ontario chamber of commerce

WHERE ARE WE NOW?

A Report Card on the Ring of Fire

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The Ontario Chamber of Commerce (OCC) is an independent, non-partisan business network. Our mission is to support economic growth in Ontario by advocating for pro-business policies and defending business priorities at Queen's Park.

For more than a century, the OCC has been providing our members with practical supports, advantageous network opportunities, and access to innovative insight and analysis.

We represent local chambers of commerce and boards of trade from communities across Ontario. Through this network, we are the voice of 60,000 members that range from small businesses to major corporations and industry associations. Together, our members employ two million people and produce nearly 17 percent of Ontario's GDP.

The OCC is Ontario's business advocate.

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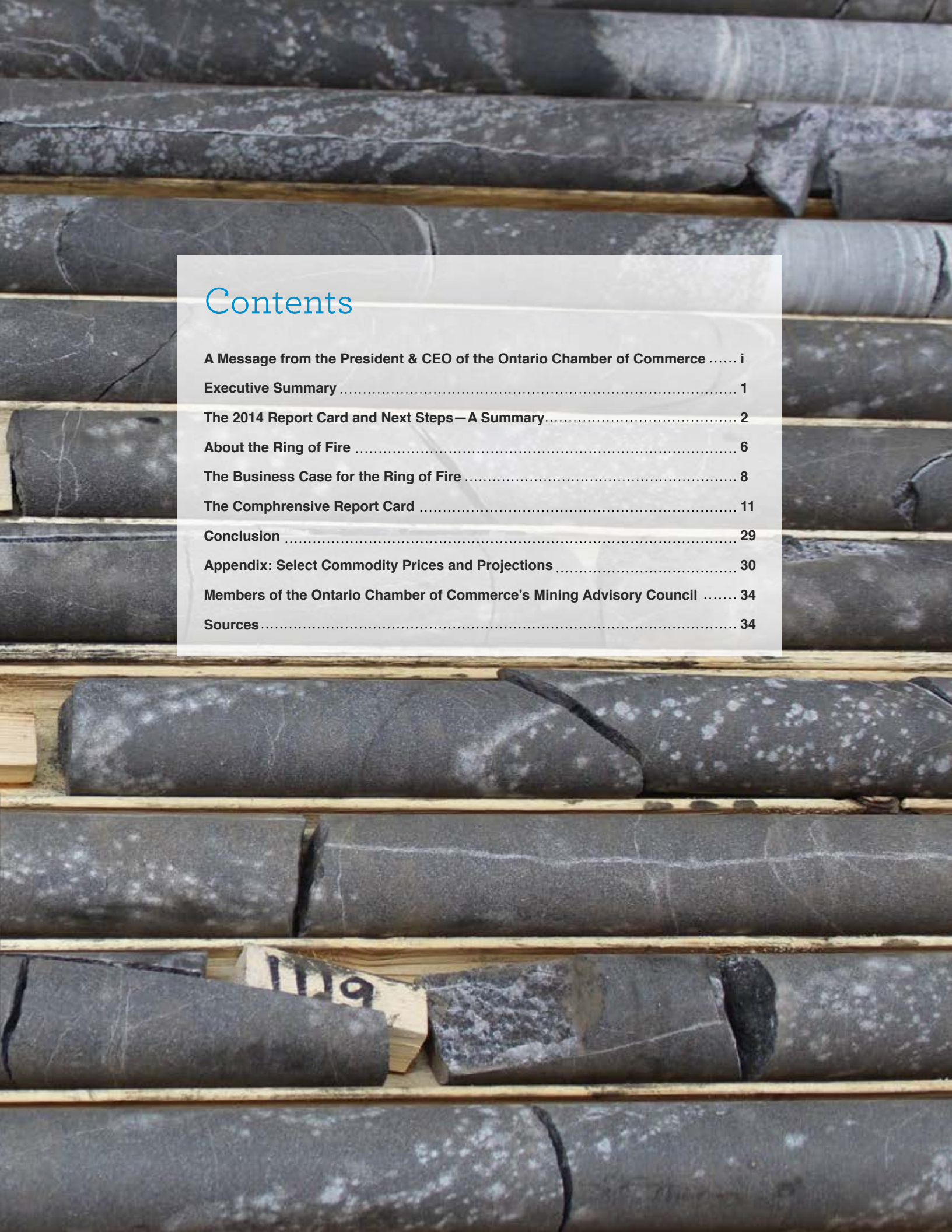

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Message from the President & CEO of the Ontario Chamber of Commerce

It's been one year since the Ontario Chamber of Commerce released *Beneath the Surface: Uncovering the Economic Potential of Ontario's Ring of Fire*, a report that outlined the economic and social opportunities offered by the Ring of Fire.

Beneath the Surface found that during the first 32 years of its development, Ontario's Ring of Fire could generate $25 billion in economic activity and create thousands of new jobs across the province. Further, the employment opportunities generated by the Ring of Fire could dramatically improve the quality of life in First Nations communities in Ontario's Far North.

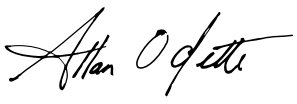
So where are we now, one year later? Unfortunately, there has been little progress developing this extraordinary economic opportunity. There is still no infrastructure plan in place, there remains little agreement between the most important players, and delays in issuing exploration permits have stalled any potential development. In short, we are still years away from opening a mine in the Ring of Fire. Further, development timelines are increasingly characterized by uncertainty.

Not all the news is bad. Our report finds that some progress has been made, including a $1 billion transportation infrastructure commitment made by the Government of Ontario. This is an important commitment. Yet more work remains—including the development of an infrastructure plan, building that infrastructure, and of course negotiating agreements with First Nations.

Our intention is not to point the finger. Rather, the purpose of this report is to measure progress from a business vantage point. Ultimately, we hope to create a sense of urgency in order to catalyze the development of the Ring of Fire.

This report is the culmination of months of research and consultation. We are indebted to the members of our Mining Advisory Council without whose expertise and guidance this report would not be possible.

We hope this Report Card is the catalyst for momentum for this once-in-a-generation economic opportunity. It is time to get to work.



Allan O'Dette

Executive Summary

In this report we evaluate the progress that has been made over the past year to develop Ontario's Ring of Fire, the name given to the large area rich in metallic mineral deposits located in the James Bay Lowlands in the province's Far North.

Previous economic analysis conducted by the Ontario Chamber of Commerce found that over the first ten years of development, the Ring of Fire will generate up to $9.4 billion in GDP, sustain up to 5,500 jobs annually, and generate $2 billion in government revenue, divided between the federal, provincial, and municipal governments.

Despite its significant potential, we are no closer today than we were a year ago to realizing the benefits of the Ring of Fire. After a year of delays, public and expert perception on the viability of the Ring of Fire as a sound economic investment has soured.

While the departure of Cliffs Natural Resources—the American iron ore firm that holds several large assets in the Ring of Fire—has left the Ring of Fire without a major mining firm capable of injecting much needed private sector capital in infrastructure, other variables have contributed to a sluggish pace of development. Among the most significant barriers to development are the absence of an agreement with First Nations communities, delays in permitting, and the reluctance of the federal government to make an explicit funding commitment to Ring of Fire infrastructure.

With these challenges in mind, we make a number of recommendations that, if implemented, would go a long way in initiating development. But we need to act now. Without significant progress over the next year, we risk lapsing into a self-fulfilling prophesy—that is, the lack of momentum will contribute to a fatalism and a long-term dampening of investor sentiment in this opportunity.

The 2014 Report Card and Next Steps- A Summary

In our 2014 economic analysis of Ontario's Ring of Fire, we outlined seven key challenges that stand in the way of its development. In this summary, we provide a brief update of the progress that has been made to overcome each of these challenges and propose next steps.

Progress on each challenge is mixed and is represented in the form of a letter grade. Grades were determined based on the input of over sixty experts from the mining, engineering, infrastructure, not-for-profit, and post-secondary sectors, and First Nations communities. These grades reflect the extent of progress we believe has been made to overcome the seven major challenges, and do not reflect the performance or actions of any one level of government or stakeholder.

Grading Legend

A	**Excellent progress made, beyond expectations.** Challenge well on its way to being resolved.
B	**Good progress made, meeting expectations.** Improvement needed to overcome the challenge in the long-term.
C	**Some progress made, but not meeting expectations.** Significant work remains to overcome the challenge.
D	**Minimal progress made, well below expectations.** Very little has been done to address the challenge.
F	**Insufficient progress made.** A major change in course direction is required.

Report Card

Challenge 1 **Accelerate development of the Ring of Fire**

Progress Grade **F**	We are no closer to opening a mine in the Ring of Fire. A lack of infrastructure and permitting delays have ground activity to a near halt.
Next Steps	**Open a first mine to build momentum in the Ring of Fire. Mines that are furthest along in the permitting process should be a priority.** Government can and should allow activities related to the development of mine operations, so long as those activities honour the spirit and intent of the Matawa-Ontario Regional Framework Agreement.

Challenge 2 **Follow through on the Regional Framework Agreement between the Chiefs of the Matawa-member First Nations and the Government of Ontario**

Progress Grade **C**	In March 2014, the Chiefs of the Matawa-member First Nations and the Government of Ontario agreed to a Regional Framework Agreement that will guide future agreements between government and First Nations in proximity to the Ring of Fire. Since then, however, it is unclear to anyone not involved with these talks whether progress has been made at the negotiating table.
Next Steps	**The Chiefs of the Matawa-member First Nations and the Government of Ontario need to create more openness around the Regional Framework Agreement negotiations.** As it stands, there is little public understanding of the nature of the negotiations or the timeline for their completion. This uncertainty is hurting the ability of businesses active in the Ring of Fire to raise capital. As a start, the negotiating partners should issue public quarterly updates on the status of the Regional Framework negotiations.

Challenge 3 **Address the physical infrastructure deficit in the Ring of Fire**

Progress Grade **C-**	While the Province has committed $1 billion to transportation infrastructure in the Ring of Fire, the federal government has declined to put funds on the table before being presented with an infrastructure plan. The lack of federal commitment to Ring of Fire infrastructure is negatively impacting the investment climate.
Next Steps	**In order to elicit federal investment, the Government of Ontario should develop a transportation infrastructure plan, through the Ring of Fire Infrastructure Development Corporation, to be presented to the federal government for matched funding.** The construction of an all-season road from the Ring of Fire to Pickle Lake or Nakina should be a priority in the short-term.
	Government should adopt an incremental approach to infrastructure development by building electricity and fibre optic connections once transportation infrastructure is completed. This type of infrastructure would provide grid-based electricity and broadband connectivity to remote communities. An incremental approach to infrastructure development distributes costs over time.
	The Government of Ontario should conduct a cost-benefit analysis on the merits of establishing hydroelectricity generation in Ontario's Far North. Establishing local generating capacity would offer mine sites with reliable and affordable access to power, would connect nearby First Nations to the electricity grid, and could create employment and ownership opportunities for local First Nations.

Challenge 4 **Draw as much as possible from the local labour force in order to maximize the benefits of the Ring of Fire for Ontario**

Progress Grade **B-**	Public-private training partnerships have produced good results. Over 370 Matawa First Nation community members have participated in the Ring of Fire Aboriginal Training Alliance. However, in the absence of a new agreement and adequate funding for a new First Nations primary education framework, on-reserve education outcomes will continue to lag behind those produced by non-reserve schools. Improvements to First Nations on-reserve education outcomes are a prerequisite to First Nations' meaningful participation in the labour force.
Next Steps	**Build up skills in Ontario's northern First Nations communities.** Governments need to capitalize on the untapped potential of the Far North's First Nations communities. This requires a comprehensive approach to First Nations' education and skills upgrading, from the primary to post-secondary levels. For more specifics, see page 21.

Challenge 5 **Capture more value-added processes in Ontario**

Progress Grade **D**	No serious consideration has been given to how government can help mining firms break into the chromite market and how Ontario and Canada can capture downstream value from chromite derived alloys and products.
Next Steps	**Make Ontario the lowest-cost producer of chromite in the world.** In order to break into the highly competitive global chromite market, and retain as much downstream value as possible within the province, the Government of Ontario needs to put a plan into place to help make Ontario's chrome ore/ferrochrome industry the most cost-efficient on the planet. Over the long-term, industry will need government support to develop low-cost transportation methods. Over the short-term, the provincial and federal governments should partner with the private sector to invest in Research & Development to explore innovative technologies that can reduce energy consumption.

Challenge 6 **Make the Ring of Fire a national priority**

Progress Grade **F**	The federal government has yet to demonstrate that the Ring of Fire is a national economic development priority.
Next Steps	**Commit federal funds to Ring of Fire transportation infrastructure.** The federal government must commit matching federal funds for Ring of Fire transportation infrastructure. The federal investment should be drawn from the National Infrastructure Component (NIC) of the Building Canada Fund. The NIC provides funding for projects of national significance, with a focus on projects that have broad public benefits, and that contribute to long-term economic growth and prosperity. Investments in the Ring of Fire meet this criteria.

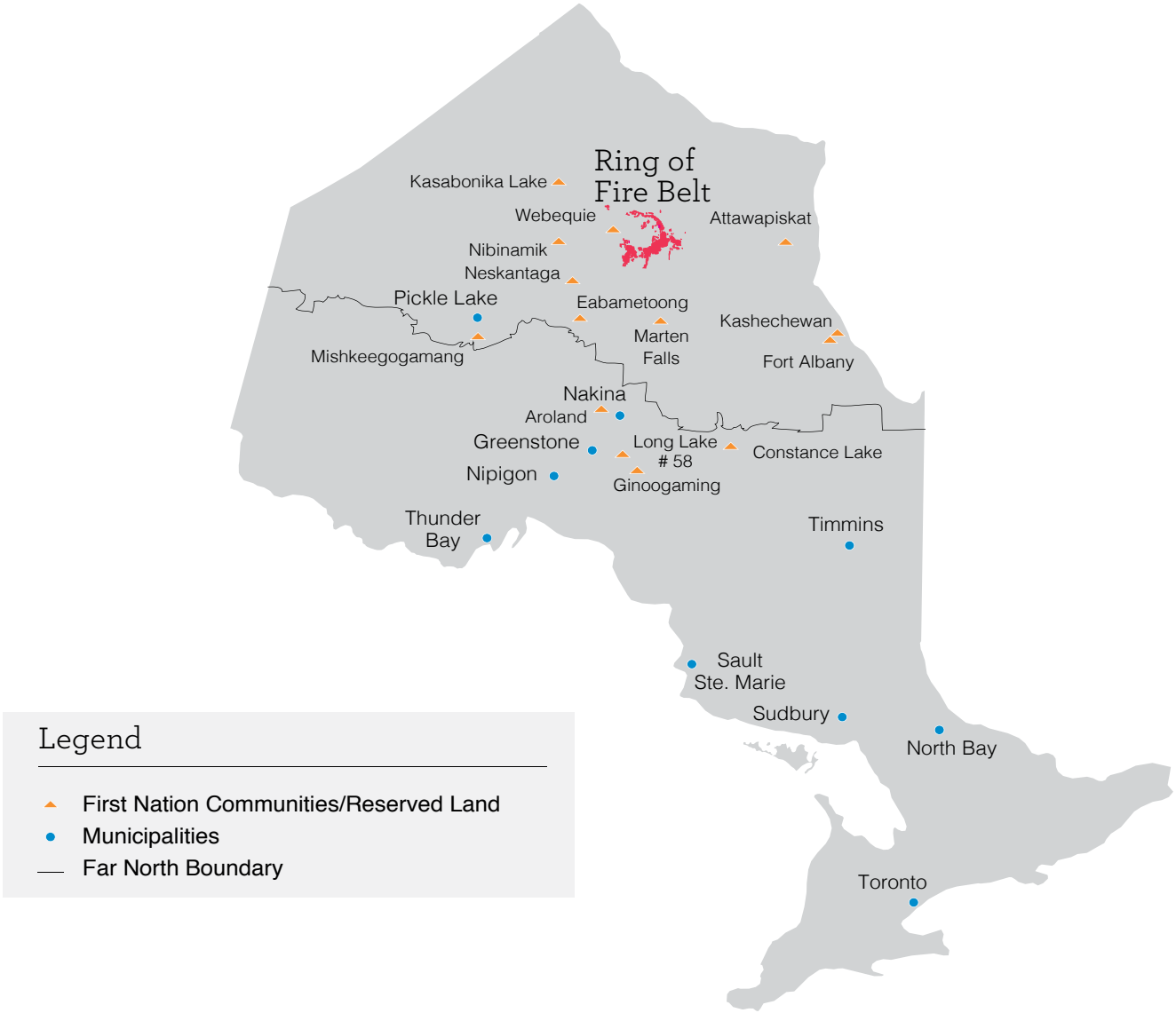
Challenge 7 **Address the barriers that impede the development of the Ring of Fire, and more broadly, the competitiveness of the mining sector**

Progress Grade **C**	While programs like the Northern Industrial Electricity Rate have helped, Ontario's rising electricity rates are hurting business competitiveness. Further compounding the problem is a host of new provincial programs and policies that will add costs onto business. Ontario's mining sector, like many others in the province, cannot afford increases in its costs of production.
Next Steps	**Strengthen the competitiveness of Ontario's mining sector.** To maintain existing mining operations and create a better investment climate, Ontario needs to ensure that its electricity and tax rates are competitive. Ontario should make permanent the Northern Industrial Electricity Rate (NIER) Program and maintain its mining tax rate.

About the Ring of Fire

The Ring of Fire is the name given to the large area rich in metallic mineral deposits located in the James Bay Lowlands in Ontario's Far North. The Ring of Fire, which covers 5,000 square kilometres, is estimated to hold multi-generational potential for mineral extraction. Beginning in the early 2000s, the region has witnessed significant discoveries of chromium, nickel, copper, zinc, platinum, and gold.

The Ring of Fire has been described as the most promising mineral development opportunity in Ontario since the discovery of the Sudbury Basin in 1883 and the Timmins gold camp in 1909.



How does Ontario stand to benefit from the Ring of Fire?[1]

As first illustrated in to our 2014 report, *Beneath the Surface: Uncovering the Economic Potential of Ontario's Ring of Fire*, Ontario's economy stands to benefit enormously from the development of the Ring of Fire. In the short-term (the first 10 years of development), the Ring of Fire will:

- generate up to $9.4 billion in GDP;
- generate up to $6.2 billion for Ontario's mining industry;
- sustain up to 5,500 jobs annually (full time equivalents); and
- generate nearly $2 billion in government revenue, divided between the federal, provincial, and municipal governments.

In the long-term (the first 32 years of development), the Ring of Fire will generate province-wide:

- over $25 billion in GDP;
- up to $16.7 billion for Ontario's mining industry;
- $6.7 billion in government revenue divided between the federal, provincial, and municipal governments; and
- $2.7 billion for the financial services sector, $1.2 billion for the wholesale and retail trade sectors, $600 million for the manufacturing sector, and $500 million for the utilities sector.

1 These numbers were arrived at using an economic multiplier analysis, which estimates the direct, indirect, and induced economic benefits to Ontario. We relied on two methodologies for our analysis. First, we used the income-expenditure approach used in Advantage Northwest's Mining Readiness Strategy (2013). Second, we used the multiplier assumptions (i.e. medium multiplier of 1.5 for the mining sector) and their ratios for federal, provincial, and municipal tax revenues used in *Mining: Dynamic and Dependable for Ontario's Future* (2012), written by Peter Dungan and Steve Murphy. The Ring of Fire's impact on employment (i.e. how many jobs it will create) is calculated using the standard method of attaching a GDP value to one full time job.

The Business Case for the Ring of Fire

A quick scan of recent media stories reveals that perceptions of the Ring of Fire and its economic viability are more negative today than they were a year ago. Much of the negativity stems from the decision by Cliffs Natural Resources, an American iron ore company with significant chromite assets in the Ring of Fire, to withdraw from Ontario in 2014.

But are these perceptions born out in reality? Has the business case for the Ring of Fire weakened over the last year?

The answer is 'no'. While factors like permitting delays and an absence of infrastructure have delayed development of the Ring of Fire, they have not permanently weakened the business case. Cliffs Natural Resources' decision to withdraw had little to do with the economics of the Ring of Fire. Rather, its decision reflects the financial hardships the company endured as a result of the sharp decline in iron ore prices (Marotte and Van Praet, 2014) (for more, see Appendix: Select Commodity Prices and Projections).

Hopes for Ontario's Ring of Fire doused
Global and Mail, October 2014

New Cliffs CEO sees 'zero hope,' no asset sale in Ontario's Ring of Fire
Financial Post, October 2014

Ring of Fire funding held up by behind-the-scenes battle between Ottawa and Ontario
Globe and Mail, November 2014

Although they are the source of confusion, iron ore prices are only relevant to the Ring of Fire as they relate to Cliffs Natural Resources' departure. The more telling indicators of the business case are the forecast prices of nickel and ferrochrome, in addition to the projected demand for stainless steel. As described below, these indicators are positive.

Nickel prices are projected to rise. Nickel prices are a key indicator of the economic viability of the Ring of Fire, especially in the short-to-medium term, as nickel is the primary resource in Noront Resources' Eagle's Nest mine, the only project in the Ring of Fire that is actively permitting (Kirby, 2014).

Nickel prices have fallen somewhat over the last several years but are expected to rebound, partially as a result of a nickel export ban in Indonesia (Els, 2014).

Experts predict strong growth in nickel prices over the short-to-medium term, with most forecasting the price of nickel to reach $10/lb. by 2016 (Toronto Dominion Bank, 2014; BMO Capital Markets, 2015; Economist Intelligence Unit, 2015). At the end of 2014, nickel was valued at roughly $6.70/lb. See Appendix: Select Commodity Prices and Projections for more.

Ferrochrome prices remain steady. The price of ferrochrome is a key indicator of the business case for the Ring of Fire as it broadly reflects global demand for chromite. Ferrochrome is an alloy (a material composed of two or more metals or a metal and a non-metal) of chromium and iron. Chromite is converted into ferrochrome using an energy-intensive smelting process, and the produced ferrochrome is subsequently used in steel making, most commonly, to produce stainless steel. The Ring of Fire is estimated to hold at least 220 million tonnes of chromite (Cliffs Natural Resources, 2013).

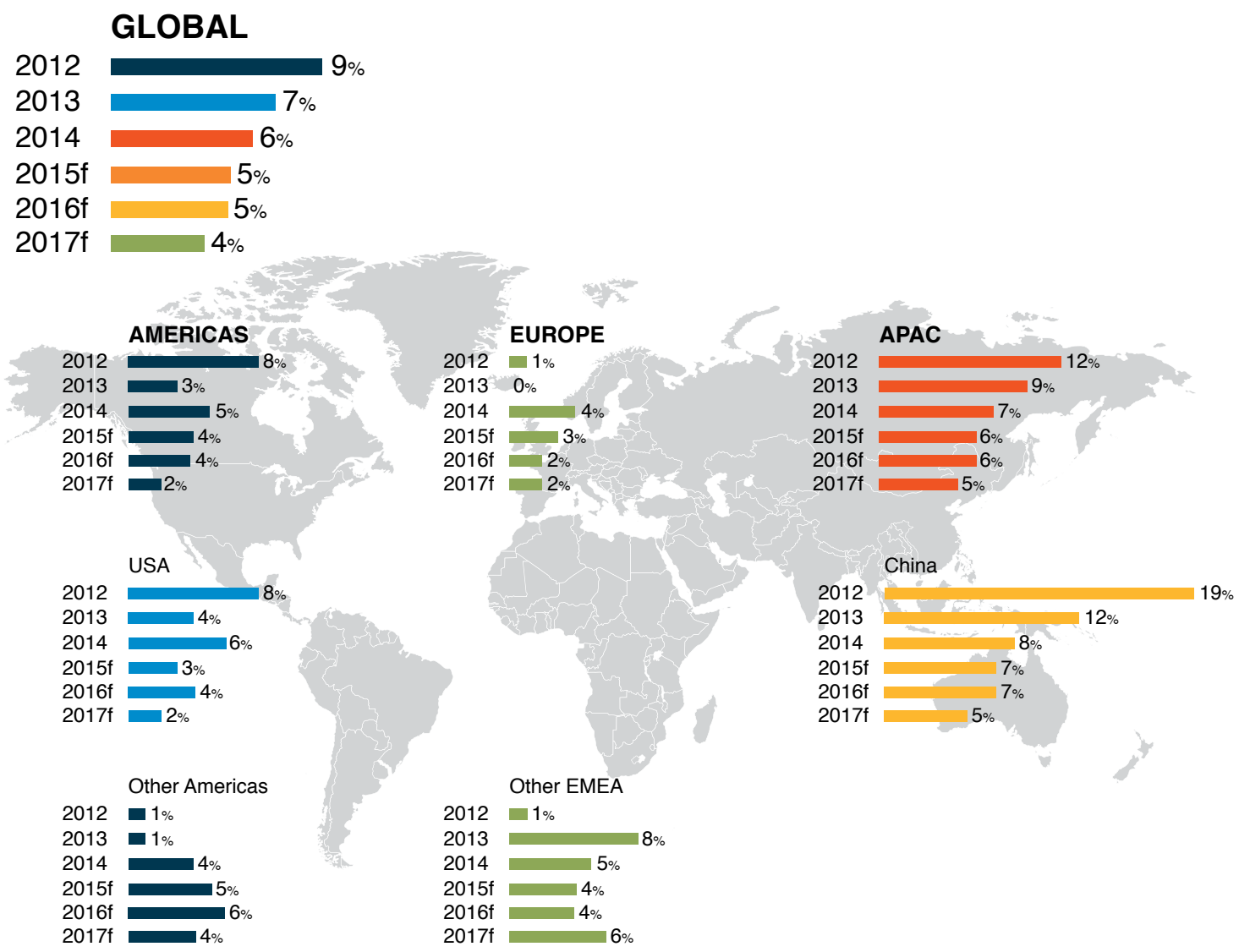
The price of ferrochrome has remained fairly constant over the last several years (Investment Mine, 2015a; Investment Mine, 2015d) (see Appendix: Select Commodity Prices and Projections for fluctuations in ferrochrome prices over the last five years). Planned capacity expansions in countries like China, Finland, and South Africa are expected to create an oversupply of ferrochrome in the near future. However, by 2018, the ferrochrome market is forecast to move into equilibrium (Roskill, 2014).

Demand for stainless steel is strong. As the most common end product of ferrochrome, the demand for stainless steel is an important indicator of the value of the chromite deposits in the Ring of Fire (KWG Resources, 2009).

Although stainless steel demand is rising at a slower rate than in the past, over the long-term, demand will be driven upward by two related global trends: higher standards of living and rapid rates of urbanization (Outokumpu, 2014). Both of these conditions are creating greater demand for stainless steel appliances, including sinks, washing machines, kitchen appliances, and cutlery (Outokumpu, 2015).

While commodity prices and demand forecasts suggest that the economics behind the Ring of Fire are still positive, there are factors to consider, including the investment climate. The following Report Card examines what progress has been made across each of those factors over the course of 2014.

Continued Growth for Stainless Steel Globally



Source: Outokumpu, 2014
Real demand for total stainless steel (rolled and forged, excl. 13Cr tubes)

THE COMPREHENSIVE REPORT CARD

In *Beneath the Surface*, our 2014 economic analysis of Ontario's Ring of Fire, we outlined seven key challenges that stand in the way of its development. In this section, we provide a status update of the progress that has been made to overcome each of these challenges and propose next steps.

Progress on each challenge is mixed and is represented in the form of a letter grade. Grades were determined based on the input of over sixty experts from the mining, engineering, infrastructure, not-for-profit, and post-secondary sectors, and First Nations communities. These grades reflect the extent of progress we believe has been made to overcome the seven major challenges, and do not reflect the performance or actions of any one level of government or Ring of Fire stakeholder.

Progress Grade

F

Challenge 1
Accelerate development of the Ring of Fire

Last year, we urged governments to move expeditiously, but cautiously, on development of the Ring of Fire. Our report found that within the first 10 years of its development, the Ring of Fire will make significant contributions to Ontario's economy by generating up to $9.4 billion in GDP, sustaining up to 5,500 jobs annually, and generating nearly $2 billion in government revenue.

Progress

Despite its discovery seven years ago, Ontario is still years away from opening a first mine in the Ring of Fire.

Many firms have been waiting over a year for exploration permits, which grant them permission to undertake conditional exploration activities (Ontario Ministry of Northern Development and Mines, 2015a).

Noront Resources has been waiting over two years for the Province to approve their Environmental Assessment (EA) Terms of Reference for the Eagle's Nest mine. Without approval of their EA Terms of Reference, Noront Resources cannot proceed with development activities.

About Noront Resources' Eagle's Nest Mine

The Eagle's Nest Mine contains over 20 million tonnes of measured, indicated, and inferred high-grade, nickel, copper and platinum group element (PGE) deposits.

The mine is expected to produce 3,000 tonnes of ore per day over a course of 11 years, with the potential for a further nine years of production. Eagle's Nest will be mined by underground methods and processed to deliver 150,000 to 250,000 tonnes of nickel-bearing concentrate per year (Noront Resources, 2015).

The Province has not provided a timeline for when it expects to move forward with issuing permits. According to the Province's *Environmental Assessment Act*, submitted EA Terms of Reference must be approved or rejected within 12 weeks from the date of submission to the ministry (Ontario Ministry of the Environment and Climate Change, 2015). This means the Province has missed their self-appointed EA Terms of Reference approval date by 113 weeks and counting.

The consensus among observers is that the Province is not willing to move forward with issuing permits until an agreement has been reached with the Chiefs of the Matawa-member First Nations with whom they are currently negotiating. Negotiations are focused on finding a mutually-acceptable approach for development in the Matawa territory. There is currently no timeline for the completion of the negotiations.

The Province should recognize that it is possible to advance two agendas in parallel: the Matawa-Ontario Regional Framework Agreement negotiations and activities related to the development of mine operations, so long as those activities honour the spirit and intent of the Regional Framework Agreement. Simply put, the Province should allow mining activities that respect the principles outlined in the Regional Framework Agreement (see page 14 for a discription of those principles).

There are factors beyond permitting delays that have slowed momentum in the Ring of Fire, including the departure of Cliffs Natural Resources and the subsequent absence of a major mining firm capable of contributing funds to the development of infrastructure. However, even with the presence of a major mining firm, regulatory barriers would likely remain a significant immediate barrier to the region's development.

> "Other countries see the Ring of Fire and wish they were so lucky to find these kinds of deposits in their backyards. Why aren't we seizing on the opportunity?"
>
> Mining Advisory Council member

Progress Grade: F

We are no closer to opening a mine in the Ring of Fire. A lack of infrastructure and permitting delays have ground activity to a near halt.

Recommendation 1: Open a first mine to build momentum in the Ring of Fire. Mines that are furthest along in the permitting process should be a priority. Government can and should allow activities related to the development of mine operations, so long as those activities honour the spirit and intent of the Matawa-Ontario Regional Framework Agreement.

Progress Grade

C

Challenge 2
Follow through on the Regional Framework Agreement between the Chiefs of the Matawa-member First Nations and the Government of Ontario

Last year, we called on the Chiefs of the Matawa-member First Nations and the Government of Ontario to establish an agreement that would ensure that First Nations participate in, and benefit from, the development of the Ring of Fire.

Progress

In March 2014, the Chiefs of the Matawa-member First Nations and the Government of Ontario entered into a Regional Framework Agreement that will guide future agreements between government and First Nations in proximity to the Ring of Fire (Ontario Ministry of Northern Development and Mines, 2015c).

The objectives of the Regional Framework are to facilitate negotiation for any agreements that touch on four key priority areas: long-term environmental monitoring; industrial and regional infrastructure planning and implementation; improving community social and economic development supports in the First Nations; and the equitable sharing of the economic benefits of mineral and related development associated with the Ring of Fire (Ontario Ministry of Northern Development and Mines, 2015c).

The completion of the Regional Framework Agreement is only the start of what could be a lengthy process. Since the Agreement was signed, there have been few indications that progress is being made at the negotiating table.

Most observers of the Ring of Fire believe the unclear timelines of the Matawa-Ontario negotiations are hurting the business case for development. Junior mining firms cite uncertain timelines around First Nations negotiations as a significant impediment to raising capital.

That being said, all parties involved recognize that the negotiation process cannot be rushed. Ontario's negotiations with Matawa are complicated by lingering resentment over Treaty 9, the agreement established in 1905 between the federal government and members of what is now known as Nishnawbe Aski Nation (NAN). Many First Nations feel that the Treaty has been ignored and that development in the Ring of Fire should be part of the ongoing process of treaty implementation (Wabasse, 2015). Further, until recently, Matawa-member First Nations lacked the legal and technical capacity to conduct these negotiations. Developing this type of expertise has proven to be time consuming.

However, the importance of these negotiations does not preclude them from being more transparent. There are a number of businesses interested in or currently investing in the Ring of Fire, whose efforts are being inhibited by the opaque nature of these negotiations. These businesses need the ability to plan and budget accordingly, but they cannot do so in a climate that is characterized by uncertainty. Given that First Nations communities and the Government of Ontario view this development as an economic opportunity, they should do more to ensure that the relevant stakeholders are made aware of the state of negotiations and the timelines for the negotiating process.

Progress Grade: C

In March 2014, the Chiefs of the Matawa-member First Nations and the Government of Ontario agreed to a Regional Framework Agreement that will guide future agreements between government and First Nations in proximity to the Ring of Fire. Since then, however, it is unclear to anyone not involved with these talks whether progress has been made at the negotiating table.

Recommendation 2: The Chiefs of the Matawa-member First Nations and the Government of Ontario need to create more openness around the Regional Framework Agreement negotiations. As it stands, there is little public understanding of the nature of the negotiations or the timeline for their completion. This uncertainty is hurting the ability of businesses active in the Ring of Fire to raise capital. As a start, the negotiating partners should issue public quarterly updates on the status of the Regional Framework negotiations.

Progress Grade

C-

Challenge 3
Address the physical infrastructure deficit in the Ring of Fire

Last year we advised government to develop a long-term infrastructure plan for the Ring of Fire and to commit dedicated funds to advance the area's transportation infrastructure. We also called on the Province to equip the Ring of Fire Infrastructure Development Corporation (ROFIDC) with the tools and resources it needs to fulfill its mandate.

Progress

Transportation Infrastructure Planning

There is still no plan in place for transportation or electricity infrastructure leading to the Ring of Fire. The absence of physical infrastructure in the Far North remains a significant barrier to the region's development.

In late 2014, the Province created the ROFIDC, a not-for-profit corporation responsible for financing, building, operating, and maintaining strategic transportation infrastructure in the Ring of Fire (Ontario Ministry of Northern Development and Mines, 2015d).

The ROFIDC's current board of directors is made up solely of Ontario public servants, and will not be broadened to include membership from First Nations and industry partners until an agreement in principle with key partners is finalized. There are no timelines for the completion of the agreement (Ontario Ministry of Northern Development and Mines, 2015d).

The apparent lack of stakeholder participation in the ROFIDC has frustrated some stakeholders who are concerned that their voices may not be heard in the infrastructure planning process. Further, many believe that the ROFIDC has been 'put on the backburner' until the Matawa-Ontario negotiations are finalized.

Infrastructure planning must be a short-term priority. Government, with the input of First Nations and industry partners, should advance a long-term transportation infrastructure plan that is in keeping with the spirit of the Regional Framework Agreement, and is guided by principles similar to those outlined in the Agreement. As such, decisions around transportation infrastructure planning should be guided by the following principles:

- infrastructure provides a cost-effective method of transportation that facilitates the development of the Ring of Fire;
- infrastructure opens up other economic development opportunities in the Far North and takes into account planned developments; and
- infrastructure improves the connectivity of Far North First Nations communities.

Other Infrastructure Development

Once transportation infrastructure is established, government should use, to the greatest extent possible, the same corridor(s) to build electricity and fibre optic connections that would provide grid-based electricity and broadband connectivity to remote communities. Building along the same corridor minimizes ecological disruption.

Further, government should explore the possibility of building hydroelectric dams in the region. The results of preliminary exploratory studies are encouraging: in 2013, Hatch Ltd. concluded that several high potential waterpower sites exist within the Ring of Fire region, including sites on the Albany River, Windsor Lake, and Winisk Lake, among others (2013).

Enabling the capacity to generate electricity locally would allow government and the private sector to avoid the costs associated with building 300km worth of transmission lines. In addition, establishing this approach would create employment and ownership opportunities for local First Nations, as has been done elsewhere in Ontario. Consider, for example, the partnership between Ontario Power Generation (OPG) and Moose Cree First Nation for the Lower Mattagami River Hydroelectric Project. This $2.6 billion dollar project will deliver 438 Megawatts (MW) of clean, renewable power, and provides the Moose Cree First Nation with up to a 25 percent equity share in the project (Ontario Power Generation, 2015a). In Northwestern Ontario, OPG has partnered with Lac Seul First Nation to build a 12 MW hydro generating station on the English River. Lac Seul First Nations owns a 25 percent stake in the partnership. Both the Moose Cree and Lac Seul projects can be used as templates for further partnership with First Nations in the Ring of Fire (Ontario Power Generation, 2015b).

Infrastructure Funding

On the transportation infrastructure front, the Province has committed up to $1 billion for strategic transportation infrastructure in the Ring of Fire and has asked the federal government to match its investment. This strategic commitment is creating greater certainty in the Ring of Fire. For its part, the federal government has declined to put transportation infrastructure funds on the table before being presented with a detailed infrastructure plan from the Province (see page 25 for more).

Private sector players have acknowledged that they will need to contribute funds for transportation infrastructure leading to the Ring of Fire. Their investment will be much needed, as it will cost an estimated $1.74 billion to build the roads, rail, and power line transmission needed to service Ring of Fire mines (Dadgostar et al., 2012). As is stands, the lack of a major player in the Ring of Fire raises questions about the ability of the private sector to contribute to physical infrastructure.

Progress Grade: C-

While the Province has committed $1 billion to transportation infrastructure in the Ring of Fire, the federal government has declined to put funds on the table before being presented with an infrastructure plan. The lack of federal commitment to Ring of Fire infrastructure is negatively impacting the investment climate.

Recommendation 3: In order to elicit federal investment, the Government of Ontario should develop a transportation infrastructure plan, through the Ring of Fire Infrastructure Development Corporation, to be presented to the federal government for matched funding. The construction of an all-season road from the Ring of Fire to Pickle Lake or Nakina should be a priority in the short-term.

Recommendation 4: Government should adopt an incremental approach to infrastructure development by building electricity and fibre optic connections once transportation infrastructure is completed. This type of infrastructure would provide grid-based electricity and broadband connectivity to remote communities. An incremental approach to infrastructure development distributes costs over time.

Recommendation 5: The Government of Ontario should conduct a cost-benefit analysis on the merits of establishing hydroelectricity generation in Ontario's Far North. Establishing local generating capacity would offer mine sites with reliable and affordable access to power, would connect nearby First Nations to the electricity grid, and could create employment and ownership opportunities for local First Nations.

Progress Grade

B-

Challenge 4
Draw as much as possible from the local labour force in order to maximize the benefits of the Ring of Fire for Ontario

Uncertain development timelines afford government, post-secondary institutions, and businesses the time to partner with First Nations to make the required investments in education and skills upgrades. As such, last year we urged the public and private sectors to invest in upgrading the skills of the residents of First Nations communities in proximity to the Ring of Fire.

Progress

Primary Education

Last year, we asked the Government of Canada and First Nations groups to follow through on a framework for First Nations education that would improve on-reserve education outcomes. At the time, things looked promising: in April 2014, the Government of Canada and First Nations groups agreed to a new legislative framework for First Nations education (Bill C-33, the *First Nations Control of First Nations Education Act*) to support improved quality of education and better results for First Nations on-reserve students.

However, months later, the Assembly of First Nations (AFN) withdrew its support for the legislation, citing concerns that the bill did not adequately account for "regional and local diversity" (Assembly of First Nations, 2014). The AFN called on the federal government to create a new fiscal framework for First Nations education systems that would see an immediate federal commitment of $1.9 billion aimed at "closing the gap in funding for First Nations education" (Ibid).

There is currently little alignment between the AFN and the federal government on an educational reform framework. Yet a new framework is sorely needed, as it is generally accepted that federal funding for Aboriginal education falls significantly short of parity with provincial education spending on a per-student basis (Commission on the Reform of Ontario's Public Services, 2012). According to a recent estimate, a federal injection of $100 million a year is required to close the gap for Ontario's on-reserve students (Sniderman, 2012).

The imperative for federal investment is not just a social one. According to one study, the financial impact associated with closing the education and labour market gaps between Aboriginal and non-Aboriginal communities would significantly drive Canada's GDP upward, by an estimated $401 billion over a 25 year period (Centre for the Study of Living Standards, 2009).

Training Programs

Last year, we also asked Ontario's employers and post-secondary institutions to expand training partnerships that build skills in the First Nation labour force. There are several government and private sector training programs in place that are building skills and capacity in First Nations communities in the Far North, the most notable being the Ring of Fire Aboriginal Training Alliance (ROFATA).

The ROFATA is the result of a joint partnership, begun in 2013, between Noront Resources, Confederation College, and Kiikenomaga Kikenjigewen Employment and Training Services (KKETS), the Matawa body that delivers and assists with the implementation of training programs (Matawa First Nations Management, 2015). The program offers both community-based essential skills and readiness programming. As of November 2014, the ROFATA had completed or was running 20 training programs with over 370 Matawa First Nation community members having participated. The ROFATA is funded in part by the Federal Skills and Partnership Fund, with funding set to expire in March 2015.

While the program has successfully trained many community members, government's hesitancy to move forward with issuing permits has slowed the creation of new jobs in which graduates could employ their new skills. Noront Resources is now in the unenviable position of having to turn potential trainees away until exploration activities can resume.

Post-secondary Education

Last year, we called on government and the major players in the post-secondary education system to undertake a concerted effort to produce the next generation of mining experts. Why? Because a focus on the mining labour market is sorely needed: over the next 10 years, Ontario's mining industry will require 59,000 new workers (Mining Industry Human Resources Council, 2013), and many of those exiting are in leadership positions (Dadgostar et al., 2012).

Colleges are well positioned to understand industry needs and develop programs that respond to them. However, there is room for greater collaboration within the college sector as it seeks to plug the gaps in key sectors. Encouragingly, Ontario's northern colleges have signed a memorandum of understanding to provide a broader range of learning opportunities and supports to residents and communities of Northern Ontario.

Colleges also have a role to play in improving on-reserve education attainment levels. Nearly 29 percent of Aboriginal people aged 25 to 64 have no certificate, diploma or degree while the proportion for non-Aboriginal people in the same age group is 12 percent (Statistics Canada, 2014).

Many colleges offer enhanced curriculum programs that provide students with high school equivalency diplomas. These types of programs can be completed in less than a year. Colleges do not receive provincial funding for these programs and so they rely on student fees to recover costs. For First Nations in the Far North, these costs are often prohibitive. Colleges have been asking for operational funding that will allow them to offer high school equivalency diplomas to First Nations peoples, at no cost to the user.

Progress Grade: B-

Public-private training partnerships have produced good results. Over 370 Matawa First Nation community members have participated in the Ring of Fire Aboriginal Training Alliance. However, in the absence of a new agreement and adequate funding for a new First Nations primary education framework, on-reserve education outcomes will continue to lag behind those produced by non-reserve schools. Improvements to First Nations on-reserve education outcomes are a prerequisite to First Nations' meaningful participation in the labour force.

Recommendation 6: Build up skills in Ontario's northern First Nations communities. Governments need to capitalize on the untapped potential of the Far North's First Nations communities. This requires a comprehensive approach to First Nations' education and skills upgrading, from the primary to post-secondary levels. We have identified three tangible actions that should be taken over the near term:

a) The federal government and the Assembly of First Nations need to engage in constructive dialogue and agree on a new framework, and funding arrangement, for First Nations on-reserve education.

b) The federal government should extend funding for programs that equip First Nations with on-the-job skills, while the Province should end permitting delays that are limiting opportunities for First Nations seeking employment.

c) The Province should provide colleges with operational funding for high school equivalency programs so that participating First Nations students can obtain a high school equivalency diploma free of cost.

Progress Grade

D

Challenge 5
Capture more value-added processes in Ontario

Last year, we called on government to put a plan in place that would facilitate Ontario's entry into the highly competitive global chromite market. *Beneath the Surface* identified a number of factors unique to the Ring of Fire that increase the cost of chromite extraction. Among those factors is the remote location of the Ring of Fire—situated roughly 330 km from the nearest highway and rail station in Nakina—and rising energy prices that will almost certainly deter firms from processing extracted minerals within the province. Combined, these factors pose a significant challenge for Ontario policy makers, who are intent on capturing as much of the value-added benefits of the Ring of Fire.

Progress

Any newcomer looking to break into the chromite market will be faced with a significant challenge: keeping production costs low enough to compete in the highly competitive global chromite market.

There are indications Ontario's producers would be able to compete with the world's most efficient chromite producers. According to KWG Resources, an exploration stage company with a 30 percent stake in the Big Daddy chromite deposit, low transportation and energy costs are the keys to sharpening Ontario's competitive edge in the global market (2014).

Transportation

Two forms of transportation are dominating the debate over infrastructure for the Ring of Fire: roadways and railways.

In the short-term, building a road to the Ring of Fire makes good economic sense. The upfront capital costs for the construction of a road are relatively low: $600 to $1 billion, compared to the estimated $1.5-$2 billion that it would cost for a rail line to the same destination (Noront Resources 2012, Tetra Tech 2011). Unlike an industrial rail line, a road would open up the Far North to more exploration and economic activity and improve the connectivity of remote First Nations communities.

However, given the high volume of extraction needed to support a chromite operation (chrome ore prices are currently $1/lb compared to $6.70/lb for nickel), in the long-term, the lowest cost method of transportation should prevail (KWG Resources, 2013b). A 2011 study from Tetra Tech suggests that rail transportation costs roughly six times less than the cost of trucking by road ($10.50 per tonne for the railroad versus $60.78 per tonne by road) (Tetra Tech, 2011; KWG Resources, 2013b). These savings would grow exponentially in step with increases in the volume of chromite shipped on a yearly basis.

The additional benefit of a railroad is that, because of its lower cost, it could support the shipment of raw chromite ore from the Ring of Fire to Nakina (the most northern stop point for CN Rail) for concentration (Sudol, 2013a).

A Slurry Pipeline in the Ring of Fire?

KWG Resources has proposed an alternate low-cost method of transportation: a slurry pipeline that would bring chrome ore south (KWG Resources, 2014). In a slurry pipeline, ore concentrate is mixed with water and can be pumped over a long distance. These types of pipelines are the transportation method of choice for many remote mine operators, including the operators of the Ambatovy nickel mine in Madagascar, who use a slurry pipeline to transport nickel concentrate along a distance of more than 200km (SNC Lavalin, 2015).

This approach offers a more affordable option than railroad or road transport and according to research causes less environmental disturbance (Hinrichs, 2012). However, in the context of the Ring of Fire, a pipeline would require electricity to power its compression stations, and it is unclear where these stations would generate their power.

Electricity Costs

Capturing downstream value throughout all stages of chromite production is an essential factor in maximizing the economic benefits of the Ring of Fire. This means ensuring as much or all of the chromite concentration processing, ferrochrome smelting, and stainless steel production takes place within Ontario's borders.

Given current electricity rates, there is no business case to locate a ferrochrome smelter or stainless steel plant in the province. Ontario's current electricity prices are higher than neighbouring jurisdictions. In the two years since the Government of Ontario released its Long-Term Energy Plan, the cost of electricity for industry has increased by 16 percent (Ontario Power Authority, 2014).

There are actions government can take to address rising electricity prices, a problem that affects all of Ontario's major industrial consumers (see pages 27-28 for more). However, even with reduced electricity prices, the process of ferrochrome smelting is still prohibitively expensive, given its electricity-intensive nature. As such, the Province should explore innovative ways to reduce energy costs.

The private sector has already begun to investigate low-energy smelting processes. For example, KWG Resources is in the process of testing a method that converts chromite into a metallised chrome and iron alloy, using natural gas. Initial results are encouraging: the direct energy costs associated with processing one tonne of concentrate into metallized ferrochrome alloy are less than half those required when using conventional technology (KWG Resources, 2014; KWG Resources, 2013a).

Breaking into the stainless steel market is another approach that would capture the downstream value from the Ring of Fire. As it stands, the only stainless steel producer in Ontario is Welland's ASW Steel Inc., which dedicates 30 percent of its production capacity to stainless steel (Sudol, 2013c).

Like ferrochrome smelting, the stainless steel-making process is energy intensive. Given current electricity rates in the province, attracting investment to this type of activity would be challenging (Sudol, 2013b). However, the province already produces, or is set to produce, much of the raw material used in the production of stainless steel, including nickel and chromite. Access to local mineral supplies could give Ontario stainless steel producers an edge over their international competitors. Given the economic impact it could have, Ontario has a responsibility to examine the feasibility of developing a domestic stainless steel industry.

Progress Grade: D

No serious consideration has been given to how government can help mining firms break into the chromite market and how Ontario and Canada can capture downstream value from chromite derived alloys and products.

Recommendation 7: Make Ontario the lowest-cost producer of chromite in the world. In order to break into the highly competitive global chromite market, and retain as much downstream value as possible within the province, the Government of Ontario needs to put a plan into place to help make Ontario's chrome ore/ferrochrome industry the most cost-efficient on the planet. Over the long-term, industry will need government support to develop low-cost transportation methods. Over the short-term, the provincial and federal governments should partner with the private sector to invest in Research & Development to explore innovative technologies that can reduce energy consumption.

Progress Grade

F

Challenge 6
Make the Ring of Fire a national priority

Last year, we urged the federal government to take on a more active role in the development of the Ring of Fire by matching any provincial investments in infrastructure.

Progress

The federal government has declined to commit infrastructure funds for the development of the Ring of Fire, asking that the Province instead apply for funding through the Building Canada Fund. The Province has voiced its discontent, as the total allotment for Ontario under the Fund is $2.7 billion over 10 years, a far cry from what Ontario needs to fund infrastructure priorities across the province (Babbage, 2014).

Stakeholders are divided on whether the onus is on the federal government to match the Province's $1 billion contribution or on Queen's Park to present Ottawa with a transportation infrastructure plan for matched funding. There is consensus that intergovernmental quarreling has been unhelpful and that the investment climate would improve as a result of a clear infrastructure funding commitment from the federal government.

The December 2014 meeting between Ontario Premier Kathleen Wynne and Prime Minister Stephen Harper is a positive development. Both leaders have signaled that the project is a priority for their governments. We strongly encourage both levels of government to work toward an agreement that commits the federal government to matching the Province's $1 billion investment in Ring of Fire transportation infrastructure.

While commitments to infrastructure funding are lacking, the federal government has invested more than $35 million in 85 projects over the last four years to support initiatives that have the potential to lead to greater access, including transportation, hydro, broadband, and skills training (Dimatteo, 2014).

Progress Grade: F

The federal government has yet to demonstrate that the Ring of Fire is a national economic development priority.

Recommendation 8: Commit federal funds to Ring of Fire transportation infrastructure. The federal government must commit matching federal funds for Ring of Fire transportation infrastructure. The federal investment should be drawn from the National Infrastructure Component (NIC) of the Building Canada Fund. The NIC provides funding for projects of national significance, with a focus on projects that have broad public benefits, and that contribute to long-term economic growth and prosperity. Investments in the Ring of Fire meet this criteria.

Progress Grade

C

Challenge 7
Address the barriers that impede the development of the Ring of Fire, and more broadly, the competitiveness of the mining sector

Last year, we asked the government of Ontario, in partnership with the mining sector, First Nations, and key stakeholders, to take actions that support the competitiveness of Ontario's mining sector.

Mining companies are faced with rising energy and labour costs and have been making additional capital investments to meet new provincial environmental regulations. Further, mining companies face stiff competition for what limited capital is available. More broadly, Ontario businesses pay some of the highest workplace insurance premiums in the country, will shortly have to pay into a new, mandatory Ontario Retirement Pension Plan, and seem likely to be subject to a carbon pricing regime.

Progress

Electricity Costs

Ontario mining companies cite high electricity prices as a key barrier to maintaining existing jobs, expanding operations, and developing new deposits. Organizations like the Ontario Mining Association have been advocating on behalf of the mining sector for access to a reliable supply of low-cost electricity. The Province's Northern Industrial Electricity Rate (NIER) program is a good start. For the last several years, the NIER program offers eligible participants a rebate of two cents per kilowatt hour, which can result in a price reduction of up to 25 percent. However, only mines that met the qualification criteria in 2010 are eligible for the NIER program extension announced in 2012, leaving at least six mining companies at a competitive disadvantage.

The NIER notwithstanding, rising electricity prices continue to have a significant impact on Ontario's business climate. As noted earlier, in the two years since the Government of Ontario released the Long-Term Energy Plan, the cost of electricity for industry has increased by 16 percent (Ontario Power Authority, 2014).

The Mining Tax Rate

Many observers have been concerned for years that the government could raise the provincial mining tax rate. This concern may be unfounded, as there was no reference to a review of the mining tax in the last provincial budget or in the government's 2014 Fall Economic Statement. However, the current government has previously mused about reforming the mining tax, creating uncertainty in the mining community. The mining tax is applied to profits from the extraction of mineral substances raised and sold by operators of Ontario mines (Ontario Ministry of Finance, 2015). The mining tax rate is 5 percent for remote mines and 10 percent for non-remote mines.

Finally, new provincial programs and policies, including the adoption of a carbon pricing regime, create new costs for businesses in all sectors. The impact of these new programs will compound the challenges being faced by Ontario's mining sector, given the state of the commodity market.

Progress Grade: C

While programs like the Northern Industrial Electricity Rate have helped, Ontario's rising electricity rates are hurting business competitiveness. Further compounding the problem is a host of new provincial programs and policies that will add costs onto business. Ontario's mining sector, like many others in the province, cannot afford increases in its costs of production.

Recommendation 9: Strengthen the competitiveness of Ontario's mining sector.

To maintain existing mining operations and create a better investment climate, Ontario needs to ensure that its electricity and tax rates are competitive. Ontario should make permanent the Northern Industrial Electricity Rate (NIER) Program and maintain its mining tax rate.

Conclusion

Over the past year, progress in the Ring of Fire has proven elusive. Permitting delays, an absence of infrastructure, and inter-government quarrelling have slowed activity considerably. We are no closer to opening a mine than we were a year ago.

It would be unfair to attribute blame for lack of progress to any one government or group. However, it is the collective responsibility of government, the private sector, and First Nations communities to do all they can to catalyze movement in the Ring of Fire and overcome the barriers to its development. As it stands, development timelines are uncertain. It is this uncertainty that is the greatest barrier to development.

As we noted last year, without greater public awareness and increased pressure on all levels of government, development of the Ring of Fire is likely to be slow. Third parties like the OCC have a responsibility to educate the public about the Ring of Fire and the far-reaching economic opportunities it offers. This report is part of our effort to do just that.

Over the coming year, we will track progress and hold relevant actors accountable. As a start, governments of all levels need to demonstrate that the Ring of Fire is an urgent priority. As an investment opportunity, the Ring of Fire's viability suffers every year that goes by without progress. Already, junior exploration firms are struggling to raise the necessary capital to advance their projects—citing a lack of certainty in the investment community.

Despite the pace of progress, we remain confident that the business case for the Ring of Fire is strong—as is the public's appetite for its development.

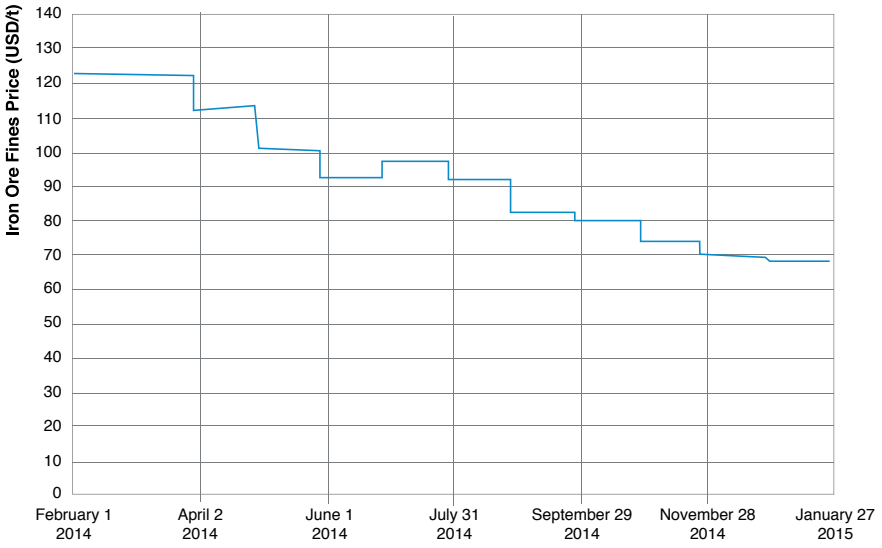
Appendix: Select Commodity Prices and Projections

Iron Ore Prices and the Impact on the Ring of Fire

Cliffs Natural Resources, an American iron ore company, withdrew from the Ring of Fire in 2014. Their decision reflects the financial hardships their company has endured as a result of the stunning decline in iron ore prices. Over the past year, as a result of slowing Chinese demand, the price of iron ore has fallen dramatically from $136/tonne to $69/tonne (nearly a 50 percent price drop).

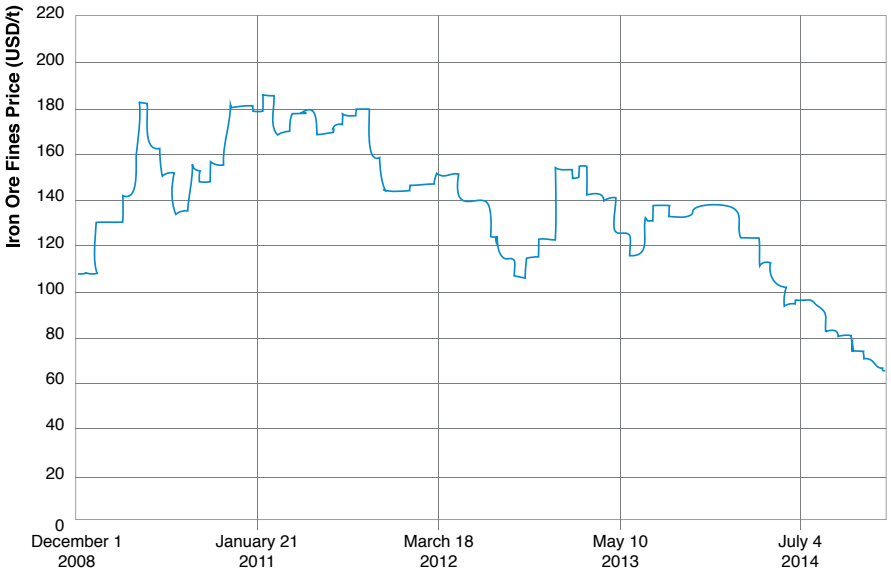
Graph 1 shows the steady and swift decline of iron ore prices in 2014. Graph 2 shows the ebbs and flows of iron ore prices over the last 5 years.

GRAPH 1: IRON ORE FINES PRICE
67.84 USD/t January 31, 2015



Graph 1 source: Invest Mine: Mining Markets and Investments

GRAPH 2: IRON ORE FINES PRICE
67.84 USD/t January 31, 2015



Graph 2 source: Invest Mine: Mining Markets and Investments

Nickel Prices and the Impact on the Ring of Fire

Nickel prices are a key indicator of the economic viability of the Ring of Fire, as nickel is the primary resource in Noront Resources' Eagle's Nest mine. Table 1 provides a summary of expert forecasts for the next three years.

Table 1: Nickel Price ($/lb) Forecast, 2015 - 2018

	Nickel Spot Price Jan 29 '15	2015	2016	2017	2018
Toronto Dominion Bank	6.67	9.22	12.00	N/A	N/A
BMO Capital Markets		8.15	9.40	N/A	N/A
RBC Capital Markets		11.00	12.00	14.00	15.00
World Bank		7.71	7.75	7.80	7.84
Economist Intelligence Unit		9.60	10.70	11.50	10.80

Sources:
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BMO Capital Markets. 2014. *Commodity Forecasts.* http://www.bmonesbittburns.com/economics/goods/current/Default.asp?article=2

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Knoema. 2015. *World Bank Nickel Price Forecast to 2025, EIU Nickel Price Forecast 2013-2018.* http://knoema.com/ydolvrc/nickel-prices-forecast-long-term-to-2025

Nickel prices have fallen somewhat over the last several years but are expected to rebound. See Graphs 3 and 4 for a 1 year and 5 year history of nickel prices.

GRAPH 3: NICKEL PRICES
6.32 USD/lb February 19, 2015

Graph 3 source: Invest Mine: Mining Markets and Investments

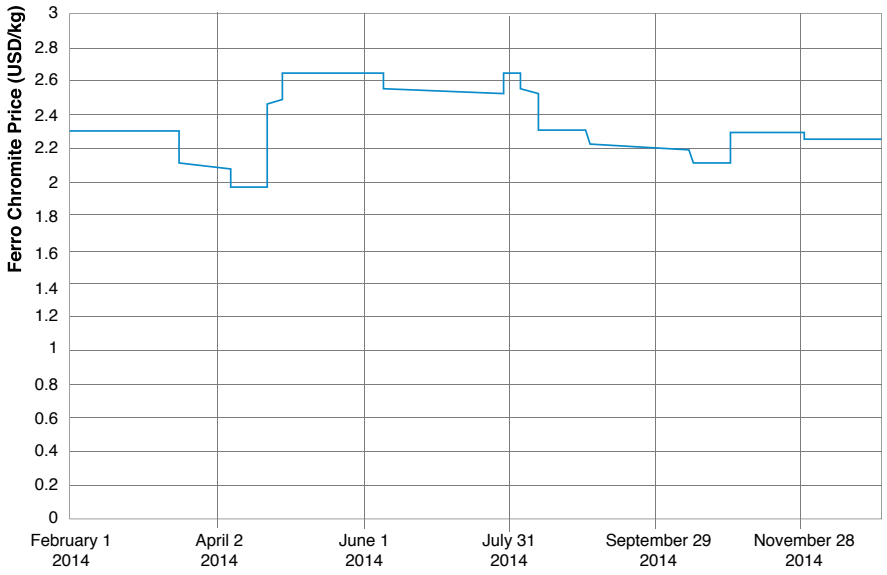
GRAPH 4: NICKEL PRICES
6.32 USD/lb February 19, 2015

Graph 4 source: Invest Mine: Mining Markets and Investments

Ferrochrome Prices and the Impact on the Ring of Fire

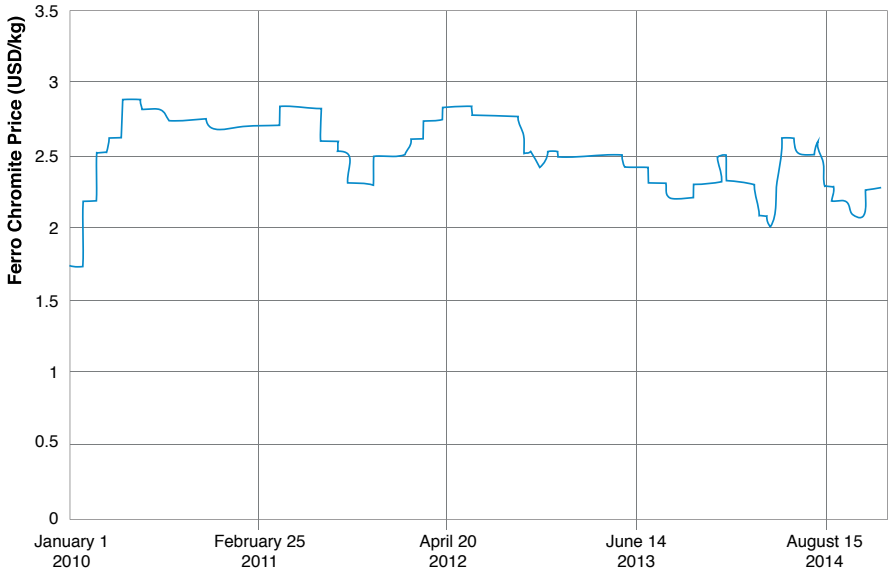
The price of ferrochrome is a key indicator of the business case for the Ring of Fire as it broadly reflects global demand for chromite. As Graphs 5 and 6 demonstrate, the price of ferrochrome has remained fairly constant over the last several years.

GRAPH 5: FERROCHROME PRICE
2.27 USD/kg, December 31, 2014



Graph 5 source: Invest Mine: Mining Markets and Investments

GRAPH 6: FERROCHROME PRICE
2.27 USD/kg, December 31, 2014



Graph 6 source: Invest Mine: Mining Markets and Investments

Members of the Ontario Chamber of Commerce's Mining Advisory Council

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- George Darling, SNC Lavalin
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- Paul Semple, Noront Resources
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Ontario's Ring of Fire could sustain up to 5,500 jobs per year and generate $9.4 billion dollars in economic activity over the first ten years of development. But progress on this extraordinary opportunity has been slow. Where are we now? And more importantly, what needs to be done to unleash the economic potential that lies beneath the surface in Ontario's Ring of Fire?

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