

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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TECHNOLOGY STATUS OF LNG ELECTRIFIED COMPRESSION TRAINS

This paper provides an overview of compression electrification in LNG plants, with a focus on Baker Hughes proven methods and proprietary tools around system integration of complex electric motor driven shaft lines, enabling innovative configurations.

Proper system integration, which is key to achieve safe and continuous operation, is realized through several static as well as dynamic studies. The purpose is to identify and characterize any interaction between the frequency converter (VFD) and the torsional natural frequency of the train, as well as analyze potential interaction phenomena inside the electric network between the EM driven compression train and the Power Generation (PG) train. The latter can create torsional oscillations ultimately leading to shaft damage and failure.

In addition to tools and methodologies, Baker Hughes introduced and patented the Torsional Vibration Control System (TVCS) that can be used to monitor, and if needed to actively damp, the alternating torque on the compression train, increasing its reliability.

The proprietary know-how unlocks the possibility to develop complex configuration not only for green field application but also for brownfield electrification projects. A detailed case study of an existing 35-40MW gas turbine driver retrofitting with a proper electric motor (EM) will be presented. The study has been carried out paying particular attention not only into the shaft line integration but also to the site installation constraints for all the equipment connected to the EM operation.

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