

CONVERSION FACTORS

The data which have been supplied by the countries in original units are converted to the common unit, terajoules (TJ), by using standard conversion factors or, in the case of solids, specific factors, where available, as indicated below.

Specific factors are displayed for production and for imports. The ones for production are also used for exports and stock changes. All the other flows use a conversion factor which is a weighted average between both. Where no specific factor is listed for a particular country, the standard factor is used to convert all data.

Standard conversion factors for liquid fuels are determined on the basis of the net calorific value for each product.

The conversion of fuelwood (solid volume, 9.135 GJ/m³) is based on an average 20-30% moisture content. When data on the transformation of fuelwood into charcoal are incomplete, estimations assume that it requires 6 cubic metres of fuelwood to produce 1 metric ton of charcoal, equivalent to an approximately 53% transformation efficiency on an energy basis

For users wishing to convert the data from terajoules (TJ) to other common units: one thousand tons of coal equivalent (1,000 TCE) has traditionally been defined as comprising 29.3076 TJ, and one thousand tons of oil equivalent (1,000 TOE) as 42.6216 TJ. One calorie corresponds to 4.1868 joules and is the amount of energy which will raise the temperature of one gramme of water by one degree Celsius.

STANDARD NET CALORIFIC VALUES

(Terajoules per thousand metric tons, unless otherwise stated)

Hard coal	25.80
Brown coal	14.00
Peat	9.76
Oil shale	8.90
Coal coke	28.20
Patent fuel	20.70
Brown coal briquettes (BKB)	20.70
Coal tar	28.00
Coke-oven gas (original unit is TJ)	1.00
Gasworks gas (original unit is TJ)	1.00
Recovered gases (original unit is TJ)	1.00
Other coal products	20.00
Peat products	9.76
Conventional crude oil	42.30
Natural gas liquids	44.20
Additives and Oxygenates	30.00
Other hydrocarbons	36.00
Feedstocks	43.00
Refinery gas	49.50
Ethane	46.40
Liquefied petroleum gas	47.30
Naphtha	44.50
Aviation gasoline	44.30
Motor gasoline	44.30
Gasoline-type jet fuel	44.30
Kerosene-type jet fuel	44.10
Other kerosene	43.80
Gas-diesel oil	43.00
Fuel oil	40.40
White spirit and SBP industrial spirits	40.20
Lubricants	40.20
Paraffin waxes	40.20
Petroleum coke	32.50
Bitumen (asphalt)	40.20
Other oil products	40.20
Natural gas (original unit is TJ on a GCV basis)	0.90
Fuelwood, wood residues and by-products (10 ³ m ³)	9.14
Bagasse	7.72
Animal waste (original unit is TJ)	1.00
Black liquor (original unit is TJ)	1.00
Other vegetal material and residues (original unit is TJ)	1.00
Biogasoline	26.80
Biodiesels	36.80
Bio jet kerosene	40.00
Other liquid biofuels	27.40
Biogases (original unit is TJ)	1.00

STANDARD NET CALORIFIC VALUES (continued)

(Terajoules per thousand metric tons, unless otherwise stated)

Industrial wastes (original unit is TJ)	1.00
Municipal wastes (original unit is TJ)	1.00
Charcoal	29.50
Nuclear heat (original unit is TJ)	1.00
Electricity (GWh)	3.60
Heat (original unit is TJ)	1.00

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

PRODUCTION, EXPORTS AND CHANGES IN STOCKS

HARD COAL	2016	2017
Standard factor	25.8	25.8
Australia	27.0	27.0
Bangladesh	20.9	20.9
Botswana	23.6	23.6
Brazil	18.6	18.6
Bulgaria	28.0	25.2
Canada	25.0	25.0
Chile	16.8	17.0
China	20.8	20.8
Colombia	27.2	27.2
Czechia	27.5	26.6
Egypt	25.7	25.7
France	27.6	27.2
Georgia	25.2	25.2
Germany	29.1	29.1
India	16.5	16.1
Indonesia	25.9	25.9
Iran (Islamic Republic of)	27.8	28.0
Italy	25.9	25.1
Kazakhstan	18.6	18.6
Korea, Democratic People's Republic of	26.5	26.5
Korea, Republic of	18.6	19.4
Kyrgyzstan	18.6	18.6
Malaysia	26.4	26.4
Mexico	29.3	29.3
Mongolia	28.3	28.3
Mozambique	27.0	26.9
New Zealand	30.2	29.7
Niger	16.0	16.0
Norway	28.1	28.1
Pakistan	18.8	18.8
Peru	27.3	27.1
Poland	24.0	23.9
Russian Federation	26.1	26.1
South Africa	23.7	23.7
Spain	19.6	19.5
Sri Lanka	29.3	29.3
Tajikistan	25.0	25.1
Turkey	24.2	24.6
Ukraine	24.1	23.4
United Kingdom	25.1	25.1
United States	27.0	27.1
Uzbekistan	18.6	18.6
Viet Nam	23.4	23.4
Venezuela (Bolivarian Republic of)	30.6	30.6
Zambia	24.7	24.7
Zimbabwe	27.0	27.0

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

PRODUCTION, EXPORTS AND CHANGES IN STOCKS

BROWN COAL	2016	2017
Standard factor	14.0	14.0
Albania	9.8	9.8
Australia	12.4	12.6
Bosnia and Herzegovina	10.8	10.7
Bulgaria	6.8	6.9
Canada	16.7	16.7
Czechia	12.5	12.5
Georgia	17.0	17.0
Germany	9.0	9.0
Greece	5.1	5.1
Hungary	6.6	6.7
India	9.5	9.5
Indonesia	21.1	21.2
Kazakhstan	14.7	14.7
Korea, Democratic People's Republic of	17.6	17.6
Kyrgyzstan	14.7	14.7
Mexico	19.8	19.6
Mongolia	14.4	14.4
Montenegro	9.2	9.2
New Zealand	19.2	19.5
North Macedonia	6.1	7.0
Philippines	22.1	22.1
Poland	8.1	8.3
Romania	7.7	7.3
Russian Federation	14.9	14.9
Serbia	7.8	7.6
Slovakia	13.8	10.2
Slovenia	10.2	11.6
Spain	13.5	13.5
Tajikistan	17.0	17.0
Thailand	10.6	10.6
Turkey	8.6	8.6
United States	18.1	18.2
Uzbekistan	14.7	14.7
 COKE OVEN COKE	 2016	 2017
Standard factor	28.2	28.2
Argentina	28.5	28.5
Australia	27.0	27.0
Austria	28.9	28.6
Belgium	29.3	29.3
Bosnia and Herzegovina	28.5	28.5
Brazil	30.5	30.5

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

PRODUCTION, EXPORTS AND CHANGES IN STOCKS

COKE OVEN COKE	2016	2017
Canada	27.5	27.5
Chile	28.6	28.6
China	28.5	28.5
Colombia	20.1	20.1
Czechia	28.7	28.7
Egypt	27.2	27.2
Estonia	28.5	28.5
Finland	29.3	29.3
France	28.0	28.0
Germany	28.7	28.7
Hungary	29.9	29.6
Italy	29.0	29.0
Japan	29.2	29.2
Kazakhstan	25.1	25.1
Korea, Republic of	28.9	28.9
Mexico	28.4	28.4
Netherlands	28.5	28.5
New Zealand	29.5	29.5
Poland	28.0	28.0
Russian Federation	29.0	29.0
Slovakia	28.3	28.4
South Africa	26.5	26.5
Spain	26.8	26.8
Sweden	28.1	28.1
Turkey	27.0	27.0
Ukraine	25.1	25.1
United Kingdom	29.8	29.8
United States	28.9	28.9
Zimbabwe	25.1	25.1
PATENT FUEL	2016	2017
Standard factor	20.7	20.7
France	32.0	32.0
Germany	31.4	31.4
Hungary	20.7	20.7
Korea, Republic of	18.6	19.4
Poland	23.8	23.2
United Kingdom	28.3	28.3
BROWN COAL BRIQUETTES	2016	2017
Standard factor	20.7	20.7
Australia	22.0	22.0
Belgium	20.7	20.7
Bulgaria	11.6	11.6

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

PRODUCTION, EXPORTS AND CHANGES IN STOCKS

BROWN COAL BRIQUETTES	2016	2017
Czechia	23.4	23.3
Germany	21.4	21.2
Serbia	17.7	17.6
PEAT	2016	2017
Standard factor	9.8	9.8
Austria	9.8	9.8
Belarus	10.0	9.4
Burundi	14.7	14.7
Estonia	10.7	10.1
Falkland Islands (Malvinas)	9.5	9.5
Finland	10.0	9.9
Ireland	8.9	8.7
Lithuania	11.7	11.7
Russian Federation	10.0	10.0
Sweden	12.5	12.5
Ukraine	9.7	9.7
OIL SHALE	2016	2017
Standard factor	8.9	8.9
Estonia	8.3	8.0
Israel	4.0	4.0

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

IMPORTS

HARD COAL	2016	2017
Albania	25.2	25.2
Argentina	28.4	28.8
Australia	27.6	28.1
Austria	28.1	28.4
Bangladesh	20.9	20.9
Belarus	25.2	24.5
Belgium	27.8	29.4
Bosnia and Herzegovina	29.1	29.1
Brazil	30.5	30.5
Bulgaria	28.0	25.2
Canada	28.0	27.9
Chile	23.9	24.1
China	18.5	18.3
China, Hong Kong SAR	26.4	26.4
Croatia	25.1	25.1
Czechia	26.1	26.5
Denmark	23.3	24.3
Egypt	25.7	25.7
Estonia	27.2	22.0
Finland	26.7	26.6
France	27.6	27.2
Georgia	25.2	25.2
Germany	27.5	26.6
Greece	25.5	23.3
Hungary	31.1	29.4
Iceland	28.1	28.1
India	26.5	26.6
Indonesia	28.2	28.2
Iran (Islamic Republic of)	28.1	26.1
Ireland	25.1	25.8
Israel	24.9	24.9
Italy	25.9	25.1
Japan	25.5	25.9
Jordan	26.7	26.7
Kazakhstan	18.6	18.6
Korea, Democratic People's Republic of	25.8	25.8
Korea, Republic of	25.5	24.8
Kyrgyzstan	20.8	20.5
Latvia	23.8	24.1
Lebanon	27.7	27.7
Lithuania	25.1	25.1
Luxembourg	24.7	24.6
Malaysia	26.4	26.4
Mauritius	25.8	26.0
Mexico	26.1	26.0
Moldova, Republic of	23.9	24.2
Morocco	27.6	27.6

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

IMPORTS		
HARD COAL	2016	2017
Namibia	22.7	22.7
Nepal	25.1	25.1
Netherlands	25.3	26.2
New Caledonia	26.0	26.0
New Zealand	26.0	26.6
North Macedonia	26.1	26.2
Norway	28.1	28.1
Pakistan	27.6	27.6
Peru	30.5	30.5
Poland	24.6	24.9
Portugal	24.7	24.9
Romania	25.7	25.6
Russian Federation	25.3	25.6
Serbia	25.7	25.6
Senegal	25.9	25.9
Slovakia	29.0	29.0
Slovenia	27.3	27.4
South Africa	31.0	31.0
Spain	24.1	24.1
Sri Lanka	29.3	29.3
Sweden	29.1	29.0
Switzerland	25.5	25.5
Tajikistan	25.0	25.0
Thailand	26.4	26.4
Turkey	26.8	26.7
Ukraine	25.8	25.5
United Arab Emirates	27.7	27.7
United Kingdom	26.9	26.9
United States	24.9	25.1
Viet Nam	25.8	25.8
Zambia	23.4	23.4
Zimbabwe	27.0	27.0
BROWN COAL	2016	2017
Albania	9.8	9.8
Austria	20.5	20.3
Bangladesh	11.9	11.9
Bosnia and Herzegovina	10.8	10.7
Cambodia	19.9	19.9
Canada	17.9	17.9

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

IMPORTS		
BROWN COAL	2016	2017
Croatia	16.9	17.1
Czechia	14.0	14.0
France	17.0	17.0
Germany	18.4	18.4
Greece	5.1	5.1
Hungary	17.9	17.9
Israel	20.8	20.8
Italy	18.7	17.0
Kazakhstan	14.7	14.7
Korea, Republic of	21.4	21.4
Mexico	19.0	19.0
Montenegro	9.2	9.2
Netherlands	20.0	20.0
New Zealand	20.3	20.2
North Macedonia	20.8	22.1
Philippines	21.6	22.0
Poland	8.1	8.3
Romania	20.8	20.8
Russian Federation	14.9	14.9
Serbia	8.1	8.1
Slovakia	13.8	14.3
Slovenia	13.8	19.0
Switzerland	23.6	23.6
Ukraine	10.0	10.0
United States	19.7	19.7
Uzbekistan	14.7	14.7
COKE OVEN COKE	2016	2017
Australia	27.0	27.0
Austria	28.9	28.6
Belarus	29.0	29.0
Belgium	29.3	29.3
Brazil	30.5	30.5
Bulgaria	28.5	28.5
Canada	27.5	27.5
Croatia	29.3	29.3
Czechia	28.1	28.0
Denmark	29.3	29.3
Egypt	27.2	27.2
Finland	29.3	29.3
France	28.0	28.0
Georgia	29.3	29.3
Germany	28.7	28.7
Hungary	29.9	29.6
Iceland	26.7	26.7
Italy	28.4	28.4

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

IMPORTS		
COKE OVEN COKE	2015	2016
Japan	29.2	29.2
Kazakhstan	25.1	25.1
Korea, Republic of	28.9	28.9
Lithuania	29.3	29.3
Mexico	28.4	28.7
Netherlands	28.5	28.5
Norway	28.5	28.5
Peru	28.2	28.2
Poland	28.0	28.0
Romania	26.4	26.4
Russian Federation	29.0	29.0
Serbia	29.0	29.0
Slovakia	26.5	27.7
Slovenia	30.0	30.1
Spain	26.8	27.3
Sweden	28.1	28.1
Switzerland	25.5	25.5
Turkey	27.0	27.0
Ukraine	25.1	25.1
United Kingdom	29.8	29.8
United States	28.9	28.9
PATENT FUEL	2016	2017
Austria	31.0	31.0
Belgium	30.5	30.5
France	32.0	32.0
Germany	31.4	31.4
Luxembourg	28.2	28.2
Poland	23.2	23.2
Slovakia	28.0	28.0
United Kingdom	28.3	28.3
BROWN COAL BRIQUETTES	2016	2017
Austria	19.8	19.8
Belgium	20.7	20.7
Czechia	20.0	20.2
France	16.9	16.9
Germany	22.1	25.6
Hungary	19.0	19.6
Ireland	19.8	19.8
Luxembourg	22.2	22.2
Netherlands	20.0	20.0

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

IMPORTS

	2016	2017
BROWN COAL BRIQUETTES		
Poland	17.5	17.5
Serbia	15.8	15.8
Slovakia	17.2	17.6
PEAT	2016	2017
Finland	10.0	9.9
Romania	8.8	8.8
Russian Federation	10.0	10.0
Sweden	12.9	12.9
Ukraine	9.7	9.7