The Future of the Oil Sands: Reports of its Demise are Premature

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The oil sands have played a vital role in the Canadian economy for the past twenty-five years. Recent geo-political developments both at home and abroad, however, have led many to speculate whether Canada's oil sands will continue to be viable. Some have even suggested that the oil era is nearing its end, particularly given the current, proposed and foreseeable limitations on carbon emissions.

Recent studies have undertaken the difficult task of forecasting what the future holds for the oil industry. In **Canada's Energy Future 2016** (initially published in January 2016 and then updated in October), Canada's National Energy Board (the NEB) projects the future prices for and production of Canada's oil resources during the period from 2016 until 2040 (the Projection Period). ExxonMobil has also completed its Outlook for Energy which forecasts global energy demand to 2040. In addition, the International Energy Agency (the IEA) has released its 2016 World Energy Outlook. These studies all project that the global demand for oil will continue to grow, led by key emerging economies. They also suggest that Canada's oil sands will be in position to play a material role in meeting this growing demand.

Canada's Energy Future

In Canada's Energy Future 2016, the NEB projects a base case for the price and production of oil, reflecting an updated perspective on global crude oil supply and demand trends (the Reference Case). It also provides High and Low Price Cases to account for various uncertainties related to future oil prices. The following table compares current oil prices and levels of production with the projected oil prices and production levels in the Reference Case at the end of the Projection Period.

NEB Reference Case			
Year	**Price (2015 USD$)**	**Canadian Oil Production (mmb/d)**	**Oil Sands Production (mmb/d)**
2016	$45	4.0	2.5
2040	$90	5.7	4.3

Source: NEB – Canada's Energy Future 2016 Update

The Reference Case

Price Projections

Oil prices projected in the Reference Case are based on a current macroeconomic outlook with a moderate view on the increase of international oil prices over the Projection Period. Prices are projected to rise to USD $60 per barrel (on an inflation adjusted basis) in the short term, reaching USD $90 per barrel by the end of the Projection Period. These prices are for Brent Crude Oil. The price of Western Canadian Select, the benchmark price for Canada's heavy oil, is discounted from the Brent Crude Oil price to account for different physical properties and the increased costs associated with transporting that heavy oil. The NEB study assumes that this difference will widen in the short-term but stabilize after 2020 when additional energy infrastructure is expected to have been built. This is a key assumption in projecting the price of Canadian oil in the Reference Case.

Production Projections

The Reference Case projects a 41% growth in the total production of crude oil in Canada, reaching 5.7 mmb/d in 2040 as compared to 4.0 mmb/d in 2015. In the 2016 World Energy Outlook, the IEA also projects that Canadian oil production will increase, rising from current levels to 5.1 mmb/d by 2020 and then to 6.1 barrels per day by 2040. This projection is down from the IEA's 2015 forecast which estimated Canadian production to reach 6.8 barrels per day by 2040. The IEA attributes this decrease to the postponements and cancellations of new upstream projects in the oil sands that occurred over the past two years in response to the collapse of oil prices during that period.

The vast majority of the growth of Canadian oil production is expected to come from the oil sands. The NEB projects that production from the oil sands will reach 4.3 mmb/d in 2040, a 72% increase from 2015 production levels. This oil sands production is expected to come from *in situ* oil sands projects and from bitumen mines – but not evenly. Production from *in situ* oilsands projects is projected to grow between 2019 and 2022 followed by a steady increase in production until 2040, ultimately reaching 2.7 mmb/d – more than doubling 2015 production levels and representing over 60% of total oil sands production by 2040. Mined bitumen production, on the other hand, is expected to increase robustly from 2017 to 2020 but remain relatively flat afterwards. The NEB report attributes these diverging growth trajectories to the increased economic viability of *in situ* oil sands projects with projected higher international oil prices contrasted with reduced investment in the more expensive to develop bitumen mines after the projects currently under construction are completed.

The NEB projects that production will vary significantly depending on oil prices over the Projection Period. In the High Price Case (which assumes prices rise to over $120 per barrel by the end of the Projection Period), the NEB projects that total Canadian oil production will reach between 6 and 7 mmb/day. In the Low Price Case (which assumes prices stay roughly in the $40 per barrel range throughout the Projection Period), the NEB projects the production of Canadian oil will reach just under 5 mmb/day. Given that production from all Canadian sources outside of the oil sands are expected to account for just over 1 mmb/day, the bulk of Canadian production under any price scenario is expected to come from the oil sands.

Demand

Forecasting the demand for Canada's oil sands involves difficult macro-economic projections of economic growth, government policy, and competing energy sources. Complicating this analysis is the fact that Canada operates within an interconnected global economy. However, overall, the studies show that there is still likely to be a significant global demand for production from the oil sands over the Projection Period.

The Exxon Mobil Outlook for Energy provides a particularly useful perspective in analyzing the future global demand for oil. The study projects:

- global energy demand will generally rise 25% between 2014 and 2040;
- growth in energy demand to 2040 will likely be accounted for, almost exclusively, by growth in energy demand in non-OECD countries over that period. Growth in energy demand in OECD countries is expected to be relatively flat;
- oil, natural gas and coal are expected to satisfy 80% of global energy demand through 2040; and
- oil is expected to be the world's top fuel source in 2040, with an anticipated 20% growth in demand between 2014 and 2040.

The Exxon Mobil Outlook for Energy makes the point that it is no longer sensible to think about, or make projections concerning, global energy demand based solely on experiences and observations in the OECD world. A large portion of the world, outside OECD countries, is rapidly developing. The citizens in these countries are beginning to demand the same standard of living and conveniences that those in OECD countries enjoy. It is this under-tapped market that will drive global energy demand in the near future. The growth in energy demand generally, and for fossil fuels in particular, will mostly be the product of trends and growth rates in the non-OECD world. Understanding these global trends and needs is crucial to accurately projecting the true demand for fossil fuels going forward.

Conclusions

The results of the NEB, ExxonMobil and IEA studies cast doubt on suggestions that Canada's oil sands are in imminent peril. Energy demand is expected to increase as emerging economies develop and their populations rise. The oil sands are in a position to play a material role in satisfying global demand over the Projection Period. But that will require further investment in new projects and in new facilities to transport increased production from the oil sands to export markets– and, most importantly, will require sufficient political and social support to construct and develop those new facilities.