Teck Resources:

Rough Road on Oil Sands Investments

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Executive Summary

Teck Resources, a Canadian company that dates from the early 1900s and that built its business on mining of minerals and metallurgical coal, has ventured more recently into two major oil sands projects in Alberta, including the Fort Hills Mine and the proposed Frontier Mine. Teck has reported significant financial losses over the past three years, as is evident from these key metrics: [1]

- Net income plunged to $330 million in 2014 – down from $951 million in 2013 and $1.145 billion in 2012, meaning that profits have effectively fallen by two thirds in one year after a number of years of downward progression.
- Free cash flow, while still positive, is marginal. It fell to $207 million in 2014 from $1.205 billion in 2012. If this trend continues, the company will see a negative free cash flow in 2015.
- The company's five-year stock return is -66.8%.

Teck's Fort Hills oil sands project, in which the company has a 20% interest, has proven to be a serious drain on company resources. The Frontier oil sands project, which is currently in the planning stages, does not appear to be economically viable. According to Oil Change International,[2] the first phase of the Frontier project would require West Texas Intermediate (WTI) oil prices of at least $140 per barrel. The project would not achieve a positive free cash flow anytime in the next 50 years. The long-term trajectory of oil prices is highly vulnerable to sluggish demand growth and the abundance of light oil supplies that have contributed to the recent decline in oil prices.

The company is not alone in its oil sands difficulties. Other major oil sands projects have been cancelled or delayed over the past year because of falling oil prices, troubled markets and public opposition.

While oil sands projects are quite a small part of Teck's overall portfolio, they absorb a large and growing portion of the company's shrinking resources. In short, the company appears to be financially vulnerable even without taking its oil sands ventures into account, and this downside is compounded by its continued oil sands participation.

Teck shareholders should be asking three basic questions:

1. What combination of market factors could turn the company's finances and total operations around and begin to produce more robust returns, and what role would oil sands outlays and revenues play in this turnaround?
2. Can Teck afford additional outlays for the Fort Hills project, given its own internal financial weaknesses and the oil industry's current and projected weak revenues?
3. What strategic rationale would justify the continuation of development of the Frontier project, given its long-term horizon, environmental problems and a financial profile that renders it unviable even during a rising-price environment?

[1] Financials taken from S&P Capital IQ, a division of McGraw Hill Financial. Note: there is a disparity between the numbers provided by S&P Capital IQ and those provided by Teck Resources in its annual reports. Teck's numbers reflect a slightly stronger financial picture but the basic trends we discuss in this report are the same using either data.

[2] Information provided to IEEFA by Oil Change International, March 2015. OCI figures are based on Rystad Energy UCube data.

Overview of Teck Resources History and Current Financial Condition

Teck Resources, headquartered in Vancouver, B.C., was founded in 1906 as The Consolidated Mining and Smelting Company of Canada, an amalgamation of several units controlled by the Canadian Pacific Railway.

Teck's original core business—mining and smelting metallurgical coal—accounted for 39% of company revenues in 2014. Teck is the world's second-largest exporter and North America's largest producer of seaborne steelmaking coal. Its total production capacity is approximately 28 million tonnes annually, with options to expand production if market conditions change. Teck has operations in Western Canada with reserves and resources of more than 100 years worth of steelmaking coal. In 2014, the company achieved record annual steelmaking coal production of 26.7 million tonnes. However, revenues fell precipitously due to the global decline in coal prices.

The company is a top 10 copper producer in the Americas, with five operating mines and a pipeline of development projects in North and South America. Copper accounts for 30% of company revenues. Zinc mining accounts for an additional 31%. Teck is the third-largest producer globally of mined zinc, and operates one of the world's largest fully integrated zinc and lead smelting and refining facilities.

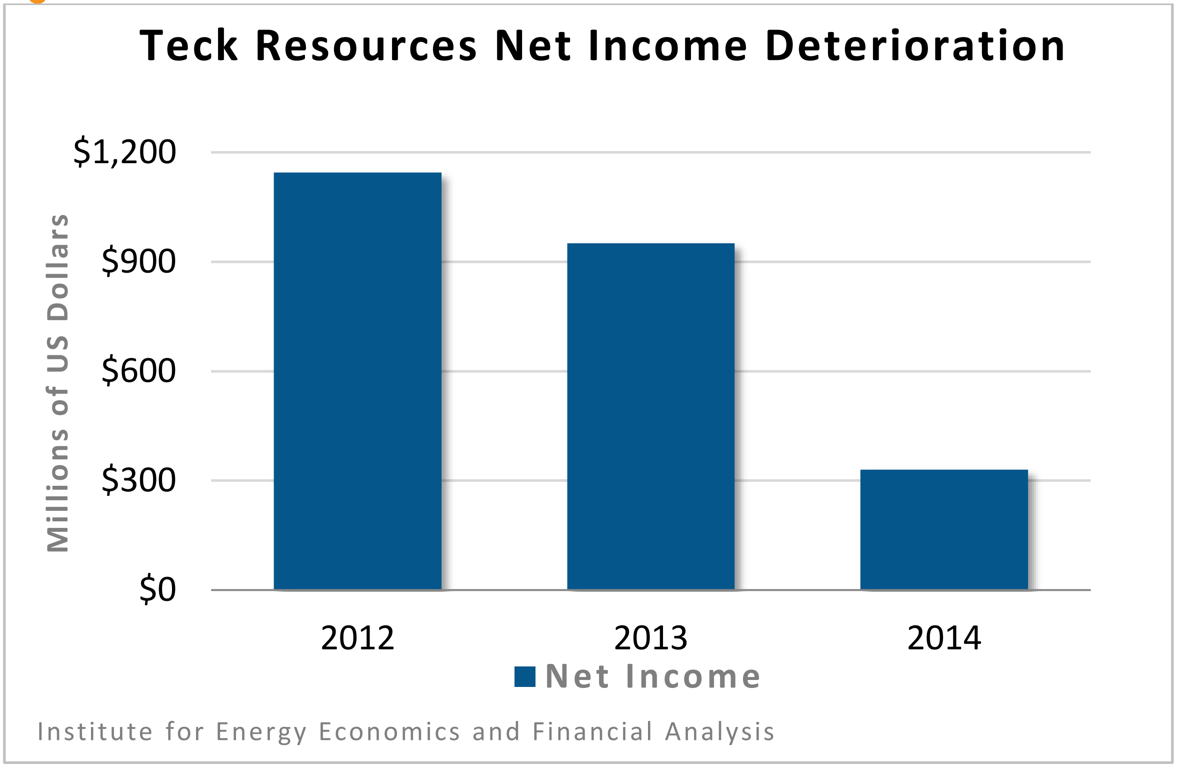
The company has been struggling financially; revenue has been declining for the past three years.[3] Gross profit margins are shrinking in coal and copper. Coal revenues have been hit hard by lower realized prices and increasing costs. Lower realized prices have also hurt the copper division. Zinc was slightly more profitable in 2014 thanks to higher overall market prices.

Key financial metrics:

- Revenues declined from $10.38 billion in 2012 to $7.4 billion in 2014.
- From 2012 to 2014, gross profit deteriorated from $3.539 billion to $1.319 billion, a dropping of over 50%.
- Operating income fell to $905 million in 2014 from 1.861 billion in 2013 and $3.25 billion in 2012. Operating income halved from 2013 to 2014.
- Net income plunged to $330 million in 2014. It was $951 million in 2013 and $1.145 billion in 2012, meaning that profits have effectively fallen by two thirds in one year after a number of years of downward progression.
- Capital expenditures were cut from $1.7 billion in 2013 to $1.2 billion in 2014.
- Free cash flow, while still positive, is marginal, having fallen from $1.205 billion in 2012 to $434 million in 2013 to $207 million in 2014. If this trend continues, the company will report a negative free cash flow in 2015.
- Teck's five-year stock return is -66.8%.

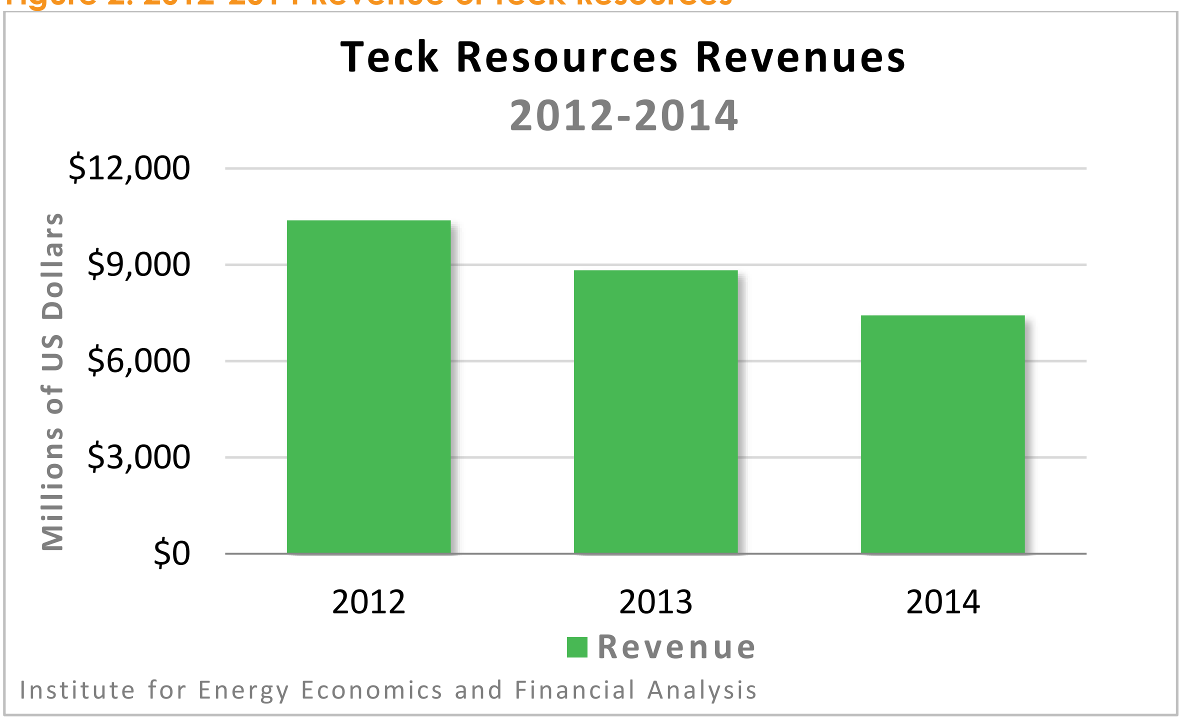
[3] Teck Resources, *2014 Annual Report*, http://tinyurl.com/k93puwn

Figure 1: 2012-2014 Net Income Deterioration of Teck Resources



Source: Teck Resources: S&P Capital IQ (YE 2012-2014).[4]

Figure 2: 2012-2014 Revenue of Teck Resources



Source: Teck Resources: S&P Capital IQ (YE 2012-2014).[5]

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[4] Retrieved April 6, 2015 from http://finance.yahoo.com/q/is?s=TCK&annual
[5] Retrieved April 6, 2015 from http://finance.yahoo.com/q/is?s=TCK&annual

The company had approximately $5 billion of liquidity at the end of 2014. Cash balances of $2 billion are available and the company has a $3 billion unused line of credit. In March, Moody's downgraded Teck partly because of its significant capital commitment to the Fort Hills project and partly because of the soft market for its core products.

Although the company's main business lines are steelmaking coal, copper and zinc, it diversified into oil sands extraction with the purchase of SilverBirch Energy Corp. for $435 million in 2012, giving the company full ownership in the Frontier and spinning out the rest into a new junior company, Silver Willow Energy Corp. Teck also committed to a 20% participation in the Fort Hills project, a joint venture with Suncor. The company made a capital commitment of $2.94 billion through 2017.

In April 2014, Teck implemented numerous cost-cutting measures including cutting roughly 600 jobs. Management has announced that it will assess the viability of the company's stock dividend and make changes, if deemed necessary, by the summer of 2015.

Current State of Met Coal and Oil Sands Markets

The Current State of the Met Coal Market

Teck estimates that from 30 million to 35 million tonnes of U.S. metallurgical coal are "losing cash" at current spot prices. This situation is further complicated by the recent strengthening of the U.S. dollar. Teck executives assert that an additional 10-15million tonnes of metallurgical coal needs to be eliminated from the market overall to stabilize prices.[6] Nonetheless, Teck is planning for 2015 coal production and sales in the same range as 2014, a record-setting year. Norman Keevil, the chairman of Teck Resources, recognized this dilemma in the company's 2014 annual report:

> "Our institutional investors rarely tell us we need to cut back production, instead taking us to task if we aren't seen to be increasing production of gold, or copper, or coal, or zinc, or whatever it is we produce, every year. We are encouraged to do almost anything to keep it up."[7]

Although this assertion makes sense, it alone will not stabilize the markets. Sending more coal into an already glutted market causes prices to move in one direction—down. Still, CEO Donald Lindsay stated this in the company's 2014 annual report:

> "Looking ahead, we expect to meet or exceed the 2015 production and cost targets for each of our copper, steelmaking coal and zinc operations."[8]

He added this:

[6] Financial Post, *Teck Resources Solid Despite Slumping Coal Market*, Koven, Peter, Oct. 29, 2014 http://business.financialpost.com/investing/teck-reports-solid-q3-results-despite-poor-coal-market
[7] Teck Resources, *2014 Annual Report* http://tinyurl.com/n4zybqr
[8] Teck Resources, *2014 Annual Report* http://tinyurl.com/n4zybqr

> "I think we could see $30/tonne added to the price fairly easily once the market gets to balance ... Just looking back in history, when the coal price was $300/tonne, the deficit was only 10 million tonnes. Now we think we need another 12 million tonnes of cuts to get to balance. These aren't huge, huge moves in terms of tonnage that have to come off the market before you see things change quite a bit."

Nevertheless, Teck does not appear to consider contributing to this rebalance in order to bring better pricing. Its 2015 guidance calls for production of between 26.5 and 27.5 million tonnes.[9]

The current benchmark price for metallurgical coal is $117/ton, and the average realized coal price fell by $34/ton in 2014. These are the lowest prices seen since 2007. Given that one third of steelmaking coal production is operating at negative cash margins globally, some pullback of supply and further downside in prices seems inevitable. The outlook through 2015 remains weak with only a modest price improvement expected by some analysts in 2016.[10]

Teck did place its Quintette coal project in northern British Columbia on hold in early 2014 until market conditions improve.

Oil Sands Background and Market Trends

1. Troubled Market: Public Opposition, Oil Price Decline and Canceled Projects

In October 2014, IEEFA and Oil Change International released "Material Risks,"[11] a report that described how public accountability has been a drag on oil sands projects and company financials in general.

The key findings:

- Lack of market access, caused in large part by public accountability actions related to pipeline expansion, played a significant role in the cancellation of three major oil sands projects in 2014 alone: Shell's Pierre River project, Total's Joslyn North project, and Statoil's Corner project.
- Combined, these projects would have produced 4.7 billion barrels of bitumen coal.
- Public accountability campaigns have also had a significant impact on public discussion involving the Keystone XL pipeline.
- After years of increased industry spending on oil sands development, capital expenditure has peaked and begun to decline. This erosion of capex will continue as oil sand producers increasingly acknowledge the constellation of risks they face.
- Public accountability in the form of campaigns against pipelines has been a major factor in reducing revenues for oil sands producers. Overall, oil sands producers lost $30.9 billion from

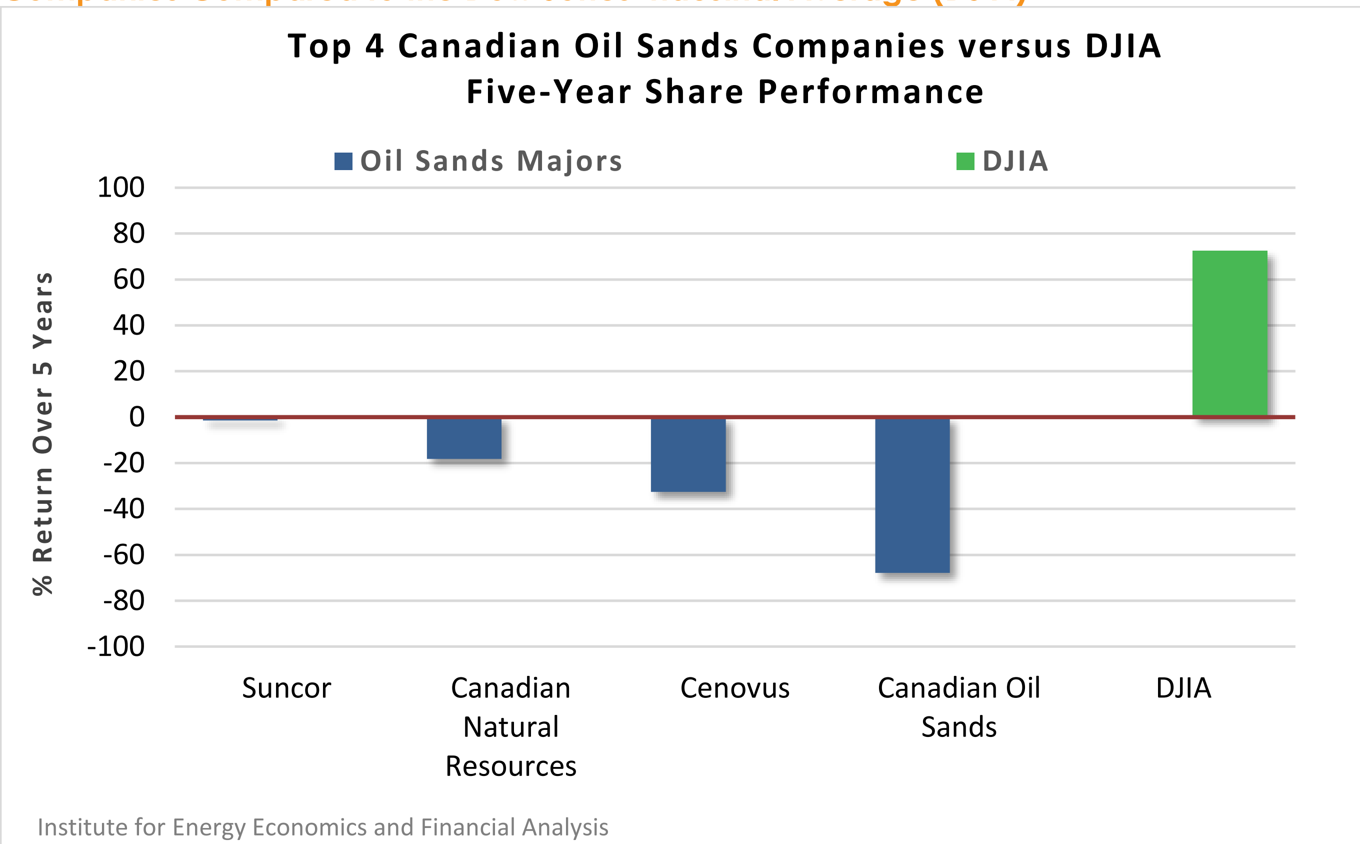
[9] Teck 2014 Annual Report http://tinyurl.com/n4zybqr
[10] Deutsche Bank, *2015 Commodity Update*, Metals and Mining, March 31, 2015, p. 88.
[11] IEEFA and OCI, *Material Risks, October 2014*, http://www.ieefa.org/wp-content/uploads/2014/10/IEEFA.OCI_.Material-Risks.compressed.pdf

2010 through 2013 due to wider price differentials caused by transportation bottlenecks and the flood of crude coming from tight oil fields. Of that total, $17.1 billion, or 55 percent, can be credibly attributed to the impact of public accountability campaigns.

- Oil sands producers are underperforming the stock market. Nine of ten leading oil sands producers in Canada have underperformed the stock market in the last five years.

The Canadian companies with the largest presence in oil sands development are Suncor, Canadian Natural Resources, Canadian Oil Sands, and Cenovus. Figure 3 below, shows how they have performed in relation to the Dow Jones Industrial Average over the past five years.

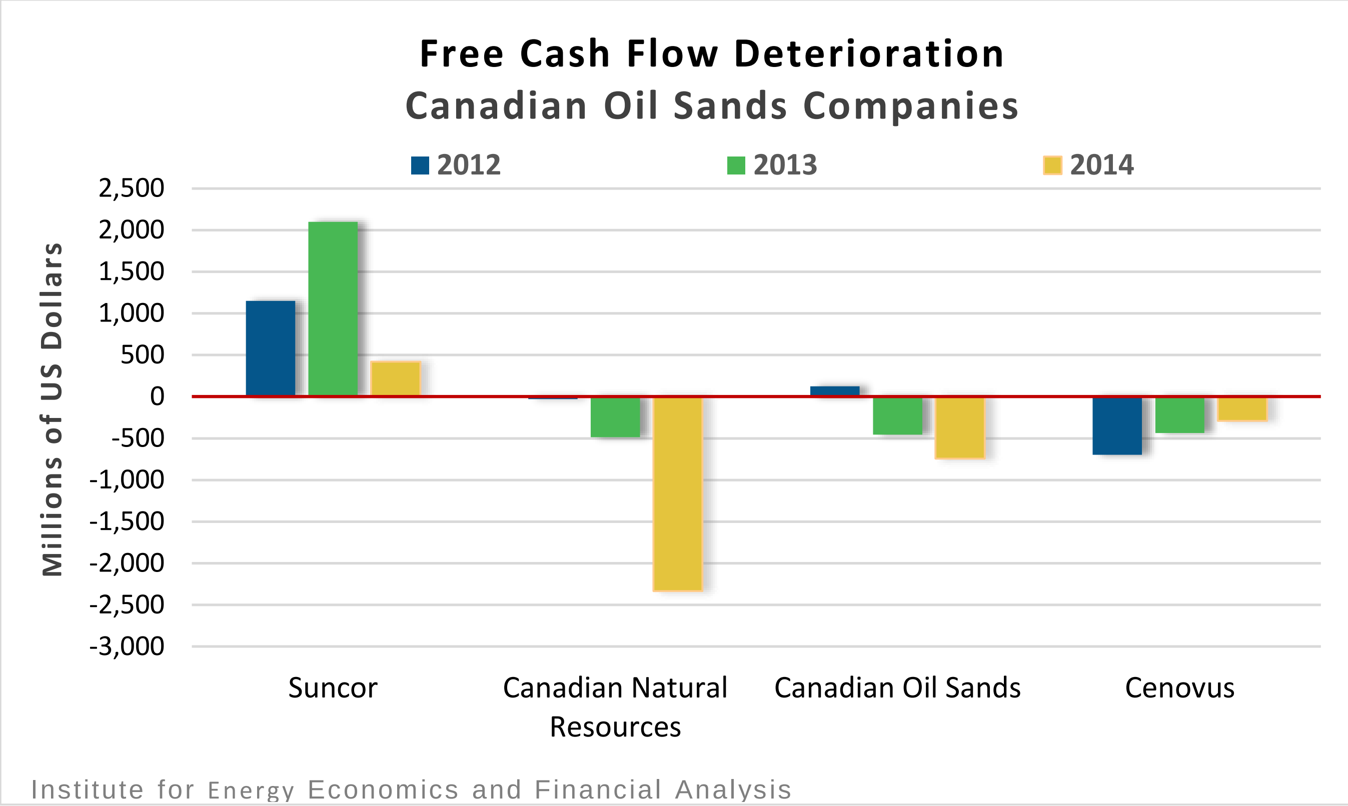
Figure 3: Five-Year Share Performance of the Top Four Canadian Based Oil Sands Companies Compared to the Dow Jones Industrial Average (DJIA)



Sources: NYSE; TSE; Energy Policy Forum

Three of these four companies have seen a deterioration in free cash flow since 2012, as depicted in Figure 4 below. One of those companies, Cenovus Energy, showed improvement in 2014 but is still negative. Given that free cash flow deteriorated even during the period when oil was trading significantly higher, this metric will be hurt considerably in the current, much lower price environment.

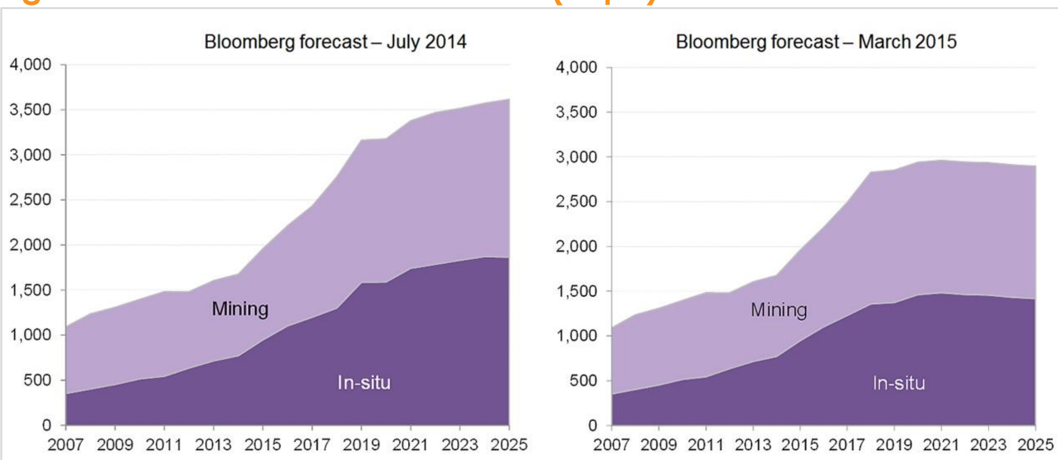
Figure 4: Free Cash Flow of the Top Four Canadian Based Oil Sands Companies, 2012-2014



Sources: Teck Resources: S&P Capital IQ (YE 2012-2014)[12] and Energy Policy Forum.

Leading industry experts have downgraded their outlook for future oil sands production (see, for example, Bloomberg New Energy Finance forecasts below). These downgrades take place as transportation constraints persist. As the price of oil remains in the $60/barrel range and as medium-term projections show only modest price increases, oil sands development becomes increasingly subject to highly volatile long-term prices.

Figure 5: Crude Bitumen Production (kbpd)



Source: Bloomberg New Energy Finance, CAPP, AER

[12] Retrieved April 6, 2015 from http://finance.yahoo.com/q/cf?s=TCK+Cash+Flow&annual

To date in 2015, a number of project delays or cancellations of oil sands projects with a potential daily production of more than one million barrels have been announced, as listed in Figure 6, below, prepared by Oil Change International. In addition to these delays or cancellations, the bankruptcies of Connacher Oil and Gas, Laricina Energy, Ivanhoe Energy, and Southern Pacific Resources call into question the fate of oil sands projects that total potential production of 557,500 barrels per day.

Figure 6: Oil Sands Projects Delayed, On Hold, or Cancelled

Company	Project	Asset (Phase)	Mining/ In situ	Status	Capacity (BPD)
Cenovus	Axe Lake	SAGD Pilot	In Situ	On Hold	-
Cenovus	Axe Lake	Commercial	In Situ	On Hold	30,000
Cenovus / Conoco	Narrows Lake	Phase B	In Situ	Delayed	45,000
Cenovus / Conoco	Narrows Lake	Phase C	In Situ	Delayed	45,000
Cenovus / Conoco	Foster Creek	Phase H	In Situ	Delayed	30,000
Cenovus / Conoco	Foster Creek	Phase J	In Situ	Delayed	50,000
Cenovus / Conoco	Foster Creek	Optimizations	In Situ	Delayed	50,000
Cenovus	Telephone Lake	Phases A-B	In Situ	Delayed	90,000
CNRL	Kirby North	Phase 1	Mining	Delayed	60,000
Devon Energy	Walleye	Phase 1	In Situ	On Hold	9,000
E-T Energy	Poplar Creek	Phase 1	In Situ	On Hold	10,000
E-T Energy	Poplar Creek	Phase 2	In Situ	On Hold	40,000
Husky /BP	Sunrise	Phase 2	In Situ	On Hold	70,000
Murphy Oil	Cadotte	Pilot	In Situ	Cancelled	-
Shell Albian (Chevron & Marathon)	Pierre River	Phase 1	Mining	Cancelled	100,000
Shell Albian (Chevron & Marathon)	Pierre River	Phase 2	Mining	Cancelled	100,000
Statoil	Corner	Phase 1	In Situ	On Hold	40,000
Total	Joslyn North	Phase 1	Mining	On Hold	100,000
PTT Exploration & Production	Mariana	South Leismer	In Situ	On Hold	20,000
PTT Exploration & Production	Mariana	Thornbury	In Situ	On Hold	60,000
PTT Exploration & Production	Mariana	Hangingstone	In Situ	On Hold	20,000
Harvest Energy (KNOC)	BlackGold	Phase 1	In Situ	Delayed	10,000
Harvest Energy (KNOC)	BlackGold	Phase 2	In Situ	On Hold	20,000
Brion Energy Corporation (PetroChina)	Devon	All Phases (1-5)	In Situ	On Hold	250,000
Brion Energy Corporation (PetroChina)	Mackay River	Phase 1	In Situ	Unclear	35,000
Brion Energy Corporation (PetroChina)	Mackay River	Phases 2-4	In Situ	On Hold	115,000
TOTAL Capacity at Risk					**1,399,000**

Source: Oil Change International (April 2015)
Note: PetroChina is looking to swap its tar sands assets (Brion Energy projects), having found little interest from potential buyers. Until some deal is reached the future of these projects is uncertain.

Further, company losses continue to mount. Cenovus announced net losses totaling $472 million in the fourth quarter of 2014, for instance, and Husky Energy had losses of $603 million.

In addition to these losses, jobs are being slashed in this low oil price environment. According to Statistics Canada, 13,000 jobs were lost in Alberta's natural resource sector between September 2014 and January 2015, with the majority of those jobs in oil and gas. Additional layoffs are expected.[13] The province's unemployment rate is currently 5.3% with additional jobs being cut across the retail sector.

2. Economic Fallout from Market Downturn

The core vulnerability of oil sands development has enormous repercussions for the economy of Alberta.

It is estimated that the government of Alberta's budget will lose approximately $7 billion in revenue over the next year. Approximately 26% of the province's economy is dependent on oil, which is down from 36% in 1985 but nevertheless crucial as Alberta remains heavily dependent upon its oil sector.

The Globe and Mail reported the following in December 2014:

> "Last year the Alberta government earned more than $9 billion in energy royalties, accounting for almost 21 per cent of the budget. For every $1 drop in the price of a barrel of oil, the Alberta government loses $215-million in revenue—over the past year the price of oil has dropped by $32."[14]

The downturn in the oil sands industry in 2014 will affect other parts of the economy. In the first quarter of 2015, the manufacturing sector has been hurt, for example, by lower equipment orders from the fossil fuel sector. However, analysts see this downturn in manufacturing giving way to growth over time, spurred by lower oil prices, a stronger U.S. economy and a weakening of the Canadian dollar.[15] The timing of any uptick in the manufacturing sectors—or any sector—will lag the immediate downside impact of low oil prices on the economy and be affected by the fiscal condition of the provinces and the national government.

However, turbulence in the oil sands industry will likely result in renewed attention to the diverse economic strengths of the Canadian economy. The future of oil sands expansion is likely to be much smaller than anticipated.

The Canadian Energy Research Institute estimates that a greenfield mining project would require a WTI oil price of $99.49 per barrel to earn a 12.5% return on investment. WTI is currently trading at around $50 with limited upside potential in the medium and long term.

The oil sands industry must have much higher prices to be economically viable. In spite of the optimistic rhetoric coming from the industry, the large build-out of the Canadian oil sands is probably not realistic. The implications for Alberta and Canada are only beginning to unfold.

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[13] Global News, *Timeline: Tracking the layoffs in Alberta's oilpatch,* Lisa Geddes, March 18, 2015, http://globalnews.ca/news/1889598/timeline-tracking-the-layoffs-in-albertas-oilpatch/

[14] The Globe and Mail, *Low oil prices could cut Alberta revenue by $7-billion, Prentice says*, December 9, 2014, http://www.theglobeandmail.com/news/alberta/low-oil-prices-will-punch-huge-hole-in-alberta-budget-prentice-says/article22015643/

[15] TD Economics, *Data Release: Oil price collapse weighs further on spring business outlook,* April 6, 2015, http://www.td.com/document/PDF/economics/comment/BusinessOutlookSurvey_2015Q1.pdf

Teck's Investments in Oil Sands

In 2012, Teck ventured into oil sands with the purchase of Silver Birch Energy. This was designed to provide a much needed boost to company prospects given the softness in its core business. The move allowed Teck to use the truck-and-shovel open-pit mining expertise with which it is familiar through its mining operations in coal, copper, and zinc.

The company's 2013 annual report states:

> "Teck is building a new energy business unit by advancing our oil sands projects in the Athabasca region of northeastern Alberta, and we are looking for opportunities to develop renewable electricity, such as our partnership in the Wintering Hills Wind Power Facility in Alberta."[16]

In the same annual report, CEO Lindsay extolled the value of the oil sands. One year later, the budget for Fort Hills had risen considerably, and Teck's stock dividend is now in question as the company itself says it is not expecting any cash flow from the project before 2017.

A. Fort Hills Mine

Teck has committed to spend an estimated $2.94 billion through 2017 on the development of Fort Hills Mine, a joint venture with Suncor in which it has a 20% interest. This commitment will consume a significant portion of Teck's remaining cash resources. Moody's has cited this draw on company resources as a factor in its recent downgrade. The total budget for Fort Hills is approximately $13.5 billion.

In September 2014, Mark Becker, vice-president of Suncor Energy said this:

> "Some of the recent projects have had large cost and schedule blow outs and demonstrated how to [build a mine] non-economically, but we've got this last chance [Fort Hills] to demonstrate that it can be done ... If we're not able to do it on Fort Hills, I don't think the financial markets—or anyone else—is going to believe it can be done."[17]

If Becker is right, the Fort Hills project could prove a bellwether for the entire oil sands sector. Many industry projects have been late and over budget.[18] When oil prices are high and rising, corporate executives and investors can count on growth to cover cost overruns. As a weakened revenue picture persists for the industry, however, the Fort Hills outlay becomes less justifiable.

Teck's current weakened position suggests difficulty in following through on its commitments, and on the company's analyst call early 2015, company executives said this:

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[16] Teck Resources, *2013 Annual Report,* http://www.teck.com/res/tc/documents/_ces_portal_meta/downloads/investors/2013%20annual%20report/teck%202013%20annual%20report.pdf

[17] Alberta Construction Magazine, *The Last Oilsands Mine?* September 4, 2014. http://www.albertaconstructionmagazine.com/index.php/2-uncategorised/742-last-oilsands-mine

[18] http://www.albertaconstructionmagazine.com/index.php/2-uncategorised/742-last-oilsands-mine

"The next dividend isn't payable until early July, so the decision will be made sometime between the April board meeting and the June board meeting. At that stage we will look at the business conditions in all of our commodities, but in particular we will be watching the cutbacks in the coal business to see whether they have actually been implemented and whether, if they've been implemented, they have actually taken the market back into balance or closer to it such that it affects price … So those are the kind of things that the Board will look at, at that time. And depending on what the results of that review is, there may be a cut in the dividend or there may not."[19]

It remains to be seen how Teck Resources shareholders and executives maintain support for the Fort Hills project as weak performance in core businesses continues to deteriorate, oil sands margins have become non-existent and capex has fallen.

B. Frontier Mine

The Frontier Mine is Teck's proposal for an oil sands mine and processing plant north of the Firebag region in Northern Alberta. The project proposal originally had startup of Phase 1 in 2021 and four phases in operation by 2030. However, in the project's November newsletter, *Frontier Forward*, first oil has been pushed back to 2026 with production continuing until 2066 followed by a 10- to 15-year closure period.[20]

This mine would be the first major mining project north of the Firebag region, which has been declared off-limits by Athabasca Chipewyan First Nations (ACFN). If built, the Frontier project would be expected to mine about 240,000 barrels of bitumen per day from a site approximately 110 kilometer north of Fort McMurray on the west side of the Athabasca River. Teck envisions the project including two open pits, a bitumen upgrader, an ore pit, tailings facilities and more.

The environmental assessment process has been riddled with problems. According to Northern Journal:

> "Representatives from ACFN and the Mikisew Cree First Nation (MCFN) have filed numerous concerns about the review process over the past two years, citing disorganization and inadequate information on the part of Teck as hindering their ability to effectively participate in the review."

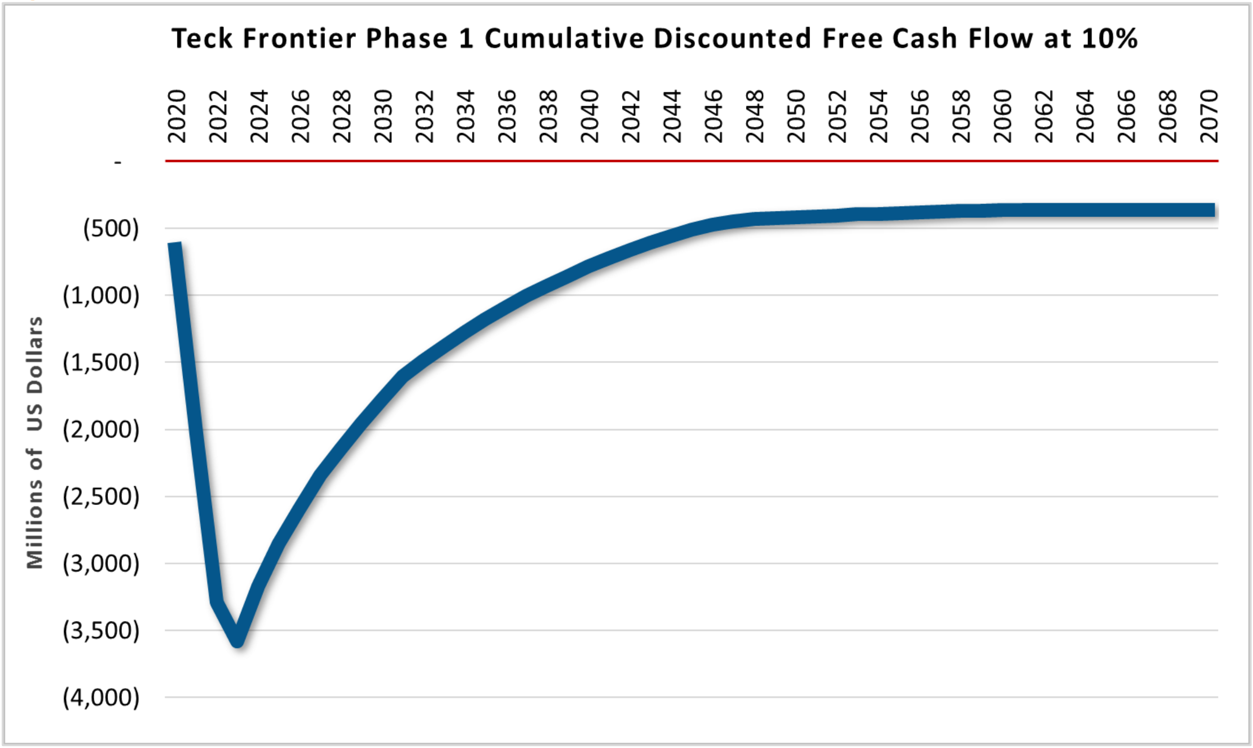
Analysis by Oil Change International, using Rystad data, concludes that the Frontier project is uncommercial even at relatively high oil prices. The first phase of the project requires WTI oil prices of at least $140 per barrel. This high cost is because of built-in infrastructure costs. Phase 2 requires a lower price of $118 per barrel (because infrastructure has been more or less

[19] Seeking Alpha, *Teck Resources Limited (TCK) Q4 2014 Results - Earnings Call Transcript*, February 12, 2015 http://seekingalpha.com/article/2913486-teck-resources-limited-tck-q4-2014-results-earnings-call-transcript
[20] Teck Resources, *Frontier Forward. Third Edition*, November, 2014 http://www.teck.com/res/tc/documents/_ces_portal_meta/downloads/operations/frontier/frontierforward_november_2014.pdf

completed), and Phase 3 requires the highest prices, $150 per barrel, because the remaining resource is harder to access and is thus speculative.

The current WTI price of oil is around $50 per barrel. While oil price outlooks remain quite volatile, most observers see medium-term prices returning to $75 to $85 per barrel.[21]

Figure 7: Teck Frontier's Phase 1 Cumulative Discounted Free Cash Flow at 10%



Source: Oil Change International, using Rystad data, April 2015

The chart above shows that Frontier Phase 1 will never achieve a positive free cash flow, even projected out through 2070. Using 2020 as Year 1 of the project, free cash flow ranges from negative $654 million to negative $3.5 billion in Year 4, and never gets above negative $361 million in 50 years.

Additional questions surround Frontier. For instance, Teck continues to move forward with the project despite strong headwinds, not the least of which are $50 per barrel oil prices. In the longer term, even under an optimistic price scenario, the project has trouble breaking even. The company is moving forward with environmental permitting processes despite the weak financial outlook and an uphill regulatory battle. Many companies pursue permits regardless of weakening markets in the hope of cyclical corrections and improvements in the financial position of the project. The project remains high risk, however, because markets have changed, oil prices are low, public opposition persists and the company is weak financially. Teck's use of the regulatory process in this context is apparently not to further the project but to position the company's future negotiating position.

[21] *Crude Oil WTI Futures Prices*, April 17, 2015, http://www.barchart.com/commodityfutures/Crude_Oil_WTI_Futures/CL

Conclusion

Teck faces several hurdles in its path to success in the energy space. Energy production currently accounts for a small percentage of Teck's total revenues but is a growing share of its capital outlays.

Teck is plagued today by three fundamental problems:

1. Market forces suggest the company will be unable to turn around its finances and to produce more robust returns and that it is only hobbled by its investments in oil sands development.
2. Teck is in no position to afford additional outlays for its Fort Hills oil sands project, given its internal financial weaknesses and the oil industry's current and projected weak revenues.
3. No strategic rationale exists for continuing development of the company's Frontier project, given its long-term horizon, environmental barriers and a financial profile that would it unviable even in a rising oil price environment.

About the Authors

Tom Sanzillo, Director of Finance

Tom Sanzillo is the Director of Finance for the Institute for Energy Economics and Financial Analysis. He has written several studies on coal plants, rate impacts, credit analyses, and the public and private financial structures for coal. In addition, Tom has testified as an expert witness, taught training sessions, and conducted media interviews. Prior to his work with the Institute for Energy Economics and Financial Analysis and his own consulting practice, Tom spent 17 years with both the City and the State of New York in various senior financial and policy management positions. He was formerly the State of New York's first deputy comptroller, a job that put him in charge of the finances of 1,300 units of local government, the management of 44,000 government contracts annually, oversight of over $200 billion in state and local municipal bond programs and responsibility for a $156 billion pension fund. From 1990 to 1993 Tom also served in senior management in the New York City Comptroller's Office.

He recently contributed a chapter to the Oxford Handbook of New York State Government and Politics on the NYS Comptroller's Office.

Deborah Lawrence

Deborah Lawrence is an IEEFA energy consultant and founder of Energy Policy Forum. Lawrence began her financial career in London working in investment banking. Upon her return to the U.S., she worked as a financial consultant for several major Wall Street firms, including Merrill Lynch and Smith Barney.

She was appointed as a primary member to the U.S. Extractive Industries Transparency Initiative (USEITI), an advisory committee within the U.S. Department of Interior, in 2013 for a three year term. She has testified before the Senate Committee on Energy and Natural Resources and participated in a working group at EIA, the Energy Information Administration of the U.S. Department of Energy. She also served on the Advisory Council for the Federal Reserve Bank of Dallas from 2008-2011. She is founder of Energy Policy Forum, a consultancy group dedicated to policy and financial issues regarding energy. In addition, she lectures on energy economics throughout the U.S. and abroad and has been featured in numerous publications.

IEEFA thanks Lorne Stockman and Hannah McKinnon of Oil Change International for providing information used in this report.

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