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1. [Key points](#)

As part of the project of the International Renewable Energy Agency (IRENA) on strengthening bioenergy data for monitoring of the SDGs and NDCs in Kazakhstan the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (hereinafter referred to as the Bureau), from April 12 to April 25, 2023, conducted a sample survey on the nationwide statistical observation “Survey of Energy Consumption in Households”, which is carried out every five years.

The survey involved 11,944 households, among them – 6,520 in urban and 5,424 in rural areas.

The survey was conducted in all regions and the cities of Astana, Almaty and Shymkent using the face-to-face interviewing survey method.

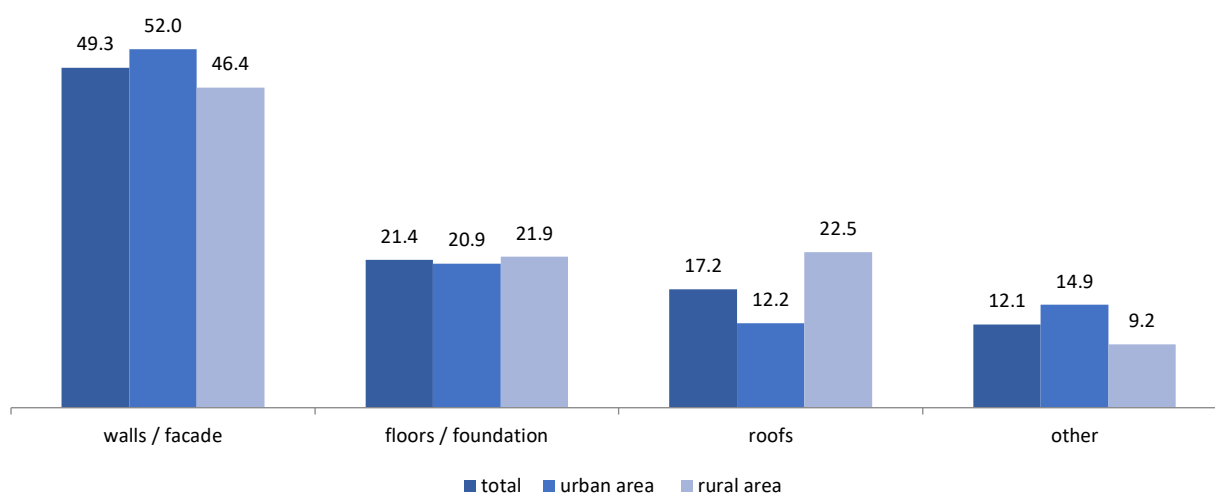
Spreadsheets

[Fuel and energy consumption in households in the Republic of Kazakhstan.](#)

1.1 Characteristics of the dwellings

Distribution of insulation works performed in households by area of residence

in percentages



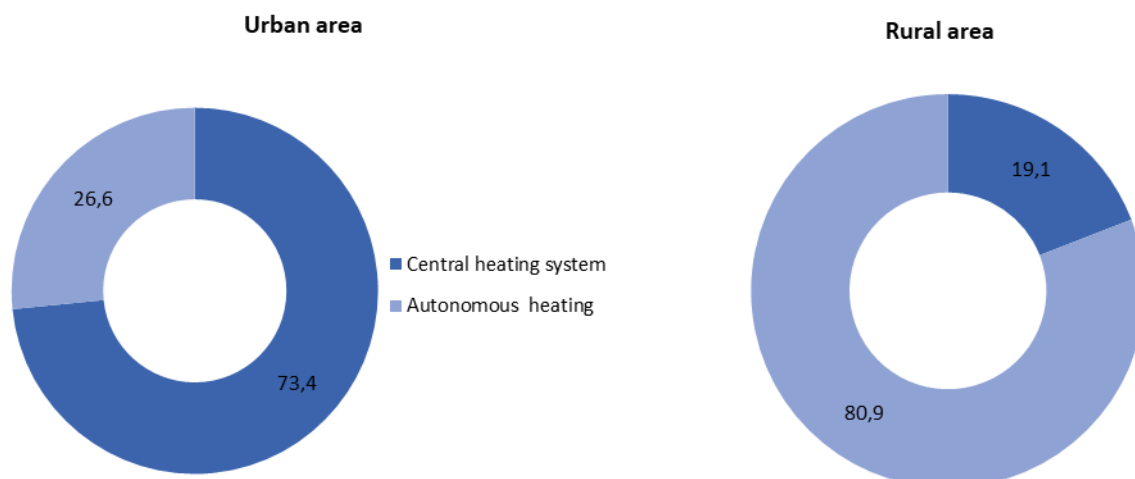
Despite the fact that home insulation is one of the important tools for maintaining heat and saving energy, the percentage of home insulation remains low in both cities and villages. Only 17.7% of all households had at least one type of thermal insulation installed. In urban areas 13.2% of residential premises have installed at least one type of thermal insulation, while in rural areas their share was 27.7%.

The most common type of insulation is thermal insulation of walls and facades of buildings. This type of insulation is installed in 49.3% households in the country: in 52 % of urban households, and in 46.4% of dwellings in rural areas.

Among households with at least one type of thermal insulation installed, 21.4% live in dwellings with insulated floors or basements, and 17.2% with insulated roofs. Among urban households, 20.9% live in homes with insulated floors or basements and 12.2% with insulated roofs. In rural areas, the proportion of houses with insulated floors and foundations was 21.9% and with insulated roofs – 22.5 %.

Distribution of households by type of installed heating system by area of residence

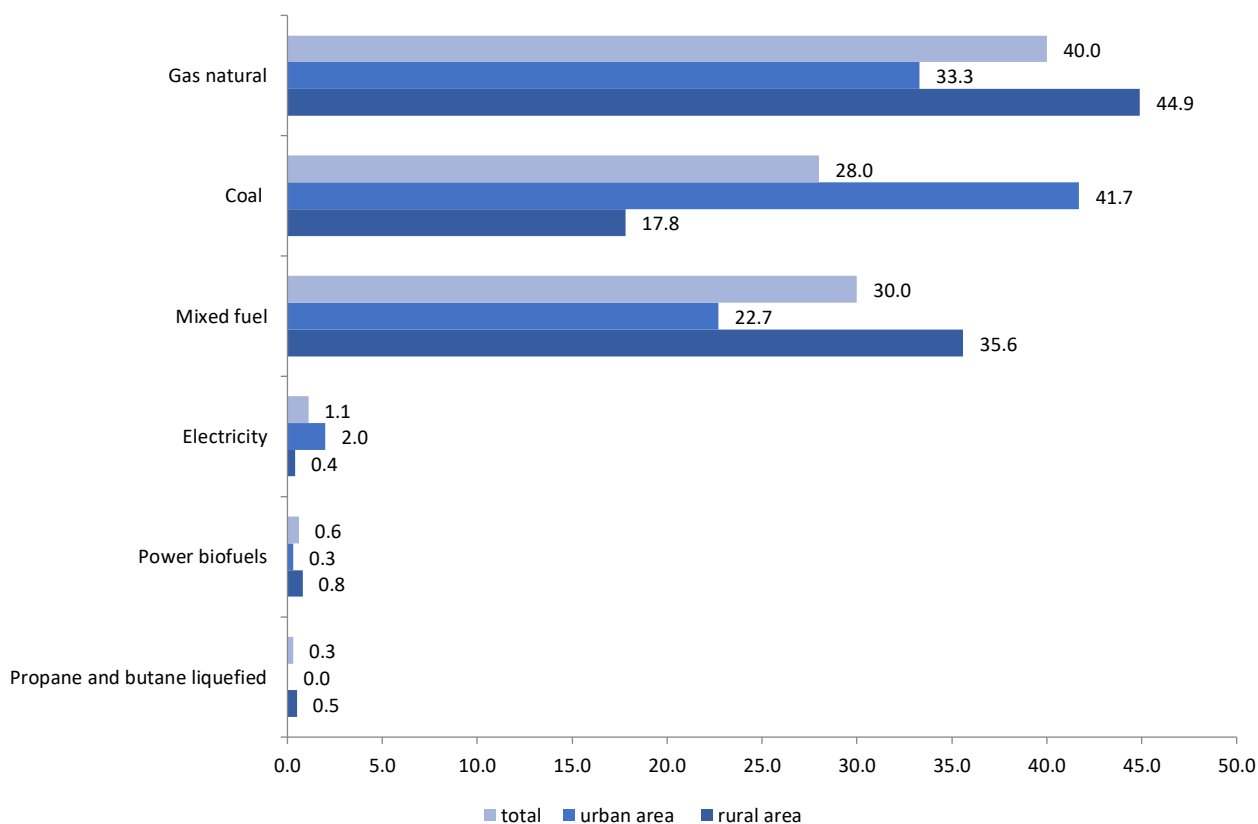
in percentages



According to the results of the survey, 56.6% of households are connected to a centralized system and 43.4% use autonomous systems. In urban areas, 73.4% of all households are connected to the central heating system, and 26.6% use individual systems. The majority of households in rural areas (80.9%) heat their homes with autonomous systems, and only 19.1% are connected to centralized networks.

Distribution of households by type of fuel used by autonomous heating systems by area of residence

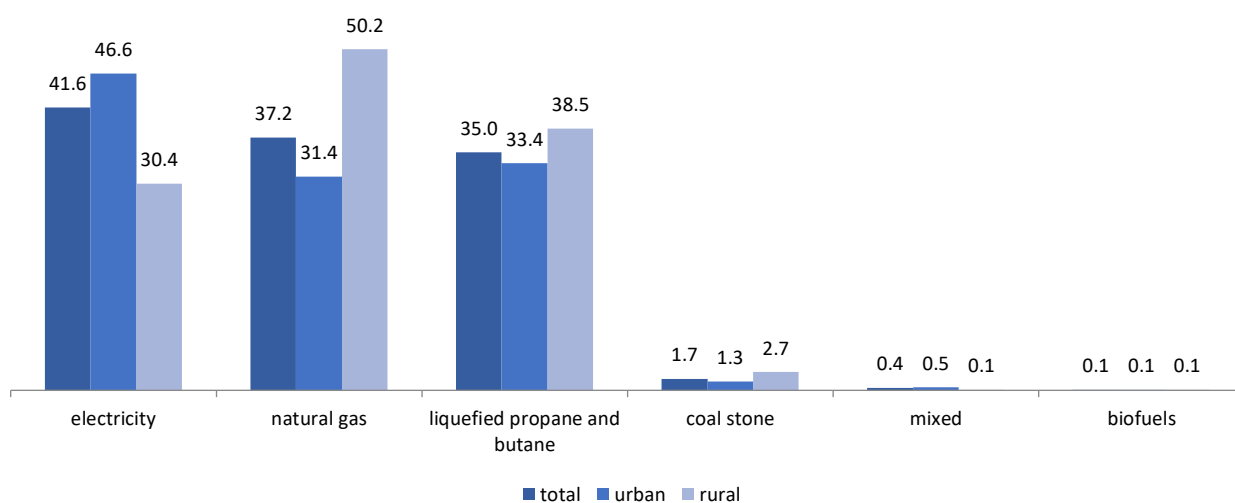
in percentages



In the republic, the majority of households use natural gas (40%) and coal (28%) as the main fuel to power individual heating systems. The use of coal (41.7%), natural gas (33.3%) and mixed systems running on several types of fuel (22.7%) is widespread among the urban population. Natural gas in rural areas is used as the main source of energy for heating in 44.9% of homes, and coal – in 17.8% of all homes, 35.6% of households use heating systems that consume several types of fuel.

Distribution of households by type of fuel used for cooking by are of residence

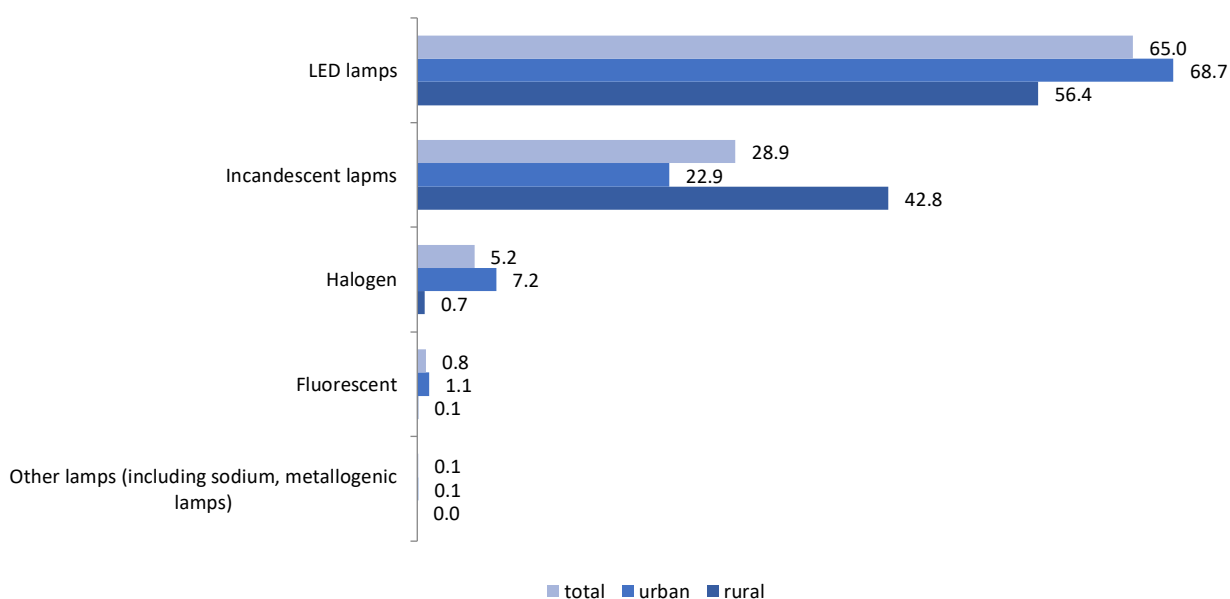
in percentages



For cooking, households (73,9%) mainly rely on energy from burning fossil sources – in total, from natural gas, liquefied propane and butane and coal. At the same time, 41,6% of all cooking equipment accounts for electrical appliances. Similar electric stoves and stoves in urban areas were used by 46,6% of households, while 50,2% of households in rural areas used natural gas for cooking.

Distribution of types of lighting lamps used by households*

in percentages



* The lighting lamps in the living room and kitchen are taken into account.

65.8% of all lighting lamps used in households are energy-saving - LED and fluorescent lamps. At the same time, 42.8% and 22.9% of light in dwellings is produced using incandescent lamps in rural and urban areas, respectively. The most common type of lamps in both urban and rural areas are LED lamps, their share of all used lamps was 68.7% and 56.4%, respectively.

1.2 Household fuel and energy consumption

Total annual household consumption by energy sources

	Total	By type of area	
		urban area	countryside
Coal, tons	7 312 097,9	3 532 559,9	3 779 538,0
Natural gas , thousandcubic meters	5 160 522,5	2 370 324,2	2 790 198,3
Propane and butane, thousand liters	506 958,5	169 920,7	337 037,8
Electricity , GWh	14 328,2	9 500,8	4 827,4
Firewood, thousand cubic meters	3 548,7	1 445,4	2 103,3
Wood waste, tons	7 881,5	1 376,4	6 505,1
Charcoal, including agglomerated, tons	1,7	1,7	-
Animal waste (manure), tons	20 088,4	-	20 088,4
Straw, tons	9,9	-	9,9

According to the survey, the annual consumption of coal in 2022 amounted to 7312.1 thousand tons. Of these, 3532.6 thousand tons (48.3%) were used by households in urban areas, and 3779,5 thousand tons (51,7%) in rural areas.

Natural gas consumption by households across the country in 2022 amounted to 5160.5 million cubic meters. More than half of natural gas was used in rural households - about 54.1%, and 45.9% - in urban households.

Electricity consumption by households for the reporting year amounted to 14 328.2 GWh. Most of the electricity consumption (66.3%) was accounted for by households in urban areas and amounted to 9 500.8 GWh, while households in rural areas used half as much electricity in the same year (4 827.4 GWh).

LPG consumption by households in 2022 was 507 million liters, two thirds of which were used by residents in rural areas. The situation was similar with the consumption of biofuels – out of 3.5 million m³, 59.2% of the total firewood consumption and 82.5% of the total wood waste use were used in rural areas. The consumption of animal waste and straw occurs mainly in households in rural areas –20.1 thousand tons and 9.9 tons, respectively.

1.3 Household use of transport

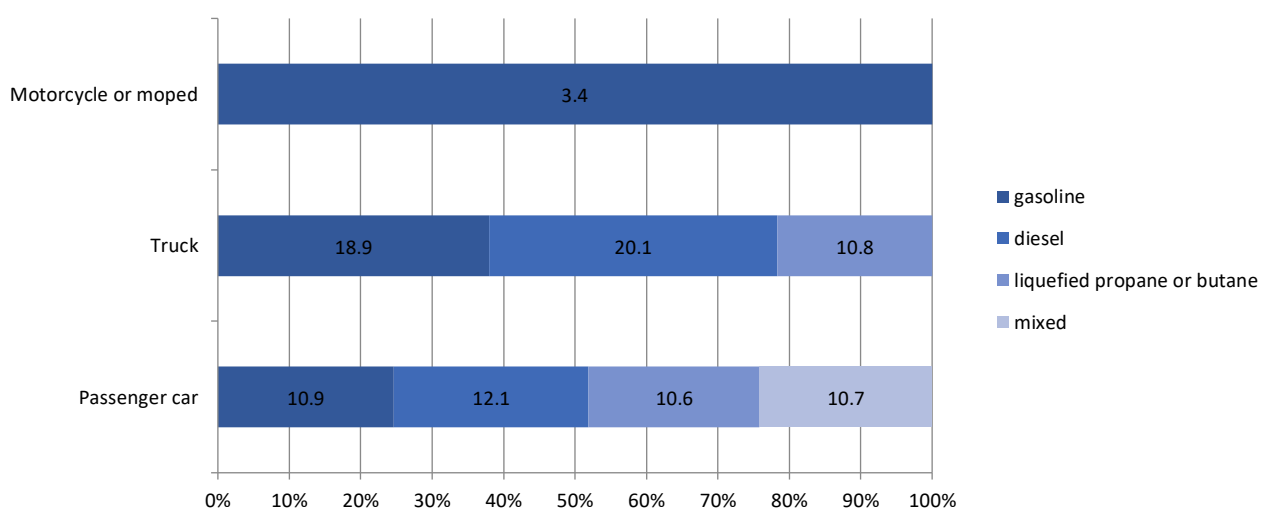
In 2022, the most common mode of transport owned by households was a passenger car. In the total number of households, the share of those using a vehicle was 31%, of which 96.2% owned a car. In urban and rural areas, the share of households owning a passenger car was evenly distributed and amounted to 96.1% and 96,3%, respectively.

The percentage of truck ownership was 1.8%. Among households in urban areas, their share was 1,6%, and in rural areas – 2.1%.

The share of motorcycles and mopeds among all transport was 1.6%. Motorcycles and mopeds were more common among households in urban than in rural areas - their shares were 1.8% and 1.1%, respectively.

Distribution of average fuel consumption by household vehicles

in liters



Mopeds and motorcycles were the most economical vehicles owned by households in 2022, with average fuel consumption of 2.8 and 3.9 liters per 100 kilometers, respectively. The average consumption of cars was 10.9 liters per 100 km. Trucks consumed the largest amount of fuel per 100 km - 19 liters. Both trucks and cars in rural areas proved to be more fuel efficient than those in cities, while urban motorcycles consuming relatively less fuel.

2. Glossary

A household is an economic entity consisting of one or more individuals living together, pooling all or part of their income and property, and consuming goods and services together.

3. Methodological explanations

The survey of households on fuel and energy consumption in the Republic of Kazakhstan is carried out once every 5 years in all regions of the republic, and the cities of Astana, Almaty and Shymkent by a sampling approach.

The purpose of the survey is to collect data on household fuel and energy consumption, by end-use category (heating, cooling, lighting, cooking, water heating, use of electrical appliances) and energy sources (fuel, electricity, renewable energy).

The units of the survey are households.

This document contains data from a sample survey of fuel and energy consumption of 11 944 households, with the data extrapolated to the general population.

4. References to related publications

[Statistical bulletin «Fuel and energy consumption in households in the Republic of Kazakhstan in 2018»](#)

5. Useful links

[Methodology for the formation of the fuel and energy balance and the calculation of individual statistical indicators characterizing the energy industry.](#)

[A guide to household energy consumption statistics.](#)

[The IEA Guide to Energy Statistics](#)

[International Recommendations on Energy Statistics \(MPES\)](#)

Responsible for the release: Department of Services and Energy Statistics	Department director : G. Karaulova Tel. +7 7172 749060	Executor: A.Abdikarimova Tel. +7 7172 749 336 Email:ma.abdikarimova@aspire.gov.kz	Address: 010000, Astana , Mangilik elave.8 House of Ministries, entrance 4
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