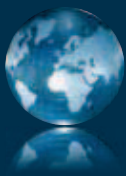




CRO Forum Blueprint on Oil Sands
November 2012



CRO FORUM
CBO EOBNW

Table of Contents

1. Introduction	2
2. Oil Sands – Basic facts	3
3. Sustainability challenges	4
4. Legal developments and regulatory framework	5
5. Stakeholder trust and reputation	6
6. Possible actions	7

1. Introduction

In this age of globalization, interconnectivity and social media, public expectations are high for business to play its part in addressing society's environmental, social and ethical challenges (which for the purposes of this paper will be termed "sustainability challenges"). The (re-)insurance industry, through the provision of insurance, or investments, may be exposed to sustainability challenges inherent in certain business transactions. Consequently, our exposure to such transactions can have a damaging effect on the stakeholder trust and reputation the (re-)insurance industry has built over the years. The CRO Forum's "Recommendations for Managing Environmental, Social and Ethical Challenges in Business Transactions"¹ published in August 2010, makes proposals for the systematic detection, assessment and management of the sustainability challenges in question.

Building on that publication, the CRO Forum now focuses its attention on one specific topic namely oil sands. The purpose of this paper is to raise general awareness of the sustainability challenges related to the extraction of oil sands. In addition, the paper sets out possible ways of how (re-)insurance companies, from a risk management perspective, could address business transactions in relation to oil sands. It should be noted that the paper does not present any technical, legal, financial or underwriting views.

¹ http://www.thecroforum.org/publication/cro_forum_sustainability_framework_august_2010/

2. Oil Sands – Basic facts

Global demand for energy is expected to increase 53% from 2008 to 2035 as economies in both developed and emerging countries continue to grow and standards of living improve.² With oil expected to remain a dominant form of energy, the oil sands have become a significant source of energy supply and a major economic driver.³ Many countries in the world have large deposits of oil sands, including the United States, Russia, and various countries in the Middle East, but the world's largest deposits occur in Canada⁴ and Venezuela, each of which has oil sand reserves approximately equal to the world's total reserves of conventional crude oil.⁵ As the vast majority of commercial oil sands development is happening in Canada, particularly Alberta, this geographic region will be referred to throughout this paper.

Oil sands, or sometimes called tar sands, typically consist of bitumen (a viscous form of petroleum) contained in a mixture of sand, water and clay, lying beneath a layer of sand, gravel and shale, covered by decaying plant material. It is due to production technology advancements, the increased cost of developing newly discovered "conventional" sources of oil (e.g. deep water) and the rising cost of oil driven by global demand that are making the oil sands project economically viable, despite the great complexity of the extraction methods. While some oil sands crude can be extracted via conventional methods, the vast majority of oil contained in oil sands is extracted through surface mining or through the use of in-situ oil sands extraction technology, which currently involves drilling into the oil sands and heating the bitumen to allow it to flow.⁶ Each oil sands production method is unique and comes with its own set of benefits and challenges.

² This does not incorporate prospective legislation or policies that might affect energy markets.

U.S. Energy Information Administration, "International Energy Outlook 2011", IEO2011 Reference case, http://www.eia.gov/forecasts/ieo/more_highlights.cfm#world

³ New oil sands development is expected to contribute over USD 2.1 trillion dollars to the Canadian economy over the next 25 years. In addition to paying significant royalties and taxes, the oil sands industry is a major employer and creates jobs throughout North America – employment in Canada as a result of new oil sands investments is expected to grow from 75 000 jobs in 2010 to 905 000 jobs in 2035. Canadian Association of Petroleum Producers, "The facts on oil sands", June 2012.

⁴ 97% of Canada's oil reserves, the third largest in the world following Saudi Arabia and Venezuela, are in the oil sands. Source: Canadian Association of Petroleum Producers, "The facts on oil sands", June 2012.

⁵ http://en.wikipedia.org/wiki/Oil_sands

⁶ In Canada, about 20% of the resource is accessible through mining operations, with the remaining 80% requiring some form of in-situ production technique. Canadian Association of Petroleum Producers, "The facts on oil sands", June 2012

3. Sustainability challenges

As extraction from oil sands expands, so too has concern about the sustainability challenges and impacts associated with oil sands extraction particularly on the following⁷:

- Air: generally, heavier forms of crude oil such as that contained in the oil sands require more energy and resources to produce and refine and therefore result in higher air pollutant and greenhouse gas (GHG) emissions. E.g. producing a barrel of bitumen creates more than twice as much nitrogen oxides and sulphur dioxide emissions as producing a barrel of conventional oil.⁸
- Land: A large part of oil sands mining operations involves clearing trees and brush from a site and removing the overburden – topsoil, muskeg, sand, clay and gravel – that sits atop the oil sands deposit.⁹ To restore land, reclamation¹⁰ or remediation¹¹ initiatives has to be applied.
- Water: in oil sands operations, water is used to separate the bitumen from the oil sands, to upgrade the oil and remove impurities. Although most of the water used in the separation process is recycled and reused in the extraction process, a number of environmental concerns remain relating to the potential for negative impacts on the aquatic ecosystem from the removal of water from the watershed, the creation and expansion of large tailing ponds¹² and potential seepage into the local ecosystem, and the risk of unplanned releases of contaminants.

As mentioned above, each oil sands production method comes with its own set of benefits and challenges. Mining operations for example tend to be more water but less energy intensive than in-situ operations (therefore emitting less greenhouse gases), but have a more visible impact on the environment¹³.

In addition to the environmental impacts, there are also a number of socio-economic effects, which underscore the complexity of the oil sands and the challenges of aligning the desire for sustainable development and the reliance on fossil fuels.

⁷ Birn/Khanna, "A discussion paper on the oil sands: challenges and opportunities", Natural Resources Canada, 5 July 2010.

⁸ <http://www.pembina.org/oil-sands/os101/air-pollution>

⁹ "Does oil sands 'mining' affect the environment?". Oil sands frequently asked questions. Government of Alberta Energy ministry. http://www.energy.alberta.ca/OilSands/792.asp#Does_oil_sands_mining_affect_the_environment.

¹⁰ Reclamation: the process of converting disturbed land to a state where it is capable of supporting the same kinds of land uses as before the disturbance. <http://environment.gov.ab.ca/info/library/8042.pdf>

¹¹ Remediation: The process of removing, reducing or neutralizing contaminants in soil, sediments or water to prevent or minimize any adverse effects on the environment now or in the future. <http://environment.gov.ab.ca/info/library/8042.pdf>

¹² Tailing ponds are large engineered dam and dyke systems designed to contain and settle the left-over liquid mixture of mostly water, sand, clay, residual bitumen and oil, and other by-products of the mining and extraction process, following the separation of the oil from the sand, as this can take years. Canadian Association of Petroleum Producers, "The facts on oil sands", June 2012

¹³ Birn/Khanna, "A discussion paper on the oil sands: challenges and opportunities", Natural Resources Canada, 5 July 2010.

In an effort to limit environmental and social impacts of oil sands operations, the oil sands industry together with other stakeholders such as e.g. industry associations and governments have made a number of investments and technological advances, for example:¹⁴

- Canada's Oil Sands Innovation Alliance (COSIA) is an alliance of oil sands producers focused on accelerating the pace of improvement in environmental performance in Canada's oil sands through collaborative action and innovation. Launched on March 1, 2012, the alliance will bring together leading thinkers from industry, government, academia and the wider public¹⁵.
- Oil Sands Leadership Initiative (OSLI) is a collaborative network of oil sands producers with the goal to improve the oil sands industry's reputation by demonstrating and communicating environmental, social and economic performance and technological advancements.
- IPIECA: the global oil and gas industry association for environmental and social issues. IPIECA was formed in 1974 following the launch of the United Nations Environment Programme (UNEP). IPIECA is the only global association involving both the upstream and downstream oil and gas industry on environmental and social issues. IPIECA's membership covers over half of the world's oil production. IPIECA is the industry's principal channel of communication with the United Nations. IPIECA helps the oil and gas industry improve its environmental and social performance.

4. Legal developments and regulatory framework

At the moment, there is no overarching regulatory framework to regulate oil sands operations and extractions. However, some trends towards an increased regulatory framework can be seen, e.g.

- In Canada, resource developments, such as the oil sands, take place within a substantive regulatory regime, with shared responsibilities between the Federal and Provincial levels of government. The Government of Alberta, for example, implemented GHG regulations in 2007 requiring a mandatory 12% reduction in GHG emissions intensity for all large industrial sectors including oil sands facilities, or a payment in lieu. The Energy Resources Conservation Board (ERCB), which regulates the energy industry in Alberta, Canada, has put in place a number of further development regulations and requirements for the oil sands production¹⁶, for example a directive regulating the management and monitoring of tailings, which is expected to result in dramatic improvements in recycling rates and reduction of water withdrawals, and therefore have a significant positive impact on minimizing the environmental effects of oil sands development¹⁷. In addition, the Government of Alberta is implementing a Land-use Framework in response to pressure on land and natural resources. The framework is a new approach to manage natural resources and public and private lands to achieve Alberta's long-term economic, environmental and social goals.¹⁸
- In its efforts to reduce Europe's greenhouse gas emissions from road transport and encourage the use of low carbon transport fuels, the European Commission has assigned a higher emission footprint value to oil sands as part of the Fuel Quality Directive, which would have the effect of limiting access to the European market to (Canadian) oil sands.

¹⁴ Canadian Association of Petroleum Producers, "The facts on oil sands", June 2012

¹⁵ COSIA is made up of 12 companies: BP Canada, Canadian Natural Resources Limited, Cenovus Energy Inc., ConocoPhillips Canada Resources Corp., Devon Canada Corporation, Imperial Oil, Nexen Inc., Shell Canada Energy, Statoil Canada Ltd., Suncor Energy Inc. Teck Resources Limited and Total E&P Canada Ltd. www.cosia.ca

¹⁶ Energy Resources Conservation Board, <http://www.ercb.ca/regulations-and-directives/by-topic/oil-sands>

¹⁷ Birn/Khanna, "A discussion paper on the oil sands: challenges and opportunities", Natural Resources Canada, 5 July 2010.

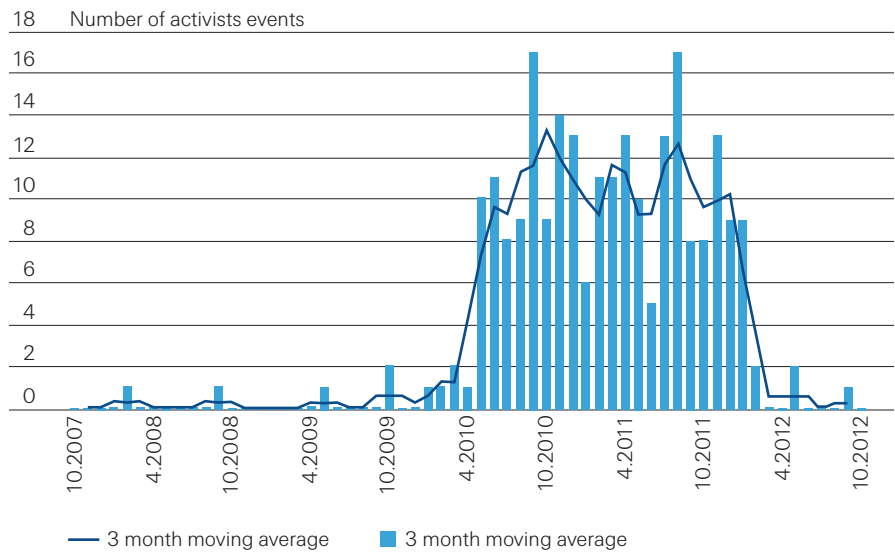
¹⁸ <http://www.oilsands.alberta.ca/development.html>

5. Stakeholder trust and reputation

As stated above, as extraction from oil sands expand, so too has concern about the sustainability challenges and impacts associated with oil sands extraction, displayed through e.g. increased activist criticism and media coverage.

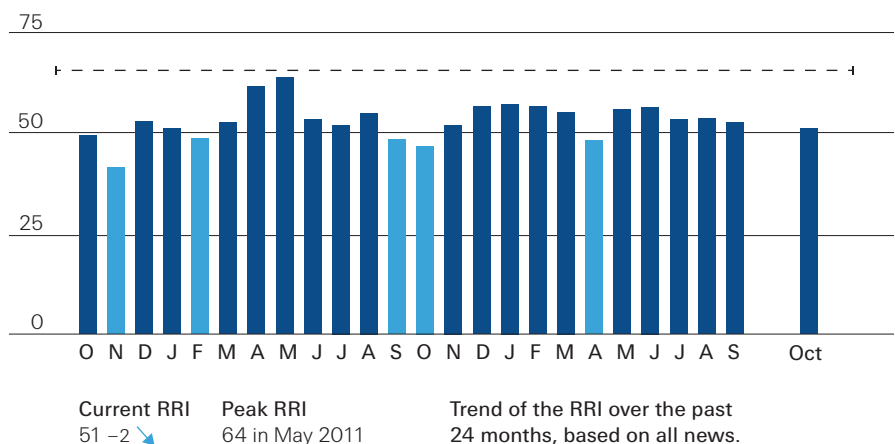
Activist Criticism

The below SIGWATCH¹⁹ diagram depicts activist criticism on oil sands and oil shale from October 2007 to October 2012. The diagram shows most activist criticism between spring 2009 and spring 2012. From spring 2012 a trend towards less activist criticism can be spotted. One explanation for this decline in activist criticism is that activist focus has shifted from oil sands operations to associated activities such as e.g. the construction of pipelines.



Media coverage

The below RepRisk[®] Index (RRI) diagram depicts the intensity of negative media coverage on the topic²⁰ over the past 24 months.



Source: RepRisk, October, 2012

Calibration of RRI

0–24 = low risk exposure

25–49 = medium risk exposure

50–74 = high risk exposure

75–100 = very high risk exposure

¹⁹ www.sigwatch.com

²⁰ RepRisk[®] Index (RRI) for "tar sands", October 2012, www.reprisk.com

6. Possible actions

There are various ways how (re-)insurance companies, from a risk management perspective, could address business transactions in relation to oil sands operations. It is up to each (re-)insurance carrier to define its sustainability risk tolerance level and consequently, risk mitigation actions may vary, as described below. Solutions need to be developed over time and the appropriate level of sustainability risk management measures found. A dialogue, both internally and externally is advisable, contextualizing the sustainability challenges perceived. Solutions are to be developed, in collaboration with relevant stakeholders, that fit business strategies, customer base and risk appetite.

Notwithstanding the above, the following are ways on how (re-)insurance companies, from risk management perspective, could address business transactions related to oil sands operations:

- a) Raise awareness: Raise awareness to the issues related oil sands operations. An understanding of the environmental impacts and socio-economic effects, may lead to an increased platform to develop solutions which fit business strategies, customer base and risk appetite. Awareness-raising activities may be conducted both in-house, engaging all relevant functions, as well as to include clients, brokers and investors /asset managers.
- b) Define sustainability risk tolerance level: Define sustainability risk tolerance level, for business transactions associated with oil sands operations. Legal environment, corporate values, underwriting and investment strategies, reputation risks, as well as internal corporate responsibility or sustainability policies are examples of factors which would contribute to defining an appropriate sustainability risk tolerance level. Each (re-)insurer is encouraged to develop methods and processes to identify and assess sustainability challenges relevant for their legal environment, business strategy and customer base.
- c) Develop risk management measures: Develop risk management measures to address business transactions associated with oil sands operations, that fit business strategies, customer base and risk appetite. There are various possibilities to do so, e.g.:
 - Work with customers involved in oil sands to encourage effective management of environmental and socioeconomic impacts and the application of best practice sustainability standards.
 - Engage in dialogue with companies involved in oil sands, industry associations, academia, regulators and NGOs about the concerns on oil sands and encourage them to jointly work toward international best practice sustainability standards.

Following are some areas that may be considered when assessing the sustainability challenges as they relate to oil sands operations:

- In what geographical areas are the operations – ecological sensitive habitat, presence of endangered species, proximity to habitation/communities, social aspects? What is the company doing to minimize deforestation, habitat disturbance and speed up reclamation? What community health and safety measures have been taken?
- What legal and regulatory requirements are governing the territory and the operations? How are these being adhered to?
- What is being done to implement best practice and reduce absolute emissions of air pollutants?
- What is being done to manage risks associated with fresh water use and with tailings production?
- What are the programs for long-term toxic waste management and recycling?
- In general what risk mitigation strategies and environmental management systems are already in place?

Risk information, obtained through the information gathering process, should be used and verified against the defined risk appetite. Underwriting, Risk Engineering, Corporate Responsibility and Sustainability Risk Management are all functions which could contribute to the risk assessment. The risk assessment would determine the level of involvement, coverage structure and value added services to be provided.

- d) Monitor development: It is advised to monitor development within the area of oil sands operations e.g. new regulations and technologies. This to ensure that appropriate risk management measures are taken and solutions developed are in the forefront of development, serving the environment, our customers and the (re-)insurance industry the best.

The CRO Forum Sustainability Working Group:

The CRO Forum Sustainability Working Group was launched in 2008 to raise awareness of sustainability challenges relevant to society and the (re-)insurance industry. The initiative has been chaired by Swiss Re and consists of 7 working group members representing Allianz, Aviva, AXA, Generali, ING, Munich Re and Zurich Insurance Group. The Sustainability Working Group pursues the following goals:

- Raise awareness and promote stakeholder dialogue:
- Develop best practice solutions:
- Share knowledge of sustainability challenges.

Disclaimer:

The material and conclusions contained in this publication are for information purposes only and the editor and author(s) offer(s) no guarantee for the accuracy and completeness of its contents. All liability for the accuracy and completeness or for any damages resulting from the use of the information herein is expressly excluded. Under no circumstances shall the CRO Forum or any of its member organizations be liable for any financial or consequential loss relating to this publication.

© 2012
CRO Forum



CRO FORUM

The CRO Forum is supported by a Secretariat that is run by:

KPMG Advisory N.V.
Laan van Langerhuize 1, 1186 DS Amstelveen, or
PO Box 74500, 1070 DB Amsterdam
The Netherlands
www.croforum.org

