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## **Economic Commission for Europe**

Inland Transport Committee

### **Working Party on Transport Statistics**

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**Data collection, methodological development and harmonization of transport statistics:**

**Glossary for Transport Statistics**

## **Proposed energy chapter for the Glossary for Transport Statistics**

Amendments as agreed by the Group of Experts and the Intersecretariat Working Group, as of 29 May 2018

### **Summary**

The following document is a proposed draft of the energy chapter for the 5<sup>th</sup> edition of the UNECE/ITF/Eurostat Glossary for Transport Statistics, as of 29 May 2018. Users can see the changes described in the modifications file ECE/TRANS/WP.6/2018/Inf-1e.

## H. Energy consumption (version 29 May 2018)

The following definitions refer to energy products, as defined in energy statistics, that are typically consumed in transport. In terms of transport statistics production, data for transport equipment and traffic are often broken down by type of motor energy. See B.II-42.

### H.I ENERGY UNITS

#### H.I-01 Tonne of oil equivalent (TOE)

Tonne(s) of oil equivalent, abbreviated as toe, is a normalized unit of energy. By convention it is equivalent to the approximate amount of energy that can be extracted from one tonne of crude oil. It is a standardized unit, assigned a net calorific value of 41 868 kilojoules/kg and may be used to compare the energy from different sources.

*The conversion factors typically used are:*

<i>1 Mtoe = 41 868 TJ</i>	<i>1 ktoe = 41 868 GJ</i>
<i>1 TWh = 85.98 ktoe</i>	<i>1 toe = 11.63 MWh</i>

#### H.I-02 Kilowatt hour (kWh)

The kilowatt hour is a composite unit of energy equivalent to one kilowatt (1 kW) of power sustained for one hour. One watt is equal to 1 J/s. One kilowatt hour is 3.6 megajoules which is the amount of energy converted if work is done at an average rate of one thousand watts for one hour.

### H.II ENERGY SOURCES

#### H.II-01 Liquefied petroleum gases (LPG)

Liquefied petroleum gases (LPG) are light paraffinic hydrocarbons derived from the refinery processes, crude oil stabilisation and natural gas processing plants.

*They consist mainly of propane and butane or a combination of the two. LPG are normally liquefied under pressure for transportation and storage.*

#### H.II-02 Motor gasoline

Motor gasoline consists of a mixture of light hydrocarbons distilling 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 such as TEL and TML. Includes motor gasoline blending components (excluding additives/oxygenates and biogasoline), e.g. alkylates, isomate, reformate, cracked gasoline destined for use as finished motor gasoline.*

#### H.II-03 Aviation gasoline

Aviation gasoline is a 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 within the limits of 30°C and 180°C.

#### H.II-04 Kerosene type jet fuel

Kerosene type jet fuel is a distillate used for aviation turbine power units. It has the same distillation characteristics 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 (IATA). It includes kerosene blending components.

#### H.II-05 Other kerosene

Other kerosene is a refined petroleum distillate used in sectors other than aircraft transport. It distills between 150°C and 300°C.

#### H.II-06 Gas/diesel oil

Gas/diesel oil is primarily a medium distillate distilling between 180°C and 380°C.

*It comprises transport diesel (as road diesel for diesel compression ignition usually of low sulphur content) and heating and other gas oil (light heating oil for industrial and commercial purposes, marine diesel and diesel used in rail traffic and other gas oil including heavy gas oils distilling between 380°C and 540°C used as petrochemical feedstocks). Also blending components are included.*

#### H.II-07 Fuel oil (residual)

Residual fuel oil covers 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.*



- H.II-08 Biogas**  
Biogas is a gas composed principally of methane and carbon dioxide produced by anaerobic digestion of biomass or by thermal processes from biomass, including biomass in waste.  
*It includes biogases from anaerobic fermentation (such as landfill gas and sewage sludge gas) and biogases from thermal processes.*
- H.II-09 Biogasoline**  
This category includes all liquid fuels of natural origin (e.g. produced from biomass and/or the biodegradable fraction of waste), suitable to be blended with or replace motor gasoline from fossil origin.. Biogasoline is composed of pure biogasoline and blended biogasoline.
- H.II-10 Biodiesels**  
This category includes all liquid fuels of natural origin (e.g. produced from biomass and/or the biodegradable fraction of waste), suitable to be blended with or replace gas/diesel oil from fossil origin. Biodiesels are composed of pure biodiesels and blended biodiesels.
- H.II-11 Other liquid biofuels**  
This category includes liquid biofuels, used directly as fuel, not included in the definitions of biogasoline, biodiesel or bio jet kerosene and liquid biofuels consumption that cannot be reported under the right category because of missing information.
- H.II-12 Electrical energy**  
Electrical energy covers all types of generated electricity in all types of power plants (e.g. in nuclear, thermal, hydro, wind, photovoltaic or other plants) to be distributed to consumers through the grid or consumed locally.  
*It excludes electricity generated on board of vehicles, such as regenerative brakes and a battery electric vehicle that includes an auxiliary power unit (range extender).*
- H.II-13 Natural gas**  
Natural gas comprises gases occurring in underground deposits, whether liquefied or gaseous, consisting mainly of methane. Natural gas includes "non-associated" gas originating from fields producing hydrocarbons only in gaseous form and "associated" gas produced in association with crude oil, as well as methane recovered from coal mines (colliery gas).  
Compressed (CNG) or liquefied (LNG) natural gas is used in transport.
- H.II-14 Hydrogen**  
A chemical element with high energy content that can be extracted from various sources and with various extraction methods and can be converted to electricity for transportation purposes by a fuel cell.
- H.III ENERGY CONSUMPTION BY THE TRANSPORT SECTOR**
- H.III-01 Energy consumption by rail transport**  
Final energy consumption by rail transport covers all consumption for use in rail traffic, including industrial railways and electrified urban transport systems.  
It includes tram, metro, subway, urban and suburban rail, high speed train, maglev.  
*It excludes inputs into electrical power stations managed by the railways.*
- H.III-02 Energy consumption by road transport**  
Final energy consumption by road transport covers quantities used in road vehicles for the propulsion of such vehicles, whether utility vehicles or motor cars for own use or the use of others, including omnibuses belonging to railway companies.  
*It includes fuel used by agricultural vehicles on highways and lubricants for use in road vehicles. Consumption by civil engineering vehicles licensed to use the public road network is also included under road transport, in so far as they are subject to the normal taxation system.*  
*Consumption of trolleybuses, trolley trucks and other road vehicles with overhead wires is included here.*  
*It excludes energy used in stationary engines, for non-highway use in tractors (motor fuel consumed by agricultural vehicles), military use in road vehicles, bitumen used in road surfacing and energy used in engines at construction sites.*

### H.III-03 Energy consumption by pipeline transport

Final energy consumption by pipeline transport covers quantities used as energy in the support and operation of pipelines transporting gases, liquids, slurries and other commodities.

*It includes energy used for pump stations and maintenance of the pipeline but it excludes energy used for the pipeline distribution of natural or manufactured gas, hot water or steam from the distributor to final users (included in the energy sector), energy used for the final distribution of water to household, industrial, commercial and other users (included in the service sector) and losses occurring during this transport between distributor and final users.*

### H.III-04 Energy consumption by maritime transport

Energy consumption by maritime transport consists of international marine bunkers and final energy consumption by domestic navigation.

Energy consumption by *international marine bunkers* covers the 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;
- consumption by fishing vessels;
- consumption by military forces.

Final energy consumption by *domestic navigation* covers the quantities delivered to vessels of all flags not engaged in international navigation (see international marine bunkers). It includes consumption in inland navigation and yachting.

*The domestic/international split is determined on the basis of port of departure and port of arrival and not by the flag or nationality of the ship.*

### H.III-05 Energy consumption by air transport

Energy consumption by air transport consists of the final energy consumption for international and domestic aviation.

Final energy consumption by *international aviation* covers the quantities of aviation fuels delivered to aircraft for international aviation.

Final energy consumption by *domestic aviation* covers the quantities of aviation fuels delivered to aircraft for domestic aviation – commercial, private, agricultural, etc. It includes fuel used for purposes other than flying, e.g. bench testing of engines.

*The domestic/international split is determined on the basis of departure and landing locations and not by the nationality of the airline.*

*Energy consumption by air transport excludes fuels used by airlines for their road vehicles and military use of aviation fuels.*