

Costs and emissions assessment of a Blue Corridor in a Brazilian reality: The use of liquefied natural gas in the transport sector

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ABSTRACT

Technical, economic, social and environmental conditions are turning natural gas into a feasible solution for sustainable transportation systems in the State of São Paulo (Brazil). Blue Corridors are routes that aim to enable the use of liquefied natural gas (LNG) for heavy vehicles as a substitute to Diesel oil. Therefore, this work proposes four scenarios for a Blue Corridor in the State of São Paulo and analyzes its environmental and economic impacts. The results are presented in cartographical figures and show that LNG costs up to 40% less than diesel, while reducing CO₂ equivalent emissions by up to 5.2%. Particulate matter (PM) emissions are reduced by 88%, nitrogen oxides (NO_x) by 75% and hydrocarbon emissions are eliminated. However, despite the economic and environmental advantages presented in the results of this study, LNG still faces regulatory barriers that must be addressed in order to allow its widespread use in the transportation sector.