

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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## DECARBONIZATION OF LNG PLANTS: DESIGN OPTIONS AND CHALLENGES FOR GREENFIELD AND BROWNFIELD FACILITIES

To help achieve net zero anthropogenic greenhouse gas emissions by 2050 and as LNG remains a source of transitional energy, it is critical to examine ways to minimize carbon emissions. Since LNG liquefaction account for the lion's share of carbon emissions in the LNG lifecycle, development of low-carbon LNG liquefaction plants is critical. This paper describes different design options for reducing carbon emission in both brownfield and greenfield LNG liquefaction plants by targeting the point sources of carbon emissions. Different methods and solutions for a low carbon-footprint design in LNG liquefaction plants are presented. For a new LNG liquification plant both the eDrive and GT drive options for refrigeration compressors are discussed and different solutions of carbon emission abatements and capture are evaluated. For the existing LNG liquefaction plants, the use of helper motors to provide supplemental power for the existing gas turbine drivers is compared with replacing gas turbines with large electric motors and VFDs. The impact on the production of the existing LNG liquefaction plant, as well as the technical challenges associated with major modifications of refrigeration compressor drivers and possible impact on the process and the liquefaction system is reviewed. Also, different arrangements for large motors with VFD systems for different LNG liquification processes are discussed. Power generation options including post combustion carbon capture will be addressed.

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