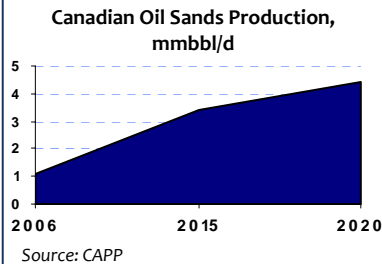


Financing Unconventional Oil: The Canadian Experience

Unconventional oil—petroleum that cannot be extracted by using traditional drilling methods—faces unique challenges in financing due to the complexity of production and transportation processes. Viewed as high-risk, projects involving unconventional oil have historically been affordable only to major oil companies that can use on balance sheet financing. But, as shown by the experience of the Canadian oil sands, another form of unconventional oil, there is a role for project finance when the right conditions are met. We believe that the Canadian experience is a valuable model for the evolving U.S. oil shale industry, which today faces many of the same challenges as Canadian oil sands development experienced a few years ago.



Bitumen—petroleum that exists in the semi-solid or solid form in natural deposits.

In-situ techniques involve injecting hot air, steam or solvents to reduce viscosity of the bitumen so it can be extracted by pumping.

Background

Oil sands (otherwise known as tar sands) are a heavy, viscous hydrocarbon resource that can be processed into oil. Unlike conventional oil, the bitumen contained in oil sands does not flow toward the well, but rather must be mined or produced in-situ. Bitumen also requires additional upgrading before it can be refined. As a result of the difficulty of extraction, transport, and processing, oil sands projects are considerably more expensive to develop than most conventional oil projects, and are only commercially viable at oil prices above \$35/bbl or more.

Proven reserves of oil sands are located in 70 countries, although two countries—Canada and Venezuela—own more than 70% of worldwide reserves. According to BP, Canada’s proved oil sands reserves stand at 152 billion barrels, which gives Canada the second-largest hydrocarbon reserves in the world, after Saudi Arabia (not considering unconventional resources of the U.S.). Recognizing the potential value of this resource, Canada has been actively encouraging the growth of the oil sands industry, which is forecast to increase production from 1.1 million barrels per day in 2006 to above 3 million barrels per day in 2015.

Financing Oil Sands

The early stage of oil sands financing, covering the period up until early 2006, was characterized by the dominance of major oil companies and ‘on balance sheet’ financing (see Exhibit 1). Large capital requirements and the challenge of securing debt financing for high-risk projects—available only to projects and sponsors with proven technologies, solid collateral and good credit standing—proved an insurmountable obstacle for most small companies.

With few exceptions, oil sands projects were owned and operated by heavyweights such as Shell, Chevron, EnCana and Petro-Canada. More importantly, project finance was used only in a handful of these ventures: Muskeg River, Aurora Mine and Long Lake. MEG Energy’s Christina Lake Project, closed in April 2006, was only the fourth Canada’s oil sands project to be financed off balance sheet.

MEG Energy, a privately held company formed in 1999, had limited collateral but held a 52 square-mile lease in Alberta and a stake in a regional oil pipeline. Although its in-situ technology was already proven, the project was a massive and expensive undertaking for a company of this size.

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Exhibit 1: Oil sands projects in Canada (mid-2006)				
Projects	Sponsors	Status	Start Year	Capacity (mbpd)
Steepbank & Millennium Mine	Suncor	Operating	1967	276
Cadotte Lake	Shell	Operating	1979	12
Hangingstone	JACOS	Operating	2002	10
McKay River	Petro-Canada	Operating	2002	33
Muskeg River Mine	Shell, Chevron, Western Oil Sands	Operating	2002	155
Dover	Petro-Canada	Operating	2003	1.5
Cold Lake	Imperial Oil	Construction ¹	2006	170
Foster Creek	EnCana	Construction ²	2006	60
Joslyn	Total	Construction ²	2006	12
Long Lake	OPTI, Nexen	Construction ²	2006	74.5
Mildred Lake and Aurora Mine	Syncrude	Construction ³	2006	407
Primrose	Canadian Natural Resources	Construction ¹	2006	80
Tucker Lake	Husky	Construction	2006	30
Whitesands	Orion	Pilot	2006	2.5
Christina Lake	MEG	Construction	2007	3
Jackfish	Devon	Construction	2008	35
Christina Lake	EnCana	Approved ²	2009	70
Firebag	Suncor	Approved ²	2009	163
Orion	Black Rock Ventures	Approved ²	2009	20.5
Horizon Mine & Upgrader	Canadian Natural Resources	Approved ⁴	2011	270
Kirby	Canadian Natural Resources	Approved	2011	30
Jackpine Mine	Shell, Chevron, Western Oil Sands	Approved	2012	200
Fort Hills Mine	Petro-Canada, UTS, Teck Cominco	Approved	2014	190
Sunrise	Husky	Approved	2014	200
Surmont	ConocoPhillips	Approved ⁴	2014	100
Meadow Creek	Petro-Canada	Approved		40

¹ This was the expansion project that was producing since 1985.

² The project was already partially operating.

³ This was the expansion project of the existing mine that was producing since 1978.

⁴ The project was already in construction.

Source: *Canada's Oil Sands. Opportunities and Challenges to 2015: An Update*, NEB, 2006.

Several factors, including an experienced team and good publicity proved vital for successful financing. First, MEG Energy's team members had been involved in every previous Canadian oil sands project. Second, they managed to attract interest from some major players, who provided equity in the initial stage of the development of the project. In 2005, a group of institutional investors provided 30% of the project's capital. A few months later, Warburg Pincus funded another 30%, and then China's CNOOC acquired a 17% stake.

The involvement of a strategic investor like CNOOC proved to be the foundation for the successful financing of the project, since not only did it generate heated interest as the first Chinese investment in Canadian oil sands, but also because the involvement of CNOOC, the only party with an investment-grade credit rating, added much of the necessary financial weight to the project.

Term B loan—highly tailored, secured high-yielding instruments that allow greater flexibility to borrowers who do not wish to be held to the strict covenants of traditional credits or wish to avoid being diluted through equity issuance.

Oil shale—fine-grained sedimentary rock that contains significant amounts of kerogen, from which liquid hydrocarbons can be extracted in the chemical process of pyrolysis.

The debt component for the project, comprising up to 71% of total financing, was also revolutionary for Canadian oil sands. Of US\$750 million in debt, only US\$50 million was a revolving credit facility (which was the standard financing facility for oil sands). The remaining \$700 million came from a Term B loan, which was well-suited for MEG Energy, who could not post substantial collateral and did not want to force itself into draconian loan covenants.

Lessons for U.S. Unconventionals

The U.S. oil shale industry today is extremely similar to the oil sands industry of Canada just a few years ago. It follows similar pattern of development, in which the major oil companies dominate the industry and smaller independents struggle with the rigidity of traditional financing options. The Bakken oil play, a major oil shale-producing area in the U.S., is dominated by players such as Continental Resources, Marathon Oil, EOG Resources and XTO Energy. Access to financing continues to act as a barrier to entry for the majority of smaller players.

To overcome the financing challenge, there are two strategies that companies can follow—either offer an equity stake in the project to a major company that could back the project with its reputation, balance sheet and technical experience without actually taking over the operations, or arrange debt financing.

Although the first approach enables financing of large-scale projects ‘from scratch,’ it has a major drawback of diluting the ownership of initial shareholders—the more so the farther a company is from having ‘proven’ technology.

Arranging debt financing seems to be a preferred strategy for company owners. However, in order to be able to approach either major oil company or a bank consortium on somewhat ‘even terms,’ the independent oil shale developers must have both a proven process and a reliable and substantiated cost of production that will withstand volatile ‘down-dips’ in oil price. Given the costs of mining, processing, and then bitumen refining, the aggregate cost for production of a barrel from oil shale will be higher than conventional production. But with banks’ forward price curves for oil still above \$80/bbl, there should be room for reasonable amounts of debt for major production projects.💧