



# Appendices

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# Glossary

**Access to distribution grid contract:** contract signed between an electricity distribution system operator and a user of this grid, which defines the legal, technical and economic conditions for access and use of the grid.

**Access to transmission grid contract:** contract signed between the electricity transmission system operator and a user (producer or consumer) of this grid, which defines the legal, technical and economic conditions for access and use of the grid.

**Account unbundling:** obligation requiring integrated companies to keep separate balance sheets and income statements for production (electricity), transmission, distribution (electricity and gas), storage (gas) and other activities. These accounts, as well as the principles governing their preparation (allocation rules, account scope, financial relationship between activities) appear in the attachments to the operators' annual accounts.

**Alternative supplier:** suppliers that are not incumbent suppliers are considered as alternative.

**Avoided costs:** when an operator is obliged to buy a quantity of electricity as part of feed-in obligations imposed by public authorities, this quantity takes the place of energy which it would have been obliged to procure itself (by generating or purchasing it). The resulting savings constitute avoided costs.

**Balancing mechanism:** mechanism enabling a transmission grid operator to balance generation and consumption at all times by generating surplus amounts of electricity on the supply side and by asking consumers to reduce consumption on the demand side.

**Balancing Responsible Entity:** any operator who is committed to RTE, through a balancing contract, to settling the costs of imbalances observed after the fact between electricity injected (by generators within the defined area) and electricity consumed (by consumers within the defined area).

**Balancing zone:** geographical area on the main transmission network on which the shipper must maintain the daily balance between gas supply and consumption.

**Baseload (or Baseload product):** on the wholesale electricity market, a "baseload" contract entails the delivery of a constant power, all day long, throughout the term of the contract. The other standard delivery profiles are "peak", "off-peak" and "blocks".

**Capacity netting:** carried out by grid operators, this action consists of taking into account firm nominations for commercial flows in all directions in order to free up additional capacity.

**Cogeneration:** simultaneous production of thermal energy and electricity.

**Combined cycles:** see Combined-cycle power plant.

**Combined-Cycle Gas Turbine:** thermal power plant, usually running on gas-fired turbines, where electricity is generated in two consecutive cycles: first, through gas combustion in the turbines; and second, using the energy produced in the gas combustion process to heat boilers that feed steam generators. This process achieves high thermal efficiency (55 to 60%, compared with just 33 to 35% for conventional thermal power plants).

**Commercially sensitive information (CSI):** information which, if disclosed to non-authorised persons, is likely to impede free and fair competition between natural gas and electricity suppliers. In terms of natural gas, information that must remain confidential is covered by Article 9 of Law No. 2003-8 of January 2003 and Decree No. 2004-183 of February 2004. In terms of electricity, this information is covered by Article 20 of the Law of 10 February 2000 and Decree No. 2001-630 of 16 July 2001 modified by Decree No. 2007-1674 of 27 November 2007.

**Compression station:** industrial facility where gas is compressed in preparation for transport via pipelines.

**Conditions of Delivery Contract:** contract signed between a distribution system operator and a final customer or another distribution system operator, relative to:

- natural gas delivery conditions (pressure, flow rate, etc.)
- characteristics and ownership conditions of the delivery equipment (rental of the delivery station, etc.)
- conditions for determining the quantities of energy delivered.

**Congestion:** state of saturation of a power line or gas pipe which prevents operators from transmitting or distributing all the quantities injected or withdrawn, given the features and performance characteristics of the grid or network.

**Connection:** action allowing a user to be physically connected to a network.

**Continental plate:** grouping of European electricity systems (Germany, Austria, Switzerland, the Benelux countries and France), where the degree of interconnection is sufficient to allow smooth physical exchanges.

**Control area:** geographical area where the electricity transmission grid is managed by a single operator; there is a single control area in France, but other countries can have several.

**Conversion service:** service offered by GRTgaz to exchange H gas against B gas.

**Conversion:** The transmission network operated by GRTgaz has two different types of zone: the H zone supplied with gas that has a high calorific value (H gas) and the L zone, supplied with gas from Groningen having a low calorific value (L gas). The two gases are not interchangeable. Gaz de France offers a conversion service allowing shippers to exchange resources they own in the H zone against L gas.

**Cross-subsidies:** using resources from one activity to benefit another activity under conditions that are not determined by market forces between two separate companies.

**Day ahead market (spot market):** market on which exchange, purchase and sales transactions are carried out for amounts of electricity or volumes of gas deliverable the next day.

**Day-ahead product:** contract signed for next-day delivery.

**Delivery point:** point on a transmission or distribution network where a transmission or distribution system operator makes gas available to a shipper, final customer or other system operator.

**Delivery station:** facility located downstream of a transmission or distribution network, providing one or more of the following functions: pressure relief, regulation and metering. A delivery station is used to deliver gas to a distribution network or final customer.

**Distribution System Operator-Supplier Contract:** a bipartite contract between distribution system operator (DSO) and a supplier (S), which states the rights and obligations of the parties with regards to system access, system use and any data exchanges required with respect to customer delivery points connected to the distribution system. The purpose of the contract is to allow the supplier to offer customers (for whom it is the exclusive supplier) a single contract that groups together electricity supply as well as access to and use of the distribution grid.

**Electricity (or power) block:** on the wholesale electricity market, a "block" contract entails the delivery of constant power for several consecutive hours. The other standard delivery profiles are "baseload", "peak" and "off-peak".

**Electricity supply:** in electricity demand, a distinction is made between four types of consumer:

- a "baseload" (or "uniform") electricity supply, which is produced or consumed permanently throughout the year;
- "semi-baseload" supply, where production and consumption are concentrated in the winter season;
- "peakload" supply, which corresponds to

periods during the year when production or consumption is high;

- "spot" supply, the complement to "uniform" supply.

**Electricity transmission and distribution grid:** system designed for the transmission and transformation of electricity between power plants and consumption sites. It consists of power lines that provide connections at given voltage levels and substations consisting of voltage transformers, connection and cut-off devices, measuring instruments, command and control equipment and equipment to compensate reactive energy.

There are three grid hierarchies:

- bulk transmission and interconnection grid which routes large amounts of energy at 400 kV or 225 kV over long distances, with low loss;
- regional distribution grids that distribute energy at a regional level, supplying the public distribution grid and large-sized industrial customers with 225 kV, 90 kV and 63 kV;
- distribution grids at 20 kV and 400 V which supply final customers with medium voltage (SME-SMI), or low voltage (household customers, tertiary sector and small industrial facilities).

**Eligible customer:** electricity or gas consumer authorised to apply to one or more electricity or gas suppliers of its choice for the purpose of supplying power to one of its sites or for reselling energy.

**Entry point:** point on a transmission or distribution network where a transmission or distribution shipper makes gas available to a transmission or distribution system operator under the terms of a transmission or distribution transportation contract.

**Entry-exit tariffs:** tariff system applied on gas networks in many European countries (Great Britain, the Netherlands, Italy, France). It consists of splitting the capacity subscriptions at the entry and exit points on the main network and invoicing the two transmission components (entry and exit) separately.

**Exceptional events:** circumstances beyond the control of electricity transmis-

sion and distribution system operators that cannot be controlled using current techniques, that may be qualified as *force majeure*, and that have disrupted grid operations. Exceptional events that may impact public electricity grids are defined in Article 19 of the standard specifications for electricity transmission grid operators.

**Exit zone:** geographical grouping of delivery points belonging to the same balancing zone and having the same exit tariff.

**Expense and revenue clawback account:** a fiduciary account not recorded in regular accounts, provisioned with any surplus earnings and, if necessary, any loss of earnings for a public system operator. Depending on whether the balance of this account is positive or negative, it is reconciled by decreases or increases in the costs to be covered by public electricity grid tariffs in the following years.

**Fixing:** system for quoting a product (for example, hourly block on Powernext) by crossing aggregate supply and demand curves at a given time in the day in order to determine the price and balancing volume. Mechanism used, for example, on Powernext Day-ahead Auctions.

**Florence Forum (electricity) and Madrid Forum (gas):** periodic meetings, created at the initiative of the European Commission, bringing together for electricity and gas respectively, government representatives, regulators, TSOs, associations of producers, users and consumers under the supervision of the European Commission.

**Forward product:** forward exchange contract signed to deliver a given quantity at a given price according to a defined schedule.

**Future product:** forward contract negotiated on an exchange (organised market). The proposed terms vary according to the organised markets (weekly, monthly, quarterly, every six months, annually). The term Y+1 corresponds to the calendar year following the year in progress.

**Gas connection facilities:** pipelines and installations that connecting a final customer or distribution network to a gas

transmission or distribution network. These connection works are composed of one or several of the following elements: connection, delivery stations, distribution network extension.

**Gas day:** period of 23, 24 or 25 consecutive hours, starting at 6:00 am on a given day and ending at 6:00 am the following day.

**Gas exchange point:** virtual points on a French gas transmission network where shippers can exchange gas. There is a gas exchange point in each balancing zone in the French network. Each gas exchange point is a virtual hub.

**Gas quality:** all physical characteristics (pressure, temperature, gross and net calorific values, Wobbe index) and chemical characteristics (amount of methane, propanes, butanes, nitrogen and other inert gases) of a distributed natural gas.

**Gas release:** obligation for a supplier to release part of its gas resources to other suppliers for a given period. The purpose of this operation is usually to stimulate competition by offering alternative suppliers the opportunity to secure supply without having to negotiate directly with the incumbent supplier.

**Gas storage facility:** facilities used to constitute gas reserves stored in the form of gas (in underground storage facilities) or LNG (in above-ground tanks).

**Gas year (storage):** 12-month period between 1 April and 31 March.

**Gate closure:**

- with referral to generation scheduling and balancing mechanisms: deadline for submitting, changing, or withdrawing a balancing bid, or for re-submitting the generation schedule and/or technical requirements and performance data of a group.

- with regards to interconnections: deadline to submit either interconnection (allocation) capacity requests or nominations of acquired capacity.

**HTA:** High voltage A. Voltage level between 1 and 50 kV.

**HTB:** High voltage B. Voltage level greater than 50 kV.

**IFA2000:** France-England interconnection, with a maximum power rating of 2000 MW of direct current.

**Imbalance:** within a given scope, difference between total amount of energy injected and total amount of energy withdrawn.

**Incumbent supplier:** for electricity, incumbent suppliers are EDF, local distribution companies (LDCs) and their subsidiaries; for gas, the incumbents are Gaz de France, Tégaz, local distribution companies (LDCs) and their subsidiaries. An incumbent supplier is not considered as an alternative supplier outside its incumbent service area.

**Integrated electricity company:** vertically or horizontally integrated company. A horizontally integrated company conducts business outside the electricity sector and also performs at least one of the following: generation, sale, transmission and/or distribution of electricity. A vertically integrated company's business includes electricity transmission and/or distribution along with electricity production and/or supply.

**Integrated natural gas company:** vertically or horizontally integrated company. A horizontally integrated company is one carrying out at least one of the following functions: generation, transmission or distribution, supply and/or storage of natural gas, as well as an activity outside the gas sector. A vertically integrated gas company's business includes at least one of the following: transmission, distribution, LNG or storage, along with at least one of the following: natural gas production or supply.

**Interconnected system:** network or grid made up of several electricity or gas transmission and distribution networks connected together by one or more interconnections.

**Interconnection:** equipment used to connect two electrical grids, or pipes connecting two gas transmission networks.

**Interruptible capacity product:** capacity product for which the TSO is not able to guarantee continuous use throughout the entire length of the contract. Consequently, under specific conditions, the TSO may refuse nomination requests filed by the shipper who owns this interruptible capacity product.

**Liquefied natural gas (LNG):** natural gas transported in liquid state by cooling to  $-160^{\circ}\text{C}$ , mainly so that it can be carried in LNG ships.

**LNG ship:** ship transporting liquefied natural gas (LNG) in its tanks.

**LNG terminal:** facility used to receive and store liquefied natural gas (LNG) and ship it to the main transmission network after regasification.

**Load-balancing:** term referring to the difference between a customer's actual gas consumption pattern and the pattern corresponding to a regular withdrawal over the year of this customer's average daily consumption. Consumption variations (daily, weekly or seasonal) are generally covered by underground storage facilities, to which the customers and their suppliers can have access, either directly (in countries where regulated or negotiated third-party access to storage systems is allowed) or in the form of a load-balancing service (as is the case in France).

**Local distribution company (LDC):** local distribution company (non-nationalised distributor) who distributes electricity and/or gas within a given geographical area.

**Main and regional gas transmission network and gas distribution network:**

- the main transmission network is a set of large-diameter, high-pressure pipes linking interconnection points with neighbouring networks, underground storage facilities and LNG terminals, and to which the regional transmission networks, distribution networks and high-consumption industrial consumers are connected;

- the regional transmission network is part of the transmission network used to transport natural gas to the distribution

networks and high-consumption final customers;

- the distribution network is a set of medium- and low-pressure transmission pipes used to transport gas to final customers and to other distribution networks, as necessary.

**Main network exit point:** point on a natural gas transmission network used as an interface between a main transmission network and a regional transmission network

**Market coupling (explicit auctions, implicit auctions):** coupling several markets implies grouping their supply and demand curves and processing them all together according to their economic relevance, i.e. matching the highest purchasing orders with the lowest sales orders, independently of the market where they were placed, while taking into account the daily interconnection capacities. In other words, within the limits of available interconnection capacity, the counterpart of a transaction on an electricity exchange may originate from a foreign exchange, without participants being obliged to explicitly buy the corresponding capacity at the border in question. It is a type of implicit auction, as opposed to explicit auctions where participants trading energy across borders must buy the corresponding interconnection capacity.

**Metering or estimation point:** point on a transmission or distribution network where a quantity of energy is determined using meters or estimates.

**Metering:** measurement of the various characteristics of electricity or gas in order to determine the amount of energy produced or consumed.

**Mibel:** single market shared by Spain and Portugal, set up on 1 July 2007.

**Mibgas:** Spanish and Portuguese gas market. Work began on creating this integrated regional gas market in 2007.

**Natural monopoly:** a sector of economic activity characterized by strictly increasing returns, i.e. the cost of the last unit produced is lower than all the previous ones. In these conditions the average

production costs are strictly decreasing, i.e. the average cost decreases with the volume produced. As a result, a single operator inevitably outperforms multiple operators, as long as measures are taken to avoid abusive use of this monopoly situation. The sectors concerned are generally those in which the investment costs (fixed costs) are so high that there is no justification in multiplying costs simply to ensure a competitive market. Examples of natural monopolies generally cited are infrastructure networks: railway networks, road and motorway networks, water and gas distribution networks, electricity distribution grids.

**NBP (National Balancing Point):** gas hub in the United Kingdom. Given the large volume of trading on this national hub, the prices it sets are an important reference for wholesale gas exchanges in Europe.

**Negotiated Third Party Access (negotiated TPA):** conditions governing system access are negotiated between the system operator and market players (eligible customers, producers, etc.) on a case-by-case basis.

**Non-interconnected territories:** parts of France that are not connected (by power lines) to the mainland continental system (Corsica, Martinique, Guadeloupe, Reunion, Guyana, Saint-Pierre and Miquelon and the islands of Molène and Ushant).

**Non-nationalised distributors:** see LDC.

**Nordpool:** electricity exchange among northern European countries (Norway, Finland, Sweden and Denmark).

**Off-peak product:** on the electricity wholesale market, an "off-peak" contract entails delivering constant power during certain time slots, generally at times when consumption is at its lowest. Thus, in France, the "off-peak" period refers to time slots between 8:00 pm and 8:00 am from Monday to Friday, plus the weekend. The other standard delivery profiles are "baseload" profiles and blocks.

**Offshore (wind power installations):** wind power generating capacity installed at sea.

**Onshore (wind power installations):** wind power generating capacity installed on land.

**Open season:** procedure used to size a new infrastructure according to market demand and to allocate corresponding capacities in a non-discriminatory manner.

**Open subscription period (OSP):** reservation time period during which all requests issued by shippers are considered as having been received at the same time. At the end of this period, all requests are processed, if necessary by allocating available capacity on a pro rata basis.

**Pay-as-bid:** payment rule for an auction procedure applied both for the sale of inter-connection capacity or for the purchase and sale of energy as part of a balancing mechanism. According to this rule, each agent whose offer is accepted receives (or pays) the price that it proposed and provides (or receives) the proposed quantity.

**Peakload product:** on the electricity wholesale market, a “peak” contract entails delivering constant power during certain time slots, generally at times when consumption is at its highest. In France, the “peak” period refers to time slots between 8:00 pm and 8:00 am from Monday to Friday. The other standard delivery profiles are “baseload”, “off-peak” and the blocks.

**Physical hub:** electricity or gas exchange point situated in a specific geographical location (example: Zeebrugge in Belgium where the exchange takes place on a physical platform).

**Pluriannual Investment Programme:** under French law, objectives set by the Minister for Energy for the distribution of electricity power-generating capacity according to primary energy source and, if necessary, according to the generating technology and geographical area.

**Pool:** mandatory electricity market where generators are obliged to offer all their means of production.

**Postage stamp tariff:** pricing principle which provides access to an entire service area, in exchange for the payment of a single access fee, regardless of the distance covered to transmit the electricity.

This tariff is divided into two parts:

- an injection stamp: payment by the generator to deliver energy to a grid connection point;
- a withdrawal stamp: payment by the consumer to be supplied at a grid connection point.

**Pressure:** depending on the type of network, three pressure levels are normally used in the gas industry:

- for major international transmission, the pressure level is between 60 and 100 bar;
- for the main national and regional French networks, between 40 and 80 bar;
- for distribution networks, there are two pressure levels: medium pressure (400 mbar to 4 bar) and low pressure, supplied directly to household customers (no greater than 50 bar).

**Price cap:** tariff regulation mechanism by which the regulation authority sets the rate of price level change several years in advance. This mechanism is generally considered to encourage improvements in productivity since the companies with regulated tariffs can benefit from all or part of the savings they make during the period for which the tariffs have been set.

**Producer:** natural person or legal entity that produces natural gas and/or electricity.

**Purchase obligation:** legislative measure obliging EDF and non-nationalised distributors (NND) to purchase the electricity generated in certain power-producing sectors (especially those based on renewable energy sources) under imposed conditions.

**Regulated retail tariffs:** electricity or gas sales tariffs offered to eligible customers who have not exercised their eligibility.

**Regulated Third Party Access (regulated TPA):** in the case of regulated TPA, the tariffs for grid or network access are proposed by the regulator. Access conditions are transparent and non-discriminatory for all users.

**Remote meter reading:** taking a reading from a remote location to determine the amount of electricity injected into and withdrawn from the grid. In France, the equipment used for remote meter reading complies with applicable metrology rules, pursuant to Article 13 of the Decree of 23 December 1994 approving the specifications of the main power supply grid..

**Reversibility:** the ability for an eligible customer who has signed a market-based contract to return to a contract based on regulated tariffs, under specific conditions.

**Roadmaps:** action plans put forward by regulators.

**STS tariff:** the Seasonal Transmission Subscription tariff is the integrated regulated tariff applicable to sales of gas to industrial customers who have not exercised their eligibility and to public distribution networks.

**Supplier:** a legal entity, holding a licence for the gas sector, or registered with the public authorities for the electricity sector, supplying at least one final customer with electricity or gas, using either energy it produces itself or energy that it has purchased.

**Supply contract:** contract for the sale of electricity or natural gas by a supplier to a final customer or trader.

**Synchronous grid:** power transmission grid with installations interconnected through AC connections and where frequency is the same at any point. In Europe, the main synchronous networks are UCTE, Nordel and the insular networks (Great Britain, Ireland, etc).

**System services:** services required to transmit energy from generating units to load installations while ensuring that the power system is operating safely.

**Take-or-pay:** long-term contract under which the producer guarantees to supply gas to an operator and this operator guarantees to pay, whether or not it takes delivery of the gas.



**Task Force:** working subgroup of CEER or ERGEG focussing on a specific question in the sector-based working groups (electricity, gas, consumer affairs, etc.).

**Third Party Access (TPA):** recognized right for any user (eligible customer, distributor, producer) to access a transmission or distribution system in return for payment of access fees.

**Trading:** buying and reselling on wholesale markets.

**Transit pricing:** tariff for an electricity flow crossing a control area.

**Transitional regulated tariff for balancing markets (TaRTAM):** regulated tariff available to customers who have exercised their eligibility and have sent in an application before 1 July 2007, for a period of two years.

**Transmission shipper or distribution shipper:** signatory of a gas transportation/transmission or distribution contract with a transmission or distribution system operator. A transmission or distribution shipper may be an eligible final customer, a supplier, or the representative of either one.

**Transmission system operator (TSO) or distribution system operator (DSO):** entity responsible for the design, construction, operation, maintenance and development of a public transmission or distribution network, performing contracts relative to third party access to these networks.

**Transmission-distribution interface point, or City Gate:** point where the gas transported by a transmission system operator is taken over by the distribution system operator.

**Transportation & Distribution Contract:** contract that sets out gas transportation conditions on distribution network in accordance with Law 2003-08 of 3 January relative to the gas market. This contract is broken down into general conditions, special conditions and appendices.

**Transportation & Transmission Contract (Transmission Contract)/ Transportation & Distribution Contract (Distribution contract):** contract signed between a transmission or distribution system operator and a transmission or distribution shipper for the purpose of transporting quantities of energy between one or more entry points and one or more delivery points.

**Underground storage facility:** installations using geological formations (aquifers or salt domes) to store gaseous hydrocarbons.

**Uniform service:** see electricity supply.

**Union for the Coordination of Electricity Transmission in Europe (UCTE):** association whose purpose is to define the operating rules for interconnections between European countries. UCTE is one of the four founding members of ETSO. This organisation includes the following countries: Austria, Belgium, Bulgaria, Bosnia-Herzegovina, Croatia, Czech Republic, Western Denmark, France, Serbia and Montenegro, Macedonia, Germany, Greece, Hungary, Italy, Luxemburg, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Switzerland.

**Use-it-or-get-paid-for-it:** this rule allows the holder of physical rights to interconnection capacity to choose between the following:

- physically exercising its right by submitting a firm nomination for the corresponding amount of energy to system operators sufficiently in advance or,
- transforming its physical rights into financial rights. In this case, the holder of the rights informs grid operators that it has decided to give up the physical exercise of his rights. Unused capacity is automatically reallocated to the market through the allocation mechanism below, in return for which the initial holder of the rights reaps the benefits of reallocation.

**Use-it-or-lose-it:** this rule obliges holders of physical rights to interconnection capacity to submit a firm nomination for the corresponding amount of energy to grid operators sufficiently in advance.

This firm nomination has three advantages:

- it limits the risk of ill-intended market players withholding capacity;
- it allows grid operators to reallocate assigned but unused capacity to the market;
- lastly, it allows grid operators to carry out capacity netting operations and therefore allocate the freed additional capacity.

**Use-it-or-sell-it:** this rule allows holders of physical rights to interconnection capacity to choose between:

- physically using their rights, by submitting a firm nomination for the corresponding amount of energy to grid operators sufficiently in advance,
- transforming their physical rights into financial rights. In this case, unused capacity is automatically reallocated to the market according to the allocation mechanism below, in return for which the initial holder of the rights reaps the benefits of reallocation.

**Virtual hub:** electricity or gas exchange points that are not situated in a precise geographical location (for example, the NBP in the UK, the electricity transmission grid or the gas exchange points in France). Exchanges are made between the entry and exit points of the transmission system in the corresponding area, without any further specific details.

**Virtual Power Plant:** electricity sales contract based on a model of power plant operations. These contracts are generally used by a purchaser to withdraw energy from a generator, on demand, at a previously set price.

# Acronyms

- ACER:** Agency for the Cooperation of Energy Regulators
- AEEG:** Autorità per l'Energia Elettrica e il Gas (Italian Authority for Electrical Energy and Gas)
- ANROC:** Association Nationale des Régies de services publics et des Organismes constitués par les Collectivités locales (French national association of state-run public services and organisations constituted by local authorities)
- APX:** Amsterdam Power Exchange (The Netherlands)
- ARN:** Autorité de Régulation Nationale (French national regulation authority)
- ATR:** Accès des Tiers aux Réseaux (Third-party access to networks)
- ATRD:** Accès des Tiers aux Réseaux de Distribution (Third-party access to distribution networks)
- ATRT:** Accès des Tiers aux Réseaux de Transport (Third-party access to transport networks)
- ATTM:** Accès des Tiers aux Terminaux Méthaniers (Third-party access to LNG networks)
- BNetzA:** Bundesnetzagentur (German regulator)
- CDC:** Caisse des Dépôts et Consignations (Deposit and consignment office)
- CEDIGAZ:** Centre d'Information et de Documentation sur le Gaz (French Centre for Information and Documentation) on Gas
- CEER:** Council of European Energy Regulators
- CNE:** Comisión Nacional de Energía (National energy Commission) (Spain)
- CNR:** Compagnie Nationale du Rhône
- CoRDIS:** Comité de Règlements des Différents et des Sanctions (Standing Committee for Dispute Settlement and Sanctions)
- CRCP:** Compte de Régulation des Charges et des Produits (Expense and revenue clawback account)
- CREG:** Commission de Régulation de l'Électricité et du Gaz (Belgian Commission for Regulation of Electricity and Gas)
- CSI:** Commercially sensitive information
- CSPE:** Contribution au Service Public de l'Électricité (Public Electricity Service Contribution)
- DIDEME:** Direction de la Demande et des Marchés Énergétiques (Demand and Energy Markets Department, under the authority of the French Minister for Energy)
- DSO:** Distribution system operator
- EEX:** European Energy Exchange
- EICom:** Commission de l'électricité (Swiss regulator)
- ENTSOE:** European Network of Transmission System Operators for Electricity
- ENTSOG:** European Network of Transmission System Operators for Gas
- ERDF:** Electricité Réseau Distribution France (French Electricity distribution system operator)
- ERGEG:** European Regulators Group for Electricity and Gas
- ERI:** Electricity Regional Initiative
- ERSE:** Entidade Reguladora do Sector Eléctrico (Portuguese regulator)
- ETSO:** European Transmission System Operators
- EUROGAS:** European Gas Association
- FNCCR:** Fédération Nationale des Collectivités Concédantes et Régies (French national federation of elected officials in charge of operating local public services)
- FNSICAE:** Fédération Nationale des Sociétés d'Intérêt Collectif Agricole d'Electricité (French national federation of cooperative electricity companies for agriculture)
- GGSSO:** Guidelines for Good TPA Practice for Gas Storage System Operators
- GHG:** Greenhouse gases
- GrDF:** Gaz Réseau Distribution France (French gas distribution system operator)
- GRI:** Gas Regional Initiative
- GRTgaz:** Gestionnaire de Réseau de Transport Gaz (Gas transmission system operator)
- GTC:** Groupe de Travail Consommateur (Consumer working group)
- GTE:** Groupe de Travail Electricité (Electricity working group)
- GTG:** Groupe de Travail Gaz (Gas working group)
- HV:** High voltage
- IEA:** International Energy Agency
- LDC:** Local Distribution Companies
- LNG:** Liquefied Natural Gas
- LPX:** Leipzig Power Exchange
- LV:** Low voltage
- NBP:** National Balancing Point
- NGC:** National Grid Company
- NIT:** Non-interconnected territory
- OCM:** On-the-day Commodity Market
- Ofgem:** Office of Gas and Electricity Markets (UK regulator)
- OTC:** Over The Counter
- PPI:** Programme Pluriannuel d'Investissement (Pluriannual investment program)
- RE:** Responsable d'Équilibre (Balance Responsible Entity)
- RPT:** Réseau Public de Transport (public transmission network)
- RTE:** Réseau de Transport d'Électricité (Electricity transmission grid)
- SNET:** Société Nationale d'Électricité et de Thermique (national company of thermal power plants)
- SPEGNN:** Syndicat Professionnel des Entreprises Locales Gazières (professional union of local gas companies)
- TaRTAM:** Tarif Réglementé Transitoire d'Ajustement du Marché (Transitional regulated tariff for balancing markets)
- TIGF:** Gas transmission subsidiary of Total
- TSO:** Transmission system operator
- TTF:** Title Transfer Facility ((Virtual gas hub in the Netherlands)
- TURPE:** Tarifs d'Utilisation des Réseaux Publics d'Electricité (Tariff for using the public electricity grids)
- UCTE:** Union for the Co-ordination of Transmission of Electricity
- UNIDEN:** Union des Industries Utilisatrices d'Énergie (Union of gas-consuming industries)
- VHV:** Very high voltage
- VPP:** Virtual Power Plant



# Council of European Energy Regulators

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# Units and conversions

## Gas

### Volume

1 cubic metre (m<sup>3</sup>) = 35.315 cubic feet (pi<sup>3</sup>)

1 tonne of liquefied natural gas (t LNG) = 1,350 m<sup>3</sup> of gas

1 m<sup>3</sup> of LNG = 593 m<sup>3</sup> of gas

### Converting weight and volume into energy

1,000 m<sup>3</sup> of natural gas = 0.9 ton of oil equivalent (toe)

1 m<sup>3</sup> of natural gas = 10.8 kilowatt hours (kWh)

1 tonne of LNG = 1.3 toe

1 barrel of oil (West Texas Intermediate-WTI) = 0.17 Mbtu (USDOE conventions)

## Converting weight and volume into Btu (International Energy Agency conventions)

Equivalent to	GNL	Gas			
		Norway	The Netherlands	Russia	Algeria
1 m <sup>3</sup>	39343	40290	33550	35855	37125
1 kg	51300	49870	42830	51675	47920

## Energy equivalence table

Equivalent to	GJ	kWh	MBte	th	therm
1 gigajoule (Gj)	1	227,8	0,948	238,9	9,479
1 kWh	3,6°	1	3,411°	0,86	3,411°
	103		103		103
1 Million(mbtu)	1,055	293,2	1	252	10
1 thermie	4,186°	1,162	3,968	1	3,968°
	103		103		103
1 therm	0,1055	29,32	1°10	25,2	1

## Electrical power

The standard unit used to measure power (i.e. energy per unit of time) is the watt (W). The watt represents the amount of power corresponding to the generation of one joule (J) of energy per second.

The joule is defined as the work done by a force of one Newton acting to move an object through a distance of one meter in the direction in which the force is applied, given that a Newton is the force required to accelerate a mass of 1 kilogram at the rate of 1 meter per second.

The kilowatt-hour (kWh) is the amount of energy consumed by a 1-kW appliance in one hour.

The volt (V) or kilovolt (kV) is a unit of voltage, expressing the difference in electrical potential across two points of a conductor carrying a constant electric current of one ampere (unit measuring the intensity of electrical current), where power dissipation between the two points is equal to one watt.

In the field of energy, coefficients used to multiply base units apply in the same way as for other units, (see table below).

For example, total electricity consumption (excluding losses) in France for the year 2007 amounted to 448.2 TWh (provisional RTE source as of 12 December 2007), and the average annual consumption of a French household was 4,700 kWh.

The most recently built nuclear power plants have a unit power of 1,450 MW, while wind power plants can reach 5 MW, and the power of a household iron is 1 kW.

## Units of measurement

Factors	Units of power	Units of energy
Kilo (k)	Kilowatt (kW) i.e. 1,000 W	Kilowatt-hour (kWh) i.e. 1,000 Wh
Mega (M)	Megawatt (MW) i.e. 1,000 kW	Megawatt-hour (MWh) i.e. 1,000 kWh
Giga (G)	Gigawatt (GW) i.e. 1 million kW	Gigawatt-hour (GWh) i.e. 1 million kWh
Tera (T)	Terawatt (TW) i.e. 1 billion kW	Terawatt-hour (TWh) i.e. one billion kWh



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