

INTRODUCTION

Main Findings

Explanatory Notes for the Tables

This publication presents data on energy in Israel in 2005. It includes information on imports, exports, production, supply and consumption of energy, as well as information on prices of energy products (fuel and electricity) for consumers. Most of the data are included in the series of tables on the energy balance, which are a summary of energy sources and uses, by type.

The tables are compiled from the CBS's energy database.

The energy balance includes data on hydroelectric power stations, as well as data on the power station that operates on oil shales. Other thermal power stations, which produce over 300 kWh of electricity each, are included as well.

MAIN FINDINGS

A. General

In 2005, the Total Final Energy Consumption¹ (TFC) amounted to 13,151 thousand t.o.e. (tons of oil equivalent) – 0.85% more than in 2004.

Final consumption of electricity was higher by 2.7% in 2005 than in 2004.

Final consumption of petroleum products in 2005 fell by 0.023% compared with 2004, after a drop of 3.6% between 2003 and 2004.

The share of electricity in final consumption rose from 28.2% in 2004 to 28.7% in 2005, and the share of petroleum products decreased from 65.9% to 65.5%. The share of primary energy products remained unchanged.

Final consumption of energy products

	2004 (Thousands of t.o.e.)	2005 (Thousands of t.o.e.)	Percentage change 2005 compared with 2004
Electricity	3,679	3,779	2.72
Petroleum products	8,609	8,607	-0.02
Primary Products	752	765	1.80
Total final consumption	13,040	13,151	0.85

In 2005, the Total Primary Energy Supply (TPES) amounted to 21,005 thousand t.o.e. (tons of oil equivalent) – an increase of 1.3% compared with 2004.

The energy ratio for 2005 was 50.5 – a decrease of 3.6% compared with 2004, and continues the decrease of 1.3% in 2004 compared with 2003. This is the third consecutive year that the energy ratio has been decreasing.

¹ Final energy consumption, without consumption of energy products for oil refining and electricity generation.

The energy ratio is obtained by dividing the TPES (in thousands of t.o.e.) by the GDP (in NIS, in 1995 constant prices, including taxes). The energy ratio provides an indication of the efficiency of energy use compared with the GDP: the lower the ratio, the higher the efficiency of energy use.

B. Crude Oil and Petroleum Products

(1) Refining of Crude Oil and Feedstock

In 2005, 11,683 thousand t.o.e. of crude oil and refinery feedstock were refined by oil refineries, 10.7% more than in 2004. Concomitantly, imports of crude oil and refinery feedstock increased by 12.5% in 2005, and amounted to 12,035 thousand t.o.e.

(2) Consumption of Petroleum Products

Gasoline consumption amounted to 2,188 thousand t.o.e. in 2005, an increase of 1.37% compared with 2004. Naphtha consumption rose by 3.51%, from 915 thousand in 2004 to 947 thousand t.o.e. in 2005. The highest increase was recorded in LPG, which rose by 6.1% in 2005 compared with 2004. In 2005, LPG final consumption amounted to 621 thousand t.o.e.

Final consumption of all other petroleum products declined in 2005, as follows: residual fuel oil consumption fell by 0.13%, amounting to 786 thousand t.o.e.; gas/diesel oil consumption fell by 5.73%, amounting to 2,333 thousand t.o.e.; kerosene consumption was 0.12% lower, amounting to 1,043 thousand t.o.e.

(3) Imports of Petroleum Products

Total imports of petroleum products (less imports of refinery feedstock) amounted to 3,693 thousand t.o.e. in 2005, a decline of 12.5% compared with 2004.

Naphtha imports declined by 44.0%, from 528 thousand t.o.e. in 2004 to 296 thousand t.o.e. in 2005; kerosene declined by 19.0%, amounting to 284 thousand t.o.e. in 2005. Imports of other petroleum products fell by 19.2%, amounting to 565 thousand t.o.e., and imports of residual fuel oil (less imports of refinery feedstock) fell by 34.3%, amounting to 788 thousand t.o.e. The decrease in imports of residual fuel oil was caused by a concomitant decrease in inputs of residual fuel oil for electricity generation.

Imports of petroleum products rose as follows: gas/diesel oil rose by 15.5%, from 901 thousand t.o.e. in 2004 to 1,040 thousand t.o.e. in 2005; imports of gasoline rose by 20.8%, from 465 thousand t.o.e. in 2004 to 561 thousand t.o.e. in 2005; imports of LPG rose by 102.8% during the same period, amounting to 160 thousand t.o.e. in 2005.

The percentage of imports in final consumption of petroleum products (less imports of refinery feedstock) was 42.9% in 2005, compared with 49.1% in 2004. The percentage of imports in final consumption of gas/diesel oil rose from 36.4% in 2004 to 44.6% in 2005; the share of imports in final consumption of kerosene fell from 33.5% to 27.2% during that period.

The Share of Imports in Final Consumption, by Product

	2004		2005	
	Total final consumption (thousands of t.o.e.)	Percentage of imports in final consumption	Total final consumption (thousands of t.o.e.)	Percentage of imports in final consumption
Total petroleum products	8,608.8	49.0	8,606.6	42.9
Gas/diesel oil	2,474.8	36.4	2,333.1	44.6
Gasoline	2,158.5	21.5	2,188.1	25.6
Kerosene	1,044.0	33.5	1,042.7	27.2
Naphtha	914.6	57.7	946.7	31.2
LPG	585.3	13.5	621.2	25.8

(4) Prices of Petroleum Products

Average consumer prices of petroleum products rose from 2004 to 2005 as follows: gas (heating) oil – 29.4%, diesel oil – 23.4%, kerosene – 23.2%, LPG – 13.4%, gasoline 96 – 10.2%, and gasoline 95 – 9.8%.

The excise duty¹ on gas/diesel oil and on kerosene rose by 23.3% in 2005, amounting to an annual average of NIS 789.41 per 1,000 liters. The excise duty was NIS 1,018.9 per 1,000 liters in December 2005. The excise duty rates on LPG, residual fuel oil, and gasoline were 0.9% higher in 2005 than in 2004.

C. Electricity

(1) Electricity Generation

Electricity generation amounted to 49,833 million kWh in 2005; a 2.8% increase compared with 2004.

Inputs of natural gas for electricity generation amounted to 1,476 thousand t.o.e. in 2005, and comprised 13.5% of all inputs to electricity generation compared with 10.1% in 2004.

As of the end of 2005, natural gas is used for electricity generation only at the “Eshkol” power plant in Ashdod. During the course of the year, another power plant – the Reading power plant in Tel Aviv – was expected to operate on natural gas. However, the operation of that plant has been delayed.

While the use of natural gas has increased, consumption of residual fuel oil for electricity generation in 2005 has declined by 23.2% compared with 2004, amounting to 1,085 thousand t.o.e. The share of residual fuel oil in total inputs for electricity generation dropped from 13.2% in 2004 to 9.9% in 2005.

¹ Excise duty is a tax for petroleum products.

Electricity generated from natural gas constituted 11.2% of all electricity generation in 2005, compared with 8.9% in 2004.

Inputs of gas oil for electricity generation grew from 343 thousand t.o.e. in 2004 to 690 thousand t.o.e. in 2005, thus constituting 6.3% of total inputs for electricity generation. In 2005, 6.0% of all electricity was generated from gas oil, compared with 2.5% in 2004.

(2) Electricity Consumption

Electricity consumption (including own use by electricity producers, and excluding exports and distribution losses) amounted to 44,017 million kWh in 2005; a 2.7% increase compared with 2004.

Household consumption of electricity in 2005 amounted to 13,720 million kWh, an increase of 1.5% compared with 2004.

Electricity consumption by manufacturing industries increased by 3.1% in 2005 compared with 2004, and amounted to 11,610 million kWh. Electricity consumption by private electricity producers is included in the consumption of the manufacturing industries to which each producer belongs.

Electricity consumption by user group, million kWh

	2003	2004	2005
Households	13,215.7	13,518.1	13,720.1
Trade and services	11,998.4	12,295.4	13,083.2
Manufacturing, incl. self-producers	11,105.4	11,257.9	11,609.5
Water pumping	2,507.2	2,727.9	2,707.0
Agricultural settlements	1,673.3	1,701.1	1,699.3
Bulk	984.4	1,127.2	1,196.2
Total	41,484.4	42,851.8	44,015.6

(3) Electricity Prices

The average rate for general electricity consumption in 2005 was 40.82 Agorot per kWh, an 8.9% increase compared with 2004.

The household rate rose by 7.9% in 2005, compared with 2004, and amounted to 45.49 Agorot per kWh.

The rate for manufacturing industries in 2005 was 11.1% higher than in 2004.

Total electricity consumption expenditure¹ amounted to NIS 18.0 billion in 2005, an 11.9% increase compared with 2004.

¹ Electricity consumption expenditure is defined as a total of electricity consumption in kWh for each of the consumer groups (households, trade and services, agricultural settlements, manufacturing, water pumping, and bulk) multiplied by the annual average electricity rate for that group.

EXPLANATORY NOTES FOR THE TABLES

A. General

Table 1 contains multi-year data on energy in Israel according to main uses, such as transformation of energy (refining crude oil and electricity generation), and final consumption of energy products.

Table 2 presents monthly data – original and seasonally adjusted data as well as trend data, as of 2002.

Table 3 presents the balance of energy in Israel.

Tables 4–11 contain data on imports, exports, production and supply of crude oil, coal, natural gas and petroleum products. Some of the tables also provide seasonally adjusted data and trend data on monthly uses.

Tables 12–14 include data and indicators of the electricity system, according to reports of the Israel Electric Corporation. The indicators include:

Capacity coefficient: the ratio of average demand to nominal capacity during the period. (Nominal capacity: the sum of the nominal capacities of electricity generation units.)

Peak load: the highest demand for the specified period. (Load: demand for electricity.)

Load coefficient (percentages): the ratio of average demand to peak load in the period, multiplied by 100.

B. Structure of the Energy Balance (Table 3)

The balance presented here is closest to the one used by the Organization for Economic Cooperation and Development (OECD), with adjustments to conditions prevailing in Israel. The rows in the table present information on sources and uses, and the columns specify the various types of energy. The quantities in the table can be summed up due to the use of a uniform unit, which expresses the caloric value of the various types of energy.

(1) Columns in the Table

The table's columns specify the various types of energy: crude oil, petroleum products, natural gas, coal, oil shales, hydroelectric and solar power, electricity, heat and steam.

(2) Rows in the Table

Rows 1–7 show the TPES (Total Primary Energy Supply) during the period under review – from imports, from domestic production, or from use of stock. Data on exports of energy or supply to marine bunkers are recorded with a minus sign, to indicate that the amount stated is subtracted from the Total Primary Energy Supply. "Marine bunkers"

include data on Israeli and foreign ships. Israeli bunkers abroad are not listed in the energy balance. In row 6, change in stock is recorded with a plus sign when there is a decrease, because a decrease in stock is the source of the various uses. Conversely, an increase in stock is recorded with a minus sign, because such a change indicates a decrease in the energy at the disposal of the local market.

Rows 9 through 13 present transformations of energy in petroleum refining or electricity generation. In these rows, negative data indicate losses or inputs, while positive data indicate outputs of energy.

Row 14 presents the use of energy within Israel, excluding use by energy producers (oil refineries or electricity generators).

C. Unit of Account

Because the balance sheet contains different types of energy sources (crude oil, gas, electricity, coal, etc.), each of which is measured in a typical unit (m³, kW, etc.), the values of the various products were translated into a uniform unit of measurement. Because Israel's most important form of energy is crude oil, all the forms of energy in the balance sheet have been converted into the unit entitled "Tons of Oil Equivalent" (t.o.e.), which is defined as the amount that produces 10⁷ kilocalories¹ upon its combustion.

The account unit is based on net caloric values. The difference between net and gross caloric value lies in the latent heat of condensation of the water vapor produced during combustion of the fuel. This difference is usually 5% of the gross value for coal; the difference is approximately 10% for natural gas and crude oil, and there is no difference between net and gross caloric values for electricity.

It should be noted that a ton of crude oil does not always render the same amount of calories, because of differences in technical and physical composition, which lead to differences in characteristics (sulphur content, viscosity, density etc.). However, in most cases the conversion coefficient from crude petroleum to t.o.e. does not exceed 2.5%.

D. Sources

Data on **crude oil and petroleum products** – Israel Fuel Authority, the Ministry of National Infrastructure, the Oil Refineries, importers and exporters of crude oil and petroleum products (according to Israeli Foreign Trade data).

Data on **electricity** – Israel Electric Corporation and other electricity producers with thermal power stations generating over 300 kWh and hydroelectric power stations.

¹ This approach is taken in spite of the fact that not all forms of energy are interchangeable. For example, crude oil cannot operate electrical home appliances, and coal cannot be used in motor vehicles.