

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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OPTIMISING SHIP ROUTES TO ADDRESS ASIA'S GROWING LNG DEMAND

The forthcoming growth in global LNG demand is notably driven by a radical drop in Russian gas imports and a sharp increase in Asian demand, as Asia is set to absorb nearly 70% of the world's LNG demand by 2040. Environmentally the use of LNG is favoured because of its low CO₂ and air pollutant emissions. In this way, the advantage of LNG shipping is reinforced, especially since the 2020 IMO guidelines for an 85% limit on sulphur emissions. With the increasing trend in LNG transport, the logistics chain is increasingly challenged in optimizing the shipping route. Following this approach, ENGIE Lab CRIGEN has developed a software dedicated to the optimisation of the maritime fleets' journey and feasibility of implementing adapted to SSLNG logistics. This online tool addresses two key issues: building a supply chain network even in the most isolated places and optimizing distribution costs while respecting supplier-specific and LNG-related constraints. Mathematically based, the software is built on a Mixed Integer Linear Programming (MILP) model partly inspired from Bittante et al. (2015) paradigm. The outcome is obtained by a simulator verifying the chain's optimisation feasibility under tighter constraints. In 2022 the team conducted a study based on the expanding Asian business, where stakeholders need to optimise ship-based LNG distribution. It provided decision-makers with a strategic answer regarding storage, fleet size, delivery, capacity and a estimation of CAPEX/OPEX.

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