



July 18, 2019

Review of Major Projects set to Boost Demand for Oil and Gas from Montney Producers

Highlights:

- Calima has undertaken a strategic review of developments in the western Canadian energy sector relevant to the Montney Formation in Western Canada
- Montney production is estimated to reach 10 bcfe/d during 2019 which is an increase of 16% (14% gas and 26% liquids) over last year
- The review has identified more than 10 bcfe/d (90% gas and 10% liquids) of new demand from projects which include;
 - Trans Mountain Pipeline expansion
 - LNG projects in British Columbia and Nova Scotia
 - Coal to gas and renewables substitution in Alberta
 - NGL export facilities
- The additional demand from these new projects should have a positive impact upon Montney producers and demand for acreage

Calima Energy Limited (ASX:CE1) (“**Calima**” or the “**Company**”) has recently undertaken a review of publically available information regards the developments in the western Canadian energy sector which are relevant to the anticipated demand for oil and gas from the Western Canadian Sedimentary Basin (WCSB) where the Company owns 72,000 acreage of Montney Formation drilling and production rights.

Canada is currently one of the world’s top five gas producers and the Montney accounts for roughly half of all Canadian gas production. According to new research by Wood Mackenzie, production from the Montney will reach 10 bcfe/d in 2019, representing a 16% increase from 2018 (26% liquids growth, 14% gas growth). Wood Mackenzie estimate the remaining value of the Montney play to be greater than C\$65bn and suggest that, despite falling natural gas prices, the higher liquids-yields have strengthened the Montney’s position in the North American landscape, with much of the play economic at C\$2.00/mcf AECO natural gas prices.

Calima’s review of major energy infrastructure projects has identified more than 10 bcfe/d (90% gas and 10% liquids) of new demand from projects which include;

- Trans Mountain Pipeline expansion



- LNG projects in British Columbia and Nova Scotia
- Coal to gas and renewables substitution in Alberta
- NGL export facilities
- Propane dehydrogenation (PDH) and a polypropylene (PP) facilities in Alberta's Heartland Petrochemical Complex
- Natural gas to methanol project tabled for Grand Prairie, Alberta

Alan Stein, Calima's Managing Director commented; *"In addition to pipeline expansions to improve access to US markets which we reviewed last year the projects identified in our more recent review will add completely new sources of demand both domestically and internationally for Montney producers. Recent studies show that despite falling natural gas prices, the higher liquids-yields have strengthened the Montney's position in the North American landscape, with much of the play economic at C\$2.00/mcf AECO natural gas prices. These new sources of demand could reduce the discount applied to Montney gas prices making this one of the most sought after oil and gas provinces in North America."*

Some of the key projects expected to contribute to demand growth include:

Trans Mountain Expansion Project

On 19 June 2019 the Canadian Federal Government granted approval for the Trans Mountain Expansion project (TMX). The project, which involves the twinning of the existing 1,150km heavy-oil pipeline running from Edmonton, Alberta and Burnaby, British Columbia, is forecast to cost C\$7.4bn. TMX will see pipeline capacity increase from the current 300,000bbl/d to 890,000bbl/d. Construction is anticipated to begin as early as September 2019 with an in-service date of 2022.

The Canadian Government acquired the existing Trans Mountain infrastructure from Kinder Morgan in a C\$5.4bn deal struck in 2018. Once complete the Government intends to sell the project, with interest already being shown by competing Indigenous-owned entities.

Economic benefits of the expansion are expected to extend beyond the heavy-oil producers, with the increased production leading to a rise in demand for gas and condensate, both critical components in the extraction (est. 0.6bcf/d of gas for power/steam) and transport (est. 150,000 bbl/d of condensate for diluent) of the product to market.

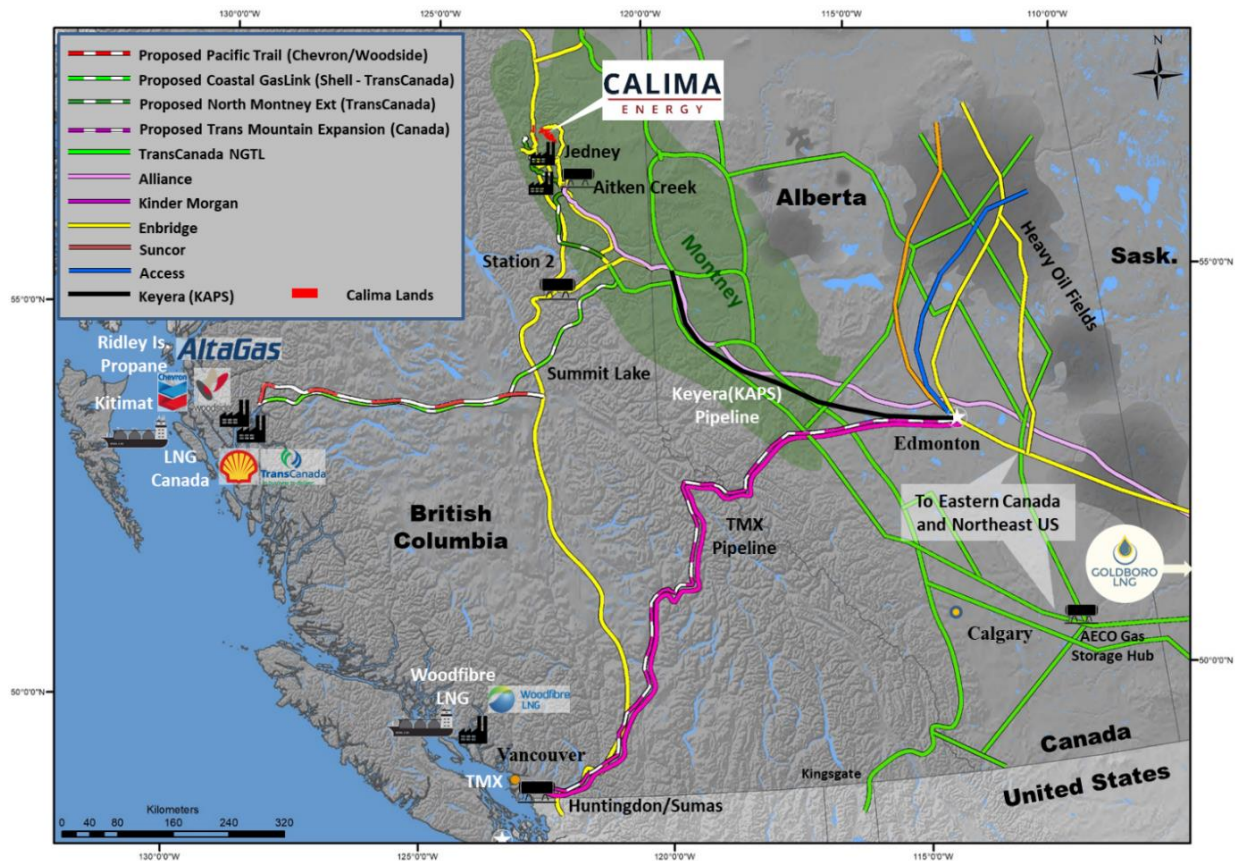


Figure 1 – Major Western Canada transmission lines (gas, NGL and crude) currently provide WCSB producers access to domestic and US markets. The arrival of Canadian LNG (West and East coast) as well the TMX oil pipeline and Propane export terminal will provide producers with new markets in both Asia and Europe. Much of the foreseen increases in demand will be met by Montney players as they continue to develop the prolific resource

LNG Update

Wood Mackenzie have estimated that LNG sourced from western Canada will have approximately half the unit cost of LNG produced in Australia. With a similar sailing distance to the Asian market, which is expected to account for the majority of demand growth in the near future, Canada is well placed to compete for market share. The competitiveness of projects in western Canada is further enhanced by their ability to generate LNG with at least half the carbon footprint of the global average due mostly to the availability of hydro-electric power.

LNG Canada

LNG Canada is a joint venture between Shell, Petro-China, KOGAS, Mitsubishi and PETRONAS. The project received partner FID in October 2018 and is now under construction. Located at Kitimat in B.C. the C\$40bn project will be Canada's first LNG facility and will be the largest private sector investment

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project in Canadian history. To demonstrate its commitment to this project and LNG in general, the federal government announced in early June it is contributing C\$275M to the project with \$220M directed towards buying energy-efficient gas turbines and the balance spent on replacing an access bridge to Kitimat, B.C. The initial capacity of Phase One is 13Mtpa with expansion in Phase Two to 26Mtpa. LNG Canada will increase demand for Montney gas by c. 3.5 bcf/d when running at full capacity.

LNG Canada anticipates achieving a carbon footprint less than half of the global standard for LNG through innovative design and the use of hydroelectricity. This results in the potential for Canadian LNG to replace higher-polluting coal for power generation in Asia. The Canadian Government is seeking to use a provision in the 2015 Paris climate accord to gaining emissions credits toward meeting Canada's carbon targets by helping reduce air pollution in Asia.

Coastal Gaslink

Following the 2018 LNG Canada announcement TransCanada Corporation announced that it will construct the C\$6.2bn Coastal Gaslink pipeline to transport gas from the Montney to the LNG terminal. The pipeline will have an initial capacity of approximately 2.1 billion cubic feet per day (bcf/d) with the potential for expansion of up to approximately 5 bcf/d. This new pipeline will link-up directly with the new North Montney Mainline pipeline which on completion will terminate approximately 20km south west of Calima's drilling rights.

Kitimat LNG

In April 2019, Kitimat LNG partners, Chevron and Woodside, applied for a near-doubling of the facilities approved export capacity from a 10Mtpa to now 18Mtpa. Chevron has separately stated that the Kitimat LNG facility is designed to be the cleanest LNG facility ever built, being all-electric powered by renewable hydroelectricity with an emissions target near 10% of the of current Global LNG best-in-class benchmark. Kitimat LNG will consume c. 2.4 bcf/d when running at full capacity with the most likely source of supply being from the Montney

Woodfibre LNG

Further south on the B.C. west coast, the approved Woodfibre LNG project is anticipated to receive FID later in 2019. The likelihood of a positive FID decision was bolstered when the Woodfibre project owners, Pacific Oil and Gas, recently acquired Montney player Canbriam Energy (announced May, 2019), who currently produce 200mmcf/d of gas and 6,000bbls/d of NGLs, securing foundation feedstock for the project. More recently, on 26 June 2019, Woodfibre announced the execution of an LNG Sales and Purchase Agreement with foundation customer BP, who have committed to taking 0.75Mtpa of the approved 2.1Mtpa Woodfibre export capacity.



Goldboro LNG

On the Canadian east coast, Pieridae Energy have been progressing the Goldboro LNG project which will be built in Nova Scotia and provide access to European markets. Pieridae has export approval for 10Mtpa and, in November 2018, the company was issued with a construction permit from the Nova Scotia Utility and Review Board, allowing it build the Goldboro LNG facility. Like the west coast LNG facilities, Goldboro will source gas from western Canada, with gas to be piped east via existing pipelines. It is expected that the Goldboro project will consume more than 1 bcf/d of gas once operational.

Ahead of FID, and in an effort to secure foundation feedstock for Goldboro, Pieridae announced on 26 June 2019 the C\$190M acquisition of Shell's Alberta Foothills assets, which currently produce 119mmcf/d of natural gas and almost 9,000bbls/d of liquids (NGL, condensate and light oil). More upstream reserves or supply will be required to maintain the project. Goldboro LNG is anticipated to reach FID in 2019 with the company already having signed a 20-year agreement with German utility giant Uniper for the full capacity of Goldboro's first train and half of the total project capacity, and thus providing Canada with markets beyond the US and Asia.

Coal to Gas conversion

In anticipation of the current Federal Government Regulation End of Life for Coal Plan, which requires the closure of 12 of Alberta's 18 coal fire power stations by 2030, ATCO Ltd and TransAlta Corp have both accelerated plans to phase out coal-fired generation and convert burners at the majority of plants to natural gas.

ATCO is looking at a 2020 target rather than the 2030 target set by the Alberta Government. TransAlta recently completed a C\$835M deal selling 90% of its coal/gas power generating capability.

The conversion from coal to gas power generation is expected to lead to an increase in the region of 1 bcf/d in domestic gas demand which will compete with growing demand from the oil sands sector and eventually LNG exporters on both the west and east coasts.

NGLs & Petrochemicals

Ridley Island Propane

Canada's first propane export terminal began exports in June 2019. The Ridley Island Propane Terminal, located in Prince Rupert, B.C. (north of Kitimat), exported its first cargo to Asia and is expected to export 1.2Mtpa to the region. Project co-owner AltaGas noted the strategic advantage of a ten-day shipping-time from Canada's west coast compared to 25 days from Gulf Coast competitors; an advantage that will be similarly gained by west coast LNG exporters.



Propane is a constituent of the group of light liquids (C3-4) referred to as Natural Gas Liquids or NGL's. Due to market constraints these are currently sold at a discount to condensate (C5+). The Ridley Island project will positively impact the western Canada propane supply/demand balance, reducing the reliance on the U.S. market for export.

Keyera KAPS Pipeline

In May 2019, Keyera Corporation announced it will commence the C\$1.3bn Key Access Pipeline System (KAPS) pipeline to bring NGLs from northwest Alberta to Fort Saskatchewan, just northeast of Edmonton. The pipeline is scheduled for completion by 2022.

Pembina Peace Pipeline

The Pembina Pipeline Corporation's Peace Pipeline received approval for a C\$500M expansion in January 2019 to meet increased demand. Construction will begin in 2020 with completion in the first half of 2022.

PDH/PP Facilities

Inter Pipeline Ltd. and Pembina Pipeline Corp. have each sanctioned a PDH/PP project in 2019, both located in the Alberta's Heartland Petrochemical Complex north east of Edmonton, Alberta. Inter Pipeline's \$3.5bn facility is currently under construction with start-up expected in late 2021. Pembina, and its 50/50 joint venture partner Canada Kuwait Petrochemical Corporation, are proceeding to construction on its \$4.5bn facility. These projects are expected to consume up to a combined 45,000 bbl/d of Propane in 2021 and beyond.

Methanol Facility

Nauticol Energy Ltd., an Alberta based petrochemical company, has proposed a \$2bn natural gas to methanol facility near Grande Prairie, Alberta. The company is currently looking to fund the project and secure feedstock with total project natural gas demand of 300 mmcf/d once all 3 project phases are completed.

Management estimates that the NGL and petrochemical projects listed above could create additional demand for up to 160,000 bbl/d of NGL's.

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About Calima Energy

Calima Energy Limited (ASX:CE1) is an international oil and gas company with over 72,000 acres of drilling rights prospective for the Montney Formation in British Columbia, the most active oil and gas play in Canada. Calima's neighbours in the Montney include international operators Shell, ConocoPhillips and PETRONAS, as well as Canadian producers Black Swan Energy, Saguaro Resources and Painted Pony Energy. The region's liquids-rich hydrocarbon reserves are being targeted for LNG export alongside domestic and international oil market opportunities.

Forward-Looking Statements

This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Calima Energy Limited's planned activities and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential", "should," and similar expressions are forward-looking statements. Although Calima Energy Limited believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.