Oil and Gas Glossary

■ **Barrel**
In the case of oil, 1 barrel is equal to 42 gallons (approx. 159 liters).

■ **Brent crude**
A type of crude oil that holds a major position in the market for crude oil prices. Brent crude is a light oil with low sulfur content and is mainly extracted from the Brent oil field located in the North Sea of the United Kingdom.

■ **Concession contract**
A contract that directly grants mining rights (including mining rights in Japan and permits, licenses and leases in other countries) to oil companies through a contract or approval from the government of oil-producing countries or from national oil companies. The oil company itself makes investment and holds the right for disposition for the acquired oil and gas. Oil-producing countries receive taxes or royalties from sales.

■ **Condensate**
Generally, a type of crude oil extracted as a liquid from gas fields. Liquid (oil) that exists as a gas underground but that condenses when extracted to the surface is referred to as condensate oil or simply as condensate.

■ **International Energy Agency (IEA)**
A joint action agency for energy, the IEA is composed of the major oil-consuming countries. The agency was founded in 1974 as an independent organization affiliated with the OECD. The agency has 28 member countries.

■ **LNG (Liquefied Natural Gas)**
LNG stands for liquid natural gas. After removing impurities such as moisture, sulfur compounds and carbon dioxide from natural gas with a chief constituent of methane, the gas is liquefied by cooling to ultra-low temperatures (-162°Celsius). This process compresses the volume of the gas to 1/600, thus making it possible to transport large quantities in a single shipment.

■ **LPG (Liquefied Petroleum Gas)**
LPG stands for liquid petroleum gas, an oil product that is a mixture of hydrocarbon gases with a carbon number of 3 or 4, for example, propane, propylene, butane, butylene or a mixture of these as main constituents. Although LPG is a gas at ambient temperature and normal pressure, it is liquefied through exposure to low pressures or temperatures (cooling).

■ **Oil majors**
Oil majors are also known as major international oil companies. ExxonMobil (U.S.), Royal Dutch Shell (U.K./Netherlands), BP (U.K.), Chevron (U.S.) and TOTAL (France) are famous as the five oil majors. Each of these companies possesses an integrated system including departments for conducting both upstream and downstream business.

■ **Oil sands**
Sandstone beds that contain an extremely viscous tar-like crude oil which has no fluidity in its initial state. This is as opposed to conventional crude oil which can be easily pumped upward using a well. Depending on the level of viscosity, crude oil extracted from oil sand is referred to as bitumen or extra heavy crude oil.

■ **Operator**
In the case of multiple parties to a contract regarding blocks of oil/gas and associated E&P work, a joint operating agreement is entered into between the parties and it is necessary to achieve agreement on the rights and obligations for all items required when conducting operations. At that time, the party responsible for the execution and management of the operations is referred to as the operator. In contrast, parties other than the operator are referred to as non-operators.

■ **Probable reserves (our company)**
The definition of probable reserves is in accordance with regulations (2007 PRMS) formulated by the Society of Petroleum Engineers (SPE) through support from the World Petroleum Council (WPC), the American Association of Petroleum Geologists (AAPG) and the Society of Petroleum Evaluation Engineers (SPEE). The rule defines probable reserves as the estimated quantities of crude oil and natural gas that can be added to proved reserves and commercially collected based on geological and engineering data.

■ **Production sharing contract (PSC)**
A contract in which one or more companies involved in the development of oil and natural gas acts as a contractor and undertakes operations for exploration and development on behalf of the governments of oil-producing countries or national oil companies. The contractor is responsible for the costs associated with the operations. Corresponding amounts for cost recovery and compensation are received from production by a contractor.

■ **Proved reserves**
The definition of proved reserves is in accordance with SEC Regulation S-X Rule 4-10, a rule that is well-known among investors in the United States. The rule defines proved reserves as the estimated quantities of crude oil and natural gas that can, with reasonable certainty and under current economic and operating conditions, be collected from a given date forward based on geological and engineering data.

■ **Reserves to production ratio**
The reserves to production ratio (R/P ratio) is calculated by subtracting the production for a given year from the reserves at the end of that year. The resulting figure is applied to that particular oil field or region and shows how many years production can be continued if annual production continues at the amount for that year.

■ **Rig**
Machinery for drilling a well that is used to search for and produce oil and natural gas.

■ **Royalty**
Royalty refers to a specific share of production reserved by the owner of underground minerals (e.g., a state or a municipality) when granting mining rights, without taking responsibility for production costs. In some cases, the share increases according to increases in production. Royalties may be paid in kind or in cash.

■ **Shale gas**
A type of unconventional natural gas that is contained in mudstone. It is referred to as shale gas because it is contained in shale within the mudstone. Shale is particularly hard and tends to peel into flakes.

Unit Conversion

Crude oil
1 kl ≒ 6.29 barrels
1 ton ≒ 7.4 barrels
1 barrel ≒ 6,000cf (natural gas)
100,000 barrels/day ≒ 4 million tons/year (LNG)

Natural gas
1 cf ≒ 1,000 Btu*
1 billion m^3 ≒ 700,000 tons (LNG)
100 million cf/day ≒ 700,000 tons/year (LNG)
1 trillion cf ≒ 1 million tons×20 years (LNG)
(20 million tons)

Sale gas
1 m^3 ≒ 37.32 cf

LPG
1 ton ≒ 10.5 barrels (crude oil)

LNG
1 ton ≒ 8.8 barrels (crude oil)
≒ 1,400 m^3 (natural gas)
≒ 53 million Btu*

*British thermal unit

Note: Unit-equivalent figures are estimates. We cannot guarantee those figures' accuracy as applied to dealing or verification.