

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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ECONOMIC MODELLING OF LNG TRAIN DECARBONIZATION OPTIONS

As the needs to reduce CO₂ emissions become more pressing, there is an increasing appetite to identify, at an early stage of design, the most cost effective way to reduce the CO₂ footprint of a LNG production plant, from a choice that ranges from energy efficiency improvements to more novel measures such as H₂ in the fuel gas (Pre-combustion decarbonization), Carbon Capture from exhaust stacks (Post-combustion decarbonization), Electrification.

In order to assist its customers, T.EN has developed a modelling tool to compare the technical and economical requirements to lower the CO₂ footprint of a given LNG production plant (either newbuilt or to be retrofitted), drawn from its experience in not only LNG plant design but also in electrical systems, carbon capture, H₂ and ammonia production. The model generates order of magnitude cost estimates, technical data (heat and mass balances, power generation upgrades) as input to an economic analysis (NPV, IRR, Cashflow curves, Payback time) comparing the cost per tonne of avoided CO₂ for the different methods.

In this paper, T.EN will present the model and its features, and also discuss the results from selected case studies comparing different options to put decarbonization in the context of typical plants. An introductory overview will discuss pre-combustion vs post-combustion capture, electrical motor drives with decarbonized power generation, an evaluation of the differences in options for greenfield vs brownfield LNG plants

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