

## Overview

At the 2017 Energy Mines and Minister's Conference (EMMC) a commitment was made to study barriers to investment in the oil and natural gas sectors in Canada to ensure that opportunities are seized upon for economic growth and emissions reductions. In May 2018, NRCan commissioned a technical study with WoodMacKenzie, a leading oil and gas consultancy, to assess Canada's competitive standing compared to other oil and gas producing jurisdictions, and to evaluate factors that have an impact on investment decisions. The study was completed on July 31<sup>st</sup>.

## Background and Methodology

- The study focused on factors that influence investment decisions today and are quantifiable. Future government policies that being proposed or under development were not factored in the analysis.
- Competitiveness factors were identified across four major areas:
  - *Quality and quantity of resources*
  - *Development costs and profitability*
  - *Fiscal regime*
  - *Infrastructure and market access*
- WoodMacKenzie used their proprietary database of global upstream oil and gas projects to conduct economic modelling. They incorporated a wide number of project parameters, including size and quality of resources, production profiles, development costs, tax and fiscal and other key parameters.
- The study contained a basin-by-basin comparison of investment returns between key producing basins in Canada (e.g., Oil sands, Montney) with key basins in the United States (U.S.) (e.g., Permian, Bakken) and internationally (e.g., Brazil, Mexico).
- The study did not put forward recommendations. Rather, it provided a detailed assessment of the major factors that drive investment.
- The study also included hypothetical, yet realistic, case studies representing different resource themes in Canada. Sensitivity analyses were conducted to assess the impact of different factors on project returns. The five resource themes examined were:
  - *Oil Sands: a 35,000 barrel per day greenfield Steam-Assisted Gravity Drainage (SAGD) project*
  - *Conventional heavy oil: a horizontal well in Lloydminster, Saskatchewan region*
  - *Liquids rich natural gas (LRNG): two sub-plays in the Montney (Alberta and British Columbia)*
  - *Light tight oil: two sub-plays in Alberta and Saskatchewan*
  - *Natural Gas: a horizontal tight gas well in Alberta's Deep Basin*

## Investment Outlook

- Investment and production growth is returning fastest to U.S. plays in the near term, while Brazil also grows in the 2020's. Recent federal U.S. tax reform is adding to already compelling project returns and proximity to demand markets and export terminals.
- Within Canada, investment in oil sands will remain at current low levels, while some basins will grow rapidly in the coming years. The Montney has become one of the world's top unconventional resource plays, comparable or better than many U.S. resource plays. However, low gas prices and distance from markets will place limits on the full potential.
- Canada also offers other resource plays and wide variety of development types from heavy oil to coalbed methane. Many of these are attractive from a development economics point of view but are not as scalable relative to investment hotspots like Brazil Deepwater or the U.S. Permian.
- Market access constraints cause price discounts which are the single most impactful variable in WoodMackenzie's economic valuations. Only the very best Canadian opportunities will attract investment until sentiment improves on market access.

## Key Findings

- **Overall Ranking:** Overall, Canada ranks high when it comes to resource size, fiscal regime and political environment, but ranks lower on market access and development costs. When conducting a basin-level comparison, some basins rank higher than others in terms of investment attractiveness (Montney – 2nd out of 15, Oil Sands – 12th out of 15). Irrespective of ranking, all basins will contribute positively to supply growth in the coming years, as global demand increases and production declines from existing fields.
- **Market Access:** When compared to other jurisdictions, Canada ranks in the middle for development costs, but among the lowest for market access, which has a direct bearing on prices. Price and market access have the biggest impact on project economics and therefore investment decisions.
- **Development Costs:** While Canada's resources are vast in size, other jurisdictions also have sizeable reserves. Development economics are the primary determining factor on where projects get built.
- **Fiscal Regime:** When applying the same project assumptions across regimes, Canadian provinces (AB, BC, and SK) have lower combined tax and royalty rates than U.S. states (Texas, Oklahoma, Pennsylvania, North Dakota). Alberta and British Columbia regimes apply lower royalty rates in early years as projects are recovering costs, and higher rates once projects recover their full costs, thereby encouraging investment while allowing the government to participate in price upside.
- **Investment Returns:** In terms of modelling sensitivities, investment activity can respond to even the slightest improvements in returns, given intense competition for capital. A 10% rate of return alone may not be enough to compete against more profitable regions in the U.S.