Fuel and energy balance of the Republic of Kazakhstan

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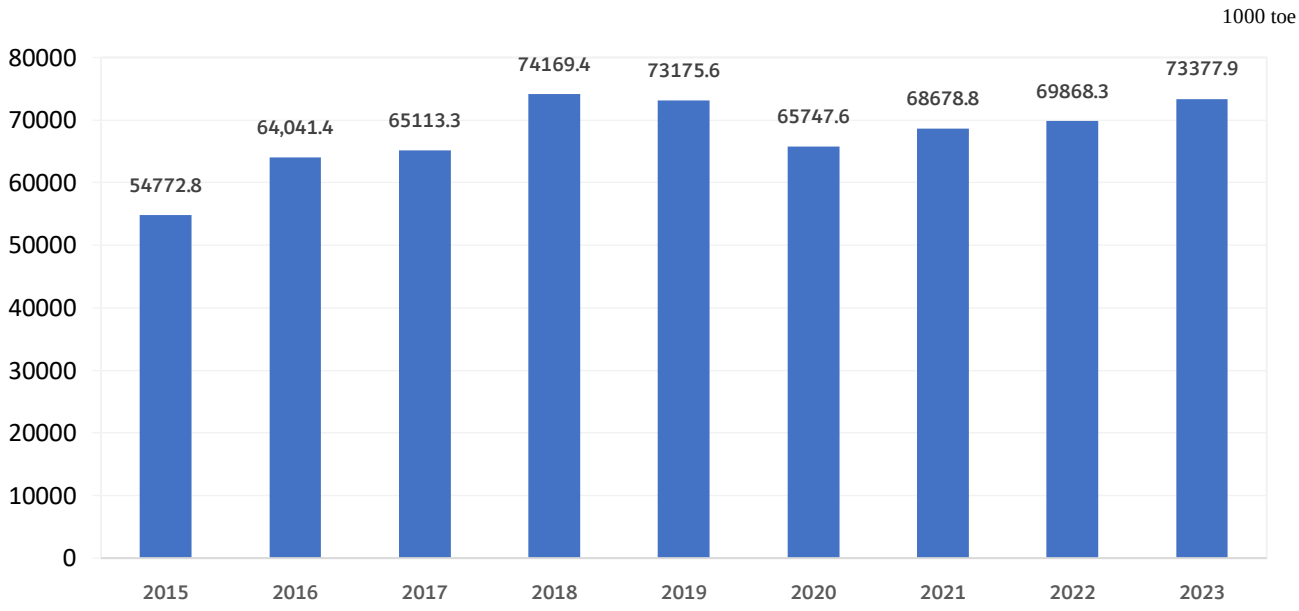
1. Key points

Spreadsheets
Fuel and energy balance of the Republic of Kazakhstan

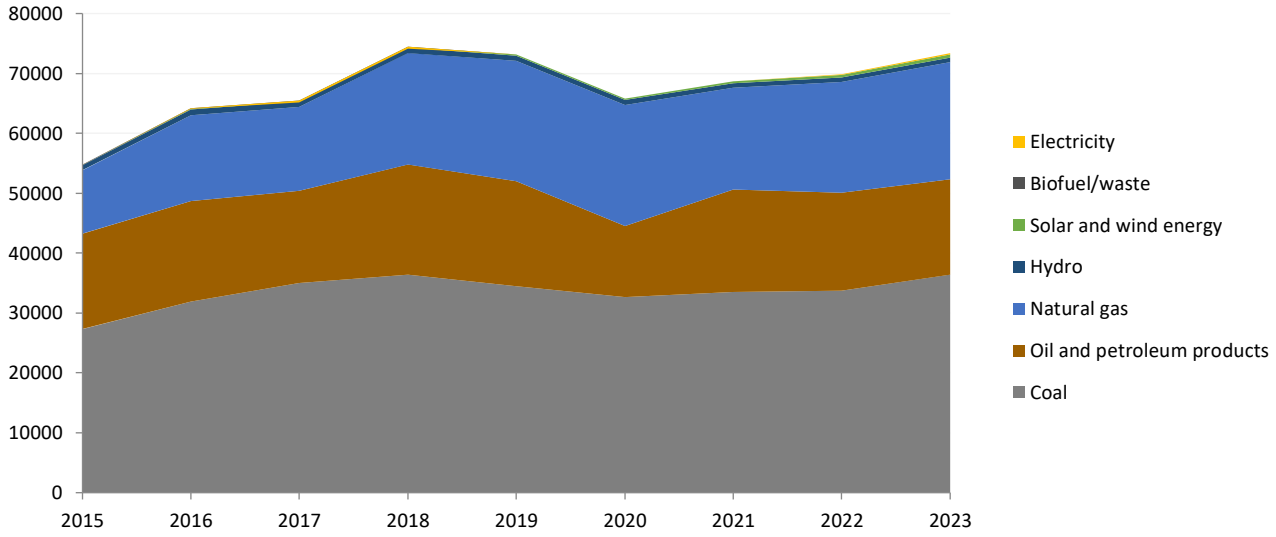
1.1 Total primary energy consumption



Compared to 2022, the total primary energy consumption increased by 5% in 2023 and amounted to 73377.9 thousand tons of oil equivalent (1000 toe).

Total primary energy consumption by fuel type

1000 toe

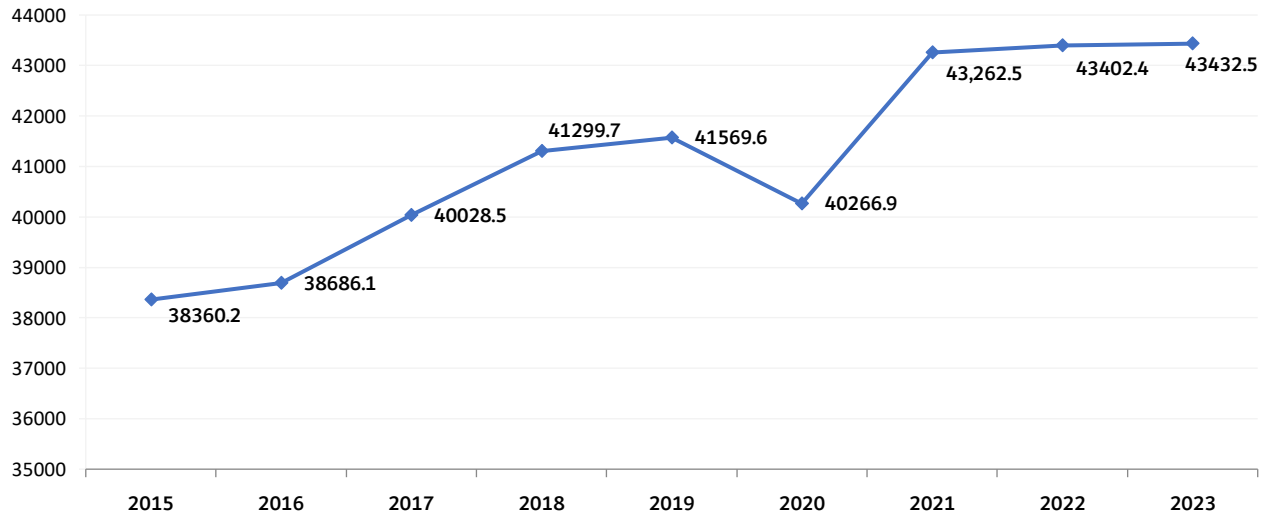


Coal constitutes the largest share in the structure of total primary energy consumption– 49.6%. The next largest ones are natural gas – 26.7%, oil and petroleum products – 21.7% of total primary energy consumption.

1.2 Final energy consumption

Final energy consumption

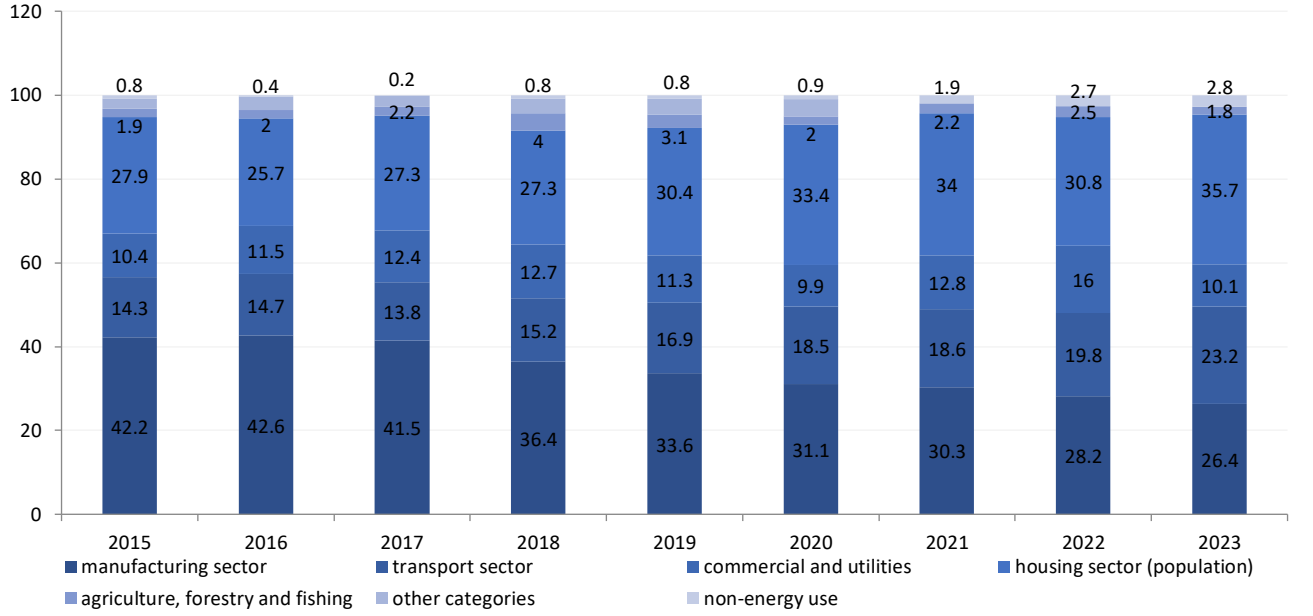
1000 toe



Final energy consumption in 2023 increased by 0.1% compared to the previous year and amounted to 43432.5 thousand tons of oil equivalent (1000 toe).

Final energy consumption by economic sectors

as a percentage



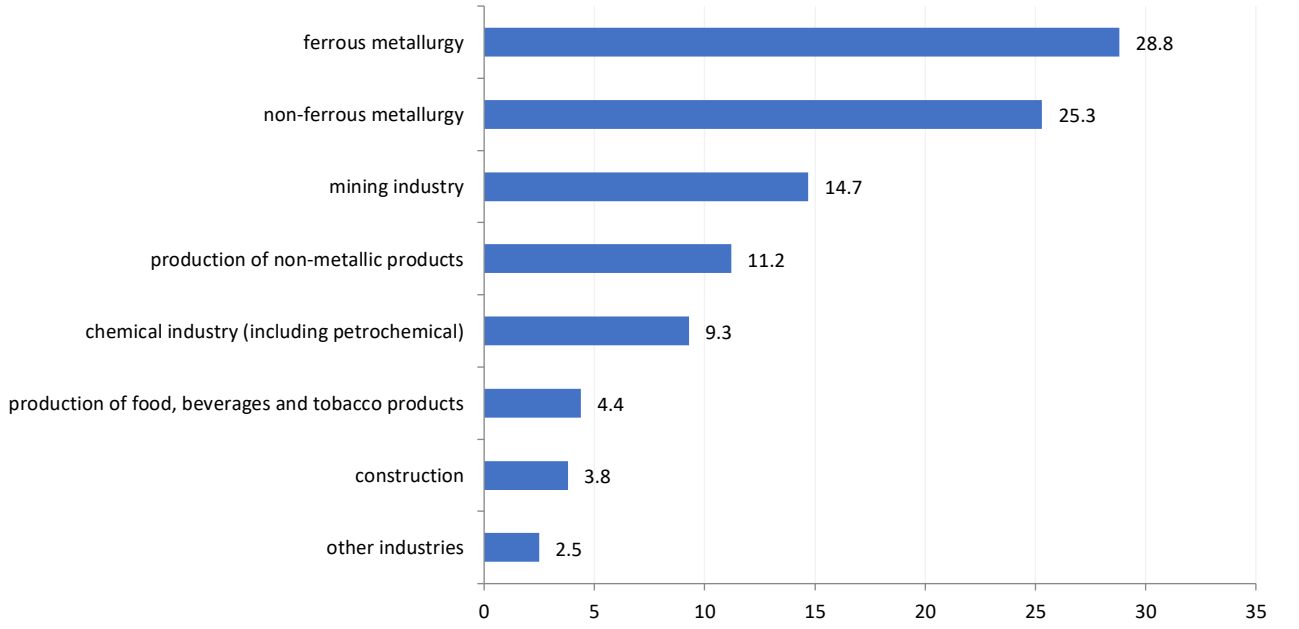
In the final energy consumption, there is a tendency to decrease the share of the industrial, commercial and public services sectors, and the growth of the transport industry and the housing sector. In the structure of final consumption in 2023, the housing sector accounted for the largest share of 35.7 % and its consumption amounted to 13.9 million toe.

Following closely, the industrial sector ranked as the second-largest final consumer of energy (after the residential), accounting for a consumption of 11.4 million toe.

The transport industry stood as the third-largest consumer (after the residential and industrial) in total final consumption, with a volume of 10,1 million toe in 2023.

Final energy consumption in industry by subsector in 2023

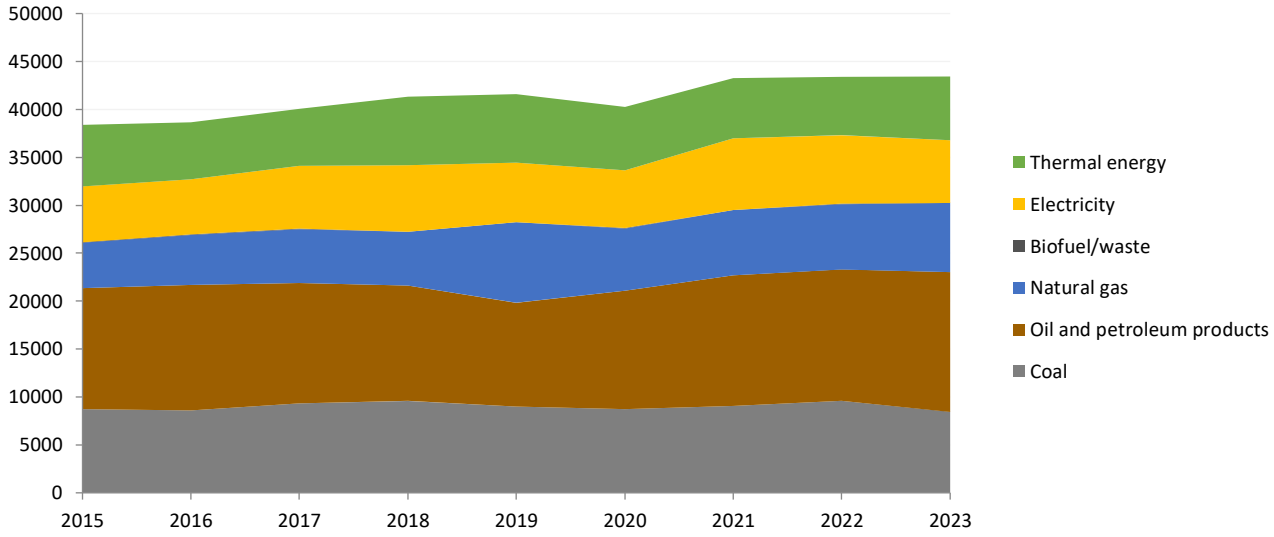
as a percentage



In the structure of the final consumption of the industrial sector, ferrous metallurgy constitutes the largest share – 28.8%, non–ferrous metallurgy – 25.3% and the mining industry – 14.7% of the final consumption within the industrial sector.

Final energy consumption by fuel type

1000 toe

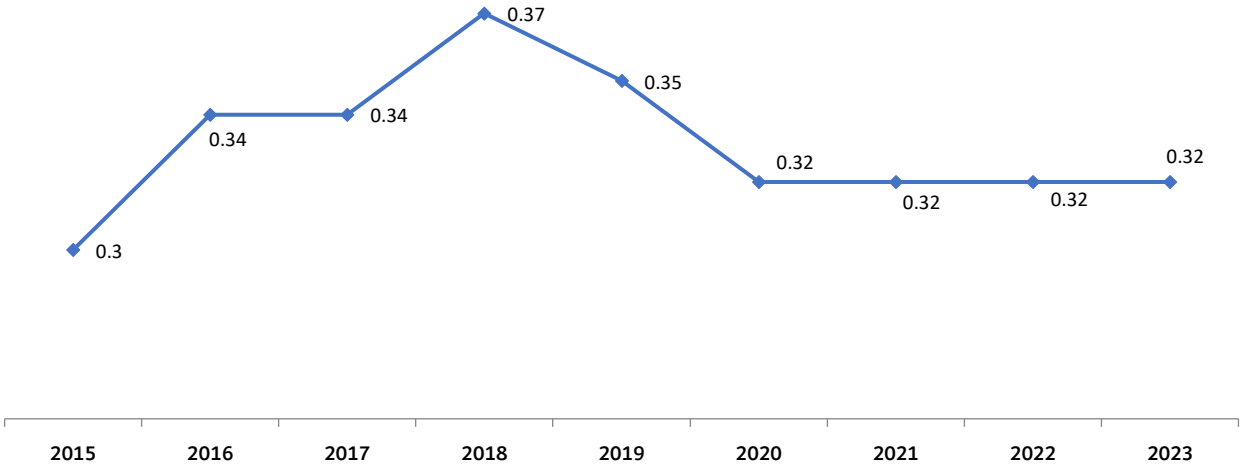


In 2023, the largest share in the final energy consumption is occupied by oil and petroleum products – 33.5% and coal – 19.4%. The share of electricity consumption was 15%, natural gas – 16.7% and heat – 15.3%of the total final energy consumption.

1.3 Energy intensity of GDP

Energy intensity of GDP

toe/ thousand USD in 2015 prices

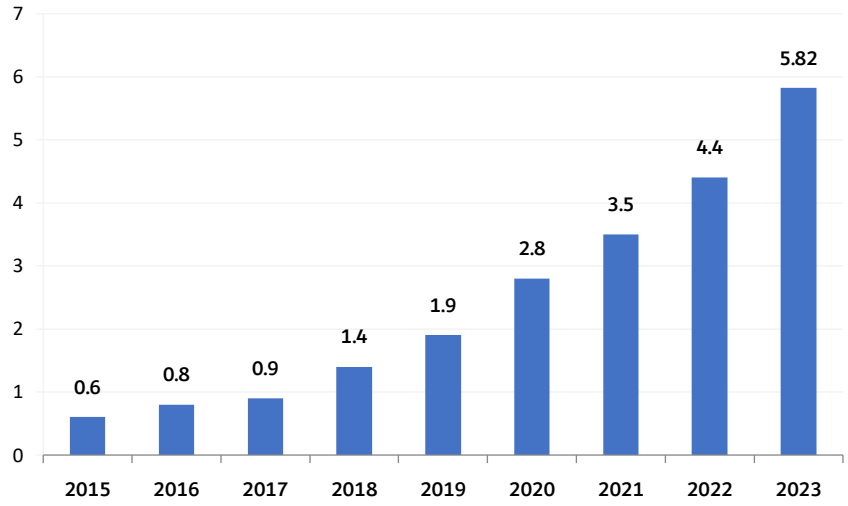


The energy intensity of GDP in 2023 increased by 6.7% compared to 2015 and amounted to 0.32 toe/thousand USD in 2015 prices.

1.4 Share of electricity produced by renewable energy sources (RES)*

Share of electricity produced by renewable energy sources*

as a percentage



**excluding large hydroelectric power plants.*

The share of electricity produced by renewable energy sources (excluding large hydroelectric power plants) in the total volume of electricity production in 2023 amounted to 5.82%, and it has been increasing steadily during the studied period.

2. Glossary

Fuel and energy balance (FEB) - is a system of indicators that reflects the full quantitative correspondence between income and expenditure (including losses and balance) as a whole or in its individual sections (industry, region, enterprise, workshop, process, installation) for a selected time interval.

Total primary energy consumption - is the total volume of supplies of primary energy and its equivalents to the domestic market for all needs (consumption in the conversion sector, non-energy needs, final consumption in economic sectors), considering losses.

Final energy consumption includes all fuel and energy supplied to consumers for both their energy and non-energy use, and does not include the volumes of fuel and energy involved in the conversion processes.

The energy intensity of GDP determines the economic efficiency of consumption of fuel and energy resources in the production of GDP in the country as a whole and is calculated as the ratio of the volume of gross consumption of fuel and energy resources for all production and non-production needs in tons of oil equivalent to the value of GDP.

Fuel and energy resources (FER) - are a combination of various types of fuel and energy (products of the oil refining, gas, coal, peat and shale industries, electricity from nuclear and hydroelectric power plants, as well as local fuels) that the country has at its disposal to meet production, domestic and export needs.

Primary energy – sources of energy (energy carriers) that require only extraction or capture, considering or not considering their separation from the accompanying rock, purification or sorting, before the energy contained in these sources can be converted.

Renewable energy sources are energy sources that are continuously renewable due to naturally occurring natural processes, including the following types: solar radiation energy, wind energy, hydrodynamic water energy; geothermal energy: heat of soil, groundwater, rivers, reservoirs; as well as anthropogenic sources of primary energy resources: consumption waste, biomass, biogas and other fuel from consumption waste used for the production of electric and (or) thermal energy.

3. Methodological explanations

The fuel and energy balance makes it possible to analyze and evaluate changes in the structure of fuel and energy production and consumption, their effective use in economic sectors, monitor the depletion of energy resources, as well as calculate gas emissions into the atmosphere and determine the main directions of development of the fuel and energy complex.

The information base for the construction of the fuel and energy balance is the data obtained or registered in the statistical forms of national statistical observations, as well as administrative data.

Energy flows cover the activities of economic units throughout the territory of the republic and are divided into production (extraction) of fuel and energy products, transformation, foreign trade, change of reserves, final consumption and non-energy use.

FEB is a complex balance sheet that combines the balances of various types of energy resources for the reporting year in the form of a single balance sheet.

The headings of the graph of the balance sheet contain the names of a group of fuel and energy products and product balances corresponding to a certain type of primary or secondary energy products. The row header contains balance sheet items that characterize the movement of primary and secondary energy flows and their equivalents.

4. Links to related publications

Fuel and energy balance of the Republic of Kazakhstan (2022)
Fuel and energy consumption in households in the Republic of Kazakhstan (2023 year)
Statistical bulletin «Fuel and energy consumption in households in the Republic of Kazakhstan in 2023»
On the operation of thermal power plants and boiler houses of the Republic of Kazakhstan (2022)
Gas network in the Republic of Kazakhstan (2022)

5.Useful links

Methodology for the formation of the fuel and energy balance and the calculation of individual statistical indicators characterizing the energy industry
Manual for statistics on energy consumption in households
Energy Statistics Manual IEA
International recommendations for energy statistics (IRES)

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