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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LNG VAPORIZATION: LNG COLD UTILIZATION TO REDUCE TERMINALS'' CARBON EMISSION

In LNG regasification terminal, LNG is vaporized from its liquid state to gaseous state to be introduced in the local gas grid. Among regasification technologies, Submerged Combustion Vaporizers (SCV) is often used as back-up or even as main regasification system. With SCV technology, the necessary heat for regasification is produced by burning a part of the natural gas and/or the boil-off gas, which implies carbon dioxide emissions and about 1.5% decrease of the natural gas terminal production. SCV consists in one of the main LNG terminal source of carbon emission. In addition, on terminals cold is considered abundant as it could be recovered from LNG itself during its vaporization. Therefore, the symbiosis between LNG cold available and cryogenic CO2 capture on SCVs is promising and was studied in 2022 by ENGIE Lab CRIGEN through process review and modeling under Aspen Hysys®. The study highlighted that the cold recovered from LNG at the inlet of a SCV is largely sufficient to ensure a cryogenic carbon capture. The system could even be self-sufficient in terms of frigories and thus is very energy efficient. The implementation of cryogenic carbon capture on SCVs reduces LNG regasification terminal carbon impact by capturing at least 90% of the SCV carbon emissions. It also reduces SCV's gas consumption by 4 %, thanks to the LNG cold recovery and the energy saving for its regasification.