



"True North in Canadian Public Policy"

Summary of the Roundtable Discussion: "Is more refining at home the best way to get the most value out of Canada's oil?"

Edmonton, Alberta, November 21, 2013

Context

Is more refining in Canada the best way to extract the maximum value from Canada's petroleum resources? To answer this important question, the Macdonald-Laurier Institute, with the sponsorship of the Canadian Fuels Association, held expert roundtables in Toronto and Edmonton.

Polls show that Canadians do not approach natural resources and manufacturing as an "either/or" proposition. They want *both* done in Canada. However, economics dictates we often have to pick one or the other, especially in Western Canada which is nearing its capacity limit, especially for labour.

Opportunity Cost

Economists introduced this theme at the Toronto Roundtable in October, and it was raised again in Edmonton. In Western Canada, where both labour and capital are scarce, using resources to develop any given project means doing without these resources elsewhere. Stated practically, if more capital and labour were diverted to refining or petrochemical plants, these resources would not be available to other parts of the petroleum value chain, from extraction to pipelines.



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Moreover, the fact that chemical or petrochemical plants are profitable does not prove they are the best use of scarce resources. Since everything related to petroleum in Canada is profitable, the question is how to extract the maximum value. Before devoting resources to chemical or petrochemical plants, a full cost analysis would have to be done to confirm that, for example, this sector would generate a higher rate of return than in resource extraction or pipeline or rail transport.

Therefore, in Western Canada, the concept of opportunity cost is much more binding and it is even more important than in Eastern Canada to identify where the maximum value lies in the petroleum sector.

Opportunities for Spinoffs

Former Alberta Premier Peter Lougheed insisted that more of the value-added from spinoffs from petroleum for the chemical and petrochemical industries remain in Alberta, leading to the expansion of firms such as Nova, Dow, etc. Retaining spinoffs may serve as a template for government-directed incentives for refining and petrochemical plants, and also help mitigate the traditional boom/bust cycle in the oil and gas sector by diversifying the economy beyond resource extraction. However, it remains unclear exactly what these plants would produce, where the market demand lies and whether the recent announcement of a new refinery in Alberta could be justified on its own economics or whether it reflects government incentives.

Economic Model

A model was presented that showed the stylized facts for the economics of extraction, upgrading and refining in Alberta. It suggests that upgrading is not as viable because it requires a great deal of investment to capture the small profit margin between the price of bitumen and the price of heavy crude oil. However, the profit from refining in the model is close to that of extraction, as refining captures the profits that refineries in the Midwest of North America are currently earning. However, this result is driven by the discounted price of bitumen feedstock and the premium for diesel prices. While a refinery under these conditions makes sense, these conditions may not last. After all, finding new markets for bitumen is driven by the reward of eliminating the discount for its price. To reflect this uncertainty, a “risk cone” would be needed around the forecasts to capture the range of possible outcomes. It was noted that the model assumes zero opportunity costs — a drawback.

Refining in Alberta

Since refineries cannot produce diesel alone, the question then is whether the other products are profitable also. Supply and demand for refined petroleum products are currently in balance at about 700,000 barrels a day in Western Canada. Therefore, any increase in refining capacity means either shuttering some existing capacity or exporting surplus product. Alberta’s remote location from major markets effectively rules out the latter, unless pipeline capacity is added to ship the petroleum products to tidewater (something that is sorely needed for crude oil too). Even if this occurs, there remains the daunting prospect of intense competition from refiners on the US Gulf Coast, which are already equipped to process heavy oil such as bitumen. As well, exporting to markets in Asia may not be a viable long-term strategy since countries there are

rapidly building their own refining capacity, which will rely on exporting refined petroleum products until domestic demand catches up.

Are there other strategic reasons to refine more in Alberta? While supply and demand are in balance, the market is tight. However, recent events in Alberta show that accidents or other disruptions at refineries can quickly lead to shortages, so building excess capacity into the system may be desirable. The problems are: a lack of enthusiasm to build this excess capacity, knowing it would be needed only occasionally; and an improvement in transporting refined petroleum products to where they are needed, especially with the substantial growth of transport by rail in 2013.

For Alberta, the broad trend of energy development is clear. Nearly 3.0 million barrels a day of increased crude bitumen supply will arrive on the market by 2023. Even with the construction of a refinery matching Canada's biggest, Western Canada would only refine 300,000 barrels a day. So at least 90 percent of the bitumen will be shipped to Eastern Canada and export markets. The priority for Alberta, therefore, must be to expand pipeline capacity to handle the new supply of crude oil and, in so doing, eliminate or minimize the discount for bitumen.

Price

The price discount for bitumen is more of a problem for companies that only extract bitumen than for vertically integrated companies that operate both in the oil sands and have refineries. These latter companies, which account for the vast majority of oil sands production, can capture the price discount as lower feedstock prices for their refinery operations.

As transportation infrastructure continues to develop, the possibilities for arbitrage will diminish. This is good for bitumen, as its price discount will shrink over time until only the discounts due to quality and location (bitumen producers will have to pay the transportation cost to access to tidewater and world markets) remain. But improved transportation will also mean that competition from refineries on the Gulf Coast and overseas will eliminate the cost advantage that landlocked upgraders and refineries in the Midwest currently enjoy.

Upgrading to Light Crude

One of the problems with the economics of upgrading is that it often produces synthetic light crude oil. North Dakota's Bakken fields increasingly dominate the market for light crude in North America, so this strategy makes little sense. Instead, the emphasis should be on finding niche markets among heavier grades. The "tight, light" crude from Bakken is more compatible for producing gasoline, while bitumen is a better match for diesel. Long-term growth in US gasoline consumption is constrained by higher fuel economy standards and the potential switch of some of the vehicle fleet to natural gas. Given the brighter outlook for diesel demand in the US as the economy improves, bitumen will gain an advantage, although it does not resolve the question of where best, geographically speaking, to do the upgrading. History suggests that upgrading, like refining, is best done close to the final market than close to the source of crude oil production. The development of new technology around "partial upgrading" will further complicate the debate, boosting the quality of oil and removing the need for diluent.

Environment

Canada has some advantages over the US in its environmental regulations. The US specifies the goal, and also dictates how it is to be achieved — what equipment needs to be added to the process, for example. Canada only specifies the desired outcome, and leaves firms to implement the best procedures on how to attain it. This regulatory advantage helps overcome some of Canada's disadvantage from its smaller scale operations.

Some commentators in the media who advocate more refining are in fact using the argument as a tactic to slow development. They may advocate more refining in principle, but would oppose it in practice if plans were ever drawn up. Their position would be contradictory since more refining would also increase greenhouse gases.

Attendees

Jerry	MacPherson	Alberta Ministry of Enterprise and Advanced Education
Greg	Stringham	Canadian Association of Petroleum Producers
Mike	Ekelund	Gov. of Alberta
Eric	Bristow	Canadian Fuels Assoc.
Michael	Ervin	Kent Marketing Services Ltd.
Terry	Kemp	North West Redwater Partnership
Andrew	Leach	University of Alberta School of Business
Justin	Riemer	Alberta Ministry of Enterprise
Len	Coad	Canada West Foundation
Glen	Vanstone	EEDC
Brian	Ahearn	Canadian Fuels Assoc.
Carmen	Velasquez	IHS CERA
Alan	Skoreyko	
Ken	Chapman	EEDC
Ken	Kobly	Alberta Chamber of Commerce
Dinara	Millington	Canadian Energy Research Institute
Bob	Bezpalko	Alberta Hub
Rick	Musleh	Saskatchewan Ministry of the Economy
Brian	Crowley	Macdonald-Laurier Institute
Philip	Cross	Macdonald-Laurier Institute

Agenda

8:00am	Continental Breakfast
8:30am	Welcome and Introductions Brian Lee Crowley, Managing Director, The Macdonald-Laurier Institute <ul style="list-style-type: none">• <i>Overview of the meeting objectives and proceedings</i>• <i>Summary of background briefing documents</i>
8:40am	Presentation: Andrew Leach, University of Alberta School of Business. <i>Economic Fundamentals of Refining</i>
9:15am	Moderated Discussion Brian Lee Crowley, moderator
	Suggested questions for discussion: <ul style="list-style-type: none">• <i>How do the economic fundamentals of refining play out in Western Canada?</i>• <i>What would a potential investor see as the pros and cons, and risks of building new refinery capacity here? What is the outlook for long-term refinery profitability and return on investment?</i>• <i>What are the policy implications for governments?</i>
10:15am	Coffee Break
10:30am	Presentation: Philip Cross, Senior Fellow, The Macdonald-Laurier Institute: <i>Canada's Petroleum Industry: Where is the most value?</i>
10:45am	Moderated Discussion Suggested Questions for Discussion: <ul style="list-style-type: none">• <i>Is more domestic refining best way to maximize the benefit of our oil resources for Canadians?</i>• <i>Will a growing bitumen supply change the economics of refining in Western Canada?</i>• <i>Should Canada aim to become wholly self-reliant (i.e. stop importing foreign crude) and only refine Canadian crude?</i>
11:50pm	Closing remarks and thanks