A GUIDE TO FLNG (FLOATING LIQUEFIED NATURAL GAS)

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FLNG technology can unlock gas resources from underwater gas fields that may once have been economically or environmentally challenging to obtain. This can help to meet growing demand for natural gas — the cleanest-burning hydrocarbon — which is set rise by more than half by 2040, according to the International Energy Agency. Many natural gas resources are located in offshore fields, but geographic, technical and economic limitations make a number of these difficult to develop.

FLNG technology is designed to overcome these challenges. It is complementary to conventional onshore liquefied natural gas (LNG) as it helps accelerate the development of gas resources to meet growing demand.

SEE ALSO: Guide to FPSO (Floating Production Storage and Offloading)

What is liquefied natural gas?

Liquefied natural gas (LNG) is natural gas, a mixture of methane and ethane, that has been cooled down to liquid form so it can be easily transported. In its liquid state, LNG takes up around 1/600th the volume of natural gas in its gaseous state. It is odorless, colorless, non-toxic and non-corrosive. Hazards, however, include flammability after vaporization into a gaseous state, freezing and asphyxia.

The liquefaction process removes dust, acid gases, helium, water and hydrocarbons that could cause difficulty downstream. Aboard an FLNG facility, natural gas produced from underwater fields is processed and chilled to -162° Celsius (-260° Fahrenheit). This shrinks its volume by 600 times to create LNG. The advanced design of facility's on-board LNG plant packs a typical land-based LNG plant into around one quarter of its normal size.

Natural gas is mainly converted into LNG to achieve natural gas transport over the seas where laying pipelines is possible. LNG achieves a higher reduction in volume than compressed natural gas (CNG) which makes LNG cost efficient in marine transport over long distances. LNG is principally used for transporting natural gas to markets, where it is regasified and distributed as pipeline natural gas.