



Our Resources, New Frontiers: Overview of Competitiveness in Canada's Natural Resources Sector

Energy and Mines Ministers' Conference

Sudbury, Ontario
August 2014



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Aussi disponible en français sous le titre : Nos ressources, nouvelles frontières : Aperçu de la compétitivité du secteur canadien des ressources naturelles

Cat. No. M134-35/2014E-PDF (Online)
ISBN 978-1-100-24529-4

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Executive Summary

Thanks to the knowledge and expertise of its people, its technologies, the stability of its institutions and its vast natural resource endowment, Canada is recognized globally as a competitive, reliable and responsible supplier of natural resources. Canada's favourable business environment and stable regulatory system also continue to support investment as well as the development of new projects. However, Canada cannot be complacent. As competitors increase in both number and quality, Canada must continue to leverage its strengths and address challenges in order to maintain its competitive edge.

This report offers an evidence-based overview of Canada's competitiveness in the energy and minerals and metals sectors. The analysis focuses on three factors:

A. Canada's natural resource advantage

Canada is fortunate to have one of the largest, most diverse natural resource endowments in the world. Beyond these world-class reserves, expertise and knowledge are key elements contributing to Canada's position as a leading commodity producer and exporter. In particular, Canada is recognized globally for its resource value chain that extends into other parts of the economy (e.g., financial and legal services, the engineering and environmental services industries). Canada's rich tradition of excellence in these supporting industries has also given rise to strategic competitive clusters in all regions of the country.

B. Canada's ability to capture opportunities

With the rise of emerging markets, Canada has an unparalleled opportunity to expand and diversify its natural resource export markets and leverage its natural resource assets for the benefit of all Canadians. Competitiveness will be critical to ensure that Canadian natural resource companies are well positioned to increase their market shares in emerging economies.

In the minerals and metals sectors, the value of Canadian exports to China, India and the United States increased between 2003 and 2011 as a result of growing demand and higher commodity prices. However, other countries have had more success at capturing export opportunities and constitute a rapidly growing share of Chinese, Indian and U.S. minerals and metals imports.

In the energy sector, Canada's position as the main source of U.S. petroleum product imports has improved in recent years. However, this gain hides the fact that the U.S. reliance on energy imports has been declining at a fast pace, a development that makes it all the more important for Canada to diversify its energy export markets while also maintaining its trade relationship with the U.S.

C. Key drivers of competitiveness

Creating a business environment that fosters innovation, productivity and investment is critical to the competitiveness of firms in the energy and minerals and metals sectors and their ability to capture global export opportunities. This report examines five drivers considered to be the most important in ensuring long-term competitiveness in the energy and minerals and metals sectors.

- *Combating cost escalation:* Companies tend to allocate investment in projects with higher returns or in lower-cost jurisdictions. Similarly, firms with lower capital and operating costs are typically better positioned to capture export opportunities. Canadian operations in most energy and minerals and metals industries are globally cost-competitive, but rising capital and production costs are often cited as one of the main challenges to the competitiveness of resource development companies.
- *Productivity growth through innovation and the adoption of new technologies:* Higher productivity and greater energy efficiency help firms control their costs and, in turn, put them in a better position to gain market share. Although this trend is not confined to Canada, declining productivity in the energy and minerals and metals sectors represents a structural challenge that could undermine competitiveness in the medium to long term.
- *Attracting investment:* Maintaining a good investment climate is critical to ensure that Canada's energy and minerals and metals sectors stay competitive and attract the capital they need. Although challenges remain, federal, provincial and territorial governments have taken action to help create an environment that is favourable for investment. For example, in 2012, the Government of Canada launched its plan for Responsible Resource Development to modernize Canada's regulatory system for major natural resource projects.
- *Ensuring access to a skilled workforce:* An adequate supply of skilled workers is critical to preventing labour-cost inflation that would hurt the competitiveness of Canada's energy and minerals and metals sectors. Although Canada has an efficient labour market as well as a skilled workforce, significant hiring requirements in the natural resources sector, both in terms of the number of workers and the skills needed, could potentially translate into labour supply-and-demand imbalances in certain regions and occupations, such as the skilled trades.
- *Closing the infrastructure gap and pursuing community engagement:* Transportation, communication and energy infrastructure are critical in moving natural resource projects from the planning to the operating phase. A lack of infrastructure in certain regions (e.g., the North) and industry segments (e.g., oil and gas extraction, oil sands, and liquefied natural gas) are creating bottlenecks that have contributed to higher transportation costs, project delays and, in some cases, lower revenues. While essential, infrastructure development will not be possible without a strong commitment towards community engagement by governments and industry stakeholders. With this commitment in mind, the Government of Canada has announced new initiatives to strengthen engagement with First Nations, for example in West Coast energy infrastructure development.

1. Canada's Competitiveness: Context

With the rise of emerging markets, Canada has an unparalleled opportunity to expand and diversify its natural resource export markets and leverage its natural resource assets for the benefit of all Canadians. Reports developed by Natural Resources Canada in collaboration with the provinces and territories for the Energy and Mines Ministers Conference in 2012 and 2013 highlighted the magnitude of the potential economic benefits associated with this opportunity. They also highlighted current and potential government- and industry-led initiatives to fully realize Canada's natural resource potential.¹ This report builds on the 2012 and 2013 reports and focuses on competitiveness, a key enabler of sustained success in Canada's energy and minerals and metals sectors.

An economy is considered competitive based on its capacity to supply goods or services at lower rates than competitors, to attract investment and grow, to innovate and to produce more and higher-quality goods and services. In addition, the ability to maintain or gain market share in international and domestic markets is also reflective of a country's competitiveness. In this respect, the Canadian economy is among the most competitive in the world. For example, Canada ranks second among the world's most attractive countries for business in 2014 (up from sixth place last year), according to rankings published by Bloomberg.² The Canadian economy is also among the most competitive economies in the world, ranking 14th globally according to the World Economic Forum's *Global Competitiveness Report*.³

Canada is recognized for its highly efficient markets and its well-functioning and transparent institutions. The World Economic Forum also

Canada's edge as a globally competitive investment destination has been hard won over many years.

Source: Jack Mintz, Director and Palmer Chair in Public Policy, The School of Public Policy, University of Calgary, November 2013.

Textbox 1 – Methodology

This report provides an evidence-based assessment of Canada's competitiveness in the energy and minerals and metals sectors. The analysis focuses on three key factors:

- Canada's natural resource advantage, particularly the elements that have contributed to making Canada a competitive, reliable and responsible supplier of natural resources to North America and the world;
- Canada's ability to capture opportunities, as reflected by market share trends in the U.S., China and India where Canadian resource firms are facing intense competition from both traditional and new rivals; and
- Key drivers of competitiveness, including costs, productivity growth, investment climate, access to a skilled workforce and enabling infrastructure, with a focus on Canada's strengths and challenges.

Detailed industry analysis and international comparisons with countries such as Australia and the U.S are provided when sufficient information was available. The analysis was also informed by a roundtable of nationally recognized experts held on June 11, 2014. References to key reports and data sources are presented in the Notes section.

notes Canada's excellent infrastructure and the capacity that the country has to provide its workforce with the skills needed to succeed in a competitive economy. The International Energy Agency also ranked Canada second out of 15 peer countries, tied with the U.K., for its rate of energy efficiency improvement from 1990 to 2010.⁴

Another factor contributing to Canada's competitiveness is its investment climate. Not only has Canada established a solid economic base, but it also has a highly competitive business environment. For example, Canada's total business tax costs are the lowest in the G-7 and are more than 40% lower than those in the United States.⁵ The Canadian banking system is also the soundest in the world according to the World Economic Forum.

Thanks to its expertise and vast natural resource endowment (Figure 1), Canada is recognized globally as a competitive, reliable and responsible supplier of natural resources. But there is no room for complacency. New rivals, often with highly competitive cost structures (e.g., lower labour costs), have emerged in recent years and account for a rapidly growing share of global production and exports. As competitors continue to increase in both number and quality, Canada must continue to evaluate its approach, leverage its strengths and address challenges if it is to maintain its competitive edge in the energy and minerals and metals sectors.

2. Canada's Natural Resource Advantage

Today, the natural resource sectors are significant components of the national, provincial, and territorial economies, contributing to high living standards across the country (Figure 2). The energy, minerals and metals, and forest sectors directly and indirectly support close to 1.8 million jobs across the country and account for almost one-fifth of the country's nominal gross domestic product (GDP). In 2013, natural resource exports totalled \$235 billion. There are also hundreds of major resource projects currently underway or planned over the next ten years, worth approximately \$675 billion in investment.

Canada has a tremendous resource advantage, which positions the country favourably in meeting the world's demand for energy, minerals and metals. Canada is fortunate to have one of the largest, most diverse natural resource endowments in the world. For example, Canada is one of the leading mining nations in the world, producing more than 60 minerals and metals.

Figure 1 – Canada's Position in the World, Selected Energy and Minerals Commodities

	Production	Proved Reserves/Capacity
Minerals and Metals		
Potash	1 st	2 nd
Uranium	2 nd	4 th
Aluminum	3 rd	3 rd
Diamonds	4 th	-
Nickel	5 th	8 th
Zinc	7 th	8 th
Gold	7 th	14 th
Copper	9 th	12 th
Iron ore	9 th	8 th
Coal	13 th	11 th
Energy		
Hydroelectricity	3 rd	4 th
Crude oil	5 th	3 rd
Natural gas	5 th	18 th
Renewable energy	7 th	-

Source: NRCan, U.S. Geological Survey.

Figure 2 – Contribution of the Natural Resources Sector to Provincial & Territorial Economies

	Nominal GDP, 2013 (%)*	Jobs, 2013*	Exports, 2013 (\$ million)*	Major projects, 2014** (\$ billion)
Newfoundland & Labrador	36%	14 000	\$10 989	\$50
Prince Edward Island	3%	1 000	\$17	\$0.2
Nova Scotia	6%	13 000	\$1 039	\$19
New Brunswick	12%	22 000	\$12 619	\$7
Quebec	10%	191 000	\$29 284	\$69
Ontario	6%	256 000	\$47 785	\$54
Manitoba	9%	25 000	\$3 424	\$23
Saskatchewan	31%	34 000	\$19 514	\$27
Alberta	30%	206 000	\$83 543	\$221
British Columbia	11%	107 000	\$25 549	\$159
Yukon	16%	2 000	\$138	\$6
Northwest Territories	34%	4 000	\$1 585	\$7
Nunavut	26%	1 000	\$1 [†]	\$6
Multi-regional projects				\$28
Total - Direct	14%	875 000	\$235 488	\$675
Total - Indirect	5%	920 000		
Total - Direct and Indirect	19%	1 800 000		

Sources:

* Natural Resources Canada calculations based on Statistics Canada data.

**Natural Resources Canada, Provincial and Territorial Governments. As of July 2014.

Notes:

Energy, minerals and metals, and the forest sector are included. Totals may not add up due to rounding.

[†] Significantly higher international resource exports are anticipated as planned investments come online.

More specifically, the country is the global leader in the production (by volume) of potash, and ranks among the top five global producers of strategic minerals and metals such as aluminum, cobalt, diamonds, nickel, uranium and platinum-group metals. Similarly, Canada is the fifth-largest producer of crude oil and natural gas, accounting for over 4% of global production in both cases.

Beyond these world-class reserves, expertise and knowledge are key factors contributing to Canada's position as a leading commodity producer and exporter. In particular, Canada is recognized globally for its resource value chain that extends into other parts of the economy. For example, over 3,200 suppliers of equipment and services in a wide range of industries serve the minerals and metals sector. A growing clean technology sector and engineering and environmental service industry is also supporting resource development across Canada. In addition, the country is recognized for its sophisticated financial and legal institutions. Canada's rich tradition of excellence in these sectors has given rise to strategic competitive clusters in all regions (Textbox 2).

Textbox 2 – Canada is home to several competitive clusters

The geographic concentration of service, equipment and intermediate goods providers and supporting institutions such as universities, think tanks and government bodies can provide an industry with a number of long-term advantages. Several resource-based industrial “clusters” are found in all regions of Canada. For example, according to the Mining Association of Canada, at least 36 clusters can be found in the minerals and metals sector alone, including:

- Toronto: Home to a unique collection of experts and institutions that attract exploration and mining companies seeking capital from around the world. The TSX and TSX Venture are global leaders in both the number of mining companies listed and equity raised.
- Northern Ontario: Sudbury’s mining supply and technology cluster is often described as the “mining superstore” of Ontario. With its expertise in underground hard rock mining, the region exports not only minerals, but also the knowledge and technology to extract them.
- Vancouver: Home to the largest concentration of junior mining exploration companies. These firms are managing projects in all regions of the world.

Source: Mining Association of Canada, Canadian Chamber of Commerce.

3. Competitiveness Challenge: Capturing Market Opportunities

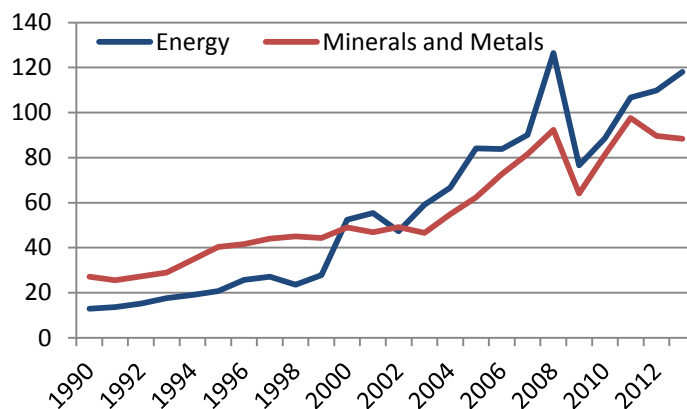
With the rise of emerging economies, Canada currently has a tremendous opportunity to expand and diversify its natural resource export markets. In this context, competitiveness will continue to be a key determinant in the ability of Canadian resource firms to capture opportunities and gain market share in global markets.

Much of the growth in demand for natural resources is driven by forces such as urbanization, industrialization and the growth of the middle-class in many emerging economies. For example:

- China and India could annually add floor space totaling 3.5 times the entire residential and commercial square footage of the city of Chicago;
- Incomes in these two countries are rising faster and on a larger scale (i.e., due to their large populations) than in any other country at any point in history.⁶

The growth in demand from emerging economies puts upward pressures on global commodity prices, which increased

Figure 3 – Energy and Minerals and Metals Exports, 1990-2013 (\$ billions)



Source: Statistics Canada, Industry Canada.

significantly prior to 2012, interrupted only by the 2008–2009 recession. Canada benefited greatly from this surge in commodity prices. The total value of Canadian exports of energy and minerals and metals products, for example, has almost doubled since 2000 to \$207 billion in 2013 or 47% of total Canadian exports (Figure 3). Similarly, the value of Canada's natural resource exports to emerging markets has also grown rapidly in recent years. Natural resources today accounts for a significant share of total Canadian exports to these countries.

3.1 Minerals and Metals: Facing Growing Competition for Market Share

While the United States remains the main destination for Canada's minerals and metal exports, China and India now account for 8.5% of its minerals and metals exports in 2013. Canada's minerals and metals exports to China grew from \$0.8 billion in 2000 to \$6.4 billion in 2013, representing an average annual growth of 17.5%. Minerals and metals exports to India have grown at a similar pace to reach \$1.1 billion in 2013, up from \$125 million in 2000.

Despite this apparent growth, however, Canada's overall market share of the total mineral and metal imports has grown only modestly in China, and has even

Market share is reflective of a country's competitiveness and ability to win new markets.

declined in India and the U.S. For example, while Canada accounted for 1.1% of Chinese mineral and metal imports in 2000, by 2012 this share had grown to 2.3%. Over the same period, Canada's share of total Indian imports of minerals and metals declined from 0.9% to 0.6%. The decline in the U.S., meanwhile, has been steeper, with Canada's share of U.S. minerals and metals imports slipping from 24.4% in 2000 to 21.9% in 2012 (Figure 4). Had Canada maintained its 2000 market share in the U.S. and India, it would have earned approximately US\$3.5 billion more in exports in 2012.⁷

These trends reflect the fact that other resource-producing nations have had more success in capturing global mineral and metal export opportunities. Australia, for instance, saw its market share of total Chinese mineral and metal imports increase from 8.8% in 2000 to 23.7% in 2012. Similarly, South America accounted for 19.0% of total Chinese mineral and metal imports in 2012, up from 7.8% in 2000. South American countries also increased their share of total U.S. imports over the same period, providing intense competition for Canadian minerals and metals exporters. China also accounts for a growing share of total U.S. minerals and metals imports. In

Figure 4 – Sources of Mineral and Metal Products Imports in Selected Countries, 2000 and 2012

	% of U.S. Imports		% of Chinese Imports		% of Indian Imports	
	2000	2012	2000	2012	2000	2012
Canada	24.4%	21.9%	1.1%	2.3%	0.9%	0.6%
U.S.	-	-	4.7%	4.0%	2.7%	6.3%
Australia	2.4%	1.6%	8.8%	23.7%	11.2%	13.2%
China	3.8%	6.0%	-	-	2.5%	6.0%
South America	11.4%	15.8%	7.8%	19.0%	3.1%	4.2%
Others	58.0%	54.7%	77.6%	51.0%	79.6%	69.7%

Source: United Nations Conference on Trade and Development, accessed on April 25, 2014.

some cases, Canada's new rivals have highly competitive cost structures due, for example, to lower labour and environmental compliance costs.

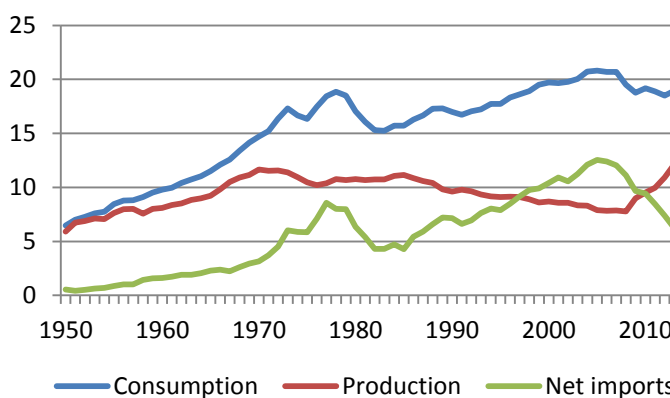
3.2 Energy: Market Diversification is a Strategic Imperative

The United States remains, by far, the main destination of Canada's energy exports. For example, 97% of Canada's crude oil exports and 100% of its natural gas exports went to the United States in 2013. Valued at approximately \$2 billion annually, exports of electrical power to the U.S. are also significant. This figure could even increase over time as the international power lines currently being considered would increase the import-export capacity between the two countries.

In terms of market share, Canada's position as the United States' main source of crude oil and petroleum products imports has improved in recent years. In 2012, imports from Canada accounted for 28% of total U.S. petroleum imports, up from 14% in 2000. However, it is important to take into consideration the context in which this improvement has taken place. In recent years, new technologies (i.e., hydraulic fracturing) have revived U.S. crude oil and natural gas production, and our neighbour's reliance on energy imports has been declining at a fast pace (Figure 5). This means that Canada actually accounts for a higher share of a shrinking U.S. import pie. In the case of oil, Canada's growing market share in the U.S. also reflects the fact that cheaper Canadian products (i.e., due to crude oil price differentials) have pushed out higher-price imports from other countries. Going forward, since U.S. demand is expected to remain relatively stable, opportunities to increase market share could be limited to certain sectors (e.g., opportunities exist to increase Canada's proportion of heavy oil consumed in the U.S. Gulf Coast, but infrastructure is lacking).

This context emphasizes the importance for Canada to diversify its energy export markets. According to projections by the International Energy Agency (IEA), energy demand growth over the next 20 to 25 years will originate primarily from China, India and other emerging and developing economies.⁸ In addition, the growing demand for energy is driving demand for

Figure 5 – U.S. Petroleum and Other Liquids Consumption, Production and Net Import, 1950-2013
Million barrels per day



Source: U.S. Energy Information Agency, February 2014.

Improved energy efficiency and a boom in unconventional oil and gas production help the U.S. to move steadily towards meeting almost all of its energy needs from domestic resources by 2035.

Source: IEA, *World Energy Outlook 2013*.

Textbox 3 – Canadian LNG exports: Now or never?

Much has changed in the North American natural gas market in the past few years. With ample unconventional natural gas resources, the industry has shifted its focus from importing LNG into North America to exporting LNG from North America. As of April 2014, there were 12 LNG export facilities proposed in Canada.

Demand for LNG is increasing rapidly in Japan, South Korea, Taiwan, China, and other countries in the Asia-Pacific region where it can be sold at a premium compared to the North American price of gas. Despite these favourable price conditions, these projects face many risks, and thus far no LNG project proponents have made a final investment decision. Meanwhile, other countries are also trying to access the Asian gas premium. Australia, for example, has committed to considerable LNG export capacities and other gas-producing countries are following suit.

In this context, many industry experts believe that the window of opportunity for Canadian LNG exports may be limited. Some industry insiders have indicated that if final investment decisions are not made by 2018, the opportunity may be lost to competing jurisdictions.

technologies that reduce the environmental impacts of energy production, transportation and use. For instance, Analytica Advisors estimates that the global clean tech market could more than double, to reach as much as \$2.5 trillion by 2022, providing important opportunities for the more than 700 Canadian clean technology firms. In order to take advantage of these growing markets, Canada's energy companies will have to be cost-competitive, address challenges in areas affecting competitiveness and, in some cases, diversify their product portfolio (e.g., Asian countries do not always have the infrastructure to accept heavy crude). They will also have to be nimble if they want to capture current and future opportunities before their competitors (Textbox 3).

4. Drivers of Competitiveness: Canada's Performance

A business environment that fosters innovation, efficiency, productivity growth and investment is critical to the competitiveness of firms in the energy and minerals and metals sectors and to Canada's standing as a reliable and responsible supplier of resources to the world.

Textbox 4 – Report on Competitiveness: Alberta 2013

In May 2014, the Alberta Economic Development Authority released its 2013 Report on Competitiveness. The report, which looks at the performance of the provincial economy as a whole, benchmarks Alberta's competitiveness against a group of national and international peers comprised of five provinces, six U.S. states, Norway, Finland and the state of Queensland, Australia. A total of 70 individual indicators are examined in the report.

The report found that Alberta's strengths remain in human capital and education, infrastructure, and fiscal policy. It identifies investment in research and development (R&D), access to capital, and employment in high tech and knowledge industries as areas which require increased attention.

This section analyzes Canada's strengths and challenges as they relate to five key drivers of competitiveness: costs, productivity growth, the investment climate, a skilled workforce, and infrastructure. These drivers are seen as the most important components ensuring long-term success, although a broader range of factors – including the cyclical nature of the industry – ultimately influence competitiveness in the energy and minerals and metals sectors.

4.1 Combating Cost Escalation

Key messages

Companies tend to allocate investment in projects with higher returns or in lower-cost jurisdictions. Similarly, firms with lower capital and operating costs are typically better positioned to capture export opportunities. Canadian operations in most energy and minerals and metals industries are globally cost-competitive, but rising capital and production costs – the cost for everything from labour and energy to equipment and supplies – are often cited as one of the main challenges to the competitiveness of resource development companies.

How is Canada doing?

While Canadian operations in most energy and minerals and metals industries are well positioned globally, specific challenges continue to impact cost-competitiveness in some industries, especially for new projects (e.g., limited pipeline capacity). Many natural resource companies have also recently announced project suspensions, layoffs or lower capital investment intentions in light of relatively weaker commodity prices and rising costs.⁹ Higher costs may also persist in the short term as, for example, oil sands companies are expecting labour cost inflation of between 2.0% and 3.5% over 2014 (see discussion of rising labour costs in section 4.4).¹⁰ Adding to the cost challenge is the fact that energy and mining firms are competing amongst themselves and with other sectors for workers with the same skills as well as for other key inputs (e.g., machinery and equipment, materials).

Costs in Canada's energy and minerals and metals sectors vary significantly from one industry to another as well as from one facility to another within a single industry.

Oil and gas: Supply cost is commonly used to measure cost competitiveness among various investment opportunities in the oil and gas industry. It is defined as the crude oil or natural gas price required for a project to recover its costs plus a determined rate of return on investment (usually 10%–12%).

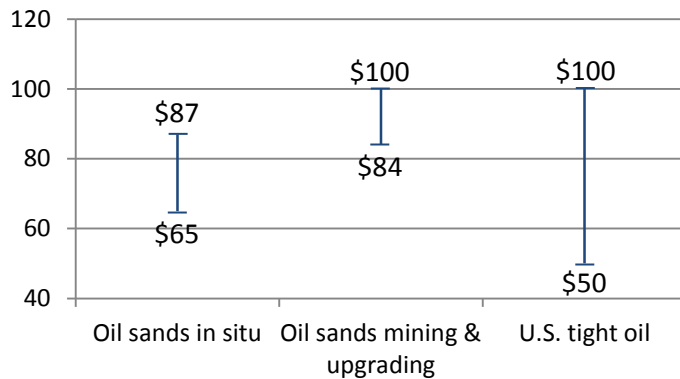
For existing oil sands projects for example, oil sands in situ supply costs range between US\$65/bbl and US\$87/bbl, and mining and upgrading projects have supply costs between US\$84/bbl and US\$100/bbl, depending on the company.^{11, 12} Comparatively, U.S. tight oil supply costs ranged between US\$50/bbl and over US\$100/bbl, depending on the formation. In other words, full-cycle supply costs for the low-cost oil sands producers are below those of some U.S. tight oil producers (Figure 6).

New oil sands projects, however, are often more costly to develop relative to conventional oil projects elsewhere in the world because of the scale of operations, and, in some cases, the technology involved in production. For example, oil sands projects often cost billions to tens-of-billions of dollars to develop, which is much more than a tight oil project in the U.S.

Contributing to rising project costs in oil sands are factors such as the competition for skilled workers from within the industry as well as from other oil and gas plays, poor planning and management of workers, and upward pressures on drilling costs which, in the case of in situ projects, account for two-thirds of capital costs.¹³

Challenges continue as projects move to their production phase. For example, equipment reliability and maintenance represent a significant source of costs and production loss. In this context, rising costs could put some new projects at risk should oil prices weaken significantly.

Figure 6 – Comparing Oil Sands Supply Costs with U.S. Tight Oil Supply Costs
U.S. dollars per barrel



Source: Scotiabank (2014), Bank of Montreal (2014).

For natural gas, available data indicate that supply costs in the Montney and Horn River regions of Western Canada, which produce most of Canadian unconventional gas, range between US\$5/MMBtu (million British thermal units) and US\$5.50/MMBtu for a 12% rate of return on investment. The supply costs of some U.S. formations, like the southern Barnett, Marcellus, and Fayetteville, are in line with those in Canada. On the other hand, projects producing gas from the Marcellus formation in the Pennsylvania area can recover costs and achieve a 12% rate of return when gas prices range between US\$2/MMBtu and US\$4/MMBtu.¹⁴

Minerals and metals: Canadian firms are generally cost competitive in exploration and extraction. For example, Canada was the world's top destination for minerals exploration in 2013, accounting for 13% of global exploration budgets. Canadian-headquartered mining

Textbox 5 – Impacts of Exchange Rate Fluctuations

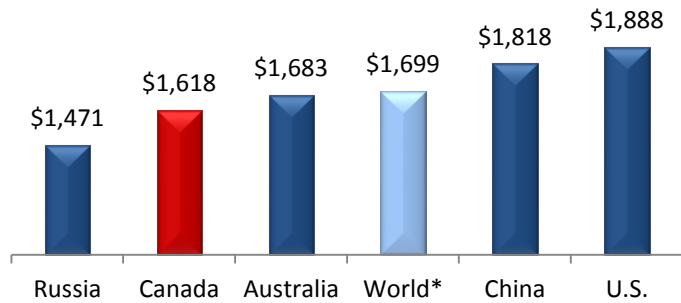
After a long run near parity, the value of the Canadian dollar has depreciated against the U.S. dollar over the last year. While exchange rate fluctuations have little direct effect on firms that do not sell, buy or borrow abroad, companies with exposure to foreign markets, like those in the natural resources sector, may be impacted.

The depreciation of the Canadian dollar has affected cash flows in industries such as oil and gas extraction, mining and primary metal manufacturing. Sales in those industries are generally denominated in U.S. dollars and currently translate into more Canadian dollars earned as a result of the weaker loonie. Costs, on the other hand, are less affected by the depreciation as they are predominantly incurred in Canadian dollars.

Canada's exchange rate generally fluctuates in conjunction with other factors (e.g., general economic conditions, commodity prices) that also drive profitability, investment decisions and economic activity in the natural resources sector. The net impact on Canadian natural resource companies ultimately depends on how all these forces balance out.

companies also accounted for 30% of budgeted worldwide exploration expenditures in 2013. However, competitiveness in mining varies by commodity. For example, Canada is more competitive in the production of copper ore (through the sale of by-products) than it is in the production of iron ore. As iron ore prices decline, projects in Canada are being postponed and mines are closing. For example, Cliffs Natural Resources announced in February 2014 that it would idle its Wabush mine in Labrador. The company indicated this mine was no longer economically viable due to high costs.¹⁵

Figure 7 – Global Cost Competitiveness of Aluminum Smelters, Selected Countries, 2007
U.S. dollar per tonne



* Weighted average

Source: Natural Resources Canada, using Brook Hunt data.

Canada's comparative advantage also tends to decline as we move along the value chain towards downstream activities. In primary metal manufacturing, access to feedstock, competitively-priced energy, skilled labour and efficient transportation infrastructure are all factors affecting the cost-competitiveness of Canadian companies relative to manufacturers in other countries. For instance, an analysis conducted by Natural Resources Canada using 2007 data shows that, due to their low energy costs, Canadian aluminum smelters are globally cost-competitive and well positioned in the long term to respond to growing demand (Figure 7).¹⁶ The same analysis showed that Canadian nickel mines, smelters and refineries were similarly well positioned globally in 2007, with individual facilities mainly placing in the first and second quartile globally. On the other hand, Canada's zinc smelters were found to be less competitive as they have been negatively affected by high labour costs and limited domestic feedstocks.

Addressing current and potential challenges

The ability of producers and their contractors to build projects on time and on budget represents a key challenge, and initial estimates of project capital costs have become increasingly underestimated. Escalating costs are forcing energy and mining firms in Canada and globally to shift their focus away from production growth and rigid project schedules.¹⁷ Going forward, companies that can implement strategies to contain costs, for example through productivity improvements or better supply chain management, will be able to attract capital and remain competitive, both in Canada and globally.¹⁸ Efforts are required at all project stages, from planning to reclamation.

Canadian resource firms can, however, count on a number of national advantages. For example, Canada's average electricity price for industry continues to be among the lowest in the Organization for Economic Cooperation and Development (OECD) (US\$88.3 per megawatt hour (MWh) in Canada in 2012 compared to the OECD average of US\$118.1/MWh).¹⁹ Canada's approach to energy efficiency has also been successful. In 2010, Canadian businesses saved over \$15 billion in energy costs from all energy efficiency improvements since 1990. Energy

efficiency improvements reduce total energy use and costs and thus make businesses more price-competitive. Energy efficiency also promotes exports as the energy that is produced but not consumed in Canada can be exported to international markets.

4.2 Productivity Growth through Innovation and the Adoption of New Technologies

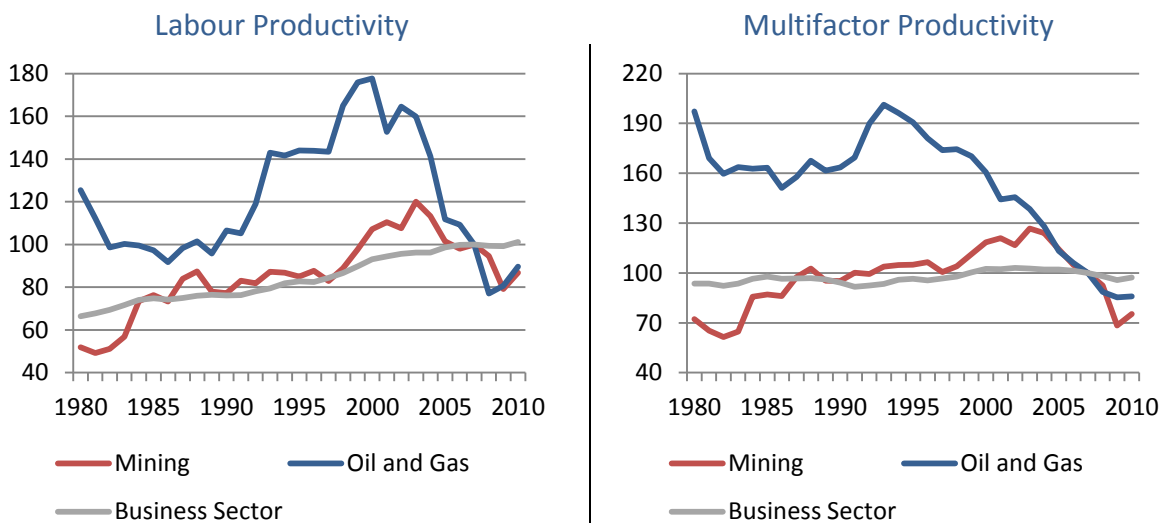
Key messages

Productivity growth is one of the main drivers of competitiveness in the long run. Higher productivity and greater energy efficiency help firms control their costs and, in turn, put them in a better position to gain market share. Although this trend is not confined to Canada, declining productivity in the energy and minerals and metals sectors represents a structural challenge that could undermine competitiveness in the medium to long term.

How is Canada doing?

Productivity measures the efficiency with which the resources available to a firm or an industry, such as labour, capital and business expertise, are being used to produce goods and services. Compared to the business sector average, productivity levels are high in most natural resource industries.²⁰ For example, the mining and oil and gas extraction sector is, in terms of labour productivity (i.e., the amount of output produced by unit of labour), the most productive sector of the Canadian economy due mainly to its capital-intensive nature. The sector generated \$233 of output per hour in 2012, compared to \$48 of output per hour in the business sector as a whole.²¹ It is, however, the rate at which productivity is improving that matters most in determining competitiveness, and, on that basis, the performance of the sector has been uneven in recent years.

Figure 8 – Labour and Multifactor Productivity in Canada's Mining and Oil and Gas Extraction Industries, 1980–2010* (Index, 2007 = 100)



* 2010 is the latest year for which disaggregated data by industry are available.

Source: Statistics Canada, CANSIM Tables 383-0021 and 383-0032.

Higher output prices have suppressed productivity growth in Canada's mining and oil and gas extraction industries through two effects: increased exploitation of low-productivity marginal deposits, and business decisions based on profitability rather than productivity.

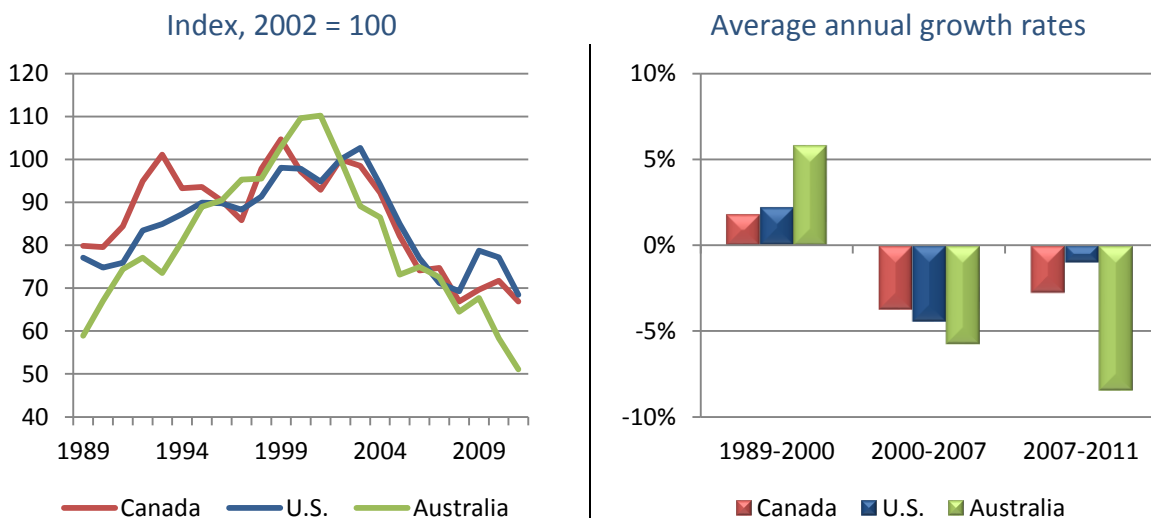
Source: Centre for the Study of Living Standards, September 2009

After having increased for an extended period of time, labour productivity in both mining and oil and gas extraction has been generally on a downward trend over the last 15 years (Figure 8). The same trends were observable for multifactor productivity, a measure of the efficiency with which all inputs (e.g., labour, capital) are used in production. A key factor explaining this performance is rising commodity prices, which have motivated companies to prioritize production growth, typically from harder to access lower-grade deposits (mining) or unconventional sources (energy), over investments that lead to productivity gains.

The trend of decelerating productivity growth in mining and oil and gas extraction was not confined to Canada. Labour productivity also declined in Australia and the U.S. (Figure 9). In recent years (2007–2011), the rate of decline was particularly pronounced in Australia compared to Canada and the U.S. Similarly, the rate of decline in multifactor productivity after 2000 was less pronounced in Canada than in Australia and the U.S.²²

It is important to note, however, that natural resource industries are subject to a number of factors that complicate the measurement and interpretation of productivity growth. For example, as a result of the depletion of reserves over time, resources are becoming more difficult and more expensive to find and extract. In addition, large up-front investments are required to build projects (including exploration investment which leads to resource discoveries), which can have a temporary negative impact on productivity before production

Figure 9 – Labour Productivity Growth in the Mining and Oil and Gas Extraction Sector in Canada, Australia and the U.S., 1989–2011*



* For Australia, the period is 1989-1990 to 2011-2012.

Source: Statistics Canada, U.S. Bureau of Labour Statistics, Australian Bureau of Statistics.

starts. Some experts argue that traditional measures convey an inaccurate picture of productivity in extractive industries as they do not fully take into account these factors.

Addressing current and potential challenges

Given the current challenges associated with rising costs, innovation and other investments leading to productivity gains will have a key role to play in ensuring long-term competitiveness in the energy and mining sectors.²³

A great deal of innovation will continue to come from the adoption of leading-edge

technologies that improve the efficiency of the production process and contribute to lower costs. For example, the combination of horizontal well technology with multiple stage hydraulic fracturing technology, made available a few years ago, has enabled the development of oil and gas reserves that were previously uneconomically viable (e.g., in Saskatchewan, Alberta and British Columbia). In certain cases, innovations and new technologies can also contribute to mitigating environmental impacts. In the energy sector, for example, Canada's Oil Sands Innovation Alliance (COSIA) brings together representatives from industry (including 14 member companies), government, academia and the wider public to improve environmental performance in the oil sands through collaborative action and innovation.

Additional efforts could, however, be required to increase spending on research and development (R&D). More specifically, focusing R&D efforts in areas with greater potential could pay long-term dividends in terms of creating new commercial opportunities and making sure that Canada leverages the full potential of its resources (Textbox 7). Most countries recognize the importance of investing in innovation to stimulate private-sector spending on the development and adoption of new technologies. For example, public expenditures on energy R&D by IEA member countries have increased by 30% since the 1990s.²⁴ In particular, public spending in the U.S. has been reinvigorated over the past five years, and is currently 50% higher than in the early 2000s.²⁵ In contrast, Canada's private sector has historically scored low in relation to other nations when comparing the ratio of Business Expenditure on Research and Development (BERD) to GDP. In 2010, for example, Canada's ratio of 0.93% ranked well below the OECD average of 1.6%.

Such R&D efforts also require collaboration between governments and industry in order to overcome market failures that cause the private sector to under-invest in R&D. For example, energy technology projects generally involve elevated risk through high project complexity and capital costs, long-term return on investment timeframes, shifts in supply and demand, and uncertainty over future policy directions. All of these factors make it difficult to predict the performance and markets for innovative solutions. In addition, it is difficult for firms to fully appropriate the return of R&D efforts as some of the knowledge created is picked up by other

Textbox 6 – R&D in the offshore petroleum and mining industries in Newfoundland and Labrador

In Newfoundland and Labrador, the offshore petroleum and mining industries collaborate with the Research and Development Corporation as well as with the academic sector on a wide range of R&D projects. For example, the enhanced oil recovery laboratory at Memorial University could lead to significant further production from the Hibernia offshore oil field and generate billions of dollars in additional revenue for the province.

Textbox 7 – Opportunities for Canadian energy technologies in global markets

In 2012, Natural Resources Canada commissioned McKinsey and Company to review the global energy technology market. The analysis identified five clusters of technology opportunity for Canada:

- Unconventional oil and gas;
- Next generation transportation;
- Energy efficiency technologies, in particular in buildings and for industries;
- Power generation and distribution; and
- Potential longer term opportunities, including carbon capture and storage, fuel cell systems, and bio-refineries.

The report also identified four key challenges and factors of success: access to markets, access to capital, access to talent and the coordination of institutions.

Source: McKinsey, *Opportunities for Canadian Energy Technologies in Global Markets*, November 2012.

firms “for free”.²⁶ For these reasons, governments can play an important role by encouraging private firms to perform more R&D than they would otherwise do through a balanced policy approach that includes both direct measures (e.g., funding programs) and indirect measures (e.g., tax incentives, regulations, and laws protecting intellectual property rights).

4.3 Attracting investment

Key messages

Maintaining a good investment climate is critical to ensure that Canada’s energy and minerals and metals sectors stay competitive and attract the capital they need (e.g., to build the \$675 billion worth of major resource projects currently underway or planned over the next ten years in Canada). Although challenges remain, federal, provincial and territorial governments have taken action to help create an environment that is favourable to investment.

How is Canada doing?

A good investment climate has contributed to making Canada a competitive and reliable supplier of natural resources to the world. More specifically, it has been paramount for attracting global investors in order to finance and share the risk in capital-intensive resource and infrastructure projects across the country (Figure 10). Mergers and acquisitions (M&As) involving foreign investors in Canada also accounted for about 10% of the value of global M&As in the natural resources sectors between 2008 and 2013. In addition, the favourable investment climate helped Canadian resource companies access and develop resource assets abroad. Beyond project development, access to capital is key to finance the adoption of leading-edge technologies and other innovations that support the long-term competitiveness of companies in the energy and minerals and metals sectors.

Several factors influence investment decisions, including supply costs, political stability, government regulations, as well as a country’s overall economic conditions. Fiscal conditions are another important factor affecting investment decisions as resource firms pay taxes and

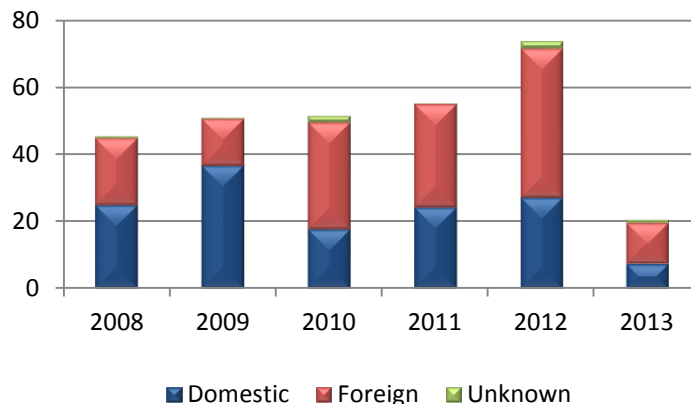
In order to compete for investment on the global mining stage, jurisdictions need not only stellar resource potential but also a stable, certain, straightforward mining policy framework.

Source: Kenneth Green, Senior Director, Centre for Natural Resources, Fraser Institute, February 2013.

royalties to governments throughout the world in exchange for the right to extract or export publicly held resources (Textbox 8).

According to industry surveys conducted in 2013 by the Fraser Institute, which assess how public policy factors affect investment decisions in the upstream industries of the energy and minerals and metals sectors, Canada's investment climate remains favourable.²⁷ In upstream oil and gas, the results show that, compared to other regions of the world, many jurisdictions in Canada are attractive for investment. While Saskatchewan and Manitoba ranked in the top ten globally, the survey identified Alberta as a leader among large reserve holders. Similarly, results for the mining sector indicate that all provinces and territories are globally competitive, although uncertainties with Aboriginal consultation and land claims represent growing concerns for some investors.

Figure 10 – Mergers and Acquisitions in Canada's Natural Resources Sector*, by Control of Investor (\$ billions)



* Energy, Minerals and Metals, and Forest sectors.

Source: NRCan analysis using S&P Capital IQ.

Textbox 8 – British Columbia's LNG tax competitiveness

British Columbia has established a competitive policy and fiscal framework for its emerging LNG industry. As part of this work, the province commissioned Ernst and Young to conduct an international competitiveness study of the taxes that would be paid in B.C. and in key competing jurisdictions (i.e., Australia, Alaska, Georgia, Louisiana, Oregon and Texas). The results show that B.C. is competitive and has a low overall tax burden and a competitive royalty regime relative to these jurisdictions.

Source: Government of British Columbia, June 2014.

Addressing current and potential challenges

Measures implemented by federal and provincial governments in recent years have contributed to improving Canada's investment competitiveness. For example, the impact of federal and provincial actions since 2006, although they were not specific to the energy and minerals and metals sectors, have resulted in a 15.5 percentage point decline of the marginal effective tax rate on new business investment.

Textbox 9 – Responsible Resource Development

Over the next ten years, approximately \$675 billion in potential new investment in hundreds of major resource projects is planned across Canada. To capitalize on these opportunities, in April 2012, the Government of Canada launched its plan for Responsible Resource Development to modernize Canada's regulatory system for major natural resource projects.

Efforts are ongoing to strengthen the plan to advance four priority areas: (i) making project reviews more predictable and timely; (ii) reducing duplication of project reviews; (iii) strengthening environmental protection; and (iv) enhancing Aboriginal consultations.

The goal is simple and straightforward: one project, one review, in a clearly defined timeframe.

In 2012, the Government of Canada also launched the plan for Responsible Resource Development. This initiative capitalizes on Canada's tremendous resource potential by ensuring that the country's regulatory regime is among the most efficient and competitive in the world, while also reinforcing the whole-of-government approach to integrate Aboriginal consultations into the new environmental assessment and regulatory processes (Textbox 9).

Another example is the study released in January 2014 by the British Columbia Jobs and Investment Board (BCJIB) which evaluates the province's investment competitiveness in eight industries, including the mining and natural gas industries.²⁸ In the mining sector, the province enjoys abundant deposits, a reputation as a mining centre of excellence, a well-educated (though limited) workforce, and a stable, investment-friendly economic and political climate. The BCJIB report indicates that efforts by governments to streamline federal and provincial environmental assessment processes offer an important opportunity to the sector. Barriers to investment in mining include uncertainty related to First Nations land claims, high cost and scarcity of long-term labour, a transportation infrastructure in need of expansion, a lack of energy supply in remote areas and inadequate access to tidewater in some locations.

Textbox 10 – Encouraging investment in exploration in Newfoundland and Labrador

Encouraging both existing and new players to explore for new reserves is one of Newfoundland and Labrador's greatest priorities. For example, the province's Budget 2014 committed \$1 million for offshore and onshore petroleum geoscience to enhance exploration and to promote future commercial developments in the province.

Changes to the offshore Land Tenure System provide longer advance notification of specific offshore regions which will be subject to Calls for Bids. This will allow potential investors sufficient time to plan and allocate global assets to the region. The system is designed to maximize transparency, predictability, and competitiveness.

4.4 Ensuring Access to a Skilled Workforce

Key message

An adequate supply of skilled workers is critical to preventing labour-cost inflation that would hurt the competitiveness of Canada's energy and minerals and metals sectors. Although Canada has an efficient labour market as well as a skilled workforce, significant hiring requirements in the natural resources sector, both in terms of the number of workers and the skills needed, could potentially translate into labour supply-and-demand imbalances in certain regions and occupations, such as the skilled trades.

How is Canada doing?

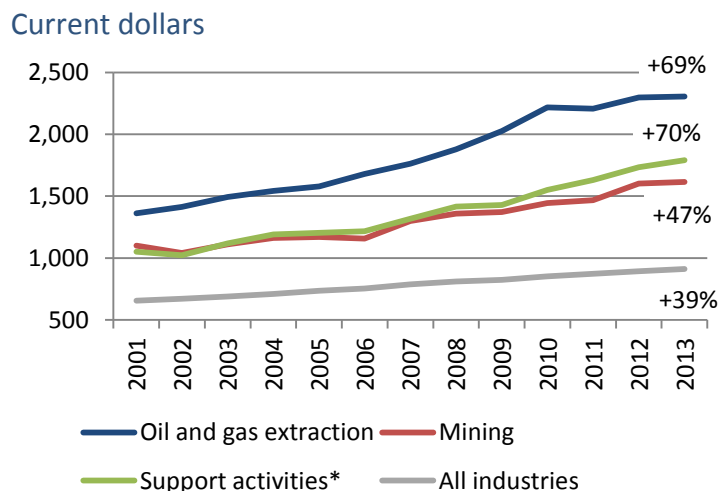
Canada's labour market has generally succeeded in meeting recent challenges and performs relatively well in a number of areas. For example, Canada's labour force participation rate is high by international standards, which indicates that there are relatively fewer discouraged job searchers in Canada. Canada also has the lowest long-term unemployment rate among G-7 countries, which suggests that the majority of the unemployed make the necessary adjustments to meet the needs of the labour market.²⁹

The Canadian economy also has a well-educated and skilled workforce. For example, the country has a high proportion of individuals with a university degree, compared to most other OECD countries.³⁰ The energy and mining sectors can also count on an educated workforce. For example, 18.6% of workers in the mining and oil and gas extraction industry have a university certificate, diploma or degree at the bachelor level or above, compared to 15.4% in the manufacturing sector. Skilled trades also play an important role in the success of the sector.

Despite this overall good performance, challenges remain. For instance, wages – a key component of cost-competitiveness – are rising rapidly as a result of high labour demand in industries such as mining (47% increase since 2001) and oil and gas extraction (69% increase since 2001) (Figure 11). Attracting and transporting skilled workers to projects located in remote areas also represent a significant cost burden to Canadian resource companies. In addition to increased project costs, skills shortages and mismatches in the energy and minerals and metals sectors can also lead to project delays. Adding to the challenge is the fact that resource industries often compete amongst themselves and with other sectors for workers with similar skill sets.

Projected hiring requirements in the energy and minerals and metals sectors have the potential to

Figure 11 – Average Weekly Earnings in Selected Industries, 2001-2013



* Support activities for mining and oil and gas extraction.

Source: Statistics Canada.

Textbox 11 – Examples of projected labour market imbalances

British Columbia: Labour demand projections developed by KPMG based on direct input from industry proponents show that, the construction of five LNG plants between 2015 and 2024, representing an industry investment of \$175 billion, would create up to 100,000 jobs: 58,700 direct and indirect jobs in the construction sector, 23,800 permanent direct and indirect jobs for operations and thousands more of induced jobs. (Government of British Columbia and KPMG, 2014)

Nova Scotia: Oil and gas extraction and supporting activities are expected to increase rapidly by 2020, increasing sector employment by 50%. This rapid expansion of demand for specific occupations (e.g., petroleum engineers, oil and gas well driller, etc.) could drive up wages nationally as the province competes with other regions of the country for available talent. (EMMC, 2013)

Nunavut: The five to eight mining projects currently being considered or under development could result in the creation of approximately 4,000 new jobs. Yet, it will be a challenge to source appropriately skilled employees from the approximately 2,000 people (13% of working age population) that are currently not fully employed in the territory. The opportunity and challenge will be in recruiting from Nunavut's rapidly growing young population for these jobs. (EMMC, 2013)

translate into labour supply and demand imbalances in certain regions (e.g., remote areas) and occupations. For example, the Mining Industry Human Resource Council projects that talent available to the industry will be insufficient to meet forecasted hiring requirements in 66 core mining occupations, creating an estimated gap of 16,060 workers by 2023 in its baseline scenario (Figure 12).³¹ Similarly, the Petroleum Human Resources Council estimates that oil sands activity alone will generate 98,000 jobs in construction, maintenance and operations over the next decade.³²

Figure 12 – Projected Talent Gap in Mining, 2023

Talent Gap	2023
Hiring requirements in 66 mining occupations	79 410
Mining's Share of labour pool	63 350
Projected Gap	-16 060

Source: Mining Industry Human Resources Council, May 2013.

Addressing current and potential shortages

Technologies that increase the automation of operations and the productivity of businesses could potentially play a role in the future, particularly if labour market challenges intensify. However, while such technologies have the potential to reduce labour demand and costs and improve the overall efficiency and competitiveness of operations, they are often part of complex and expensive systems that can take years to implement.

In the meantime, a wide range of programs and collaborative partnerships are employed by the industry as well as by the federal, provincial and territorial governments to address labour market challenges in the energy and minerals and metals sectors. For example, the Government of Canada is working with provinces and territories to renew and transform the Labour Market Agreements into six-year Canada Job Fund Agreements that include the new

Canada Job Grant (CJG) and an annual investment of \$500 million. The CJG is aimed at connecting skills training with employers, helping to ensure that Canadians are developing the skills required for available jobs and helping bridge the gap between the skills Canadians have and the skills employers are looking for. The CJG is cost-shared with employers and is meant to be flexible enough to meet the needs of businesses of all sizes, in all industries and regions. The Canada Job Fund agreements also include several other features to encourage more employer involvement in setting training priorities and providing training, while also supporting a broad range of employment supports and services. As of June 2014, the Government has signed agreements with British Columbia, Alberta, Manitoba, Ontario, Quebec and New Brunswick and is actively working with the remaining jurisdictions to finalize agreements.

In British Columbia, the Premier accepted all 15 recommendations included in the final report of the LNG Working Group released in March 2014.³³ Comprised of representatives from industry, First Nations and the provincial government, the working group had been tasked to develop a road map to ensure the province has the skilled labour force it needs to seize the opportunity of the LNG sector. The government also announced in May 2014 a comprehensive plan to re-engineer the province's education and training system to align with future labour market needs. The goal of this plan is to ensure the right employees are available at the right time and right place to meet the nearly one million jobs expected to be available through 2022. A key element of the plan is taking training to where future jobs will be, so that residents of northern and remote communities, for example, can take advantage of resource-sector positions in LNG, mining and forestry.

Industry also has an important role to play in ensuring that Canada has the workforce needed in these sectors, particularly through the apprenticeship system. Employer support for and participation in apprenticeship training is critical to ensuring the labour supply of qualified skilled tradespersons; yet, according to a 2011 Canadian Apprenticeship Forum survey, only about one in five employers participate in apprenticeship.³⁴ Employers in resource industries can help replenish the supply of qualified skilled tradespersons by registering and training apprentices.

The Government of Canada is also working with provinces and territories through the Canadian Council of Directors of Apprenticeship (CCDA) to promote the harmonization of apprenticeship training and trade certification requirements in targeted Red Seal trades to support the mobility of apprentices. Work is also underway through the CCDA on an initiative to develop more consistent processes for evaluating trade qualifications and work experience obtained outside of Canada to become certified in Red Seal trades.

4.5 Closing the Infrastructure Gap and Pursuing Community Engagement

Key message

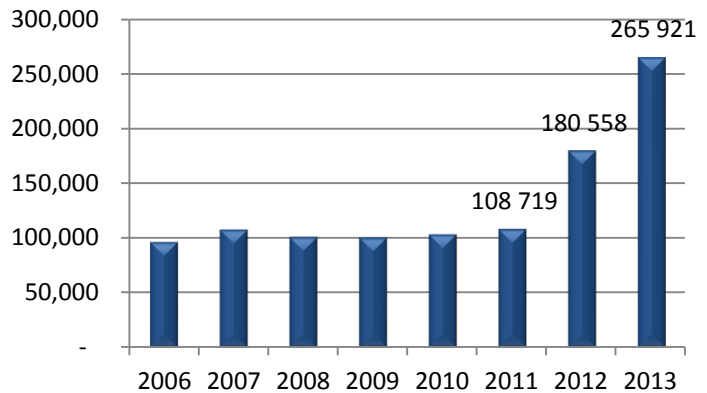
Transportation, communication and energy infrastructure are critical in moving natural resource projects from the planning to the operating phase. A lack of infrastructure in certain regions (e.g., the North) and industry segments (e.g., oil and gas extraction, oil sands, and LNG) are creating bottlenecks that have contributed to higher transportation costs, project delays and, in some cases, lower revenues. While essential, infrastructure development will not be

possible without a strong commitment towards community engagement by governments and industry stakeholders.

How is Canada doing?

Infrastructure plays a key role in the development of Canada's energy and minerals and metals sectors and represents a key factor in the decision to move ahead with a project. For example, with the rise of emerging markets and the opportunity that Canada has to diversify its exports markets, efficient trade infrastructure is critical in ensuring the cost competitiveness of Canadian products. In the energy sector, for instance, bottlenecks created by the limited pipeline capacity have led to a significant increase in the amount of oil transported by rail over the last few years (Figure 13). Although it

Figure 13 – Crude Petroleum and Fuel Oils Transported by Rail, 2006–2013
Barrels per day



Note: The amount of oil transported by rail remains small relative to volumes transported by pipelines

Source: Natural Resources Canada.

gives Canadian crude oil producers the flexibility to reach a number of key markets throughout North America, rail transportation contributes to higher costs in the industry as pipelines, in general, represent a less expensive option.³⁵ Building infrastructure that would further improve access to global markets could, therefore, have a significant positive impact on the energy sector and the Canadian economy as a whole. For example, the International Monetary Fund estimates that addressing energy infrastructure capacity (including building pipelines) would increase Canada's projected gross domestic product by 2% by 2020 through improved market access.³⁶ Natural Resources Canada estimates that, using 2013 as a base, 2% of GDP is equivalent to about \$40 billion annually.

However, it will be equally important to address broader infrastructure challenges in remote areas such as the North where the resources that are in most demand globally are often located. Investment required to update or to construct the transportation, communication and energy infrastructure required to support resource development in those regions can indeed add significant costs to projects. In the mining sector, for example, infrastructure challenges are currently among the greatest deterrents to development in Canada's remote regions.³⁷ In particular, financing the development of infrastructure in these regions continues to represent a challenge to both industry and governments.

The overall Northern metal and non-metallic mineral output could grow by as much as 91% from 2011 to 2020 if key regulatory, infrastructure and human resource challenges are met.

Source: The Conference Board of Canada, *The Future of Mining in Canada's North*, January 2013

Textbox 12 – Stimulating infrastructure development to support the oil and gas industry

Since 2004, British Columbia has awarded over \$830 million in royalty credits to eligible oil and gas companies through its Infrastructure Royalty Credit Program. This has resulted in more than 200 new or upgraded all-season roads and pipeline projects, and total capital investment of more than \$1.9 billion. Projects accepted under the program are eligible to recover up to 50% of their costs. For 2014, British Columbia has made \$120 million in royalty credits available for new projects under this program.

Source: Government of British Columbia.

Aside from larger infrastructure projects, rapid growth in resource-based communities also requires more basic infrastructure like housing, fresh water, health care, and recreational facilities. While resource projects located close to established communities can access some of their services, they can also place additional strain on already limited local resources.

Addressing current and potential challenges

Ensuring the development of modern, safe and reliable infrastructure that meets the need of Canadians and supports the long-term competitiveness of Canada's energy and minerals and metals sectors requires ongoing collaboration between governments and industry. Such collaboration has already led to significant progress in several areas. For example, more than \$20 billion annually were invested between 2010 and 2012 in the electricity sector in Canada in a context in which significant investment is required to maintain existing assets and meet market growth.³⁸

Infrastructure development will, however, not be possible without a strong commitment towards community engagement. Along with a strong environmental commitment, prioritizing socially responsible development is increasingly influencing the competitiveness of firms and having an impact on their ability to access key export and capital markets. Early engagement is especially crucial for Aboriginal communities, which are often situated near areas with immense resource potential. It is important to work in partnership with First Nations to

Textbox 13 – Budget 2014

In Budget 2014, the Government of Canada highlighted the tremendous economic potential of Canada's North, particularly in the mining and oil and gas industries. The Government announced \$40 million in funding over two years for the Northern Economic Development program, which focuses on enhancing economic infrastructure in the territories, developing the capacity of Northern organizations and individuals to help them take advantage of economic opportunities, promoting economic diversification, and increasing dialogue on Northern economic development issues.

Budget 2014 also recognizes that the need for a strong network of transportation infrastructure in the territories has intensified as a result of population growth, increased demand for ecotourism and investment in resource development projects. To help unlock the economic potential of the North, the Government of Canada announced its intention to work with territorial governments and local municipalities to develop transportation infrastructure in the North.

strengthen their engagement in natural resource projects, with training for jobs and business opportunities, and with a role in assessing and managing the environmental safety of projects.

With a view to fostering these partnerships, the Prime Minister appointed Douglas Eyford as a Special Federal Representative for West Coast Energy Infrastructure in March 2013. His objective was to engage First Nations in British Columbia and Alberta to determine the opportunities and concerns around future energy infrastructure development. Mr. Eyford's final report was submitted to the Prime Minister in December 2013 and provided 29 recommendations across four main themes: Building Trust, Fostering Inclusion, Advancing Reconciliation, and Taking Action.³⁹ In response to the report's recommendations, the Government announced two new measures in May 2014 designed to strengthen engagement with First Nations (Textbox 14), in addition to new measures to enhance pipeline and marine safety.⁴⁰

Textbox 14 – New initiatives to support engagement in West Coast energy infrastructure development

In response to the recommendations in the Eyford Report, the Government of Canada announced in May 2014 the creation of the Major Projects Management Office West (MPMO-West). The new office will act as a single window for First Nations to engage with the Government of Canada on issues related to West Coast energy infrastructure development. The MPMO-West will coordinate activities across multiple Government of Canada departments to support the involvement of First Nations in West Coast energy infrastructure development. This includes coordinating extensive engagement with First Nations on the West Coast to better understand their perspectives on issues related to energy projects, and working with other federal departments to identify concrete actions to address community interests and concerns. Particular emphasis will be placed on business opportunities, employment and training, and environmental safety.

The Government also announced the creation of a tripartite forum, comprised of Canada, British Columbia and B.C. First Nations leaders. The tripartite forum will provide an opportunity to share information, identify common interests and align efforts on issues related to the development of energy and natural resources on Canada's West Coast.

5. Conclusion

Canada's world-class reserves in combination with the knowledge and expertise of its people, give the country a tremendous natural resource advantage. Thanks to this advantage, Canada is recognized globally as a competitive, reliable and responsible supplier of natural resources to the world. Canada's favourable business environment and stable regulatory system also continue to support investment in the energy and minerals and metals sectors. But there is no room for complacency. New rivals, often with highly competitive cost structures, have emerged in recent years and constitute a rapidly growing share of global production and exports.

As competitors continue to increase in both number and quality, Canada will need to leverage its strengths and address challenges in a five key areas in order to maintain its competitive edge in the energy and minerals and metals sectors.

- *Combating cost escalation:* Companies tend to allocate investment in projects with higher returns or in lower-cost jurisdictions. Similarly, firms with lower capital and operating costs are typically better positioned to capture export opportunities. Canadian operations in most energy and minerals and metals industries are globally cost-competitive, but rising capital and production costs are often cited as one of the main challenges to the competitiveness of resource development companies.
- *Productivity growth through innovation and the adoption of new technologies:* Higher productivity and greater energy efficiency help firms control their costs and, in turn, put them in a better position to gain market share. Although this trend is not confined to Canada, declining productivity in the energy and minerals and metals sectors represents a structural challenge that could undermine competitiveness in the medium to long term.
- *Attracting investment:* Maintaining a good investment climate is critical to ensure that Canada's energy and minerals and metals sectors stay competitive and attract the capital they need. Although challenges remain, federal, provincial and territorial governments have taken action to help create an environment that is favourable to investment. For example, in 2012, the Government of Canada launched its plan for Responsible Resource Development to modernize Canada's regulatory system for major natural resource projects.
- *Ensuring access to a skilled workforce:* An adequate supply of skilled workers is critical to preventing labour-cost inflation that would hurt the competitiveness of Canada's energy and minerals and metals sectors. Although Canada has an efficient labour market as well as a skilled workforce, significant hiring requirements in the natural resources sector, both in terms of the number of workers and the skills needed, could potentially translate into labour supply-and-demand imbalances in certain regions and occupations, such as the skilled trades.
- *Closing the infrastructure gap and pursuing community engagement:* Transportation, communication and energy infrastructure are critical in moving natural resource projects from the planning to the operating phase. A lack of infrastructure in certain regions (e.g., the North) and industry segments (e.g., oil and gas extraction, oil sands, and LNG) are creating bottlenecks that have contributed to higher transportation costs, project delays and, in some cases, lower revenues. While essential, infrastructure development will not be possible without a strong commitment towards community engagement by governments and industry stakeholders. With this commitment in mind, the Government of Canada has announced new initiatives to strengthen engagement with First Nations, for example in West Coast energy infrastructure development.

As discussed throughout this report, several existing initiatives already support competitiveness in the energy and minerals and metals sectors by ensuring that companies have access to the

capital, workforce and infrastructure they need (e.g., Responsible Resource Development, renewed Labour Market Agreements and the Canada Job Grant, measures to strengthen engagement with First Nations). However, rising capital and production costs are often cited as one of the main challenges to the competitiveness of resource development companies. Innovation and other investments leading to productivity gains are required to reduce costs and ensure Canada's long-term competitiveness in the energy and minerals and metals sectors. Additional analysis on these challenges could potentially be conducted under the Energy and Mines Ministers' Conference process.

Notes

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¹¹ Scotiabank, *Commodity Price Index*, February 20, 2014.

¹² Based on the results of a survey conducted by Dundee Capital Markets, as reported in: Cattaneo, Claudia, "Oil sands costs beat those of U.S. tight oil, new studies show", *Financial Post*, February 20, 2014.

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¹⁴ Encana presentation at the Global LNG Summit, March 2012.

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¹⁶ Natural Resources Canada, *International Competitiveness of Canada's Base Metal Smelters and Refineries*, February 2010.

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¹⁹ International Energy Agency, *Energy Prices and Taxes – Quarterly Statistics*, First Quarter 2014.

²⁰ Long, Blair and Andrew Sharpe (CSLS), *Innovation in Canadian Natural Resource Industries: A Systems-based Analysis of Performance, Policy and Emerging Challenges*, March 2012.

- ²¹ Results are in chained 2007 dollars. Source: CANSIM Table 383-0029, accessed on May 1, 2014.
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