

# Report on Energy Supply and Demand in Canada: Explanatory Information



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*Cette publication est aussi disponible en français.*

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**The Report on Energy Supply and Demand in Canada consists of the following tables:**

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|               |  |
|---------------|--|
| 25-10-0026-01 | Supply and demand of natural gas liquids, annual                                       |
| 25-10-0027-01 | Supply and demand of refined petroleum products for non-energy use, annual             |
| 25-10-0028-01 | Electricity generated from fossil fuels, annual  |
| 25-10-0029-01 | Supply and demand of primary and secondary energy in terajoules, annual                |
| 25-10-0030-01 | Supply and demand of primary and secondary energy in natural units, annual             |
| 25-10-0031-01 | Consumption of solid wood waste and spent pulping liquor for energy production, annual |

The Report on Energy Supply and Demand Explanatory Notes publication no longer contains the data from the tables listed above. To obtain the specific data for each table, please consult our website.

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## Data quality, concepts and methodology

### Definitions

**Production** - The capture, extraction or manufacture of fuels or energy in forms that are ready for general use.

**Exports** - Exports of energy products comprise all fuels and other energy products leaving the national territory. Exports can either be credited to the province where the goods are grown, extracted, or manufactured or to the province where the goods cleared customs.

**Imports** - Imports of energy products comprise all fuel and other energy products entering the national territory. Imports can either be credited to the province where the goods are consumed or to the province where the goods cleared customs.

**Inter-regional transfers** - Shows the net inter-regional movement of products between regions, provinces, and territories.

**Stock Variation** - Stock variation is calculated as the opening level minus the closing level. A negative stock variation signifies an increase in stock.

**Inter-product transfers** - Shows the transfer of similar products between different product forms, e.g. still gas to natural gas, natural gas to produce hydrogen in petroleum refineries (e.g. natural gas to produce hydrogen by oil sands operators) and the transfers of products for marketing purposes (e.g. selling diesel as light fuel oil). For propane and butane, inter-product transfers shows the movement of products from gas plants to refineries and are calculated as the difference between production and producer consumption.

**Other adjustments** - Includes cyclical billing variations, metering differences and losses in transportation. In the case of crude oil, includes sales to non-refineries. For crude oil, coal, and Natural gas liquids (NGL-s) this flow is used to balance supply and disposition.

**Availability** - The amount which was available for use. This includes the summation of production, imports, inter-regional transfers, and inter-product transfers, less exports and stock variation.

**Transformed to electricity by utilities** - The amount of fuel consumed by utilities to generate electricity. Utilities are units that produce electricity as their principal activity.

**Transformed to electricity by industry** - The amount of fuel consumed by industry to generate electricity. Industry includes units that produce electricity and for which electricity generation is not the main business activity.

**Transformed to coke and manufactured gases** - The amount of coal charged to coke ovens to produce coke and coke oven gas.

**Transformed to refined petroleum products** - Transformed to refined petroleum products is the amount of crude oil used as a feedstock to produce refined petroleum products. It includes products that have been blended with refined petroleum products, such as renewable fuels and natural gas liquids. Example: butane added to motor gasoline. For natural gas, includes natural gas used to produce hydrogen at refineries.

**Transformed to steam generation** - In all columns except steam, this is the amount of fuel consumed to produce steam that is delivered to another establishment. In the steam column, this is the amount of steam produced that is delivered to another establishment.

**Net supply** - The amount “available” after the amounts used in transformation processes are subtracted. Availability minus stock change, transformed to electricity – by utilities, transformed to electricity – by industry, transformed to coke and manufactured gases, transformed to refined products and transformed to steam generation

**Producer Consumption** - Producers' consumption is the consumption by the producing industry of its own produced fuel - for example refined petroleum products consumed by the refined petroleum products industry. It does not include consumption of energy forms produced by other energy supply industries - for example, it would exclude the use of natural gas by the petroleum refining industry.

**Non-energy use** - Amounts used for purposes other than fuel or transformation purposes. Includes products being used as petrochemical feedstock, anodes/cathodes, greases, lubricants, etc.

**Energy use – final demand** - The summation of the usage in mining and oil and gas extraction, manufacturing, forestry and logging and support activities for forestry, construction, transportation, agriculture, residential, public administration and commercial and other institutional.

**Total industrial** - Total industrial is the summation of total mining and oil and gas extraction, total manufacturing, forestry and logging and support activities for forestry, and construction.

**Mining and oil and gas extraction** - Comprises establishments primarily engaged in extracting naturally occurring minerals. These can be solids, such as coal and ores; liquids, such as crude petroleum; and gases, such as natural gas. The term mining is used in the broad sense to include quarrying, well operations, milling and other preparation customarily done at the mine site, or as a part of mining activity. Establishments engaged in exploration for minerals, development of mineral properties and mining operations are included in this sector. NAICS Code 21.

**Total manufacturing** - The summation of manufacturing industries.

**Pulp and paper manufacturing** - Includes establishments primarily engaged in manufacturing pulp, paper and paper products. NAICS code 322.

**Iron and steel manufacturing** - Establishments primarily engaged in operating blast furnaces, casting mills, rolling mills or coke ovens operated in association with blast furnaces including steel foundries. NAICS codes 3311, 3312 and 33151.

**Aluminum and non-ferrous metal manufacturing** - Establishments primarily engaged in the production of aluminum and the refining of non-ferrous metals and including non-ferrous metal foundries. NAICS codes 3313, 3314 and 33152.

**Cement manufacturing** - Establishments primarily engaged in manufacturing cement. NAICS code 327310. This classification does not include ready-mix concrete operations, which is included in «Other Manufacturing».

**Refined petroleum products manufacturing** - Establishments primarily engaged in manufacturing of a group of refined petroleum products including fuels, blended and oils and greases. NAICS code 324110.

**Chemicals manufacturing** - Establishments primarily engaged in manufacturing industrial organic and inorganic chemicals and chemical fertilizers. NAICS code 325.

**All other manufacturing** - All other manufacturing industries (NAICS codes 31, 32 and 33) not listed above. In some instances, this classification is used when no breakdown of the component manufacturing industries is provided.

**Forestry and logging and support activities for forestry** - Establishments primarily engaged in forestry and logging services and support activities for forestry. NAICS codes 113 and 1153.

**Construction** - Establishments primarily engaged in the construction of buildings, highways, dams, etc., and those providing services to the construction industry. Special trade contractors primarily engaged in construction work in such specialties as plumbing, carpentry, painting, etc. are included. Sales of asphalt (in non-energy refined petroleum products table) for paving purposes, regardless of the purchaser, are also included here. NAICS code 23.

**Total Transportation** – Total transportation is the summation of railways, total airlines, total marine, pipelines, road transport and urban transit, and retail pump sales. In this sector, only the use of fuel by the transportation industry for transportation purposes are included. Excluded are any fuels used for activities not directly involved in transportation (i.e. train stations, warehouses, airports, etc.). These amounts are included in commercial and other institutional. Fuels, which have been purchased for use by the agriculture, commercial and public institutions sectors for transportation purposes, are included in the sectors to which the fuel was sold.

**Railways** - Establishments primarily engaged in operating railways (i.e. establishments primarily engaged in the operation of long haul or mainline railways, short-haul railways and passenger railways are included) and in providing specialized services to the rail transport industry. NAICS codes 482 and 4882.

**Canadian airlines** – Canadian airlines primarily engaged in for-hire, common-carrier transportation of people and/or goods using aircraft, such as airplanes and helicopters. Exclude foreign airlines. Also excluded are establishments engaged in providing speciality flying services such as aerial photography, surveying, air taxi, flying clubs, recreation flying etc., which are included in “Commercial and Other Institutional”. Aerial crop spraying/crop dusting is considered to be “Agricultural”. NAICS codes 481 and 4881.

**Foreign airlines** – Foreign airlines primarily engaged in for-hire, common-carrier transportation of people and/or goods using aircraft, such as airplanes and helicopters. Exclude Canadian airlines. Also excluded are establishments engaged in providing speciality flying services such as aerial photography, surveying, air taxi, flying clubs, recreation flying etc., which are included in “Commercial and Other Institutional”. Aerial crop spraying/crop dusting is considered to be “Agricultural”. NAICS codes 481 and 4881.

**Domestic marine** – Domestic establishments primarily engaged in the transportation of passengers and goods. Domestic classification is based on the ship registry (flag). NAICS codes 483, 4872, and 4883.

**Foreign marine** - Foreign establishments primarily engaged in the transportation of passengers and goods. Foreign classification is based on the ship registry (flag). NAICS codes 483, 4872, and 4883.

**Pipelines** - Establishments primarily engaged in operating pipelines for the transport of natural gas, crude oil and other products. Also included are establishments engaged in the distribution of natural gas to through a series of mains. NAICS codes 486 and 2212.

**Road transport and urban transit** - Establishments primarily engaged in the truck transportation of goods, transit and ground passenger transportation (urban transit systems, interurban and rural bus transportation, taxi and limousine services, school and employee bus transportation, charter bus industry, limousine service to airports and stations, shuttle services and special needs transportation), scenic and sightseeing transportation, and support activities for road transportation. NAICS codes 484, 485, 4871, 4879, 4884, 4885 and 4889.

**Retail pump sales** - Establishments engaged in retailing motor fuels by means of retail pumps, irrespective of the type of ownership or operation. Establishments that operate gasoline stations on behalf of their owners and receive a commission on the sales of fuels are also included.

**Agriculture** - Establishments primarily engaged in agriculture, hunting and trapping activities. Includes establishments engaged in providing support activities; mushroom growing; greenhouses and nurseries. Excluded are any operations primarily engaged in food processing; farm machinery manufacture and repair. NAICS codes 111, 112, 1142, 1151, and 1152.

**Residential** - Includes all personal residences including single family residences, apartments, apartment hotels, condominiums and farm homes.

**Public administration** - Establishments of federal, provincial and municipal governments primarily engaged in activities associated with public administration. This includes such establishments as the Federal Public Service, National Defence, RCMP and provincial and local administrations. NAICS code 91.

**Commercial and other institutional** - Final consumers other than those listed above. This includes service industries related to mining, transportation, as well as storage and warehousing, communications and utility (excluding electricity and natural gas), wholesale and retail trade, finance and insurance, real estate and business service, education, health and social services and other service industries.

**Statistical difference** - Statistical difference is net supply minus producer consumption, non-energy, and energy use - final demand.



## Explanatory notes for tables

Tables [25-10-0029-01](#) and [25-10-0030-01](#)

### Coal

Data presented here are a summation of the different types of coal; bituminous, sub-bituminous, lignite and anthracite. It should be noted that the heat content varies depending on the mine. For publication purposes, provincial/territorial heat contents have been established for Canadian bituminous. Therefore, inter-regional movements, expressed in terajoules, may not balance at the Canada level.

### Crude oil

Includes pentanes plus, condensate, crude bitumen and synthetic crude as well as conventional crude.

### Natural gas

The basic sources for the natural gas data are the **monthly Natural Gas Transmission Survey** ([2149](#)), **monthly Natural Gas Distribution Survey** ([5215](#)), **monthly Natural Gas Storage Survey** ([5210](#)), **monthly Crude Oil and Natural Gas** ([2198](#)), and the **annual Industrial Consumption of Energy Survey** ([5047](#)).

A modified production is used in this publication. This modified production is equal to marketable production plus field flared and waste, gathering uses, and plant uses. The addition of field flared and waste, gathering uses, and plant uses is shown as producer consumption in this survey.

Starting with 1990, natural gas used to produce hydrogen for the enrichment of synthetic crude oil or oil products produced by petroleum refineries is shown as an inter-product transfer.

The source for estimates for the non-energy use of natural gas from the **annual Industrial Consumption of Energy Survey** ([5047](#)). The estimates take into account. Non-energy use of natural gas in the chemical industry. NAICS code 325.

Natural gas conversion factors are subject to fluctuations due to the varying heat content of the gas produced from different fields and to the processes to which the gas is subjected. Conversion factors are based on the heat content of natural gas as reported in the **monthly Natural Gas Transmission Survey** ([2149](#)) and **monthly Natural Gas Distribution Survey** ([5215](#)). The factors are normally revised each year, resulting in revisions to the natural gas terajoule data.

### Gas plant NGL's (natural gas liquids)

Includes propane, butane and ethane. Data shown here is a summation of data presented in table 25-10-0026-01. Condensate produced by gas plants is included with crude oil. All flows, except production and producer consumption, include NGLs produced at refinery and natural gas processing plants.

### Primary electricity

Production is for hydro, nuclear, wind, tidal and solar generated electricity. The assumption is made that international and inter-regional movements of electricity are from primary sources. As virtually all generation is supplied to a grid system, it is not possible to determine the dispositions of primary or secondary electricity separately. Disposition data for both primary and secondary electricity is presented here. Nuclear generation of electricity data are displayed in the primary electricity generation table.

The **annual Electricity Supply and Disposition Survey** ([2194](#)) is the source of data for this publication.

### Steam

Steam sold includes only known steam sales of large producers and therefore excludes any steam produced for own consumption as process steam or space heating. The **annual Industrial Consumption of Energy Survey** ([5047](#)) is the source of data for this publication.

Generation of steam for sale data differs from other energy forms in that they are shown under transformed to other fuels. Steam for sale generation is expressed as a negative number in order that the column remain additive.

Secondary generation of steam for sale can be the product of dedicated steam plants or the result of co-generation of electricity and steam. For the dedicated plants, the amounts of fuels used are known; whereas for co-generation plants, only an estimate of the fuels used for steam for sale generation may be made.

## Coke

The input coal for the coke plants is shown in coal.

## Coke oven gas

The source of the coke oven gas data are the **annual Industrial Consumption of Energy Survey** ([5047](#)) and **annual Electric Power Thermal Generating Station Fuel Consumption Survey** ([2196](#)).

## Renewable fuels

Data presented in the table are a summation of fuel ethanol, biodiesel (FAME), and renewable diesel (HDRD). Renewable fuels transformed to refined petroleum products represents the amount of renewable fuels blended into petroleum products (i.e. ethanol blended into motor gasoline, biodiesel and renewable diesel blended into diesel, etc).

Renewable fuels production data are collected through the Monthly Renewable Fuels Survey (survey number [5294](#)).

Imports and exports are based on customs trade data, which are derived from the administrative records of the Canadian Border Agency and the United States Customs Border Protection.

Stock variation includes stocks held at renewable plants, as collected by the Monthly Renewable Fuels Survey, as well as renewable fuel stocks held at refineries, terminal, and upgraders, as collected by the Monthly Refined Petroleum Product Survey (survey number [2150](#)).

Net supply in the RESD is adjusted to zero using the “other adjustments” variable. It is assumed that renewable fuels do not have a stand-alone end use and therefore net supply should equal zero.

## Secondary electricity

This presents the amount of electricity generated from thermal generation. The fuels used are shown in “Transformed to electricity by utilities” and in “Transformed to electricity by industry” and may include some fuel used for co-generation for which adequate data is not available to enable the split of the fuels. The sources of the data are as indicated for primary electricity. Disposition data is shown under primary electricity. Exports, imports and producers’ consumption (which includes line losses) are included under primary electricity.

## Refined petroleum products

### Total refined petroleum products

Total RPP is the summation of the individual products (refinery LPGs, still gas, motor gasoline, kerosene and stove oil, diesel fuel oil, light fuel oil, heavy fuel oil, petroleum coke, aviation gasoline, aviation turbo fuel, and non-energy products). Excluded are all propane and butane flows except for production and producer consumption. These excluded flows are shown under ‘Gas plant NGLs’.

Tables 25-10-0029-01 and 25-10-0030-01 summarize the activity of Canadian petroleum refineries and the imports of petroleum products. The supply data for all products are derived from the **monthly Refined Petroleum Products Survey** ([2150](#)) and from administrative records. Disposition data are from this survey, **annual End-Use of Refined Petroleum Products Survey** ([2168](#)), **annual Secondary Distributors of Refined Petroleum Products Survey** ([5168](#)) and the **annual Industrial Consumption of Energy Survey** ([5047](#)).

**Inter-product transfers** are defined as refined petroleum product (RPP) “inter-product transfers”, less “transfers to refinery feedstocks” except for liquefied petroleum gases (LPG).

Inter-product transfers for LPG’s are defined as producer consumption minus production.

**Inter-regional transfers** may be modified to reflect movements that are indicated by supplementary data used in the completion of the tables.

Additional information on oil products produced and used in the oil sands/non-conventional sector of the oil and gas industry are included.

The timing of data selection can affect the calculation of supply data. That is, the inclusion or exclusion of refined petroleum products revisions may cause different results.

Because of the way heavy fuel oil and light fuel oil are used, a specific method of combining industries has been employed in the body of this publication. This pattern is detailed in the following:

### Light fuel oil

1. Consumption data reported in the railways and road transport sectors are presented in the commercial and other institutional sector.

### Heavy fuel oil

1. Consumption data reported in railways in Ontario and British Columbia are presented in the domestic marine sector and in the commercial and other institutional sector for all other provinces.
2. Consumption data reported in British Columbia in the road transport sector is presented in the domestic marine sector and in the commercial and other institutional sector for all other provinces.

### Refinery LPG’s (liquefied petroleum gases)

All data except for production and producer consumption is combined with that of “gas plant NGL’s” from table 25-10-0026-01.

### Still Gas

Almost all still gas, commonly known as refinery fuel gas, is used within the producing refinery. Amounts use to generate electricity are reported under “Transformed to electricity by industry”.

### Kerosene and stove oil and light fuel oil

Only the major industrial uses are shown. Industries with small usage are included with “Other manufacturing”.

### Non-energy products

For the summation of all refinery products, the total of Table 25-10-0027-01 is repeated here. Data for the individual products presented in the Table 25-10-0027-01 are converted to terajoules and summarized for inclusion here in the terajoule portion of this table in order for Table 25-10-0029-01 to remain additive.

### [Table 25-10-0027-01](#)

#### Non-energy refined petroleum products

Although this table shows the final sector of disposition, all of the usage is non-energy use. When shown in the tables 25-10-0029-01 and 25-10-0030-01, all usage is considered to be non-energy use and is included on the non-energy use line.

### **Petrochemical feedstocks**

Petrochemical feedstocks are refinery gases or other first derivatives of petroleum used as raw material for further processing and include LPG's, crude tops, crude bottoms, lube oils for recycling, etc.

### **Naphtha specialties**

This includes industrial and commercial solvents, lighting naphtha, mineral spirits and paint thinners. Since the largest portion of these products are used in the commercial and other institutional sector, the total is attributed to this sector.

### **Lubricating oils and greases**

Contains all oils and greases of petroleum origin manufactured or sold for lubricating purposes.

### **Other products**

Includes waxes, paraffin and unfinished products (items which cannot be identified in end-product terms).

### **Table 25-10-0026-01**

#### **Details of natural gas liquids (NGLs)**

Data for the supply section of this table come from various sources. Principal sources for this data are the Canada Energy Regulator, the individual producing provinces/territories and administrative records. The reliability of the final demand end-use category estimates depends on the distributors' ability to report sales by type of final customers.

All data, except for production and producer consumption, are for both gas plants and refineries. Production and producer consumption data in these tables are gas plant only. Refinery produced and producer consumed propane and butane are shown in the tables 25-10-0029-01 and 25-10-0030-01 as 'Refinery LPG's'. The line 'inter-product transfers' shows the movement of the refinery-produced products from tables 25-10-0029-01 and 25-10-0030-01 to table 25-10-0026-01. "Inter-product transfers" is the difference between 'production' and 'producers' consumption' of propane and butane, as shown in the 'Refinery LPG's' in tables 25-10-0029-01 and 25-10-0030-01.

### **Table 25-10-0028-01**

This table presents a modeled breakdown of the thermal electricity generated from various fossil fuels. Included are the amounts of electricity generated from fuel types excluded from the main tables, i.e. wood waste, spent pulping liquor, waste heat, etc. Negatives may occur as an adjustment reflecting fuels used for station service, as the electricity generation figures are reported on a net (as opposed to gross) generation basis.

The first section of this table presents the total generation by utilities and industry. The second part presents the total generation by utilities only.

### **Table 25-10-0031-01**

This table presents consumption of wood and wood waste and spent pulping liquor used to create electricity, create steam for sale, and as a fuel in the production process. The annual **Industrial Consumption of Energy Survey** is the source of data for this publication.

### **Additional Information**

Data from the tables listed below are currently not available online but are available on request.

- Table 9 – (Primary electricity generation)
- Table 11 – (Estimated additions to still gas, diesel, petroleum coke and crude oil)
- Table 12 – (Oilsands processing operations)

Table 11 data will be published online in the future.

## Energy conversion factors

| Fuel type  | Natural unit | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  |
|--|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Coal</b>  |              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Anthracite   | kilotonne    | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 | 27.70 |
| Imported bituminous  | kilotonne    | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 | 29.82 |
| <b>Canadian bituminous</b>   |              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Newfoundland and Labrador, Prince Edward Island, and Quebec  | kilotonne    | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.37 | 28.37 |
| Nova Scotia  | kilotonne    | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 | 28.96 |
| New Brunswick  | kilotonne    | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 26.80 | 28.37 | 28.37 |
| Ontario, Saskatchewan, Alberta, Yukon, Northwest Territories and Nunavut                               | kilotonne    | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 25.43 | 28.37 | 28.37 |
| Manitoba and British Columbia  | kilotonne    | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 26.02 | 28.37 | 28.37 |
| <b>Sub-bituminous</b>  |              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Newfoundland and Labrador, Prince Edward Island, Nova Scotia, Yukon, Northwest Territories and Nunavut | kilotonne    | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 |
| New Brunswick  | kilotonne    | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 26.42 | 26.42 |
| Quebec, Ontario, and Manitoba  | kilotonne    | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 20.79 | 20.79 |
| Saskatchewan, Alberta, and British Columbia  | kilotonne    | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 19.15 | 18.44 | 18.44 |
| <b>Lignite</b>   |              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| All regions except for Saskatchewan  | kilotonne    | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 16.00 | 16.00 |
| Saskatchewan   | kilotonne    | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 16.29 | 16.29 |
| Coal coke  | kilotonne    | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 | 28.83 |
| Coke oven gas  | gigalitre    | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 | 19.14 |
| Propane  | megalitre    | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 | 25.31 |
| Butane   | megalitre    | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 | 28.44 |
| Ethane   | megalitre    | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 | 17.22 |
| <b>Crude oil</b>   |              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Light and medium <sup>1</sup>  | megalitre    | 39.28 | 38.52 | 38.32 | 38.32 | 38.99 | 39.19 | 39.27 | 39.29 | 39.35 | 39.35 | 39.41 | 39.44 | 39.44 | 39.44 | 39.44 | 39.44 | 39.30 | 39.36 |
| Heavy <sup>1</sup>   | megalitre    | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 |
| Pentanes plus <sup>1</sup>   | megalitre    | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 | 40.90 |
| Still gas from refineries  | megalitre    | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 |
| Still gas from upgraders   | megalitre    | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 36.08 | 38.25 | 38.25 |
| Motor gasoline   | megalitre    | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 | 43.24 |
| Kerosene & stove oil   | megalitre    | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 35.00 | 33.45 | 33.45 |
| Diesel   | megalitre    | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 | 37.68 |
| Light fuel oil   | megalitre    | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 | 38.30 |
| Heavy fuel oil   | megalitre    | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 | 38.80 |
| Petroleum coke from refineries   | megalitre    | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 | 42.50 |
| Petroleum coke from upgraders  | megalitre    | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 46.35 | 47.44 | 47.44 |
| Aviation gasoline  | megalitre    | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 | 40.57 |
| Aviation turbo fuel  | megalitre    | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 | 33.52 |
| Petrochemical feedstock  | megalitre    | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 | 37.40 |
| Naphtha specialties  | megalitre    | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 |
| Asphalt  | megalitre    | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 | 35.17 |
| Asphalt  | megalitre    | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 | 44.46 |

## Energy conversion factors

| Fuel type                    | Natural unit  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  |
|------------------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lubricating oils and greases | megalitre     | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 | 39.16 |
| Other petroleum products     | megalitre     | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 | 39.82 |
| Natural gas                  | gigalitre     | 38.21 | 38.26 | 38.26 | 38.32 | 38.41 | 38.43 | 38.52 | 38.56 | 38.74 | 38.85 | 39.00 | 39.24 | 39.03 | 39.03 | 39.28 | 39.28 | 39.28 | 39.36 |
| Electricity                  | gigawatt hour | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  | 3.60  |
| Steam                        | kilotonne     | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  | 2.75  |
| Solid wood waste             | kilotonne     | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 |
| Spent pulping liquor         | kilotonne     | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 | 14.00 |
| <b>Renewable fuels</b>       |               |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Fuel ethanol                 | megalitre     | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | 23.42 |
| Biodiesel                    | megalitre     | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | 35.18 |
| Renewable diesel fuel        | megalitre     | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | ...   | 35.18 |

... not applicable

1. Not used individually except in the calculation of the total crude oil factor.

**Note:** Conversion factors are based on gross calorific values.

## Methodology

### Data quality, concept methodology

The data contained in this publication are derived primarily from energy surveys and administrative records received by Statistics Canada (STC), supplemented with data from Canada Energy Regulator and various energy producing provinces. In general, supply data (production, inventories, trade, etc.) are taken from STC energy fuel specific surveys and disposition data as reported by the largest energy supply companies on energy disposition surveys. The companies surveyed for supply data are the producers and large distributors of petroleum products, major electric utilities (some of which consolidate information from smaller utilities that they supply), industrial electricity producers, coal mines and the natural gas utility industry. Disposition data are supplemented by data obtained from an annual survey of industrial energy consumers.

The validity of the published data is partly dependent on the ability of the responding industries to code customers in an accurate manner. However, many reporting companies, especially in the petroleum products, natural gas & electricity areas, have difficulty in determining the final consumers of the product, due to the presence of marketing agents, brokers, etc. Furthermore, the final consumer may use the purchased product in a number of different industries. As examples: an iron company which extracts and mills ore can also operate a railway system; or a company which operates cement plants can also have ready-mix concrete plants and a trucking fleet all under the same name. A further classification challenge invokes companies which have misleading names which refer to an activity not carried out by the firms or who have changed their activity and not their names.

The universes for all surveys forming the basis of this publication are characterized by very few but very large respondents. In general, census of the energy producing and/or distribution industries are employed. The exception is the Industrial Consumption of Energy Survey which surveys a sample of energy consumers primarily in the manufacturing sector. Selected energy forms used in the most energy intensive industries of the industrial sector and by electric utilities are monitored by surveying the largest establishments to verify selected data reported by the supply industries. In instances where data is available from other STC surveys, comparisons are made to ensure comparability.



## Units and measures

### Approximate product weights (one cubic metre)

|                                   |            |
|-----------------------------------|------------|
| LPG's (liquefied petroleum gases) | 507.5 kg   |
| Still gas                         | 468.7 kg   |
| Aviation gasoline                 | 704.4 kg   |
| Motor gasoline                    | 745.2 kg   |
| Aviation turbo fuel               | 807.4 kg   |
| Kerosene                          | 807.4 kg   |
| Diesel                            | 839.5 kg   |
| Light fuel oil                    | 839.5 kg   |
| Heavy fuel oil                    | 992.8 kg   |
| Asphalt                           | 999.7 kg   |
| Petroleum coke                    | 1,199.3 kg |
| Lubricating oils and greases      | 938.9 kg   |

**Figure 1**

### Units of measure

|               |               |               |                  |                  |
|---------------|---------------|---------------|------------------|------------------|
| kilo = $10^3$ | mega = $10^6$ | giga = $10^9$ | tera = $10^{12}$ | peta = $10^{15}$ |
|---------------|---------------|---------------|------------------|------------------|

### Definitions (factors are rounded)

|   |  |
|---|--|
| Tonne   | = metric tonne<br>= 1,000 kg<br>= 1.102 short ton<br>= 2,204.620 pounds<br>= 0.984 long ton                                  |
| M <sup>3</sup>  | = cubic metre<br>= 1,000 litres<br>= 220.1 imperial gallons<br>= 6.29 barrels<br>= 35.31 cubic feet<br>= 264.17 U.S. gallons |
| Litre   | = 0.220 gallon<br>= 0.264 U.S. gallon  |
| Gallon  | = Canadian or imperial gallon<br>= 4.546 litres  |
| Cubic foot  | = 0.028 m <sup>3</sup>   |
| Cubic yard  | = 0.765 m <sup>3</sup>   |
| Pound   | = 0.454 kg   |
| Barrel  | = Canadian barrel<br>= 0.159 m <sup>3</sup><br>= 34.972 gallons<br>= 42 U.S. gallons   |
| 1,000 joules  | = 0.948 BTU (British Thermal Unit) = 239 calories  |
| BTU   | = 1,054.615 joules = 252 calories  |
| KJ = kilojoule; MJ = megajoule; GJ = gigajoule; TJ = terajoule; PJ = petajoule. |  |
| Example:  | 1 terajoule (TJ) = 161.48 barrels of crude oil<br>1 barrel of crude oil = 6.193 gigajoules (GJ).                             |

1 petajoule approximately equals the amount of energy required to operate the Montreal subway system for one full year.

## Related products

The Report on Energy Supply and Demand in Canada statistical tables can be found here:

[The Daily – Energy supply and demand, 2021 \(statcan.gc.ca\)](https://www150.statcan.gc.ca/n1/pub/28-263-x/2021001/article/00001-eng.htm)

### Selected tables from Statistics Canada

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|               |   |
|---------------|---|
| 25-10-0014-01 | Supply and disposition of crude oil and equivalent, monthly   |
| 25-10-0015-01 | Electric power statistics, monthly  |
| 25-10-0016-01 | Electric power generation, monthly  |
| 25-10-0024-01 | Energy fuel consumption of manufacturing industries in natural units, by North American Industry Classification System (NAICS), annual (cubic metres) |
| 25-10-0025-01 | Energy fuel consumption of manufacturing industries in gigajoules, by North American Industry Classification System (NAICS), annual (cubic metres)    |
| 25-10-0026-01 | Supply and demand of natural gas liquids, annual  |
| 25-10-0027-01 | Supply and demand of refined petroleum products for non-energy use, annual  |
| 25-10-0028-01 | Electricity generated from fossil fuels, annual   |
| 25-10-0029-01 | Supply and demand of primary and secondary energy in terajoules, annual   |
| 25-10-0030-01 | Supply and demand of primary and secondary energy in natural units, annual  |
| 25-10-0031-01 | Consumption of solid wood waste and spent pulping liquor for energy production, annual  |
| 25-10-0035-01 | Operating statistics of Canadian natural gas carriers, monthly  |
| 25-10-0032-01 | Receipts and disposition of natural gas utilities, monthly  |
| 25-10-0033-01 | Sales of natural gas, monthly   |
| 25-10-0034-01 | Exports and imports of natural gas to and from the United States, monthly   |
| 25-10-0047-01 | Supply and disposition of natural gas, monthly  |
| 25-10-0036-01 | Natural gas liquids and sulphur products from processing plants, monthly supply   |
| 25-10-0047-01 | Inventories of Canadian crude oil, liquefied petroleum gases (LPG) and products, monthly  |
| 25-10-0038-01 | Operating statistics of Canadian pipelines, monthly   |
| 25-10-0039-01 | Summary of pipeline movements, monthly  |
| 25-10-0040-01 | Receipts and disposition of crude oil and pentanes plus, by source, monthly   |
| 25-10-0067-01 | Operating statistics of Canadian oil pipeline carriers, monthly   |
| 25-10-0041-01 | Refinery supply of crude oil and equivalent, monthly  |
| 25-10-0042-01 | Refinery supply of other materials used in Canadian refineries, monthly   |
| 25-10-0043-01 | Statistics of refined petroleum products, monthly   |
| 25-10-0044-01 | Supply and disposition of refined petroleum products, monthly   |
| 25-10-0048-01 | Coal coke plant statistics, monthly   |
| 25-10-0017-01 | Electric power generation, annual fuel consumed by electric utility thermal plants  |
| 25-10-0020-01 | Electric power, annual generation by class of producer  |
| 25-10-0021-01 | Electric power, electric utilities and industry, annual supply and disposition  |
| 25-10-0036-01 | Natural gas liquids and sulphur products from processing plants, monthly supply   |
| 25-10-0045-01 | Coal coke plant, monthly statistics   |
| 25-10-0046-01 | Coal, monthly production and exports  |
| 25-10-0055-01 | Supply and disposition of natural gas, monthly  |
| 25-10-0057-01 | Canadian natural gas storage, Canada and provinces, monthly   |
| 25-10-0058-01 | Canadian monthly natural gas transmission, Canada and provinces   |
| 25-10-0059-01 | Canadian monthly natural gas distribution, Canada and provinces   |
| 25-10-0063-01 | Supply and disposition of crude oil and equivalent  |
| 25-10-0081-01 | Petroleum products by supply and disposition, monthly   |
| 25-10-0082-01 | Renewable fuel plant statistics, supply and disposition, monthly  |

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**Selected surveys from Statistics Canada**

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|      |   |
|------|---|
| 2003 | Coke - Monthly  |
| 2147 | Coal - Monthly  |
| 2149 | Natural Gas Transmission Survey (MNGT)                      |
| 2150 | Monthly Refined Petroleum Products                          |
| 2167 | Natural Gas Disposition                                     |
| 2168 | End-Use of Refined Petroleum Products                       |
| 2194 | Electricity Supply and Disposition - Annual                 |
| 2196 | Electric Power Thermal Generating Station Fuel Consumption  |
| 2198 | Crude Oil and Natural Gas - Monthly                         |
| 5047 | Industrial Consumption of Energy Annual                     |
| 5168 | Secondary Distributors of Refined Petroleum Products Annual |
| 5210 | Natural Gas Storage Survey Monthly (MNGS)                   |
| 5215 | Natural Gas Distribution Survey Monthly (MNGD)              |
| 5294 | Monthly Renewable Fuel Survey (MRFS)                        |

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