

Glossary

Aviation: EU Reference Scenario 2016 distinguishes aviation activity into flights within the EU and international extra-EU destinations. Flights within the EU include domestic transport activity (within the boundaries of one single EU Member State) and international intra-EU (both origin and destination of the flight is within the EU28). The international extra-EU air transport activity includes all remaining flights. Energy consumption and CO₂ emissions in aviation reflects sales of fuels at the point of refuelling, irrespective of airplane destination. They approximately correspond to all outgoing domestic and international flights.

Biofuels: Biofuels include ethanol, biodiesel, bio-kerosene, bio-heavy and biogas.

Carbon capture and storage (CCS): Carbon capture and geological storage is a technique for trapping carbon dioxide emitted from large point sources, compressing it, and transporting it to a suitable storage site where it is injected into the ground.

Carbon intensity: The amount of CO₂ emitted per unit of energy consumed or produced (t of CO₂/tonne of oil equivalent (toe) or MWh).

CO₂ Emissions to GDP: The amount of CO₂ emitted per unit of GDP (carbon intensity of GDP - t of CO₂/million Euro).

Cogeneration thermal plant: A system using a common energy source to produce both electricity and steam for other uses, resulting in increased fuel efficiency (see also: CHP).

Combined Cycle Gas Turbine plant (CCGT): A technology which combines gas turbines and steam turbines, connected to one or more electrical generators at the same plant. The gas turbine (usually fuelled by natural gas or oil) produces mechanical power, which drives the generator, and heat in the form of hot exhaust gases. These gases are fed to a boiler, where steam is raised at pressure to drive a conventional steam turbine, which is also connected to an electrical generator. This has the effect of producing additional electricity from the same fuel compared to an open cycle turbine.

Combined Heat and Power (CHP): This means cogeneration of useful heat and power (electricity) in a single process. In contrast to conventional power plants that convert only a limited part of the primary energy into electricity with the remainder of this energy being discharged as waste heat, CHP makes use of a greater proportion of this energy for e.g. industrial processes, district heating, and space heating. CHP therefore improves energy efficiency (see also: cogeneration thermal plant).

Efficiency for thermal electricity production: A measure of the efficiency of fuel conversion into electricity and useful heat. It is calculated as heat and electricity output divided by the calorific value of input fuel.

Efficiency indicator in freight transport (activity related): Energy efficiency in freight transport is calculated on the basis of energy use per tonne-km. Given the existence of some methodological inconsistencies between transport and energy statistics, absolute numbers (especially at the level of individual Member States) might be misleading in some cases. For that reason, the numbers given are only illustrative of the trends in certain cases.

Efficiency indicator in passenger transport (activity related): Energy efficiency in passenger transport is calculated on the basis of energy use per passenger-km travelled. Issues related to consistency of transport and energy statistics also apply to passenger transport (see also: Efficiency indicator in freight transport).

Effort Sharing Decision (ESD): The Effort Sharing Decision establishes binding annual greenhouse gas emission targets for Member States for the period 2013–2020. These targets concern emissions from most sectors not included in the EU Emissions Trading System (EU ETS), such as transport (except aviation and international maritime shipping), buildings, agriculture (except LULUCF) and waste.

Energy branch consumption: Energy consumed in refineries, electricity and steam generation and in other transformation processes.

Energy intensity: energy consumption/GDP or another indicator for economic activity.

Energy intensive industries: Iron and steel, non-ferrous metals, chemicals, non-metallic minerals, and paper and pulp industries.

Energy Service Company (ESCO): A company that implements a broad range of energy efficiency projects.

EU Emissions Trading System (EU-ETS): A scheme for greenhouse gas emissions allowance trading within the Community, established by Directive 2003/87/EC in order to promote reductions in greenhouse gas emissions in a cost-effective and economically efficient manner. Installations included in the scheme are combustion plants, oil refineries, coke ovens, iron and steel plants, and factories producing cement, glass, lime, brick, ceramics, pulp and paper. Amendments (2008/101/EC and 2009/29/EC) have enlarged its scope to include aviation and further process emissions.

Feed-in tariff: The price per unit (of electricity) that an eligible renewable electricity generator receives according to cost-based calculations for the specific resource used.

Final energy demand: Energy consumed in the transport (excluding international shipping), industrial, household, services and agriculture sectors; the latter two sectors are sometimes aggregated and named "tertiary". It excludes deliveries to the energy transformation sector (e.g. power plants) and to the energy branch. It includes electricity consumption in the above mentioned final demand sectors.

Freight transport activity: Covers goods transport by road, rail and inland navigation. Road transport activity is defined according to the territoriality principle, in line with the available statistics from Eurostat.

Fuel cells: A fuel cell is an electrochemical energy conversion device converting hydrogen and oxygen into electricity and heat with the help of catalysts. The fuel cell provides a direct current voltage that can be used to power various electrical devices including motors.

Fuel input to power generation: Fuel use in power plants and CHP plants.

Gas: Includes natural gas, blast furnace gas, coke-oven gas and gasworks gas.

Generation capacity: The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer.

Geothermal plant: A plant in which the prime mover is a steam turbine, which is driven either by steam produced from naturally hot water or by natural steam that derives its energy from heat in rocks or fluids beneath the surface of the earth. The energy is extracted by drilling and/or pumping.

Greenhouse Gas (GHG): Some gases in the Earth's atmosphere act a bit like the glass in a greenhouse, trapping the sun's heat and stopping it from leaking back into space. Many of these gases occur naturally, but human activity is increasing the concentrations of some of them in the atmosphere, in particular carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and fluorinated gases.

Gross Inland Consumption (or primary energy consumption): Quantity of energy consumed within the borders of a country. It is calculated as primary production + recovered products + imports +/- stock changes – exports – bunkers (i.e. quantities supplied to international sea-shipping).

Gross Inland Consumption/GDP: Energy intensity indicator calculated as the ratio of total energy consumption to GDP – (toe/million Euro).

Hydro power plant: A plant that produces energy through the use of moving water. In this report, hydro excludes pumped storage plants that generate electricity during peak load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available. Energy losses in pumping are accounted for separately.

Indirect land use change (ILUC): Where land previously destined for food and feed markets is diverted to biofuel production, the non-fuel demand will still need to be satisfied either through intensification of current production or by bringing non-agricultural land into production elsewhere. The latter case constitutes indirect land-use change (ILUC) and when it involves the conversion of land with high carbon stock it can lead to significant greenhouse gas emissions.

Inland navigation: Covers inland waterways and national maritime transport, for the purpose of ensuring consistency with the energy balances. International maritime is not included in the above category as; according to Eurostat energy balances, energy needs for international shipping are allocated to bunkers.

Import dependency: Demonstrates the extent to which a country relies upon imports in order to meet its energy needs.

Land Use, Land Use Change and Forestry (LULUCF): The LULUCF sector covers greenhouse gas emissions into the atmosphere and removal of carbon from the atmosphere resulting from our use of soils, trees, plants, biomass and timber.

Non-fossil fuels: Nuclear and renewable energy sources.

Non-energy uses: The use of petrochemicals and other energy carriers for purposes other than energy production, such as chemical feed-stocks, lubricants and asphalt for road construction.

Nuclear power plant: A plant in which a nuclear fission chain reaction can be initiated, controlled, and sustained at a specific rate for production of energy.

Oil: Includes crude oil, feed-stocks, refinery gas, liquefied petroleum gas, kerosene, gasoline, diesel oil, fuel oil, naphtha and other petroleum products.

Peak devices: Gas turbines, internal combustion engines and other small-scale thermal power plants which are usually used to supply electricity in peak hours.

Passenger transport activity: Passenger transport activity covers road transport (buses and coaches, passenger cars and vans, powered 2-wheelers), rail transport, aviation and inland navigation. Tram and metro activity is provided together with rail in the reporting by MS.

Primary production: Total indigenous production. In PRIMES result sheets (Appendix 2) it also includes recovered products.

Renewable energy sources (RES): Energy resources which are naturally replenishing but flow-limited. These are virtually inexhaustible but limited in the amount of energy that is available per unit of time. Renewable energy resources include: biomass, waste energy, hydro, wind, geothermal, solar, wave and tidal energy.

Solar power plant: A plant producing energy with the use of radiant energy from the sun; includes solar thermal and photovoltaic (direct conversion of solar energy into electricity) plants.

Solids: Include both primary products (hard coal and lignite) and derived fuels (patent fuels, coke, tar, pitch and benzole).

Thermal power plants: Type of electricity generating plant in which the source of energy for the prime

mover is heat (nuclear power plants are excluded).

Wind power plant: Typically, a group of wind turbines supplying electricity directly to a consumer, or interconnected to a common transmission or distribution system. Offshore wind includes windmills located at sea (coastal wind mills are usually included in onshore wind).

Units

bn	billion	Mtoe	million toe or 10^6 toe
boe	barrel of oil equivalent	MW	megawatt or 10^6 watt
Gpkm	giga passenger-kilometre, or 10^9 passenger-kilometre	MWh	megawatt-hour or 10^6 watt-hours
Gtkm	giga tonne-kilometre, or 10^9 tonne-kilometre	p.a.	per annum
GWh	gigawatt-hour or 10^9 watt-hours	Pkm	passenger-kilometre (one passenger transported a distance of one kilometre)
km	kilometre	T	metric tonne
ktoe	1000 toe	toe	tonnes of oil equivalent
Mt	million metric tonnes	tkm	tonne-kilometre (one tonne transported a distance of one kilometre)