ENERGY BALANCES OF OIL AND PETROLEUM PRODUCTS - ENERGY SUPPLY BLOCK

METHODOLOGICAL NOTES

Description of the main indicators observed:

Indigenous production
Quantities of raw materials extracted on the territory of the country and the raw materials produced for the oil refineries.

Receipts from other sources
Quantities of solid fuels, petroleum products, natural gas, or renewable fuels (biogasoline, biodiesel, or biokerosene) that are mixed with another fuel and consumed as a mix.

Backflows
Finished or semi-finished products, which are returned from final consumers to refineries for processing, blending or sale. They are usually by-products of petrochemical manufacturing.

Products transferred
Imported petroleum products, which are reclassified as feedstocks for further processing in the refinery, without delivery to final consumers.

Imports and Exports
Quantities are considered as imported or exported when they have crossed the political boundaries of the country, whether customs clearance has taken place or not. The indicators include imports/exports from third countries (Extrastat) and/or intra-EU imports from EU member states (Intrastat).

Direct use
Oil (Crude oil and petroleum products) used directly without being processed in petroleum refineries. Includes crude oil burned for electricity generation.

Stock changes
The difference between the opening stock level and closing stock level for stocks held on national territory. Unless otherwise specified, a stock build is shown as a negative number and a stock draw is shown as a positive number.

Refinery intake
Quantities of raw materials entered for processing in the oil refineries. It is calculated as indigenous production + receipts from other sources + backflows + product transferred + imports – exports – direct use – stock changes.

Refinery losses
The losses, occurred in the distillation processes due to evaporation. They represent a difference between the quantities of raw materials entered for processing at oil refineries and the gross production of oil refineries.

Primary product receipts
The quantities of raw materials/fuels used directly, without processing in oil refineries.

Refinery gross output
Production of finished products at the refineries or blending plants. Excludes refinery losses, but includes refinery fuel.

Recycled products
Finished products that pass through the marketing network a second time, after having been delivered to final consumers (e.g. used lubricants, which are reprocessed).

Refinery fuel
Petroleum products used to support the operation of the oil refineries.

International marine bunkers
Quantities of fuels delivered to ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Excluded is:
– consumption by ships engaged in domestic navigation; the domestic/international split should be determined based on port of departure and port of arrival, and not by the flag or nationality of the ship,
– consumption by fishing vessels, consumption by military forces.

Interproduct transfers
Quantities reclassified either because their specification has changed or because they are blended into another product. A negative entry for one product is compensated by a positive entry (or several entries) for one or several products and vice versa; the total net effect should be zero.

Gross inland deliveries of petroleum products are defined as primary product receipts + refinery gross output + recycled products – refinery fuel + imports – exports – international marine bunkers + interproduct transfers – products transferred – stock changes.

Description of the petroleum products observed:

Crude oil
Crude oil is a mineral oil of natural origin comprising a mixture of hydrocarbons and associated impurities, such as sulphur. It exists in the liquid state under normal surface temperature and pressure and its physical characteristics (density, viscosity, etc.) are highly variable. This category includes field or lease condensate recovered from associated and non-associated gas where it is commingled with the commercial crude oil stream.

Natural gas liquids
NGL are liquid or liquefied hydrocarbons recovered from natural gas in separation facilities or gas processing plants. NGL include ethane, propane, butane (normal and iso-), (iso) pentane and pentanes plus (sometimes referred to as natural gasoline or plant condensate).

Refinery feedstocks
A refinery feedstock is a processed oil destined for further processing (e.g. straight run fuel oil or vacuum gas oil) excluding blending. With further processing, it will be transformed into one or more components and/or finished products. This definition also covers returns from the petrochemical industry to the refining industry (e.g. pyrolysis gasoline, C4 fractions, gasoil and fuel oil fractions).

Additives/oxygenates
Additives are non-hydrocarbon compounds added to or blended with petroleum products to modify their properties (octane, cetane, cold properties, etc.). Additives include oxygenates (such as alcohols (methanol, ethanol), ethers (methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), etc.), esters (rapeseed oil or dimethylester, etc.), chemical compounds (such as tetramethyl lead (TML), tetraethyl lead (TEL) and detergents). Quantities of additives/oxygenates (alcohols, ethers, esters and other chemical compounds) reported in this category should relate to the quantities blended with fuels or for fuel use. This category includes biofuels that are blended with liquid fossil fuels.

Biofuels
Quantities of liquid biofuels reported in this category relate to blended liquid biofuels and refer only to the liquid biofuel portion and not to the total volume of liquids into which the liquid biofuels are blended. Excludes all liquid biofuels that have not been blended.

Other hydrocarbons
Synthetic crude oil from tar sands, shale oil, etc., liquids from coal liquefaction, output of liquids from natural gas conversion into gasoline, and emulsified oils (e.g. orimulsion); excludes oil shale; includes the shale oil (secondary product). Includes the refinery intake of natural gas.

Total refinery feedstocks
It is a product aggregate equal to the sum of crude oil, natural gas liquids, refinery feedstocks, additives/oxygenates, biofuels and other hydrocarbons.

Refinery gas
Refinery gas includes a mixture of non-condensed gases mainly consisting of hydrogen, methane, ethane and olefins obtained during the distillation of crude oil or treatment of oil products (e.g. cracking) in refineries. This also includes gases, which are returned from the petrochemical industry.

Ethane
A naturally gaseous straight-chain hydrocarbon, (C_2H_6) extracted from natural gas and refinery gas streams.

Liquefied petroleum gases
LPG are light paraffinic hydrocarbons derived from refinery processes, crude oil stabilisation and natural gas processing plants. They consist mainly of propane (C_3H_8) and butane (C_4H_{10}) or a combination of the two. They could also include propylene, butylene, isopropylene and isobutylene. LPG are normally liquefied under pressure for transportation and storage.

Naphtha
Naphtha is a feedstock destined for either the petrochemical industry (e.g. ethylene manufacture or aromatics production) or for gasoline production by reforming or isomerisation within the refinery. Naphtha comprises material in the 30°C and 210°C distillation range or part of this range.

Total motor gasoline
This is a product aggregate equal to the sum of biogasoline and motor gasoline.

Biogasoline
Liquid biofuels suitable to be blended with or to replace motor gasoline from fossil origin.

Motor gasoline (excl. Biogasoline)
Motor gasoline consists of a mixture of light hydrocarbons distilling at between 35°C and 215°C. It is used as a fuel for land-based spark ignition engines. Motor gasoline may include additives, oxygenates and octane enhancers, including lead compounds. Includes motor gasoline blending components (excluding additives/ oxygenates), e.g. alkylates, isomerate, reformate, cracked gasoline destined for use as finished motor gasoline. Excludes biogasoline.

Aviation gasoline
Motor spirit prepared especially for aviation piston engines, with an octane number suited to the engine, a freezing point of – 60°C and a distillation range usually between 30°C and 180°C.

Gasoline type jet fuel (JP4)
This includes all light hydrocarbon oils for use in aviation turbine power units, distilling at between 100°C and 250°C. They are obtained by blending kerosenes and gasoline or naphthas in such a way that the aromatic content does not exceed 25% in volume, and the vapour pressure is between 13,7 kPa and 20,6 kPa.

Total kerosene type jet fuel
This is a product aggregate equal to the sum of biokerosene and kerosene jet fuel.

Biokerosene
Liquid biofuels suitable to be blended with or to replace jet kerosene type jet fuel from fossil origin.

Kerosene type jet fuel (excl. Biokerosene)
Distillate used for aviation turbine power units. It has the same distillation characteristics at between 150°C and 300°C (generally not above 250°C) and flash point as kerosene. In addition, it has particular specifications (such as freezing point) which are established by the International Air Transport Association. Excludes biokerosene.

Other kerosene
Refined petroleum distillate used in sectors other than aircraft transport. It distils at between 150°C and 300°C.

Total gas/diesel oil
This is a product aggregate equal to the sum of biodiesel and gas/diesel oil.

Biodiesel
Liquid biofuels suitable to be blended with or to replace gas/diesel oil from fossil origin.

Gas/diesel oil (excl. Biodiesel)
Gas/diesel oil is primarily a medium distillate distilling at between 180°C and 380°C. Includes blending components. Several grades are available depending on uses. Gas/diesel oil includes on-road diesel oil for diesel compression ignition engines of cars and trucks. Gas/diesel oil includes light heating oil for industrial and commercial uses, marine diesel and diesel used in rail traffic, other gas oil including heavy gas oils which distil at between 380°C and 540°C and which are used as petrochemical feedstocks. Excludes biodiesel.

Total Fuel oil
All residual (heavy) fuel oils (including those obtained by blending). Kinematic viscosity is above 10 cSt at 80°C. The flash point is always above 50°C and density is always more than 0.90 kg/l. Fuel oil is a product aggregate equal to the sum of low sulphur fuel oil (lower than 1%) and high sulphur fuel oil (of 1% or higher).

White spirit and SBP
White spirit and SBP are defined as refined distillate intermediates with a distillation in the naphtha/kerosene range. They include industrial spirit (also called SBP; light oils distilling at between 30°C and 200°C in 7 or 8 grades of industrial spirit, depending on the position of the cut in the distillation range – the grades are defined according to the temperature difference between the 5% volume and 90% volume distillation points, which is not more than 60°C) and white spirits (industrial spirit with a flash point above 30°C and the distillation range between 135°C and 200°C).

Lubricants
Hydrocarbons produced from distillate by-product. They are mainly used to reduce friction between bearing surfaces. Includes all finished grades of lubricating oil, from spindle oil to cylinder oil, and those used in greases, motor oils and all grades of lubricating oil base stocks.

Bitumen
Solid, semi-solid or viscous hydrocarbon with a colloidal structure, being brown to black in colour, obtained as a residue in the distillation of crude oil, by vacuum distillation of oil residues from atmospheric distillation. Bitumen is often referred to as asphalt and is primarily used for the construction of roads and for roofing material. Includes fluidised and cut back bitumen.

Paraffin waxes
These are saturated aliphatic hydrocarbons. They are residues extracted when dewaxing lubricant oils. They have a crystalline structure, which is more or less fine depending on the grade. Their main characteristics are as follows: they are colourless, odourless and translucent, with a melting point above 45°C.

Petroleum coke
Black solid by-product, obtained mainly by cracking and carbonising petroleum derived feedstock, vacuum bottoms, tar and pitches in processes such as delayed coking or fluid coking. It consists mainly of carbon (90-95%) and has a low ash content. It is used as a feedstock in coke ovens for the steel industry, for heating purposes, for electrode manufacture and for the production of chemicals. The two most important qualities are 'green coke' and 'calcinated coke'. Includes 'catalyst coke' deposited on the catalyst during refining processes; this coke is not recoverable and is usually burned as refinery fuel.

Other petroleum products
All other products not specifically mentioned above, for example: tar and sulphur. Includes aromatics (e.g. BTX or benzene, toluene and xylene) and olefins (e.g. propylene) produced within refineries.

Total petroleum products
Petroleum products are a product aggregate equal to the sum of refinery gas, ethane, liquefied petroleum gases, naphtha, total motor gasoline, aviation gasoline, gasoline type jet fuel, total kerosene type jet fuel, other kerosene, total gas/diesel oil, total fuel oil, white spirit and SPB, lubricants, bitumen, paraffin waxes, petroleum coke and other petroleum products.

Unit of measure
Quantities of crude oil and petroleum products are presented in thousand tones.