

Terms & Abbreviations

Absolute Pressure: Gauge pressure plus barometric or atmospheric pressure. Absolute pressure can be zero only in a perfect vacuum. See PSIA - Pressure, Absolute.

Atmospheric Pressure: The pressure due to the weight of the atmosphere (air and water vapor) on the earth's surface. The average atmospheric pressure at sea level has been defined as 14.696 pounds per square inch absolute - see PSIA.

Auto-refrigeration: The process in which LNG is kept at its boiling point, so that any added heat is countered by energy lost from boil off.

Bcf - Billion Cubic Feet: A unit of gas measurement approximately equal to one trillion (1,000,000,000,000) Btu's.

Boil off: A small amount of LNG evaporates from the tank during storage, cooling the tank and keeping the pressure inside the tank constant and the LNG at its boiling point. Rise in temperature is countered by LNG being vented from the storage tank.

Btu - British thermal unit: The Btu is the standard unit of measurement for heat. A Btu is defined as the amount of energy needed to raise the temperature of one pound of water one degree Fahrenheit from 58.5 to 59.5 degrees under standard pressure of 30 inches of mercury.

Compression: Natural gas is compressed during transportation and storage. The standard pressure that gas volumes are measured at is 14.7 Pounds per Square inch (psi). When being transported through pipelines, and when being stored, gas is compressed to save space.

CNG - Compressed Natural Gas: Natural gas in its gaseous state that has been compressed.

Cryogenic Liquid or Cryogenics: Cryogenic liquids are liquefied gases that are kept in their liquid state at very low temperatures and have a normal boiling point below -238 degrees Fahrenheit (-150 degrees Celsius). All cryogenic liquids are gases at normal temperatures and pressures. These liquids include methane, oxygen, nitrogen, helium and hydrogen. Cryogenics normally are stored at low pressures.



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CRYOGENIC

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Terms & Abbreviations (cont.)

Cf - Cubic Foot: A unit of measurement for volume. It represents an area one foot long, by one foot wide, by one foot deep. Natural gas is measured in cubic feet, but the measurements are usually expressed in terms of Mcf, Bcf, Tcf, or Quads.

Deliverability Rate: A measure of the amount of gas that can be delivered (withdrawn) from a storage facility on a daily basis, typically expressed in terms of millions of cubic feet per day (MMcf/day).

FERC - Federal Energy Regulatory Commission: The federal agency that regulates interstate gas pipelines and interstate gas sales under the Natural Gas Act. The FERC is considered an independent regulatory agency responsible primarily to Congress, but it is housed in the Department of Energy.

Gauge Pressure: The pressure generally shown by measuring devices. This is the pressure in excess of that exerted by the atmosphere. See Absolute Pressure.

Hydrocarbon: An organic compound containing only carbon and hydrogen. Hydrocarbons often occur in petroleum products, natural gas, and coals.

Liquefaction: The process by which natural gas is converted into liquid natural gas.

Liquefied Natural Gas (LNG): Natural gas that has been cooled to -259 degrees Fahrenheit (-161 degrees Celsius) and at which point it is condensed into a liquid which is colorless, odorless, non-corrosive and non-toxic. Characterized as a cryogenic liquid.

Liquefied Petroleum Gas (LPG): Gas consisting primarily of propane, propylene, butane, and butylene in various mixtures. Stored as a liquid by increasing pressure.

Mcf - Thousand Cubic Feet: One thousand cubic feet. One mcf equals the heating value of 1,000,000 Btu (mmbtu).

Methane: Methane (CH₄) is commonly known as natural gas. It is colorless and burns efficiently without many byproducts. Natural gas has odor added as a safety measure since it is naturally odorless.

MMBtu: One Million Btu.

MMcf: A volume measurement of natural gas; one million cubic feet.



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MMtpa: Million tonnes per annum - one tonne (or metric ton) is approximately 2.47 cubic meter of LNG.

National Environmental Policy Act (NEPA): The environmental law that establishes federal energy policy, sets goals, and provides means for carrying out the policy. A national policy for the purpose of encouraging productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

Natural Gas: A hydrocarbon gas that is usually obtained from underground sources, often in association with petroleum and coal deposits. Natural gas generally contains a high percentage of methane and inert gases. See Methane.

Nitrogen Rejection Unit (NRU): At NRU facilities, the entire gas stream is liquefied to remove impurities then regasified and sent on as pipeline-quality gas.

Peak-Shaving: Using sources of energy, such as natural gas from storage, to supplement the normal amounts delivered to customers during peak-use periods. Using these supplemental sources prevents pipelines from having to expand their delivery facilities just to accommodate short periods of extremely high demand.

Peak-Shaving Facility: A facility which stores natural gas to be used to supplement the normal amount of gas delivered to customers during peak-use periods.

Peak Use Period: The period of time when gas use on a particular system is at its maximum. This is the period when gas supply is most likely to be suspended for interruptible service customers. Distributors also employ techniques such as peak shaving to soften the impacts of high demand on the pipelines.

Pounds per Square Inch (psi): Pressure measured with respect atmosphere pressure. This is a pressure gauge reading in which the gauge is adjusted to read zero at the surrounding atmospheric pressure.

PSIA - Pressure, Absolute: Gauge pressure plus barometric or atmospheric pressure. Absolute pressure can be zero only in a perfect vacuum. See Absolute Pressure.



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Terms & Abbreviations (cont.)

Quad: An abbreviation for a quadrillion (1,000,000,000,000,000) Btu. For natural gas, roughly equivalent to one trillion (1,000,000,000,000) cubic feet, or 1 Tcf.

Rapid Phase Transitions: LNG undergoes a rapid transition to vapor especially when spilled on water. The volume of the LNG instantly expands 600 times resulting in a Rapid Phase Transition (RPT) or physical explosion which poses a hazard for structures and people close to the site of the incident. This explosion does not involve combustion. When LNG is spilled on water, heat is transferred from the water to the LNG. This results in a rapid transformation of liquid to gas releasing a large amount of energy.

Regasification: The process by which LNG is heated, converting it into its gaseous state.

Reserves: Volumes of hydrocarbons (measured in Bcf, Tcf or billion of barrels) that are considered to be economically recoverable using current technology.

Reservoir: The portion of a resource, such as natural gas, that has been discovered and that is technically and economically extractable.

Storage Facilities: Facilities used for storing natural gas. These facilities are generally found as gaseous storage facilities and liquified natural gas (LNG) storage facilities.

Stranded Utility: A stranded local utility system is typically very small and too far from the pipeline grid to be economically connected.

Tcf - Trillion Cubic Feet: A volume measurement of natural gas; approximately equivalent to one Quad.

Therm: 100,000 British thermal units (Btu). A common measure of gas sold to residential customers.

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