

OIL SANDS INDUSTRY CONSIDERATIONS AND MARKET DIVERSIFICATION

INTRODUCTION

- Virtually all Canadian crude oil exports are destined for the U.S., of which 65 percent flows to the U.S. Midwest, where storage has reached capacity, putting downward pressure on Canadian crude oil prices.

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Rapid growth in this sector has provoked strong reaction and opposition, both domestically and internationally. NRCan has sought to conduct oil sands related outreach grounded a discussion of in economic considerations, environmental challenges, and concrete efforts underway to address these challenges.

MINISTER AND NRCAN ROLE

- The Minister holds responsibilities for federal pipeline matters and oversees federal regulatory processes for pipelines through the National Energy Board.
- NRCan plays a role in grounding the oil sands debate in scientific and fact-based terms, supporting outreach, and providing relevant, accurate facts to Foreign Affairs and International Trade Canada (DFAIT) and other Federal agencies to support trade, regulatory roles and related policy development impacting the oil sands.
- NRCan plays a role in research and development to support and accelerate innovation and the adoption of clean technologies to address environmental issues.

BACKGROUND

- The oil sands comprise 170 of Canada's 174 billion barrels of proven oil reserves. About 35 billion barrels of oil sands resources are located within 75 metres of the surface and can be accessed through mining. The remaining 135 billion barrels are too deep to mine, and have only recently become commercially accessible, due to advances in drilling and other extraction technologies (called "in situ"). The oil sands give Canada the third largest proven or established deposit of crude oil in the world after Saudi Arabia and Venezuela.
- The environmental performance of oil sands development in Canada is under intense public scrutiny. The prevailing narrative positions the contribution of the oil sands to Canada's economy and energy security against potential environmental damage and impact on Aboriginal communities. How Canada addresses the environmental issues surrounding the current and projected growth of the industry is of fundamental importance to Canadian trade and national and international energy security.

Significant production growth leading to concerns...

- Production from the oil sands, currently at approximately 1.5 million barrels per day (bpd) is set to increase to approximately 3 million bpd by 2020, and to 4.5 million bpd shortly thereafter. This

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significant increase in production has led to increased concerns on the potential impact on the local environment (including water, air, and land), on Canada's greenhouse gas (GHG) emissions reduction targets for 2020, and on aboriginal health. This, in turn, has led to increased concern and opposition from environmental non-governmental organisations in Canada and internationally.

- In 2010, 99 percent of Canada's approximately 1.9 million barrels per day (bpd) of crude oil exports were destined for U.S. markets. The volume of crude oil exports is expected to grow significantly over the next two decades.

...including potential transportation network bottlenecks

- Pipelines to the U.S. Midwest provide the primary transport for Canadian crude oil exports that flow to refiners in Illinois and Oklahoma. Canadian crude oil also flows via pipeline to Canadian refiners in Western Canada and to Sarnia, ON (through the US).
- Strong growth in Canadian oil exports to the U.S. has led to an oversupply in the U.S. Midwest market and Canadian oil exports are essentially landlocked. This effect is compounded by the current inability of the Midwest pipeline distribution network's to transport crude oil out of the Midwest region to other U.S. markets.
- Record stockpiles at Cushing, Oklahoma, the final delivery point for West Texas Intermediate (WTI) -the generally accepted North American crude oil benchmark- have caused an unprecedented negative differential (up to \$15 per barrel) between WTI crude oil prices and crude oils that are delivered by tanker from other nations and regions in the U.S. (generally priced according to Brent, the global oil benchmark).

Market diversification options

- There are several proposals to expand export pipeline capacity to accommodate new oil sands production and to diversify markets (see map at Annex 1).
- Oil exports essentially go in three directions- south, west, or east:
 - Keystone XL (south)- 900,000 bpd from Hardisty, AB, to the U.S. gulf coast. [Project Status: Canadian facilities approved; U.S. facilities under contested environmental assessment]
 - Northern Gateway (west)- 525,000 bpd from North of Edmonton to Kitimat, B.C., then to Asia and U.S. west coast via tanker. [Project Status: currently under Canadian regulatory and environmental assessment review]
 - Trans Mountain (west)- 400,000 bpd of oil from Edmonton to Vancouver, with the possibility of also transporting 400,000 bpd of oil to Kitimat, B.C. [Project Status: conceptual]
 - Enbridge Trailbreaker (east)- 240,000 b/d. Reverse the flow of the Portland-Montreal pipeline and the Enbridge(Montreal to Sarnia) pipeline from importing foreign crude oil to exporting Canadian Crude oil by ship from Portland, Maine. [Project Status: "Trailbreaker Project" shelved due to market conditions and environmental opposition in Quebec]
- Of the projects listed above, the most regulatory progress has been made on Keystone XL. As the pipeline crosses the Canada-U.S. border, it requires a Presidential permit, issued through the U.S. Department of State. This project has provoked strong reactions from various stakeholders in the U.S. Keystone XL's opponents have cited environmental concerns associated with importing larger amounts of oil sands derived crude whereas its supporters have argued that the pipeline will

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strengthen U.S. energy security by reducing the country's reliance on oil imports from less stable sources.

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Advocates both for and against the Keystone XL pipeline have been very active in staking out their positions publicly by writing letters to U.S. decision makers and engaging media outlets throughout North America. The U.S. Department of State

released a Supplemental Draft Environmental Impact Statement for the project on April 22, 2011. The next steps are a public comment period, release of a Final Environmental Impact Statement, an inter-agency review, concluding with a final public comment period. State has indicated a final decision on the Presidential Permit will be made in the fall of 2011.

- In 2010/11, significant crude oil export capacity was added by Enbridge's Alberta Clipper expansion project and TransCanada's new Keystone system (Keystone pipeline and Cushing extension). While there is currently sufficient pipeline capacity to export crude oil out of Western Canada, bottlenecks exist in certain U.S. pipeline transportation systems, and this capacity constraint limits the volume of crude oil that can be exported as well as the growth of future oil sands production.

Growing opposition to oil sands

- Pressure on pipeline distribution networks has arisen due to growth and investment in the oil sands sector. From only a small fraction two decades ago, oil sands production now accounts for half of the 3 million barrels per day of crude oil that Canada produces. Robust production growth is forecast to continue over the next two decades and this increase in growth has attracted strong reactions domestically and internationally, both positive and negative.
- On the positive side, the oil sands arguably represent the largest source of oil in a stable, transparent, market-based environment that is open to foreign investment. Additionally, the oil sands have significantly increased Canadian and North American energy security. They make up 2 percent of Canada's economy, they employ approximately 144,000 Canadians, both directly and indirectly, and they are expected to contribute as much as \$1.7 trillion towards Canadian GDP over the next 25 years.
- On the negative side, rapid growth in the oil sands has led to concerns about cumulative health and environmental impacts. Oil sands greenhouse gas (GHG) emissions are set to be the fastest growing source of GHGs in Canada over the next decade, rising from 4 percent of Canada's total emissions in 2005 up to 12 percent in 2020. There are concerns that oil sands development increases the risk of water contamination and that current water monitoring efforts are inadequate. Finally, there are also concerns about the impact of oil sands mining and tailings ponds on land, forests and wildlife.

Outreach efforts seeking to establish balanced dialogue

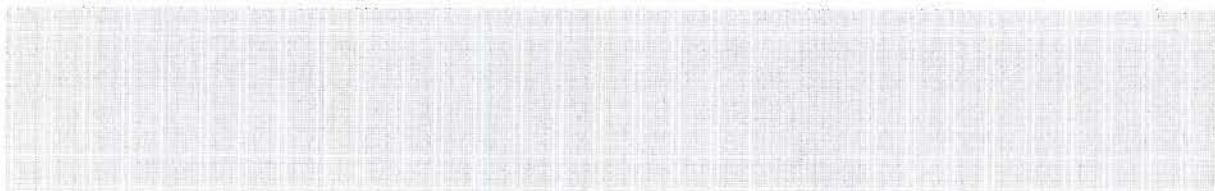
- NRCan is pursuing an outreach strategy focussed on providing stakeholders with an accurate portrait of the benefits, risks and challenges related to the oil sands, and the Government's role in protecting the public interest. The Department seeks to ground its outreach in real and tangible facts on economic benefits, impacts on environmental performance, and concrete efforts to address environmental challenges. These include the adoption of measures requiring stronger environmental monitoring, better regulatory performance standards, more vigorous enforcement of

environmental rules, and investment in research and development aimed at reducing the oil sands environmental footprint.

- Oil sands generate an estimated 5 to 15 percent more GHGs over the lifecycle of the fuel (i.e., from a "wells-to-wheels" basis). Internationally, a number of jurisdictions such as California and the European Union (EU), are considering the implementation of low carbon fuel standards that target, in part, crude oil derived from the oil sands (in the case of Europe, despite the fact that it does not import oil sands derived crude). There are concerns that such regulations could unfairly discriminate against Canada's oil sands, relative to other varieties of crude oil with similar or higher carbon profiles, such as those produced in Nigeria, Venezuela, or Russia.
- NRCan plays a key role in supporting DFAIT's international outreach aimed at ensuring that Canadian exports are not subject to unfair discriminatory treatment (i.e., penalising imports of oil sands crude while at the same time importing crude with an equal or higher GHG profile from other jurisdictions). NRCan works closely with DFAIT to support our engagement and develop the most effective messaging for each market in order to ensure that Canada crude oil exports receive fair treatment and that the oil sands and Canada not be unfairly tarnished. There has also been consideration given to addressing any domestic misperceptions of Canada's energy sector and its environmental performance through targeted domestic advertising as well as advertising in the U.S.

CONSIDERATIONS

- Rapid growth in oil sands production has led to increased attention being focussed on this sector, such that this issue has become a threat to Canada's international brand. Various groups, both pro- and anti-oil sands, are pressing for the adoption of domestic and international-based policies, rules, and regulations that could have a significant impact on the sector. There is a need for Government outreach to ensure that as the debate surrounding oil sands development evolves, it remains a fact-based dialogue, grounded in science. Alberta recognises the national importance of the oil sands issue and NRCan and Alberta Energy officials have worked well in aligning our international outreach activities.
- In addition to project-specific environmental assessments at provincial and/or federal levels, the governments of Canada and Alberta continue to evolve their respective environmental regulatory approaches with respect to potential impacts on air, land, and water quality, biodiversity and cumulative effects. Discussions on how best to coordinate provincial and federal regulatory approaches have not yet been finalized. This has resulted in continued uncertainty for industry concerning the federal and provincial regulatory expectations, as well as monitoring and enforcement.
- A number of new markets exist for oil sands crude, including the Gulf coast of the U.S., China, Japan, South Korea and Thailand. In addition, many refineries in these regions are already configured to process heavy oil similar to oil sands crude.



- Going forward, the question of whether increased oil sands production will lead to greater levels of refining/upgrading in Canada or greater bitumen exports (or more accurately, exports of blended bitumen), will be driven by a number of factors, including: the relative price of labour, permitting, capital and operating costs in Canada vs. other markets; and, potential inefficiencies associated with upgrading bitumen in Canada and then transporting and subsequently re-heating the crude in other markets.
- The primary environmental challenges in bitumen extraction from the oil sands are impacts on air, land and water. Through its laboratory in Devon, Alberta, NRCan has contributed to the development of new technologies that have led to significant improvements in these areas, such as:
 - "frothing" treatments to reduce the amount of fresh water needed for extraction;
 - dry stackable tailings to solidify current tailings ponds to prepare them faster for reclamation; and
 - carbon capture and storage technologies to reduce the amount of carbon dioxide released into the atmosphere.

NRCan works in collaboration with industry, academia and others to further advance this work.

Communications Considerations:

- There will be ongoing public/media scrutiny related to the environmental challenges facing the oil sands. As such, there will be a continued need for a coordinated federal response, reiterating the Government's commitment to both economic opportunity and environmental sustainability.
- As public debate surrounding oil sands development evolves, the Government's outreach initiatives will become increasingly important to ensuring this dialogue remains fact-based and grounded in science.

ADVICE TO MINISTER

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- [REDACTED]
- [REDACTED]
- [REDACTED]
- It is recommended that you receive follow-up briefings to outline opportunities for you to directly engage in oil sands outreach.
- [REDACTED]

POINTS TO REGISTER

- The oil sands are a key strategic resource that contribute to economic benefits and energy security for Canada, North America and the global market.
- Oil sands development is a vital part of Canada's economy, accounting for more than half of Canada's oil exports and creating 144,000 jobs as well as economic benefits from coast-to-coast. In fact, it is estimated that oil sands development will contribute \$1.7 trillion to Canada's GDP over the next 25 years.
- The Government of Canada recognizes the environmental challenges of developing the oil sands and is committed to working with all levels of government and industry to ensure the oil sands are developed in a responsible manner.
- Projects to develop oil sands are subject to extensive environmental and regulatory review and permits are only granted once environmental issues and First Nations concerns have been considered.
- Natural Resources Canada provides funding and conducts research and development in support of new technologies to address environmental issues in the oil sands, such as emissions and water use.

Annex 1

