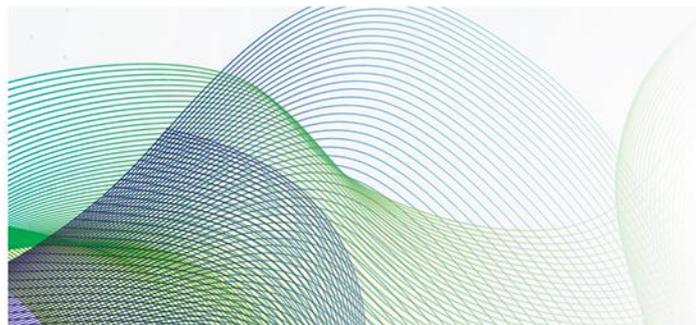


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Natural Gas in Canada: what are the options going forward

Executive Summary

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Despite Canada's abundance of gas resources and the plethora of proposed LNG export schemes, the current business environment, characterised by low oil prices and industry consolidation, makes it unlikely that any Canadian LNG scheme will be commissioned before the middle of the next decade. Similar to other greenfield LNG schemes being proposed in East Africa and Australia, the window of opportunity to capture premium Asian markets has also eluded the Canadian projects; it is likely that a new market window will open from 2025 onwards.

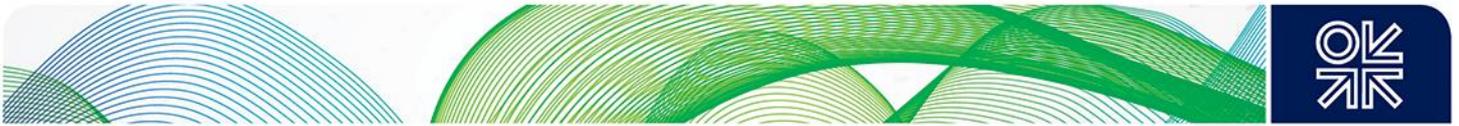
As of early 2015 all proposed projects have been deferred and any final investment decisions will await signs of an improvement in market conditions. A few projects look more viable due to a combination of Asian buyers' equity holders and a large resource base, but even those projects face the hurdle of high capex costs, complex environmental permitting and the individual circumstances of the project leaders. Industry analysts expect only at most three British Columbia LNG projects to be operating by 2025.

The market outlook for Asia is still uncertain. Demand in Japan is flat; pending a decision on how many nuclear power plants will resume operation between now and 2017. Demand in South Korea has dampened, due to a combination of mild weather, slow economic growth and the prospect of 7GW nuclear being currently built coming on line. The demand for LNG in China has slowed down, with more pipeline gas being imported into the market. In addition, there are 120-130 mtpa of extra LNG capacity (under construction) coming to market by 2020. The Indian market may offer interesting growth opportunities, due to the current shortage of KG basin gas. However the main gas downstream player, GAIL, has already committed to buy 8.5 mtpa from US and Russian suppliers.

The Canadian projects will need prices of around US\$ 10.3-11.6/MMBtu to breakeven, which (on an oil indexed pricing basis) necessitates oil prices of US\$ 76-90/bbl, which doesn't appear competitive with the first generation of US Gulf Coast brownfield projects. Even if the Canadian projects set up cost plus price formulae, the fixed component of US\$ 6.5-7.5/MMBtu, which includes enabling pipeline infrastructure, liquefaction plus income tax, looks expensive when compared to US projects.

Gas producers in Canada West Canadian Sedimentary Basin will continue to see price erosion until LNG projects materialise, as they continue to lose markets to cheaper shale gas produced in the US. The continuous growth of Marcellus production, followed by the Utica deeper play and the Bakken in North Dakota, coupled with the construction of new pipelines and the flow reversal of the existing ones, will cause the Canadian western producers to lose traditional US and eastern Canadian markets. Under this scenario, WCSB producers will be marginal suppliers and price takers in the North American gas market, a situation which is aggravated by higher transportation toll fees west-east, as less gas from WCSB is transported to the Eastern markets.

There are opportunities to redirect production into the domestic market, in particular into oil sands production/upgrading and into power generation. However, even the oil sands market opportunities



are expected to slow down, as lower oil prices will cause the postponement of projects which are yet to start construction.

This is an opportunity for the Canadian federal and province government to decide on strategies to promote the growth of the domestic market, including cogeneration, use of gas in the transportation sector and in petrochemicals/fertiliser plants. It is also an opportunity to work with the project developers to enhance the permitting framework to speed up the construction of LNG and pipeline facilities once the economic outlook encourages the players to move the projects forward.

About the Author

Ieda Gomes is a Senior Visiting Research Fellow at the Oxford Institute for Energy Studies. Her areas of expertise include natural gas and LNG market fundamentals as well as energy pricing, policy and regulation particularly in developing countries in South Asia, the Middle East, Africa and Latin America. Ieda's career in the gas and energy industry spans more than 30 years. She worked for nearly 14 years at BP plc as Vice President for new ventures and market development on several international assignments and for 19 years at the largest gas distribution company in Brazil, Comgas. She has been a key participant and shaper of events in Brazil's gas industry – from the introduction of natural gas supplies in Sao Paulo to the negotiating and signing of the domestic and Bolivian gas supply agreements, the privatisation of Comgas and the establishment of the Brazilian Association of Gas Distribution Companies (ABEGAS). Ieda is based in the UK and sits on the board and advisory council of various companies, think tanks and associations. She writes a bimonthly column for Brazil Energia. Ieda holds a BSc in chemical engineering and an MSc in energy and environmental engineering.