monthly prices are retrieved directly from the monthly reports from the INS. Annual prices are derived as the average of the monthly prices.



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# Product specifications

| | Regular gasoline | Diesel | LPG | Kerosene | Coal |
|---|---|---|---|---|---|
| Quality | | | | | Charcoal – *Charbon de bois* |
| Octane/Cetane number | >=91 | ≥ 45 | | | |
| Density (kg/l) | 0.720-0.790 | 0.82-0.88 | 0.542 | 0.775-0.840 | |
| Sulphur content (%) | <0.015 | | | | |
| Lead content (g/l) | <0.013 | | | | |



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# Croatia

## Sources

Prices for oil products are derived from weekly data published in the European Commission's *Weekly Oil Bulletin.*

Prices for electricity and natural gas are derived from data extracted from the Eurostat website.

## Data methodology

### Oil products

Prices shown are the prices most frequently charged, based on a weighted average and are inclusive of VAT.

Prices for residual fuel oil refer to low-sulphur fuel oil.

Annual prices are derived as the average of the weekly data in a given year.

From the source, the derived price for 2013 refers to the average of the weekly prices between 1 July 2013 and 31 December 2013.

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DC for households (annual consumption: 2 500 kWh – 5 000 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.

### Natural gas

From year 2007 onwards, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ).

Annual prices are the average of the biannual data.



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# Product specifications

| | Automotive diesel | Mid-grade gasoline | High-grade gasoline |
|---|---|---|---|
| Quality | Eurodiesel | Unleaded motor gasoline 95 | Unleaded motor gasoline 98 |
| Octane/Cetane number | | 95 | 98 |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Cyprus

## Sources

Prices for oil products are derived from weekly data published in the European Commission's *Weekly Oil Bulletin.*

Prices for electricity are derived from data extracted from the Eurostat website.

## Data methodology

**Conversion to Euro:** Prices prior to 1 January 2008, the date of entry into the Economic and Monetary Union (EMU), have been converted from Cypriot pounds using the appropriate irrevocable conversion rate of 0.585274 CYP/EUR.

This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rates) is preserved. However, pre-EMU Euro are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

**Note by Republic of Türkiye:** The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Republic of Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Republic of Türkiye shall preserve its position concerning the "Cyprus issue".

**Note by all the European Union Member States of the OECD and the European Commission:** The Republic of Cyprus is recognised by all members of the United Nations with the exception of Republic of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

### Oil products

Prices shown are the prices most frequently charged, based on a weighted average (except for prices collected from Statistical Service Cyprus where prices refer to the retail prices at the filling stations, including excise taxes and excluding VAT).

Prices for kerosene refer to delivered consumer prices for deliveries of 2 000 to 5 000 litres (for offtakes of less than 2 000 litres the industrial sector may be taken into consideration).



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Prices for residual fuel oil refer to low-sulphur fuel oil.

Annual prices are derived as the average of the weekly data in a given year.

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DC for households (annual consumption: 2 500 kWh – 5 000 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data. From the source, the derived price for 2007 refers to the price of the second semester.

## Product specifications

| | Automotive diesel | Mid-grade gasoline | Regular leaded gasoline | Kerosene |
|---|---|---|---|---|
| Quality | Automotive gas oil | Euro-super 95 | Leaded 92 RON | Heating gas oil |
| Octane/Cetane number | | 95 | 92 | |
| Density (kg/l) | | | | |
| Sulphur content (%) | | | | |
| Lead content (g/l) | | | | |



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# Democratic Republic of the Congo

## Sources

Oil products prices are derived from *banque centrale du Congo (BCC)*.

## Data methodology

### Oil products

Annual prices are estimated as the time-weighted average of the price levels in a given year. Weekly prices are estimated as the time-weighted average of the price levels in a given week.

Each data point is estimated as the average of prices for the three charging zones (West, East, South) until August 2020. In 12th August 2020, a new charging zone was established by the Ministry of Economy (North); thus, from then on, the prices includes in the database refer to the average of the four zones.Prices for year 2001 refer to average from May to December 2001.



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# Dominican Republic

## Sources

Prices are derived from data extracted from the *Ministerio de Industria, Comercio y MIPYMES* (the Ministry).

## Data methodology

### Oil products

Weekly prices are estimated as the time-weighted average of the daily price levels published by the Ministry.

Until 2017, annual prices, as calculated by the Ministry, are the averages of the weekly prices in a given year. Since 2018 onwards, the annual prices refer to the time weighted average of the daily price levels.

Prices in year 2000 are the average of the price levels for the three-week period between 9 December and 29 December 2000, because Law 112-00 (*Ley Tributaria de Hidrocarburos*), which governs the fuel pricing regulation, came into effect on 29 November 2000.

Between 2003 and September 2008, prices for LPG in households refer to subsidized prices. From October 2008 onwards, prices refer to LPG (as subsidized values are no longer available).

Prices for residual fuel oil are converted from DOP/l to DOP/tonne using a specific volume of 1 059 l/tonne.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | Residual fuel oil |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | <93 | >=93 | |
| Density (kg/l) | | | 0.944 |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Ecuador

## Sources

Prices for Oil Products are derived from data from Agencia de Regulación y Control Hidrocarburífero, EP Petroecuador and Government of Ecuador. Prices for electricity are derived from data submitted by the Instituto de Investigación Geológico y Energético.

## Data methodology

### Oil products

Prices are the retail prices, including the retailer margin and VAT.

“Other transport” product refers to gasoline “extra con etanol petrolero automotriz”.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | Other Transport | Diesel |
|---|---|---|---|---|
| Quality | | | Gasolina extra con etanol petrolero automotriz | |
| Octane/Cetane number | 87 | 93 | | |
| Density (kg/l) | | | | |
| Sulphur content (%) | 0.005 | 0.005 | | |
| Lead content (g/l) | | | | |



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# Egypt

## Sources

Prices for oil products and natural gas are derived from data extracted from the Ministry of Petroleum.

Prices for electricity are derived from data published in the annual report of the Ministry of Electricity & Renewable Energy.

## National pricing framework

### Oil products

In Egypt, oil products' prices are fully regulated by the government, being the responsibility of the Minitry of Petroleun and Mineral Resources. Prices are established by the Fuel Pricing Committee, formed in 2018. The committee meets every quarter to discuss price revisions, and it can only revise the prices by a maximum of 10%.

### Electricity

Egypt is establishing a competitive electricity market; however tariffs are ratified by the regulatory agency.

## Data methodology

### Oil products

"Other transport" product refers to gasoline RON 80 and prices are presented in EGP/l.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

Prices for LPG for households refer to 12 kg cylinders and for commercial use refer to 25 kg cylinders. Both are converted from EGP/kg to EGP/l using a density 0.542 kg/l.

### Natural Gas

Annual prices are estimated as the time-weighted average of the price levels in a given year.



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### Electricity

Prices for households refer to the tariff with consumption between 201 and 350 kWh/month.

Prices for commercial users refer to the tariff for the band “zero – 600 kWh/month”.

Prices are time-weighted averages of the tariff levels in a given year.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | Other Transport | LPG |
|---|---|---|---|---|
| Quality | | | Benzene 80 | |
| Octane/Cetane number | 92 | 95 | 80 | |
| Density (kg/l) | | | | 0.542 |
| Sulphur content (%) | | | | |
| Lead content (g/l) | | | | |



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# El Salvador

## Sources

Prices between 2002 and 2010 are derived from data extracted from the Guatemalan Ministry of Energy and Mines (MEM) for countries in Central America. From 2011 onwards, prices are derived from data extracted from the El Salvador Directorate of Oil Products and Mines, Ministry of Economy.

## Data methodology

### Oil products

Between 2002 and 2010, monthly prices are retrieved directly from the data published by the Guatemalan Ministry of Energy and Mines. Annual prices are derived as the average of the monthly prices in a given year.

From 2011 onwards, weekly prices are estimated as the time-weighted average of the daily reference pump prices published by the El Salvador Ministry of Economy, corresponding to the simple average of the three pricing zones. Annual prices are derived as the average of the weekly prices in a givenyear.

Since January 2019, Diesel prices refer to Low-Sulphur Diesel.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 88 | >=95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Ethiopia

## Sources

Prices from LPG are derived from Central Statistics Agency.

Other prices are derived from National Bank Ethiopia, from data extracted from Ethiopian Petroleum Enterprise and Ministry of Trade.

## Data methodology

### Oil products

Prices for LPG are time-weighted average of prices provided by CSA, for months for which prices data are available.

Prices for LPG in households are converted from ETB/kg to ETB/l using a density of 0.542 kg/l.

Annual prices for other products refer to the average of quarterly prices. As annual reports cover the fiscal year (July to June), calendar year values are calculated as time-weighted average of fiscal year values from Q3 and Q4, and Q1 and Q2 of the subsequent year.

| | Regular gasoline | Diesel | Kerosene | LPG |
|---|---|---|---|---|
| Quality | | | | |
| Octane/Cetane number | | | | |
| Density (kg/l) | | | | 0.542 |
| Sulphur content (%) | | | | |
| Lead content (g/l) | | | | |



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# Gabon

## Sources

Prices for oil products in the capital city Libreville are retrieved from the monthly publication Indice harmonisé des prix à la consommation des ménages (IHPC), released by the Direction Générale de la Statistique of Gabon.

## Data Methodology

### Oil products

Prices for oil products are retrieved monthly. Yearly average prices are calculated as averages of the monthly prices.



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# Georgia

## Sources

Prices for oil products, electricity for households and natural gas for households and transport are derived from data submitted by the National Statistics Office of Georgia.

Prices for electricity and natural gas for industry are derived from data extracted from the Eurostat website.

## National pricing framework

The electricity and gas markets regulator is Georgian Energy and Water Supply Regulatory Commission (GNERC), according to law of Georgia “On Electricity and Natural Gas”.

### Oil products

The country is almost fully dependent on foreign imports of oil products. The Georgian oil product market is liberalised, with no formal requirements to market entry for participants and prices are freely determined by the market. The law designates the State Agency of Oil and Gas as a responsible body for regulation of oil and gas operations, oil refining, gas processing and transportation activities

### Electricity

The electricity market is composed of several state-owned and private companies. The transmission and dispatch company is state owned. There are several types of stations: Regulated, tariffs of which are set by GNERC. Partially deregulated (capacity above 40 MW), to which commission sets upper cap tariffs. Partially deregulated (below 40 MW) which are licensed but tariffs are not set by the commission. Deregulated, which are built after 1 august 2008. Guaranteed capacity Sources (TPPs), guaranteed capacity tariff of which is set by the commission. The power plants larger than 15MW are licensed by the commission and below 15MW are free from production licenses. Tariffs fixed for Enguri and Vardnili power plants. Prices are deregulated for the others that can trade through direct contracts or Electricity System Commercial Operator (ESCO) balancing market.

Tariffs are fixed by the GNERC for generation, transmission, distribution, balancing, importing and final supply.



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## Natural Gas

Natural gas transportation and distribution is a natural monopoly and is fully under tariff regulation of the commission. The supply of natural gas is deregulated except the supply to the retail customers in Tbilisi and rest of Georgia's retail customers (before the order) who are partially deregulated. The order does not touch those companies whose tariffs were set after 1 July 2017. Natural Gas supply prices are regulated with tariffs for residential customers, and deregulated for non-residential customers. Transportation prices are also subject to tariffs.

## Coal

Coal market is deregulated and freely traded.

## Taxes

Taxation of the import and export of goods is regulated by the Tax Code. Customs duties include Import Duty and Excise Duty. Oil products and coal are subject to excise taxation in Georgia, but not import tax.

Electricity and Natural Gas are subject to VAT at a standard rate of 18%. However, there are some exceptions, for example, transmission and/or dispatch service are VAT exempt with the right to deduct as well as Import of natural gas (to thermal power stations) for generation of electricity (Article 168).

Imported petroleum products and coal are subject to the 18% VAT rate, except import of energy-related goods funded under preferential international loans or oil and gas-related activities specified by the Law "On oil and gas".

## Subsidies

The following ad hoc decisions are considered as subsidies as defined by the Georgian Law on Competition. The natural gas is provided below market level to thermal power plants and gas distribution companies, in order to make electricity and gas tariffs more affordable for residential customers. The estimated amount of subsidy due to tariffs set at below-market rates is more than 350 million GEL annually. About 5 million GEL is being spent from the state budget annually on the gas provided free of charge to households of Kazbegi and Dusheti municipalities in winter. About 25 million GEL from the municipal budget is spent on electricity vouchers for consumers in Tbilisi Municipality. Moreover, electricity is provided free of charge in the Svaneti region. No payments are made for the supply of electricity to Abkhazia. As a net importer of energy and a country whose GDP is



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highly energy-intensive, Georgia is vulnerable to fluctuations in the international price of natural gas and petroleum products.

Existing energy subsidies aim to protect socially vulnerable groups from electricity and natural gas tariff increases, on the one hand, and ensure the security of supply and investment in domestic hydropower generation, on the other.

Petroleum products and coal markets in Georgia are liberalized and consumers receive no subsidies. In the upstream segment, however, exemptions from value-added tax (VAT), import tax, property tax and excise for certain oil and gas related activities specified in the law on Oil and Gas exist.

Natural gas subsidies come in the form of regulated tariffs, VAT exemption and direct budget transfers. Natural gas subsidies amounted to USD 228 mln, or 1.4% of Georgia's GDP, in 2014.

*Excise Duty in August 2021*

| | Gasoline GEL/t | Diesel GEL/t | LPG GEL/t | Kerosene GEL/t | Fuel Oil GEL/t | Natural Gas GEL/ 1000m3 | Coal GEL/t |
|---|---|---|---|---|---|---|---|
| August 2021 | 500 | 400 | 300 | 440 | 800 | 300 | 0 |

# Data methodology

## Oil products

Prices for mid-grade gasoline are based on the average of prices for gasoline with different octane numbers, as submitted by the source.

Prices for LPG for households refer to 10 kg cylinders and are converted from GEL/kg to GEL/l using a density of 0.51 kg/l.

## Electricity

From year 2007 onwards, prices for industry refer to the Eurostat consumption band IB (annual consumption: 20 MWh – 500 MWh). Annual prices are the average of the biannual data.

## Natural gas

Prices for households and transport are converted from GEL/$m^3$ to GEL/MWh GCV using a calorific value of 90.3 $m^3$/MWh GCV.



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From year 2007 onwards, prices for industry refer to the Eurostat consumption band I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ). Annual prices are the average of the biannual data.

## Product specifications

| | LPG |
|---|---|
| Quality | |
| Octane/Cetane number | |
| Density (kg/l) | 0.51 |
| Sulphur content (%) | |
| Lead content (g/l) | |

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# Ghana

## Sources

For years 1990 onwards, prices are derived from data extracted from the National Petroleum Authority (NPA).

## Data methodology

The Ghanaian cedi underwent a redenomination in July 2007 at a rate of 1 GHS equivalent to 10 000 GHC. Prices presented here for all years are in GHS.

### Oil products

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

Price deregulation of oil products, except for residual fuel oil, took effect in July 2015. The NPA has since stopped publishing the deregulated products' prices. Therefore, except for residual fuel oil, the oil product prices published here for 2015 are the weighted averages of the price levels between 1 January and 16 June 2015.

Prices for Gasoline, Diesel and LPG for 2022 refer to monthly prices from January to September provided by NPA through quarterly "Downstream Bulletin".

From 2016 to 2018, prices for gasoline and diesel are estimated using indicative prices of the three main supplying companies, with a market of around 50%. Each price point is calculated as the market share weighted average of prices of the three main companies, of datapoint available. The market share used is annual and product market share. Annual and monthly prices are the time-weighted average of calculated prices.

Between 1990 and 2015, weekly prices for Gasoline, Diesel, LPG, Kerosene and Residual Fuel Oil are estimated as the time-weighted average of the daily prices. Since price deregulation, only monthly prices are estimated, as the time-weighted average of the bi-weekly prices provided by NPA through quarterly "Downstream Bulletin".

Prices for LPG in households are converted from GHS/kg to GHS/l using a density of 0.542 kg/l.



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Prices for residual fuel oil are converted from GHS/l to GHS/tonne using a specific volume of 1 059 l/tonne.

## Product specifications

| | Regular gasoline | LPG | Residual fuel oil |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | >91 | | |
| Density (kg/l) | | 0.542 | 0.944 |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Greenland

## Sources

Prices for oil products are derived from announcements of Kalaallit Niuerfiat (KNI) the state owned company which is in charge of the fuel retailing.

## Data methodology

### Oil products

Weekly prices are estimated as the time-weighted average of the daily price levels.

Yearly prices for Gasoline, Diesel and Kerosene in year 2011 refer to the average from July to December 2011.

Yearly price for Jet Fuel in 2016 refers to the average between November and December 2016.



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# Guatemala

## Sources

Prices are derived from data extracted from the Guatemalan Ministry of Energy and Mines (MEM) for countries in Central America.

## Data methodology

### Oil products

Monthly prices are retrieved directly from the data reported by the Guatemalan Ministry of Energy and Mines.

Annual prices are derived as the average of the monthly prices in a given year.

Prices for LPG in households refer to 12 kg cylinders and are converted from GTQ/kg to GTQ/l using a density of 0.542 kg/l.

Prices are converted from USD/l to GTQ/l using monthly exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2020.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 88 | >=95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Honduras

## Sources

Prices are derived from data extracted from the Guatemalan Ministry of Energy and Mines (MEM) for countries in Central America.

## Data methodology

### Oil products

Monthly prices are retrieved directly from the data reported by the Guatemalan Ministry of Energy and Mines.

Annual prices are derived as the average of the monthly prices in a given year.

Prices are converted from USD/l to HNL/l using exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2020.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 88 | >=95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Hong Kong, China

## Sources

Yearly prices for oil products from 2005 to 2018 are derived from data extracted from the annual *Energy Statistics* publication of the Asia-Pacific Economic Cooperation (APEC). Other prices are derived from *Legislative Council of the Honk Kong Special Administrative Region of the People's Republic of China(LegCo).*

## Data methodology

### Oil products

Prices for LPG for transport are converted from HKD/kg to HKD/l using a density of 0.542 kg/l.

Prices from 2019 to 2020 are calculated as time-weighted average of monthly prices.

Prices for 2022 refer to the average from January to September 2022.

### Natural gas

Prices are calculated as time-weighted average of monthly prices.

Prices for 2022 refer to the average from January to September 2022.

## Product specifications

| | High-grade gasoline | LPG |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 98 | |
| Density (kg/l) | | 0.542 |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# India

## Sources

Prices for LPG are derived from data from Petroleum Planning & Analysis Cell (PPAC) of the Ministry of Petroleum and Natural Gas and Indian Oil. Prices for other oil products are derived from data extracted from the PPAC.

Prices for electricity are derived from data extracted from the annual reports, *The Performance of State Power Utilities,* of Power Finance Corporation (PFC), data submitted by PFC, and data submitted by Central Electricity Authority (CEA).

Sub-national transport fuel prices are derived from data extracted from PPAC.

## National pricing framework

### Oil products

Gasoline is more commonly known in India as “motor spirit”, while automotive diesel is referred to as “high speed diesel”. Retail prices for regular gasoline and automotive diesel are currently market-based. Prices and taxes referred to here are for the “non-branded”, i.e. regular grades of these transport fuels,

The government set the price of regular gasoline and automotive diesel through the Administered Pricing Mechanism (APM) up until 2002. After 2002, Oil Marketing Companies (OMC) began to freely set their own prices, usually at levels below the market price, and claim under-recoveries (the difference between the world market price and the domestic retail price) from the Ministry of Finance. This led to escalating subsidies carried by the government and OMCs, especially during periods of high crude oil price. The government deregulated the price of regular gasoline in June 2010 and the price of automotive diesel in October 2014 after two years of applying progressively decreasing price caps on the latter (U.S. Energy Information Administration, 2016).

While the total retail price of a transport fuel varies by city, it generally includes the Refinery Gate Price (RGP), inland freight and marketing costs, margin, dealer commission and applicable taxes (PPAC, 2017).

The RGP is the price an Oil Marketing Company (OMC) pays to local refineries for the purchase of oil products at refinery gate. It is based on Trade Parity Price, which is related to international market prices and calculated as the average price of the Import Parity Price (IPP) and Export Parity Price (EPP), with weights of 80%



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and 20%, respectively. IPP is the price that importers would pay for the product at Indian ports and includes FOB price, ocean freight, insurance, customs duty and port dues. The EPP is the price that oil companies earn on the export of their oil products and includes FOB price and advance license benefit (for duty-free import of crude oil pursuant to export of refined products) (PPAC, 2017). The RGP is the same across India, and variations in regional prices are a result of different tax rates and transportation costs.

### *Taxes*

Regular gasoline and automotive diesel are subject to customs and central excise duties imposed uniformly across the country by the Central Government of India, in accordance with the provisions of the Central Excise Act 1944, at rates specified under the Central Excise Tariff Act 1985 (Business Knowledge Resource Online, n.d.). Generally applied on a volume basis, customs duty is levied on goods imported into the country, and excise duty is levied on goods manufactured in the country. The specific breakdown of these taxes as of July 2017 is presented in the table below. PPAC makes available the latest tax rates of these transport fuels on their website (PPAC, 2018).

*National taxes for transport fuels in India as of April 2023 (PPAC - Central Excise and Customs Tariff Table on Major Petroleum Products)*

| | Customs | | | Central excise | | | |
|---|---|---|---|---|---|---|---|
| | Basic customs duty | Additional customs duty (CVD) | Additional customs duty | Basic Excise Duty | Special additional excise duty (SAD) | Additional excise duty (Road and infrastructure Cess) | Additional Excise Duty (Agriculture Infrastructure & Development Cess) |
| Non-branded Regular gasoline | 2.5% | 1.40 INR/l + 11.00 INR/l SAD + 2.50 INR/l AIDC | 5 INR/l | 1.40 INR/l | 11 INR/l | 5 INR/l | 2.50 INR/l |
| Non-branded Automotive diesel | 2.5% | 1.80 INR/l + 8.00 INR/l SAD + 4 INR/l AIDC | 2 INR/l | 1.80 INR/l | 8 INR/l | 2 INR/l | 4 INR/l |



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In addition to excise duties, regular gasoline and automotive diesel are subject to VAT that varies by state. VAT is paid as a percentage of the sum of ex-tax price and excise tax and generally incudes additional taxes and surcharges. In Delhi, Gujarat, Haryana, Madhya Pradesh, Punjab, Dadra & Nagar Haveli, Daman & Diu, Chandigarh, Puducherry and Meghalaya, the tax base also includes the distributor's commission. PPAC also publishes the latest VAT rates levied on these transport fuels by each state (PPAC, 2018).

Despite government announcements in 2017 of a tax reform for a single, unified Goods and Services Tax in India, oil products have been excluded and will continue to be taxed at the VAT rates decided by the states ("GST on Petrol and Diesel," 2017).

## Electricity

Under the Electricity Act of 2003, which governs the generation, transmission, distribution, and trading of power in India, tariffs for retail sale of electricity are determined by one of two commissions: the Central Electricity Regulatory Commission (CERC) or the State Electricity Regulatory Commission (SERC). The CERC determines and regulates tariffs for generating utilities owned or controlled by the central government and utilities that have an agreement to generate and sell electricity in more than one state. The SERCs determine and regulate tariffs for generation and retail supply of electricity within a particular state (CERC, 2003).

The Electricity Act makes no distinction between distribution and retail sale of electricity. A utility petitions the CERC or relevant SERC to fix a tariff, and end consumers have the right to raise objections to this petition. The CERC and SERCs regulate the distribution tariff in accordance with the principles described in Section 61 of the Electricity Act, which states that the supply chain activities should be carried out on commercial principles and efficient performance, encourage competition, ensure reasonable cost recovery, and protect consumer interest (CERC, 2003).

Electricity tariff rates differ among states and between consumer categories in each state. Generally, the five categories are residential, agriculture, commercial, industry, and railways, which are further divided into sub-categories based on consumption levels whose tariff rates may be different for urban and rural areas (International Institute for Sustainable Development [IISD], 2012).



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### *Taxes*

The electricity tax, whose rates are governed by the states, is levied on consumption according to the consumer category and is charged by the utilities to consumers based either on value or on units sold. In 2014, for example, in Karnataka, the electricity tax was at 6% of the consumption for residential, commercial, and industrial categories, while in Chandigarh, the electricity tax was 90 INR/MWh for residential consumers and 110 INR/MWh for commercial and industrial consumers (Central Electricity Authority, 2014).

Despite government announcements in 2017 of a tax reform for a single, unified Goods and Services Tax in India, electricity has been excluded and will continue to be taxed at the VAT rates decided by the states (Sharma & Subramanian, 2017).

### *Subsidies*

Prior to a utility petitioning to the CERC or SERCs to fix a tariff, it first estimates a tariff based on revenues required and forecasted sales. The approved tariffs are frequently lower than those petitioned for by the utility, so that social and developmental objectives for certain consumer categories could be achieved. The state governments then declare a lump sum amount of subsidy to be disbursed to the utilities as compensation. This amount is called “Subsidy Booked” in the accounts of the utilities. State governments sometimes are not able to pay the subsidies in advance of the following financial year, as mandated under Section 65 of the Electricity Act, and the actual subsidy payment, known as “Subsidy Released,” is lower than the amount of subsidy booked by the utilities (IISD, 2012).

## Energy taxation database methodology

The Goods and Services tax (*GST*) is a VAT-equivalent tax applied to all energy products. The rates are applied at the State level- The 2018 rates applicable to oil products in the different states are available at the PPAC website (https://www.ppac.gov.in/content/149_1_PricesPetroleum.aspx). The average rates applicable in India to gasoline, diesel and LPG are estimated as the average of the State level rates weighted by the oil products sales in each State for that same year. For electricity consumption, the applicable rates are not provided.

It is assumed that Environmental taxes are applied to diesel, gasoline and electricity consumption, as a large number of sates implemented taxes on these energy products with an environmental purpose (OECD Database on Environmental Policy Instruments). Given the diversity of the taxes applicable at



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the state level, a national average was assumed as not representative and, consequently, is not estimated.

# Data methodology

## Oil products

For years prior to and including 2002, transport fuel prices refer to the Mumbai (Bombay) area on 1 April, which is the beginning of the Indian fiscal year.

From year 2003 onwards, transport fuel prices are estimated from data extracted from PPAC. The first dataset lists price levels for transport fuels in four of the largest metropolitan areas in the country: Delhi, Kolkata, Mumbai, and Chennai, as published by the Indian Oil Corporation (IOC), the country's largest state-controlled OMC. The second dataset contains annual consumptions of these transport fuels in the four cities' respective states. Besides the IOC, the two other major state-controlled oil marketing companies are the Hindustan Petroleum Corporation and the Bharat Petroleum Corporation. Although the latter two also have their own prices, PPAC's data refer to the prices published by the IOC and are hence the ones used in the estimation of national retail prices of the transport fuels.

Average annual transport fuel prices are first estimated as the time-weighted averages of the price levels in a given year for each metropolitan area. These are then weighted by the consumption in each city's state to obtain the annual national average retail prices of the transport fuels. Since 16 June 2017, changes in transport fuel prices in the four metropolitan cities have been announced on a daily basis, so only consumption-weighting is necessary for the derivation of average national prices from 2018 onwards.

In 2016, consumption in these four cities' states corresponded to around 29% of the national consumption of gasoline and 25% of the national consumption of automotive diesel.

The resulting annual prices provide a good estimation of the national retail price of regular gasoline and automotive diesel. As of 1 April 2017, approximately 80% of gasoline and automotive diesel consumption in India was priced within ± 3 INR/l (or around 3%) of the estimated national price.

Prices for kerosene in households refer to those allocated, subsidized and distributed through the Public Distribution System network in Mumbai.



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Prices for LPG in households refer to 14.2 kg cylinders and represent the effective cost to consumers in Delhi after subsidies. Prices are converted from INR/kg to INR/l using a density of 0.542 kg/l.

Annual prices for kerosene and LPG for households are estimated as the time-weighted average of the price levels in a given year. LPG prices for year 2014 and from April 2019 onwards are derived from non-subsidies price and subsidy amount in Delhi.

### Electricity

As data are reported by fiscal year, the IEA has calendarized the prices by taking a time-weighted average of the prices between successive fiscal years.

Prices for electricity from fiscal year 2016-2017 to fiscal year 2018-2019 are derived from data from PPAC ( revenue from sale of power, volume of energy sold, fixed charges and fuel adjustment surcharge) and from CEA (excise duty). Data used cover the 28 states of India as well as three union territories (Delhi, Jammu and Kashmir and Puducherry).Prices from fiscal years 2006-2007 to 2015-2016 are estimated using the PFC annual report on Performance of State Power Utilities. Growth rates of prices (derived as total revenue divided by the sales volume) are applied to the 2016-2017 year. Revenue from sale of power represent over 90% of the total price of electricity.

Prices for electricity for commercial use refer to the non-domestic category.

Prices for non specified sector electricity refer to agriculture electricity prices.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for four of the largest metropolitan areas in the country: Delhi, Kolkata, Mumbai and Chennai.

Sub-national transport fuel prices are estimated as the time-weighted average of the price levels in a given year.

## Product specifications

| | Automotive diesel | Regular gasoline |
|---|---|---|
| Quality | | MG 91 |
| Octane/Cetane number | >51 | 91 |
| Density (kg/l) | 0.82 – 0.845 | 0.72 – 0.775 |



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| | Automotive diesel | Regular gasoline |
|---|---|---|
| Sulphur content (%) | <0.005 | <0.005 |
| Lead content (g/l) | | <0.005 |

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# Indonesia

## Sources

Prices for oil products are derived from data extracted from the Ministry of Energy and Mineral Resources' (Kementerian Energi Dan Sumber Daya Mineral) annual Handbook of Energy & Economic Statistics of Indonesia, 2018 (final edition).

For years 2000 to 2004, prices for electricity are derived from data extracted from the Ministry of Energy and Mineral Resources' annual Handbook of Energy & Economic Statistics of Indonesia, 2016. From year 2005 to 2007, prices for electricity are derived from data extracted from the Statistik PLN, 2017 publication of PT Perusahaan Listrik Negara (Persero) (PT PLN). Prices from 2008 to 2018 are derived from Handbook of Energy & Economic Statistics of Indonesia, 2018 (final edition). Prices for natural gas, and industrial diesel oil for electricity generation are derived from data extracted from the PLN Statistics publications of PT Perusahaan Listrik Negara (Persero) (PT PLN).

## National pricing framework

### Oil products

According to discussions with the Ministry of Energy and Mineral Resources, retail prices for regular gasoline and automotive diesel, the two most widely-consumed transport fuel grades in Indonesia, are determined by the government and marketed exclusively through Pertamina, the national oil company. Higher grades of transport fuels, sold by Pertamina and independent retailers, are not subject to price setting mechanisms.

The government's regulatory authority for the provision, distribution and determination of fuel retail prices is given under the Presidential Regulation No. 191 of 2014. Presently, the frequency of price revisions is at least once every three months, taking into account crude oil prices, exchange rates, the country's financial capacity, public purchasing power and other economic and social factors. The retail price consists of the sum of a base price and applicable taxes.

In addition to setting retail fuel prices, a reference price for fuels is calculated on a daily basis to provide an indication of the market price for fuels. This reference price is the sum of a benchmark crude price (the average Mid Oil Platts Singapore – MOPS) and a margin, commonly referred to as the "alpha." The base price is significantly lower than the reference price, mainly due to subsidies (see figure below).



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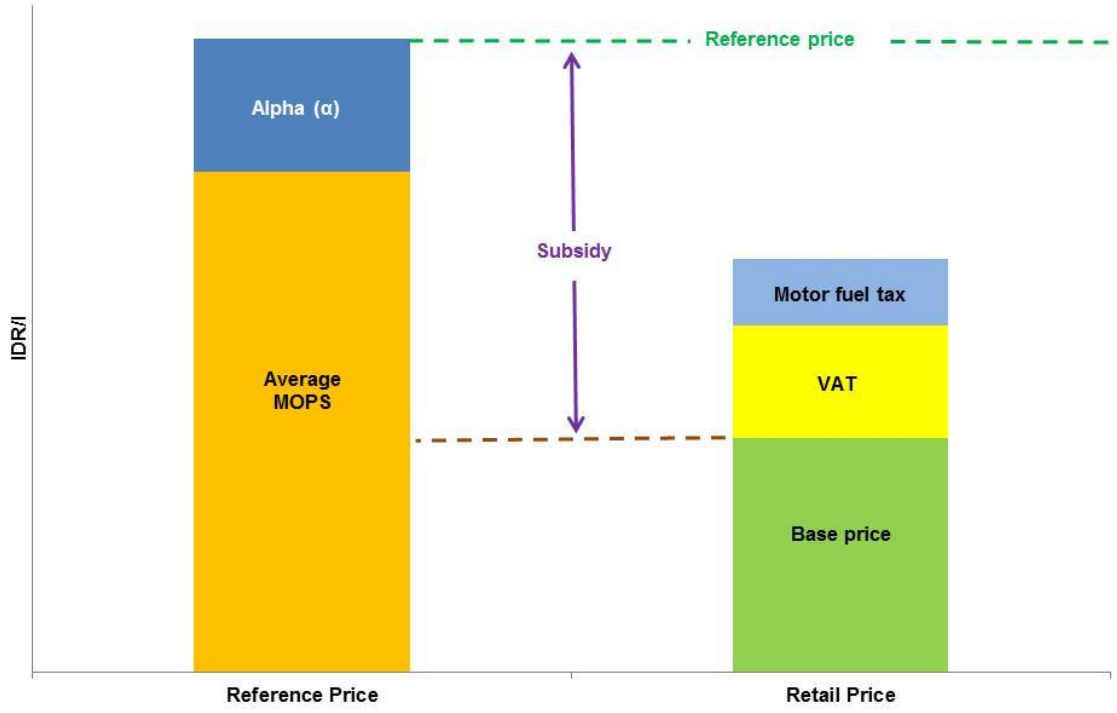
## National pricing framework




Source: International Energy Agency, 2015

The Indonesian government's "One fuel price policy" (*Bahan bakar minyak satu harga)* contains mechanisms to level regional price variations throughout the country. Through the Ministerial Regulation No. 36 of 2016, the reference price for regular gasoline sold under government assignment includes an additional 2% margin (not explicitly represented in Figure 1) as an incentive to cover distribution costs outside the islands of Java, Bali and Madura (International Institute for Sustainable Development [IISD], 2017). During 2015 and 2016, retail price differences for regular gasoline and automotive diesel in the two areas of the country were around 1.5% (100 IDR/l), if present at all.

### *Taxes*

Taxes for fuels include VAT (Pertambahan Pajak Nilai - PPN), which is currently set at 10% (Biro Hukum, Sekretariat Jenderal Kementerian Keuangan RI, 2009), and a provincial motor vehicle fuel tax (Pajak Bahan Bakar Kendaraan Bermotor - PBBKB) at a maximum of 10% of the base price, depending on the region (Direktorat Jenderal Perimbangan Keuangan, 2009).

### *Subsidies*

Transport fuel prices in Indonesia have historically been kept below market rates, associated with a scheme of implicit subsidies to fuel consumption. Fuel subsidies



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in the country have taken different forms but generally result in a difference between a fuel's economic cost and its actual retail price excluding taxes.

The 2015 subsidy reform marked a shift from a system of fixed retail prices with floating subsidies for transport fuels to a system of floating retail prices with fixed subsidies. Direct subsidies for regular gasoline were altogether ended, and a fixed subsidy at 1 000 IDR/l in 2015 and 500 IDR/l in 2016 have been apportioned for automotive diesel, as per discussions with the Ministry of Energy and Mineral Resources.

Furthermore, since the implementation of the 2015 subsidy reform, implicit subsidies, calculated as the difference between the reference price and the retail price excluding taxes, have been progressively decreasing as a consequence of rising retail prices in the country and falling crude prices in the international market.

The current pricing framework also allows for retail prices of regular gasoline to be set higher than the reference price, effectively resulting in no implicit subsidies for certain periods. For instance, in January 2016, retail prices for regular gasoline were around 1 000 IDR/l higher than the reference price.

In 2017, the government did not raise the retail prices of transport fuels despite the increase in international crude prices.

## Electricity

PT PLN, a state-owned company, has monopoly on Indonesia's transmission, distribution, and supply of electricity to the public and is regulated by the Ministry of Energy and Mineral Resources (MoEMR), the Ministry of State-Owned Enterprises (MoSOE), and the Ministry of Finance (MoF) (PwC Indonesia, 2015).

Electricity retail prices are regulated, with tariffs classified based on consumer category, determined by the government and approved by the Parliament. The 2009 Electricity Law no longer required electricity prices to be uniform throughout the country and that the interests of both businesses and the public be considered (Kementerian Energi Dan Sumber Daya Mineral, 2009)

According to the MoEMR Regulation No. 31 of 2014 (as amended by No. 9 of 2015), a mechanism of automatic price adjustments for certain consumer categories is applied based on the exchange rate, inflation, and the Indonesian Crude Price (ICP) (Kementerian Energi Dan Sumber Daya Mineral, 2015).



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Prices for electricity include basic and utilization charges and applicable taxes, where basic charges depend on the level of power installed, and utilization charges are priced progressively according to monthly usage (Damuri, n.d.).

### *Taxes*

Since electricity is considered a strategic good in Indonesia, it is VAT-exempt (except for households exceeding 6.6 kW (Direktorat Jenderal Perimbangan Keuangan, 2012).

### *Subsidies*

Indonesia has been implementing electricity subsidy reforms to gradually reduce the number of subsidy recipients and target subsidies to poor and vulnerable households only. There are 37 consumer classes for electricity tariff in Indonesia, of which 12 are subject to tariff adjustment and 25 are subsidized. The lowest consumer classes in the residential sector are 450 VA and 900 VA.

In January 2017, residential 900-VA consumers were excluded from subsidies, and plans of excluding residential 450-VA consumers from subsidies are also being considered (IISD, 2016).

# Data methodology

## Oil products

Prices for LPG in households refer to 3 kg cylinders and are converted from IDR/kg to IDR/l using a density of 0.542 kg/l. LPG in 3 kg cylinders is subsidized by the government.

Prices for LPG in households in 12 kg cylinders, which are not subsidized by the government, are converted from IDR/kg to IDR/l using a density of 0.542 kg/l.

Prices for LPG for commercial users refer to 50 kg cylinders and converted from IDR/kg to IDR/l using a density of 0.542 kg/l.

## Natural gas

Prices for natural gas for electricity generation are converted from IDR/Mscf to IDR/MWh GCV using a calorific value of 3.131 Mscf/MWh GCV.



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## Energy taxation database methodology

The VAT (*Pertambahan Pajak Nilai - PPN*) does not apply to all energy products. Electricity is VAT-exempt. The applicable rate is only available for transport fuels – diesel and gasoline, which is 10%.

Other taxes are not described.

## Product specifications

| | Automotive diesel | Regular gasoline | LPG |
|---|---|---|---|
| Quality | Minyak Solar | Premium | |
| Octane/Cetane number | >48 | 88 | |
| Density (kg/l) | 0.815 - 0.860 | 0.715 – 0.770 | 0.542 |
| Sulphur content (%) | <0.35 | <0.05 | |
| Lead content (g/l) | Minyak Solar | <0.013 | |

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# Islamic Republic of Iran

## Sources

Prices for oil products are derived from data extracted from the Ministry of Petroleum until 2017 and from various newspaper articles from 2018 onwards.

For years 1970 to 2015, prices for electricity are derived from data extracted from the Ministry of Energy's *Statistical Report on 49 Years of Activities of Iran Electric Power Industry (1967-2015)*. For year 2016, prices for electricity are derived from data extracted from their annual reports *Iran Electric Power Industry.*

## Data methodology

### Oil products

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted averages of the price levels in a given year. Prices in year 2007 refer to the time-weighted average of the price levels between 5 July 2007 and 1 January 2008.

Prices refer to the prices within the quotas set by the Government of Iran. The quota of gasoline decreased from 250 litre/month to 60 litre/month in November 2019. For gasoline, the quota system was abolished on 26 May 2015.

Prices in the database are prices within quota, whereas the Table below shows the prices of oil products sold outside the quota.

| IRR/l | Regular gasoline | Mid-grade gasoline | Automotive diesel |
|---|---|---|---|
| 2007 | 4 000 | 5 000 | |
| 2008 | 4 000 | 5 000 | |
| 2009 | 4 000 | 5 000 | |
| 2010 | 4 115 | 5 115 | |
| 2011 | 7 000 | 8 000 | 3 500 |
| 2012 | 7 000 | 8 000 | 3 500 |
| 2013 | 7 000 | 8 000 | 3 500 |
| 2014 | 9 038 | 10 038 | 4 519 |
| 2015 | 10 000 | 10 397 | 5 000 |



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| IRR/l | Regular gasoline | Mid-grade gasoline | Automotive diesel |
|---|---|---|---|
| 2016 | 10 000 | 10 000 | 5 000 |
| 2017 | 10 000 | 10 000 | 5 000 |
| 2018 | 10 000 | | 5 000 |
| 2019 | 12 575 | | 5 129 |

### Electricity

Prices for electricity in the commercial sector refer to public services.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 92 | 95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Jamaica

## Sources

Prices data come from Ministry of Science, Energy & Technology (MSET).

## Data methodology

### Oil products

Prices are provided on an annual basis by MSET.

Regular gasoline prices refer to “Gas90” from 2004 to 2009 and “E10-90” from 2010 to 2019, which was the mostly used gasoline since 2016.

Other Products for the transport sector refer to “Gas87” from 2004 to 2009 and “E10-87” from 2010 to 2019.

Diesel prices for the transport purposes refer to “ADO” (Automotive Diesel Oil) and Diesel prices for other purposes refer to “ULSD” (Ultra Low Sulphur Diesel Oil).

Yearly prices for 2017 for the different oil products refer to the average between May and December 2017.

## Product specifications

| | Regular gasoline |
|---|---|
| Quality | |
| Octane/Cetane number | 87 |
| Density (kg/l) | |
| Sulphur content (%) | |
| Lead content (g/l) | |



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# Jordan

## Sources

Prices are derived from data extracted from the Ministry of Energy and Mineral Resources' reports.

## Data methodology

### Oil products

Prices are set, and price revisions occur unevenly over time.

Monthly prices are based on the data extracted from the Ministry of Energy and Mineral Resources' reports.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

The price for high-grade gasoline in year 2017 refers to the average of the monthly prices between April 2017 and December 2017. Prices for LPG in households refer to 12.5 kg cylinders and are converted from JOD/kg to JOD/l using a density of 0.562 kg/l.

Prices for year 2022 refer to time-weighted average from January to October 2022.

### Natural Gas

Monthly prices are based on the data extracted from the Ministry of Energy and Mineral Resources' reports.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

Prices for year 2022 refer to time-weighted average from January to October 2022.

### Electricity

Prices for electricity in households refer to the second block tariff for consumptions between 161 and 300 kWh per month.

Prices for electricity in the commercial sector refer to the first block tariff for commercial users with consumptions between 1 and 2 000 kWh per month.



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Prices for electricity in industry refer to the first block tariff for small industries with consumptions between 1 and 10 000 kWh per month.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline | Automotive Diesel | LPG | Kerosene |
|---|---|---|---|---|---|---|
| Quality | | | | Super Diesel | | |
| Octane/Cetane number | 90 | 95 | 98 | | | |
| Density (kg/l) | 0.720-0.775 | 0.720-0.775 | | 0.820-0.845 | 0.562 | 0.750-0.840 |
| Sulphur content (%) | <0.05 | <0.005 | | <0.7 | | <0.2 |
| Lead content (g/l) | <0.005 | <0.005 | | | | |
| GCV (MJ/kg) | | | | | | >42.80 |



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# Kazakhstan

## Sources

For years prior to and including 2011, prices (except for automotive diesel and LPG in households) were submitted by the Agency of Statistics of the Republic of Kazakhstan.

Prices for automotive diesel, LPG in households and natural gas for industry for year 2011 and prices for all energy products for year 2012 onwards are derived from data extracted from the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan.

## National pricing framework

### Oil products

Retail prices for regular gasoline and automotive diesel are currently market-based as the price for AI-92/93 ceased to be regulated since September 2015. With an annual inflation rate of 8.5% in April 2017, gasoline prices for AI-92 increased by 14.8% on average by April 2016. In August 2016, diesel prices were ceased to be regulated and the price rose by 40%. Latest report on energy review prepared by Kazenergy (2019) claims that despite official price liberalization, prices are still regulated by imposing fines on retail stations for anti-competitive pricing practices.

Within Eurasian Economic Union it was decided to create a single energy market by 2025, and unification of tariffs leads to an increase in prices in the domestic market of Kazakhstan. In addition, modernization of the refinery plants in Kazakhstan is mainly implemented from loan funds, which will have to be returned, with an interest rate Kazenergy (2019) claim that despite the current price system pays for modernisation, it does not provide room for additional investment in the refinery in the longer term.

### Electricity

Differentiated tariffs for the zones of the day were abolished in Kazakhstan according to the latest amendments to the Law "On Electric Power", which entered into force on July 24, 2017. Thus, from August 1, 2017, the calculation of electricity consumption is made for legal entities according to the “average” tariff. For individuals who previously used differentiated tariff by the zones of the day, they use tariff differentiated based on volume of consumption. Before these



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amendments there were two time zone tariffs: daily and nightly (AstanaEnergoSbyt, 2018).

There are cap rates for electricity for the group of energy producing organizations with the latest amendments in 2019 adopted for the period 2019-2025 (Order of the acting Minister of Energy of the Republic of Kazakhstan dated September 23, 2019 No. 313). In the latest national energy report Kazenergy (2019), it is stated that the current marginal capacity tariff does not cover the actual fixed costs of the power plants. Additionally, for modernisation or expansion of power plants, there is no market mechanism for capacity price setting (Kazenergy). Thus, financial stability of the power sector is under substantial risk.

According to the World Bank, the creation of a balancing market and a reform of the transmission and distribution of electricity were postponed indefinitely. Instead of utilizing market tools and allowing prices to rise to reflect the underlying supply-demand gap, the Government of Kazakhstan chose to address the situation with strong command and administrative regulation and "manual" management in the electric power industry (World Bank, 2017).

## Taxes

In accordance with the Resolution of the Government of the Republic of Kazakhstan dated December 13, 2019 №928, the amount of excise duty on gasoline and diesel has increased.

| | Gasoline | Diesel |
|---|---|---|
| Wholesale, by producers (July - November) | 24435 | 9300 |
| Wholesale, by producers (December-June) | 24435 | 540 |
| Wholesale by individuals and legal entities | 0 | 0 |
| Retail by producers (July - November) | 24935 | 9360 |
| Retail by producers (December-June) | 24935 | 600 |
| Retail , by individuals and legal entities, use for own production needs | 500 | 60 |
| Import | 24435 | 540 |
| The transfer of excisable goods specified in 5) of Article 279 of the Tax Code, which are the product of processing of goods made on commission (June-October) | 24435 | 9300 |
| The transfer of excisable goods specified in 5) of Article 279 of the Tax Code, which is a product of processing of customer-supplied raw materials (November-May) | 24435 | 540 |



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### Subsidies

An example of direct state investment in the electricity sector is the support to Samruk Energy JSC and its subsidiary KEGOC. KEGOC operates the national power grid, owns and operates all main and interregional transmission lines and masters substations across the country. Also, as implicit subsidies, KEGOC provides transmission tariff discounts to selected customers. In the past, in some years, the aggregate value of these discounts amounted up to 20% of KEGOC's revenue but it is significantly less now (OECD, 2014).

There were also budgetary transfers for ensuring stable electricity supply in the southern regions of Kazakhstan (amounting to USD 37.5 million in 2008). This support was provided for the stable operation of the Zhambyl Power Plant to cover the electric energy shortage in the southern regions during the autumn-winter period. The scheme was aimed at preserving stable electricity prices for consumers in South Kazakhstan by offsetting the cost of the supply of fuel (OECD, 2014).

## Data methodology

### Oil products

Prior to 1996, prices are end-of-year prices. From year 1997 onwards, annual prices are derived as the average of monthly prices in a given year.

For years 2011 to 2013 and 2015, annual prices for automotive diesel are derived as the average of monthly prices in a given year. For years 2014 and 2016 to 2019, monthly prices for automotive diesel refer to the average of the summer and winter specifications for the periods of January 2014 to April 2014, November 2014 to December 2014, January 2016 to May 2016, October 2016 to May 2017, November 2017 to April 2018 and November 2018 to April 2019. Price refer to summer diesel for other months. For periods not mentioned above, automotive diesel prices used in the estimation refer to summer prices only.

Prices for LPG in households are converted from KZT/balloon to KZT/l using a capacity of 0.02 balloon/l.

### Natural Gas

Industrial Natural gas prices are calculated as the average of monthly prices in a given year.



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### Electricity

Prior to 1996, prices are end-of-year prices. From year 1997 onwards, annual prices are derived as the average of monthly prices in a given year.

For year 2015 onwards, prices for electricity in households refer to the tariff of the first level for the population not using electric cookers.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the 14 regions and 4 cities that are not part of regions of Kazakhstan:

Akmola
Aktobe
Almaty region
Atyrau
East Kazakhstan
Zhambyl
Karaganda
Kostanay
Kyzylorda
Mangystau
North Kazakhstan
Pavlodar
Turkistan
West Kazakhstan
Almaty City
Baikonour
Nur-Sultan
Shymkent

For each region the same methodology is used as the for the national values.



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# Product specifications

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 92 | 95 – 96 | 98 |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |

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# Kenya

## Sources

From 2013 to 2019, yearly prices for gasoline, automotive diesel, kerosene and LPG are extracted from the annual *Economic Survey* of the Kenya National Bureau of Statistics (KNBS).

Monthly prices for gasoline, diesel, kerosene, LPG and charcoal are derived from data extracted from the monthly publications *Consumer Price Indices and Inflation Rates* and *Leading Economic Indicators* of the KNBS.

Prices for electricity are derived from data extracted from the Kenya Power and Lighting Company Limited (KPLC), the national utility company.

## National pricing framework

### Oil Products

The retail pricing of Diesel, Super Petrol and Kerosene are regulated in accordance with the Energy regulation of 2010. Prices are reviewed and published by the *Energy & Petroleum Regulatory Authority* (EPRA) the 14th of each month.

Wholesale price is calculated using the following formula :

$$P_w = C_u(1 + L_p + L_d) + K\,(1 + L_d) + m_w$$

With :

$P_w$ = The maximum wholesale price for super petrol kerosene or automotive diesel;

$C_u$= t he weighted average cost in shillings per litre ex the Kenya Petroleum Refineries Limited (KPRL) and ex Kipevu Oil Storage Facility (KOSF);

$K$ = the transportation cost from Mombasa to the nearest wholesale depot, which is made up of x percent of pipeline tariff ($K_{pt}$) and (100 – x) percent of road bridging cost ($K_{rd}$) as set out in the First Schedule;

$L_p$= the allowed losses in the pipeline as set out in the Second Schedule;

$L_d$= the allowed losses in the depot as set out in the Second Schedule;

$m_w$= the allowed oil marketing company's gross wholesale margin as set out in the Third Schedule.



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To calculate the retail price, the following formula is used :

$$P_r = P_w + m_r + z$$

Where :

$P_r$ = the maximum retail pump price of super petrol, regular petrol, kerosene or Automotive diesel applicable, in shillings per litre;

$m_r$= the allowed maximum retail gross margin as set out in the Third Schedule;

$z$ = the delivery rate from the nearest wholesale depot to a retail dispensing site in Shillings per litre as set out in the First Schedule.

While determining the wholesale and retail prices for petroleum products, Economic Regulations incorporates the costs as indicated in the first and second schedule of the Energy (Petroleum pricing) Regulations, 2010.

### Electricity

Tariffs are published by the *Energy & Petroleum Regulatory Authority* (EPRA) (formerly the Energy Regulatory Commission (ERC)).

## Data methodology

### Oil products

Annual prices between 2013 and 2019 are retrieved from the *Economic Survey* of the KNBS; for 2020 these are derived as the average of the monthly prices from January to November; for 2021 these are derived as the average of the monthly prices from February to December.

Monthly prices are retrieved directly from the monthly reports of the KNBS.

Prices for LPG for households refer to 13 kg cylinders used for cooking. Prices are converted from KES/cylinder to KES/l using a density of 0.542 kg/l.

### Coal

Prices refer to charcoal. Until January 2020, the unit of measure for charcoal was 4kg. In February 2020, the unit of measure changed to 1kg.

Monthly prices are retrieved from the monthly reports of the KNBS. Yearly prices are the time-weighted average of the months for which data are available.



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## Electricity

Prices are derived as the total revenue divided by the sales volume for each sector in a given fiscal year. Calendar year values are calculated as time-weighted average of fiscal year values. Prices for 2021 refer to the first half of the calendar year, January to June.

Kenya has undergone several power tariff recategorizations over the years. The Table below shows the specific tariff categories KPLC uses that correspond to the sector of the prices presented here.

### *Tariff categorization of KPLC*

| Period / fiscal year | Residential | Commercial | Industrial |
|---|---|---|---|
| 1999/2000 – 2003/2004 | A | B | C |
| 2004/2005 – 2007/2008 | DC | SC | C |
| 2008/2009 – | DC | SC | CI |

The tariff categories are defined in the table below:

### *Definition of tariff categories:*

| Tariff category | Consumer type | Consumption range per month (kWh) |
|---|---|---|
| A | Domestic | 0 to 7 000 |
| 2004/2005 – 2007/2008 | Small commercial and industrial | < = 7 000 |
| B | Medium commercial and industrial | 7 000 to 100 000 |
| C | Large commercial and industrial | > 100 000 |
| DC | Domestic | < = 15 000 |
| SC | Small commercial | < = 15 000 |
| CI | Commercial and industrial | > 15 000 |



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# Product specifications

| | Mid-grade gasoline | LPG for cooking |
|---|---|---|
| Quality | | |
| Octane/Cetane number | >=93 | |
| Density (kg/l) | | 0.542 |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Kosovo

## Sources

Prices for electricity are derived from data extracted from the Eurostat website.

## Data methodology

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.



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# Kyrgyzstan

## Sources

For years 2012 to 2016, oil product prices (except for mid-grade gasoline) are extracted from the National Statistical Committee of the Kyrgyz Republic. From year 2016 onwards, prices for oil products are derived from data extracted from the National Statistical Committee of the Kyrgyz Republic.

Prices for electricity are extracted from the National Statistical Committee of the Kyrgyz Republic.

Prices for natural gas are derived from data extracted from the National Statistical Committee of the Kyrgyz Republic.

## National pricing framework

### Oil products

Virtually all oil products are imported from Russia. Market is competitive. Prices are not regulated.

### Natural gas

Before December 2013, KyrgyzGaz owned and operated the network, with more than 83% in government ownership. Now Gazprom is the owner and operator of the gas transmission and distribution system in Kyrgyzstan through its subsidiary Gazprom Kyrgyzstan. Under the Agreement Between the Government of the Russian Federation and the Government of the Kyrgyz Republic on Cooperation in the Area of Transportation, Distribution and Sale of Natural Gas in the Territory of the Kyrgyz Republic and Russian parties concluded a sale agreement, which was a base for transfer of property to Russian party by direct sale of 100% share for 1 (one) USD because of considerable debts of Kyrgyzgas JSC (40 million USD). Following the Agreement, Gazprom should invest at least RUB 20 billion in the gas infrastructure upgrade and reconstruction in Kyrgyzstan within the next five years upon signing of the agreement.

All gas in Kyrgyzstan is imported by Gasprom Kyrgyzstan and is subject to contractual agreements.

Under the agreement with Gasprom the Kyrgyz party guaranteed to set gas prices equal to the level of the company’s costs, associated with its operation, and the internal rate of return no less than 12% in real terms (without inflation) in the period



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of 25 years. The Kyrgyz party has the right to review prices for gas to be sold by the company on a regular basis (no less than once a year).

## Power

Kyrgyz republic is supplied by a system combining a large hydroelectric plants and thermal power plants. Combined power plants provide electricity and heat to heat grids for domestic heating and hot water.

In 2000 the Kyrgyz Government initiated unbundling of the system and formation of new joint stock companies. Unbundling of the Kyrgyz power sector resulted in formation of six power companies that remained natural monopolies: national generation company, national transmission company, and four distribution companies. One district heating company (JSC Bishkekteploset) and a small hydropower company (JSC Chakan GES) were also established. The Kyrgyz Government owns almost 94% of shares in these companies.

Four state-owned distribution companies were formed:

SeverElectro (Bishkek, Chui and Talas oblasts)
VostokElectro (Issyk-Kul and Naryn Oblasts)
Oshelectro (Osh Oblast and Batken Oblasts)
Jalal-Abadelectro (Jalal-Abad Oblast)

The electricity sector has been legally unbundled but there is no market driven competition in Kyrgyzstan; all tariffs were set by the Department for Regulation of Fuel and Energy Complex under the Government of the Kyrgyz Republic (the Energy Regulator). The Electricity Law defines the principles of tariffs setting.

A two-tiered residential tariff was implemented in 2015, resulting in a decrease in average consumption and increase in the effect of cross-subsidisiation, with a price increase more significant for non-residential consumers. Indeed, the price for the first tier for residential consumer is significantly lower than the recovery cost. Tariffs are set by the regulator base on a financial analysis of the needs of market operators. Most of the assets are already totally deprecated today and that method does not encourage investment.

The there is a feed-in-tariff policy incentivising renewable supply, by applying a coefficient of 1.3 for all renewable energy sources since 2019 (order “On approval of the Methodology of calculation of tariffs for electricity supplied by renewable energy sources” (August 6, 2015 NC № 1)).



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### Coal

Coal is the second most important source of domestic energy supply.

The coal sector in Kyrgyzstan is managed by KyrgyzKomur, a state-owned enterprise established in 2012 that acts as an umbrella organisation for 23 smaller private coal companies. Seven other companies engage in seasonal coal production during the autumn-winter period.

Prices are not regulated.

However, in November 2017 the Kyrgyz Government introduced state regulation of coal prices for 90 days to restrain growth of prices during the winter period and facilitate stable supply of coal (Resolution #745 dated November 16, 2017). In implementation of the Government Resolution, the State Agency for Antimonopoly Regulation sets the winter months' ceiling for retail price for different types of coal for each region and for Bishkek and Osh cities.

### Taxes

Electricity, heating and natural gas tariffs for non-residential customers are subject to 12% VAT, while residential customers are exempted from VAT. Imported coal also subject to a 12% VAT, while domestically produced coal is subject to 12% VAT, a 2% mineral resources tax and a 1% sales tax (for cash sales only). Import of oil products is subject to 12% VAT and 9% excise taxes (5000 KG Som/1tonne of gasoline).

## Data methodology

### Oil products

From year 2016 onwards, annual prices are derived as the average of monthly prices in a given year.

### Electricity

Prices for electricity in households refer to the basic tariff.

### Natural gas

Monthly expenditures per person for natural gas in households are added up to find annual expenditures per person.



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Annual prices are then estimated based on consumption data from the IEA's World Energy Balances 2018 edition and population data from World Development Indicators, The World Bank, Washington, D.C., 2018.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 80 | 95 |
| Density (kg/l) | 0.72-0.78 | 0.72-0.78 |
| Sulphur content (%) | 0.05 | 0.05 |
| Lead content (g/l) | 0.013 | 0.013 |



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# Lao People's Democratic Republic

## Sources

Prices for Diesel and Gasoline are derived from data published by the Lao State Fuel Company. Prices for the remaining energy products are submitted by the Ministry of Energy and Mines (MEM).

## Data methodology

### Oil products

Weekly prices for Diesel and Gasoline are estimated as the time-weighted average of the daily price levels reported by the Lao State Fuel Company for Vientiane Capital.

Annual prices are estimated as the average of the daily prices in a given year.

Diesel and Gasoline prices for year 2000 refer to the average between September and December 2000.

For LPG and Heavy Fuel Oil, annual prices are submitted by the MEM and refer to the average prices in Vientiane Capital.

### Coal

Prices for steam coal refer to wholesale prices.

### Electricity

From 2016 onwards, annual prices for Electricity are submitted by Electricite du Laos.

For residential, prices refer to the *151-300 kWh* level. For services, prices refer to *General business level*. For industry, prices refer to *Industry* level.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |



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| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Octane/Cetane number | 91 | 95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |

| | Steam coal |
|---|---|
| Quality | |
| Volatile matter (%) | 25.28 |
| Ash content (%) | 24.48 |
| Moisture content (%) | 37.32 |
| Sulphur content (%) | |



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# Lesotho

## Sources

Oils products prices are derived from *Bureau of Statistics (BOS) until 2018* and *Petroleum* Fund from 2019 onwards.

## Data methodology

### Oil products

Between 2009 and 2018, monthly prices are retrived directly from the reports published by the Bureau of Statistics.

From 2019 onwards, weekly prices are estimated as the time-weighted average of the daily price levels. The later are based on the price revision reports published by the Petroleum Fund.

Annual prices are estimated as the time-weighted average of the monthly price levels in a given year. From 2019 onwards, annual prices are estimated as the time-weighted average of the daily price levels in a given year.

The diesel refers to 500ppm until 2017, and 50 ppm after 2017 to reflect the price of the most sold product every year.

There are two fuels classified "medium-grade gasoline": RON 93 and RON 95. Price shown in the database refer to RON 93 while “Other-Transport” product is RON 95.

The prices shown in the database for Kerosene for Residential users refer to “Illuminating Paraffin”. The prices of this product are presented as wholesale prices, excluding VAT.



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# Product specifications

| | Mid-grade gasoline | Other Mid-grade gasoline | Automotive Diesel | Kerosene |
|---|---|---|---|---|
| Quality | 93 | 95 | | Paraffin |
| Octane/Cetane number | | | | |
| Density (kg/l) | | | | |
| Sulphur content (%) | | | | |
| Lead content (g/l) | | | 500ppm (until 2017), 50ppm (from2017) | |



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# Libya

## Sources

Prices for oil products are extracted from the annual Statistical books of the Bureau of Statistics and Census Libya.

### Oil products

Prices for LPG refer to the 15kg cylinder.



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# Madagascar

## Sources

Prices for oil products are extracted from the *Office Malgache des Hydrocarbures* (OMH), which is the authority responsible for the regulation of oil prices under the supervision of the Ministry of Energy and Hydrocarbons.

## Data methodology

### Oil products

Maximum Pump prices (PMAP) are set by OMH. Price revisions occurred unevenly over time until 2017. Since then, an automatic mechanism for price adjustment was established, and revisions are performed monthly at the 1st day of every month.

Weekly prices are estimated as the time-weighted average of the daily PMAP price levels published by the OMH.

Annual prices are the time-weighted average of the daily price levels.

## Product specifications

| | Mid-grade gasoline | Kerosene |
|---|---|---|
| Quality | | *Pétrole Lampant* |
| Octane/Cetane number | 95 | |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Malawi

## Sources

Oil products prices are taken from *Department of Energy affairs* and *Malawi Energy Regulatory Authority* (MERA). Electricity prices are derived from *Malawi national statistical office* Yearbooks and Quarterly Statistical Bulletins.

## Data methodology

### Oil Products

Weekly prices are calculated as the time-weighted average of the daily price levels.

Prices for LPG for households are converted from MK/kg to MK/l using a density of 0.542 kg/l.

### Electricity

Monthly prices for residential consumption refer to the ratio between electricity sales to domestic consumers and energy sold on a monthly basis.

Yearly prices for residential consumption refer to the ratio between electricity sales to domestic consumers and energy sold on a yearly basis.

## Product specifications

| | Regular gasoline |
|---|---|
| Quality | |
| Octane/Cetane number | 91 |
| Density (kg/l) | |
| Sulphur content (%) | |
| Lead content (g/l) | |



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# Malaysia

## Sources

From years 1991 to 2014, prices for oil products are derived from data extracted from the Malaysia Energy Information Hub (MEIH), which is managed by the Energy Commission of Malaysia. From 2015 onwards, prices for oil products are derived from data extracted from the Ministry of Domestic Trade and Consumer Affairs of Malaysia.

For year 2010, prices for electricity are derived from data extracted from the MEIH. From year 2011 onwards, prices are derived from data extracted from the *Malaysia Energy Statistics Handbook* published by the Energy Commission of Malaysia.

Natural gas to power sector prices between 2010 and 2014 are retrieved from the latter source. Prices from 2015 onwards are derived from the trends in fuel prices published by the Energy Commission of Malaysia.

## Data methodology

### Oil products

Prices are set, and price revisions occur unevenly over time.

Weekly prices are estimated as the time-weighted average of the daily price levels.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

Prices for LPG for 2019 are prices from January to May 2019.

### Natural Gas

From 2015 onwards, monthly prices for natural gas to power sector are retrieved directly from the publication of the Energy Commision from Malaysia.

Yearly prices up to 2014 are provided by the *Malaysia Energy Statistcs Handbook*. From 2015 onwards, yearly prices are estimated as the time-weighted average of the monthly price levels.



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### Electricity

Prices for electricity refer to those of *Tenaga Nasional Berhad* (TNB), the sole electric utility company serving peninsular Malaysia, where the majority of the population is concentrated.

## Product specifications

| | Regular unleaded gasoline | Mid-grade gasoline | High-grade gasoline |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 92 | 95 | 97 |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Mali

## Sources

Oil products and coal prices are retrieved from the annual release “Mercuriale des prix” provided by the Ministry of Finance.

## Data methodology

### Oil Products

Bamako is taken as a reference for oil products prices.



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# Malta

## Sources

Prices for oil products are derived from weekly data published in the European Commission's Weekly Oil Bulletin.

Prices for electricity are derived from data extracted from the Eurostat website.

## Data methodology

Conversion to Euro: Prices and taxes prior to 1 January 2008, the date of entry into the Economic and Monetary Union (EMU), have been converted from Maltese liri using the appropriate irrevocable conversion rate equal to 0.4293 MTL/EUR.

This methodology facilitates comparisons within a country over time and ensures that the historical evolution (i.e. growth rates) is preserved. However, pre-EMU Euro are a notional unit and are not normally suitable to form area aggregates or to carry out cross-country comparisons.

### Oil products

Prices shown are the prices most frequently charged, based on a weighted average.

Prices for kerosene refer to delivered consumer prices for deliveries of 2 000 to 5 000 litres (for offtakes of less than 2 000 litres the industrial sector may be taken into consideration).

Prices for residual fuel oil refer to high-sulphur fuel oil.

Annual prices are derived as the average of the weekly data in a given year.

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.

From the source, the derived price for 2007 refers to the price of the second semester.



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# Product specifications

| | Automotive diesel | Mid-grade gasoline | Kerosene |
|---|---|---|---|
| Quality | Automotive gas oil | Euro-super 95 | Heating gas oil |
| Octane/Cetane number | | 95 | |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Mauritania

## Sources

Prices are derived from data extracted from the monthly and annual publications of the *Office National de la Statistique* (ONS).

## Data methodology

Prices refer to the city of Nouakchott.

### Oil products

Prices for LPG in households refer to 12.5 kg cylinders and are converted from MRU/kg to MRU/l using a density of 0.542 kg/l.

Monthly prices are retrieved directly from the publications of the Office National de la Statistique.

Yearly prices are estimated as the average of the monthly price levels.

Prices for 2022 refer to the prices from January to July 2022.

### Electricity

Prices refer to the consumption band *Tranche 5A*.

Monthly prices are retrieved directly from the publications of the Office National de la Statistique.

Yearly prices are estimated as the average of the monthly price levels.

## Product specifications

| | LPG |
|---|---|
| Quality | |
| Octane/Cetane number | |
| Density (kg/l) | 0.542 |
| Sulphur content (%) | |
| Lead content (g/l) | |



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# Mauritius

## Sources

From 2012 onwards, Gasoline and diesel prices are extracted from *State Trading Corporation Mauritius* (STC). All other pricesare derived from data extracted from Statistics Mauritius (under the aegis of the Ministry of Finance and Economic Development).

## Data methodology

### Oil products

Prices for LPG in households refer to 12 kg cylinders and are converted from MUR/kg to MUR/l using a density of 0.542 kg/l.

Prices for LPG in transport are converted from MUR/kg to MUR/l using a density of 0.542 kg/l.

Prices for residual fuel oil are converted from MUR/l to MUR/tonne using a specific volume of 1 059 l/tonne.

Prices for residual fuel oil refer to the sales price of the State Trading Corporation (STC), which was set up by the Act of Parliament of October 1982 (amended in 1988), to be the trading arm of the Government of Mauritius. It operates under the aegis of the Ministry of Industry, Commerce and Consumer Protection. The STC is responsible for importing, among others, all petroleum products traded in the country.

From 2012 onwards, weekly prices for gasoline and dieselrefer to time-weighted average of daily price levels and yearly prices are the average of the weekly prices in a given year.

### Electricity

Prior to year 2002, prices exclude VAT and meter rent.

From 2012 onwards, weekly prices for gasoline and diesel refer to the time-weighted average of daily price levels and yearly prices are the average of the weekly prices in a given year.



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# Product specifications

| | Mid-grade gasoline | LPG | Residual fuel oil |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 95 | | |
| Density (kg/l) | | 0.542 | 0.944 |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Republic of Moldova

## Sources

For years 2001 to 2010, prices for oil products are extracted from the National Bureau of Statistics' publication *Preţurile în Republica Moldova 2001-2010*. For years 2011 onwards, prices for oil products are extracted from the National Agency for Energy Regulation (ANRE).

Prices for electricity and natural gas are derived from data extracted from the Eurostat website.

## National pricing framework

### Oil products

The main national structures in the energy sector are the Ministry of Economy and Infrastructure, the central body in the energy sector, in charge of developing and implementing energy policy in the Republic of Moldova and The National Agency for Energy Regulation (ANRE), the single authority for regulating the energy sector of Moldova equipped with countrywide regulatory competences in the gas, electricity, heat and oil sectors. ANRE is by law set up as an institution legally distinct and functionally independent from any other public entity. Its main responsibilities are licensing and set regulated prices and tariffs.

The Republic of Moldova is a member of the Energy Community and is therefore committed to implement the core EU legislation in electricity, gas, environment, competition, renewable energy, energy efficiency, oil and statistics.

Until the end of 2015, activity on oil market was regulated by licensing the activity and capping the profit margin for the petroleum products trading activity at the level of 10%. Within this limit, prices for petroleum products had to be applied independently by market operators.

Since amendments to the Law on the Petroleum Products Market (Law No. 461, 2001) entered into force on 31 March 2016, the regulation prohibited commercialisation of petroleum products at a price that exceeded the price ceiling set and published by ANRE. The price was set every two weeks for petroleum products according to *the Platts FOB MED quotations, the tax component and the specific trade margin*, regulated for each type of product. The competence of ANRE has excluded the prerogative of capping the retail price of liquefied petroleum gas (LPG).



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However, since 15 March 2019, the new ANRE methodology returns the price setting of fuel by the operators themselves, taking into account their costs and an annual rate of return of up to 10%. Changes in the methodology were made in connection with the adoption of the relevant amendments to the Law on the Petroleum Products Market earlier by the Parliament, due to the big discrepancies on the market.

## Natural gas, electricity and heat

Consumers may choose between buying natural gas and electricity at deregulated price or at regulated price. In fact most of the consumers are still supplied under the regulated price. The ANRE is responsible for approving DSOs and TSOs components of the regulated price for gas, electricity and heating,that are published in the Official Monitor. The main principles of price/tariff methodologies are to ensure a reliable supply, an efficient operation and a financial sustainability of the operators.

## Taxes

The standard VAT rate is set at 20%, however the Moldova Tax Code sets a reduced 8% VAT for the delivery of natural gas and LPG, and electricity and heat deliveries to households are exempted from VAT. Energy sector is not subject to any specific taxation except an excise tax on consumption of gasoline, diesel and liquefied petroleum gas (LPG).

### *Transport fuels excise tax*

| From | To | Diesel (MDL/tonne) | Gasoline (MDL/tonne) | LPG (MDL/tonne) |
|---|---|---|---|---|
| 01.01.17 | 31.12.17 | 1926 | 4560 | .. |
| 01.01.18 | 31.12.18 | 2092 | 4961 | 3124 |
| 01.01.19 | 31.12.19 | 2280 | 5414 | 3406 |
| 01.01.20 | 31.12.20 | 2508 | 5960 | 3580 |
| 01.01.21 | 31.12.21 | 2734 | 6496 | 3759 |
| 01.01.22 | 31.12.22 | 2980 | 7082 | 3947 |

## Subsidies

The Republic of Moldova has eliminated direct consumer subsidies and does not pursue a pro-subsidy policy, notwithstanding special VAT rates and excise taxes for some products to support low-income households.



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# Data methodology

The data presented do not include the districts from the left side of the river Nistru and municipality Bender.

## Oil products

For years 2011 onwards, oil product prices are VAT-inclusive. Prices for gasoline refer to the weighted average of three gasoline grades' (A98, A95 and A92) prices.

## Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.

## Natural gas

From year 2007 onwards, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ). Annual prices are the average of the biannual data.

# References

National Agency for Energy Regulation (ANRE), *Annual Report for 2016*, retrieved from http://anre.md/files/raport/Raport%20anual%20de%20activitate_2016.pdf.

Energy Community Secretariat, *Implementation Report 2017*, retrieved from https://www.energy-community.org/implementation/IR2017.html.

National Bank of the Republic of Moldova, *Official Exchange Rates*, retrieved from http://www.bnm.md/ro/content/ratele-de-schimb.

*Law on Tax Code, No. 1163-XIII of 24.04.1997 (2022),* State Tax Service of the Republic of Moldova, retrieved from https://sfs.md/uploads/files/Docs/tax-code/Tax%20Code%202022.pdf

*Law on Energy, No.174 (2017),* Parliament of the Republic of Moldova, retrieved from http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=371969.

*Law on the Petroleum Products Market, No. 461 (2001),* Parliament of the Republic of Moldova, retrieved from http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=368808.

*Law on Electricity, No. 107 (2016),* Parliament of the Republic of Moldova, retrieved from http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=365659.

*Law on Gas, No. 108 (2016),* Parliament of the Republic of Moldova, retrieved from http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=365664.



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*Law on the Tax Code, No. 1 163 XIII (1997),* Parliament of the Republic of Moldova, retrieved from http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=326971.

National Agency for Energy Regulation (ANRE)*, Price Methodology for Petroleum Products* (2016), retrieved from http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=364822.

National Agency for Energy Regulation (ANRE), *Tariff Methodologies for Electricity, Gas, Heat*, retrieved from http://anre.md/ro/acte-normative.

World Bank, District Heating and Electricity Tariff and Affordability Analysis Report No: ACS 13855 (2015).

OECD and EaP GREEN Programme*, Inventory of energy subsidies in the EU Eastern Partnership* countries/ Moldova Overview, 2018.

Moldova Tax Code (Law No. 1 163 XIII, 1997)



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# Mongolia

## Sources

Prices are extracted from the National Bureau of Statistics' publication *Mongolian Statistical Yearbook* and from the weekly report of the Mongolian Statistical Information Service.

## Data methodology

### Oil Products

Prices refer to the annual average for the region of Ulaanbaatar. Prices for gasoline and diesel for year 2022 refer to average from January to October 2022.

### Electricity

Prices refer to the annual average for the region of Ulaanbaatar.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 80 | 93 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Montenegro

## Sources

Prices for electricity are derived from data extracted from the Eurostat website.

## Data methodology

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DD for households (annual consumption: 5 000 kWh – 15 000 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.



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# Morocco

## Sources

Prices are submitted by the Ministry of Energy, Mines, and Sustainable Development.

## National pricing framework

### Oil products

Prices for oil products were set by the government until 1 December 2015. Price revisions were infrequent between 2000 and 2013. Prices were revised on a monthly basis between 16 January and 31 December 2014 (*Arreté du Chef du gouvernement n 3.01.14*) and twice a month between 1 January and 30 November 2015 (*Accord d'homologation des prix de produits pétroliers*). Prices for automotive diesel, mid-grade gasoline and fuel oil were fully liberalized on 1 December 2015.

Prices for LPG for households are fixed by the government and have remained stable since 2004.

#### *Taxes*

Oil products in Morocco are subject to VAT (*Taxe sur la valeur ajouté - TVA*), which was introduced in the country in 2985. Fuels for transport are additionally subject to an internal consumption tax (*Taxe intérieure de consummation – TIC*), levied at fixed rate in MAD/l.

#### *Subsidies*

Prior to 16 January 2014, oil product prices were subsidized by the government through a compensation fund (*caisse de compensation*).

On 16 January 2014, unit subsidies were eliminated for mid-grade gasoline and fuel oil. Automotive diesel subsidies were progressively reduced throughout the year and eliminated on 31 December 2014.

LPG subsidies are still in place in Morocco as of January 2018.



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### Electricity

Prices for electricity in households are set by the government through decrees, which fix the applicable tariffs for electricity sales to residential users throughout the country.

## Data methodology

### Oil products

Prices for residual fuel oil in industry are converted from MAD/l to MAD/tonne using a specific volume of 1 059 l/tonne.

### Electricity

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

Annual prices are estimated based on the decrees announced on 14 February 2006 (No. 310-06), 25 February 2009 (No. 528-09), and 21 July 2014 (No. 2451-14) for consumption of 170 kWh.

## Product specifications

| | Mid-grade gasoline | Automotive diesel | LPG | Residual fuel oil |
|---|---|---|---|---|
| Quality | | | Butane | |
| Octane/Cetane number | 95 | 46 | | |
| Density (kg/l) | 0.72 – 0.775 | 0.820 – 0.860 | 0.577 | 0.944 |
| Sulphur content (%) | 0.005 | 0.001 | | |
| Lead content (g/l) | ≤.005 | | | |



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# Mozambique

## Sources

Prices for oil products and electricity are derived from data extracted from the media releases of the Energy Authority Regulator of Mozambique (ARENE).

### Oil products

Prices are set, and price revisions occur occasionally via decree communicated on ARENE website.

Yearly prices are estimated as the time-weighted average of the daily price levels in a given year.

## Product specifications

| | Mid-grade gasoline | Automotive diesel | LPG |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 95 | | |
| Density (kg/l) | 0.71 – 0.76 | 0.801 – 0.847 | 0.5 – 0.55 |
| Sulphur content (%) | 0.005 | 0.001 | |
| Lead content (g/l) | ≤.005 | | |



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# Namibia

## Sources

Prices for oil products are derived from data extracted from the monthly media releases of the Ministry of Mines and Energy of Namibia.

### Oil products

Prices are set, and price revisions occur on a monthly basis.

Prices refer to Walvis-Bay ex-pump prices.

Weekly prices are derived as the time-weighted average of the daily price levels. Yearly prices are estimated as the time-weighted average of the daily price levels in a given year.

Prices for 2015 refer to the average of the monthly prices between February and December 2015.

## Product specifications

| | Mid-grade gasoline | Automotive diesel |
|---|---|---|
| Quality | | 50 ppm/500ppm |
| Octane/Cetane number | 95 | |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Nepal

## Sources

Data for oil product are taken from *Nepal Oil Corporation limited*. From September 2019, data are retrieved from the Annual Economic Survey, published by *Ministry of Finance from the Government of Nepal*.

Data for electricity are taken from *Nepal Electricity Authority*.

## Data methodology

### Oil products

Weekly prices are estimated as the time-weighted average of the daily price levels.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

2017 Prices refer to the monthly prices for November and December 2017.

2022 Prices refer to the average prices from January to October 2022.

Prices for LPG are converted from NPR/cyl to NPR/kg using the LPG mass per cylinder: 12.8 kg and from NPR/kg to NPR/litre using a density of 0.562 kg/l.

### Electricity

Residential, commercial and industrial prices come from Nepal Electricity Authority annual reports. Annual prices are the division of sales revenue for each sector by electricity sold for each sector.

## Product specifications

| | Regular gasoline | Automotive diesel | LPG Households |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | | | |
| Density (kg/l) | | | 0.562 |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Nicaragua

## Sources

Prices for Diesel and Gasoline are derived from data extracted from the Guatemalan Ministry of Energy and Mines (MEM) for countries in Central America. Prices for Electricity and LPG are derived from the monthly bulletins on average prices of basic needs (*Canasta Básica Mensual*) published by the Nicaragua Statistical Office, *Instituto Nacional de Información de Desarrollo* (INIDE).

## Data methodology

### Oil products

Monthly prices for Diesel and Gasoline are retrieved directly from the data reported by the Guatemalan Ministry of Energy and Mines. Monthly prices for LPG are retrieved from the monthly publications of INIDE.

Annual prices are derived as the average of the monthly prices in a given year.

Prices are converted from USD/l to NIO/l using exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2021.

LPG prices for household users refers to the average price of 12 kg cylinders. Prices are converted from NIC/kg to NIC/l using a density of 0.542 kg/l.

### Electricity

Monthly prices are retrieved from the monthly publications of INIDE, referring to the average price of 100 kWh.

Annual prices are derived as the average of the monthly prices in a given year.



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# Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 88 | >=95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Niger

## Sources

Prices are derived from data extracted from the *Société Nigérienne des Produits Pétroliers* (SONIDEP).

## Data methodology

### Oil products

Weekly prices are estimated as the time-weighted average of the daily prices.

Annual prices are derived as the average of the daily prices in a given year.

Prices for automotive diesel and kerosene for year 2001 refer to the monthly prices between August and December 2001.

## Product specifications

| | Regular gasoline | Kerosene | LPG |
|---|---|---|---|
| Quality | Super sans plomb | Pétrole Lampant | Gaz Domestique |
| Octane/Cetane number | | | |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Nigeria

## Sources

Prices are derived from data extracted from the National Bureau of Statistics (NBS).

Sub-national transport fuel prices are derived from data extracted from the NBS.

## Data methodology

### Oil products

Transport fuel prices are collected by the NBS across all the 774 local governments in the 37 states and the Federal Capital Territory from over 10 000 respondents and locations. Prices reflect actual prices paid by consumers, which are significantly higher than the official retail prices set by the Petroleum Product Pricing Regulatory Agency (PPPRA). Prices in a given state are the average of the surveyed prices in that state. Annual national average prices are derived as the average of the monthly state prices.

The price of regular gasoline in year 2014 refers to the average of the monthly prices between June and December 2014. The price of automotive diesel in year 2015 refers to the average of the monthly prices between June and December 2015.

Prices for 2022 refer to the average of the monthly prices between January and September 2022.

Prices for LPG in households refer to 12.5 kg cylinders and are converted from NGN/kg to NGN/l using a density of 0.542 kg/l.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the six zones in Nigeria, as shown below.

North West:

Jigawa

Kaduna

Kano

Katsina



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Kebbi
Sokoto
Zamfara

North East:

Adamawa
Bauchi
Borno
Gombe
Taraba
Yobe

North Central:

Abuja
Benue
Kogi
Kwara
Nassarawa
Niger
Plateau

South West:

Ekiti
Lagos
Ogun
Ondo
Osun
Oyo

South East:

Abia
Anambra
Ebonyi
Enugu



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Imo

South South:

Akwa Ibom

Bayelsa

Cross River

Delta

Edo

Rivers

Sub-national transport fuel prices are derived as the average of the respective states' monthly prices, as published by NBS.

Sub-national transport fuel prices for regular gasoline in year 2014 refer to the average of the monthly prices between June and December 2014. Prices of automotive diesel in year 2015 refer to the average of the monthly prices between June and December 2015.

Sub-national transport fuel prices for 2022 refer to the average of the monthly prices between January and September 2022.

## Product specifications

| | Regular gasoline | LPG |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 90 | |
| Density (kg/l) | | 0.542 |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Republic of North Macedonia

## Sources

Prices for electricity and natural gas are derived from data extracted from the Eurostat website.

## Data methodology

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the bi-annual data.

From the source, the derived price in year 2012 refers to the price of the second semester.

### Natural gas

From year 2007 onwards, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ).

Annual prices are the average of the biannual data.



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# Oman

## Sources

Up until 2017, prices are derived from data extracted from the Ministry of Oil and Gas. From 2018 onwards, prices are derived from data extracted from the National Subsidy System.

## National pricing framework

### Oil products

Since liberalisation of oil market, Oman government set up the National Subsidy System (NSS) to support Omani citizens. The subsidy is applicable to citizens and fishermen above 18 that own a vehicle and have a monthly income not exceeding 950 OMR. The mechanism ensures to not pay more than 0.18 OMR/l of RON 91 gasoline in the monthly limit of 200 litres. If the monthly price exceeds 0.18 OMR/l, the subsidy is the value minus 0.18 OMR/l; if the price is under that threshold, the subsidy is zero.

Average RON 91 gasoline price in 2018 was 0.20 OMR/l. Nearly 350 000 people subscribed to the scheme as of en 2019.

## Data methodology

### Oil products

Monthly prices are retrieved directly from the national sources – from the Ministry of Oil and Gas until 2017 and from the National Subsidy System from 2018 onwards.

Annual prices are derived as the average of monthly prices in a given year.

Prices for 2022 refer to the average of the monthly prices between January and October 2022.



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# Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 91 | 95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |

# References

National Subsidy System, retrieved 11/01/2021, https://nss.gov.om/site/about?ln=en



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# Pakistan

## Sources

Up until 2011, prices for oil products and fuelwood are derived from data extracted from the Ministry of Petroleum and Natural Resources and Hydrocarbon Development Institute of Pakistan's, *Pakistan Energy Yearbook 2016.* From 2012 onwards, prices for oil products and fuelwood for households are derived from data extracted from the Pakistan Bureau of Statistics' *Monthly Price Indices* publication.

Natural gas prices are derived from the *Oil and Gas Regulatory Authority.*

Electricity prices are derived from National Electric Power Regulatory Authority (NEPRA).

Sub-national transport fuel prices are derived from data extracted from the Pakistan Bureau of Statistics' *Monthly Price Indices* publication.

## Data methodology

### Oil products

Prices are set, and price revisions occur unevenly over time.

From 2005 to 2011, oil products monthly and yearly prices are estimated as the time-weighted average of the daily price levels, using the price revisions in a given year.Yearly prices in year 2005 refer to the time-weighted average of the price levels between 1 July 2005 and 1 January 2006.

From 2012 onwards, monthly prices are retrieved directly from the Pakistan Bureau of Statistics' *Monthly Price Indices* publication and annual prices are estimated as the average of the monthly prices.

From 2020 onwards, the monthly prices were retrieved from *Monthly Price Indices (2015-16)* publication, replacing the *Monthly Price Indices (2007-08)* publication.

Prices for LPG for households refer to 11 kg cylinders and are converted from PKR/kg to PKR/l using a density of 0.542 kg/l until 2019. From 2020 onwards, the prices refer to 11,67 kg cylinders, following the information presented in the *Monthly Price Indices (2015-16)* publication using a density of 0.542 kg/l.



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### Natural gas

Prices are set, and price revisions occur unevenly over time. Prices exclude General Sales Tax (GST).

Weekly prices are estimated as the time-weighted average of the daily price levels, based on the price revisions in a given year.

Prices for households refer to the consumption band between 1.77 to 3.55 $Mft^3$ per month (from 22 to 44 GJ per year).

Prices for electricity generation refer to the average price applied to electric companies weighted on the production of the relative fiscal year.

### Electricity

Prices are estimated as the time-weighted average of total distributing companies bills divided by volume sold, for residential, commercial and industrial sectors.

Prices for year 2020 refer to the average prices from January 2020 to June 2020.

### Firewood

From 2012 onwards, monthly prices are retrieved from the Pakistan Bureau of Statistics' *Monthly Price Indices* publication. The yearly prices are estimated as the average of the monthly prices.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the following 17 cities across Pakistan:

Bahawalpur
Bannu
Faisalabad
Gujranwala
Hyderabad
Islamabad
Karachi
Khuzdar
Lahore
Larkana
Multan



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Peshawar

Quetta

Rawalpindi

Sargodha

Sialkot

Sukkur

Sub-national transport fuel prices are estimated as the average of the monthly prices for each city.

## Product specifications

| | Regular gasoline | LPG |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 87 (92 from Nov 2016) | |
| Density (kg/l) | | 0.542 |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Papua New Guinea

## Sources

Prices are derived from data extracted from the *Independent Consumer & Competition Commission* (ICCC).

## Data methodology

### Oil products

Weekly prices are derived as the time-weighted average of the maximum daily price levels at Port Moresby set by ICCC on a monthly basis.



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# Paraguay

## Sources

Prices for oil products are derived from data from *Dirrecion General de Combustibles* of *Ministerio de industria* y comercio until 2011, and from *Petropar* from 2018 onwards.

Electricity prices are derived from data extracted from the National Administration for Electricity (ANDE).

## Data methodology

### Oil products

Prices are regulated, and revisions occur unevenly over time.

Weekly prices are calculated as time-weighted average of prices published by the Ministerio de Industria y Comercio and from Petropar.

### Electricity

Prices refer to the annual average prices (*Tarifas medias de Energia Eléctrica*) published by ANDE in different statistical reports. Data for 1990 to 2006 refer to the *Compilación Estadística 1990-2010;* data for 2007 to 2011 refer to the *Compilación Estadística 2007-2011,* data for 2012 refer to the *Resumen Estadístico 2012-2016* and data for 2013 to 2017 refer to the *Resumen Estadístico2013-2017.*

On 10 March 2017, the consumption categories were adjusted by the new *Pliego de Tarifas N.21*. For this reason, from year 2017, commercial prices refer to "*Otros*" of the consumptions scheme n.21.

Prices published by ANDE exclude VAT (*IVA*), which was introduced in Paraguay on 1 July 1992 at a rate of 10% and has remained stable since. End-use prices were calculated by the IEA based on the applicable VAT rate for electricity sales.



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| | Regular gasoline | Medium-grade gasoline | Automotive diesel |
|---|---|---|---|
| Quality | Nafta eco 90 especial | Nafta ecoplus 95 | Diesel Comun (Tipo III) |
| Octane/Cetane number | 90 | 95 | |
| Density (kg/l) | | | 0.8356 |
| Biofuel content (%) | | | |
| Sulphur content (%) | | | <0.05 |



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# Peru

## Sources

Prices for oil products are derived from data extracted from the Peruvian Ministry of Energy and Mines (MINEM).

Prices for electricity are derived from data extracted from *Organismo Supervisor de la Inversión en Energía y Minería* (Osinergmin).

## Data methodology

### Oil products

Monthly prices (*precios al público*) are collected by the National Institute of Statistics and Informatics (INEI) and published in MINEM's monthly statistical reports (*informes estadísticos)*.

Prices for LPG are converted from PEN/kg to PEN/l using a density of 0.542 kg/l.

Annual prices are derived as the average of monthly prices in a given year.

Prices in year 2022 refer to the average of monthly prices from January to September 2022.

### Electricity

Prices for residential consumers refer to the Juanuary variable tariff of electricity in *Lima Norte* for residential consumers (BT5B) with consumption higher than 100 kWh/month.

## Energy taxation database methodology

VAT refers to the *Impuesto General a las Ventas*, applicable to all oil products at a rate of 18%.

Other taxes comprise two additional taxes: Road Tax (*Impuesto al Rodaje*), applicable to Gasoline; and Consumption Tax (*Impuesto Selectivo ao Consumo*), applicable to Gasoline and Diesel. The rates applicable to the different energy products associated with both taxes were retrieved from the bulletin on Price Structure from the Ministry of Energy and Mines. Rates for Gasoline refer to the average of the rates applicable to high-grade, medium-grade and regular gasoline.



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# Product specifications

| | Regular gasoline | Medium-grade gasoline | High-grade gasoline | Automotive diesel | LPG |
|---|---|---|---|---|---|
| Quality | Gasohol 90 Oct. | Gasohol 95 Oct. | Gasohol 97 Oct. | Diesel B5 S-50 | |
| Octane/Cetane number | 90 | 95 | 97 | 45 | |
| Density (kg/l) | | | | | 0.542 kg/l |
| Biofuel content (%) | 7.8% | 7.8% | 7.8% | 5 | |
| Sulphur content (%) | 0.1 | 0.1 | 0.1 | 0.5 | |
| Lead content (g/l) | 0.013 | 0.013 | 0.013 | | |



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# Philippines

## Sources

Prices for oil products are derived from data extracted from the Department of Energy (DOE).

Prices for electricity are derived from data extracted from the monthly releases *Typical Consumption Level* of Meralco, the country's largest distribution utility.

## Data methodology

### Oil products

The Department of Energy publishes weekly retail prices of oil products. Where prices are presented as a range, the maximum price is used for estimations. Prices refer to those in Metro Manila, also known as the National Capital Region.

Monthly prices are derived as the average of the first available weekly prices for all companies reporting in a given month. Annual prices are derived as the average of monthly prices in a given year. Prices in year 2015 refer to the average of the monthly prices between January 2015 and July 2015.

### Electricity

Prices for households refer to residential consumption up to 200 kWh per month.

Monthly prices refer to the average monthly prices published by the Meralco monthly releases. Annual prices are estimated as the average of monthly prices.

Prices in year 2013 refer to the average of monthly prices between January and August 2013, and the prices for December 2013.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 91 | 95 | 97 |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Qatar

## Sources

Prices are derived from data extracted from the Ministry of Oil and Gas from June 2016 to August 2017, and from Qatar Energy (formerly Qatar Petroleum - name changed in October 2021) from September 2017 onwards.

## Data methodology

### Oil products

Monthly prices refer to the prices reported by the Ministry of Oil and Gas, unitl August 2017, and from Qatar Energy (formerly Qatar Petroleum - name changed in October 2021) onwards.

Annual prices are derived as the average of the monthly prices in a given year.

Prices in year 2016 refer to the average of the prices between June and December 2016.

Prices in year 2022 refer to the average of the prices between January and September 2022.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | Automotive Diesel |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 91 | 95 | >46 |
| Density (kg/l) | | | 0.82-0.86 |
| Sulphur content (%) | <300ppm | <300 ppm | <10 ppm |
| Lead content (g/l) | | | |



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# Romania

## Sources

Prices for oil products are derived from weekly data published in the European Commission's *Weekly Oil Bulletin.*

Prices for electricity and natural gas are derived from data extracted from the Eurostat website.

## Data methodology

### Oil products

Prices shown are the prices most frequently charged, based on a weighted average.

Prices for kerosene refer to delivered consumer prices for deliveries of 2 000 to 5 000 litres (for offtakes of less than 2 000 litres the industrial sector may be taken into consideration).

For year prior to and including 2003, prices for automotive diesel refer to the average of all consumer categories. From year 2004 onwards, prices for automotive diesel refer to Euro Diesel.

Prices for residual fuel oil refer to low-sulphur fuel oil.

Annual prices are derived as the average of the weekly data in a given year.

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.

From the source, the derived price for 2007 refers to the price of the second semester.



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### Natural gas

From year 2007 onwards, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ).

Annual prices are the average of the biannual data.

From the source, the derived price for 2007 refers to the price of the second semester.

## Product specifications

| | Automotive diesel | Mid-grade gasoline | Kerosene |
|---|---|---|---|
| Quality | Euro Type EN 590 | Euro Premium type EN228 | Heating gas oil |
| Octane/Cetane number | | 95 | |
| Density (kg/l) | | | |
| Sulphur content (%) | <0.035 | | |
| Lead content (g/l) | | | |



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# Russian Federation

## Sources

Prices for oil products, electricity, and coal are submitted quarterly by the Federal State Statistics Service (Rosstat), which until 2004 was known as the State Committee of the Russian Federation on Statistics (Goskomstat of Russia).

Prices for natural gas are derived from Rosstat.

Sub-national transport fuel prices were submitted annually by Rosstat up to 2021.

## National pricing framework

### Oil products

Retail prices for mid-grade gasoline and automotive diesel were officially deregulated in the 1990s. Nevertheless, the government implicitly intervenes through taxes to limit domestic price increases and to increase domestic supplies (Fattouh, Santos de Oliveira & Sen, 2015).

The following factors affect the retail price of mid-grade gasoline and automotive diesel in Russia: international crude oil and transport fuel prices, export duty rates on crude oil and transport fuels, exchange rates, indirect taxes on transport fuels, domestic demand, and margins set by major vertically-integrated companies (Bobylev, 2016).

Retail prices for these transport fuels take into account the base cost, transportation cost, margins, and all applicable taxes, charges and excises.

#### *Taxes*

Mid-grade gasoline and automotive diesel retail prices are not subsidized or regulated and tax rates are higher than in other countries. In 2016, for example, analyses found that Russia was among the countries with the lowest retail price of gasoline. However, compared with average income, the retail price was significantly higher than that of most European countries (Simola & Solanko, 2017).

In 2011, exports of gasoline were stimulated due to a combination of price controls and stiffening of transport fuel quality specifications in the domestic market. This ultimately resulted in a shortage of gasoline in Russia as the domestic demand continued to grow. With the consequential sharp rise in gasoline prices, the



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government intervened by temporarily suspending the quality shift and raising the gasoline export tax (Fattouh et al., 2015).

Export tax rates on oil products are set by the Ministry of Economic Development of the Russian Federation. Under the provisions of the Russian Federation Government Regulations No. 1155 of 27 December 2010 (repealed) and No. 276 of 29 March 2013, the following formula is used for determining export tax rates (in percentage) on oil products, $Rcod$, that are adjusted on a monthly basis, effective 2011:

$$Rcod = K \times Rco$$

where $K$ is a coefficient varying for each oil product and $Rco$ is the export customs duty rate on crude oil (Gazprom Neft, 2015).

Amendments to Law No. 366-FZ, known as the "big tax manoeuvre" (*большой налоговый маневр*), which took effect in 2015, imposed a provision to the gradually decrease the export tax rates on oil products (Rosneft, 2016).

The Table below shows the coefficients used in the formula to calculate export duties for either transport fuel, as of 2015 (Gazprom Neft).

*Export tax coefficients and rates on oil products (Gazprom Neft, 2015)*

| % | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|
| Crude oil (*Rco*) | 59 | 42 | 42 | 30 |
| Gasoline (*K*) | 90 | 78 | 61 | 30 |
| Gasoline (*Rcod*) | 53 | 33 | 26 | 9 |
| Diesel (*K*) | 65 | 48 | 40 | 30 |
| Diesel (*Rcod*) | 38 | 20 | 17 | 9 |

In addition, excise duties are levied at the federal level on transport fuels that are sold on the domestic market. They are paid by refineries and are differentiated by fuel grade (Gazprom Neft, 2015). The excise taxes, as of 2015, are shown in the table below.



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*Excise tax rates on oil products (Gazprom Neft, 2015)*

| RUB/t | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|
| *Motor gasoline* | | | | |
| Below EURO 3 | 11 110 | 7 300 | 7 530 | 5 830 |
| EURO 3 | 10 725 | 7 300 | 7 530 | 5 830 |
| EURO 4 | 9 916 | 7 300 | 7 530 | 5 830 |
| EURO 5 | 6 450 | 5 530 | 7 530 | 5 830 |
| *Automotive diesel* | | | | |
| EURO 3 and below | 6 446 | 3 450 | 4 150 | 3 950 |
| EURO 4 | 5 427 | 3 450 | 4 150 | 3 950 |
| EURO 5 | 4 767 | 3 450 | 4 150 | 3 950 |

Furthermore, VAT is applied to mid-grade gasoline and automotive diesel at a standard rate of 18% (Fattouh et al., 2015).

## Electricity

The Russian power sector has undergone several reforms towards liberalization (with generation largely privatized and transmission and distribution, to some extent, still state-owned). Electricity is sold at regulated and non-regulated prices (Organisation for Economic Co-operation and Development [OECD], 2016).

The main laws governing the power sector are contained in the Federal Law No. 35-FZ, dated 26 March 2003, and implemented by the Ministry of Energy of the Russian Federation (State System of Legal Information, 2003). The Federal Tariff Service (FTS)[13] and the Ministry of Economic Development of the Russian Federation (MED of Russia) control retail prices, employing measures such as price caps and cross-subsidies (OECD, 2016). These government bodies ensure that they are in line with the price formation rules set forth by the Russian Federation Government Regulation No. 109, dated 26 February 2004 (State System of Legal Information, 2004), and, after its annulment, the Russian Federation Government Regulation No. 1075 of 22 October 2012.

[13]. On 21 July 2015, the FST was repealed and its functions were transferred to the Federal Antimonopoly Service of Russia (FAS).



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Electricity for residential consumers was sold at regulated tariffs until 2014, after which the level of tariffs has been progressively adjusted to include the full economic cost of distribution and retail. Industrial users are supplied electricity at market prices, and any price increase in wholesale markets can be passed on to them (Sidorenko, 2011).

### *Taxes*

Electricity prices for industry are subject to VAT at a standard rate of 20% from 2019 onwards. The previous rate was 18%.

### *Subsidies*

Studies show that cross-subsidization exists in different forms in Russia. Examples include cross-subsidization between residential and industrial consumers, heat and electricity tariffs, geographic regions, and electricity tariff discounts for special types of customers: veterans, pensioners, and low-income users (Sidorenko, 2011).

## Energy taxation database methodology

The VAT applies to gasoline and diesel and to electricity prices for industry. The applicable rate for the referred energy products and consumer sectors is 18%.

Excise taxes are not disaggregated and are assumed to be Other taxes. The ones presented apply to gasoline and diesel. The yearly values are estimated as the average of the yearly values applied to the different types of gasoline and diesel, respectively.

## Data methodology

### Oil products

Prices for mid-grade gasoline and automotive diesel are averaged for Russia as a whole on the basis of information collected by Rosstat in all the Russian Federation Regions from organizations, which sell transport fuels. Prices of these transport fuels are presented as an average for the relevant period.

Monthly data on consumer prices are collected between the 21$^{st}$ and 25$^{th}$ of the month by specialists of the territorial bodies of Rosstat from retailers selling in 282 towns located in 85 regions of the Russian Federation. The prices are calculated on the basis of prices registered at the selected filling stations in the towns where monitoring for prices is organized.



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Average prices on products, before 1997 inclusive, were presented in thousand rubles. In January 1998, the nominal cost of the Russian banknotes and the measure of prices were changed by a proportion 1000 rubles: 1 ruble.

Between 1995 and 2003, fuel oil (burner fuel) prices for industry refer to producer prices for heating in all sectors of the economy. From 2004 onwards, data correspond to the prices of acquisition prices by industrial enterprises. Annual prices are the average prices for the year.

## Coal

From years 1995 to 2003, total prices are producer prices for both the industry and electricity-generating sectors. From 2004 onwards, prices refer to the acquisition prices for industrial enterprises. Prior to 1997 prices refer to both hard coal and brown coal. From 1997 onwards, prices refer to hard coal. From 2013 onwards, prices refer to coal excluding anthracite, coking coal and brown coal.

Quarterly prices are given at the end of the period; annual prices are given on average for the year.

Consumer prices for coal are calculated on average for the corresponding period (quarter or year).

## Electricity

Electricity prices for households refer to average consumer prices for minimal consumption volume in apartments (without electric ranges), which are presented on average for the relevant year, without taking into account reductions on housing and utilities for beneficiaries of social policies.

From 1995 onwards, prices refer to sale prices for industrial organizations (excluding VAT).

From 2004 onwards, electricity prices for industry refer to the acquisition prices paid by industrial organizations (VAT included).

Quarterly prices are given at the end of the period; annual prices are given on average for the year.

## Natural gas

From years 1995 to 1999, data refer to producer prices, including natural gas and associated gas, for all the economy sectors. From 2000 onwards, data refer to the average prices of gas acquired by industrial organizations.



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Prices for natural gas in households are the average for the year (without taking into account reductions on housing and utilities for beneficiaries of social policies).

Quarterly prices are given at the end of the period; annual prices are given on average for the year.

Prices for natural gas in industry, submitted in RUB/1000 $m^3$, and natural gas in households, submitted in RUB/$m^3$, are converted into RUB/MWh GCV using a calorific value of 94.17 $m^3$/MWh GCV.

## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for the following eight federal districts of the Russian Federation:

Central Federal District

North West Federal District

South Federal District

North-Caucasian Federal District[14]

Volga Federal District

Ural Federal District

Siberian Federal District

Far Eastern Federal District

Prices are submitted as the average for the corresponding year.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline | Automotive diesel |
|---|---|---|---|---|
| Quality | AI-92 | AI-95 | | |
| Octane/Cetane number | 92 | >95 | 98 | 55 – 57 |
| Density (kg/l) | | 0.75 – 0.785 | | <0.87 |
| Sulphur content (%) | | 0.005 | | 0.03 |
| Lead content (mg/l) | | <5 | | |

[14] The North Caucasus Federal District was reformed in January 2010 in accordance with the Decree of the President of the Russian Federation of 19 January 2010 No. 82.



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# Rwanda

## Sources

Oil products prices are taken from the Rwanda Utilities Regulatory Authority (RURA)

## Data methodology

### Oil Products

Annual prices for gasoline and automotive diesel are the average of monthly fixed prices.



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# Saudi Arabia

## Sources

From years 2005 to 2018, prices for gasoline, diesel and natural gas are derived from data extracted from public announcements of royal decrees and in collaboration with the King Abdullah Petroleum Studies and Research Center (KAPSARC).

From years 2007 to 2015, Kerosene and LPG prices are derived from data extracted from Ministry of Energy, Industry and Mineral Resources.

Prices for oil products from 2019 onward are derived from data extracted from Saudi Aramco. Data from 2020 onwards are also derived from serious news outlets, due to the pandemic-induced crisis prices have been updated every month.

Prices for electricity are derived from data extracted from annual reports of the Saudi Electric Company (SEC).

## National pricing framework

### Oil products

Since 1979, the government, through the issuance of a royal decree, determines the national retail prices of unleaded regular gasoline and automotive diesel, at levels that have historically been below international market prices (Attala, Gasim & Hunt, 2017).

In 2013, for example, when the average price of Brent crude oil was around 106.5 USD/bbl, the set price of gasoline in Saudi Arabia was approximately one-third of the international market price. In 2016, when the crude oil price fell to 36.9 USD/bbl, the difference between the price of gasoline in the international market and the set price in Saudi Arabia was 15% (Algunaibet, 2017).

Mid-grade gasoline was initially the only gasoline grade in the Saudi market up until 2007, when Saudi Aramco, the state-owned oil company, started to sell regular gasoline at a retail price of 0.45 SAR/l - 25% cheaper than the higher grade (Attala et al., 2017).

As international crude oil prices fell, the government began to implement fuel price reforms as part of the broad-based economic reform programme announced in April 2016 called “Vision 2030”. The fuel price reforms aim to promote greater



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efficiency in Saudi Arabia's energy-dependent economy and curb rapid growth in domestic oil consumption. Saudi Arabia is, therefore, taking advantage of low international oil prices to progressively deregulate transport fuel prices without significantly increasing them, as the economic impact of these reforms on end-users would be lower than in a context of high oil prices (Attala et al., 2017).

In December 2015, as part of the fuel price reform, the government increased the nominal prices of regular gasoline and mid-grade gasoline from 0.45 SAR/l and 0.6 SAR/l to 0.75 SAR/l and 0.9 SAR/l, respectively. Nevertheless, these are still below international market prices (Attala et al., 2017).

A VAT was introduced by the government in January 2018 at a rate of 5% and revised in July 2020 to 15%.

### Electricity

Tariffs, aimed to be cost-reflective, fair, and affordable to end-users, are administered by the government through the Electricity and Cogeneration Regulatory Authority (ECRA) (ECRA, 2018). Although independent power producers and Marafiq, a power and water utility company supplying to the areas of Jubail and Yanbu, exist, the SEC is the dominant player in the country's vertically-integrated electricity industry (ECRA, 2015).

Prices have been kept low over the years, owing to the financial support utilities have received from the government. Examples of such financial support include the availability of fuels for electricity generation at low prices and low-interest loans for construction and maintenance of facilities. Despite the changes in electricity tariffs made in 2016 as part of the energy price reforms, household prices were not significantly altered because the tariffs for the two lowest consumption bands, which make up the majority of consumers, remained the same (Anwer & Matar, 2017).

## Data methodology

### Oil products

Prices are set through royal decrees, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

All prices from 2018 onwards are VAT inclusive.



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For 2022, yearly prices are calculated with monthly prices up to October 2022.

### Natural gas

Prices are converted from USD/MBtu to SAR/MWh using exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2020.

Prices for ethane for industry refer to ethane for use in the petrochemical sector.

All prices from 2018 onwards are VAT inclusive.

### Electricity

Prices are derived as the total revenue divided by the sales volume for each sector in a given year.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 91 | 95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (%) | | |

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# Senegal

## Sources

Prices for all products are derived from data extracted from the monthly *Bulletin Mensuel des Statistiques Economiques* publication of Agence Nationale de la Statistique et de la Demographie (ANSD) of Senegal.

## Data methodology

Monthly prices are retrieved directly from ANSD monthly publications.

Annual prices are calculated as the average of the monthly prices in a given year.

### Oil products

Prices for LPG in households in 12.5 kg cylinders are converted from FCFA/kg to FCFA/l using a density of 0.542 kg/l.

Prices for kerosene in industry are converted from FCFA/tonne to FCFA/liter using a density of 0.813 kg/liter.

### Electricity

Prices for households refer to the low-voltage price.

Prices for the commercial sector refer to the medium-voltage price.

Prices for industry refer to the high-voltage price.

### Coal

Prices for coal for households refer to charcoal.



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# Product specifications

| | Regular gasoline | Other gasoline | Automotive Diesel | Kerosene households | Fuel oil industry | Charcoal households | Fuelwood households |
|---|---|---|---|---|---|---|---|
| Quality | *Essence ordinaire* | *Supercarburant* | *Gasoil* | *Pétrole Lampant* | *Fuel oil 380* | *Charbon de bois* | *Bois de chauffage* |
| Octane/Cetane number | 87 | 91 | 45 | | | | |
| Density (kg/l) | 0.710-0.78 | 0.71-0.78 | 0.82–0.88 | 0.775-0.840 | max 0.991 | | |
| Sulphur content (%) | 0.10 | 0.10 | 0.5 | 0.15 | 3.5 | | |
| Lead content (%) | | | | | | | |
| NCV (kcal/kg) | | | | | | | |



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# Serbia

## Sources

Prices for electricity and natural gas are derived from data extracted from the Eurostat website.

## Data methodology

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.

### Natural gas

From year 2007 onwards, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ). Annual prices are the average of the biannual data.



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# Seychelles

## Sources

Oil products prices are taken from the *Seychelles Petroleum Company (SEYPEC).*

## Data methodology

### Oil Products

Prices are set by the government.

Weekly prices are estimated as the time-weighted average of the daily price levels.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

## Product specifications

| | Mid-grade gasoline | Automotive diesel | LPG |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 95 | | |
| Density (kg/l) | 0.71-0.78 | | 0.54 |
| Sulphur content (%) | 0.011 | | |
| Lead content (g/l) | 0.011 | | |



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# Singapore

## Sources

Prices for oil products are extracted from the Department of Statistics.

Prices for electricity and natural gas are derived from data extracted from the Energy Market Authority (EMA), a statutory board under the Ministry of Trade and Industry.

## National pricing framework

### Oil products

Retail prices of transport fuels in Singapore are market-determined. The four major companies in the country's petroleum industry: ExxonMobil (Esso), Shell, Singapore Petroleum Company, and Chevron (Caltex) are vertically-integrated, with a refinery and a network of pump stations throughout Singapore. As of 2011, only 20% of transport fuels produced by their refineries are sold for local consumption, with the remaining 80% exported and traded in the open market (Competition Commission of Singapore [CCS], 2011).

Retail prices of transport fuels are composed of the wholesale price (i.e., price of Mean of Platts Singapore – MOPS), operating costs, taxes and duties, land costs, discounts and rebates. Retail prices of transport fuels have generally tracked the movement of wholesale prices between 2010 and 2016, with price changes taking place over an average of 10 days (Government of Singapore, 2016). In 2015, the MOPS price component comprised less than one-third of the retail price of transport fuels, with the non-fuel components of the retail price, which have been increasing over the years, making up the other two-thirds (CCS, 2016).

Besides monitoring and reacting to one another's retail price changes, the four companies also compete by offering site and loyalty discounts (through partnerships with different credit card companies). The effective price that consumers pay consequently varies. In 2014, for example, consumers took advantage of an average of about 18% in discounts and rebates off the retail price for mid-grade gasoline (95 RON), the most widely-used gasoline in Singapore (CCS, 2016).

Site scarcity paves the way for high land premiums for pump stations. Pump station operators are subject to urban planning by the Urban Redevelopment Authority and the Singapore Land Authority, competitive bidding of pump station



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sites conducted by the Housing Development Board, safety rules imposed by the Singapore Civil Defence Force, and antitrust scrutiny of business practices by the Competition Commission of Singapore (CCS, 2011).

### *Taxes*

Excise taxes apply to transport fuels (except for automotive LPG) based on specific rates and are imposed by Singapore Customs (CCS, 2011). For gasoline, these have not changed since 2003 up to February 2015 (Hong, 2015). For automotive diesel, a lump-sum special tax was previously levied regardless of the amount used. This was recently changed in February 2017 to a usage-based tax ("Budget 2017: Taxes on Diesel Vehicles," 2017). The Table below shows the excise duty rates of transport fuels as of November 2017 (Singapore Customs, 2018a) and February 2021 (Singapore Customs, 2021).

*Excise duties on transport fuels as of November 2017 (Singapore Customs, 2018a and 2022)*

| Transport fuel | Excise duty (SGD/l) November 2017 | Excise duty (SGD/l) May 2022 |
|---|---|---|
| High-grade unleaded gasoline (x >= 97 RON) | 0.64 | 0.79 |
| Medium-grade unleaded gasoline (90 RON < x < 97 RON) | 0.56 | 0.66 |
| Regular unleaded gasoline (x < 90 RON) | 0.37 | 0.37 |
| Automotive diesel | 0.10 | 0.20 |

Additionally, a Goods-and-Services Tax (GST), a VAT-equivalent, is applied at a current standard rate of 7% (Singapore Customs, 2018b). Table 2 shows the changes of GST rates in Singapore over the years.

| From | To | % |
|---|---|---|
| 01.04.94 | 31.12.02 | 3 |
| 01.01.03 | 31.12.03 | 4 |
| 01.01.04 | 30.06.07 | 5 |
| 01.07.07 | now | 7 |



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## Electricity

According to the EMA, electricity in households is purchased solely from SP Group (2017), an energy utility company that owns and operates electricity and gas transmission and distribution lines in Singapore and Australia (SP Group, 2018).

Electricity tariffs for households are regulated by the EMA and updated quarterly to reflect changes in the cost of power generation. The tariff is composed of fuel and non-fuel costs (EMA, 2017).

Fuel cost, the cost of imported natural gas, is related to crude oil prices by commercial contracts (approximately 95% of Singapore's electricity is generated from imported natural gas, whose prices are indexed to oil prices). Fuel cost makes up the largest component of electricity tariffs in Singapore and is calculated using the average of daily natural gas prices in the first two-and-a-half month period in the previous quarter (EMA, 2017).

The non-fuel cost covers the cost of generating and distributing electricity to households and includes power generation costs (capital, manpower, and maintenance costs), grid charge, Market Support Services (MSS) fee (costs of billing and meter reading), and power system operation and market administration fees (EMA, 2017).

### *Taxes*

Prices for electricity used in households are subject to a Goods and Services Tax (VAT-equivalent) applied at a standard rate of 7%.

Singapore introduced a carbon tax on large direct emitters (i.e., annual emissions equivalent to 25 000 tonnes of greenhouse gases or more) in 2019 (Government of Singapore, 2018). Although the current carbon tax does not apply to households, it may have a trickle-down impact on residential electricity prices (Abu Baker, 2017).

# Data methodology

## Oil products

Both monthly and yearly prices are retrived from the data published from the Department of Statistics. The Department of Statistics derives the quarterly retail prices of transport fuels from monthly average prices net of regular discounts given to customers by all oil companies in Singapore at all petrol stations for the reference month.



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Prior to 3Q2009, prices for mid-grade unleaded gasoline (95 RON) refer to a gasoline mix of 98/95 RON.

Prices for 2021 refer to prices from January to November 2021.

Prices include all applicable taxes.

### Electricity

Prices for electricity in households refer to the low tension electricity tariff.

Prices include GST, which has been applied to the prices published by the EMA. For year 2007, a GST rate of 6% has been applied to reflect the mid-year change in GST rate.

Prices for 2022 refer to prices from January to June 2022.

### Natural gas

Prices for natural gas used in households refer to the general tariff for consumption below 1 000 kWh/month.

Prices for natural gas used in industry refer to the Bulk A tariff for consumption between 1 000 and 49 000 kWh/month.

Prices include GST, which has been applied to the prices published by the EMA. For year 2007, a GST rate of 6% has been applied to reflect the mid-year change in GST rate.

Prices for 2022 refer to prices from January to June 2022.

## Energy taxation database methodology

The VAT refers to the Goods and Services tax (GST) and applies to all transport fuels and electricity. The applicable rate for the referred energy products and consumer sectors is currently 7%. The yearly rate applicable in previous years was estimated as the time weighted average of the rates applicable in a given year.

The Carbon Tax, implemented in 2019, does not apply to the GHG emissions emitted in the transport of persons and goods. Thus, this is assumed to be null for gasoline, diesel and LPG for transportation purposes.



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Other taxes refer to the excise duties applicable to transport fuels, with the exception of automotive LPG. The yearly values applicable to the different energy products and consumer sectors could not be estimated.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline | Automotive diesel | LPG |
|---|---|---|---|---|---|
| Quality | 92 | 95 | 98 | Ultra-low sulphur diesel | |
| Octane/Cetane number | | | | | |
| Density (t/kl) | | | | | 0.542 |
| Sulphur content (%) | | | | | |
| Lead content (g/l) | | | | | |

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# South Africa

## Sources

Prices for mid-grade gasoline and automotive diesel are submitted quarterly by the Department of Energy (DoE). All other oil product prices are derived from data submitted annually by the DoE.

For years prior to and including 2005, prices for electricity are submitted by the DoE. From 2016 onwards, prices for electricity are submitted by DoE as appear in DoE *Energy Price Report*, derived from Eskom's *Integrated Report.* Sub-national transport fuel prices are derived from data submitted by the DoE.

## National pricing framework

### Oil products

Under the Petroleum Products Act of 1977, the government determines and announces on a monthly basis a Basic Fuel Price (BFP) for mid-grade gasoline and automotive diesel (Department of Energy [DoE], 2018a). Because South Africa relies heavily on oil imports to meet its liquid fuel requirements, the BFP is directly linked to international crude oil prices, international supply and demand for oil products, and the exchange rate. The BFP is based on spot-quoted product prices at three refineries in the Arab Gulf, the Mediterranean area and Singapore (DoE, 2018b).

The BFP is the sum of the CIF cost, a 0.3% ocean loss allowance, cargo dues, coastal storage, and stock financing. The BFP, quoted in USD/barrel, is then converted to ZAR cents/litre by applying the appropriate exchange rate and unit conversion (DoE, 2018b).

The zone differential (i.e., inland transportation costs), storage and distribution costs, wholesale and retail margins, and applicable taxes and levies are added to the BFP to make up the end-use prices. The zone differential reflects the varying costs of transporting oil products to different geographical areas in the country (DoE, 2018b).

The government regulates the retail margins for mid-grade gasoline. On the other hand, retailers freely set their margins for automotive diesel, which explains why only wholesale prices are available (DoE, n.d.-a).



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### *Taxes*

Three main fuel taxes apply to mid-grade gasoline and automotive diesel: a general fuel levy, the Road Accidents Fund (RAF) levy, and customs and excise duties. The magnitudes of the fuel tax and the RAF levy are determined by the Ministry of Finance. The latter is utilised to compensate third-party victims of motor vehicle accidents. The customs and excise duties are collected in terms of an agreement by the Southern African Customs Union (DoE, 2018b).

Since 2006, a Demand-Side Management Levy (DSML) has been added to the retail price of mid-grade gasoline consumed in the inland area, to curb the demand of this fuel. For the retail price of automotive diesel, a tracer dye levy is added to discourage the illegal mixing of automotive diesel and kerosene (illuminating paraffin). For both fuels, a petroleum pipelines levy has been further added to their retail price since 2007 (DoE, 2018b).

Under the Self-Adjusting Slate Levy Mechanism effective since 2009, a slate levy is also applied to mid-grade gasoline and automotive diesel (DoE, n.d.-b). According to the Department of Energy, the BFP is calculated on a daily basis and is either higher or lower than the BFP announced and reflected in the fuel price structure in a given time period. If the daily BFP is higher than the BFP applied in the fuel prices, a unit under-recovery is realized on that day. An under-recovery means that end users are paying too little for the oil product on that day. Likewise, if the daily BFP is lower than the BFP applied in the fuel prices, an over-recovery is realized, so end-users are paying too much for the oil product on that day. The daily under/over-recovery calculations are averaged in a given fuel price review period. The monthly unit under/over-recovery is then multiplied by the volumes sold locally during that month and the cumulative under/over-recovery is recorded on a “Slate Account” (2018b). A slate levy will only be applicable if the Slate Account’s balance is negative by more than 250 ZAR million (DoE, n.d.-b).

Moreover, an Equalisation Fund levy, usually a fixed-monetary levy determined by the Department of Energy in concurrence with the Ministry of Finance, is also applied. The levy income is generally used to equalise fuel prices and is currently zero (DoE, 2018b).

Mid-grade gasoline and automotive gasoline are currently considered VAT “zero-rated” items. However, the government is currently reviewing a possible tax reform to apply a VAT on these fuels (Department of National Treasury, 2016).

The table below summarizes the taxes and levies in ZAR cents/litre for the two fuels for June 2017, as applied in the inland area.



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*Taxes and levies on transport fuels in August 2017*

| | Mid-grade gasoline | Automotive gasoline |
|---|---|---|
| Fuel levy | 315 | 300 |
| Customs & excise duty | 4 | 4 |
| Road Accidents Fund levy | 163 | 163 |
| Demand-Side Management levy | 10 | |
| Tracer dye levy | | 0.010 |
| Equalisation Fund levy | | |
| Slate levy | | |
| Petroleum pipeline levy | 0.33 | 0.33 |

## Electricity

Eskom, South Africa's national utility, owns and operates most of the country's electricity generation infrastructure and supplies 95% of its electricity needs, while the rest is supplied by independent power producers (DoE, 2017).

As mandated by the Electricity Regulation Act of 2006 and the National Energy Regulatory Act of 2004, the regulation of prices in the electricity supply industry is under the responsibility of the National Energy Regulator of South Africa (NERSA) (DoE, 2006). NERSA employs a Multi-Year Pricing Determination (MYPD) scheme that takes into account Eskom's cost recovery requirements plus a return on investment (NERSA, n.d.). The "MYPD 3" cycle is currently in effect and covers the five-year period from 1 April 2013 to 31 March 2018 (NERSA, 2013)

Eskom's average price of electricity is based on the overall cost of supply while tariffs are decided based on the overall costs that are broken down into relevant cost categories (DoE, 2017).

### *Taxes*

The table below summarizes the general charge components of a tariff and the unit rates at which they are applied. For specific tariff categories, only some of the charges apply. For example, for households only the "(active) energy charge non time-of-use (TOU)" and the environmental levy apply (Eskom, 2017a).



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*Eskom's general components of a tariff*

| Service charge | ZAR/day |
|---|---|
| Administrative charge | ZAR/day |
| Transmission network charge | ZAR/kVA |
| Distribution network charge | ZAR/kVA or ZAR/day (depending on tariff category) |
| Energy demand charge | R/kVA |
| (Active) energy charge: Non-TOU | ZAR cents/kWh |
| (Active) energy charge: TOU | ZAR cents/kWh |
| Reactive energy charge | ZAR cents/kvarh |
| Electrification and rural subsidy | ZAR cents/kWh |
| Environmental levy | ZAR cents/kWh |

The electrification and rural subsidy is a charge on customers belonging to any urban tariff and is a contribution to cross-subsidize rural and low-usage residential customers (Eskom, 2017b).

The environmental levy, introduced in 2009 at a rate of about 0.02 ZAR/kWh, is applied to electricity generated from non-renewable sources. Some of the revenue from this levy has been used to fund projects that encourage energy efficiency and lower greenhouse gas emissions (Bashe, Shuma-Iwisi & van Wyk, 2016).

VAT, paid mainly by the final consumer in South Africa, was applied to electricity consumption at a standard rate of 14% (DoE, 2017) until 31 March 2018. The rate is 15% from 1 April 2018 onwards.

## Energy taxation database methodology

The VAT is applied to all energy products, except diesel and gasoline (considered as VAT zero-rated). As VAT is paid by the final consumers, it is assumed to be null for commercial services, industry and electricity generation.

Environmental tax corresponds to the Environmental levy introduced in 2009 and applied to electricity generated from non-renewable sources.

It is assumed that a Social tax is applied to electricity consumption, corresponding to the Electrification and rural subsidy (Eskom, 2017). Specific values are not provided.



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Other taxes include additional excise duties applied to diesel, gasoline and electricity, as published by the National Department of Energy (www.). These include: Fuel tax, Custom and Excise tax, Equalisation Fund levy, Pipeline levy, State levy, Inland Transport Cost, Road Accident Fund, IP Tracer levy, DSM levy and Electricity levy. The individual values for each tax and levy are retrieved directly from the website of the National Department of Energy.

# Data methodology

## Oil products

Prices for all oil products refer to the weight average between Gauteng (inland) province and the Coastal provinces.

Prices for automotive diesel refer to wholesale prices.

Prices for automotive diesel for non-commercial use and mid-grade gasoline refer to the average of quarterly prices.

Prices for LPG for households refer to maximum retail prices. They are converted from ZAR/kg to ZAR/l using a density of 0.542 kg/l.

Prices for kerosene for households refer to illuminating paraffin.

Prices for leaded replacement gasoline (93 RON), LPG and kerosene are estimated as the average of monthly prices in a given year.

Prices for oil products were slightly revised from 2017 onwards to correctly account VAT taxation.

## Electricity

Prices refer to Eskom's direct sales and are derived as the total revenue divided by the sales volume for each sector in a given year.

Prices derived from data extracted from the Department of Energy exclude VAT, which was introduced in South Africa in 1991 at a rate of 10%, increased to 14% in 1993 and has remained stable until 1 April 2018, at which point it had increased to 15%. For years 1991 onwards, end-use prices are calculated by the IEA based on the applicable VAT rate for electricity sales.



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## Sub-national prices for transport fuels

Sub-national transport fuel prices are presented for Gauteng (inland) and coastal provinces.

Sub-national transport fuel prices are estimated as the average of monthly prices.

Prices for Gauteng are also referred to as the national average; however the values are slightly different due to a different methodology used to make Gauteng prices comparable with Coast prices (monthly average vs quarterly average).

Subnational prices for automotive diesel refer to 0.05% Sulphur Diesel, conversely with 0.005% Sulphur for national average.

## Product specifications

| | Mid-grade gasoline | Automotive diesel | Other regular gasoline | LPG |
|---|---|---|---|---|
| Quality | | | Leaded replacement petrol (LRP) | |
| Octane/Cetane number | 95 | | 93 | |
| Density (kg/l) | 0.723 (average) | 0.839 (average) | | 0.542 |
| Sulphur content (%) | | 0.005 | | |
| Lead content (g/l) | | | | |

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# Sri Lanka

## Sources

Prices are derived from data extracted from Ceylon Petroleum Corporation (CEYPETCO), the state-owned oil and gas company.

## Data methodology

### Oil products

Prices are set, and price revisions occur unevenly over time.

Weekly prices are estimated as the time-weighted average of the daily price levels.

Annual prices are estimated as the time-weighted average of the price revisions in a given year.

Prices in year 1990 refer to the time-weighted average of the price levels between 1 March 1990 and 1 January 1991.

Prices for kerosene in industry are converted from LKR/l to LKR/tonne using a specific volume of 1 059 l/tonne.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | Fuel oil for Industry | Kerosene for industry |
|---|---|---|---|---|
| Quality | | | Lanka furnace oil 1500 | |
| Octane/Cetane number | | | | |
| Density (kg/l) | 92 | 95 | 0.944 | |
| Sulphur content (%) | | | | |
| Lead content (g/l) | | | | |



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# Suriname

## Sources

Prices for electricity are derived from data extracted from *General Bureau of Statistics of Suriname*, refering to *Suriname Energy Company*.



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# Chinese Taipei

## Sources

Prices are submitted quarterly by the Bureau of Energy, Ministry of Economic Affairs, Republic of China.

## Data methodology

From year 1991 onwards, annual prices for all products refer to the average of monthly prices in a given year. Prior to 1991, prices for all products refer to end-of-year prices.

### Natural gas

Prices for natural gas used in households refer to the region of Hsinchu and Miao-Li.

Prices for natural gas for electricity generation refer to imported liquefied natural gas (LNG).

### Electricity

Prices for electricity in households and industry are derived by the Bureau of Energy from calendar year average revenues per kWh for power (industry) and for light (households).

### Oil products

Since Sep. 2007, E3 gasoline with a 3% share of ethanol mixed in has been available. No preferential taxation or pricing is in place for the E3 fuel. The diesel supplied contains no blended biofuels.



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# Product specifications

## Oil products

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline | Automotive diesel | Residual fuel oil |
|---|---|---|---|---|---|
| Quality | | | | Premium diesel oil | Low sulphurfuel oil |
| Octane/Cetane number | 92 (1988 onwards)<br>82 (1982 – 1987) | 95 | 98 | 46 | |
| Density (kg/l) | 0.84 | 0.84 | 0.84 | 0.81 – 0.82 | 0.89 – 0.9 |
| Sulphur content (%) | | | | <0.3% | 1% (up to 1Q2007)<br>0.5% (since 2Q2007) |
| Lead content (g/l) | | | | | |
| NCV (kcal/l) | 7 800 | 7 800 | 7 800 | 8 800 (before 1998)<br>8 400 (1999 onwards) | 9 200 (before 1998)<br>9 600 (1999 onwards) |

## Natural gas

| | Natural gas used in industry | Natural gas used in households | Natural gas used for electricity generation |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | | | |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |
| NCV (kcal/$m^3$) | 9 000 | 8 000 (1991 onwards)<br>8 100 (1954 – 1990) | 9 000 |



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# Tajikistan

## Sources

Prices for all products are derived from data extracted from the State Statistical Committee of the Republic of Tajikistan (TAJSTAT).

## National pricing framework

### Oil products

Tajikistan oil products supply relies on imports, mainly from Russian Federation.

It should be noted that the retail value of oil products varies significantly across the regions. In addition to different costs of fuel transport within the country, many residents refuel in a neighbouring country, Kyrgyzstan, where fuel prices are lower due to different taxation regime.

### Electricity

The national company OHSC "Barqi Tojik" is an enterprise that is responsible for the generation, transmission and distribution of electricity. However, it should be noted that at the moment the process of separation of OHSC "Barqi Tojik" into three independent units is underway, which, according to the preliminary plan of the Government, should be completed in 2020.

While the process of separation of OHSC "Barqi Tojik" has not yet been completed, the price for electricity is calculated by OHSC "Barki Tojik" according to the cost method. The developed price is coordinated with the Antimonopoly Service under the Government of the Republic of Tajikistan. Further, the Government approves with the Government in the form of Resolution. It should be noted that the cost of electricity, is varied by consumer categories.

The cost of electricity does not cover the expenditures of OHSC "Barqi Tojik", which has a difficult financial situation. One of the measures to improve the financial situation of OHSC "Barki Tojik" is to increase the tariff and cut subsidies. The tariff is subsidized not only for the population, but also for such large consumers as the Tajik Aluminum Plant and the agricultural sector, in particular for irrigation pumping stations. At the moment, the Government, together with the Development Partners, is developing a new tariff methodology and creating an independent Regulator that will set prices that should pay for the costs of production, transmission and distribution of electricity.



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### Taxes

Oil products and electricity have been subject to the standard VAT rate of 18 % from 2012 until 2021. From 2022 onwards the VAT rate is set at 15%.

### Subsidies

Oil products are not subsidised in the country.

## Data methodology

### Oil products

Prices for LPG for transport are converted from TJS/kg to TJS/l using a density of 0.542 kg/l.

Prices from 2019 onwards refer to the population-weighted average of prices in each four provinces.

### Electricity

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted averages of the price levels in a given year.

Prices for the commercial sector refer to the non-industry group, subgroup A (commerce and non-industry).

### Coal

Prices refer to the population-weighted average of prices in each four provinces.

## Product specifications

| | Regular gasoline | LPG |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 92 | |
| Density (kg/l) | | 0.542 |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# United Republic of Tanzania

## Sources

Prices are derived using data extracted from the Energy and Water Utilities Regulatory Authority (EWURA).

## Data methodology

### Oil products

Prices refer to the city of Dar es Salaam.

Weekly prices are estimated as the time-weighted average of the daily price levels established and published by EWURA.

Annual prices are derived as the average of weekly prices in a given year. Prices in year 2011 refer to the average of the prices between August and December 2011.

## Product specifications

| | Regular gasoline |
|---|---|
| Quality | |
| Octane/Cetane number | 91 |
| Density (kg/l) | |
| Sulphur content (%) | |
| Lead content (g/l) | |



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# Thailand

## Sources

Prices for mid-grade gasoline, automotive diesel, and LPG for transport are extracted while prices for LPG in households and industry and residual fuel oil are derived from data extracted from the annual Energy Statistics of Thailand publication of the Ministry of Energy's Energy Policy and Planning Office (EPPO).

Prices for natural gas for transport are derived from data extracted from PTT Public Company Ltd (PTT), a state-owned oil and gas company.

Prices for electricity are derived from data extracted from the Metropolitan Electricity Authority's (MEA) annual reports.

## National pricing framework

### Oil products

While the government has historically controlled and subsidized the price of transport fuels, the current pricing mechanism is a mixture of regulated and deregulated policies, as Thailand transitions into energy price deregulation (International Institute for Sustainable Development [IISD], 2013). Mid-grade gasoline prices are fully liberalized, whereas the automotive diesel price has been capped at 30 THB/l since 2010 (Asian Development Bank [ADB], 2015).

Automotive diesel refers to "high speed diesel" with less than 0.05% sulphur content. As of May 2011, automotive diesel sold in Thailand is required to have between 2% and 5% biodiesel blending (IISD, 2013).

The retail price of transport fuels is the sum of the ex-refinery price, excise tax, municipality tax, contribution to the Oil Fund, contribution to the Energy Conservation Promotion (ENCON) Fund, marketing margins, and VAT (EPPO, 2015).

The ex-refinery price depends on the change in oil product prices in the Singapore market, which is used as the reference, and the exchange rate, which constitutes the cost of oil product import (EPPO, 2015).

#### *Taxes*

There are two collections of VAT: the first is at 7% of the wholesale price (which is the sum of the ex-refinery price, excise and municipality taxes, and Oil Fund



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and ENCON Fund levies) and the second is also at 7% of the marketing margin (EPPO, 2018).

The ENCON Fund, established under the 1992 Energy Conservation Promotion Act, was created to provide monetary support for energy efficiency and renewable energy projects in Thailand (Jue, Johnson & Vanamali, 2012). Contributions to the ENCON Fund are derived from a tax of 0.25 THB/l on mid-grade gasoline and automotive diesel, as of September 2017 (EPPO, 2018).

### *Subsidies*

Thailand uses the Oil Fund, tax exemptions, and caps on ex-refinery and retail prices to subsidize the consumption of fuels (ADB, 2015).

The Oil Fund, currently managed by the Energy Fund Administration, was established in response to the 1973 oil shock to protect end users from price volatility and to cross-subsidize certain fuels (IISD, 2013).

After having been last subsidized by the Oil Fund in 2004, mid-grade gasoline is one of the oil products that is often charged with an Oil Fund levy. Since automotive diesel represents over half of the country's consumption of transport fuels, it has been subsidized intermittently by the Oil Fund (IISD, 2013).

The capping of automotive diesel price at 30 THB/l is achieved through the combined use of the Oil Fund and tax reductions. For example, in April 2011 when the Oil Fund was depleted, the excise tax was temporarily reduced from 5.31 THB/l to 0.005 THB/l and the VAT of 0.4 THB/l was also removed, resulting in a total tax exemption of 5.7 THB/l on automotive diesel (IISD, 2013).

In August 2014, as part of oil product price reforms, the government announced plans to eliminate cross-subsidies between mid-grade gasoline and automotive diesel by lowering the Oil Fund levy and other taxes on the former and raising the taxes on the latter ("Update 1-Thailand Revamps Fuel Pricing", 2014).

However, the total subsidies for diesel from the lower Oil Fund levy and taxes relative to gasoline continue to exist. The Oil Fund levy on mid-grade gasoline was 6.31 THB/l and 0.01 THB/l for automotive diesel, as of September 2017 (EPPO, 2018).

## Electricity

The state-owned Electricity Generating Authority of Thailand (EGAT) produces the majority of the country's electricity, transmits, and sells it to either the MEA or the Provincial Electricity Energy (PEA), also state-owned. The MEA and PEA then



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distribute electricity to end-users throughout the country (Piyasil, 2015). The EPPO oversees the power sector (EPPO, 2015).

The MEA supplies electricity for three provinces: Bangkok, Nonthaburi, and Samut Prakan, which are the most urbanized areas, while the PEA distributes electricity to the rest of the country (Piyasil, 2015). In 2014, 29% of the electricity consumption in the country was in the MEA area, 70% in the PEA area and 1% was to EGAT's direct customers (EPPO, 2015).

The electricity price consists of a base tariff, fuel adjustment charge, and VAT. The base tariff reflects the utility's costs of power plant constructions, distribution lines, management systems, electricity imports, and other expenses related to generation, transmission, and distribution activities (Piyasil, 2015).

### *Taxes*

The fuel adjustment charge, or float time (Ft), is a tariff adjustment mechanism applied to the price of electricity. It fluctuates according to the fuel price in the market and is revised every four months by the Energy Regulatory Commission of Thailand (Piyasil, 2015).

As with transport fuels, the reduced VAT rate of 7% currently applies to electricity prices. The VAT is due to be reverted back to the standard 10% in October 2018 (Yothasmutra, 2017).

### *Subsidies*

As of 2015, low-income consumers whose consumption is less than 50 kWh per month have access to free electricity. This is funded through a cross-subsidy from electricity consumers in other categories (primarily industry). The government also requires that the EGAT carry its losses when costs exceed retail prices (IISD, 2013).

### *Excise Tax*

| From | To | Heavy Fuel Oil (THB/tonne) | Automotive diesel (THB/l) | Gasoline (THB/l) | LPG (THB/l) |
|---|---|---|---|---|---|
| 01.01.12 | 31.08.14 | | 0.005 | 6.300 | 1.172 |
| 01.09.14 | 14.12.14 | | 0.750 | 5.040 | 1.172 |
| 15.12.14 | 31.12.14 | | 3.250 | 5.040 | 1.172 |
| 01.01.15 | 27.03.16 | | 4.950 | 5.040 | 1.172 |



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| From | To | Heavy Fuel Oil (THB/tonne) | Automotive diesel (THB/l) | Gasoline (THB/l) | LPG (THB/l) |
|---|---|---|---|---|---|
| 28.03.16 | 10.07.16 | | 5.350 | 5.400 | 1.172 |
| 11.07.16 | 13.11.16 | | 5.650 | 5.670 | 1.172 |
| 14.11.16 | 17.09.17 | | 5.850 | 5.850 | 1.172 |
| 18.09.17 | 25.06.18 | 680.72 | 5.850 | 5.850 | 1.172 |
| 25.06.18 | 01.05.19 | 680.72 | 5.980 | 5.850 | 1.172 |
| 01.05.19 | now | 680.72 | 5.990 | 5.850 | 1.172 |

*Contribution to the Energy Conservation Promotion (ENCON) Fund*

| From | To | Heavy Fuel Oil (THB/tonne) | Automotive diesel (THB/l) | Gasoline (THB/l) |
|---|---|---|---|---|
| 01.01.12 | 22.04.18 | 74.45 | 0.25 | 0.25 |
| 23.04.18 | now | 74.45 | 0.10 | 0.10 |

# Data methodology

## Oil products

Prices refer to the city of Bangkok.

All forms of subsidy mentioned earlier are included in the prices for transport fuels.

Prices for LPG in households and industry are converted from THB/kg to THB/l using a density of 0.540 kg/l.

Prices for residual fuel oil refer to Type 2 or Bunker fuel C (fuel oil 1500) for use in medium and large industries. Prices have been converted from THB/l to THB/tonne using a specific volume of 1 064 l/tonne.

Regular gasoline refers to “Gasohol 91” and mid-grade gasoline to “Gasohol 95-E10” which represent the largest volume sold for those categories.

Prices in year 2022 refer to the average from January 2022 to October 2022.



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### Natural gas

Prices refer to the city of Bangkok.

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted averages of the price levels in a given year.

Prices are converted from THB/kg to THB/MWh GCV using a density of 0.735 kg/$m^3$ and calorific value of 98.9 MWh GCV/$m^3$.

Prices in year 2022 refer to the average from January 2022 to November 2022.

### Electricity

Prices are derived as the total revenue divided by the sales volume for each sector in a given year. Prices exclude government subsidies and other charges.

Prices for electricity in the commercial sector refer to MEA's "medium general service" sector, and prices for electricity in industry refer to "large general service."

## Energy taxation database methodology

VAT applies to all oil products and to electricity. The VAT applies to the different energy products with a rate of 7%, according to the price structure reported by the Energy Policy and Planning Office (EPPO) from the Ministry of Energy.

Renewable energy supply tax includes the levy associated with the ENCON Fund. This is applied to Gasoline, Diesel and Fuel Oil; LPG is exempt. The yearly values are estimated as the average of the average of the monthly values reported by EPPO.

Other taxes comprise the Excise Tax, the Municipal Tax and the Oil Fund levy. All these taxes apply to all energy products. Yearly values are estimated as the average of the monthly values.



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# Product specifications

| | Mid-grade gasoline | Regular Gasoline | | Automotive diesel | LPG | Residual fuel oil |
|---|---|---|---|---|---|---|
| Quality | Gasohol 95-E10 | Gasohol 91 | | | | Fuel oil 1500 |
| Octane/Cetane number | 95 | 91 | | | | |
| Density (kg/l) | | | | | 0.540 | 0.940 |
| Sulphur content (%) | | | | <0.05 | | 2 |
| Lead content (g/l) | | | | <0.013 | | |

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# Togo

## Sources

Prices are derivedfrom the Institut National de la Statistique et des Etudes Economiques et Démographiques (INSEED).

## Data methodology

### Oil Products

Monthly prices are retrieved directly from the INSEED publications. Annual prices are estimated as being the average of monthly prices. Prices in year 2022 refer to the average from January 2022 to September 2022.

### Coal

Household coal refers to charcoal.

Monthly prices refer to the national average of monthly prices published by the INSEED. Since February 2020, prices refer to the prices for Maritime region, which encompasses the capital Lomé. Prices in year 2022 refer to the average from January 2022 to September 2022.

## Product specifications

| | Regular gasoline | Automotive diesel | LPG Households |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | | | |
| Density (kg/l) | | | 0.542 |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Tunisia

## Sources

Prices for oil products and coal are derived from data extracted from the monthly *Bulletin Mensuel de la Statistique* publication of Institut National de la Statistique (INS) of Tunisia.

Prices for electricity and Natural Gas are extracted from *Société Tunisienne de l'Électricité et du Gaz* (STEG).

## Data methodology

### Oil products

Monthly prices are retrieved directly from the monthly publications of INS.

Annual prices are estimated as the time-weighted averages of the monthly prices in a given year.

Prices for LPG in households in 13 kg cylinders are converted from TND to TND/l using a density of 0.542 kg/l.

Prices for oil products in year 2022 refer to prices from January to October 2022.

### Natural gas

Prices for households are calculated as the total revenue for STEG for Basse Pression (BP – Low Pressure) users, divided by the total sales for those users.

### Prices for natural gas in year 2021 refer to prices from January to May 2021.Electricity

Prices for households are calculated as the total revenue for STEG for Basse tension (BT – Low Voltage) users, divided by the total sales for those users.

### Coal

Coal prices for households refer to "Charbon du Bois (charcoal).

Monthly prices are retrieved directly from the monthly publications of INS.

Annual prices are estimated as the time-weighted averages of the monthly prices in a given year.



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Prices for coal in year 2022 refer to prices from January to October 2022.

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## Product specifications

| | Mid grade gasoline | LPG | Kerosene | Coal households | Natural gas households |
|---|---|---|---|---|---|
| Quality | | | Pétrole bleu | Charbon de bois | Gaz de ville (basse pression) |
| Octane/Cetane number | 95 | | | | |
| Density (kg/l) | | 0.542 | | | |
| Sulphur content (%) | | | | | |
| Lead content (g/l) | | | | | |



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# Turkmenistan

## Sources

Prices, as set by presidential decrees and announced through the **Oil and Gas Ministry**, are extracted from various news articles.

## Data methodology

The Turkmenistan manat underwent a redenomination in January 2009 at a rate of 1 TMT equivalent to 5 000 TMM. Prices presented here for all years are in TMT.

From years 1994 to 2001, prices are converted from TMT to USD using exchange rates published in the *International Financial Statistics*, the International Monetary Fund, Washington, D.C., 2019.

From year 2009 onwards, prices are converted from TMT to USD using exchange rates published by the Central Bank of Turkmenistan.

### Oil products

In February 2008, the government introduced a free transport fuel allowance of up to 120 litres per month per light vehicle owner. This system was abolished on 1 July 2014.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

### Natural gas

All end users receive free natural gas up to a certain level of consumption. Natural gas is currently free up to 50 $m^3$ (0.524 MWh GCV) per person per month.

Until 1 November 2017, citizens have received free natural gas for residential consumption. Prices paid over the free threshold are considered to be very low, averaging to negligible annual costs. Prices refer to those paid by citizens not engaged in entrepreneurial activities.

For natural gas consumed in excess of the free limit, the price was at 2 TMT / 1 000 $m^3$ (0.191 TMT/MWh GCV) in years 2003 to January 2014. From February 2014 onwards, the price of natural gas consumed in excess of the limit is 20 TMT / 1 000 $m^3$ (1.91 TMT/MWh GCV). These prices are converted from TMT/$m^3$ using a calorific value of 95.5 m3/MWh GCV.



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In September 2018, the government signed a decree abolishing free natural gas for residential consumption to its citizens. This is planned to take effect on 1 January 2019.

## Electricity

All end users receive free electricity up to a certain level of consumption. The free consumption threshold was reduced from 35 kWh per person per month in 2013 to the current 25 kWh per person per month.

Prices paid over the free threshold are considered to be very low, averaging to negligible annual costs. Prices refer to those paid by citizens not engaged in entrepreneurial activities.

For electricity consumed in excess of the free limit, prices are found in the table below wherein annual prices are estimated as the time-weighted average of the price levels in a given year. In September 2018, the government signed a decree abolishing free electricity for residential consumption to its citizens. This is planned to take effect on 1 January 2019.

*Electricity prices for electricity consumed in excess of the free limit from year 1993 to present, as paid by citizens not engaged in entrepreneurial activities*

| Period | TMT/MWh |
|---|---|
| 1993 – 2010 | 9.2 |
| 2011 | 10.13 |
| 2012 – 2013 | 12 |
| 2014 | 13.1 |
| 2015 to present | 25 |

# Product specifications

| | Mid-grade gasoline |
|---|---|
| Quality | |
| Octane/Cetane number | 95 |
| Density (kg/l) | |
| Sulphur content (%) | <0.05 |
| Lead content (g/l) | |



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# Uganda

## Sources

Prices for gasoline and kerosene for 2007 and prices for diesel for 2007 and 2008 have been submitted by the Ministry of Energy and Mineral Development.

Other prices are derived from data extracted from the *Uganda Bureau of Statistics* (UBOS) 'Statistical Abstract'.

## Product specifications

| | Mid-grade gasoline |
|---|---|
| Quality | |
| Octane/Cetane number | 93 |
| Density (kg/l) | |
| Sulphur content (%) | |
| Lead content (g/l) | |



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# Ukraine

## Sources

From January 2012 to May 2015, prices for oil products are derived from data extracted from the Ministry of Economic Development and Trade. From June 2015 onwards, prices of oil products are derived from data extracted from the State Statistics Service of Ukraine.

Prices for electricity and natural gas are derived from data extracted from the Eurostat website.

## National pricing framework

### Oil products

There are no price subsidies for oil products in Ukraine. Tax Code sets the excise taxes on motor fuel in Euro instead of national currency. The tax rate for 2018 is approved at 0.2135 EUR/l for gasoline and automotive diesel. The excise tax for biodiesel and alternative motor fuel are approved at 0.106 EUR/l and 0.162 EUR/l respectively. As a part of Association of Agreement with the EU in 2014, Ukraine took the commitment to gradually introduce the taxation of energy and electricity as specified in the EC Directive 2003/96/EC.

### Electricity

The electricity market is organised on a single-buyer model. Hydro, nuclear, CHP and renewables generators sell at a fixed prices fixed by the regulator, while coal-fired power plants compete for the remaining demand in the wholesale market. The regulator then calculates the aggregated generation cost and adds transportation and distribution costs (including the cross-subsidy for residential consumers) to calculate the final price paid by non-residential customers. There is a two-tier system of electricity tariffs for residential consumers with a final price 0.9 UAH/KWh for consumption in Tier 1 (below 100 kWh a month) and a 1.68 UAH/KWh a month for consumption in Tier 2 (above 100 kWh a month). Despite an average 3.5 times tariff increase for households in March 2017 over April 2015 aimed at complete phasing out residential cross-subsidies, the latter decreased from 38.1 billion UAH in 2014 to only 32.8 billion UAH in 2017 and increased to 45.3 billion UAH in 2018 due to increase in price for steam coal and consequently rising the price at the wholesale market.



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*Electricity supply to wholesale electricity market in January 2018*

| | MWh | UAH/MWh | USD/MWh |
|---|---|---|---|
| Wholesale market | 13,888,256 | 1,079 | 37.9 |
| NPP | 6,842,316 | 546 | 19.2 |
| CFPP | 4,300,235 | 1,640 | 57.6 |
| Large Hydro | 1,237,558 | 444 | 15.6 |
| Feed-in-tariff producers | 186,276 | 4,317 | 151.7 |
| *Small hydro* | *24,018* | *3,991* | *140.2* |
| *Wind* | *114,769* | *3,643* | *128.0* |
| *Solar* | *26,017* | *7,839* | *275.4* |
| *Biomass* | *21,472* | *4,019* | *141.2* |
| CHP and other | 1,321,872 | 2,145 | 75.4 |

## Natural gas

The gas supplied to households and for district heating purposes is regulated differently from all other commercial and public consumers, who may buy natural gas directly from any trader at the wholesale gas market. Regulator employs cost-plus method to set the transmission and distribution component of the natural gas tariff.

In 2013, the natural gas prices for households and district heating companies for heat production were 106 USD/tcm and 164 USD/tcm while for all other consumers the market price was determined as full parity of imported gas and averaged 587 USD/tcm (including transmission, distribution, supply and 20% VAT). In addition to subsidized gas prices for heat generation, the final residential district heating tariffs were subsidized as well. On average residential consumers paid only two-thirds of the costs of commercial heat supplied in 2013. The average residential tariff was 34 USD/Gcal while full cost recovery at subsidized 164 USD/tcm gas price was estimated at 49 USD/Gcal (World Bank/ESMAP (2015) estimates). The average heat tariff at market gas prices for commercial consumers was 113USD/Gcal (Ibid).

Overall gas and heat price subsidies peaked 7% of GDP in 2013-2014 and were in the root of major economic problems – twin deficits (fiscal and current account) which in turn led to sharp currency devaluation in 2014-2015. Having realized its inability to support this level of subsidies even in the short-run, the government had to undertake the steep natural gas and district heating tariff hikes for



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residential consumers. The government increased residential natural gas tariffs by 8.4 times and district heating by 4.6 times since 2014 denominated in national currency, in nominal terms (in real terms the increases are about twofold lower).

In May 2016, the subsidies were completely phased out after the natural gas price for residential sector reached the full import parity level. However, the government was reluctant to further adjust regulated prices for gas and heat after they started falling apart from import parity in late 2016 due to an increase of gas import price and devaluation of Ukrainian currency against euro. The regulated price of gas as commodity for households was therefore 4 942 UAH/tcm while full import parity price of gas as a commodity is estimated by National Energy and Utilities Rugulation Commission at 6 469 UAH/tcm for 2017. Despite further increase of gas prices at the EU market, the natural gas prices for residential consumers were partially reviewed towards the full import parity only in November 2018 while the natural gas prices for DH companies for residential heat supply were increased only in January 2019. The commercial heat tariffs were increased to cost-covering level in 2015. Natural gas subsidies in millions of USD and as percent of GDP are presented in Figure 1 and Figure 2 below.

### *Natural Gas price subsidies, million USD*

| Year | Households | District Heating companies | Total |
|---|---|---|---|
| 2013 | 7698 | 3311 | 11009 |
| 2014 | 6010 | 2657 | 8667 |
| 2015 | 2861 | 1616 | 4477 |
| 2016 | 750 | 568 | 1318 |
| 2017 | 962 | 379 | 1341 |
| 2018 | 1564 | 685 | 2250 |

### *Natural Gas price subsidies as % of GDP*

| Year | Households | District Heating | Total |
|---|---|---|---|
| 2013 | 4.2 | 1.8 | 6.0 |
| 2014 | 4.6 | 2.0 | 6.6 |
| 2015 | 3.2 | 1.8 | 5.0 |
| 2016 | 0.8 | 0.6 | 1.4 |



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| Year | Households | District Heating | Total |
|---|---|---|---|
| 2017 | 0.9 | 0.3 | 1.2 |
| 2018 | 1.2 | 0.5 | 1.8 |

### Coal

The price of steam coal for coal-fired power plants is pegged to the API2 coal index in Rotterdam, and then transportation costs from Rotterdam to Ukrainian ports are added on top. As this price substantially exceeds one that would prevail in a free, competitive market, their difference must be considered equivalent to a price subsidy for coal producers. Accounting the substantially lower quality of the Ukrainian coal quality compared with API2 benchmark product (much higher ash and sulphur content), the projected 2018 steam coal producer subsidies were estimated at 428 million USD. DTEK is the company that produces most of the steam coal in Ukraine and owns the bulk of coal-fired plants. The price of the coking coal is determined at the competitive market. Ukraine does not have coking coal resources after the loss of authority over part of Donbass region in 2014-2015. The major coking coal consumer, steel industry, buys and imports it at the world market.

## Data methodology

### Oil products

Annual prices up until year 2016 are derived as the average of the first available prices published for every month in a given year. Prices in year 2013 are derived from the first available prices in the months of January to September 2013. Prices in year 2014 are derived from the first available prices in the months of February to December 2014.

From year 2017 onwards, prices are derived as the average of the monthly prices.

### Electricity

From year 2007 onwards, prices refer to the Eurostat consumption band DB for households (annual consumption: 1 000 kWh – 2 500 kWh) and IB for industry (annual consumption: 20 MWh – 500 MWh).

Annual prices are the average of the biannual data.



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### Natural gas

From year 2007 onwards, prices refer to the Eurostat consumption band D2 for households (annual consumption: 20 GJ – 200 GJ) and I2 for industry (annual consumption: 1 000 GJ – 10 000 GJ).

Annual prices are the average of the biannual data.

From the source, the derived price for 2016 refers to the price of the second semester.

## Sub-national prices for transport fuels

Disaggregated information is available for the following 24 oblasts and one city with special status:

Cherkasy
Chernihiv
Chernivtsi
Dnipro
Donetsk
Ivano-Frankivsk
Kharkiv
Kherson
Khmelnytskyi
Kyiv
Kirovohrad
Luhansk
Lviv
Mykolaiv
Odessa
Poltava
Rivne
Ternopil
Vinnytsia
Volyn
Zakarpattia
Zaporizhia

For each region the same methodology is used as for the national values.



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## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 92 | 95 |
| Density (kg/l) | 0.720-0.775 | 0.720-0.775 |
| Sulphur content (%) | <10 | <10 |
| Lead content (g/l) | <0.005 | <0.005 |

## References

World Bank/ESMAP (2015) estimates

National Agency for Energy Regulation (ANRE), Annual Report for 2016

WB/ESMAP, IEA for EU4Energy estimates

State Enterprise Energorynok (market operator)

WB/ESMAP, IEA for EU4Energy estimates



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# United Arab Emirates

## Sources

Prices are derived from data extracted from the Ministry of Energy until 2018.

Prices are taken from *Emirates National Oil Company* (ENOC) from 2019 onwards.

## Data methodology

### Oil products

Monthly prices are retrieved directly from the data published by the Ministry of Energy and by ENOC.

Annual prices are derived as the average of monthly prices in a given year. Prices in year 2015 refer to the average of the monthly prices between August and December 2015.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline |
|---|---|---|---|
| Quality | | | |
| Octane/Cetane number | 91 | 95 | 98 |
| Density (kg/l) | | | |
| Sulphur content (%) | | | |
| Lead content (g/l) | | | |



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# Uruguay

## Sources

Prices are derived from data extracted from the Ministry of Industry, Energy and Minerals.

## Data methodology

### Oil products

Monthly average prices refer to the prices reported to the Ministry by the National Administration of Fuels, Alcohols and Cement (ANCAP).

Annual prices are derived as the average of monthly prices in a given year. Prices in year 2004 for regular mid-grade and high-grade gasoline refer to the average of the monthly prices between April and December 2004.

Prices for LPG are converted from URU/kg to URU/l using a density of 0.5422 kg/l.

Prices for residual fuel oil are converted from URU/$m^3$ to URU/tonne using a density of 0.94 kg/l, ANCAP specifying a range 0.9-1.1 kg/l..

Regular gasoline (87 RON) was discontinued in April 2013.

From May 2014 onwards, sulphur content for automotive diesel is 50 ppm. Prior to this, its sulphur content was 4 000 ppm.

### Electricity

Monthly prices refer to the average of the prices in all consumption bands included in each sector, as reported to the Ministry by the National Administration of Fuels, Alcohols and Cement (ANCAP). Since 2020, the consumption bands reported by the ANCAP were modified, with the creation of new bands, and thus, in 2021, the average prices for the different sectors were updated accordingly.

Annual prices are derived as the average of the monthly prices in a given year.

Prices in year 2010 refer to the average of the monthly prices between February and December 2010.

Prices are converted from USD/MWh to URU/MWh using exchange rates from the Uruguayan Central Bank.



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# Product specifications

| | Regular gasoline | Mid-grade gasoline | High-grade gasoline | Automotive diesel | LPG | Residual fuel oil |
|---|---|---|---|---|---|---|
| Quality | | | | | | |
| Octane/Cetane number | 92 | 95 | 97 | | | |
| Density (kg/l) | | | | | 0.5422 | 0.94 |
| Sulphur content (%) | | | | 0.05 | | |
| Lead content (g/l) | | | | | | |



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# Uzbekistan

## Sources

Prices for oil products, as set by the Cabinet of Ministers, are derived from data extracted from various news articles and from the decrees themselves published on the National Database of Legal Documents of the Republic of Uzbekistan.

Prices for electricity, as approved by the Ministry of Finance, are derived from data extracted from announcements made by *Uzbekenergo* and directly from the National Database of Legal Documents of the Republic of Uzbekistan.

Prices for natural gas, as approved by the Ministry of Finance, are derived from data extracted from announcements made by *Uzbekneftegaz* and directly from the National Database of Legal Documents of the Republic of Uzbekistan.

## Data methodology

Between years 1995 and 2000 and from 2018 onwards, prices are converted from UZS to USD using exchange rates published in the International Financial Statistics, the International Monetary Fund, Washington, D.C., 2020.

Between years 2001 and 2012, prices are converted from UZS to USD using average annual exchange rates published by the Central Bank of the Republic of Uzbekistan.

### Oil products

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year. Prices in year 2008 refer to the time-weighted average of the price levels between 16 March 2008 and 1 January 2009.

The Cabinet of Ministers established on its decree on 14 November 2017 that prices of gasoline with octane number higher than 91 be determined by the market. Thus, the price for mid-grade gasoline in 2017 refers to the time weighted average of price levels between 1 January 2017 and 14 November 2017.

Similarly price for gasoline RON 91 has been market based since August 2019. Prices available for deregulated products are thus estimations based on most representative products.



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## Electricity

Prices for electricity in households refer to tariff group VII: population and inhabited settlements until 2018 and to Tariff III : Production agricultural consumers, including pumping stations financed from the budget, including the population from 2019 onwards.

Prices for electricity in industry refer to tariff group II: industrial and other consumers with a connected capacity of up to 750 kVA.

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year. Prices in year 2012 refer to the time-weighted average of the price levels between 1 October 2012 and 1 January 2013.

Prices are VAT-inclusive.

## Natural gas

Prices for natural gas in households refer to the tariff of natural gas released to the public in the presence of gas meters.

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year. Prices in year 2013 refer to the time-weighted average of the price levels between 1 April 2013 and 1 January 2014.

Prices are converted from UZS/$m^3$ to UZS/MWh GCV using a calorific value of 95 $m^3$/MWh GCV.

# Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 80 | 95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Bolivarian Republic of Venezuela

## Sources

Prices are derived from data extracted from public announcements made by the national news agency of Venezuela: *Agencia Venezolana de Noticias* (AVN), which is part of the Ministry of Popular Power for Communication and Information.

### Oil products

Prices are set, and price revisions occur unevenly over time.

Annual prices are estimated as the time-weighted average of the price levels in a given year.

Prices do not take into account the transport fuels sold at the Colombian border, which since 1 January 2017, are higher.

## Product specifications

| | Regular gasoline | Mid-grade gasoline |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 91 | 95 |
| Density (kg/l) | | |
| Sulphur content (%) | | |
| Lead content (g/l) | | |



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# Viet Nam

## Sources

Prices are derived from data extracted from the Ministry of Industry and Trade (MOIT).

## Data methodology

### Oil products

Prices refer to the base prices set by MOIT. Price revisions occur unevenly over time.

Weekly prices are estimated as the time-weighted average of the daily price levels.

Annual prices are estimated as the time-weighted average of the base price revisions in a given year.

Prices in year 2014 refer to the time-weighted average of the base prices between 11 June 2014 and 31 December 2014

Prices for regular gasoline refer to 92 RON gasoline blended with 5% ethanol.

Regular gasoline (92 RON) has been discontinued since January 2018.

The price for mid-grade gasoline in 2018 refers to the time-weighted average of the base prices between 24 April 2018 and 31 December 2018.

## Product specifications

| | Regular gasoline | Mid-grade gasoline | Other regular gasoline |
|---|---|---|---|
| Quality | Gasoline E5 | | |
| Octane/Cetane number | 92 | 95 | 92 |
| Density (kg/l) | | | |
| Biofuel content (%) | 5 | | |
| Sulphur content (%) | | | |



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# Zambia

## Sources

Prices for oil products are derived from data extracted from the Petroleum Statistics report from the Energy Regulation Board of Zambia (ERB).

### Oil products

Pump prices are liberilised since June 2001. However, wholesale prices are set by the regulator (ERB).

Weekly prices are derived as the time-weighted average of the daily price levels. Yearly prices are estimated as the time-weighted average of the daily price levels in a given year.

## Product specifications

| | Regular gasoline | Automotive diesel |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 91 | |
| Density (kg/l) | | |
| Sulphur content (%) | | 0.05 |
| Lead content (g/l) | | |



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# Zimbabwe

## Sources

Prices for oil products are extracted from the Annual Reports of Zimbabwe Energy Regulatory Authority (ZERA).

### Oil products

Gasoline prices refer to RON 91 until 2021 and RON 95 from 2021 onwards. Oil products prices are liberalised and monitored by the ZERA.

Yearly prices are estimated as the time-weighted average of the monthly prices in a given year.

## Product specifications

| | Unleaded gasoline | Automotive diesel |
|---|---|---|
| Quality | | |
| Octane/Cetane number | 91/95 | |
| Density (kg/l) | | |
| Sulphur content (%) | | 0.05 |
| Lead content (g/l) | | |



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