


Gaining ground in the sands 2014

Five rites of passage for an industry
in pursuit of operational maturity



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The world
is watching, and
much is riding on how
the oil sands sector takes
its final steps into
maturity.

Executive summary

The oil sands are entering a new cycle of development. Collaborative efforts by producers to improve operational excellence are underway.

Rising costs, increased environmental scrutiny and persistent shortages of key, skilled talent are forcing the sector to mature more quickly than it might have otherwise. And those are the relatively straightforward challenges. The bigger issue?

If the sector is unable to make cultural shifts and major operational changes, it risks skipping the next stage of development altogether, slipping straight into decline.

Several factors underlie this risk, most of them economic:

- **Talent shortages** that are only likely to worsen as LNG in British Columbia (and even Australia) proceeds.
- **Growing international interest in shale oil and gas** that threatens to reduce demand for a Canadian product that still can't reach inter-continental markets.
- **An uncertain financing climate** playing havoc with operational budgets and limiting companies' ability to make long-term investments.
- **Significant moral opposition**, at both home and abroad, contributing negatively to the sector's financial and operational prospects, most clearly in the still-unresolved debate over pipelines and rail transportation.

What's clear is that individual companies' ability to achieve operational excellence will improve their prospects for sustained growth. We believe they will get there. But only if they address the following challenges:

- **Moving beyond "growth at all costs."** Attracting and retaining qualified staff continues to be the oil sands' number one operational challenge and producers are showing they've learned the importance of innovative approaches to housing, transportation, scheduling and compensation packages that don't rely on cash incentives and other lavish spending. Companies are increasingly expected to show investors higher levels of profitability, which calls for more measured expansion and growth management. Accordingly, we expect direct operational collaborations (including farm-ins, joint ventures and infrastructure sharing) that spread costs and risk to increase as individual companies also look at restructuring back office functions to drive individual scale and value.
- **Competition with natural gas.** If it was already a major challenge to attract and retain skilled talent, that challenge is only going to amplify as the aggressive plans in British Columbia to launch a liquefied natural gas (LNG) export sector come to fruition. According to Petroleum Human Resources Council of Canada research, the two sectors combined will need upward of 41,000 new hires over the next decade to meet announced growth targets. Beyond purely labour-related strategies like workforce planning and temporary foreign worker programs, oil sands companies must focus on reducing cost per barrel and implementing, wherever possible, leading operational efficiency protocols and procedures.

- Innovation versus imitation on the road to excellence.** Despite conventional wisdom about the primacy of innovation in advancing progress, research shows that imitators often reap greater rewards because they avoid R&D and even some marketing costs. Oil sands companies have produced an impressive slate of technological innovations across the value chain. When it comes to operational management, however, they would do well to pursue more imitation, including of practices proven in other sectors, such as advanced risk management techniques used in the aerospace industry. More than that, they should be striving to be “inovators” – true leaders who join innovation and imitation into a strategic whole.
- Reliability and asset management.** If maximizing up time is priority one, investment in tools and other means of increasing productivity and extending asset life should be relatively uncomplicated: improving asset management can save significant dollars that could be put in service of growth. And if takeaway capacity fails to grow, improving asset management becomes critically necessary just to maintain the status quo. Beyond data analytics and the range of approaches currently being studied and tested by the Materials and Reliability in Oil Sands (MARIOS) consortium, companies need to get serious about their knowledge management strategies, including heightening emphasis on documented policies and procedures and long-term knowledge transfer programs that prepare the next generation of leaders to take over when their time comes.
- Access to capital and the revised *Investment Canada Act*.** Provided we continue to retain ownership of the resource itself, foreign investment in the sands is good for Canada because we lack the capital to maximize the sands’ economic potential. But the recent changes to the *Investment Canada Act* make it harder both for specifically state-owned enterprises to exert their influence over our economy and for existing producers to invest for the future – theirs and the country’s. Meanwhile, some analysts are predicting credit downgrades as a result of rising carbon constraints. Accordingly, though companies are forced to learn new ways of doing more with less, they should be investing specifically in technologies and processes that improve efficiency, thus improving environmental performance and credit ratings alike.

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Coming of age in the oil sands

You learned to walk, went on play dates and eventually real dates as you matured, growing from a toddler into a teenager and eventually into an adult, your sights set firmly on the future. It has been shown that the same basic pattern applies to industries and sectors as they transition from start-up, through initial growth into maturity and eventual decline.

Where do the oil sands sit on this curve? Somewhere at the tail-end of initial, rapid growth, not yet mature, but clearly showing it has nearly come of age. But there are signs that the sands are at a critical juncture, that they risk missing maturity altogether if investment and other planning remains exclusively focused on the most immediate concerns.

This paper focuses on five “rites of passage” the oil sands will need to undergo to complete the final transition from a growing, “awkward teen” to a full-fledged, mature adult. In other words, come of age as a leaner, more flexible,

globally attuned industry that remains profitable in an increasingly carbon-constrained world.

For our part, we’re as optimistic as ever, but there are challenges ahead. We outline them here as follows:

- In **Fitting in**, we look at the inadequacy of “growth at all costs” operating models.
- **Negotiating peer pressure** looks at emerging competition for talent from burgeoning LNG development on the West Coast and Australia.
- The section on **Finding yourself** addresses the value tension between innovation and imitation.
- In **Standing on your own two feet**, we discuss reliability and asset management.
- And finally, in **Leaving the nest**, we discuss the challenge of accessing capital, especially in light of the revised *Investment Canada Act* that now demands greater scrutiny specifically of state-owned enterprises looking to invest in the sands.

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The global playground

The global energy environment is evolving. New technology, rapid industrialization in emerging economies and a drive to cleaner sources of energy are reshaping the landscape. In other words, as much as we might like to imagine otherwise, the oil sands are not the only game in town. They are vast, and on their own represent close to half of the world's investable petroleum supply, making them an easy target for both investment and criticism. But, increasingly, they've got new competition from shale oil and gas, thanks to the incredible gains made in the U.S. with hydraulic fracturing. And a growing number of countries with shale reserves of their own are eager to duplicate the success.

The newly accessible abundance of gas is literally fueling a massive international push for new liquefied natural gas (LNG) capacity. This is especially apparent in Australia, which is ideally positioned to supply Japan, where the appetite for gas to generate electricity skyrocketed in the wake of the Fukushima Daiichi crisis and the public aversion to nuclear power that followed.

In Canada, LNG development on the West Coast holds out the promise of finally opening up a market for our energy products to Asia. Our location and stable political landscape give us a tremendous advantage in attracting investment, but time is of the essence. Canadians are right to celebrate the promise of LNG: not only will Chinese and other foreign investment create good jobs, development will boost our economy. More fundamentally, it is in Canada's best interest to broaden and deepen our relationships with countries like China, the world's second largest economy.

Some may worry that LNG could leave our crude oil behind. From an economic perspective, it's true that wouldn't be any better for the world than it would be for us.

Here's why. Growth in oil and gas demand is coming from the most rapidly industrializing countries. In its 2012 *World Energy Outlook*, the International Energy Agency (IEA) estimates global energy demand will grow by more than one-third by 2035, with China, India and the Middle East accounting for 60% of the increase. It further estimates that, while energy demand will rise only modestly in OECD countries, there will be a pronounced shift away from oil, coal, and – in some countries, nuclear – toward natural gas and renewables.¹

It's little wonder so much energy is being spent in North America trying to build new takeaway capacity, including rail car capacity and new pipelines. It's why British Columbia is betting big on LNG. It's also why there has been a push to develop renewable energy. We believe renewable energy should be playing a bigger part in the energy mix, but that's easier said than done. Renewable energy is still heavily dependent on subsidies and, until it becomes more cost competitive with fossil fuels, a full-scale transition to a renewable energy economy remains a long way off.

It's also still possible that outstanding transportation projects like the Keystone XL and Northern Gateway pipelines will never break ground. Indeed, the majority of a group of industry experts we surveyed² in mid-2013 expect that neither pipeline will be built. But they do anticipate growth in Canadian oil and gas. The open questions are simply how much and for how long.



Fitting in

Beyond “growth at all costs”

In the heady days of 2006, and the years immediately prior, it sometimes seemed that the solution to all oil sands problems was money and more of it. Growth was the singular priority, and no financial cost was too great to ensure it. Today, growth continues to be a priority, but room has been made for a renewed focus on sustaining existing capacity and driving operational excellence.

As much as industry’s growth spurt over the last decade was deeply impressive, putting oil sands on the global map in an enviably short period of time, the growth at all costs mentality didn’t entirely work and, instead, mostly added or raised costs.

Seven years later, companies are showing they are reaching new levels of coordination. We’re now seeing some companies using creative talent retention strategies that do not rely on cash incentives, such as allowing some operational staff to relocate permanently from Fort McMurray to Calgary, where they prefer to live.

The fact is, finding and retaining qualified staff continues to be the sands’ number one operational challenge and producers have learned the importance of innovative approaches to housing, transportation, scheduling and compensation packages. Companies no longer necessarily foot the bill to fly employees whose primary residences might be outside of Alberta back and forth from their homes to the job site. Clearly implemented principles of corporate sustainability are now just as important to potential employees as they are to investors. And foreign worker programs have become so critical that some companies tell us they believe that private-sector-driven immigration programs are the only solution to their human resource requirements, which are only going to grow.

Meanwhile, in some cases, key operational decisions are being made by sequencing qualified staff, who take on temporary management and decision-making



responsibilities of one project before moving on to the next. This simply underscores something else that producers are telling us: relative to the life span of the resource, investments to support projects in the long term have taken a distant second place to the immediate operational issues of the day. That concerns us because the best decisions today are usually made with at least one eye on tomorrow. The longer producers operate for the short term, the harder it will be for them to see, let alone reach, the horizon.

Ultimately, the idea is to move away from “growth at all costs” to something at once simpler and more complex: profitable growth. Conventional wisdom used to be that adding value (i.e., upgrading) and scale in the sands would drive lower costs, and it might have worked if more producers had reaped the benefits and driven synergies. But they didn’t, or couldn’t, and economies of scale were lost.

Now, companies are increasingly expected to show investors higher levels of profitability, which calls for more measured expansion and growth management. And the growing pains are being felt. The question is whether those pains will serve as an effective inflection point to generate real change, or at least the opportunity for change.

Right-size matters

Naturally, some will try to weather the storm, and the winners will be those who find new approaches, both in the office and in the field. The revisions to the *Investment Canada Act* are sure to lead to an increase in joint ventures, farm-ins and other collaborative business models that are common in the conventional space. We’ve extolled the virtues of collaboration at length. But it’s no panacea.

On the whole, some back office functions will need restructuring in order to drive scale and value, and producers will have to come to terms with the reality that some barrels are not cheaper to add. Judicious choices can help companies grow and maintain without sacrificing near-term stability. Our latest research on Canada’s productivity gap, for instance, found that one in three Canadian businesses are under-investing in the activities required to sustain growth and don’t even know it. Taking the process of self-discovery in this direction would be a very good way for oil sands companies to start.

The primary driver of the foreign investment rules changes was the perception that state-owned enterprises (SOEs) do not necessarily operate on the same profit-centered principles as publicly owned companies. That’s undoubtedly true, but it isn’t undoubtedly problematic. In fact, given that the rise in East Coast offshore production is a direct legacy of Petro-Canada, maybe an SOE of our own was the right idea only implemented at the wrong time?

But we can’t turn back the clock, so we move forward. Oil sands companies need to improve performance without incurring new costs.

What’s your strategy?



Negotiating peer pressure

Competition from natural gas

The rising interest in shale gas development in the West is seen to be a potential game-changer not just for British Columbia but the entire country. The Conference Board of Canada recently forecast that shale gas would generate a cumulative contribution of \$940 billion to real GDP between 2012 and 2035.³ Growth in domestic demand is expected to come mostly from Alberta for oil sands production and electricity generation and from British Columbia for LNG export. Indeed, with one project already through regulatory approval and permitting, it is anticipated that deliveries of LNG will have commenced by 2017.

The British Columbia government is pushing hard on LNG, intending to have three facilities in operation within the next decade and making bold claims about the strength of the opportunity's economic potential relative to the oil sands. British Columbia's Premier Christy Clark put it this way in December 2012: "Think about it in these terms: what oil has been to Alberta since the 1970s-80s is what LNG is going to be for British Columbia, nothing less than that."⁴ These pronouncements shouldn't be surprising: LNG

is entirely likely to be the key that finally unlocks the door to market diversification of our energy products (and not a moment too soon, given rising domestic production in the U.S.). But whether that door will be held open for crude oil remains in doubt, notwithstanding late October 2013 progress between Alberta and British Columbia toward an agreement on the Northern Gateway pipeline and late December regulatory approval from the National Energy Board.

Canadian LNG also faces competition from Australia, which is much further along the development curve than we are, though not without having weathered its own challenges. But we believe Canadian LNG development can be a successful fast follower, applying lessons from international LNG projects and the oil sands experience closer to home to enable its development. In other words, we're on side but we also urge a cautious optimism that recognizes the implicit people challenges of developing a new sector that will depend on many of the same skills that oil sands producers and others depend on (including Australian LNG companies) but that are currently in short supply.



The Petroleum Human Resources Council of Canada (PHRCC) estimates that Canadian oil and gas companies will need between 125,000 and 150,000 new hires, coast to coast, in the next decade. Of those, between 14,900 and 22,200 will be needed in the oil sands (industry-wide demand in Alberta will be between 17,100 and 35,000) and between 3,100 and 4,100 will be needed in British Columbia. A related study of specifically LNG labour demand estimated a three-facility sector (per the government's outlook) would need 11,790 construction jobs (peaking in 2017) and 6,800 new direct jobs in services, E&P operations and pipelines.⁵

Combined, that's a high-case potential demand of 40,790 new hires needed to maintain and grow both the oil sands and LNG over the next ten years. And nobody really knows where those people are going to come from.

With Canada's unemployment rate possibly set to hit 7% in 2014⁶, there is likely to be some opportunity for some of those roughly 1.3 million people to enter the oil and gas industry. But as the majority of hiring needs will require highly skilled individuals with relevant experience, that won't happen overnight. And since more than half of the PHRCC's projected national and sector-wide demand (62,500 to 84,000) will be owed to age-related attrition, opportunities for on-the-job skills development and knowledge transfer will be complicated at best.

Playing together in the sands

As in other areas, oil sands companies will likely have to continue to do more with less in terms of human resources for the foreseeable future. But it's not like this is a sudden phenomenon, either. Producers and other stakeholders have been working on solutions to the problem for years.

The primary competitive dynamic in the talent management arena should be between oil plays in general, not between oil sands producers specifically. Accordingly, we still recommend a range of collaborations – within and between individual companies, with non-industry institutions including governments and academia, and with local communities. We need to marshal the full strength and creativity of the sector and the broader economy to solve mutual challenges. If that was already going to be difficult, it might be even more so with natural gas in British Columbia, and not simply because of well-publicized tensions between provincial governments over pipelines and environmental issues. Even though shale gas has its own detractors on the basis of concern over hydraulic fracturing, natural gas generally is seen as much more environmentally friendly than oil, and both gas producers and LNG exporters may have an easier time recruiting new talent on that basis alone. And that's before the estimated thousands of British Columbia residents currently employed in the sands are able to consider opportunities in closer-to-home LNG, making the people equation that much harder for oil sands companies to balance.

Beyond purely labour-related strategies, then, oil sands companies should continue to focus on reducing cost per barrel by reducing the numerator and increasing the denominator of their current assets. This is where leading operational efficiency protocols, procedures and strategies, along with workforce planning and "people supply chain" strategies, come in.

Peers can be friends, enemies, or anything in between. Either way, actively or not, they can drive us to improve and be better than we were before. And that's exactly how we'd like to see the "rivalry" between oil sands and LNG/gas evolve – not head-to-head but side-by-side. Like Canadians.



Finding yourself

Innovation versus imitation on the road to excellence

For its ability to disrupt the market in ways that potentially change everything, innovation is widely touted as the surest means to competitive advantage. Imitation, meanwhile, is often overlooked as innovation's poor cousin, a wearer of hand-me-downs, pale and sickly in comparison, nobody's friend.

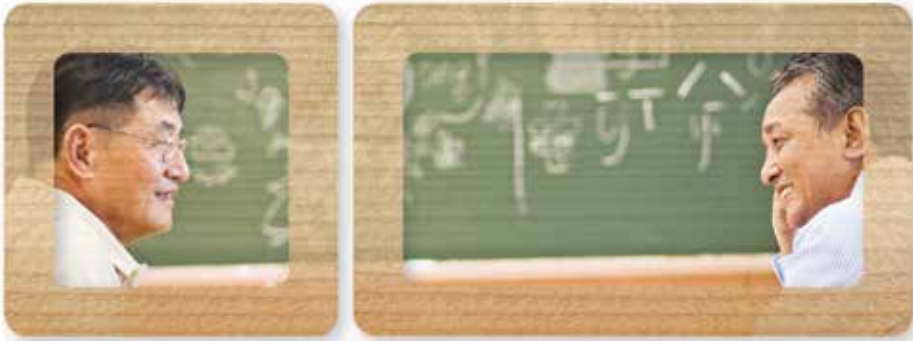
But innovation and imitation are in fact two sides of the same coin that Oded Shenkar, academic and author of *Copycats: How smart companies use imitation to gain a strategic edge*, calls "imovation", arguing that sometimes it's wiser to imitate than to try and innovate. For oil sands companies struggling to complete projects to budgets amidst omnipresent labour and cost pressures, it might be time not to think "outside the box" as much as simply "inside a different box": looking not only at peers but also at other sectors for solutions to similar challenges.

It's true we published in 2012 our own discussion of innovation in the sands, *The innovation imperative: A roadmap for oil sands advancement*, in which we articulated a vision of "innovation at [the] very center [of oil sands progress] – not just a peripheral consideration but also the key gauge against which future development is measured." We stand by that work even as we recognize that it is both easier to say "innovate" than to do it and generally riskier to undertake it than not. Because for all the vaunted benefits of innovation – higher sales, lower costs, sustained profits – it turns out that imitators tend not only to enjoy the same benefits as innovators but also to enjoy them more fully.

According to Shenkar, an imitator's estimated overall costs range between 60 and 75 percent lower than the innovator's. "A gap of that magnitude," says Shenkar, "enables the imitator to make competitive moves ranging from passing the cost savings on to the consumer to offering superior features, distribution and service, or channel the extra margins toward, well, innovation."⁷ Imitators, in other words, get free benefit of hindsight, enabling them to gain competitive advantage while avoiding the innovator's sunk costs of research, development and marketing.

But true leaders, ultimately, aren't one or the other, innovators or imitators. True leaders "fuse innovation and imitation into a winning formula" and become Shenkar's inovators.

For oil sands companies, the implication is that being "best in class" still might not be all that strong. While there is no question that the sands have given rise to genuine technological innovation and that a certain amount of imovation is already taking place (as any producer adapting, say, steam-assisted gravity drainage or shipping again by rail can attest), nevertheless the sector is underinvesting in the future insofar as operational management is concerned. With a little wider vision and some targeted imovation from other sectors, however, producers could better ensure longer-term return on the limited investments they are in fact currently able to make.



Whatever works

We still believe in innovation. But with little tangible progress on new pipelines and looming competition for talent from LNG – we’re all for smaller, more immediately effective solutions.

It’s also critical to remember that oil sands is still a comparatively young industry. Consider that conventional mining dates back to 4,000-3,000 B.C.E. and that the first commercial oil well in North America was drilled in the late 1850s. By comparison, the first oil sands mine opened in 1967, not even 50 years ago. There are plenty of lessons in efficiency still to be learned.

Or take aerospace industry risk management. While the oil sands are located in relatively remote and hostile conditions, Fort McMurray is nothing compared to space. Accordingly, NASA employs exceptionally strong practices to monitor and measure the effectiveness of their risk culture and stay ahead of problems before they arise. These practices include quantitative techniques that facilitate real-time understanding of risk drivers and scenarios and have even begun to feature artificial intelligence capabilities to augment decision-making, reduce human error and enhance remote controls.

It’s a brave new world out there and reasons not to leverage the very best tools and ideas available are dwindling. The oil sands is still the oil sands, though, and companies, like any maturing person, should be looking to strike a balance between standing out and being just another face in the crowd. Different, in other words, isn’t necessarily better and no imitation or innovation is any more guaranteed than any true innovation.

And where efficiencies and optimized outcomes can be gained – whether it’s using mobile technology to better manage and track movement of people and materials or remote sensing and vehicles pioneered in Australia’s mining sector – being the same can have its advantages.

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Standing on your own two feet

Reliability and asset management

Improving facility maintenance and overall availability is key to ensuring profitability in the face of resource constraints. As the newly independent young adult must learn to balance the demands of work and life, so too must oil sands companies balance the demands of the market with systems and practices that maximize the company's ability to meet those demands.

It is, of course, obvious that oil sands production is equipment- and process-intensive. What's more, according to the Canadian Heavy Oil Association, "approximately half the costs of bitumen production are maintenance-related."⁸

The opportunity, then, is clear: improving asset management can save significant dollars that could be put in service of growth. Factor in the ongoing possibility that takeaway capacity does not improve in the foreseeable future and improving asset management becomes critically necessary just to maintain the status quo.

A number of approaches are already in use. But there is no one-size-fits-all solution, and different production methods depend on different levels and kinds of maintenance. The past few years have seen a step change in focus on asset management around the world, driven in part by "Publicly Available Specification 55 – Optimal management of physical assets," a best practices and requirements checklist published by the British Standards Institution that has been gaining international traction.⁹

Indeed, industry leaders have redefined their asset management model and now see competitive advantage in the optimization of key components, including getting more serious about change management and other talent issues, as well as new analytics capabilities used in operational risk management.

But here's the challenge: most data required for effective asset management is distributed through various applications and stored in isolated databases, increasing both the difficulty and the amount of time needed to make good, fact-based decisions. What's more, a lot of staff are relatively inexperienced and change companies frequently, stranding a great deal of knowledge in a limited kind of oral or "tribal" form when it should be captured in clearly documented procedures and protocols. Meanwhile, effective use of the data itself requires additional competencies in statistical- and quantitative analysis and predictive modeling that some companies just don't have.



More importantly, the need for organizational cultures to shift gears and begin to focus less on building facilities and more on operating them requires longer-term planning. The most cutting-edge technologies in the world are effectively useless if you lack people who know how to operate and maintain them at peak performance.

The potential benefits of all of this are many, including proactively avoiding asset failures and extending asset life, reducing the effort from low-value information gathering and assembly to high-value analysis and execution, improving stakeholder transparency and enhancing returns on investment in existing technology. As a result, asset management becomes increasingly focused on predicting asset failure and ensuring that investment and maintenance decisions are based on deep and rigorous analysis and evaluation of detailed asset data. The key will be what is done with the resulting insight and whether organizations are in fact mature enough to change in response to it.

But analytics aren't the only solution to the reliability challenge, nor are oil sands companies stuck having to do it on their own. Initiatives such as the Materials and Reliability in Oil Sands (MARIOS) consortium continue the rising trend of collaborative problem solving. Established in 2009 by Alberta Innovates-Technology Futures, MARIOS develops knowledge and validates technologies designed to "significantly reduce downtime, and improve operational reliability and productivity in the oil sands industry."

Providing access to confidential research, a means to leverage R&D investment and networking opportunities between suppliers and end-users, MARIOS has been hard at work on wear-resistant overlays, welding, slurry pipeline systems and corrosion in *in situ* operations. In 2012, nanotechnology firms were added to the consortium to enable "a platform across a number of applications" that is expected to enhance the consortium's central effort to "prove out new technologies" and improve overall industry reliability.

This is all good, promising work. As with other collaborative enterprises that have emerged in the past few years to address industry-wide challenges, we are – and all Canadians should be – encouraged at the progress companies, including not just the producers themselves but other key members of the larger oil sands value chain, continue to make.

It takes a village

But knowledge transfer between generations continues to be a challenge. Companies need to invest in the technologies themselves, while ensuring they are developing their people so the next generation of leaders is well-equipped to continue to improve on the gains being made today. That means putting formal playbooks, procedures and structures in place and holding operators and their managers accountable to them. Companies also need to embrace social media and other new communications tools on the job – not for recreational use but simply as a way to better engage younger employees who are exceedingly comfortable with new media.

And that will never be truer for the sands than in the years ahead.



Leaving the nest

Access to capital and the revised *Investment Canada Act*

The oil sands have long relied on foreign investment to maximize the oil sands' economic potential. We simply don't have the capital in Canada to take full advantage of the resource. Since 2005, Canada has attracted the third most Chinese investment of any country in the world, almost all of it in energy¹⁰. That's hardly surprising, given that the oil sands are the largest source of oil still open to outside financing: we have more than enough to go around and we're a stable place to do business.

It's clear, then, that, provided we continue to retain ownership of the resource itself, foreign investment in the sands is good for Canada. But recent changes to the *Investment Canada Act* make it harder not only for specifically SOEs to exert their influence over our economy but also for existing producers to invest for the future – theirs as well as Canada's.

When the Canadian government accepted China National Offshore Oil Corporation's (CNOOC) acquisition of Nexen and PETRONAS's acquisition of Progress Energy in December, 2012, it did so with new restrictions that would make similar deals more difficult in the future. In clarifying the decision, Prime Minister Stephen Harper, said that an SOE's "acquisition of control" of an oil sands business would be allowed only if it were deemed to be of "net benefit" to Canada, and only in "exceptional" circumstances. "Let me be clear," the Prime Minister said at the time. "When we say that Canada is open for business, we do not mean that Canada is for sale to foreign governments."¹¹

From our perspective, approving those deals was the right decision. And while the changes to the *Investment Canada Act* were done for what appear to be the right reasons, they were unnecessary. We appreciate the reasoning but aren't convinced that Canada's sovereignty was ever truly at risk. There's also more to the equation than the production and sale of the oil sands resource itself – there's also the technology and the general know-how developed to produce the sands that could be leveraged in the development of similar heavy oil deposits the world over. Foreign companies are looking for access to this intellectual property in addition to the oil, and Canadian companies are right to see new avenues for growth in the opportunity.

Much of the trouble hinges on just what *exceptional* means and who defines it. If that's not clear – if exceptional means whatever the government decides it means when the time comes that it must decide – it's just more uncertainty for a sector that already faces perpetually unanswered questions about carbon commitments and market access. Only partly closing the door on effectively guaranteed sources of financing doesn't help producers' long-term outlook, it frustrates it.

It's also not like foreign companies, state-owned or otherwise, are now barred from investing in the sands. Indeed, with the review-triggering financial threshold set to rise to \$1 billion over four years for non-state-owned companies, the new rules are more encouraging than ever for a certain kind of foreign investment. But those thresholds won't be raised for investment from SOEs, which are also redefined as companies either controlled or *influenced* by a foreign government. Bill C-60, which wrote these changes into law, also introduces "control in fact" tests related to net benefit determinations for SOE investment and permits the Minister to extend timelines for national security reviews.¹²

To many, this sounds like over-compensation.

According to a report from the Canadian Energy Research Institute (CERI) last year, foreign companies, including the United States, had invested \$30.3 billion in the sands since 2003, not quite half of the total \$61.5 billion in mergers and acquisition activity over that period.¹³ Each of the United States and China accounted for 33% of that total, as shown in Figure 1. The report also makes clear that investment levels tracked the price of oil, rising in the first half of the decade before plummeting in 2008 with the global financial crisis. But take the United States out of the picture – because Canadians tend not to think of Americans as *foreign* – and China accounts for only one sixth of the previous decade's deal activity. That is, before the \$15 billion CNOOC/Nexen deal.

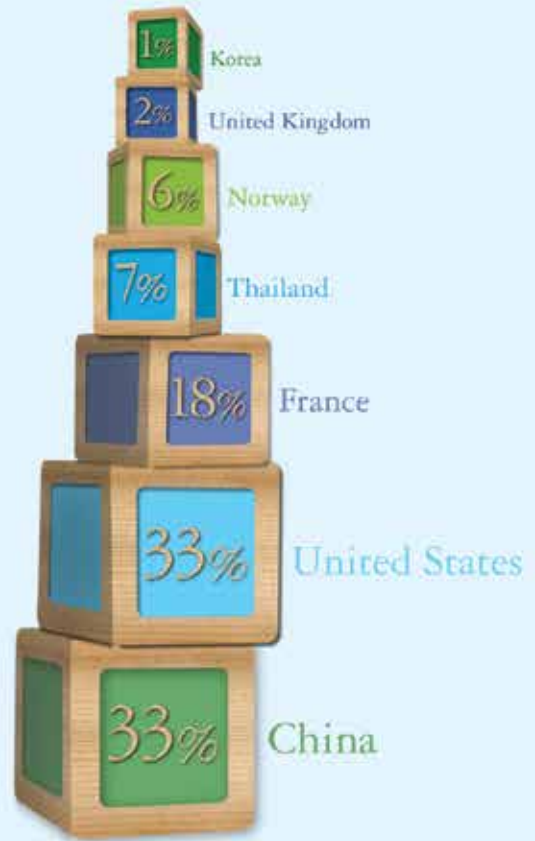


Figure 1: Total oil sands foreign investment since 2003, country of origin

Source: CERI

The Conference Board of Canada, meanwhile, forecasts needed investment in oil sands to reach \$364 billion between 2012 and 2035 – \$184.2 billion on new projects, \$162.3 billion to sustain existing capital and \$17.7 billion on takeaway capacity.¹⁴ The Board also identifies a number of risks that threaten to hamper this investment. It's worth noting that most of them are environmental or otherwise related to climate change: environmental risk and greenhouse gases, an alternative demand scenario where multiple countries enact policies to limit fossil fuel use, emerging sources of oil production (bringing a certain set of environmental risks along with it) and capacity constraints, the primary challenge of which is concern over environmental impact and climate change. If talent shortages are producers' single greatest operational challenge, environmental footprint is their single greatest challenge to attracting not only that talent but capital as well.

No surprise either, then, that Standard & Poor's in March 2013 suggested that rising carbon constraints are impacting financial models "based on past performance and creditworthiness" such that their relevance is waning. While the impact on majors would be "more muted," S&P's climate change risk and credit analysis integration study found "a deterioration in the financial risk profiles of [smaller] companies to a degree that would potentially lead to negative outlook revisions and then downgrades over 2014-2017."¹⁵ Those smaller companies, of course, are the same ones on which the revised *Investment Canada Act* will also have the greatest impact.

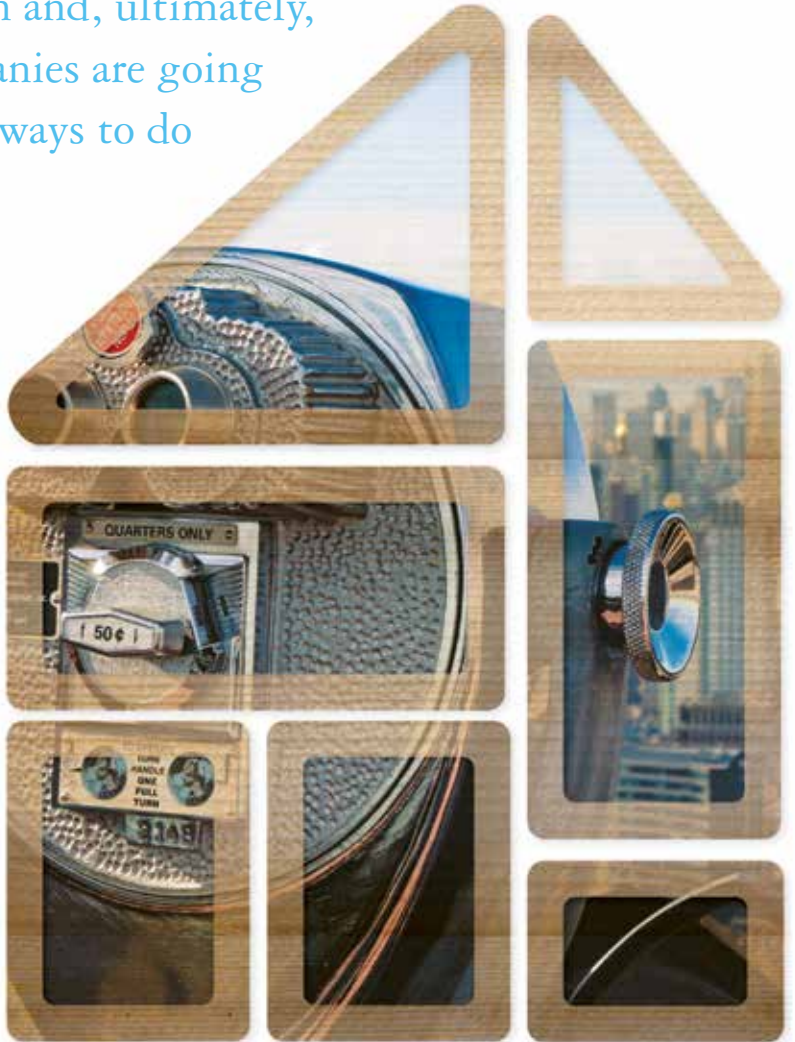
It's not all bad. It is possible that growth will slow, though it's also too soon to gauge how much or how quickly. That said, there was a time when we would have seen a reduction in the pace of oil sands growth as a boon, and even recommended collaborative ways that producers could reduce pace in order to avoid the worst outcomes of what were, just six years ago, very volatile conditions indeed. We'd characterize the circumstances today as more simply uncertain than volatile, but no less challenging. Between the downward pressure on demand from rising U.S. production and ongoing distribution bottlenecks and the upward pressure on demand for talent and resources from West Coast LNG, oil sands development is still, as ever, a balancing act.

When the bough breaks

But leaving the nest means building a new one of your own and, ultimately, oil sands companies are going to need to find ways to do more with less. Investment in environmentally friendly solutions like energy efficient technologies, waterless processes and co-generation can go a long way both toward saving costs and improving prospects for future capital attraction. Growth is imperative, of course, but it might be time for companies to start defining growth less in terms of barrels added and more in terms of value added – not as the barrels themselves or as shareholder returns, and less in the specific terms of upgrading than in value to all stakeholders who are trying to be a part of the overall solution.

.....

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The sun rises

Ultimately, just as you get out of life only what you put into it, oil sands producers will achieve excellence in their assets and operations commensurate with the long-term care and attention, not just the short-term dollars, they invest.

before it sets

People and clearly documented processes to guide them should be the top priority, followed by technologies and systems that allow those people to optimize both their own productivity and the life of the assets. The environmental impact of producing crude oil, meanwhile, resonates around the world. And Canadian producers have indeed been active, not just in improving transparency but also in the effectiveness of their sustainability efforts. From the Canadian Association of Petroleum Producers' (CAPP) Responsible Canadian Energy reporting and Canada's Oil Sands Innovation Alliance (COSIA) to the Oil Sands Tailings Consortium and the Oil Sands Developers Group, oil sands producers continue to demonstrate their commitment to responsible and sustainable development.

But, for all that (and more), producers suffer from a trust deficit with Canadians. According to a late 2012 study on energy literacy from the University of Calgary's School of Public Policy (SPP), "Oil and gas companies, energy executives and CAPP were seen to be not trustworthy at all by a significant number of respondents."¹⁶ Actually, the study found that Canadians trust almost no one on energy issues, compelling the SPP to suggest that "respondents do not perceive the various [stakeholder] groups as neutral." To some extent, it seems oil companies will forever be tarred with the stiff brush of the "olden days" and that it no longer matters what they actually do.

And yet, two oil sands producers are among the Maclean's/Sustainalytics Top 50 Socially Responsible Canadian companies for 2013. They have been cited for sharing best practices, developing common evaluation methods and accelerating significant change.¹⁷

None of this, meanwhile, is to say that the big challenge of market access, including the sometimes contentious debate over pipelines and rail cars, is any less significant this year than it was last year. Uncertainty over new takeaway capacity only adds to the challenge and the urgency of developing it. But those matters are out of our hands, and our focus remains on the things we can still do something about. If both Keystone XL and Northern Gateway are approved – not to mention Energy East and the Trans Mountain Expansion – life in the sands gets a lot easier a lot more quickly. But planning only for the best-case scenario inevitably ends in disaster.

Whatever happens with current efforts to expand takeaway capacity, there will be new and unanticipated challenges. There always are. The world is watching, and much is riding on how the sector takes its final steps into maturity, if it manages to take those steps at all.

If it does, and if those steps are sure-footed before they are big and closely examined before they are taken, the incidence of steps *backward* will be all the more reduced.

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