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CO2 UTILIZATION IN LNG PLANTS – A CASE STUDY TO PRODUCE SNG VIA CO2 METHANATION

The LNG industry traditionally removes native CO_2 in feed natural gas through an Acid Gas Removal Unit (AGRU) and disposes it to atmosphere. Some plants have invested to sequester this CO_2.

This paper presents an alternate option to utilize the captured native CO_2 by converting it via methanation into Synthetic Natural Gas (SNG), which can then be blended with the LNG product. Methanation is the reaction of CO_2 with hydrogen to produce methane. The hydrogen used in this solution is green hydrogen.

The methanation solution may be viable under several scenarios, especially when:
•LNG buyers demand low carbon footprint cargos
•There is no easy access to existing CO_2 infrastructure and/or sequestration sites
•Plant economics favoring increased LNG production
•Native CO_2 accounts for most of the emissions from an eLNG Plant

In addition, the following topics are discussed in this paper:
•Methanation technologies overview
•Technical challenges and opportunities
•Synergies between methanation and LNG plants

A case study based on a 10 MTPA LNG plant is presented to illustrate key features and benefits of CO_2 methanation and its integration with the LNG plant.

To view the full conference agenda, visit https://www.lng2023.org/lng-programme-overview