

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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RECENT INDUSTRIAL REFERENCES WITH POST COMBUSTION CARBON CAPTURE MEAN IT CAN BE CONSIDERED FOR LNG

Decarbonisation of natural gas liquefaction is technically feasible and increasingly expected by buyers, investors and regulators. When low carbon electricity is not available, the abatement of CO₂ emissions by post combustion carbon capture and sequestration, CCS, is one solution. However, it is so far unreferenced in LNG, to some extent because of its reputation as an unproven technology. Recent non-LNG CCS projects remove this barrier, allowing re-examination of this option to reduce CO₂ emissions from fired equipment, applied either directly to the gas turbine drivers of refrigerant compressors or in a low carbon combined cycle power generation unit associated with LNG plant electrification.

This paper will build on the lessons from this recent experience to explore the opportunity to decarbonize liquefaction.

High on the list of qualifying references is the EPC phase of a project signed mid-2022 to remove 400 ktpa CO₂ from the stack of the urban waste incinerator located in the Celsio plant in Oslo, Norway. The technology used is direct contact of the flue gas with Shell Cansolv[®] amine solvent. As project FID depended not only on reducing costs but also on controlling technical risks, the unit design was thoroughly optimized. The FEED included substantial innovation in terms of technology, engineering design and execution strategy. The project validated compliance with Norwegian regulations on emissions and evaluated solvent degradation through extensive pilot tests.

The experience from other emerging projects that similarly recover CO₂ from gas turbine exhausts such as Net Zero Teeside, UK and DeerPark, USA, are also useful in applying CCS with confidence to direct drive gas turbines and combined cycle power plants.

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