

Environmental accounts. Physical Energy Flow Accounts
Year 2016

The consumption of energy products by households as final consumers decreased by 2.3% in 2016

The total supply of energy products grew 0.8% as compared to 2015 and domestic production increased by 0.2%

In 2016, the total energy flows amounted to 19,088.4 thousand terajoules (TJ), representing an increase of 0.8% as compared with the previous year.

Origin of physical energy flows

Physical energy flows originate in the environment (natural energy inputs), in production and import (energy products) and in the consumption and accumulation of energy residuals.

According to their origin, the natural energy inputs extracted from the environment reached 1,387.9 thousand TJ, 1.6% more than in 2015.

On the other hand, the supply of energy products amounted to 12,540.0 thousand TJ, 0.2% more than the previous year (of this figure, 7,241.0 thousand TJ corresponded to domestic production and 5,299.0 thousand TJ to imports).

Finally, energy residuals increased by 2.1%, reaching 5,160.5 thousand TJ.

Origin of the physical energy flows. Year 2016

Unit: Thousand TJ

	Total	%	Interannual change %
Natural energy inputs	1,387.9	7.3	1.6
Energy products	1,254.0	65.7	0.2
Energy residuals ¹	5,160.5	27.0	2.1
Total	19,088.4	100.0	0.8

¹ Include losses during extraction/transport/distribution/storage and waste without monetary value

Domestic production of energy products accounted for 57.7% of the total supply of this type of physical flow, 0.2% more than in 2015. On the other hand, imports represented 42.3%, also an increase of 0.2%.

By type of energy product, the highest production corresponded to Coke and refined petroleum products (56.2% of the total) mining industry products (23.7%) and electricity and heat

The energy products with the greatest weight in imports were mining industry products (79.6% of the total) and Coke and refined petroleum products (18.3%).

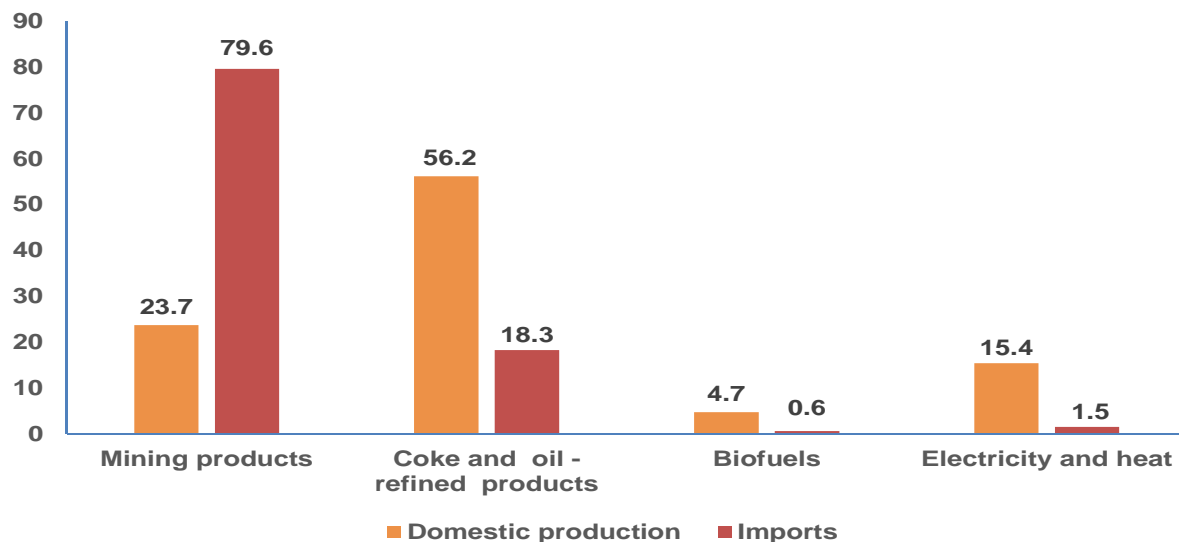
On the other hand, the imports with the lowest weight were Electricity and heat (1.5%) and Biofuels (0.6%).

Supply of energy products by type of energy product. Year 2016

Unit: Thousand TJ

	Domestic production	%	Year- on-year change in %	Imports	%	Year- on-year change in %
Energy products	7,241.0	100.0	0.2	5,299.0	100,0	0.2
Mining products	1,719.7	23.7	0.5	4,220.5	79.6	-2.87
Coke and oil - refined products	4,070.1	56.2	0.3	968.6	18.3	14.5
Biofuels	337.1	4.7	3.8	31.3	0.6	42.9
Electricity and heat	1,114.1	15.4	-1.9	78.6	1.5	46.1

Origin of energy products (%). Year 2016



The destination of physical energy flows

The industries use 57.8% of the total physical energy flows in 2016, representing an increase of 1.4% as compared to the previous year. Of this intermediate energy consumption, 86.9% were Energy products, 12.6% Natural energy inputs and 0.5% Energy waste.

On the other hand, households as final consumers of energy products consumed 6.8% of the total, with a decrease of 2.3% as compared with the previous year. And exports, which accounted for 9.2% of the total, increased by 2.4%.

Finally, 25.9% of the total physical energy flows were emitted to the environment, mostly as energy losses (dissipated heat) due to different production processes and final consumption activities. This emitted energy increased by 0.3% as compared to 2015.

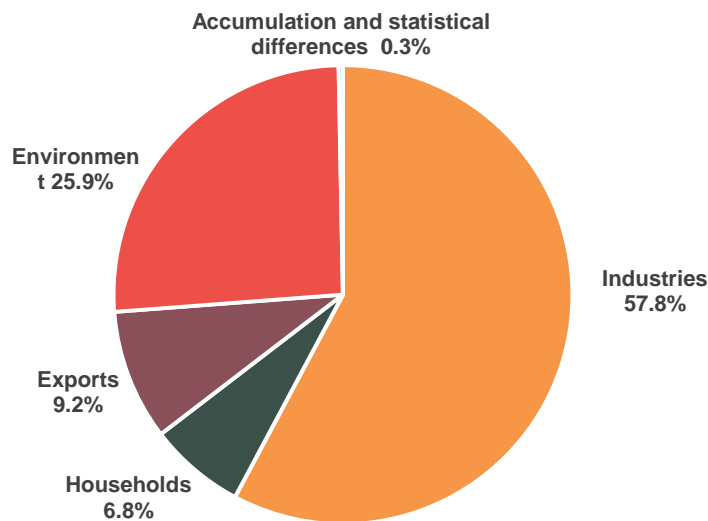
Destination of the physical energy flows. Year 2016

Unit: Thousand TJ

	2016	%	Interannual change %
Industries	1,1051.9	57.8	1.4
Households	1,294.8	6.8	-2.3
Exports	1,756.4	9.2	2.4
Environment (energy residuals)	4,936.9	25.9	0.3
Accumulation ¹ and statistical differences	48.4	0.3	..
Total	19,088.4	100.0	0.8

¹ Changes in stocks

Distribution of the destination of physical energy flows. Year 2016



Destination of the physical energy flows by type of flow

Unit: Thousand TJ

	Industries	Households	Exports	Environment	Adjustements ¹	Total
Natural energy inputs	1,387.9					1387.9
Energy products	9,606.3	1,294.8	1,756.4		-117.8	1,2540,0
Mining products	5,772.2	148.7	156.0		-136.9	5,940.0
Coke and oil- refined products	2,807.1	754.5	1500.4		-23.3	5,038.7
Biofuels	195.0	130.1	49.0		-5.7	368.4
Electricity and heat	832.1	261.5	51.0		48.1	1,192.7
Energy residuals	54.8	0.0	0.0	4,936.9	168.7	5,160.5
Total	1,1051.9	1,294.8	1,756.4	4,936.9	48.4	1,9088.4

¹ Accumulation (changes in stocks) and statistical differences

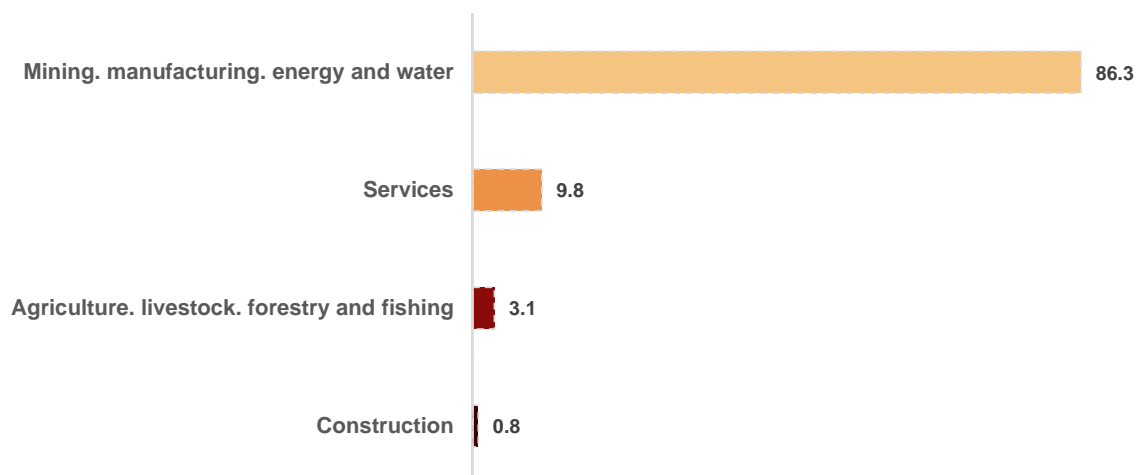
Of the total energy used, 86.3% went to mining industry, manufacturing and energy and water and 9.8% to the Services sector.

On the other hand, the economic sectors that consumed the most energy products were mining industry, manufacturing and energy and water (with 86.5% of the total) and Services (11.2%).

Destination of the physical energy flows by type of flow and economy activity. Year 2016

	Agriculture. livestock. forestry and fishing	%	Mining. manufacturing. energy and water	%	Construction	%	Services	%	Total
Natural energy inputs	195.7	14.1	1,192.2	85.9	0.0	0.0	0.0	0.0	1,387.9
Energy products	146.4	1.5	8,305.4	86.5	76.6	0.8	1,078.0	11.2	9,606.4
Energy residuals	0.0	0.0	54.4	99.3	0.0	0.0	0.7	0.7	54.8
Total	342.1	3.1	9,552,0	86.3	76.6	0.8	1,078.4	9.8	1,1051.9

Distribution of physical energy flow by economic activity. Year 2016



Physical trade balance of energy products

The physical trade balance (or difference between exports and imports of energy products) had a negative result of 3,542.6 thousand TJ in 2016.

By components, imports of extractive industry products represented 79.6% of the total, while exports represented 8.9%, resulting in a negative balance of 4,064.5 thousand TJ.

The energy products that generated a positive trade balance were Coke and refined petroleum products, 531.8 thousand TJ and Biofuels 17.7 thousand TJ.

Key factors of the physical energy trade balance. Year 2016

Unit: Thousand TJ

	Physical trade balance	Imports	%	Exports	%
Energy products	-3,542.6	5,299.0	100.0	1,756.4	100.0
Products of the mining industry	-4,064.5	4220.5	79.6	156.0	8.9
Coke and oil - refined products	531.8	968.6	18.3	1,500.4	85.4
Biofuels	17.7	31.3	0.6	49.0	2.8
Electricity and heat	-27.6	78.6	1.5	51.0	2.9

Notes:

1. According the PEFA methodology, only energy products are imported/ exported (not energy residuals)
2. The imports and exports of energy are not - significant

Review and update of data

The data published today are provisional and will be revised when the data for next year

Methodological note

The Environmental Accounts (EA) is a synthesis operation whose general objective is to integrate environmental information in a coherent way into the central system of National Accounts, following the methodology of the System of Environmental-Economic Accounting (SEEA) developed by the United Nations.

Regulation (EU) No. 691/2012 of the European Parliament and Council of 6 July 2012 in relation to the European environmental-economic accounts, constitutes the reference framework for concepts, definitions, classifications and common accounting standards for the preparation of the Environmental Accounts and includes a section of this account, for annual submission to the European Union.

The Physical Energy Flow Accounts (PEFA) record energy flows between the environment and the economic system of a country, within the economic system, and from the economic system (and households) to the environment. It also calculates the flows of energy products with the rest of the world (exports and imports). The main external source of primary information for its preparation are the Energy Surveys carried out by the Ministry for the Ecological Transition. For its accounting preparation, we use information from the National Accounts and from the structural business statistics and household budgets surveys carried out by the INE.

Energy flows are classified into three categories: natural resources, which are those extracted from the environment to be used in economic production processes; energy products, which are those produced in these processes by the branches of economic activity; and energy waste, which are those generated in the economic production processes and in the consumption of energy products by households.

Furthermore, the environment acts as an energy waste receptor in a solid, liquid and gaseous state or energy in heat form. Most of this waste is generated in the form of heat dissipated during the burning of energy materials. A small part of the energy waste is stored in the stocks for further processing, or included within non-energy use products (such as plastics). Stock changes refer to the increase/variation of the stock of products or energy waste (landfills or energy incorporated in products).

The differences (statistics) between the energy statistics and the account are due to measurement inaccuracies when converting mass and volume units into terajoules, to imbalances between the supply and use, and to the existence of unavailable information.

For more information you can access the methodology at:

<http://www.ine.es>

And the standardised methodological report at:

<http://www.ine.es/dynt3/metadatos/en/RespuestaDatos.html?oe=30063>

For further information see **INEbase: www.ine.es/en/** Twitter: **@es_ine**

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