

This abstract will be presented during LNG2023 conference on 10-13 July in Vancouver, Canada among many other innovative projects, ideas and outlooks. LNG2023 will provide a unique platform for the global LNG industry and key stakeholders to discuss, debate, and showcase the latest industry developments and opportunities.



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UPSTREAM/MIDSTREAM METHANE FUGITIVE EMISSIONS ABATEMENT THROUGH INNOVATIVE VALVE CONFIGURATIONS AND DIGITIZATION

The IEA estimated that in 2019 oil and gas operations produced 82 Mt of methane emissions. Methane emissions are considered the second-largest contributor of global warming. There are various processes that contribute to methane fugitive emissions, but valves are a major source. A major gas facility can have anywhere between 10 to 20,000 valves. The cumulative impact of leakage from this many valves has the potential to become a noticeable contributor to emissions contributed by LNG. Statistics show that valves account for up to 65% of fugitive emissions providing significant incentive to tackle valve fugitive emissions.

While fugitive emissions can escape through any break point in a system including, positioner bleed, static sensor penetrations, & flange seals, it is through the dynamic stem-seal interface of conventional control valves where leakage & failures most often occur. The basic packing configurations addressing these dynamic seals have remained largely unchanged over the years.

The paper will discuss using innovative twin packing configurations with a pressurized zone between the packing sets and enhancements using a metal bellows seal. These solution are enhanced with IoT monitoring of the pressure & flow meters for the pressurized barrier zones of the packing & bellows providing real time feedback on the health of the leak protection systems & locating issues as they arise.

Embracing such technology advancements as part of Carbon/Methane Offset project

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