



Comparative Analysis of Canadian LNG to Global Natural Gas Supply: Shaping Canada’s Energy Future

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Demand for energy continues to grow due to population growth and economic development around the world. Since demand for energy has primarily been met through high coal consumption, global greenhouse gas (GHG) emissions have substantially increased (Figure 1). Liquefied natural gas (LNG) can be used to displace coal as an energy source with less GHG emissions. LNG has the potential to significantly reduce emissions in countries where coal is the main energy source such as China, India, South Korea, and Japan. Additionally, the adoption of LNG as a transition fuel may bridge the gap between fossil fuels and renewable energy, to further reduce global emissions. In this study, exports of LNG from Canada were evaluated to determine its potential as a cleaner transition fuel.

Canada has abundant natural gas reserves that could be sold in the international market in the form of LNG. We found that exports of LNG from Canada can be produced at similar cost to those from the United States and Australia, with fewer associated emissions (Figure 2). The development of an LNG industry in Canada provides opportunities for economic growth; however, associated increase in domestic emissions may prevent Canada from achieving its emission reductions targets set out in the Paris Agreement. Policies to mitigate GHG emissions from the potential LNG projects in Canada could help develop the industry.

Incorporating carbon capture and storage (CCS) could be a way to reduce GHG emissions from LNG operations. Although CCS might increase LNG project costs, adoption of policies such as regulatory requirements, grant funding, carbon pricing, and research & development funding could encourage adoption of CCS in LNG projects to reduce associated emissions. Inclusion of Indigenous land usage perspectives could further improve the environmental performance of LNG facilities while providing economic opportunities to First Nations communities in Canada.

Footnotes:

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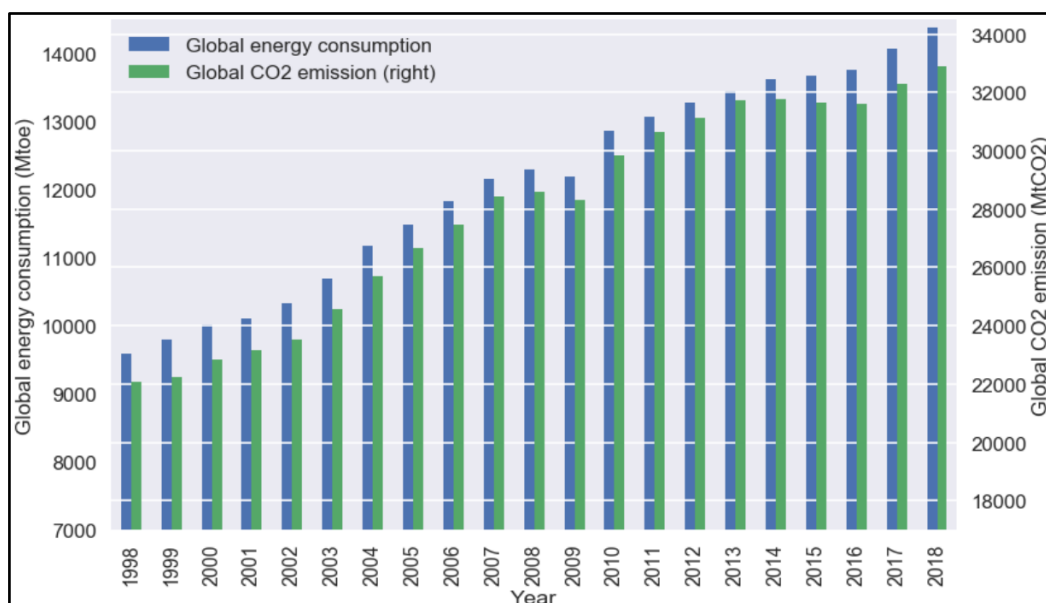


Figure 1. Increasing global energy consumption has caused an increase in CO2 emissions. Source: [7]

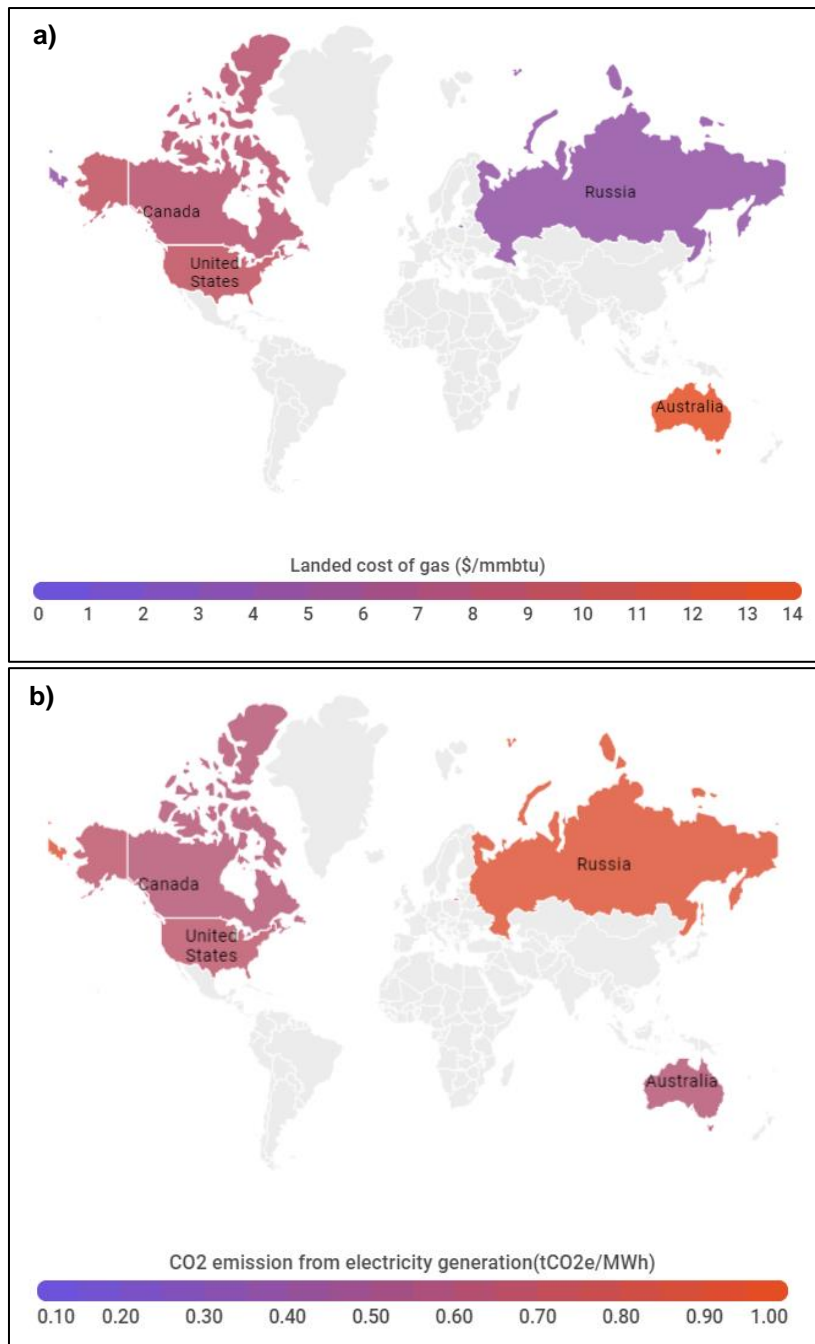


Figure 2. (a) Landed cost of gas for LNG exports from Canada, the United States, Australia and Russia, and **(b)** CO₂ emissions from electricity generation of LNG exports from the same countries. Source: [1,6,8].

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