

## M. Glossary

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<b>Agriculture</b>	The agriculture sector includes all types of farming, hunting, forestry, logging and fishing. For electricity, it excludes separately metered farm houses, which are included in the residential sector, but includes houses where separate metering is not available and farming activity is the dominant use.
<b>ANZSIC 2006</b>	Australia-New Zealand Standard Industrial Classification. In this publication, end uses of gas and electricity are identified by ANZSIC 2006 codes. For comparison with previous editions of the <i>Energy Data File</i> , ANZSIC 1996 has also been displayed in this edition.
<b>Aviation fuels</b>	Avgas, Avtur, Jet-A1 and Jet-4 aviation fuels, light kerosene and premium kerosene.
<b>bbls per day</b>	Barrels per day: a unit for the production rate of oil. This is a measure of volume per unit time.
<b>Bcf</b>	Billion cubic feet: see Mm <sup>3</sup> .
<b>Biogas</b>	Energy produced from the anaerobic digestion of sewage and industrial waste. Includes landfill gas and sewage.
<b>Calorific value</b>	The energy content or energy value of a fuel can be measured as the heat released on complete combustion. Referenced to unit quantity or mass, the energy content of a fuel is referred to as its calorific value, or specific energy. The choice of unit, however, is a matter of convention. For gas, the cubic metre is typically used. For coal, the kilogram is more usual. For liquid fuels, both volumes and masses are commonly used. Calorific values based on gas volumes are assigned to specific conditions of temperature and pressure.
<b>Capacity</b>	The maximum energy output rate of an electricity generation or heat plant, usually measured in MW.
<b>CIF</b>	Cost, insurance and freight.
<b>CNG</b>	Compressed Natural Gas. Natural gas that has been compressed, or contained under pressure, in a small volume. Mainly used as a transport fuel.
<b>Cogeneration</b>	The simultaneous or sequential production of two or more forms of useful energy from a single primary energy source. In this publication, a cogenerator is an electricity generating facility that produces electricity and a form of useful thermal energy (such as heat or steam for industrial or commercial heating or cooling purposes). In the energy balances, only the electrical output is accounted for.
<b>Coke</b>	The solid product obtained from carbonisation of coal, principally coking coal, at high temperature. It is low in moisture and volatile matter. Coke is used mainly in the iron and steel industry acting as an energy source and chemical agent.
<b>Commercial</b>	The commercial sector includes non-manufacturing business establishments such as hotels, motels, restaurants, wholesale businesses, retail stores, and health, social and educational institutions. It also includes electricity used in public lighting, railway and urban traction. In the energy balances, direct use of geothermal energy for commercial consumption is included in the industrial figure, because of data limitations.
<b>Condensate</b>	A light crude oil that is present in natural gas deposits.
<b>Consumer energy</b>	The amount of energy consumed by final users. It excludes energy used or lost in the process of transforming energy into other forms and in bringing the energy to the final consumers. For example, natural gas is a primary energy source (see Total primary energy supply), some of which is transformed into electricity, of which some is lost in transmission to consumers. Consumer energy statistics can be either calculated from supply-side data or observed from usage data.
<b>Consumer energy (calculated)</b>	For oil, it is calculated as production, plus imports, less oil industry losses and own use, less exports, less international transport, less stock change.
<b>Consumer energy (observed)</b>	For oil, it is calculated as agriculture, plus industrial, plus commercial, plus own use, less exports, less international transport, less stock change.

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<b>Crude oil</b>	A mineral oil consisting of a mixture of hydrocarbons of natural origins, yellow to black in colour, of variable density and viscosity.
<b>Diesel</b>	Automotive gas oil, marine diesel and blended heating oil.
<b>Direct sales</b>	Sales direct to final users.
<b>DPFI</b>	Delivery of Petroleum Fuels by Industry Survey. This is a quarterly survey of New Zealand oil companies' deliveries of petroleum fuels to each of 14 economic sectors. This survey was administered by Statistics New Zealand, but from the first quarter of 2009, the survey will be administered by the Ministry of Economic Development.
<b>Energy efficiency</b>	The ratio of total useful output to energy input. The "useful output" can be either energy (energy efficiency) or financial gain (economic energy efficiency).
<b>Energy intensity</b>	Energy use (primary or consumer) per unit of GDP.
<b>Energy transformation</b>	See Transformation.
<b>Exchange rate</b>	The relative value of one currency compared with another (i.e. USD/NZD). All prices are given in New Zealand dollars unless otherwise specified and are nominal unless specified as real. Conversions to New Zealand dollars carried out for purposes of international comparisons are based on exchange rates used by the International Energy Agency.
<b>Flaring</b>	The burning of natural gas that would otherwise be wasted and allowed to escape into the atmosphere. Combustion converts methane in natural gas and the oxygen in the air to carbon dioxide and water.
<b>FOB</b>	Free On Board, a term describing the responsibilities involved in the shipping of freight.
<b>Fossil fuels</b>	Coal, natural gas, LPG, crude oil and fuels derived from crude oil (including petrol and diesel). They are called fossil fuels because they have been formed over long periods of time from ancient organic matter.
<b>Fractionation</b>	A distillation process used for the separation of the various components of a liquid.
<b>Fuel oil</b>	Light fuel oil, heavy fuel oil and other fuel oils.
<b>Gas production</b>	Defined as the quantity after the first separation point. It includes gas reinjected, flaring, own use, losses and LPG extracted.
<b>Geothermal energy</b>	Energy derived from the heat in the interior of the earth.
<b>Greenhouse effect</b>	The greenhouse effect is the mechanism by which solar irradiation (visible light) is trapped in the Earth's atmosphere as heat (infrared radiation), causing the atmosphere (and the Earth) to heat up. This is a natural phenomenon and is a contributing factor to the possibility of life on Earth. The emission of greenhouse gases (see below) by human activities increases the concentration of these gases in Earth's atmosphere and, therefore, enhances the natural greenhouse effect.
<b>Greenhouse gases</b>	Greenhouse gases are gases in an atmosphere that absorb and emit radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect (see above). Common greenhouse gases in the Earth's atmosphere include water vapour (H <sub>2</sub> O), carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrous oxide (NO <sub>2</sub> ), ozone (O <sub>3</sub> ) and chlorofluorocarbons.
<b>Gross and net generation</b>	Gross generation is the total electricity output from a station's generators. Net generation subtracts the parasitic and auxiliary load within the station, such as pumps, fans, crushers, excitation, lighting and heating, that allow the station to generate.

<b>Gross and net PJ</b>	The energy contents or calorific values can be expressed as a gross (or higher heating) value and a net (or lower heating) value. The difference between the two values is due to the release of energy from the condensation of water in the products of combustion. Net calorific values give the amount of useful heat available on combustion, rather than the total heat theoretically available. This means net calorific values are generally a better basis for comparing the energy contents of different fuels. In general, the difference between gross and net calorific values is around 6–8% for liquid fuels and 10% for gaseous fuels. In coals, the greater chemical variability (in contrast with petroleum products) gives rise to a much wider range of gross/net differences, 2–15% or more. In New Zealand the convention for energy accounting and statistical recording has been to use gross calorific values. This is why the <i>Energy Data File</i> generally uses gross calorific values. The latest annual energy supply and demand balance is presented in both gross (Table B.6) and net (Table B.7) terms, and conversion factors for different fuels are provided in the Fuel Properties section. All references in the <i>Energy Data File</i> to PJ are to gross PJ unless specifically noted as net PJ.
<b>Net calorific value (NCV)</b>	The net calorific value or lower heating value (LHV) is determined by subtracting the heat of vaporisation of the water vapour produced in combustion of a fuel from the gross calorific (or higher heating) value. This treats any water formed as a vapour. The energy required to vaporise the water therefore is not realised as heat. See Gross and net PJ for further information.
<b>Gross calorific value (GCV)</b>	The gross calorific value or higher heating value (HHV) is determined by bringing all the products of combustion back to the original pre-combustion temperature and, in particular, condensing any vapour produced. See Gross and net PJ for further information.
<b>GST</b>	Goods and Services Tax. GST is charged at the rate of 12.5% for supplies made on or after 1 July 1989. From 1 October 1986 to 30 June 1989, GST was charged at the rate of 10%.
<b>GWh</b>	Gigawatt hour: see kWh.
<b>IEA</b>	International Energy Agency.
<b>Importer margin</b>	The calculated importer margin for petrol and diesel is the amount available to cover domestic transportation, distribution, retailing costs and profit margins. This is calculated as the difference between the New Zealand retail price (excluding taxes and levies) and the calculated New Zealand import cost.
<b>Industrial</b>	In the Gas and Electricity sections, “Industrial” refers to all uses listed except Residential and Commercial, i.e. all categories from agriculture and hunting, to ancillary construction services inclusive, and includes forestry, logging and fishing. In the energy balances, it includes all uses listed (see section B) and excludes agriculture (farming, hunting, forestry, logging and fishing).
<b>International transport</b>	Includes international sea and air transport. Excludes coastal shipping, national air transport and all land transport.
<b>kt</b>	Thousand tonnes (kilotonnes): see t.
<b>kWh</b>	Kilowatt hour. In the electricity industry, energy is measured in kilowatt hours (kWh), sometimes referred to in context as “units” or, for large quantities, gigawatt hours (GWh). 1 GWh = 1,000,000 kWh. A device with a rating of 1,000 watts or one kilowatt running for one hour would consume one kilowatt hour of electricity. A similar device running for half an hour or two hours would use 0.5 kWh or 2 kWh respectively.
<b>Line losses</b>	For electricity, this refers to the losses incurred by Transpower and local lines companies in conveying electricity to their bulk and retail consumers. It results mainly from transformer and other losses of the network.
<b>LNG</b>	Liquefied Natural Gas.
<b>Losses and own use</b>	In the energy balances, excludes transformation losses but includes losses both before and after transformation: losses and own use in production, transmission and distribution losses, oil industry losses and own use and electricity own use free of charge. In the energy balances and the tables in Section D, oil industry losses and own use includes distribution tankage losses, stocks, accounts adjustment and own consumption.

<b>LPG</b>	Liquefied Petroleum Gas (LPG). LPG typically consists of propane (60%) and butane (about 40%).
<b>Mm<sup>3</sup></b>	Million cubic metres: Volume of liquid or gas measured at 15°C and 101.325 kPa.
<b>mmbbls</b>	Million barrels: see Mm <sup>3</sup>
<b>mmbbls per day</b>	Million barrels per day: see bbls per day.
<b>mmscf per day</b>	Million cubic feet per day: see bbls per day.
<b>MW</b>	Megawatt: Power is the rate of doing work or the rate of energy flow, i.e. the rate at which energy is produced or used. The Système International (SI) unit of power is the watt (W), defined as a rate of one joule per second. In this publication, the standard unit of power is the megawatt (MW). Power is usually recorded (and is shown in these statistics) as the average over a period (typically a half-hour period) rather than as an instantaneous value.
<b>MWh</b>	Megawatt hour: see kWh.
<b>Natural gas</b>	Consists mainly of methane occurring naturally in underground deposits.
<b>Net gas production</b>	Net gas production (also known as sale gas) is gas production less any gas flared, gas reinjected, LPG extracted, own use or losses.
<b>Net generation</b>	See Gross and net generation.
<b>NGL</b>	Natural Gas Liquids (NGL).
<b>Non-energy use</b>	Use of primary energy for other purposes (e.g. bitumen for roads) and natural gas used as feedstock for the production of methanol and ammonia/urea.
<b>Oil</b>	Oil includes crude oil, condensate or oil products unless otherwise specified.
<b>Oil production</b>	Oil refinery operations (intake crude and production of oil products) and the input of gas for the production of synthetic gasoline.
<b>Other oil</b>	Includes other petroleum products such as bitumen, lubes, solvents, waxes, petroleum coke, white spirit, other liquid fuels and sulphur.
<b>Own use</b>	For electricity, this refers to the electricity used by an electricity supplier or generating plants free of charge.
<b>PJ</b>	Petajoule: The joule is the Système International (SI) derived unit of energy and heat. Its consistent use simplifies comparisons between different forms of energy and between energy supplied or consumed in New Zealand and overseas. A joule is the energy required to heat 1 cubic centimetre of water by about a quarter (0.239) of a degree Celsius, or the energy needed to lift a kilogram about 102 millimetres. A PJ is 10 <sup>15</sup> (1,000,000,000,000,000) joules.
<b>Primary energy</b>	Energy as it is first obtained from natural sources. See Total primary energy supply.
<b>Refinery blendstocks and other feedstocks</b>	Include refinery naphtha, mid-distillate and motor gasoline blending components, e.g. alkylate mix, offgrade regular, offgrade premium, reformate, cracked spirit. Synfuels used as refinery feedstock are also included in this category.
<b>Reinjection</b>	The reinjection of natural gas that has been extracted from a well.

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<b>Reserves</b>	Oil and gas reserves are expected reserves, estimated as “proven and probable” or P50 (i.e. with a greater than 50% probability of being technically and economically producible) reserves by the field operators. Ultimately recoverable reserves are estimates of the total amounts of oil and gas that can be extracted during the lifetime of each field. These may differ from initial reserves estimates made at the commencement of production.
<b>Residential</b>	This refers to each separately metered private dwelling, i.e. private houses. It excludes hotels, hostels, institutions etc. (which are included in the commercial sector) but does include normally unoccupied holiday homes, beach houses etc.
<b>Reticulated sales</b>	Sales through the reticulation (gas distribution) network.
<b>Self-sufficiency</b>	In relation to oil, it is calculated as domestic production divided by total domestic consumption (including refinery and industry own uses).
<b>Separation</b>	Splitting wellhead gas into a gas stream and a liquid stream.
<b>Stock change</b>	Change in stocks between ends of months, quarters or years. By convention, an increase in stock levels is defined as a positive stock change.
<b>t</b>	Tonne: Unit of mass equal to 1,000 kg.
<b>Total primary energy supply (TPES)</b>	The amount of energy available for use in New Zealand for energy transformation and end use. It includes energy as it is first obtained from natural sources, which means that coal is accounted for as it is mined, indigenous oil and natural gas as they are extracted from wells, imported oil and oil products as they are imported, and hydro as it is used for electricity generation (assuming efficiency of 100%). Geothermal is accounted for on the basis of its use as an input to electricity generation including cogeneration, plus an estimate of losses, own use and geothermal used directly as a heat source. It accounts for imports and exports, and makes allowance for any stock change. By convention, fuels used for international transport are excluded from total primary energy supply. Thus, total primary energy supply is calculated as indigenous production, plus imports, less exports, less stock change, less international transport.
<b>Transformation</b>	Transformation in this publication refers to the transformation of energy from one form to another. It always results in conversion losses. Transformation losses are shown as the (negative) totals at the right of the energy balance tables. Transformation losses in electricity generation are derived from the gross electricity generated. See Table B.1 for default factors used where actual data are unavailable.
<b>Unallocated</b>	In the energy balance tables, a category within the industry sector for those items whose industrial disaggregation is either unknown or confidential.
<b>Waste heat</b>	Includes waste heat from industries, factories and processing plants that is used to generate electricity from steam turbines.
<b>Wood residues</b>	Includes arisings, hog fuel, bark and black liquor.