Western Canadian Shale Gas Sector Overview and Midstream Development Opportunities

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Shale Gas Overview

The unconventional oil and gas segment is still a developing industry in Canada relative to the U.S. market. Shale gas is considered an unconventional source as the gas is contained in difficult-to-produce reservoirs, which require special completion, stimulation and/or production techniques to achieve economic production.

According to Natural Resources Canada:

- Shale gas is emerging as the new low-cost source of natural gas in North America.
- Natural gas is approximately 30% cleaner than oil and approximately 45% cleaner than coal.
- Current research estimates that natural gas supplies found in North American shale basins will last more than 100 years.
- The regulation of Canadian shale gas is primarily provincial.

Canadian Shale Gas Plays

- Shale gas resources in Canada are estimated to be greater than 1100 trillion cubic feet (tcf) with the majority residing within Western Canada.
- Marketable resources for shale gas in Canada are estimated to range from 128 to 343 tcf.
- Canada currently produces 6.4 trillion cubic feet of natural gas, with shale gas making up 15% of total Canadian natural gas production annually.

Most of the current drilling and production activities takes place in Western Canada:

- The Montney formation in northeast British Columbia and northwest Alberta.
- The Horn River basin and Cordova Embayment in northeast British Columbia and Alberta.
- The Liard basin in northeast British Columbia and extending into Northwest Territories.
- The Colorado Group shale formation in southeast Alberta and southwest Saskatchewan.

Montney Shale Play

According to the National Energy Board, Montney is among the world's largest shale plays, containing approximately:

- 449 trillion cubic feet of natural gas
- 14.5 billion barrels of natural gas liquids
- 1.12 billion barrels of oil from its various dry gas and liquids-rich formations

Montney shale play has an estimated cost-per-well of $4-10 million, and compared to U.S. shale plays it holds an:

- Advantage over Eagle Ford shale play - estimated cost-per-well of $6-10 million.
- Advantage over Marcellus shale play - estimated cost-per-well of $6-8 million.

- Competitive price with Barnett shale play - estimated cost-per-well $3 million
- Competitive price with Fayetteville shale play - estimated cost-per-well of $2.5 million.

The low-cost nature of the Montney and the upside of a full-fledged LNG industry have transformed the basin into one of the largest and fastest growing natural gas resource plays in Western Canada. Drilling activity stood at 400 wells as of 2014 compared to 200 in 2013 with:

- Encana Corporation being the top producer in the Montney region.
- Malyasia's state-owned Petronas being the second-largest producer with an estimated 334,000 hectares.
- Murphy and Shell ranking among top producers, each with more than 120 wells in production.

In a recent report, it has been predicted that Montney volumes would grow to 6 billion cubic feet per day from the current 3.5 bcf/d by 2020 as technology is tweaked to optimize recovery and reduce costs and producers spend billions on drilling.

In terms of market, natural gas goes to consumers in B.C. and Alberta. The Spectra T-mainline has capacity for 2.2 billion cubic feet per day, carrying natural gas from the North to the Lower Mainland. By 2016 producers hope to export to South Korea and Japan.

Horn River Basin

Horn River Basin is a relatively new natural gas discovery. A number of Canadian and American companies have been busy obtaining leases in the Horn River area, and the development cycle is in very early stages.

- Located in northeast British Columbia and covers an area of approximately 1.31 million hectares.
- Estimated reserves between 100 and 600 tcf of natural gas, of which 10% to 20% is recoverable.
- Exploration companies benefit from British Columbia's light net-profit royalty regime which offers significantly lower rates similar plays elsewhere in the U.S. and Canada.

Encana Corporation has been an active player in Horn River, with plans for a $400 million gas processing facility adjoining its field operations. Conoco Phillips Canada, ExxonMobil, and Nexen Inc. also operate in the area.

In terms of market, natural gas from Horn River currently enters BC mainline and Alberta pipeline system. The shale's export potential is pinned to the planned Pacific Trail Pipeline, a 463 km natural gas pipeline that will connect the gas fields with LNG export facilities in Kitimat.

Liard Basin

Located directly west of Horn River, the Liard Basin is estimated to hold:

- approximately 210 tcf in its reserves, 48 tcf of which can be produced and sold.

As one of the most remote natural gas reservoirs in North America, it faces challenges similar to Horn River – a lack of infrastructure, high drilling costs, and distance to market. In terms of recent development, Houston-based Apache has drilled the area since 2009, and its 3 producing wells feed into an existing pipeline that runs south from the Northwest Territories.

Resource Exploration and Development

The North American boom in shale gas, gas liquids and shale oil has supercharged demand for companies that offer gas processing facilities and gathering pipelines as well as provide new technologies for resource exploration and development.

One of the types of facilities currently in demand are gas plants that separate natural gas into its component parts for shipment in pipelines. A shortage of such facilities in Western Canada has held back the country's shale gas production.

Midstream companies such as KANATA Energy Group and Unconventional Gas Resources (UGR) has become key players in the shale gas sector by processing and delivering oil and gas to markets.

KANATA Energy Group

Headquartered in Calgary, Alberta, KANATA Energy Group Ltd. is a private midstream infrastructure that has raised $330 million in private equity from ARC Financial Corp., U.S.-based Energy Spectrum Capital and the investing arm of the Ontario Teacher's Pension Plan.

- The company is focused on the acquisition, construction and operation of field gathering, processing and liquids extraction facilities in Western Canada.
- KANATA is targeting projects in the range of $30 million to $150 million, aiming for deals with small-cap explorers less inclined to build processing gear on their own.
- The company plants to commission its first gas plant in northeast B.C.'s Montney play by January 2015 after confirming a deal with an affiliate of private producer Unconventional Gas Resources (UGR) of Calgary to build a new gas plant and buy and operate existing UGR facilities in the area.

Unconventional Gas Resources (UGR)

Unconventional Gas Resources (UGR) is a private company focused on the exploration for and development of unconventional resources in North America. The company has offices in Calgary, Alberta, Canada, and in College Station, Texas, U.S. UGR is backed by ARC Financial, EnCap Investments, L.P. and MGV Management L.P.

The company has been working shale, tight sands and coal bed methane since the 1980's and has significant work experience in all the major unconventional basins in North America as well as knowledge of full cycle of activities associated with the exploration and development of resource plays, giving it a unique ability to find and commercialize new unconventional projects in North America.

UGR currently has 3 operations in North America:

- A high-quality British Columbia position in rapidly growing Montney unconventional resource play.
- An Alberta Deep Basin asset with significant upside potential in emerging Cardium and Second White Peaks oil plays, and Montney, Wilrich, Fahler, and Peace River gas plays, via horizontal, multi-stage completions.
- South Texas gas play in Webb County, with horizontal well production from a number of formations.

Opportunities

- Drilling companies, hydraulic fracturing companies and camp providers.
- Fracking and drilling equipment.

- Logistics strategies and services.
- Micro-seismic monitoring services.
- Midstream infrastructure - gas plants/storage facilities/pipelines.

Key Projects

- Kitimat LNG Project
  - Estimated cost – between $5 and $40 billion total.
  - Company - Chevron.
  - Location - Kitimat, B.C.
  - Under construction, expected to complete in 2018/2019.
- LNG Canada Project
  - Estimated cost – between $25 and $40 billion total.
  - Company - Shell Canada Energy/PetroChina/KOGAS.
  - Location - Kitimat, B.C.
  - Estimated in-service date - 2019.
- Kitsault Energy Project
  - Estimated cost – between $20 and $30 billion total.
  - Company - Kitsault Energy.
  - Location Kitisault, B.C.
  - Estimated in-service date - 2018.
- Prince Rupert LNG Project
  - Estimated cost – $16 billion.
  - Company - BG Group PLC.
  - Location - Prince Rupert, B.C.
  - Estimated in-service date - 2018/2019.
- Pacific NorthWest Project
  - Estimated cost – $11 billion.
  - Company - PETRONAS.
  - Location - Prince Rupert, B.C.
  - Estimated in-service date - 2018.

For More Information

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