



CHOOSING QUÉBEC'S MINING SECTOR

October 2015

ENSEMBLE  *on fait avancer le Québec*

Québec 

Note to the reader

This report provides a portrait of mining activities for metals (iron and titanium; gold; nickel, platinum group elements and cobalt; copper; zinc; niobium and tantalum; lithium; rare earths). The report also examines graphite, phosphate and diamonds. Mining activities related to the industrial minerals: feldspar, mica, salt and silica **are not addressed** in this report.

For each metal or mineral substance presented in this report, the authors have described the mining context, recent production data, and notable mining and exploration projects. The mineral reserves and mineral resources for mining projects that have, at minimum, passed the preliminary economic assessment phase are presented as tables.

For each metal or mineral substance presented, a location map shows the active mines, mining projects and exploration projects for which NI 43-101 resources have been published within the last five years.

Finally, to underscore the most promising areas for exploration, the report presents mineral deposits with established tonnages and showings recorded in the *Système d'informations géominières du Québec* (SIGÉOM) database, but these are not identified individually. Deposits and showings are only presented for mineral substances that are considered to be new and under-exploited commodities.

The information in this document is current as of July 2015.



Photos credits

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Agnico Eagle Mines: 2, 5, 11

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MESSAGE FROM THE MINISTER FOR MINES, LUC BLANCHETTE

Québec: One of the world's ten most attractive jurisdictions for mining investment

In early 2015 the Fraser Institute released the results of its annual survey to identify the world's most attractive jurisdictions for mining investment. Québec has made a spectacular move up this prestigious list, jumping from 18th in 2013 to 6th in 2014. We are very proud of this result.

This is not a chance occurrence. If mining company executives around the world are looking at Québec, it is because all the conditions are now in place for responsible, profitable mining development in Québec.

The Québec government is working hard to establish a stimulating and advantageous framework for investment. It has implemented its ambitious *Plan Nord*, a program for sustainable resource development in northern Québec in which mining plays a leading role. It is going ahead

with its maritime strategy, which aims to strengthen Québec's position as a hub for transatlantic trade, another key advantage for the growth of the mining industry. It has taken steps to promote mineral exploration, extend geo-scientific knowledge about the land base to reveal more of its immense mineral potential, stimulate research and development in the area of responsible mining development, and open up new perspectives for Québec's mining industry.

This document reviews the current situation of the mining sector and the conditions governing exploration and extraction in Québec. It highlights the broad range of mineral potential and the numerous advantages offered to investors in Québec. You will quickly understand why Québec is now one of the most attractive mining destinations in the world!

A handwritten signature in black ink, appearing to read 'Luc B.', with a stylized flourish at the end.

Luc Blanchette
Minister for Mines



Photo: MERN

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Photo: Richmond Mines

INVESTING IN QUÉBEC'S MINING SECTOR

The province of Québec and its mining sector

Québec is the largest federated State in Canada (1,667,441 km²), and has a population of 8.2 million inhabitants. Québec is strategically positioned, just northeast of the United States, near major population centres and industrial hubs. Europe and Asia are also easily accessible from Québec thanks to its deep-sea ports.

Québec accounts for a fifth of Canada's mineral production. It is the most diversified producer in Canada given its production and beneficiation of 15 metallic and 13 non-metallic minerals. This diversification will increase with the arrival of new mining projects for lithium, rare earths and phosphate, and the start-up of production at a diamond mine, slated for 2016.

Québec has tremendous mineral potential, such that mineral resources for commodities already being mined may be replenished and new resources may be discovered for metals and mineral commodities that will be in demand in the years to come.

The tax regime for companies in Québec is competitive, and its policies are stable and adapted. Investors can take advantage of a number of incentives when they come to Québec to do business.¹

The latest survey from the Fraser Institute² demonstrates investor interest in Québec, which ranks sixth among the world's most attractive jurisdictions for mining investment.

Infrastructure

Québec is a major producer of electricity, as well as the fourth-largest hydropower generator in the world. Ninety-eight percent of this production comes from renewable sources.

Québec offers investors green and renewable power, accessible over much of its territory through a reliable distribution network.³ Companies can also take advantage, based on their consumption, of highly competitive power rates.

Québec has many deep-sea ports, including the port of Sept-Îles, the most important ore-shipping port in North America, which also offers a rail link to the New Québec Orogen (also called the Labrador Trough).

Québec's landmass is accessible via an extensive network of road, rail, maritime and air transportation infrastructure.⁴ Map 1 provides an overview of the latter.

The Government of Québec has made it a priority to develop access to the vast expanse of land targeted under the *Plan Nord*, both in terms of transportation infrastructure (road, rail, maritime or air) and power supply infrastructure (hydroelectric power or natural gas).

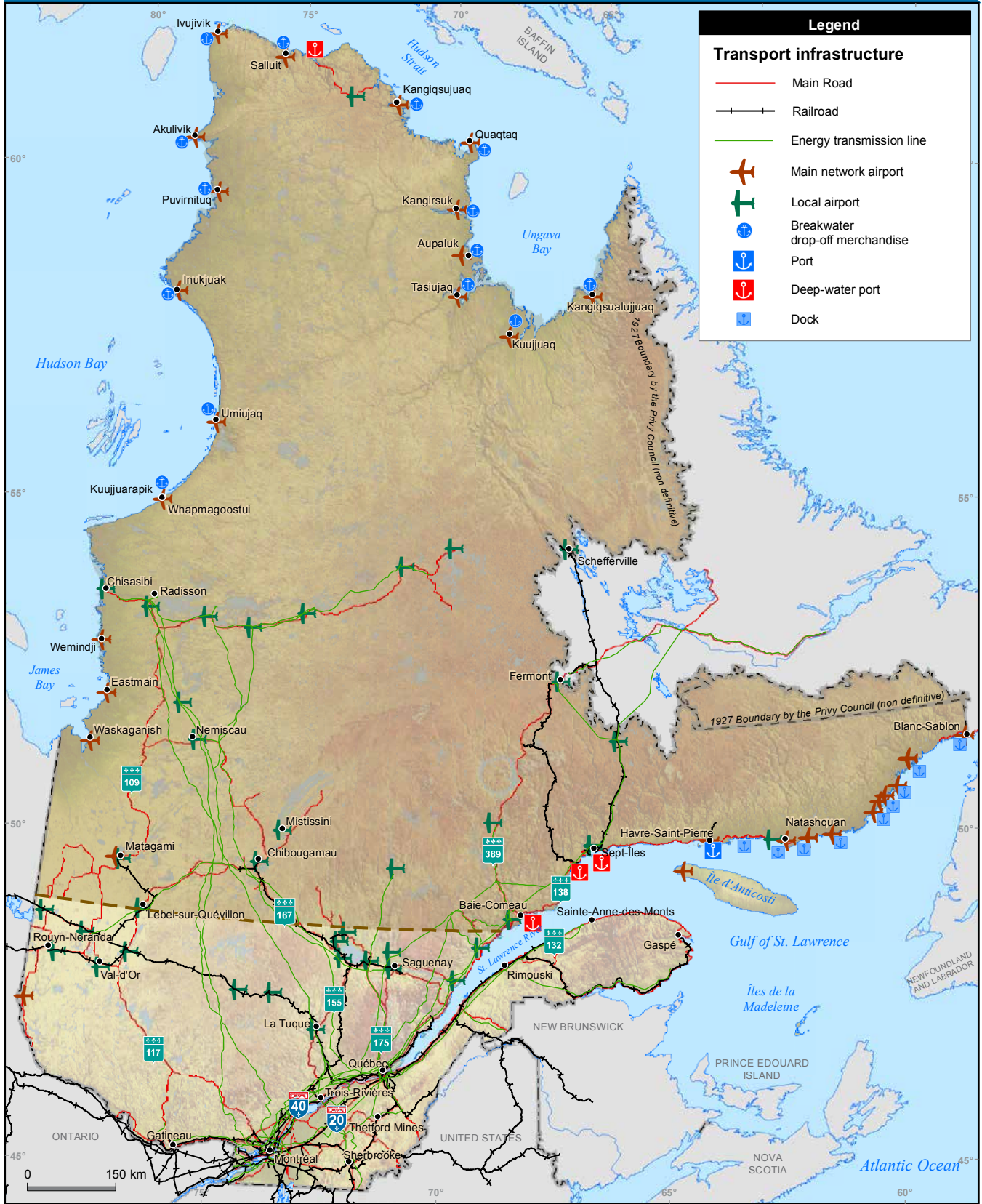
¹ www.investquebec.com/international/en/why-quebec/tax-incentives.html

² www.fraserinstitute.org/research-news/display.aspx?id=22259

³ www.hydroquebec.com/majorcustomers

⁴ www.investquebec.com/international/en/why-quebec-transportation-infrastructure.html

Map 1 - Transport infrastructure in Québec



Area covered by the Plan Nord

Source: Ministère de l'Énergie et des Ressources naturelles
Date: october 2015.

Knowledge management

The acquisition of new geoscience knowledge across Québec's territory is vital for the development of its mining sector.⁵ In 2009, the government agreed to provide the Mining Heritage Fund with CA\$200 million over a period of ten years. Of this amount, CA\$120 million will be earmarked for geoscience knowledge acquisition.

Québec also created the SIGÉOM⁶ database, which contains all the geoscience information collected over more than a century by the industry and the *Ministère de l'Énergie et des Ressources naturelles*. This database, accessible online through an interactive map, is widely acknowledged as one of the most comprehensive in the world.

In Québec, mining titles are managed electronically and are accessible online through the GESTIM Plus⁷ application. This system provides real-time access to up-to-date data from the province's public register of real and immovable mining rights. It can be used to map-designate new claims or renew existing claims, as well as pay the prescribed fees in a secure online environment.

The Government of Québec encourages investments in research and development,⁸ as well as mineral processing activities within its borders.⁹

Workforce

The quality of Québec's workforce is recognized worldwide. As a long-time mineral producer, Québec has skilled workers in every administrative region, as well as a wide range of suppliers specializing in the mining sector, whether for mineral exploration, mining or mine site rehabilitation. More than 45,000 people in Québec work for the mining sector, either directly or indirectly¹⁰.

There are a number of quality learning establishments in Québec that provide workforce training for the mining sector.¹¹ In fact, Québec can count on an institution entirely dedicated to providing training for the mining sector: the *Institut national des mines*.¹²

Community relations

Québec encourages the establishment of a collaborative approach between members of the mining industry and the local and Aboriginal communities where mining activities take place. Some amendments were made to the Mining Act in December 2013 to this effect. In addition, Québec has already signed treaties with three First Nations (Cree, Inuit and Naskapi).

Mining tax regime

The corporate tax rate (combined federal/provincial rate) has been 26.9% since 2012, and the capital tax was abolished in January 2011. Québec's tax regime also offers incentives for investments, processing activities within Québec, and for research and development¹³, including:

- A credit on duties refundable for losses, which allows mine operators to recover the tax value of certain exploration, deposit appraisal and mine development investments prior to production. The tax credit has been 16% since January 1st, 2012.¹⁴
- A refundable tax credit for resources, which entitles companies to a refund of up to 31% of eligible exploration expenditures incurred in Québec.
- Québec's flow-through share regime, through which individual investors may claim deductions of up to 120% of their investment cost.¹⁵

5 www.mern.gouv.qc.ca/english/publications/mines/strategy/mineral_strategy.pdf, page 14

6 sigeom.mrn.gouv.qc.ca/signet/classes/11102_indexAccueil?l=a

7 gestim.mines.gouv.qc.ca/MRN_GestimP_Presentation/ODM02401_ie.aspx

8 www.investquebec.com/fr/index.aspx?page=336

9 www.budget.finances.gouv.qc.ca/budget/2014-2015a/fr/documents/Planbudgetaire.pdf

10 This includes mineral extraction activities, activities in support of mining operations, manufacturing of non-metallic mineral products, and primary processing of metals.

11 www.mern.gouv.qc.ca/english/publications/mines/strategy/mineral_strategy.pdf, page 22

12 www.inmq.qc.ca

13 www.invest-quebec.com/international/en/why-quebec/tax-incentives.html

14 www.mern.gouv.qc.ca/english/mines/fiscal/fiscal-regime-losses.jsp

15 www.mern.gouv.qc.ca/english/mines/fiscal/fiscal-incentives-shares.jsp

The mining tax regime was modified in 2014.¹⁶ The main new measures in effect since January 1st, 2014, are as follows:

- Establishment of a minimum mining tax at a rate of 1% to 4% of the gross output value at the mine shaft head;
- Introduction of progressive rates, ranging from 16% to 28%, used to determine the mining tax on annual profit, based on the company's profit margin;
- Balance between the minimum mining tax and the mining tax based on profit — the higher of the two shall be paid by mining companies;
- Enhanced processing allowance, making it possible to exempt from tax the share of profits made by a mining company that is attributable to mineral processing. Mining companies can take advantage of higher deduction rates for their processing assets, and may exempt from tax up to 75% of their profits.

Mining Act

Québec has modern mining legislation that assures good tenure of mining titles.

The Mining Act was amended in December 2013 to foster dialogue with communities, to encourage mineral processing in Québec, to promote environmental protection and to increase transparency. Among the key elements:

- Regional consultations held by the BAPE (*Bureau d'audiences publiques sur l'environnement*)¹⁷ are required for all metal mining projects or metallic ore processing plants of more than 2,000 metric tonnes per day, and for all rare earth projects. For all other projects, regional consultations must be held by the mining company.
- A new chapter is devoted to consultations with Native communities. A Native Community Consultation Policy for the mining sector will also be published in the fall of 2016.
- Mine operators must set up a monitoring committee to foster the involvement of the local community in the project as a whole.
- The preparation of a scoping and market study for mineral processing in Québec is required before a mining lease is granted.
- Mine operators must submit their rehabilitation plan, which must be approved before a mining lease is granted.
- Since August 2013, mine operators must submit to the MERN a financial guarantee covering 100% of the anticipated rehabilitation costs for the entire mine site.
- To promote greater transparency, the quantity and value of extracted ores and the amount of royalties paid to the State by mining companies will be made public for each mine.

The laws and regulations of Québec may be consulted free of charge online at *Publications du Québec*.¹⁸

¹⁶ www.finances.gouv.qc.ca/documents/autres/en/AUTEN_NewMiningTaxRegime.pdf

¹⁷ www.bape.gouv.qc.ca/sections/mandats

¹⁸ www2.publicationsduquebec.gouv.qc.ca and www.mern.gouv.qc.ca/lois/lois-mines.jsp

Increasing investments and creating value

The Government of Québec is intent on making its corporate tax regime compare favourably with that of its trade partners. Québec wants to offer companies a climate that fosters investment and innovation.

The government grants a ten-year tax holiday for large investment projects.¹⁹ This tax holiday applies to corporate income tax and contributions to the Health Services Fund.

The government wants to quickly spur development north of the 49th parallel. Major investments will be made to support previous efforts undertaken under the *Plan Nord*, the most important being the creation of the fund *Capital Mines Hydrocarbures*. This fund will enable the government to acquire equity interests in companies that mine mineral substances in the domain of the State or that transform them, under certain conditions. It will have a budget allowance of CA\$1 billion, half of which will be invested in the territory targeted by the *Plan Nord*. This budget does not include the CA\$250 million allocated for the capitalization of *Ressources Québec*, the subsidiary of *Investissement Québec* dedicated to the mining and hydrocarbon sectors.²⁰

Plan Nord

In April 2015, the government unveiled *Plan Nord Toward 2035* and its 2015–2020 action plan, a new version of the *Plan Nord* that presents an updated vision, guide and governance.

The objectives of the *Plan Nord* are to develop the mining, forestry, energy, social, cultural and tourism aspects of the province's land north of the 49th parallel, and to create jobs and wealth for all the people of Québec. By harmonizing the economic, social and environmental components, the Government of Québec hopes that *Plan Nord* will become a benchmark of responsible and sustainable northern development, and a unifying project for Québec society.

The five-year 2015–2020 plan sets forth priority action in matters of development and well-being for local and Aboriginal communities, environmental protection and biodiversity conservation, and northern economic development. The latter includes the reinstatement of a promising climate for mining development by focusing on the diversity of resources.

The *Plan Nord* sets forth actions that will facilitate access to the territory, whether by road, rail, sea or air, as well as actions to improve the telecommunications infrastructure and provide access to clean energy at competitive prices, particularly by installing a liquefied gas distribution network and developing innovative means of generating power, such as wind turbines and biomass fuels. In addition, the plan supports the expansion of scientific knowledge in the territory.

Québec Mines convention

Québec Mines²¹ is a major mining convention that takes place annually in the city of Québec. The convention covers all aspects of the mining industry: exploration, mining, processing and mine site rehabilitation. It is the largest mining convention in the French-speaking world. It allows experts from around the world to present the results of their research in exploration, mining or restoration, or in the fields of social acceptability or economics.

Québec Mines, with its international reach, is an important meeting place and exchange platform between the province's players in mining development and those from around the world.

¹⁹ www.revenuquebec.ca/en/salle-de-presse/nouvelles-fiscales/2013/2013-01-25.aspx

²⁰ www.investquebec.com/quebec/fr/a-propos-de-nous/nos-filiales/ressources-quebec.html

²¹ www.quebecmines.gouv.qc.ca/english



Photo: Goldcorp

OVERVIEW OF MINING ACTIVITIES IN QUÉBEC²²

Québec is growing as a mine producer, particularly in terms of metal mines. With output accounting for one fifth of the total Canadian value, Québec is the most diversified mining producer in the country given its production and beneficiation of 15 metals and 13 non-metallic minerals.

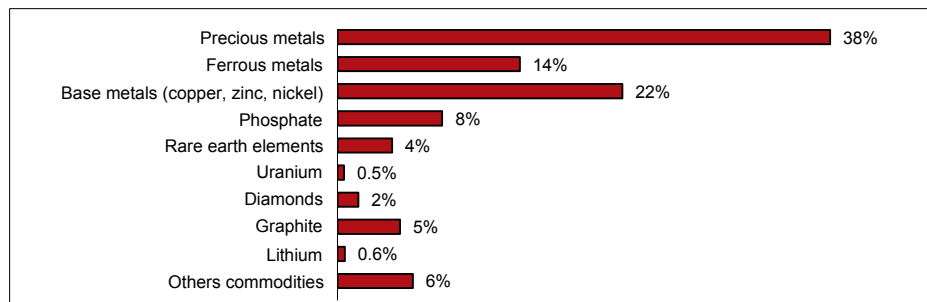
Among other commodities, Québec produces iron, precious metals, copper, nickel, zinc, feldspar, mica, salt, silica, architectural stone, peat and lime.

Québec is one of the world's few producers of niobium, titanium dioxide, cobalt and platinum. The province's bedrock also harbours great potential for commodities such as graphite, lithium, diamonds, rare earths and tantalum.

As of December 31, 2014, there were 155,031 active mining titles in Québec, representing a total surface area of 7.2 million hectares or 4.34% of the province.

Mineral exploration and deposit appraisal expenditures reached CA\$272 million in 2014, making up 650 different projects spread throughout the province. Exploration and deposit appraisal commitments for 2015 amount to nearly CA\$379 million.

Figure 1: Distribution of exploration and deposit appraisal expenditures by commodity, 2014.



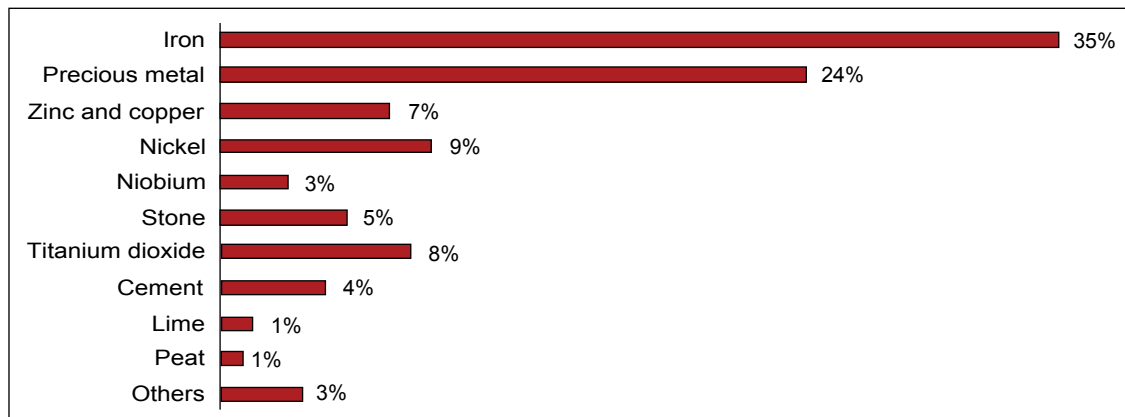
Source: Data from the *Institut de la statistique du Québec*

²² For more information, particularly for details on the mining regime and access within the province, consult www.mern.gouv.qc.ca/english/mines/index.jsp. The following annual publication provides a summary of mining activities in Québec and information on topical issues: www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp. Many statistics on the mining sector are also available at the following address: www.mern.gouv.qc.ca/mines/statistiques/index.jsp

Total mining investments in Québec (exploration, deposit appraisal and mine complex development) reached a peak of \$5.1 billion in 2012, reflecting significant growth since the early 2000s. In 2014, investments slowed but remained at relatively high levels. These investments are distributed throughout the province but are mainly concentrated in three large administrative regions: Abitibi-Témiscamingue, Côte-Nord and Nord-du-Québec.

The value of Québec’s mineral shipments reached CA\$8.7 billion in 2014. The principal commodities mined were iron, gold and silver, ilmenite (titanium), zinc, nickel and all types of stone.

Figure 2: Distribution of mineral shipments by commodity, 2014.



Source: Preliminary data from the *Institut de la statistique du Québec*

In July 2015, there were 25 active mines in Québec and more than 350 establishments exploiting surface mineral substances (sand, gravel, peat and stone) (see map 2). And as of August 7, 2015, there are 657 different entities exploiting surface mineral substances according to the *Registre public des droits miniers*. The total number of active leases (BEX and BNE) is 2,348.

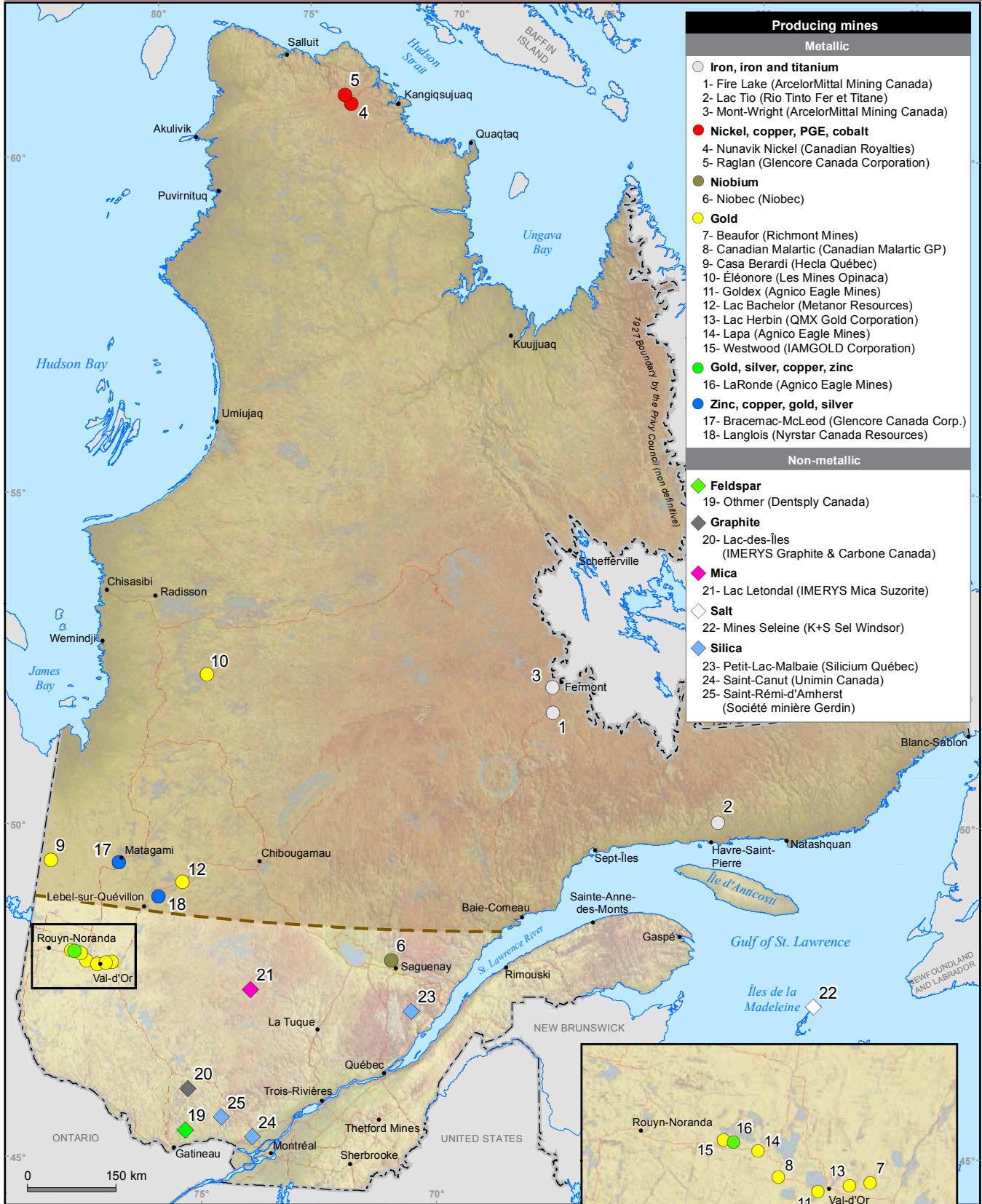
Québec also has 16 primary processing plants for mining products and minerals (not including aluminum): two smelters (copper and titanium dioxide), two refineries (copper and zinc), one iron alloy plant (Niobec mine), one ferro-silicon plant, one metal silicon plant and nine plants for cement, lime and aluminous clay.

In addition, as of July 2015, there are currently 26 mining projects at the deposit appraisal stage and three projects at the development stage (construction, start-up, ramp-up) across the province. Many of these projects could contribute to Québec’s mining diversity. These projects are for iron, gold and nickel, as well as for diamonds, lithium, phosphate, graphite and the rare earth elements (see map 3).²³

Added to this are many exploration projects at various stages of advancement that will contribute to the province’s stream of new mining projects, mining operations and processing activities. In 2014, more than 650 exploration and deposit appraisal projects were being carried out by nearly 200 mining and mineral exploration companies.

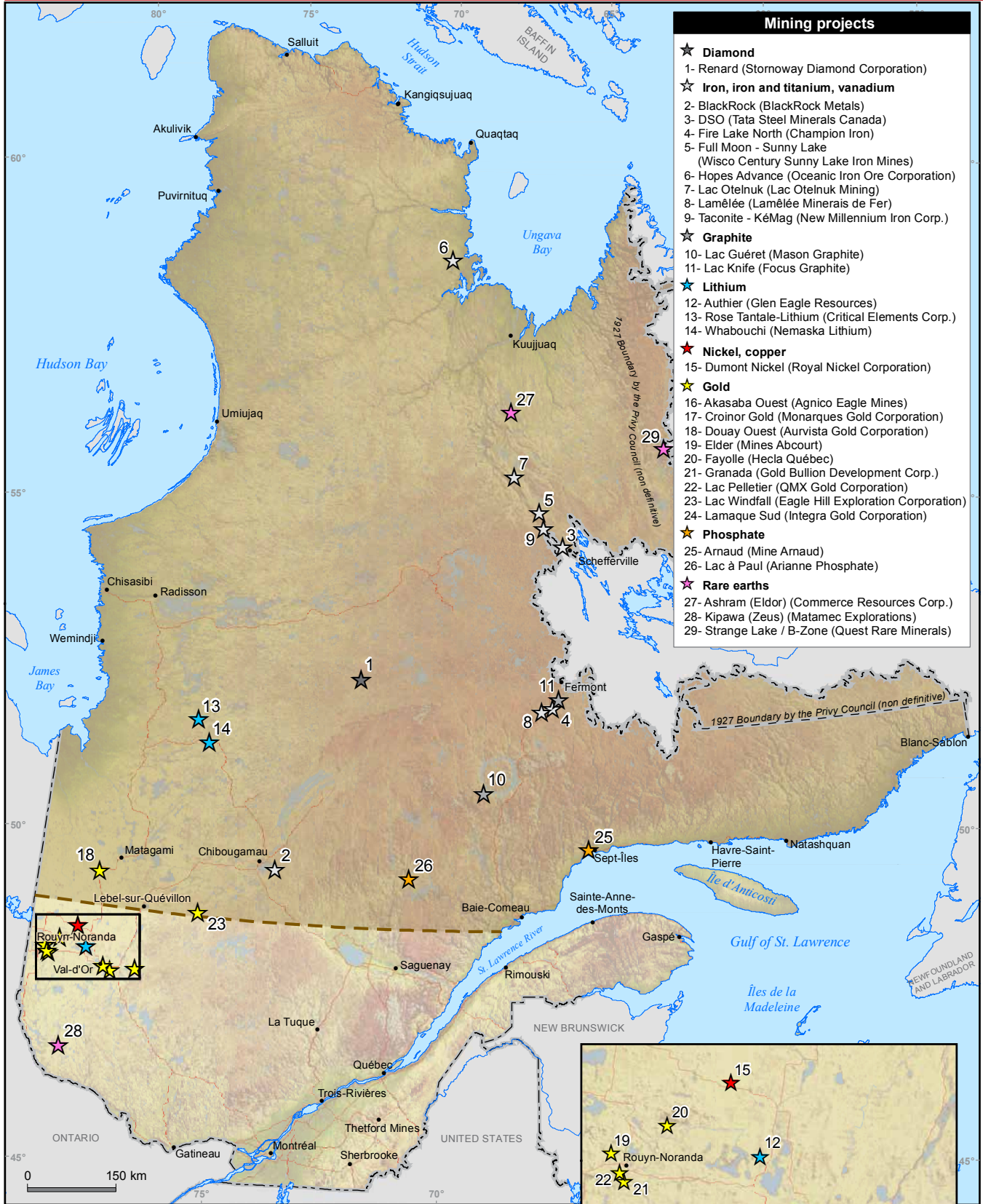
²³ These maps and many others are periodically updated: www.mern.gouv.qc.ca/english/mines/publications/publications-maps.jsp

Map 2 - Producing mines



Source: SIGÉOM.
Date: october 2015.

Map 3 - Major projects in advanced phase



- Mining projects**
- ★ **Diamond**
 - 1- Renard (Stornoway Diamond Corporation)
 - ★ **Iron, iron and titanium, vanadium**
 - 2- BlackRock (BlackRock Metals)
 - 3- DSO (Tata Steel Minerals Canada)
 - 4- Fire Lake North (Champion Iron)
 - 5- Full Moon - Sunny Lake (Wisco Century Sunny Lake Iron Mines)
 - 6- Hopes Advance (Oceanic Iron Ore Corporation)
 - 7- Lac Otelnuq (Lac Otelnuq Mining)
 - 8- Lamélee (Lamélee Minerais de Fer)
 - 9- Taconite - KéMag (New Millennium Iron Corp.)
 - ★ **Graphite**
 - 10- Lac Guéret (Mason Graphite)
 - 11- Lac Knife (Focus Graphite)
 - ★ **Lithium**
 - 12- Authier (Glen Eagle Resources)
 - 13- Rose Tantalé-Lithium (Critical Elements Corp.)
 - 14- Whabouchi (Nemaska Lithium)
 - ★ **Nickel, copper**
 - 15- Dumont Nickel (Royal Nickel Corporation)
 - ★ **Gold**
 - 16- Akasaba Ouest (Agnico Eagle Mines)
 - 17- Croinor Gold (Monarques Gold Corporation)
 - 18- Douay Ouest (Aurvista Gold Corporation)
 - 19- Elder (Mines Abcoust)
 - 20- Fayolle (Hecla Québec)
 - 21- Granada (Gold Bullion Development Corp.)
 - 22- Lac Pelletier (QMX Gold Corporation)
 - 23- Lac Windfall (Eagle Hill Exploration Corporation)
 - 24- Lamaque Sud (Integra Gold Corporation)
 - ★ **Phosphate**
 - 25- Arnaud (Mine Arnaud)
 - 26- Lac à Paul (Arianne Phosphate)
 - ★ **Rare earths**
 - 27- Ashram (Eldor) (Commerce Resources Corp.)
 - 28- Kipawa (Zeus) (Matamec Explorations)
 - 29- Strange Lake / B-Zone (Quest Rare Minerals)

Area covered by the Plan Nord

Source: SIGÉOM.
Date: october 2015.



Photo: Stornoway Diamond Corporation

GEOLOGICAL POTENTIAL OF QUÉBEC

Almost 90% of Québec’s bedrock is composed of Precambrian rocks belonging to the Canadian Shield (north of the Saint Lawrence River). The remainder consists essentially of Paleozoic rocks: the St. Lawrence Platform surrounding the Saint Lawrence River and the Appalachians to the south of the river. These geological environments offer significant discovery potential for mineral deposits.

Québec is divided into seven main geological provinces: Superior, Nain, Churchill, Grenville, Appalachian, St. Lawrence Platform and Hudson Bay Platform. These are illustrated on map 4.

The Superior Province (4.3 to 2.5 billion years [Ga]) occupies a large part of the North American continent and also covers half of Québec, for a total surface area of 750,000 km². It is known around the world for its numerous gold, copper, zinc, nickel and silver deposits. The Superior Province is subdivided into a dozen subprovinces, half of them in Québec. The most well known is the Abitibi Subprovince, which is also the most extensive Archean volcano-sedimentary belt in the world, and famous for its gold, copper, zinc and silver deposits.

The Nain Province (3.8 to 1.3 Ga) is found mostly in Labrador, with only a small portion (about 60 km²) extending into the Torngat Mountains of Québec. It is composed of Archean metamorphic rocks.

The Churchill Province (2.9 to 1.1 Ga) covers an area of about 200,000 km² in the northern part of Québec, to the north and northeast of the Superior Province. It is characterized by four distinct geological zones:

- the Ungava Orogen (Ungava Trough), known for its nickel-copper deposits;
- the New Québec Orogen (Labrador Trough), which hosts massive iron deposits as well as many copper, nickel and platinum group element (PGE) deposits;
- the Core Zone (formerly known as the Rae Province), located between the Labrador Trough and the Torngat Orogen, is composed of Archean and Paleoproterozoic rocks (2.9 to 1.75 Ga) as well as Mesoproterozoic plutonic rocks (1.7 to 1.1 Ga);
- the Torngat Orogen (2.1 to 1.75 Ga), located east of the Core Zone, where rocks are injected by kimberlites with diamond potential.

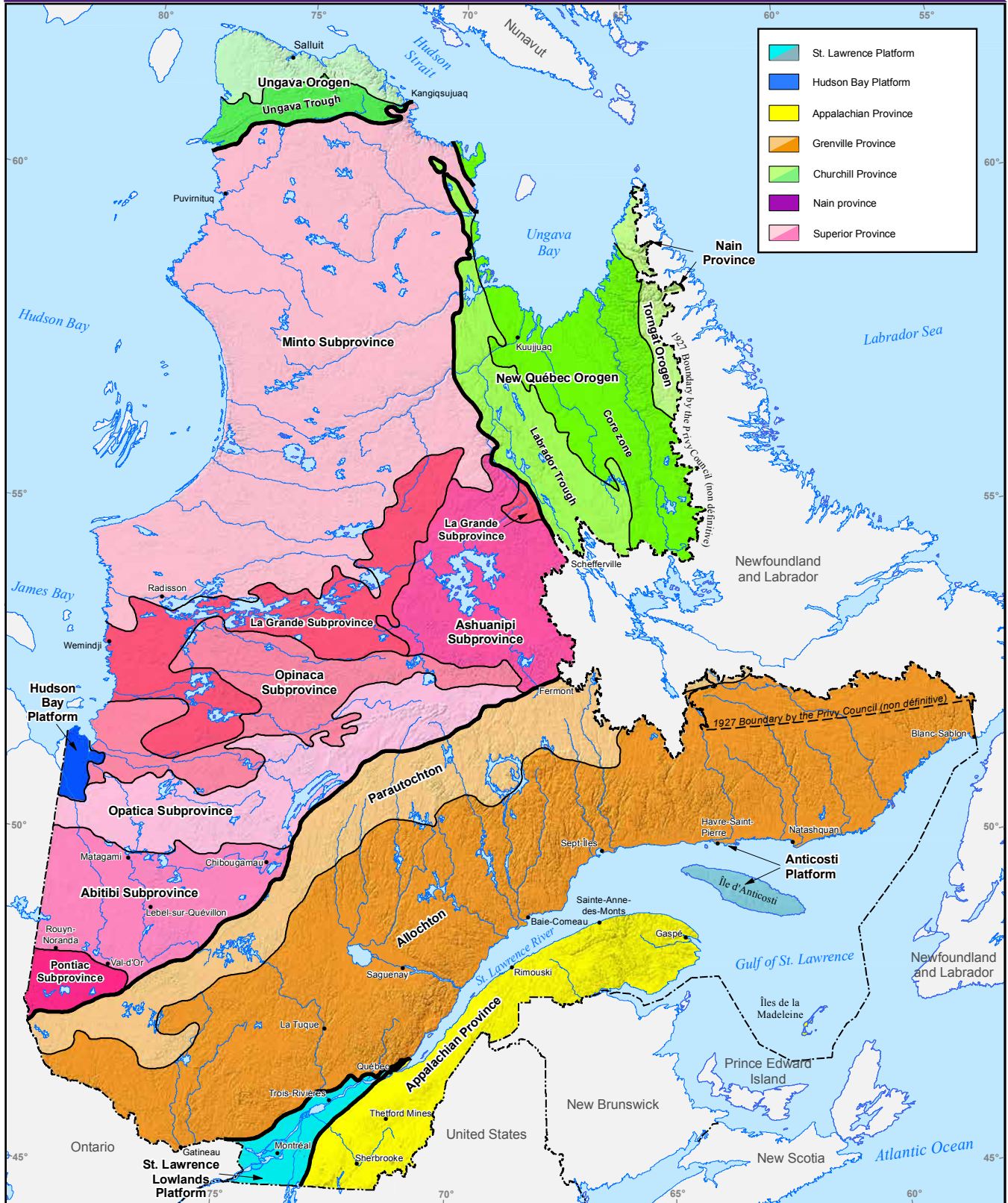
The Grenville Province (2.7 Ga to 600 million years [Ma]) covers an area of 600,000 km². It forms the south-east limit of the Superior Province and is divided into two parts: the parautochthonous and allochthonous belts. The Grenville Province is known for its iron and ilmenite mines and for its industrial mineral potential.

The Appalachian Province (600 to 300 Ma) developed along the edge of the Canadian Shield during the Paleozoic, and covers an area of roughly 80,000 km². It is divided into three distinct zones: 1) the Humber Zone, 2) the Dunnage Zone, and 3) the Gaspé Belt. It is bounded to the east by the Permo-Carboniferous Magdalen Basin. In Québec, the Appalachians were affected by two main tectonic events: the Taconian and Acadian orogenies. The Mines Gaspé copper deposits are found in this geological province.

The St. Lawrence Platform (570 to 430 Ma) developed at the end of the Proterozoic and during the Paleozoic, with the formation of the Saint Lawrence rift. It covers an area of more than 30,000 km² and overlies rocks of the Grenville Province. It is divided into two distinct platforms: the St. Lawrence Lowlands Platform and the Anticosti Platform. The main resource is limestone. Two carbonatite intrusions, Saint-Honoré (Grenville Province) and Oka (St. Lawrence Platform), host niobium deposits. Québec is the world's second-largest producer of this rare metal.

The Hudson Bay Platform (450 to 410 Ma) covers an area of roughly 5,500 km² in Québec just south of James Bay. It is composed of Paleozoic sedimentary rocks with a similar composition to those found in the St. Lawrence Platform.

Map 4 - The Main Geological Subdivisions of Quebec



Source: Ministère de l'Énergie et des Ressources naturelles.
Date: october 2015.



Photo: Agnico Eagle Mines

DETAILS OF MINING ACTIVITIES



Photo: MERN

Iron

PRODUCTION AND MINING PROJECTS

Current situation

Québec is the largest producer of iron concentrate in Canada. The province's entire production comes from two active mines in the Côte-Nord region. Production reached 28 million tonnes of concentrate in 2014, more than half the Canadian total. The grade of the iron ore mined in Québec hovers around 30%. It is typically concentrated to a grade of about 65% before being used at steel plants. Geologically, most of the deposits are located in the Labrador Trough.

Québec is the only ilmenite producer in North America. Ilmenite ore is mined at the LacTio mine belonging to Rio Tinto Fer et Titane (RTFT). The ore is transformed in Québec into titanium scoria, remelt iron and steel. RTFT is working on extending the life of its mine beyond 2050.

PRODUCTION OF IRON AND ILMENITE CONCENTRATE IN QUÉBEC, 2014					
	Shipments			Reserves	Number of workers
	Quantity (t)	Value (CA \$M)	Canadian shipments (in %)		
Iron	28,610,241	c	65%	n.d.	3,300
Ilmenite	c	c	100%	n.d.	>300

c: confidential information

Source: Preliminary data from the *Institut de la statistique du Québec* and Natural Resources Canada

Notable mining projects

At the DSO project, the company Tata Steel Minerals Canada will bring into operation, in late 2015, its new processing plant with a nameplate capacity of 6 million tonnes per year of iron concentrate. These projects will be supplemented by major improvements to the rail and port infrastructures of Sept-Îles and Port-Cartier. ArcelorMittal Mining Canada amassed C\$1.5 billion in investments, which allowed it to increase, starting in 2015, the production at the Mont-Wright mine to 24 million tonnes of iron concentrate per year.

Near Chibougamau, BlackRock Metals published a feasibility study on its BlackRock mining project (iron-vanadium-titanium). The company is looking into the possibility of developing a metallurgical (transformation) component. The entire project (mining and metallurgy) is estimated at CA\$850 million. The company continues its financing efforts. Feasibility studies were also published on the Taconite-KéMag (New Millennium Iron Corp.) and Lac Otelnuke projects (Lac Otelnuke Mining), located north of Schefferville. The proponents continue to seek financing for these multi-billion-dollar projects.

The Fire Lake North (Champion Iron), Hopes Advance (Oceanic Iron Ore Corp.), Full Moon-Sunny Lake (Wisco Century Sunny Lake Iron Mines) and Lamêlée (Lamêlée Minerais de Fer) are at a less advanced stage.



Photo: Francis Fontaine for the MERN

Exploration and potential

In addition to exploration projects that focus exclusively on iron, Québec also has exploration projects for iron, titanium, vanadium and chromium. The province's iron potential remains very high, as shown by several projects at the exploration or appraisal stage. All the proponents are hoping the iron market will improve.

CHOOSE QUÉBEC'S MINING SECTOR – IRON PROJECTS ⁽¹⁾						
Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Fire Lake ArcelorMittal Mining Canada www.arcelormittal.com	Active mine	Iron	217.00 Mt at Fe: 33.497%	250.00 Mt at Fe: 32.246%	OP	The resources do not include reserves. Ore is processed at the Mont-Wright site.
Lac Tio Rio Tinto Fer et Titane www.rtf.com	Active mine	Ilmenite	121.00 Mt at TiO ₂ : 40%	11.10 Mt at TiO ₂ : 40%	OP	The resources do not include reserves. Expected production for 2015: ~2 Mt/yr of ilmenite ore. Work is underway to extend mining until 2050.
Mont-Wright ArcelorMittal Mines Canada www.arcelormittal.com	Active mine	Iron	1,912.00 Mt at Fe: 28.083%	2,264.00 Mt at Fe: 29.087%	OP	The resources do not include reserves. Expected production for 2015: 24 Mt/yr of iron concentrate at 65–67% Fe.
DSO Tata Steel Minerals Canada	Development	Iron	64.11 Mt at Fe: 58.87%	98.90 Mt at Fe: 59.307%	OP	The resources do not include reserves. Production: the processing plant must be operational in 2015. 6 Mt/yr of iron concentrate in the years to come.
BlackRock BlackRock Metals www.blackrockmetals.com	Appraisal	Iron Ilmenite Vanadium	405.15 Mt at Fe: 19.46% TiO ₂ : 7.048%	465.60 Mt at Fe: 25.417% TiO ₂ : 6.855% V ₂ O ₅ : 0.4%	OP	The resources do not include reserves. The proponent is reassessing the project. A new feasibility study is pending.
Fire Lake North Champion Iron www.championironmines.com	Appraisal	Iron	464.59 Mt at Fe: 32.364%	755.30 Mt at Fe: 31.568%	OP	A feasibility study is underway. The resources do not include reserves. Expected production: 10 Mt/yr of iron concentrate.
Full Moon - Sunny Lake Wisco Century Sunny Lake Iron Mines www.centuryiron.com	Appraisal	Iron		7,259.60 Mt at Fe: 30.18%	OP	A preliminary economic assessment was published in April 2015. Expected production: 20 Mt/yr of iron concentrate.
Hopes Advance Oceanic Iron Ore Corp. www.oceanicironore.com	Appraisal	Iron	1,359.27 Mt at Fe: 32.212%	1,388.0 Mt at Fe: 32.112%	OP	A feasibility study is underway. The resources do not include reserves. Expected production: 10 Mt/yr of iron concentrate.
Lac Otelnuk Lac Otelnuk Mining www.adrianaresources.com	Appraisal	Iron	4,993.00 Mt at Fe: 28.688%	20,640.00 Mt at Fe: 29.772%	OP	A feasibility study was published in April 2015. The resources include reserves. Expected production: 30 Mt/yr of iron concentrate.
Lamélie Lamélie Minerais de Fer www.lameleeiron.com	Appraisal	Iron		Fe: 29.49%	OP	A preliminary economic assessment was published in January 2014. Expected production: 5 Mt/yr of iron concentrate.
Taconite-KéMag New Millennium Iron Corp. www.nlmiron.com	Appraisal	Iron	2,384.00 Mt at Fe: 30.664%	2,383.00 Mt at Fe: 31.634%		A feasibility study was published in May 2014. The resources include reserves. Expected production: 22 Mt/yr of iron concentrate.

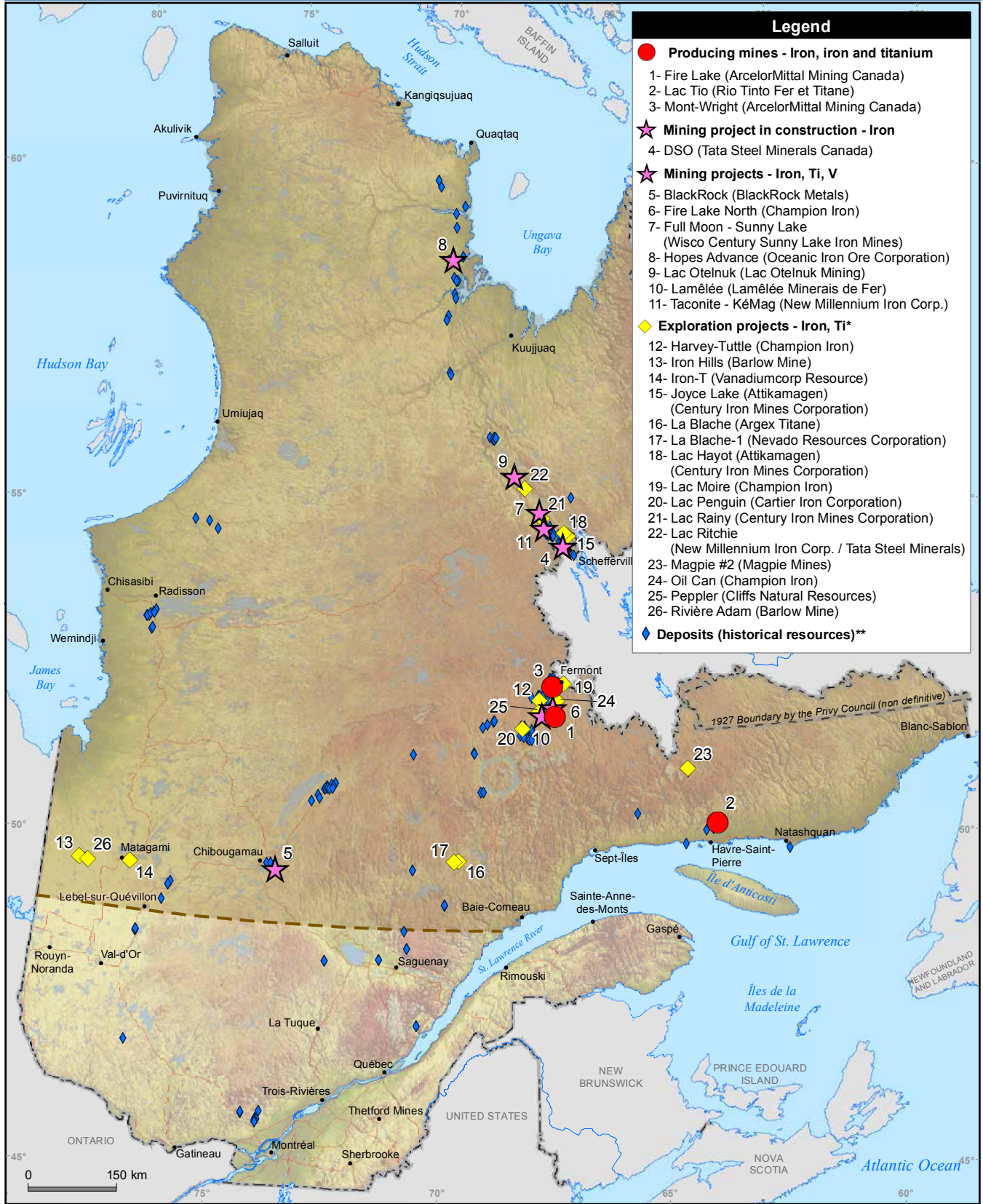
(1) Includes Ti, V and P projects; non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, Mt/yr: million metric tons per year, %: percentage.

(4) OP: open pit, UG: underground.

Iron - Mining activities in Québec



Area covered by the Plan Nord

* Exploration projects with NI 43-101 resources published between 2009 and 2015.

** Source: SIGÉOM.

Gold

PRODUCTION AND MINING PROJECTS

Current situation

The value of Québec's gold shipments reached CA\$1.9 billion in 2014, accounting for more than one quarter of the Canadian total. Québec is the second-largest gold producer in Canada. Gold is produced at ten mines in the province, eight of which are in the Abitibi-Témiscamingue region in western Québec where gold has been mined since the beginning of the 20th century. The two other mines are located in the Nord-du-Québec region.

Québec has extensive expertise in the field of underground gold mining thanks to a qualified workforce, highly competent teaching establishments, experienced subcontractors and numerous suppliers. This background led to the creation of an internationally renowned centre of mining expertise in the Val-d'Or region, in addition to the province's expertise in developing open pit gold mine operations.

Among the most famous mines in Québec is the Canadian Malartic open pit mine (Canadian Malartic GP) with the ability to produce 18,600 Kg per year (600,000 oz/year), as well as the LaRonde polymetallic underground mine (Agnico Eagle Mines), one of the deepest mines in the Western world, and the Éléonore mine (Les Mines Opimaca, a subsidiary of Goldcorp), recently put into production. Yamana Gold and Agnico Eagle Mines acquired the Canadian Malartic mine in June 2014 and created the company Canadian Malartic GP. The LaRonde mine is currently undergoing progressive expansion to reach a production rate of 9,300 kg per year (300,000 oz/yr). In April 2015, the Éléonore mine achieved commercial production. The company expects to produce about 9,300 kg per year (300,000 oz/yr) and increase its annual average production to 15,500–18,600 kg (500,000–600,000 oz) starting in 2018.

GOLD AND SILVER PRODUCTION IN QUÉBEC, 2014					
	Shipments			Reserves	Number of workers
	Quantity (t)	Value (CA \$M)	Canadian shipments (in %)	Quantity (t)	
Gold	41	1,861	27%	613	4,000
Silver	94	65	20%		

Source: Preliminary data from the *Institut de la statistique du Québec* and Natural Resources Canada

Notable mining projects

The province has one mining project at the development stage (construction and commission) in the Abitibi-Témiscamingue region. The Elder project of Abcourt Mines should attain commercial production before the end of this year. Abcourt Mines expects to produce 715 Kg (23 000 oz) per year over eleven years.

The province has eight projects at the deposit appraisal stage: Lamaque South (Integra Gold Corp.), Windfall Lake (Eagle Hill Exploration Corporation), Douay West (Aurvista Gold Corporation), Lac Pelletier (QMX Gold Corporation), Akasaba West (Agnico Eagle Mines), Fayolle (Hecla Québec), Granada (Gold Bullion Development Corp.) and Croinor Gold (Monarques Gold Corporation).



In October 2014, Integra Gold Corp. acquired Sigma and Lamaque mine sites adjacent to its Lamaque South project. The mine site includes the Sigma processing plant. This transaction transferred several environmental permits to Integra, which allowed the company to advance the project more rapidly. As for the Granada project of Gold Bullion Development Corp., the company is waiting for a certificate of authorization from the *Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques* (MDDELCC) in order to start production.

Québec is a major gold producer and has been for many years. The renewal of mineral resources and the emergence of new gold projects will allow the province to produce gold for a long time to come.

Exploration and potential

Exploration for gold remains the primary focus for several dozen projects underway in Québec. The projects are held by majors and by juniors from Québec and Canada. The main exploration targets are near known mining camps or active mines, such as the trend associated with the Cadillac-Larder Lake Fault, exploration below the Horne smelter and in the vicinity of the Éléonore mine in the James Bay region.

Exploration was successful in other regions and may pave the way for new mine development projects. Notable areas include Lac Grasset (northwest of Matagami), Urban-Barry and Lac Windfall areas (south of Lebel-sur-Quévillon) and Lac Des-Vents (southwest of Chibougamau).

CHOOSE QUÉBEC'S MINING SECTOR - GOLD PROJECTS ⁽¹⁾						
Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Beaufor Richmont Mines www.richmont-mines.com	Active mine	Gold	0.14 Mt at Au: 7.06 g/t	0.91 Mt at Au: 6.44 g/t	UG	The resources do not include reserves. Expected production in 2015: 1,030 to 1,150 kg of gold.
Canadian Malartic Canadian Malartic GP www.canadianmalartic.com	Active mine	Gold	263.20 Mt at Au: 1.072 g/t	250.80 Mt at Au: 1.123 g/t	OP	The resources do not include reserves. Expected production in 2015: 17,400 kg of gold.
Casa Berardi Hecla Québec www.hecla-mining.com	Active mine	Gold	9.04 Mt at Au: 4.746 g/t	11.88 Mt at Au: 3.732 g/t	UG	The resources do not include reserves. Expected production in 2015: 4,000 kg of gold.
Éléonore Les Mines Opinaca www.goldcorp.com	Active mine	Gold	24.57 Mt at Au: 6.296 g/t	5.19 Mt at Au: 6.336 g/t	UG	The resources do not include reserves. Expected production in 2015: between 9,000 and 9,600 kg of gold.
Goldex Agnico Eagle Mines www.agnicoeagle.com	Active mine	Gold	7.60 Mt at Au: 1.52 g/t	30.10 Mt at Au: 1.96 g/t	UG	The resources do not include reserves. Expected production in 2015: 3,100 kg of gold.
Lac Bachelor Metanor Resources www.metanor.ca	Active mine	Gold	0.84 Mt at Au: 7.381 g/t	0.84 Mt at Au: 7.79 g/t	UG	The resources do not include reserves. Expected production in 2015: 1,500 kg of gold.
Lac Herbin QMX Gold Corporation www.alexisminerals.com	Active mine	Gold	n.d.	n.d.	UG	Expected production in 2015: ±150 to 200 kg of gold. Closure planned for 2015.
Lapa Agnico Eagle Mines www.agnicoeagle.com	Active mine	Gold	1.47 Mt at Au: 5.968 g/t	1.55 Mt at Au: 4.28 g/t	UG	The resources do not include reserves. Expected production in 2015: 2,300 kg of gold.
LaRonde Agnico Eagle Mines www.agnicoeagle.com	Active mine	Gold Zinc Copper Lead Silver	24.13 Mt at Au: 5 g/t Zn: 0.668% Cu: 0.25% Pb: 0.04% Ag: 19.584 g/t	4.24 Mt at Au: 2.12 g/t Zn: 1.61% Cu: 0.16% Pb: 0.16% Ag: 32.53 g/t	UG	The resources do not include reserves. Expected production in 2015: 7,600 kg of gold, 43,000 kg of silver, 7,600 tonnes of zinc in a concentrate, 5,000 tonnes of copper in another concentrate.
Westwood IAMGOLD Corporation www.iamgold.com	Active mine	Gold	1.59 Mt at Au: 9.979 g/t	1.29 Mt at Au: 12.899 g/t	UG	The resources do not include reserves. Expected production in 2015: between 3,400 and 4,000 kg of gold.

CHOOSE QUÉBEC'S MINING SECTOR - GOLD PROJECTS⁽¹⁾

Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Elder Abcourt Mines www.abcourt.com	Development	Gold		1.18 Mt at Au: 6.578 g/t	UG	At the production start-up stage since October 2013. Has not yet attained commercial production. Expected production: 780 kg/yr of gold per year.
Akasaba West Agnico Eagle Mines www.agnicoeagle.com	Appraisal	Gold Copper		8.10 Mt at Au: 0.77 g/t Cu: 0.44%	OP	Expected production: 1,000 kg of gold per year.
Croinor Gold Monarques Gold Corporation www.monarquesresources.com	Appraisal	Gold	0.54 Mt at Au: 6.774 g/t	0.68 Mt at Au: 9.089 g/t	UG	The prefeasibility study is finished (October 2014). The resources do not include reserves. Expected production: between 600 and 1,200 kg of gold per year.
Douay Ouest Aurvista Gold Corporation www.aurvistagold.com	Appraisal	Gold		2.56 Mt at Au: 2.77 g/t	OP/UG	The preliminary economic assessment is finished (January 2015). Expected production: 1,200 kg of gold per year.
Fayolle Hecla Québec www.hecla-mining.com	Appraisal	Gold		0.55 Mt at Au: 5.75 g/t	OP	The preliminary economic assessment is finished (March 2013). Scenarios for open pit or underground mining. Expected production: 1,000 kg of gold per year.
Granada Gold Bullion Development Corp. www.goldbulliondevelopmentcorp.com	Appraisal	Gold	0.57 Mt at Au: 4.239 g/t	0.52 Mt at Au: 5.263 g/t	OP	The prefeasibility study is finished for the open pit component (June 2014). Underground resources are not reported here. The resources do not include reserves. Expected production: 745 kg of gold per year.
Lac Pelletier QMX Gold Corporation www.alexisminerals.com	Appraisal	Gold	0.17 Mt at Au: 6.458 g/t	0.28 Mt at Au: 8.608 g/t	UG	The feasibility study is finished (June 2010). The resources include reserves. Expected production: 1,050 kg of gold per year; life-of-mine expected to be one year.
Lac Windfall Eagle Hill Exploration Corporation www.eaglehillexploration.com	Appraisal	Gold		1.50 Mt at Au: 9.63 g/t	UG	The preliminary economic assessment is finished (June 2015). Expected production: 3,300 kg of gold per year.
Lamaque Sud Integra Gold Corp. www.integragold.com	Appraisal	Gold		2.84 Mt at Au: 7.2 g/t	UG	The preliminary economic assessment is finished (March 2015). Expected production: 3,400 kg of gold per year.

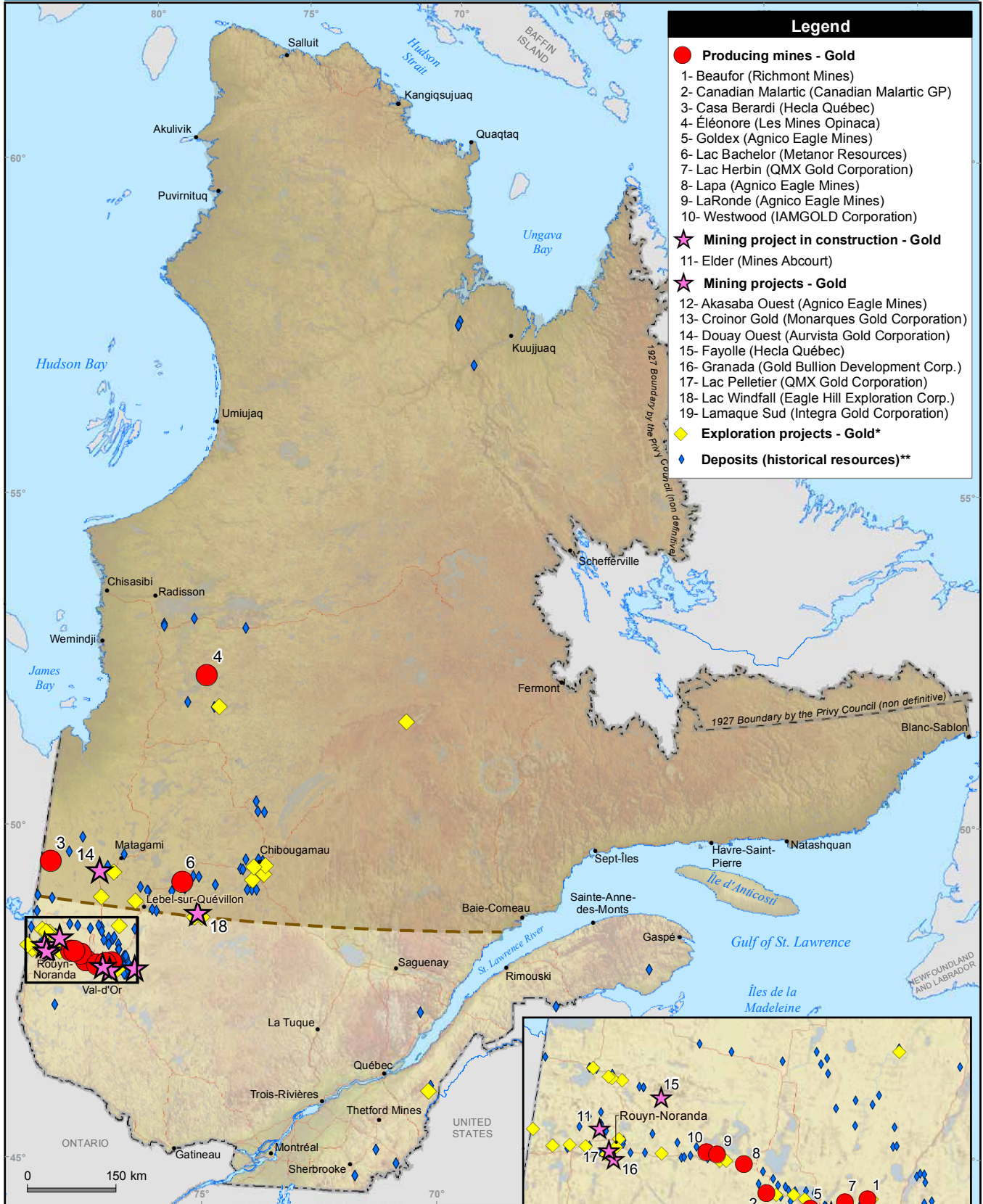
(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, g/t: gram per metric ton.

(4) OP: open pit, UG: underground.

Gold - Mines and mining projects



Legend

- **Producing mines - Gold**
 - 1- Beaufor (Richmont Mines)
 - 2- Canadian Malartic (Canadian Malartic GP)
 - 3- Casa Berardi (Hecla Québec)
 - 4- Éléonore (Les Mines Opinaca)
 - 5- Goldex (Agnico Eagle Mines)
 - 6- Lac Bachelor (Metanor Resources)
 - 7- Lac Herbin (QMX Gold Corporation)
 - 8- Lapa (Agnico Eagle Mines)
 - 9- LaRonde (Agnico Eagle Mines)
 - 10- Westwood (IAMGOLD Corporation)
- ★ **Mining project in construction - Gold**
 - 11- Elder (Mines Abcourt)
- ★ **Mining projects - Gold**
 - 12- Akasaba Ouest (Agnico Eagle Mines)
 - 13- Croinor Gold (Monarques Gold Corporation)
 - 14- Doule Ouest (Aurvista Gold Corporation)
 - 15- Fayolle (Hecla Québec)
 - 16- Granada (Gold Bullion Development Corp.)
 - 17- Lac Pelletier (QMX Gold Corporation)
 - 18- Lac Windfall (Eagle Hill Exploration Corp.)
 - 19- Lamaque Sud (Integra Gold Corporation)
- ◆ **Exploration projects - Gold***
- ◆ **Deposits (historical resources)****

Area covered by the Plan Nord

* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source: SIGÉOM.

Gold - Exploration projects



* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source: SIGÉOM.

Nickel, platinum group elements and cobalt

PRODUCTION AND MINING PROJECTS

Current situation

Québec's shipments of nickel, cobalt and platinum group elements (PGE), in the form of concentrates, come from the Raglan and Nunavik Nickel mine site in the far north region of the province. Geologically, they are found in the Ungava Orogen.

Glencore Canada Corporation (Raglan mine site) is studying an investment project of CA\$1 billion that will allow production to continue beyond 2035. The Nunavik Nickel mine of Canadian Royalties entered into production in 2013.

NICKEL, COBALT AND PGE PRODUCTION IN QUÉBEC 2014					
	Shipments			Reserves	Number of workers
	Quantity (t)	Value (CA \$M)	Canadian shipments (in %)	Quantity (t)	
Nickel	41,314	761	19%	385,000	>1,000
Cobalt	755	26	20%	n.d.	-
PGE	>4	c	c	n.d.	-

c: confidential information

Source: Preliminary data from the *Institut de la statistique du Québec* and Natural Resources Canada

Notable mining projects

In the Abitibi-Témiscamingue region, Royal Nickel Corporation completed the process to obtain environmental permits, and continues to seek financing to begin constructing its future Dumont Nickel mine. The project requires an initial investment of CA\$1.27 billion. The concentrator feed will amount to 52,500 tonnes per day, which will increase to 105,000 tonnes per day during the second phase. More than 30 years of operation are envisioned, at a rate of 33,000 tonnes of nickel per year as a concentrate also containing cobalt, platinum and palladium.

Therefore, Québec is in a good position to significantly increase its nickel, copper, cobalt and platinum group element production in the years to come.

Exploration and potential

Québec's potential for nickel and platinum group elements is as important as ever. Exploration work continues in the Ungava Orogen (formerly the Cape Smith Belt) for ore deposits along the extensions of the two producing mines, Raglan and Nunavik Nickel, as well as the northern part of the Labrador Trough. Royal Nickel Corporation is conducting work in the region this year, on the West Raglan property.

Exploration has resumed near the past-producing Marbridge mine, in the Abitibi-Témiscamingue region, as well as on known showings in the geological Grenville Province.

In northern Québec, west of Matagami, near Lac Grasset, Balmoral Resources is investigating a promising nickel-copper-PGE discovery under several dozen metres of overburden.



Photo: Francis Fontaine for the MERN

CHOOSE QUÉBEC'S MINING SECTOR - NICKEL PROJECTS ⁽¹⁾						
Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Nunavik Nickel Canadian Royalties www.canadianroyalties.com	Active mine	Nickel Copper Cobalt Palladium Platinum Gold	c ⁽⁵⁾	c	OP	Expected production: nickel concentrate and copper concentrate.
Raglan Glencore Canada Corporation www.glencore.com	Active mine	Nickel Copper Cobalt Palladium Platinum	6.72 Mt at Ni: 2.91% Cu: 0.754% Co: 0.056% Pd: 1.856 g/t Pt: 0.759 g/t	14.40 Mt at Ni: 3.328% Cu: 0.938% Co: 0.08% Pd: 2.285 g/t Pt: 0.919 g/t	OP/UG	The resources include reserves. Expected production in 2015: ~30 kt of nickel as concentrate. Work is underway to extend mining until at least 2035.
Dumont Nickel Royal Nickel Corporation www.royalnickel.com	Appraisal	Nickel Cobalt Palladium Platinum	1,178.60 Mt at Ni: 0.269% Co: 107.219 g/t Pd: 0.019 g/t Pt: 0.009 g/t	1,665.60 Mt at Ni: 0.264% Co: 107.34 g/t Pd: 0.019 g/t Pt: 0.009 g/t	OP	Feasibility study published in July 2013. The resources do not include reserves. Expected production: 33 kt of nickel as concentrate.

(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, %: percentage, g/t: gram per metric ton.

(4) OP: open pit, UG: underground.

(5) c: confidential information.

Nickel - Mining activities in Québec



* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source: SIGÉOM.

Copper

PRODUCTION AND MINING PROJECTS

Current situation

Québec has proven expertise in the mining and processing of copper. Not long ago, several copper mines were active in the province, giving rise to a major copper-processing industry. Today, there is one smelter (the Horne smelter) and one copper refinery (Affinerie CCR), both belonging to Glencore Canada Corporation. These large cutting-edge industrial facilities process concentrate from the province and elsewhere in Canada, and from abroad.

The copper currently produced in Québec is a by-product of gold, nickel and zinc mines. As such, five mines are copper producers: LaRonde (Agnico Eagle Mines), Raglan (Glencore Canada Corporation), Nunavik Nickel (Canadian Royalties), Bracemac-McLeod (Glencore Canada Corporation) and Langlois (Nyrstar Canada Resources).

In the Matagami mining camp,²⁴ the Bracemac-McLeod zinc mine (Glencore Canada Corporation) took over from the depleted Perseverance mine, producing copper as a by-product during zinc ore processing. It is the same situation at the Langlois zinc mine (Nyrstar Canada Resources), near Lebel-sur-Quévillon, with a secondary production of copper concentrate.

COPPER PRODUCTION IN QUÉBEC, 2014				
Shipments			Reserves	Number of workers
Quantity (t)	Value (CA \$M)	Canadian shipments (in %)	Quantity (t)	
42,344	323	6%	334,000	-

Source: Preliminary data from the *Institut de la statistique du Québec* and Natural Resources Canada

Notable mining projects

There are no mining projects with copper as the primary commodity that have attained the deposit appraisal stage. However, the Akasaba West project of Agnico Eagle Mines expects to produce copper as a by-product. This project is at the deposit appraisal stage. The expected mine life is four years at a production rate of 4,000 tonnes per day of ore. Agnico Eagle Mines has submitted project notices to the MDDELCC and the Canadian Environmental Assessment Agency.

Exploration and potential

Exploring for copper in Québec is often carried out alongside the search for nickel, zinc and gold. Geoscientific data relevant to copper exploration were compiled while carrying out an action plan (2004 to 2009), and this information is available from SIGÉOM.

²⁴ www.glencore.com



Photo: Francis Fontaine for the MERN

CHOOSE QUÉBEC'S MINING SECTOR – COPPER AND ZINC PROJECTS ⁽¹⁾

Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Bracemac-McLeod Glencore Canada Corporation www.glencore.com	Active mine	Zinc Copper Silver Gold	2.51 Mt at Zn: 6.097% Cu: 1.024% Ag: 17.179 g/t Au: 0.384 g/t	6.43 Mt at Zn: 7.19% Cu: 1.278% Ag: 28.611 g/t Au: 0.608 g/t	UG	The resources include reserves. Production in 2014: 75 kt/yr of zinc in a concentrate and 9 kt/yr of copper in another concentrate.
Langlois Nyrstar Canada Resources www.nyrstar.com	Active mine	Zinc Copper Lead Silver Gold	2.54 Mt at Zn: 9.189% Cu: 0.808% Pb: 0.317% Ag: 51.032 g/t Au: 0.053 g/t	4.43 Mt at Zn: 10.373% Cu: 0.68% Pb: 0.261% Ag: 52.68 g/t Au: 0.058 g/t	UG	The resources include reserves. Production in 2014: 38 kt/yr of zinc in a concentrate and 2 kt/yr of copper in another concentrate.
LaRonde Agnico Eagle Mines www.agnicoeagle.com	Active mine	Gold Zinc Copper Lead Silver	24.13 Mt at Au: 5 g/t Zn: 0.668% Cu: 0.25% Pb: 0.04% Ag: 19.584 g/t	4.24 Mt at Au: 2.12 g/t Zn: 1.61% Cu: 0.16% Pb: 0.16% Ag: 32.53 g/t	UG	The resources do not include reserves. Expected production in 2015: 7,600 kg of gold, 43,000 kg of silver, 7,600 tonnes of zinc in a concentrate, 5,000 tonnes of copper in another concentrate.
Nunavik Nickel Canadian Royalties www.canadianroyalties.com	Active mine	Nickel Copper Cobalt Palladium Platinum Gold	c(5)	c	OP	Expected production: nickel concentrate and copper concentrate.
Raglan Glencore Canada Corporation www.glencore.com	Active mine	Nickel Copper Cobalt Palladium Platinum	6.72 Mt at Ni: 2.91% Cu: 0.754% Co: 0.056% Pd: 1.856 g/t Pt: 0.759 g/t	14.40 Mt at Ni: 3.328% Cu: 0.938% Co: 0.08% Pd: 2.285 g/t Pt: 0.919 g/t	OP /UG	The resources include reserves. Expected production in 2015: ~30 kt of nickel as a concentrate. Work is underway to extend mine life to at least 2035.
Akasaba Ouest Agnico Eagle Mines www.agnicoeagle.com	Appraisal	Gold Copper		8.10 Mt at Au: 0.77 g/t Cu: 0.44%	OP	Expected production: 1,000 kg of gold per year.

(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

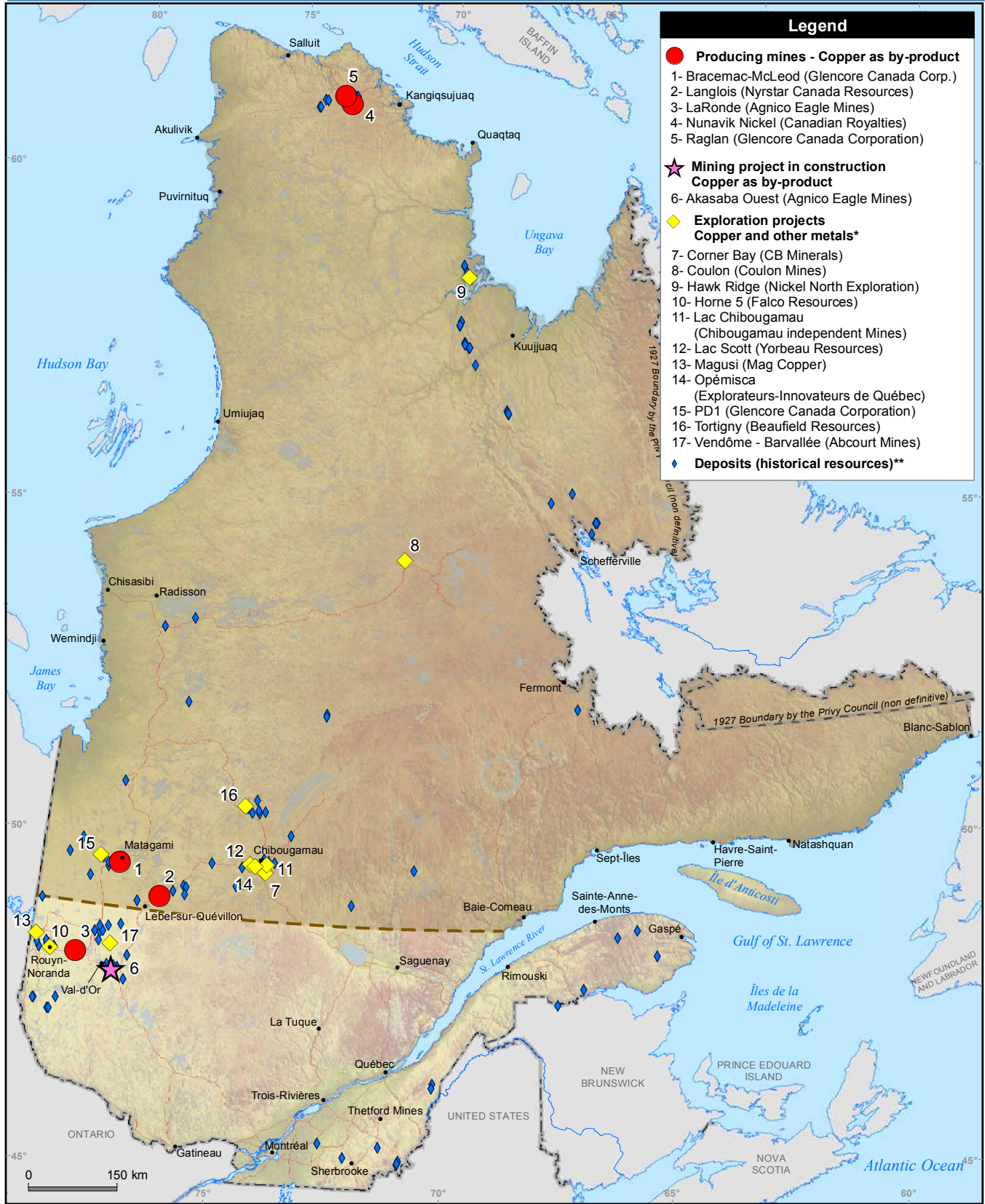
(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, %: percentage, g/t: gram per metric ton, c/t: carat/tonne.

(4) OP: open pit, UG: underground.

(5) c: confidential information.

Copper - Mining activities in Québec



Area covered by the Plan Nord

* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source: SIGÉOM.

Zinc

PRODUCTION AND MINING PROJECTS

Current situation

Québec is the largest zinc producer in Canada. The value of its shipments reached CA\$289 million in 2014, accounting for one quarter of all Canadian shipments.

The province's current zinc production comes from three mines: Bracemac-MacLeod (Glencore Canada Corporation), Langlois (Nyrstar Canada Resources) and LaRonde (Agnico Eagle Mines). Moreover, Québec has one zinc refinery, the CEZ²⁵ refinery, at which production has grown steadily since it opened in 1963. This refinery, renowned as one of the most productive in the world, is located in Salaberry-de-Valleyfield, in the Montérégie region near Montréal. The refinery processes concentrate from Québec, other regions in Canada and abroad.

ZINC PRODUCTION IN QUÉBEC, 2014				
Shipments			Reserves	Number of workers
Quantity (t)	Value (CA \$M)	Canadian shipments (in %)	Quantity (t)	
122,300	289	37%	518,000	>500

Source: Preliminary data from the *Institut de la statistique du Québec* and Natural Resources Canada

Notable mining projects

Glencore Canada Corporation is examining the possibility of developing a deposit located below the Bracemac-McLeod mine. This project is known as McLeod Deep.

Exploration and potential

A few active zinc exploration projects are being carried out in the province. There are at least six exploration projects with mineral resources, mainly in the Abitibi-Témiscamingue region and in the James Bay area of the Nord-du-Québec region.

In the Chibougamau area, Yorbeau Resources has resumed drilling on the Lac Scott property. Good results were recently announced. Québec should be able to consolidate its position as Canada's leading zinc producer.

25 www.fondsderevenunoranda.com



Photo: Francis Fontaine for the MERN

CHOOSE QUÉBEC'S MINING SECTOR – ZINC PROJECTS ⁽¹⁾

Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Bracemac-McLeod Glencore Canada Corporation www.glencore.com	Active mine	Zinc Copper Silver Gold	2.51 Mt at Zn: 6.097% Cu: 1.024% Ag: 17.179 g/t Au: 0.384 g/t	6.43 Mt at Zn: 7.19% Cu: 1.278% Ag: 28.611 g/t Au: 0.608 g/t	UG	The resources include reserves. Production in 2014: 75 kt/yr of zinc in a concentrate and 9 kt/yr of copper in another concentrate.
Langlois Nyrstar Canada Resources www.nyrstar.com	Active mine	Zinc Copper Lead Silver Gold	2.54 Mt at Zn: 9.189% Cu: 0.808% Pb: 0.317% Ag: 51.032 g/t Au: 0.053 g/t	4.43 Mt at Zn: 10.373% Cu: 0.68% Pb: 0.261% Ag: 52.68 g/t Au: 0.058 g/t	UG	The resources include reserves. Production in 2014: 38 kt/yr of zinc in a concentrate and 2 kt/yr of copper in another concentrate.
LaRonde Agnico Eagle Mines www.agnicoeagle.com	Active mine	Gold Zinc Copper Lead Silver	24.13 Mt at Au: 5 g/t Zn: 0.668% Cu: 0.25% Pb: 0.04% Ag: 19.584 g/t	4.24 Mt at Au: 2.12 g/t Zn: 1.61% Cu: 0.16% Pb: 0.16% Ag: 32.53 g/t	UG	The resources do not include reserves. Expected production in 2015: 7,600 kg of gold, 43,000 kg of silver, 7,600 tonnes of zinc in a concentrate, 5,000 tonnes of copper in another concentrate.

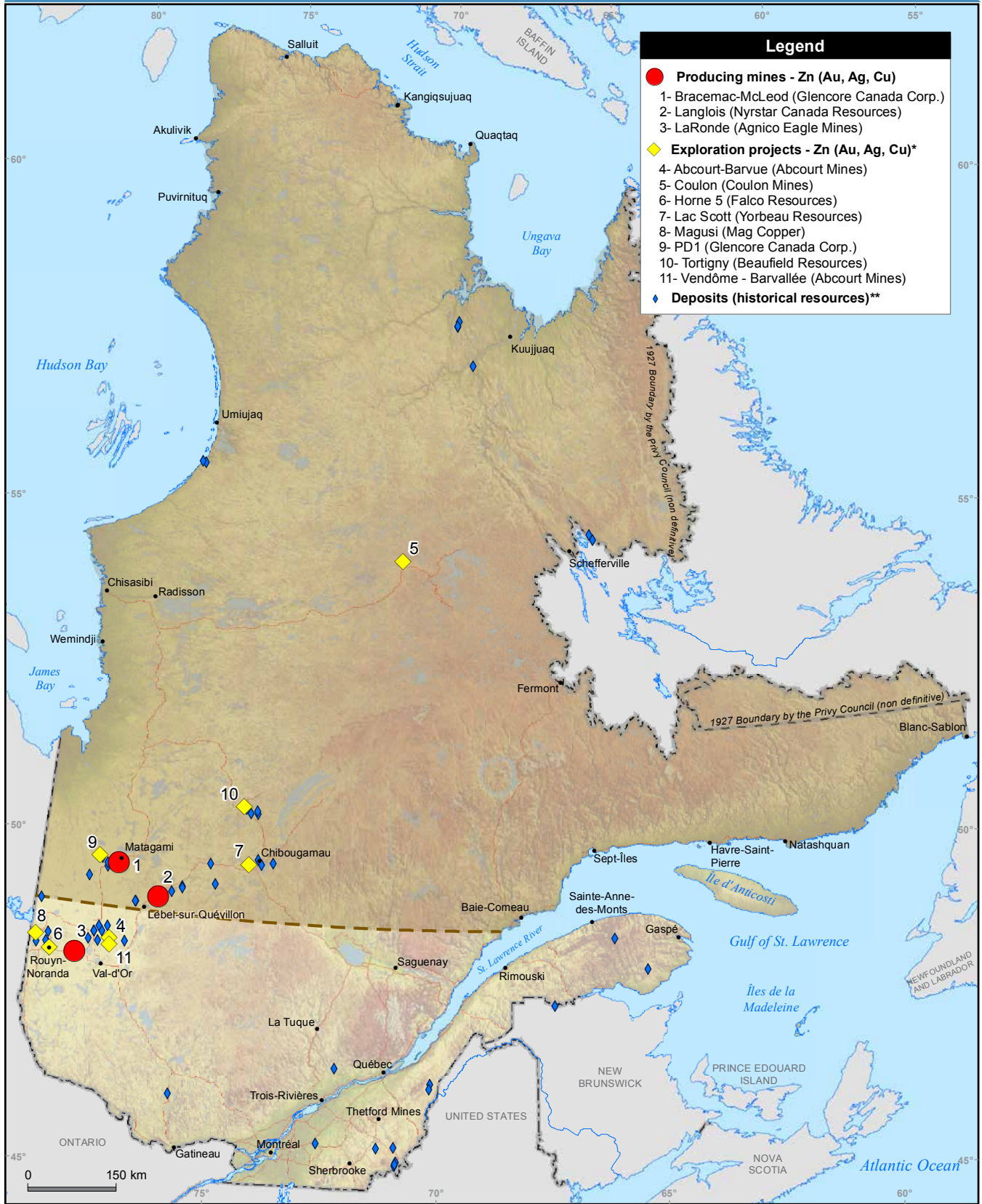
(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, %: percentage, g/t: gram per metric ton, c/t: carat/tonne.

(4) OP: open pit, UG: underground.

Zinc - Mining activities in Québec



* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source: SIGÉOM.

Niobium and tantalum

PRODUCTION AND MINING PROJECTS

Current situation

Niobium and tantalum are metals that often occur together in a wide range of deposit types but have very different uses and are destined for different markets. Both metals are generally used in high-tech applications or in the manufacture of certain types of alloys.

Québec is the only niobium producer in North America and one of only three producers in the world. The production comes from the Niobec mine, owned by Niobec, a subsidiary of Magris Resources. The pyrochlore concentrate undergoes primary processing to produce ferroniobium, which is exported to customers (steel-makers) all around the world.

Niobium mining in Québec is evidence of the province's diversified mineral base. There is also good potential for other niobium-producing operations, particularly in association with rare earths. Add to this the province's strong potential to extract tantalum from niobium or lithium mineral deposits. Tantalum is not currently mined in Québec.

FERRONIObIUM PRODUCTION IN QUÉBEC, 2014				
Shipments			Reserves	Number of workers
Quantity (t)	Value (CA \$M)	Canadian shipments (in %)	Quantity (t)	
5,480	c	100%	c	500

c: confidential information

Source: Preliminary data from the *Institut de la statistique du Québec* and Natural Resources Canada

Notable mining projects

Niobec's block caving expansion project (\$1.2 billion) has been abandoned. The deep mining project (\$420 million) is being re-examined, and other options are being considered. Niobec also discovered rare earth mineralization near the current niobium mine. The company is focusing on mining operations and the production of ferroniobium.

As with the rare earth elements, niobium and tantalum are often associated with carbonatites and various types of pegmatites. Projects focused primarily on lithium or rare earths may also involve the recovery of niobium or tantalum. The Rose Tantalum-Lithium project of Critical Elements Corporation, at the deposit appraisal stage, is one such example.



Photo: Francis Fontaine for the MERN

Exploration and potential

North of Lac Saint-Jean, Minéraux Crevier²⁶ is continuing to work on its Crevier niobium and tantalum project on the nearby Samaqua property.

In the Lebel-sur-Quévillon area, GeoMega Resources²⁷ continues its evaluation of the Montviel carbonatite (Montviel project). Work is advancing towards the publication of a preliminary economic assessment of not only rare earths, but also niobium. A new resource calculation was published in June 2015.

Québec has several favourable geological settings for niobium and tantalum, particularly carbonatite environments.

CHOOSE QUÉBEC'S MINING SECTOR - NIOBIUM AND TANTALUM ⁽¹⁾						
Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Niobec Niobec www.niobec.com	Active mine	Niobium	416.42 Mt at Nb ₂ O ₅ : 0.41%	288.68 Mt at Nb ₂ O ₅ : 0.43%	UG	The resources do not include reserves. Expected production in 2015: 7,000 t of ferroniobium.
Rose Tantalum-Lithium Critical Elements Corporation www.cecCorp.ca	Appraisal	Lithium Tantalum		26.50 Mt at Li ₂ O: 0.98% Ta ₂ O ₅ : 163 g/t	OP	The preliminary economic assessment is finished (December 2011). Expected production: 26.6 kt/yr of lithium carbonate and 94 t/yr of tantalum concentrate.

(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, Mkg: million kilograms, %: percentage, g/t: gram per metric ton.

(4) OP: open pit, UG: underground.

²⁶ www.mdn-mines.com

²⁷ www.ressourcesgeomega.ca

Niobium and tantalum - Mining activities in Québec



* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source SIGÉOM.

Rare Earth Elements

MINING PROJECTS

Current situation

Rare earth elements constitute a global-scale strategic resource. Forecasts call for rising demand due to their use in high-tech domains and green technologies, particularly hybrid and electric vehicles. New sources for producing these elements are being developed at several locations around the world. China is the main producer and consumer.

Québec has never been a rare earth producer, but may become one in the near future thanks to its promising potential, particularly for heavy rare earths. Three projects have reached the deposit appraisal stage and may someday supply rare earth oxide concentrates. In addition, geoscientific studies and exploration work currently underway will likely reveal new rare earth mineralization.

In addition to its rare earth resources, Québec offers several other strategic advantages for industrial activities related to the mining and production of rare earth concentrates, as well as the separation and processing of rare earths into value-added products. Moreover, Québec is also located near major markets.

Notable mining projects

In the Abitibi-Témiscamingue region, Matamec Explorations published a feasibility study for the Kipawa rare earth deposit. The project focuses on heavy and light rare earths. It includes the production of rare earth oxide concentrates that may, in part, be sold as is. Matamec Explorations also discovered new rare earth showings nearby.

In Nunavik, Quest Rare Minerals intends to mine ore at its B-Zone project (Strange Lake), and transform the ore into concentrate that will be shipped to facilities in southern Québec. Quest Rare Minerals also announced that it intends to build a processing plant at Bécancour to obtain mixed heavy and light rare earth oxides. Construction for this CA\$1.5-billion project should begin in 2016, and the plant will start production in 2019.

In Nunavik, 130 kilometres south of Kuujuaq, the Ashram project (Eldor) of Commerce Resources Corporation is focused on mining rare earths from a carbonatite. The project involves mining and on-site concentration of the ore followed by off-site processing. Work in preparation for a prefeasibility study is already underway. The study is expected by the end of 2015.



Photo: Francis Fontaine for the MERN

Exploration and potential

In Saguenay, Niobec (Magris Resources) is postponing the exploration and deposit appraisal work for its rare earth project (indicated resources of 531 Mt at 1.64% TREO, inferred resources of 527 Mt at 1.83% TREO) located near its niobium mine.

In the Lebel-sur-Quévillon area, GeoMega Resources²⁸ is conducting assessment work on the Montviel carbonatite (the Montviel project). Work is aiming toward the publication of a preliminary economic assessment that will focus not only on rare earths, but also niobium. A new resource calculation was published in June 2015. GeoMega envisions the production of rare earth oxide concentrates as well as the separation of rare earth elements by electrophoresis (an R&D process).

Several exploration projects at less-advanced stages are focused on rare earths as principal commodities or as by-products.

CHOOSE QUÉBEC'S MINING SECTOR – RARE EARTH PROJECTS ⁽¹⁾						
Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3, 4)	Measured and Indicated Resources ^(2, 3, 4)	Type ⁽⁵⁾	Comments
Ashram (Eldor) Commerce Resources Corp. www.commerceresources.com	Appraisal	Rare earths Light rare earths Heavy rare earths Yttrium		29.26 Mt at TREO: 1.893% LREO: 1.811% HREO: 0.051% Y ₂ O ₃ : 0.039%	OP	The prefeasibility study is underway (May 2012). Expected production: 36 kt/yr of mixed rare earth carbonate.
Kipawa (Zeus) Matamec Explorations www.matamec.com	Appraisal	Rare earths Light rare earths Heavy rare earths	19.77 Mt at TREO: 0.411% LREO: 0.26% Y ₂ O ₃ : 0.094% HREO: 0.056%	23.86 Mt at TREO: 0.407% LREO: 0.259% Y ₂ O ₃ : 0.093% HREO: 0.055%	OP	The feasibility study is finished (September 2013). The resources include reserves. Expected production: 1.5 kt/yr of heavy rare earth carbonate; 2.1 kt/yr of light rare earth carbonate.
Strange Lake / B-Zone Quest Rare Minerals www.questrareminerals.com	Appraisal	Rare earths Light rare earths Heavy rare earths Yttrium		278.13 Mt at TREO: 0.93% LREO: 0.57% HREO: 0.36% Y ₂ O ₃ : 0.24%	OP	The feasibility study started in fall 2014. Expected production: 10,400 t/yr of rare earth carbonate.

(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

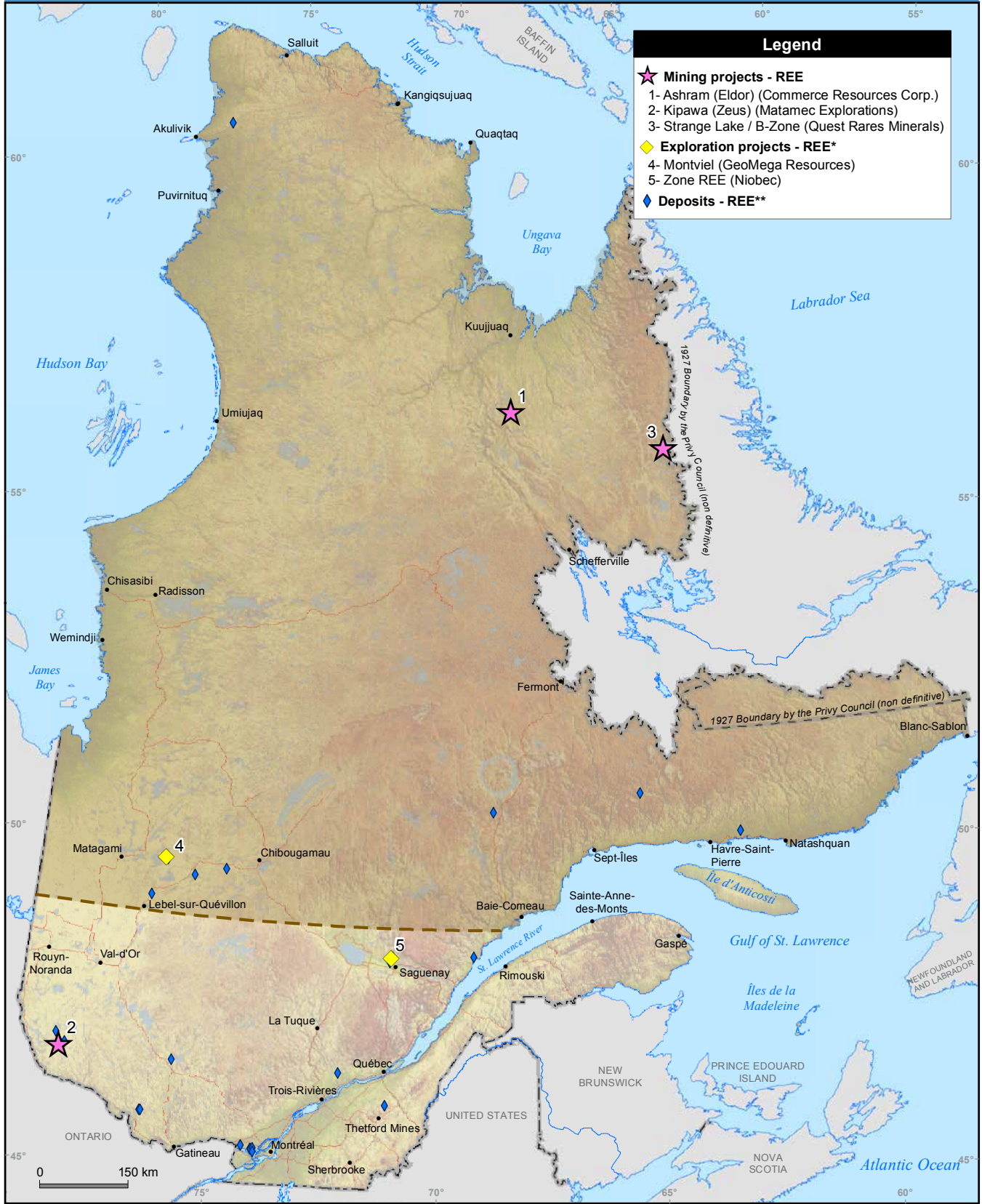
(3) Mt: million metric tons, %: percentage.

(4) TREO: sum of all rare earth oxides plus yttrium oxide; LREO: sum of light rare earth oxides (La-Sm), HREO: some of heavy rare earth oxides (Eu-Lu).

(5) OP: open pit, UG: underground.

28 www.ressourcesgeomega.ca

Rare earth elements - Mining activities in Québec



Area covered by the Plan Nord

* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source: SIGÉOM

Lithium

MINING PROJECTS

Current situation

Lithium is of strategic importance and the demand is growing significantly, notably for the production of electrical storage cells (accumulators).

In the Abitibi-Témiscamingue region, despite major investments, RB Energy²⁹ could not bring its project to the final stages of producing and marketing battery-quality lithium carbonate. The company declared bankruptcy, and its facilities are in receivership. Nevertheless, there are clear signs of a gradual increase in the demand for lithium products, mainly related to electric vehicles and accumulators.

Québec's potential and position are favourable for the production and processing of lithium. The province aims to become a major player on the world stage, on both fronts. Québec has already distinguished itself for its production of lithium components and batteries, as well as for its initiatives in the development of electric vehicles. It also has research centres dedicated to batteries or haulage equipment. The essential elements for lithium battery and electric vehicle industries are evidently in place.

Notable mining projects

Two regions in Québec stand out for lithium projects: Abitibi-Témiscamingue and James Bay. Three projects are at the deposit appraisal stage.

Near the Québec Lithium mine, Glen Eagle Resources envisions the production of a spodumene concentrate at its Authier project, perhaps even lithium metal. This project is at the feasibility stage.

In the James Bay region, there are two projects: Whabouchi and Rose Tantalum-Lithium. A feasibility study has been published for the Whabouchi project of Nemaska Lithium. The company is presently seeking financing. The extraction and concentration of spodumene would be done in the James Bay region, but the processing of the concentrate into lithium hydroxide and lithium carbonate would take place at a chemical plant in Shawinigan.

Critical Elements Corporation aims to mine its Rose Tantalum-Lithium deposit in the James Bay area, where it would extract spodumene to produce lithium carbonate and a tantalum concentrate.

Exploration and potential

In the James Bay region, two projects stand out. At the Pontax-Lithium project, Stria Lithium will extract a bulk sample to run tests in order to demonstrate that its innovative metallurgical process could produce lithium chloride (99.99%) using spodumene from this project. A mineral resource estimate will follow. In addition, the James Bay Lithium project of Galaxy Resources³⁰ is still one of the company's best projects despite major corporate restructuring. News is expected on the future of the project.

²⁹ www.rb-e.com

³⁰ www.galaxyresources.com.au/projects/james-bay



Photo: Francis Fontaine for the MERN

CHOOSE QUÉBEC'S MINING SECTOR - LITHIUM PROJECTS ⁽¹⁾						
Mine or project	Status	Commodities	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Québec Lithium RB Energy www.rb-e.com	Receivorship	Lithium	17.06 Mt at Li ₂ O: 0.938%	33.24 Mt at Li ₂ O: 1.188%	OP	Mining project was stopped at the stage of precommercial production.
Authier Glen Eagle Resources www.gleneagleresources.com	Appraisal	Lithium		7.48 Mt at Li ₂ O: 0.914%	OP	The preliminary economic assessment is finished (January 2013). Expected production: 100 kt/yr of spodumene concentrate.
Rose Tantalum-Lithium Critical Elements Corporation www.cecorp.ca	Appraisal	Lithium Tantalum		26.50 Mt at Li ₂ O: 0.98% Ta ₂ O ₅ : 163 g/t	OP	The preliminary economic assessment is finished (December 2011). Expected production: 26.6 kt/yr of lithium carbonate and 94 t/yr of tantalum concentrate.
Whabouchi Nemaska Lithium www.nemaskalithium.com	Appraisal	Lithium	27.30 Mt at Li ₂ O: 1.463%	27.99 Mt at Li ₂ O: 1.568%	OP/ UG	The feasibility study is finished (July 2014). The resources include reserves. Expected production: 216 kt/yr of spodumene concentrate qui will be transformed into 28 kt/yr of lithium hydroxide and into 3 kt/yr of lithium carbonate.

(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, %: percentage, g/t: gram per metric ton.

(4) OP: open pit, UG: underground.

Lithium - Mining activities in Québec



Area covered by the Plan Nord

* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source SIGÉOM.

Graphite

PRODUCTION AND MINING PROJECTS

Current situation

The global market for graphite is stable. A new market is developing for high-tech applications, such as lithium-ion batteries in hybrid and electric cars, the new generation of nuclear reactors, and electrical conductors. These new applications require high-quality flake graphite. Québec could be a supplier to this emerging market. In the traditional market, graphite is used for batteries, automobile components, lubricants, metallic powders and refractory products.

Only two graphite mines are active in North America. One is located in British Columbia (the Black Crystal mine of Eagle Graphite) and the other in Québec, in the Laurentians, near Mont-Laurier (the Lac-des-Îles mine of IMERYS Graphite & Carbone Canada). The company supplies natural graphite for the manufacture of traditional batteries and metallic powders.

Over the past few years, there has been a significant increase in the number of graphite exploration projects in Québec. Two of these projects are at the deposit appraisal stage. Historically, many graphite deposits have been discovered and even mined in Québec, particularly in the geological Grenville Province.

Notable mining projects

In the Côte-Nord region, two projects are at the feasibility stage. The Lac Knife project, of Focus Graphite, is located south of Fermont. The flake graphite in this deposit is of much better quality than what is generally available on the market. The deposit could produce 44,300 tonnes per year of graphite concentrate grading 98% graphitic carbon over a period of 25 years. The second project of importance is the Lac Guéret property of Mason Graphite Corp., located 60 kilometres northwest of the Daniel-Johnson dam (Manic 5). The project provides for an annual production of 50,000 tonnes of graphite concentrate over 22 years. The deposit contains 7.6 million tonnes of graphite grading 20.4% graphitic carbon.

Exploration and potential

Many of the graphite exploration projects are taking place on properties that were explored or even mined in the past.

Many are in the Outaouais region, such as the Mousseau West project belonging to Graniz Mondal³¹, who published mineral resources.

³¹ www.granizmondal.com



Photo: Francis Fontaine for the MERN

CHOOSE QUÉBEC'S MINING SECTOR - GRAPHITE PROJECTS⁽¹⁾

Mine or project	Status	Commodity	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Lac-des-Îles IMERY'S Graphite & Carbone Canada www.imerys-graphite-and-carbon.com	Active mine	Graphite	c ⁽⁵⁾	c	OP	
Lac Guéret Mason Graphite www.masongraphite.com	Appraisal	Graphite		65.69 Mt at GP: 17.185%	OP	The feasibility study is underway. Expected production: 50 kt of graphite per year.
Lac Knife Focus Graphite www.focusgraphite.com	Appraisal	Graphite	7.86 Mt at GP: 15.13%	9.58 Mt at GP: 14.77%	OP	The feasibility study is finished (August 2014). The resources do not include reserves. Expected production: 44.3 kt of graphite per year.

(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

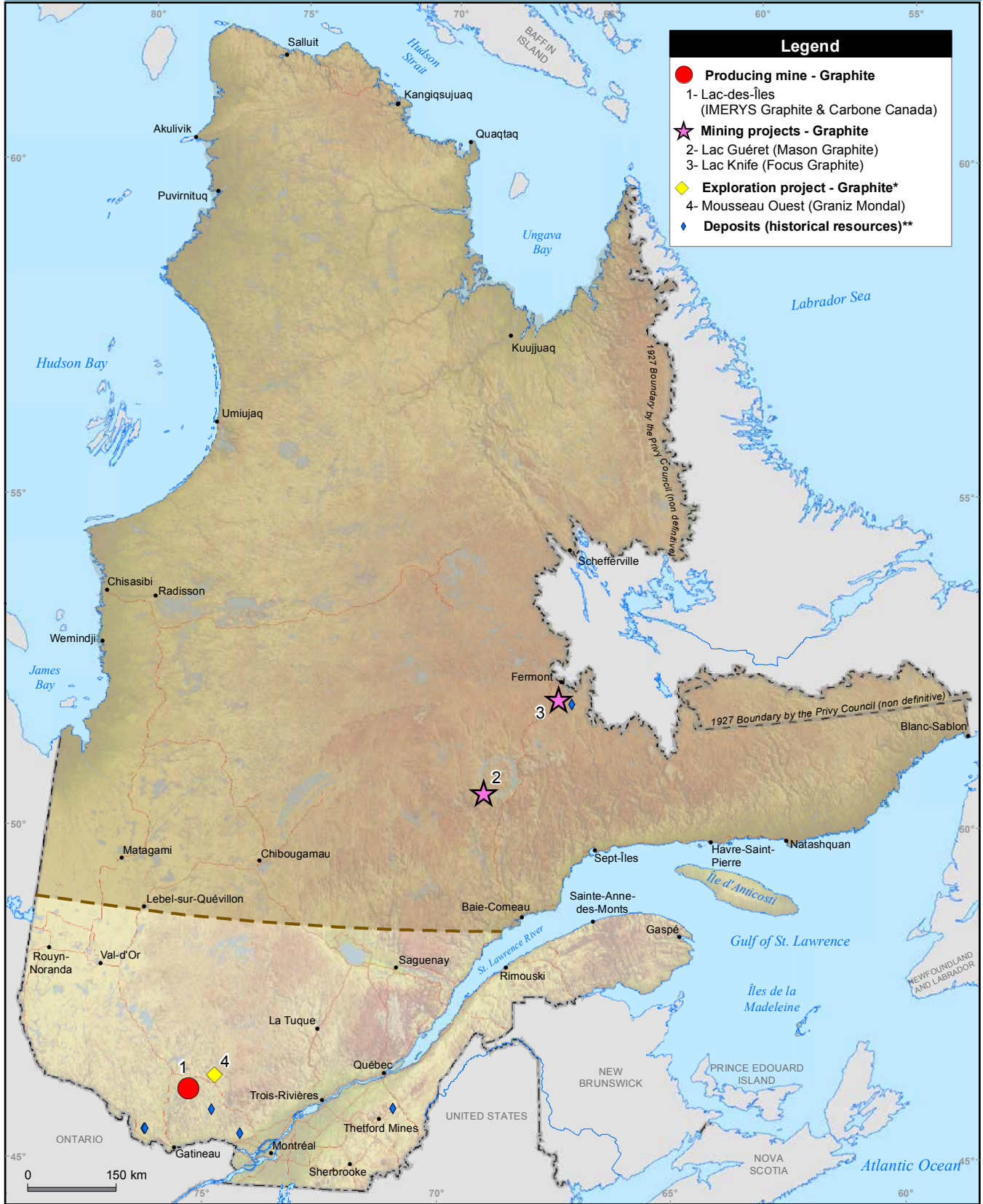
(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) GP: graphite, Mt: million metric tons, %: percentage.

(4) OP: open pit, UG: underground.

(5) c: confidential data.

Graphite - Mining activities in Québec



* Exploration projects with NI 43-101 resources published between 2009 and 2014.
 ** Source: SIGÉOM.

Phosphate

MINING PROJECTS

Current situation

Phosphate is primarily used in the manufacture of fertilizer, food production (animal and human), metallurgy, water treatment and the manufacture of toothpaste, cosmetics and ceramics.

More than 40 phosphate mines were in operation from the 1800s to 1950. Almost all these phosphate mines were in the Outaouais region. There are currently no active phosphate mines in Québec.

Nevertheless, increasing prices and rising demand have led to a resurgence in exploration, which has solidified in Québec with the development of new mining projects.

Notable mining projects

Two mining projects are at the deposit appraisal stage. They should enter into production over the course of the next few years. They constitute two apatite (calcium phosphate) projects: the Arnaud project and the Lac à Paul project. Geologically, the Arnaud project is associated with the Sept-Îles Igneous Complex, whereas the Lac à Paul project is associated with the Lac-Saint-Jean Anorthosite Suite.

The Arnaud project, belonging to the company Mine Arnaud, is expected to have a 30-year mine life, with an average annual production of 1.2 million tonnes of phosphate concentrate. The project is located about 15 kilometres west of the city of Sept-Îles, which has several key infrastructure components: provincial highway 138, the Arnaud rail line, the port of Sept-Îles and power lines. A feasibility study was completed in August 2014. On March 16, 2015, the Government of Québec ordered the issuance of a certificate of authorization. The proponent is waiting for federal authorizations. Mine Arnaud is a joint venture formed between *Investissement Québec* and the Norwegian company Yara International ASA. Mine Arnaud is seeking one or more strategic financing partners.

Arianne Phosphate is seeking one or more strategic financing partners. The Lac à Paul project of Arianne Phosphate is expected to have a 26-year mine life, with an average annual production of 3 million tonnes of phosphate concentrate. The project is located about 200 kilometres north of the city of Saguenay. It is accessible via a network of forestry roads, part of which is undergoing repairs to permit oversize vehicles to circulate. The project includes the construction of a new marine terminal on Saguenay's north shore, at Sainte-Rose-du-Nord. A new power line will also be erected. A feasibility study was completed in October 2013, and applications for environmental authorizations have been presented to the provincial and federal governments.

Exploration and potential

There are many vast anorthositic and mafic complexes containing apatite mineralization in Québec. Exploration targets are plentiful. The apatite concentrations are often associated with iron and titanium mineralization.

At the present time, about 15 projects have reached different stages of exploration in the regions of Saguenay–Lac-Saint-Jean and Côte-Nord. The most advanced of these explorations are those in the Saguenay–Lac-Saint-Jean region, notably Lac Lisette, Moose Lake and Dissimieux Lake.



Photo: Francis Fontaine for the MERN

CHOOSE QUÉBEC'S MINING SECTOR - PHOSPHATE PROJECTS ⁽¹⁾

Mine or project	Status	Commodity	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
<p align="center">Arnaud Mine Arnaud www.minearnaud.com</p>	Appraisal	Apatite	342.60 Mt at P ₂ O ₅ : 4.298%	545.49 Mt at P ₂ O ₅ : 3.995%	OP	The feasibility study is finished (August 2014). The resources include reserves. Expected production: 1.2 Mt of apatite concentrate at 39%–40% P ₂ O ₅ per year.
<p align="center">Lac à Paul Arianne Phosphate www.arianne-inc.com</p>	Appraisal	Apatite	472.09 Mt at P ₂ O ₅ : 6.88%	702.70 Mt at P ₂ O ₅ : 7.158%	OP	The feasibility study is finished (October 2013). The resources include reserves. Expected production: 3 Mt of apatite concentrate at 39%–40% P ₂ O ₅ per year.

(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, %: percentage

(4) OP: open pit, UG: underground

Phosphate - Mining activities in Québec



* Source: SIGÉOM.

Diamonds

MINING PROJECTS

Current situation

The global market for diamonds is growing rapidly. Prices have risen significantly over the last few years and the outlook is positive. Canada's position in the market (production and processing) is becoming increasingly important. Although Québec is not yet a diamond producer, it may become one in the near future.

Notable mining projects

The Renard diamond project, owned by Stornoway Diamonds Corporation, is promising. The feasibility study, published in 2011, reports mining reserves capable of providing for 11 years of production. The initial investment for production is estimated at about CA\$1.034 billion. Construction of the mine started on July 10, 2014, and is still underway. Start-up is expected by the end of 2016, and commercial production should commence in the first quarter of 2017. The mine will create about 450 jobs.

Exploration and potential

The diamond potential of Québec remains relatively underexplored. Diamonds are generally found in kimberlites that were emplaced in thick ancient cratons such as those of the Superior Province.

The opening of a diamond mine could revive exploration activities in all areas identified as favourable following exploration efforts in the early 2000s.

CHOOSE QUÉBEC'S MINING SECTOR – DIAMOND PROJECTS ⁽¹⁾						
Mine or project	Status	Commodity	Proven and Probable Reserves ^(2, 3)	Measured and Indicated Resources ^(2, 3)	Type ⁽⁴⁾	Comments
Renard Stornoway Diamond Corporation www.stornowaydiamonds.com	Develop- ment	Diamond	23.79 Mt at 0.755 c/t	35.45 Mt at 0.764 c/t	OP/UG	The resources do not include reserves. Construction is underway. Expected production: 1.6 M carats per year.

(1) Non exhaustive list; refer to the MERN's Report on Mining Activities for the complete list (www.mern.gouv.qc.ca/english/mines/publications/publications-report.jsp)

(2) Mineral reserves and mineral resources are reported according to NI 43-101 standards; note: mineral resources do not have demonstrated economic viability and there is no certainty that resources will be converted into reserves, either in whole or in part.

(3) Mt: million metric tons, c/t: carat per ton.

(4) OP: open pit, UG: underground.



Photo: Stornoway Diamond Corporation

Diamond - Mining activities in Québec



* Source: SIGÉOM.

Other metals

Current situation

In Québec, small quantities of certain metals are produced during the refining of zinc and copper, or are extracted as by-products during gold or base metal mining operations. Although the production of these substances is generally on a small scale, it once again demonstrates the diversity of Québec's mineral.

SHIPMENTS OF OTHER METALLIC MINERALS FROM QUÉBEC, 2014		
Commodity	Quantity	Value (k\$)
Antimony (t)	6	c
Bismuth (t)	3	86
Cadmium (t)	c	199
Selenium (t)	30	1,879
Tellurium (t)	2	257

c: confidential information

Source: Preliminary data from the *Institut de la statistique du Québec* and Natural Resources Canada

The supply of some of these metals is considered strategic by many nations (for example, the USA, Japan, South Korea, the European Union) because they are required by industries such as aeronautics, electronics, green energies and high technology. These metals include the rare earths, lithium, niobium, tantalum and graphite. Both mining and exploration projects in Québec could benefit from the interest of these nations for such metals.

Québec can offer a stable supply of several of these metals. It is already the second largest producer of niobium in the world, the third for titanium dioxide, and among one of the few graphite producers. Lithium may also, in the near future, be added to this list.

There is also considerable potential in Québec for mineral deposits containing antimony, bismuth, cadmium, lead, selenium and tellurium. In the near future, advances in geoscientific knowledge and increased exploration efforts, particularly north of the 49th parallel, could lead to the discovery of new mineralization containing these metals.





Photo: Richmond Mines

MINERAL AND METAL PROCESSING: EXISTING ACTIVITIES, PROJECTS AND INCENTIVES

A good context for processing activities

Québec wants to increase the processing of mineral substances within its borders and can count on some interesting advantages to do so, namely its location just northeast of the United States, its mineral potential, its infrastructure, its workforce, and its clean electric power-generation capacity.

The Government of Québec offers an investment tax credit for manufacturing and processing equipment. Depending on the type of investment project, it may also offer competitive power rates.

The processing allowance provided for in the Mining Tax Act is intended to encourage mining companies to perform processing and transformation activities within Québec, such as concentration, smelting, refining, hydrometallurgy, pelletizing, and the production of steel powder and billets, copper cathodes and zinc ingots. The processing allowance was enhanced in January 2014³², when the new mining tax regime came into effect.

Here are a few examples of metal manufacturing and processing activities currently taking place in Québec.

- The Horne smelter produces primary copper anodes, which are refined by Affinerie CCR into high-purity copper cathodes. These anodes, primary processing products, are sold worldwide, namely in the United States, although some are also processed in Québec.
- Copper cathodes produced at the CCR refinery are transformed into wire rod, which is in turn transformed into copper winding wire destined for converter, generator and traction motor manufacturers in Québec, Ontario and the United States.
- In Québec, 144 companies manufacture copper parts or offer copper lining, plating, machining, or polishing services.
- Primary zinc produced by the CEZ refinery is namely used to make alloys (brass and bronze), but also for galvanizing. In Québec, 123 manufacturing companies use zinc.
- Rio Tinto Fer et Titane (RTFT) produces, from ilmenite, titaniferous slag used to manufacture titanium pigment, used as an opacity agent in paint (to get a white colour). It is also used to make Oreo cookies.
- RTFT also produces pig iron that is sold in part to manufacture iron castings; a significant proportion of this pig iron is used to make steel, and part of the pig iron and steel is transformed into powdered metal mainly destined for the automobile industry.
- Steel billets produced by RTFT are transformed into wire rod, which is used to manufacture, in Québec, steel wire, nuts and bolts. RTFT's steel billets are also sold to the petroleum industry, which use them to manufacture needed parts.
- ArcelorMittal Montréal produces steel from iron pellets namely derived from the Mont-Wright mine in Fermont, and from scrap metal. Steel billets are transformed into steel bars and wire destined for North American markets, namely for the construction and automobile industries.
- According to a directory published by the *Centre de recherche industrielle du Québec (CRIQ)*, more than 2,000 companies manufacture steel products in Québec.

32 www.finances.gouv.qc.ca/documents/autres/fr/AUTFR_NouveauRegimeImpotMinier.pdf

Primary processing plant development projects

Rio Tinto Fer et Titane has invested CA\$600 million into its metallurgical complex to upgrade its facilities. This complex produces titaniferous slag and steel from ore extracted at the ilmenite mine in Havre-Saint-Pierre.

Nemaska Lithium is also considering the development of a lithium hydroxide and carbonate production plant in Québec, which would use as feedstock the concentrate from its Whabouchi mining project.

Given the advanced status of many rare earth projects, the construction of a rare earth oxide production and separation plant in Québec is a distinct possibility. Many companies with rare earth projects in Québec have shown some interest in this type of project.

Matamec Explorations has a mining project in the Abitibi-Témiscamingue region, south of Rouyn-Noranda, which aims to produce 3,600 tonnes per year of mixed rare earth oxide concentrate. The company intends to install a plant that would produce a mixture of rare earth oxides.

Quest Rare Minerals has announced it is planning to build a processing plant to produce 10,400 tonnes per year of mixed light and heavy rare earth oxide concentrates in Bécancour. Feedstock at the plant will come from ore from the Strange Lake B-Zone in northeastern Québec.

Commerce Resources has a project to set up a plant that will produce a mixture of rare earth oxides in southern Québec. The concentrate (16,850 t/yr) will come from a mining operation 130 km south of Kuujuaq.

GeoMega Resources has a mining project 100 km north of Lebel-sur-Quévillon that aims to produce a mixed rare earth concentrate and a niobium concentrate. The company intends to produce separated rare earths through the process of electrophoresis.

Subsequent processing and manufacturing activities

The presence of processing plants and clusters may play a role in fostering the emergence of other manufacturing activities. Québec is in a good position to develop its processing and manufacturing industries, namely in traditional sectors such as copper, nickel or zinc, but also in non-traditional sectors such as rare earths or lithium.

Québec is already a step ahead in the production of lithium components and batteries, not to mention its initiatives in the development of electric vehicles. Two companies are currently active in this field in Québec: Phostech Lithium³³ and Bathium Canada.³⁴ To date, their lithium is sourced from outside of Québec.

Thus, based on the strength of the electric vehicle industry, the accessibility of a green electrical power supply and its mineral potential, Québec is seeking to attract international manufacturers in this field.

³³ www.phostechlithium.com

³⁴ www.bathium.com



Photo: MERN

FREQUENTLY ASKED QUESTIONS ABOUT QUÉBEC'S MINING SECTOR

How are the powers shared between the Government of Québec and the federal government when it comes to the mining sector?

The way in which jurisdiction is shared between the federal and provincial governments depends on the domain. The management and framework for the exploitation of natural resources, including mining, fall exclusively under Québec's jurisdiction.

Nevertheless, the federal government has the right to oversee certain environmental impacts. Moreover, all companies established in Québec must pay taxes to both the provincial and federal governments.

What is the regulatory process to approve a mining project, from the exploration stage to mine closure?

The Mining Act stipulates that a claim must be obtained before undertaking mineral exploration. A claim grants the holder the exclusive right to search for mineral substances on a well-defined piece of land. If the land is private, the claimholder must obtain written authorization from the landowner before accessing the land and carrying out exploration work. The claimholder must also advise the municipality and the landowner that a claim has been granted within 60 days following its issuance. The claimholder must also inform the municipality and the landowner about any work it will be performing at least 30 days beforehand. If applicable, the claimholder must communicate with Aboriginal communities who have been contacted by the government about the project. At all times, the claimholder must obtain authorizations and permits in order to comply with the provisions of the *Environment Quality Act*. Other laws may also apply.

If a new deposit is discovered, the claim holder must obtain a mining lease under the Mining Act in order to exploit it.

Before obtaining a mining lease, a mining company must submit a rehabilitation and restoration plan to the MERN, and have it approved by the Ministry. The application for the lease must be accompanied by a scoping and market study regarding the processing of ore in Québec. The *Mining Act* allows the government, on reasonable grounds, to require agreements that will maximize economic spinoffs in Québec, including primary processing. The mining company must also obtain authorizations from the *Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques* (MDDELCC) in accordance with the *Environment Quality Act*.

A financial guarantee is also required for site restoration. It represents the anticipated costs of undertaking the work provided for in the rehabilitation and restoration plan. This guarantee must be deposited in three instalments: the first (50%) within 90 days of receipt of approval of the plan and at the time the mining lease is granted, and subsequent instalments (25% each) on the anniversary date of the approval of the plan. Some exploration work will also require the deposit of a financial guarantee with the MERN.

The *Environment Quality Act* requires an environmental impact assessment in the case of a project for the construction and operation of a metal ore processing plant, or the project for the development and operation project of a metal mine with a processing or production capacity of less than 2,000 metric tons per day, and in all cases of rare earth exploitation projects regardless of the processing or production capacity. Mining leases granted for a metal mine with a production capacity of less than 2,000 metric tons per day and leases granted to mine surface mineral substances for peat, or those required for industrial or commercial export activities, are subject to a public consultation held by the proponent.

Upon cessation of mining operations, the operator may be required to obtain one or more certificates of authorization from the MDDELCC to undertake restoration work. The financial guarantee will be returned once the company has carried out all its rehabilitation obligations to the satisfaction of the MERN and the MDDELCC.

Are the rights of foreign investors the same as those of Canadian investors?

In Québec and elsewhere in Canada, all investors are treated equally, whether they are domestic or foreign.

However, there are certain rules governing the takeover of Canadian companies by foreign interests. For more information, consult the following website: www.parl.gc.ca/Content/LOP/ResearchPublications/2011-42-e.htm

Can a mining company hire workers from a particular region or union? Can it bring in its own workers?

The Government of Québec encourages companies to hire Québécois living in nearby communities. Québec has skilled manpower in the mining industry, and these workers are based primarily in mining regions. A company established in Québec may nonetheless hire workers from anywhere in Canada. It is generally not possible to bring in workers from outside Canada to fill positions that could be filled by Canadians, except in cases of recruitment difficulties.³⁵

Does Québec have standards to ensure the safety of workers in the mining sector?

Québec's occupational health and safety commission (*Commission de la santé et de la sécurité du travail*) is responsible for the administration of the occupational health and safety regime. In particular, it is responsible for enforcing the Regulation respecting occupational health and safety in mines.³⁶

Moreover, the mission of the Joint Health and Safety Association, Mining Sector (*Association paritaire pour la santé et la sécurité du travail du secteur minier*³⁷) is to help workers and employers in the mining industry to eliminate at their source any hazards to the health, safety and physical integrity of workers.

What mining associations are active in Québec?

Three mining associations are active in Québec: the *Association de l'exploration minière du Québec*³⁸, the *Association minière du Québec*³⁹ and the Québec Peat Moss Producers Association⁴⁰.

³⁵ www.emploi.quebec.gouv.qc.ca/entreprises/recruter/recruter-de-la-main-doeuvre-hors-quebec/

³⁶ www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=%2F%2FS_2_1%2FS2_1R14.htm

³⁷ www.aspmines.qc.ca

³⁸ www.aemq.org

³⁹ www.amq-inc.com

⁴⁰ peatmoss.com

What are the roles and responsibilities of the ministries and organizations that deal with foreign companies wishing to invest in Québec?

- *Ministère de l'Énergie et des Ressources naturelles*: for anything relating to mineral exploration and mining (permits, titles, mining rights, etc.)
- *Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques*⁴¹: for anything relating to the environment and environmental impacts.
- *Ministère des Finances*⁴², *Ministère de l'Économie, de l'innovation et des Exportations*⁴³ and *Investissement Québec*: for financial assistance, equity participation and general support for businesses.

What are the laws and regulations that apply to the exploration and mining sectors?

Acts and regulations of Québec:

- Mining Act⁴⁴ / Regulation respecting mineral substances other than petroleum, natural gas and brine⁴⁵
- Mining Tax Act⁴⁶
- Sustainable Forest Development Act / Regulation respecting standards of forest management for forests in the domain of the State
- An Act Respecting the Lands in the Domain of the State
- Environment Quality Act / Regulation respecting pits and quarries / Regulation respecting environmental impact assessment and review
- An Act Respecting Occupational Health and Safety / Regulation respecting occupational health and safety in mines
- Natural Heritage Conservation Act
- An Act Respecting the Conservation and Development of Wildlife
- Parks Act

Acts and regulations of Canada:

- Canadian Environmental Assessment Act
- Fisheries Act / Metal Mining Effluent Regulations
- Nuclear Safety and Control Act / A number of implementing regulations

N.B.: The information in this section is provided for illustrative purposes only and has no legal value.

41 [www.mddelcc.gouv.qc.ca /index_en.asp](http://www.mddelcc.gouv.qc.ca/index_en.asp)

42 www.finances.gouv.qc.ca/en/index.asp

43 www.economie.gouv.qc.ca

44 www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/M_13_1/M13_1.html

45 www2.publicationsduquebec.gouv.qc.ca/documents/lr/M_13_1/M13_1R2_A.htm

46 www2.publicationsduquebec.gouv.qc.ca/documents/lr/l_0_4/l0_4_A.htm



TO CONTACT US

If you wish to get in touch with us or obtain additional information, please contact the offices of *Investissement Québec*⁴⁷ or those of the *Ministère des Relations internationales et de la Francophonie*.⁴⁸

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47 www.investquebec.com/quebec/en

48 www.mrif.gouv.qc.ca/fr/ministere/representation-etranger

