

## EXECUTIVE SUMMARY

# In Search of Prosperity:

## The role of oil in the future of Alberta and Canada

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May 2021

### Highlights

This report takes a novel approach to considering the role of oil in Alberta's future prosperity. It casts the net much wider than most industry analyses in thinking about drivers of future demand and viability. And unlike most environmental analyses, it ignores the question of whether a thriving oil sector is consistent with climate imperatives, focusing instead on to what extent a thriving oil sector is possible, given market realities.

Alberta's oil sector has been an economic workhorse for decades, but its long-term market outlook is bleak. By the end of this decade, a combination of technological change, climate action, market forces, and geopolitics will drive a long-term decline in the sector, meaning its contribution to Alberta's future prosperity will be nothing like what it was in the past.

As a way to create jobs, foster investment, and drive government revenues, investing public funds in the oil sector is not money well spent. Alberta's future prosperity would be better served by governments investing in diversifying the economy, building on the strengths that powered the oil sector success: a skilled workforce, an entrepreneurial spirit, and abundant resources.

Oil-dependent workers and communities need help to navigate the coming transition. Any major economic transition is painful, but we know from experience that it can be made much less so if it is anticipated and managed.

Oil has an important place in that transition. Existing operations will still generate revenues that can be harnessed to support new investments. Just as important: oil sector expertise, infrastructure, and resources may be the basis of new drivers of prosperity.



The oil sector has been an economic workhorse for Alberta for decades. Oil sands extraction and refineries alone contributed over CAD 68 billion to the Alberta economy in 2019 and made up over 18% of Alberta's provincial GDP. When it comes to employment, four subsectors of oil and gas activity—extraction, support services, refining, and pipeline transport—provided 131,405 direct jobs in Alberta in 2019, or 5.4% of the provincial workforce.

Alberta's oil sector, however, has run into headwinds. Even before the COVID-19 pandemic and the oil price crisis it sparked, Alberta had been struggling to recover from the 2014/15 oil price shock brought on, in part, by the flood of new U.S. shale production. By 2019, real GDP still had not climbed back to 2014 levels, growing an anemic 0.04% over 2018 levels.

This report examines the future of the oil sector as part of Alberta's economy and whether, in years to come, it will drive economic prosperity in the same way it has in the past.

The report approaches this question through two tracks: (i) assessing determinants of the sector's future and (ii) modelling scenarios.

The first track considers the impact on the sector of the following determinants:

- **Uptake of electric vehicles (EVs):** The uptake of EVs is the most significant influence on future oil demand. Road transport is by far the biggest component of global demand for crude oil, at 44%. The increased uptake of EVs will therefore have a direct and significant impact on the oil sector. EV uptake is growing rapidly. Meanwhile, a growing number of countries and states have announced bans on the sale of internal combustion engine passenger vehicles, coming into effect as soon as 2030, in order to favour non-polluting vehicles like EVs.
- **Government action on climate change worldwide:** The combustion of oil is responsible for 21% of total anthropogenic greenhouse gas (GHG) emissions globally. Modelling by the Intergovernmental Panel on Climate Change shows that all but the most implausible scenarios for meeting the Paris Agreement's 1.5°C warming target mean significant reductions in oil use. Increasing international action to meet climate commitments, under the Paris Agreement and more ambitiously toward 2050, will reduce demand for oil.
- **Cost of production:** Oil sands operations are capital intensive. Greenfield mining operations in particular face much higher costs than averages for global competitors, along with high upfront investment and significant payback times. These kinds of projects are unlikely to move forward in the future. On the other hand, expansions of existing in situ operations have proven to have low and globally competitive breakeven costs. Existing operations are a different story, with operating costs having fallen significantly. Such operations, especially if they have paid off their initial investments, can survive low global prices for extended periods of time.
- **The geopolitics of oil markets:** Canada is the world's fourth-largest producer of oil but actually accounts for only roughly 5% of total global production. As a result, we are



price takers and subject to dynamics among the world's biggest producers. How will these producers behave as global demand eventually peaks? There are two dynamics worth noting. The first is the historical contest among the world's top three producers, with Saudi Arabia and Russia torn between restricting supply to increase revenues or increasing supply to lower prices and destroy high-cost U.S. shale production. The second is based on the so-called green paradox: if oil producers know that a low-carbon world will undermine the future value of their reserves, will they try to get more oil to market today in an undisciplined rush that ultimately harms all producers? In a world of long-run declining oil prices, this second dynamic would put unprecedented strains on OPEC+<sup>1</sup> solidarity, leading to low prices and volatility. When peak demand is eventually passed, the path is not likely to be an orderly decline in prices in a stable but shrinking market.

- **Demand for plastics:** Petrochemical feedstock accounts for 14% of primary oil demand globally, most of which goes into plastics production. Demand for primary chemicals features prominently in all projections for global oil demand. The International Energy Agency's Stated Policies Scenario projects petrochemicals' share of new oil demand growth to be 50% by 2050. However, some uncertainties plague the future of demand for oil for plastic, including alternative production methods that use natural gas and coal-derived methanol, and growing government and private sector initiatives to reduce plastic pollution.
- **GHG intensity of production:** GHG intensity is an important factor because it could be rewarded or penalized by trading partners in the future; it could factor into environmental, social, and governance assessments by the finance sector; and it affects social licence to operate. Canadian upstream emission intensity has improved over the past decade but still remains on average over 50% more GHG intense than the U.S. average and more than three times as high as Saudi Arabia's.
- **Access to capital:** The oil sector is highly capital intensive, and investment in Canada's oil sands has been steeply declining since 2014. Two developments will intensify this challenge. The first is the movement by some major sovereign wealth funds, pension funds, central banks, and investment houses to divest from the oil sands or to filter their investments through a climate lens. Second, the 2019 Supreme Court of Canada case wherein Redwater was required to prioritize the fulfillment of its environmental obligations over repayment of debts raises the risk for creditors and will raise the cost of capital for Canadian oil and gas operators.
- **U.S. energy and climate policy:** The United States is the destination for 98% of Canada's exported crude oil. Stricter regulations and demand-side measures, like President Biden's proposed automobile fuel-efficiency standards, will lower demand for Canadian oil. A moratorium on drilling on U.S. federal lands, on the other hand, could

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<sup>1</sup> OPEC includes Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Republic of the Congo, Saudi Arabia, United Arab Emirates, and Venezuela. OPEC+ also includes Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, and Sudan.



increase demand for Canadian crude imports. Strengthened methane regulations could similarly increase demand for Canadian crude imports by rendering marginal well production in the U.S. uneconomic.

The second track of the report models the expected impacts for two distinct cases: low oil prices and volatile oil prices.

## Modelling Low Prices

This first modelling exercise asked: what if the drivers surveyed in the previous section mean that oil prices do not return to meet the pre-pandemic expectations? Our reference case was a pre-2020 prediction by the Canada Energy Regulator: steady USD 70/bbl (West Texas Intermediate [WTI]) oil out to 2050. Our low-oil-price scenario was an average price of USD 55/bbl (Brent) over the same period. For the low-oil-price scenario:

- **GDP from the oil and gas sector:** Average decrease of CAD 4.4 billion per year out to 2050
- **Employment in oil and gas:** Average loss of 6,300 full-time equivalent (FTE) jobs per year out to 2050
- **Investment in oil and gas:** Drops by just over CAD 2 billion per year
- **Royalties from oil sands:** Drop by an average of just under CAD 2 billion per year
- **Alberta-wide investment:** Drops by an average of CAD 2.9 billion per year
- **Provincial tax revenues:** Average decrease of just under CAD 1 billion per year
- **Federal tax revenues:** Average decrease of CAD 1.4 billion per year

## Modelling Volatility

To assess the impacts of price volatility on economic outcomes, we created two deterministic price shock scenarios that varied the future oil price based on historic oil shocks from the last 37 years. Both the reference case and the “shock” scenarios had the same average price out to 2050. The impacts of volatility were much greater than the impacts of low oil prices found in the first modelling exercise.

Shocks Scenario:

- **GDP from the oil and gas sector:** Average decrease of CAD 24.3 billion per year out to 2050
- **Employment in oil and gas:** Average loss of 24,300 FTE jobs per year out to 2050
- **Investment in oil and gas:** Drops by CAD 11.2 billion per year
- **Royalties from oil sands:** Drop by 43%



Bigger Shocks Scenario (based on slightly wider distribution of price variability):

- **GDP from the oil and gas sector:** Average decrease of CAD 21.8 billion per year out to 2050
- **Employment in oil and gas:** Average loss of 21,800 FTE jobs per year out to 2050
- **Investment in oil and gas:** Drops by CAD 9.6 billion per year
- **Royalties from oil sands:** Drop by 41%

When considered together, the modelling above and the survey of determinants on which it builds help to coalesce a vision of the future of Alberta's oil sector.

Oil will still be an important part of Alberta's economy in the run-up to peak demand, and even after. However, the post-peak world of low, declining, and volatile prices will make projects and financing more and more challenging, and will make the oil sector a smaller and smaller contributor to Alberta's and Canada's prosperity.

This leads to four policy recommendations:

1. **Oil for combustion is not an appropriate target of industrial policy support.**

For policy-makers with an industrial policy lens who are thinking about where to allocate government support to maximize future prosperity, the oil sector as a producer of combustible hydrocarbons should be nowhere near the top of the list.

2. **Diversification is imperative.**

It is imperative to invest in new growth opportunities. In many cases, this will involve harnessing the same strengths and resources that powered the oil sector to drive new growth sectors.

3. **The transition needs to be anticipated and managed.**

Experience shows that economic transitions for workers and communities can be managed more or less successfully if they are anticipated.

4. **There is no time to lose.**

Evidence shows that successful economic transitions and diversification take decades. It is important that governments, communities, the private sector, unions, and non-governmental organizations accelerate these initiatives now.

The full version of *In Search of Prosperity: The role of oil in the future of Alberta and Canada* can be found on the IISD website at <https://www.iisd.org/publications/search-prosperity-oil-alberta-canada>

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