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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MANAGING FEED GAS HIGH NITROGEN CONTENT IN AN E- LNG FACILITY

In recent years, electrical drives for main refrigeration compressors in LNG plants have become more popular because of their low-carbon emission. This paper is based on studies and evaluations that are particularly relevant for all-electric train facility. The paper intends to identify the key technical factors that should be addressed to implement E-drives successfully. These challenges arise because E-drive facilities have less degrees of freedom due to minimal fuel requirement. Any gaps in addressing the technical factors will result in long term operational problems, production loss and even off-spec LNG. The below topics will be addressed in the paper:

- Electric-drive facility sensitivity to nitrogen content in feed gas.
- Why the design stage should include the planning for Nitrogen Removal Unit (NRU) to handle future nitrogen content variations in feed gas
- Complexity of fuel gas and Boil off gas (BOG) management due to increasing nitrogen content. Analysis of economic impact (production drop) due to fuel/BOG imbalance.
- Available options (LNG sub-cooling or end-flash system) and their relative merits and demerits for BOG and nitrogen management for e-drive.
- Alternate options for increasing facility overall efficiency by integrating NRU and BOG liquefaction to manage fuel and nitrogen balance
- Discuss the plot space requirements to accommodate the different possible options