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The Mineral Industry of Canada

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Note: In this chapter, information for 2020 is followed by information for 2021.

In 2020, Canada had one of the largest economies in the world, ranking ninth based on its nominal gross domestic product (GDP) of $1.6 trillion. Despite the restrictions imposed worldwide as a result of the coronavirus disease 2019 (COVID-19) pandemic, which resulted in the temporary suspension of operations at numerous mines, Canada remained one of the top mining nations in the world. The country continued to produce a wide range of metals, industrial minerals, and mineral fuels. In 2020, more than 1,000 mining and mineral exploration companies operated in Canada. Canada-owned mining companies also operated in 97 countries, and the value of the country's mining assets abroad amounted to about $140 billion.[1]1 Most mining assets owned by Canadian companies abroad were located in the Western Hemisphere, where the value of the assets totaled $93 billion. In terms of value, 21% of these mining assets were located in the United States, followed by Chile, which accounted for 11.3% of the total value (Natural Resources Canada, 2022b; S&P Global Market Intelligence, 2022; World Bank Group, The, 2023).

In 2020, Canada was the world's leading producer of potash, accounting for 31% of world production; the second-ranked producer of niobium, accounting for 9.6% of world production; and the third-ranked producer of palladium and indium, accounting for 9.2% and 6.9% of world production, respectively, as well as, according to the Kimberley Process Certification Scheme, the world's third-ranked rough diamond producer, accounting for 12% of world production. According to the World Nuclear Association, production of uranium in the country ranked fourth worldwide and accounted for 8% of world production. Canada was also the fourth-ranked producer of cadmium and tellurium (excluding U.S. production of tellurium), accounting for nearly 8% each of world production as well as the fourth-ranked producer of ilmenite, accounting for 7.4% of world production; aluminum, 4.8%; platinum, 4.2%; and wollastonite, 1.7%. Canada was the fifth-ranked producer of gold, accounting for 5.6% of world production; the sixth-ranked producer of nickel, sulfur, and cobalt, accounting for 6.6%, 6.1%, and 2.6% of world production, respectively; and the seventh-ranked producer of mica, accounting for 4.3% of world production. Canada also remained one of the leading producers of crude petroleum and natural gas liquids, accounting for 5.8% and 5.7% of world production, respectively (Anderson, 2022a, b; Apodaca, 2022; BP p.l.c., 2022, p. 18, 21; Bray, 2022; Callaghan, 2022; Friedline, 2022; Gambogi, 2022; Jasinski, 2022a, b; Kimberley Process Certification Scheme, 2022; McRae, 2022; Schulte, 2022; Sheaffer, 2022; World Nuclear Association, 2022).

Canada held significant mineral reserves in deposits ready for production. In 2020, Canada had the largest potash reserves in the world, totaling 1,100 million metric tons (Mt) of K_2O equivalent. Canada's niobium reserves accounted for 9.4% of the world's niobium reserves and were the second largest in the world after Brazil. Canada had the third-largest crude petroleum reserves, accounting for 9.7% of the world's total proven reserves. Peat reserves in Canada were the fourth largest in the world, accounting for 5.5% of the world's total peat reserves. Details of Canada's share of total world production and world reserves for a number of other commodities in 2020 can be found in the U.S. Geological Survey's Mineral Commodity Summaries 2022 (for 2020 production) and Mineral Commodity Summaries 2021 (for 2020 reserves). Data on reserves of major minerals are also in table 3 (BP p.l.c., 2021, p. 16; Brioche, 2021; Friedline, 2021; Jasinski, 2021; U.S. Geological Survey, 2021, 2022).

In 2020, Canada continued to be a global producer of many critical minerals, which included those used in advanced battery technologies, such as cobalt, graphite, and nickel. Canada supplied the United States with 13 of the 35 mineral commodities that were identified by the United States Government as critical to the security and economic success of the United States. In 2020, those mineral commodities included cesium and rubidium (for which Canada was the only import source of those minerals to the United States), potash and tellurium (Canada was the leading import source of those minerals to the United States), and aluminum (metal), cobalt, graphite, indium, magnesium (metal and compounds), niobium, rhenium, titanium (ilmenite), and vanadium (U.S. Department of the Interior, 2018; U.S. Geological Survey, 2021, p. 7).

In January, the Governments of Canada and the United States finalized a joint action plan on critical minerals collaboration. The joint action plan aimed to advance bilateral collaboration in securing mineral supply chains for the critical minerals needed for the manufacturing sector, including for communication technology, aerospace and defense, and low-carbon energy technology. The joint action plan was expected to promote joint initiatives, including research and development cooperation, supply-chain modeling, and increased support for industry (Natural Resources Canada, 2020a).

Minerals in the National Economy

In 2020, Canada's real GDP decreased to $1.40 trillion, or by 6.0% compared with that in 2019. The mineral industry contributed $104.8 billion to Canada's real GDP, which accounted for about 7% of the total real GDP. Canada produced more than 60 industrial minerals and metals valued at about $35 billion in 2020. In order of output value, gold, iron ore, coal, copper, potash, and nickel were among the top commodities contributing to this value. Gold output was valued

[1]Where necessary, values have been converted from Canadian dollars (CAD) to U.S. dollars (US$) at the annual average exchange rate of CAD 1.254=US$1.00 for 2021 and CAD 1.341=US$1.00 for 2020.

at $9.2 billion; iron ore, $4.2 billion; coal, $3.0 billion; copper, $2.9 billion; potash, $2.2 billion; and nickel, $2.1 billion. Minerals were produced in every Province and Territory in Canada in 2020. The Provinces of British Columbia, Ontario, Quebec, and Saskatchewan accounted for 78% of the country's total value of mineral production. The Province of Quebec was the leading Province in terms of the value of its mineral production, accounting for 26% of the country's total. The mining and quarrying sector directly employed 373,000 people in Canada in 2020. The majority of those jobs were in the mineral-processing sector (Natural Resources Canada, 2021a, b; Statistics Canada, 2022b).

In 2020, $1.6 billion was spent on mineral exploration and deposit-appraisal expenditures in Canada. About 68% of these exploration expenditures were for precious metals; 18%, for base metals; 3.9%, for uranium; 3.1%, for diamond; 1.4%, for iron ore; and the remaining 5.6%, for coal and other mineral commodities. Ontario was the leading Province in terms of mineral exploration expenditures, accounting for 26% of Canada's total exploration and deposit-appraisal expenditures. Other leading Provinces included Quebec and British Columbia, with 24% and 23%, respectively. In 2020, Canada had a total of 120 major mining projects planned or under construction. These projects, which included mine development, redevelopment, and expansion, as well as the construction of processing facilities, had an estimated total value of $60 billion. Metal mines, specifically those producing copper, gold, nickel, and zinc, made up a significant portion of the major mining-related projects in Canada. British Columbia, Ontario, Quebec, and Saskatchewan were the Provinces with the highest concentration of mining projects in Canada (Natural Resources Canada, 2020b, p. 9; 2021c, d).

Government Policies and Programs

The Minerals and Metals Policy of the Government of Canada is the Federal policy that outlines and describes the Federal Government's role, objectives, and strategies for the development of Canada's mineral resources. Provincial Governments in Canada have authority to govern and regulate mining activities over mineral resources in their jurisdiction. Each Province has its own environmental, mining, and occupational health and safety regulations. The three Territories—Northwest Territories, Nunavut, and Yukon—have responsibilities for ensuring proper environmental assessment, land-use planning, and water resources for their mineral resources, and generally operate under a system of co-management boards with representation from First Peoples groups (such as First Nations, Inuit, and Métis). In general, there are two types of First Peoples claims in Canada (commonly referred to as land claims)—comprehensive claims and specific claims. Comprehensive claims originate in areas where First Peoples' land rights have not been defined by past treaties or through other legal means, and specific claims originate in areas where First Peoples' land rights have been covered by past treaties or laws. In these areas, agreements are negotiated between the First Peoples, the Government of Canada, and the Province or Territory in which the land resides (Government of Canada, 2017, 2020).

In addition to Provincial or Territorial permitting requirements, new mines and major expansion projects are subject to Federal review and approval. In 2019, several Federal Acts that affected mining projects were amended in the country. They include the Impact Assessment Act, the Fisheries Act, and the Canadian Navigable Waters Act. The Impact Assessment Act, which replaced the Canadian Environmental Assessment Act of 2012, expanded the scope of mining project assessments beyond environmental considerations to include economic, health, and social impacts. The Fisheries Act and the Canadian Navigable Waters Act were also amended (Winfield-Lesk, 2019; Mining Association of Canada, 2021, p. 67).

Mineral resources that underlie the country's continental shelf, Federal lands (which include National Parks), First Peoples Reserves, and offshore waters are owned by the Federal Government. Direct Federal regulation of mining operations was limited in scope, but included activities associated with the fuel cycle of uranium, activities related to Federal Crown corporations (which are mining operations conducted by companies owned or controlled by the Federal Government), and mining activities on Federal lands and offshore areas. The manufacture, sale, use, storage, and transportation of explosives used in exploration and mining in Canada are regulated under the Federal Explosives Act. The export, import, and transit of rough diamond across Canada are regulated under the Federal Export and Import of Rough Diamonds Act. Any written or oral mining disclosures made available to the public in Canada are governed by National Instrument (NI) 43–101 Standards for Disclosure for Mineral Projects (Kazaz and Fipke, 2012, p. 4; Natural Resources Canada, 2017).

Although the majority of mineral rights in Canada are owned by the Provinces and Territories, mineral rights may also be held by the Federal Government, First Peoples, or private entities. The Federal, Provincial, and Territorial Governments have shared regulatory responsibilities that are similar across jurisdictions; however, each jurisdiction maintains its own distinct regulatory regime with regard to mineral management. Responsibilities that are generally in the Provincial or Territorial regime include the exploration and development of mineral resources; resource ownership and management; land-use decision-making; mining royalties and Provincial income taxes; resource exploration and development regulations; the licensing, permitting, and monitoring of operational matters; Provincial statistics; the generation and distribution of electricity; and Provincial geoscience data. Mineral processing and further beneficiation are generally subject to the same legislative regimes that apply to mineral exploration and extraction because the same Provincial, Territorial, or Federal statues regulate all stages of the mining process. Most jurisdictions do not require mineral processing to take place within the Province or Territory of extraction (with the exception of New Brunswick, Newfoundland and Labrador, and Nova Scotia). Local or municipal governments administer bylaws that involve land-use planning and issuance of permits for construction, water supply and distribution, and waste management. First Peoples' Governments exercise powers over reserve lands and other territories covered by specific agreements that were negotiated with the Federal and Provincial Governments. Such governance

on First Peoples' reserves has many of the same powers and responsibilities as local, municipal, or Provincial Governments (Natural Resources Canada, 2017; Lawson Lundell LLP, 2019).

In 2019, the Canada Energy Regulator (CER) was established by the Government of Canada as an independent regulatory body whose responsibilities are described in the Canada Energy Regulator Act, the Canada Oil and Gas Operations Act, and the Canada Petroleum Resources Act. The CER regulates the construction, operation, and abandonment of pipelines; the construction and operation of international power lines and designated interprovincial power lines; imports of natural gas and exports of crude petroleum, natural gas liquids, natural gas, refined petroleum products, and electricity; petroleum and natural gas exploration; and production activities in specified areas that are not regulated under joint Federal and Provincial accounts (Department of Justice, 2019; Canada Energy Regulator, 2020).

The Federal Government in Canada receives direct revenue from mining and energy companies in the form of corporate income taxes and indirect taxes, which include excise, payroll, and sales taxes. The Provincial and Territorial governments have the authority to raise revenue from mining and energy companies using tax regimes similar to those used by the Federal Government. In addition, the individual Provinces and Territories may set royalty rates based on the extraction of mineral resources from their respective lands (Natural Resources Canada, 2019). More-extensive coverage of Government policies and programs of Canada, including provisions for each Province and Territory, can be found in the 2014 U.S. Geological Survey Minerals Yearbook, volume III, Area Reports—International—Canada.

Production

Production of most metals decreased in 2020 compared with that in 2019 owing largely to the effects of the global COVID-19 pandemic. The only exception was the production of tellurium, which was estimated to have increased by 10% during the year. Metals with notable decreases in production (these decreases were largely attributed to mining and processing operations being placed on care-and-maintenance status owing to the COVID-19 pandemic) included mined lead, by 82%; mined antimony, by 60%; palladium, by 39%; platinum, by 38%; molybdenum, by 35%; silicon metal and mined zinc, by 26% each; total refined lead (estimated; primary and secondary), by 27%; direct-reduced iron, by 19%; pig iron, by 17%; raw steel, by 15%; and nickel, rhodium, and titaniferous slag, by 13% each. Notable increases in the production of industrial minerals in 2020 included that of fluorspar, by 56%; feldspar, by 29%; gypsum, by 27%; barite, by 25%; and salt, by 11%. Notable decreases in production of industrial minerals included that of talc and related materials, by 37%; graphite, by an estimated 31%; diamond, by 30%; mica, by an estimated 29%; stone, by 28%; lime, by 16%; and magnesite, by an estimated 11%. Notable decreases in production of mineral fuels and related materials included that of uranium, by 41%; coal, by an estimated 21%; and refined petroleum products, by 12%. Data on mineral production are in table 1.

Structure of the Mineral Industry

As one of the world's most active mining countries, Canada had numerous mineral exploration, mine development, and mining projects underway. Canada's mineral industry consisted mainly of private companies (rather than Government enterprises) involved in exploration, mine development, mineral production, mineral processing, and marketing of minerals. In 2019 (the latest year for which data were available), the Mining Association of Canada reported that there were 1,001 mines operating in Canada, which included 931 nonmetallic mineral mines and 70 mines that produced metallic mineral ores. Canada also had numerous mineral-processing facilities, including 30 nonferrous metal smelters, refineries, and steel mills. The majority of Canada's mineral-processing facilities were located in the Provinces of Quebec and Ontario. The country had about 6,500 sand, gravel, and stone quarries in 2020. Table 2 is a list of major mineral industry facilities (table 2; Mining Association of Canada, 2021, p. 14, 25; Natural Resources Canada, 2021a).

Mineral Trade

In 2020, the value of Canada's exports of minerals and mineral products was $128 billion, of which energy products accounted for 52%; metals and nonmetallic mineral products, 35%; and metal ores and nonmetallic minerals, 13%. Canada's leading trade partner for exports of energy products in 2020, in terms of the export value, was the United States (which received 88.7%), followed by Japan (2.1%), the Netherlands (1.6%), and China and the Republic of Korea (1.3% each). The leading trade partner for exports of metals and nonmetallic mineral products was the United States (which received 56.3%), followed by the United Kingdom (25.7%), Norway and the Netherlands (3.4% each), and Switzerland (1.9%). The leading trade partner for the export of metal ores and nonmetallic minerals was China (which received 22.1%), followed by the United States (20%), Japan (9.3%), the Republic of Korea (5.8%), and India (5.4%). Exports of minerals and mineral products accounted for nearly 33% of Canada's total exports, by value (Statistics Canada, 2021).

In 2020, the United States received 56.3% of Canada's metal and nonmetallic mineral-product exports, by value, and 20% of its metal ores and nonmetallic-mineral exports. Of the total value of metals exported to the United States from Canada, the value aluminum, gold, and iron and steel exports combined accounted for 51%. The United Kingdom received 25.7% of Canada's metal and nonmetallic mineral-product exports, by value, and gold accounted for 95% of those exports, followed by iron ore (2%) and nickel (1%). China received 22% of Canada's metal ores and nonmetallic mineral exports, by value, of which iron ore accounted for 43%, and copper, 16% (Statistics Canada, 2021).

In 2020, the value of Canada's imports of minerals and mineral products was $59 billion, of which metal and nonmetallic mineral products accounted for 51%; energy products, 29%; and metal ores and nonmetallic minerals, 20%. Canada's leading trade partner for imports of energy products in 2020, in terms of the import value, was the United States (which supplied 72.8%), followed by Saudi Arabia (6.0%), the Netherlands (2.4%), and Australia (2.3%). The leading trade partner for imports of metals and nonmetallic mineral products

was the United States (which supplied 49.5%), followed by China (11.1%), Germany (3.2%), and Mexico (2.4%). The leading trading partner for the imports of metal ores and nonmetallic minerals was the United States (which supplied 22.3%), followed by Brazil (20.8%), and Peru (17.2%). Imports of minerals and mineral products accounted for nearly 15% of Canada's total imports, by value (Statistics Canada 2021).

Commodity Review

Metals

Aluminum.—In 2020, aluminum production was 3,118,710 metric tons (t), which was an increase of 9.3% compared with that in 2019. The majority of aluminum smelters in Canada were wholly or partially owned by Rio Tinto Alcan Inc., which was headquartered in Montreal, Quebec. In September, the United States announced the removal of tariffs on unwrought aluminum imports from Canada. The United States had imposed a 10% tariff on Canadian unwrought aluminum after imports from Canada surged earlier in the year. In the third quarter of 2020, Alcoa Corp. of the United States announced that it would increase production to full capacity at the Becancour smelter, which was jointly owned by Alcoa Corp. and Rio Tinto. Located in Quebec, the Becancour smelter had been operating below capacity throughout an 18-month labor disagreement, which ended in July 2019. The aluminum smelter had the capacity to produce 413,000 metric tons per year (t/yr) (tables 1, 2; Alcoa Corp., 2020; Lawder and Ljunggren, 2020).

Antimony.—In 2020, Canada's antimony production totaled 2 t, which was a decrease of 60% compared with that in 2019. In November 2020, the Beaver Brook antimony mine, which was owned by China Minmetals Co. Ltd. of China, suspended operations owing to operational restrictions put in place by local authorities as a result of the COVID-19 pandemic. Management officials at Beaver Brook were expected to reassess the option to restart operations in 2021. Beaver Brook had reopened in 2019 after being on care-and-maintenance status since 2012. At full production capacity, Beaver Brook was expected to produce 160,000 t/yr of antimony and to employ more than 100 people (table 1; Bird, 2020).

Bismuth and Cadmium.—Bismuth and cadmium were recovered primarily as byproducts from the production of concentrates from lead- and zinc-bearing ores. Canada's reserves of lead and zinc (in proven and probable reserves of minable ores at operating mines) had been decreasing in recent years. Since 1980, the most substantial reserve declines have been in lead (98%) and zinc (94%). In 2020, mine output of bismuth was 4 t compared with 5 t in 2019. Mine output of cadmium was 140 t (revised) both in 2020 and 2019 (table 1; Mining Association of Canada, 2022, p. 34–35).

Cobalt.—In Canada, cobalt was primarily recovered as a byproduct of nickel mining. Cobalt exploration and development projects continued in Canada during the year. In 2020, Canada's mined cobalt production was 4,775 t compared with 4,365 t (revised) in 2019, and refined cobalt production was 5,965 t compared with 6,075 t in 2019. Mined cobalt in Canada was primarily sourced by operations owned by Glencore plc of Switzerland (Raglan and Sudbury Mines) and Vale S.A. (Vale) of Brazil (Sudbury, Thompson, and Voisey's Bay Mines). First Cobalt Corp. continued to advance the restart of the First Cobalt refinery, located near Cobalt, Ontario. In May, First Cobalt announced the results of an independent feasibility study which the company said showed that the First Cobalt refinery project could become a viable and globally competitive operation in the electric vehicle supply chain. First Cobalt was expected to have the refinery operational by the fourth quarter of 2022. When fully operational, the refinery would have the capacity to produce 25,000 t/yr of cobalt sulfate containing 5,000 t of cobalt. In August, Fortune Minerals Ltd.'s (Fortune's) cobalt-gold-bismuth-copper project (NICO project) announced that exploration activities were expected to resume after COVID-19 restrictions placed earlier in the year had been eased. The NICO project was an advanced development asset composed of a planned mine and concentrator in the Northwest Territories and a refinery in southern Canada. Proven and probable reserves at the NICO project included 33 Mt of ore that contained 46,000 t of bismuth, 37,000 t of cobalt, 12,000 t of copper, and 34,000 kilograms (kg) of gold (tables 1, 2; Fortune Minerals Ltd., 2020; First Cobalt Corp., 2021, p. 2, 5–6).

Copper.—In 2020, production of mined copper in Canada increased to 584,609 t, or by 2% compared with that in 2019. Teck Resources Ltd.'s Highland Valley Mine continued to be a leading producer of copper in Canada during the year. Total production of copper from the Highland Valley copper mine was 119,300 t in 2020 compared with 121,300 t in 2019. Other major copper producers in the country included Vale's Ontario Division, which produced 76,500 t in 2020 compared with 92,800 t in 2019; and Taseko Mines Ltd.'s Gibraltar Mine, which produced 55,700 t of copper in 2020. Most of Canada's copper in 2020 was mined in the Province of British Columbia, followed by the Provinces of Ontario, Quebec, and Manitoba (table 1; Taseko Mines Ltd., 2021; Teck Resources Ltd., 2021b, p. 13, 45; Vale S.A., 2021, p. 14; Mining Association of Canada, 2022, p. 99).

Gold.—Gold production decreased to 178,005 kg in 2020 from 190,651 kg (revised) in 2019. Of that amount, nearly 10%, or 17,687 kg, was produced from the Canadian Malartic Mine, which was jointly owned by Agnico Eagle Mines Ltd. and Yamana Gold Inc. The Detour Lake Mine, which Kirkland Lake Gold Inc. acquired from Detour Gold Corp. in January 2020, produced 8.8% of the country's gold output, or 16,073 kg in 2020. Since the acquisition, Kirkland Lake Gold began an extensive exploration drilling program at Detour Lake, which included investments in mill-production improvements, the expansion of tailings capacity at the mine, lab-construction projects, and improvements to the site's infrastructure. In September, majority-owned Iamgold Corp.'s Cote gold project (Cote), located in Northern Ontario, announced the start of construction of the Cote Mine. The company was expected to generate more than 1,000 jobs during the construction phase of the mine, and 450 jobs when the mine was fully operational. At full production capacity, Cote was expected to produce more than 14,000 kg of gold annually in the first 6 years of the mine's projected 18-year mine life. Commercial production was expected to commence in late 2023 (table 1; Iamgold Corp., 2020; Global Newswire, 2021; Yamana Gold Inc., 2021; Mining Association of Canada, 2022, p. 99).

Lead and Zinc.—Production of mined lead in 2020 was estimated to be 4,000 t compared with 21,782 t in 2019. Estimated production of total refined lead was 190,000 t compared with 260,000 t in 2019. In 2020, there were two active lead-producing mines in Canada—the Caribou Mine and the Silvertip Mine. Trevali Mining Corp. (which owned the Caribou Mine) and Coeur Mining, Inc. of the United States (which owned the Silvertip Mine) announced the temporary suspension of their respective mines owing to COVID-19 operational challenges and restrictions. Lower commodity prices were also a factor in the suspension of the mines' production, as the operations became unprofitable during the year. The operational restart of the Caribou Mine was expected to begin during the first quarter of 2021 with an initial 2-year mine life. As of yearend, Coeur Mining had not announced a date for the restart of mining and processing activities at the Silvertip Mine (tables 1, 2; Home, 2020; Trevali Mining Corp., 2020, 2021).

Production of mined zinc decreased by 26% to 248,000 t in 2020 compared with that in 2019. Smelted zinc production increased by 4.0% to 682,000 t compared with that in 2019. In November, BMC Minerals Ltd. of the United Kingdom released results of an updated 2019 feasibility study for the Kudz Ze Kayah project in southeastern Yukon. According to the updated feasibility study, Kudz Ze Kayah (acquired by BMC Minerals Ltd. in January 2015) would produce 106,600 t/yr of zinc, 25,400 t/yr of lead, 14,500 t/yr of copper, 242,600 kilograms per year (kg/yr) of silver, and almost 1,800 kg/yr of gold during the mine's projected 9 years of steady-state production (production which excludes the first and final years of the life of the mine). Commercial production at Kudz Ze Kayah was expected to commence in 2023 (table 1; BMC Minerals Ltd., 2020, p. 1, 3, 17).

Nickel.—In 2020, mined nickel production totaled 167,243 t compared with 193,057 t (revised) in 2019. Canada's nickel was produced from mines located in the Provinces of Manitoba, Newfoundland and Labrador, Ontario, and Quebec. Vale and Glencore accounted for 87% of the nickel produced in Canada. Vale's operations, which included the Sudbury Mine (in Ontario), the Thompson Mine (in Manitoba), and the Voisey's Bay Mines (in Newfoundland and Labrador), produced 89,600 t of nickel, which accounted for 54% of the country's total production of mined nickel in 2020. Glencore's Sudbury and Raglan Mines produced 56,500 t (combined) during the year. Canada also produced 124,043 t of refined nickel at three refineries located in Fort Saskatchewan, Alberta; Long Harbour, Newfoundland and Labrador; and Sudbury, Ontario (tables 1, 2; Glencore plc, 2021, p. 232; Vale S.A., 2021, p. 12).

Platinum-Group Metals.—Production of total platinum-group metals (PGMs) decreased by 40% to 20,000 kg in 2020 from 33,200 kg (revised) in 2019. The majority of Canada's PGM production took place in Ontario. In late 2019, Impala Platinum Holdings Ltd. of South Africa completed the acquisition of North American Palladium Ltd. and renamed the company Impala Canada Ltd. The acquisition included the Lac des Iles Mine (located in Ontario), which had an underground and surface mine as well as a concentrator plant. Lac des Iles, which began as an open pit mine in 1993, was Canada's only pure platinum producer. Other PGM production in the county was recovered as a byproduct of nickel mining (tables 1, 2; Impala Canada Ltd., 2020, p. 2, 5–6).

Industrial Minerals

Diamond.—Canada produced 13.1 million carats of diamond in 2020, which was a decrease of about 30% compared with production in 2019. The average value of diamond produced in Canada in 2020 was $70.92 per carat. The Gahcho Kué Mine (an open pit mine located in the Northwest Territories) produced 6.6 million carats in 2020. Gahcho Kué began commercial production in 2017 and had a 10-year mine life (tables 1, 2; Anglo American plc, 2021, p. 67, 251; Kimberley Process Certification Scheme, 2022).

Graphite.—In 2020, the Lac-des-Îles Mine (located in Quebec), which was owned by Imerys Graphite and Carbon S.A. of Switzerland, remained Canada's sole graphite producer; it had the capacity to produce 15,000 t/yr of graphite. Advanced-stage graphite projects remained under development during the year, which included Northern Graphite Corp.'s Bissett Creek project, located in Ontario. Construction of the Bissett Creek Mine was expected to continue into 2021, and initial production was anticipated in 2022 (subject to the availability of financing). Northern Graphite expected Bissett Creek to produce an average of 25,000 t/yr of graphite concentrate during a mine life of 23 years. Nouveau Monde Graphite Inc.'s Matawinie graphite project, located about 150 kilometers north of Montreal, was expected to start commercial production in 2023. Matawinie was projected to have a 25.5-year mine life and was expected to produce an average of 100,000 t/yr of graphite concentrate at a grade of 97% (table 2; Nouveau Monde Graphite Inc., 2020, p. 3, 6, 9; Northern Graphite Corp., 2021a).

Lithium.—Canada's only lithium mine, the North American Lithium Mine (located in Quebec), suspended spodumene production in 2019 owing to low prices, and no lithium production was reported in 2020 or 2021. Lithium exploration and development projects continued to advance during the year, however. In June, Prairie Lithium Corp. and LiEP Energy Ltd. announced a new joint-venture lithium project that would produce about 365 t/yr of lithium hydroxide from oilfield brines in southern Saskatchewan Province during the initial production stage. The project had been conditionally approved by the Ministry of Energy and Resources under the Saskatchewan Petroleum Innovation Incentive. The Authier lithium project (owned by Sayona Mining Ltd. of Australia) continued to advance after the company released a revised definitive feasibility study in November 2019. Authier is a hard rock spodumene-lithium deposit located near Val-d'Or, Quebec. Local government regulatory approvals for the project were expected in 2021. Authier's proven and probable reserves were 12.1 Mt containing 121,590 t of lithium oxide (Li_2O). Authier was expected to have the capacity to produce 114,000 t/yr of 6.0% Li_2O concentrates. Construction of the project was expected to begin in 2022 (table 1; Facada, 2019; Government of Saskatchewan, 2020; Sayona Mining Ltd., 2021, p. 11, 24).

Potash.—In 2020, production of potash (K_2O content) increased to about 13.8 Mt, or by 8% compared with that in 2019. Despite the global effects of the COVID-19 pandemic, global potash demand in 2020 continued to increase owing largely to increased crop production in Asia and Latin America. Nutrien Ltd., which operated the Allan, Cory, Lanigan, Patience Lake, Rocanville, and Vanscoy potash mines in Saskatchewan,

continued to be the leading potash producer in the world. The total combined production of these mines was 12.6 Mt, which accounted for 91% of Canada's total potash production in 2020. High global demand for potash was expected to continue in 2021 (tables 1, 2; Nutrien Ltd., 2021, p. 16, 23, 31).

Mineral Fuels and Related Materials

Coal.—In 2020, total coal production decreased to 40.9 Mt, or by 21% compared with that in 2019. Teck Resources continued to be the leading producer of coal in Canada in 2020. The company produced coal from six operations, and Teck was the sole controlling owner for four of these operations. The other two coal operations included a joint venture of Nippon Steel and Sumitomo Metal Corp., both headquartered in Japan, and POSCO Canada Ltd. (a subsidiary of POSCO of the Republic of Korea). In April, Teck Resources announced that it had completed the expansion of the Elkview plant, increasing the production capacity to 9.0 Mt from 7.0 Mt. In June, Teck also announced the permanent closure of the Cardinal River Mine, located south of Hinto, Alberta. Cardinal River had been operating for 51 years prior to ceasing operations in 2020 (tables 1, 2; Teck Resources Ltd., 2020, p. 2; 2021a; 2021b, p. 8).

Natural Gas.—In 2020, marketable natural gas production decreased to about 167.7 billion cubic meters from 170.9 billion cubic meters in 2019. Natural gas in Canada was primarily sourced from the Western Canadian Sedimentary Basin in Alberta (69.2%), British Columbia (29.1%), and Saskatchewan (1.5%). Canada's technically recoverable resources of natural gas at the end of 2019 (the latest year for which data were available) included 10.9 trillion cubic meters of natural gas in conventional resources and 28.1 trillion cubic meters in unconventional resources, including coal-bed methane, shale gas, and tight gas in other reservoir rocks. Canada's natural gas production exceeded domestic demand, leading to a surplus that was exported to the United States. Canadian natural gas accounted for 98% of the United States' natural gas imports. Although Canada's natural gas market was closely linked to the United States market because of geographical factors, pipeline infrastructure, and agreements, moving natural gas from the west to the east within Canada was difficult owing to limited pipeline capacity. This resulted in western Canadian gas competing with United States natural gas imports in eastern Canada (table 1; Natural Resources Canada, 2021d, p. 11, 114–115, 117–118).

Petroleum.—In 2020, crude petroleum production was about 1.87 billion barrels (Gbbl), which was a 9.0% decrease compared with production in 2019. The country had 166.7 Gbbl of proven crude petroleum reserves, of which 97% was in oil sands. In 2020, 79% of Canada's crude petroleum was exported to the United States. Canada was the leading supplier of crude petroleum to the United States, accounting for 61% of the United States' crude petroleum imports and 23% of the United States' refinery crude petroleum intake. About 62% of Canada's petroleum production in 2020 was sourced from oil sands, and the remainder was from conventional, offshore, and tight oil production. Crude petroleum production in Canada was sourced from the Provinces of Alberta (80.2%), Saskatchewan (9.9%), Newfoundland and Labrador (6.4%), British Columbia (2.5%), Manitoba (0.8%), and others (0.2%) (table 1; Natural Resources Canada, 2022d, p. 11, 100–101, 106).

Reserves and Resources

Canada's proven and probable reserves of some metals, such as copper, gold, molybdenum, nickel, silver, and zinc, had been decreasing in recent years; however, proven and probable gold reserves in Canada had increased by 152% since 2009. The total value of expenditures on mineral exploration and deposit appraisal in Canada declined by about 9% compared with that in 2019. Expenditures on mineral exploration and deposit appraisal in Canada were expected to increase in 2021. Quebec was anticipated to become Canada's leading destination for gold exploration in 2021 owing to increased investments in the gold industry. Proven and (or) probable reserve estimates for some mineral commodities are listed in table 3 (Natural Resources Canada, 2021c; Mining Association of Canada, 2022, p. 35).

MINERAL INDUSTRY HIGHLIGHTS IN 2021

Canada produced an abundance of industrial minerals, metals, and mineral fuels. The country's mineral sector, which included exploration, mining and related support services, primary processing, and downstream-product manufacturing continued to be a key contributor to Canada's overall economy in 2021. In March, the Government announced Canada's critical minerals list, which included 31 minerals considered essential to the sustainable economic success of the country. The critical minerals list was created as a result of collaboration between Canadian Federal, Provincial and Territorial authorities as well as exploration, mining, and manufacturing industries. The critical minerals list includes those minerals that are used to develop low-carbon energy technologies, including those used in the production of solar panels, wind turbines, and electric vehicles and in advanced energy-storage technologies. Canada's critical minerals list is expected to enable policymakers in Canada to target and address key points and vulnerabilities in the country's mineral supply chains, including minerals recycling and reprocessing capacities (Government of Canada, 2021).

The Caribou Mine restarted production in 2021 after suspending operations owing to the COVID-19 pandemic. The Caribou Mine produced 18,416 t of zinc; 6,078 t of lead; and 12,441 kg of silver. The Silvertip Mine remained on care-and-maintenance status in 2021 following its closure during the COVID-19 pandemic (table 2; Government of New Brunswick, 2022).

Minerals in the National Economy

In 2021, Canada's real GDP increased to $1.57 trillion compared with that in 2020, or by 12.0%. The mineral industry contributed $112.1 billion to Canada's real GDP, accounting for about 8% of the total real GDP. Canada produced more than 60 minerals and metals worth about $45 billion in 2021. Gold continued to be Canada's most valuable mined commodity, with a production value of $10.9 billion in 2021. Other leading minerals produced in Canada during the year were, in order

of output value, coal, which was valued at $6.3 billion; iron ore, $5.2 billion; potash, $3.8 billion; copper, $3.6 billion; and nickel, $2.1 billion. The Provinces of British Columbia, Ontario, and Quebec accounted for 64% of the country's total value of mineral production. The Province of British Columbia was the leading Province in terms of value of mineral production, accounting for 23%. The mining and quarrying sector (which does not include hydrocarbon production) directly employed 383,000 people in Canada in 2021 (Natural Resources Canada, 2022a, c; Statistics Canada, 2022a, b).

In 2021, Canada continued to be the world's leading producer of potash, accounting for 31% of world production. It was the second-ranked producer of niobium, accounting for 9% of world production, and the third-ranked producer of palladium, accounting for 7% of world production. Canada was the fourth-ranked producer of gold and cadmium, each accounting for 7% of world production, as well as indium and aluminum, accounting for 7% and 5%, respectively. Canada was the fifth-ranked producer of tellurium, accounting for 7% of world production; the sixth-ranked producer of nickel and sulfur, accounting for an estimated 5% and 6% of world production, respectively; and the seventh-ranked producer of ilmenite and mica, each accounting for 4% of world production. Canada continued to be the world's third-ranked rough diamond producer in 2021, accounting for 15% of world production; the average value of diamond produced in Canada was $85.84 per carat. Canada's production of uranium in 2021 increased by 21%, accounting for 10% of world production. Canada remained a leading producer of crude petroleum and natural gas liquids, accounting for 6.0% and 5.7%, respectively, of world production (BP p.l.c., 2022, p. 15, 18; World Nuclear Association, 2022; Apodaca, 2023; Callaghan, 2023; Flanagan, 2023; Friedline, 2023; Gambogi, 2023; Jasinski, 2023a, b; Kimberley Process Certification Scheme, 2023; McRae, 2023; Merrill, 2023; Schulte, 2023; Sheaffer, 2023; Tolcin, 2023).

In 2021, the value of Canada's exports of minerals and mineral products was $193.7 billion, of which energy products accounted for 59%; metals and nonmetallic mineral products, 30%; and metal ores and nonmetallic minerals, 11%. The United States continued to be Canada's principal trading partner for mineral commodities. Canada's leading trade partner for exports of energy products, in terms of export value, was the United States (which received 90%), followed by China (3%), and Japan (2%). The leading trading partner for exports of metals and nonmetallic mineral products was the United States (which received 63%), followed by China (16%), and Norway (4%). The leading trading partner for the exports of metal ores and nonmetallic minerals products was the United States (which received 22%), followed by China (18%) (Statistics Canada, 2021).

Production

In 2021, among metals, production increased notably compared with that in 2020 for mined lead, by an estimated 150%; direct-reduced iron, by 41%; mined gold and zinc, by 25% each; silicon, by 20%; ferroniobium and pig iron, by 19% each; raw steel, by 18%; niobium, by 17%; and platinum, by 13%. Notable increases in the production of metals included that of molybdenum, by 45%; rhodium, by 29%; mined nickel, by 20%; ferrosilicon, by an estimated 12%; and alumina, by 10%. In 2021, notable increases in the production of industrial minerals included that of stone (unspecified) by 46%; diamond (unspecified), by 34%; magnesite, by an estimated 19%; and silica, by 15%. Notable decreases in the production of industrial minerals included that of salt, by 11%. Mineral fuel production increased notably for peat, by 20%; and uranium, by 13% (table 1).

Commodity Review

Metals

Cobalt and Nickel.—In 2021, Canada's mined cobalt production was 4,361 t compared with 4,775 t in 2020, and refined cobalt production was 6,045 t compared with 5,965 t in 2020. Nickel production in 2021 was 133,581 t compared with 167,243 t in 2020, and refined nickel production was an estimated 120,000 t compared with 124,043 t in 2020. In December, Fortune Minerals' cobalt-gold-bismuth-copper project announced that it was continuing to advance its wholly owned NICO project by completing the drill program of the NICO Mine. In the Northwest Territories, the NICO project was to include an open pit mine, an underground mine, and a concentrator. The NICO project also had a refinery in the Province of Alberta that would produce bismuth ingots and oxide, cobalt sulfate, copper precipitate, and gold dore. The NICO project was expected to become Canada's first primary cobalt-producing mine, when completed. Fortune Minerals had plans to develop critical minerals projects throughout Canada, which included mines, processing facilities, and refineries (table 1; Jamasmie, 2019; Fortune Minerals Ltd., 2021).

Copper.—In 2021, Canada's mined copper production decreased by 6% to 550,418 t compared with that in 2020. In June, Western Copper and Gold Corp. (Western) announced the completion of a preliminary economic assessment on the wholly owned Casino copper-gold project located in the Yukon Territory. The Casino deposit had measured and indicated mill resources of 2,173.3 Mt grading 0.16% copper and 0.18 gram per metric ton gold. Other metals expected to be recovered included molybdenum and silver. Western, which had been developing the Casino project since 2008, was expected to complete the feasibility study during the second quarter in 2022 (Roth and others, 2022).

Industrial Minerals

Graphite.—In December 2021, Northern Graphite Corp. announced that it had signed a binding purchase and sale agreement to acquire sole ownership of Imerys Graphite and Carbon S.A.'s Lac des Iles Mine, located in the Province of Quebec, at a price of $40 million. The Lac des Iles Mine was the only significant graphite producer in North America in 2021. Subject to financing, Northern Graphite was expected to close on the transaction in January 2022 and assume rehabilitation requirements for the eventual closure of the Lac des Iles Mine. The mine had been producing graphite for more than 20 years, and it was expected to produce up to 15,000 t of graphite concentrate per year through at least 2024. Northern Graphite

also announced that it was continuing to advance the Bisset Creek graphite project located in the Province of Ontario. Measured and indicated resources at Bisset Creek included 1.74 Mt of graphite (Northern Graphite Corp., 2021b).

Outlook

Canada's real GDP growth was projected to increase in 2022 by 4.1% before showing a decrease in 2023 of 2.8%. Canada is likely to maintain its position as a leading global mining country, and its mineral industry has the potential for continued expansions based on its mineral resources and its access to international markets. Global demand for battery minerals and metal products, such as cobalt, graphite, lithium, and nickel, are expected to continue to grow owing to increased global demand for a lower carbon future. Canada is well positioned to develop strategies to address its critical minerals supply and security and be a major supplier of these metals for battery storage, electric vehicles, and other related markets. Federal, Provincial, and Territorial governments in Canada are expected to continue to invest in geosciences and strengthen policies that continue to stimulate exploration spending in the country (International Monetary Fund, 2022, p. 5).

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TABLE 1
CANADA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2017	2018	2019	2020	2021
METALS						
Aluminum:						
Alumina, Al_2O_3 content		1,570,000	1,568,000	1,522,000	1,518,000	1,364,000
Aluminum, metal, primary		3,211,882	2,923,204	2,853,771	3,118,710	3,137,490
Antimony, mine, Sb content		1	5	5	2	2 e
Bismuth, mine, Bi content		4	5	5	4	4 e
Cadmium:						
Mine, Cd content		158	148	140 r	140	140 e
Refinery, primary		1,802	1,857	1,803	1,800 e	1,800 e
Cobalt, Co content:						
Mine[3]		3,704	3,279	4,365 r	4,775	4,361
Refinery, metal, metal powder, oxide		6,355	6,349 [4]	6,075	5,965	6,045
Copper:						
Mine, concentrates, Cu content		594,994	548,011	572,705	584,609	550,418
Smelter, blister:						
Primary		289,400	290,100	265,000 r, e	255,000 e	265,000 e
Secondary		31,000	30,000	28,000 r, e	30,000	31,000 e
Total		320,000	320,000	293,000 r, e	285,000	296,000 e
Refinery:						
Primary		300,700	259,300	253,100	246,100	255,400
Secondary		29,700	32,000	28,100	30,000	31,100
Total		330,000	291,000	281,200	276,000	287,000
Ferroalloys:						
Ferroniobium:						
Gross weight[e]		9,400 r	11,000	11,000 r	10,000	11,000
Nb content		6,981	7,400 e	6,600 r, e	6,200 e	7,400 e
Ferrosilicon[e]	thousand metric tons	40	36	37	34	30
Gold, mine, Au content	kilograms	172,877	191,882	190,651 r	178,055	222,524
Indium, refinery, primary[e]	do.	67,000	65,000 r	63,000 r	66,000	60,000
Iron ore, mine:						
Gross weight	thousand metric tons	50,300	52,755	58,472	60,060	57,492
Fe content[e]	do.	30,200	31,700	35,200	36,100	34,500
Iron and steel:						
Direct-reduced iron	do.	1,608	1,670	1,440	1,171	1,648
Pig iron	do.	6,306	6,680	6,320 r	5,223	6,208
Raw steel	do.	13,208	13,443	12,897 r	10,986	12,977
Lead:						
Mine, Pb content		13,494	15,605	21,782	4,000 e	10,000 e
Refinery:						
Primary		124,555	120,000 e	112,909	54,000 e	59,000
Secondary		149,506	141,000 e	147,358	136,000 e	144,000
Total		274,000	261,000 e	260,000	190,000 e	203,000
Molybdenum, mine, Mo content		4,765	5,048	3,896	2,525	1,385
Nickel:						
Mine, sulfide ore, concentrate, Ni content		206,354	177,867	193,057 r	167,243	133,581
Refinery, metal		154,759	137,411	124,736	124,043	120,000 e
Niobium, mineral concentrate, Nb content[5, 6]	kilograms	7,200,000	7,600,000 r, e	6,800,000 e	6,400,000 e	7,500,000 e
Platinum-group metals, mine, elemental content:						
Iridium[e]	do.	200	400 r	400 r	--	--
Palladium	do.	19,000	21,000	23,000 r	14,000	15,000
Platinum[e]	do.	7,600	7,600	8,500 r	5,300	6,000
Rhodium[e]	do.	60	300	800 r	700	500
Ruthenium[e]	do.	500	700	500 r	--	--
Total	do.	27,400	30,000 r	33,200 r	20,000	21,500

See footnotes at end of table.

TABLE 1—Continued
CANADA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2017	2018	2019	2020	2021
METALS—Continued						
Selenium	kilograms	72,000	85,000	57,000	60,000 e	57,000 e
Silicon, metal[e]	thousand metric tons	28	34	34	25	30
Silver:						
Mine, Ag content	kilograms	368,000	392,000	349,710 r	324,862	325,026
Refinery, primary	do.	1,758,682	1,700,000 e	1,700,000 e	1,600,000 e	1,600,000 e
Tellurium, refinery	do.	49,000	40,000 e	40,000 e	44,000 e	44,000 e
Titanium, titaniferous slag		800,000	700,000	800,000	700,000	700,000
Zinc:						
Mine, Zn content		305,314	304,964	335,806	248,000	310,000
Smelter, primary		598,438	620,202	654,971	682,000	640,718
INDUSTRIAL MINERALS						
Barite[e]		50,000	40,000	40,000	50,000	50,000
Cement and clinker:						
Clinker	thousand metric tons	12,412	13,184	13,000 e	12,800 e	13,500 e
Hydraulic cement	do.	12,706	13,554	13,120 r	13,000 e	14,000 e
Diamond, natural, unspecified	thousand carats	23,234	23,194	18,638	13,104	17,600
Feldspar, mine, nepheline syenite	thousand metric tons	612	565	506 r	652	650
Fluorspar		NA	35,000 e	90,000 r, e	140,000 e	140,000 e
Gemstones, amethyst and jade		89	87	49	50 e	50 e
Graphite, crystalline flake		14,000 e	11,000 e	11,000 e	7,620	7,700
Gypsum and anhyrdite[7]	thousand metric tons	3,001	3,240	2,408	3,050	3,135
Lime	do.	1,842	1,785	1,797 r	1,501	1,594
Lithium, spodumene		--	114,000	9,000	--	--
Magnesite[e]		150,000	150,000	180,000	160,000	190,000
Mica[e]		22,000	21,000	21,000	15,000	15,000
Nitrogen, ammonia, N content	thousand metric tons	3,745	3,832	3,909 r	3,895	3,755
Potash, K_2O content	do.	12,563	14,024	12,770	13,784	14,239
Salt	do.	11,424	10,713	11,936 r	13,261	11,818
Sand and gravel, industrial, silica	do.	2,540	4,864	4,185 r	4,046	4,649
Stone, sand, and gravel, construction:						
Sand and gravel, unspecified	do.	231,219	245,815	189,064 r	201,232	193,704
Stone	do.	169,518	188,974	143,545 r	102,985	150,000 e
Sulfur, byproduct:						
Metallurgy	do.	524	505	520	555	550 e
Natural gas and petroleum	do.	4,803	4,828	4,413 r	4,519	4,329
Total	do.	5,330	5,330	4,930 r	5,070	4,880
Talc and related materials, pyrophyllite, soapstone, talc	do.	215	279	243	153	150 e
MINERAL FUELS AND RELATED MATERIALS						
Coal:[e]						
Bituminous	thousand metric tons	4,250	3,800	3,630	2,860	2,900
Lignite	do.	7,900	7,060	6,730	5,300	5,500
Metallurgical	do.	27,300	24,400	23,300	18,400	19,000
Subbituminous	do.	21,300	19,000	18,100	14,300	14,700
Total	do.	60,800	54,300	51,800	40,900	42,100
Natural gas, marketable	million cubic meters	166,278	172,725	170,890	167,733	173,515
Peat, horticultural use	thousand metric tons	1,459	1,306	1,327 r	1,379	1,653
Petroleum:						
Crude	thousand 42-gallon barrels	1,756,745 r	1,914,060 r	1,960,780 r	1,872,450	1,981,858
Natural gas liquids, gas plant production	do.	370,508	236,285	248,900	241,617	243,996
Refinery	do.	683,000	694,000 e	627,000 r, e	551,000 e	601,000 e
Uranium, mine, uranium oxide, U content		12,207	6,975	6,979 r	4,085	4,616

See footnotes at end of table.

TABLE 1—Continued
CANADA: PRODUCTION OF MINERAL COMMODITIES[1]

[e]Estimated. [r]Revised. do. Ditto. NA Not available. -- Zero.

[1]Table includes data available through January 23, 2023. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]In addition to the commodities listed, aluminum hydroxide $Al(OH)_3$ (hydrate), bentonite, refined bismuth, cesium, diatomite, ferrovanadium, ore containing indium, perlite, pumice, vermiculite, wollastonite, and zeolites may have been produced, but available information was inadequate to make reliable estimates of output.

[3]Recoverable metal in ores and concentrates.

[4]Excludes cobalt oxide.

[5]Pyrochlore concentrate.

[6]Production includes niobium (columbium) contained in ferroniobium shipped with the value as reported by the shipper.

[7]Prior to 2017, reported production excluded quantity used for the manufacture of cement products.

TABLE 2
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Axens IFP Group Technologies	Brockville refinery, Brockville, Ontario	18.
Do.	Rio Tinto Alcan Inc.	Vaudreuil refinery, Jonquiere, Quebec	1,522.
Aluminum	Alcoa Corp.	Baie-Comeau smelter in Baie-Comeau, Quebec	306.
Do.	do.	Deschambault smelter in Deschambault, Quebec	278
Do.	Alcoa Corp., 74.95%, and Rio Tinto Alcan Inc., 25.05%	Becancour smelter in Becancour, Quebec	413.
Do.	Rio Tinto Alcan Inc.	Alma smelter in Alma, Quebec	471.
Do.	do.	Arvida smelter in Arvida, Jonquiere, Quebec	236.
Do.	do.	Grande-Baie smelter in Grande-Baie, Quebec	227.
Do.	do.	Kitimat smelter in Kitimat, British Columbia	420.
Do.	do.	Laterriere smelter in Laterriere, Quebec	247.
Do.	Rio Tinto Alcan Inc., 40%; Aluminium Austria Metall Québec, 20%; Hydro Aluminum, 20%; Marubeni Québec Inc., 13.33%; Société générale de financement du Québec, 6.67%	Alouette smelter in Sept-Iles, Quebec	602.
Ammonium sulfate	Teck Resources Ltd.	Trail refinery, Trail, British Columbia	NA.
Antimony	China Minmetals Co. Ltd.	Beaver Brook Mine,[1] about 45 kilometers south of Glenwood, Newfoundland and Labrador	160.
Barite	Fireside Minerals Ltd	Fireside Mine, Fireside, British Columbia	NA.
Do.	MarFred Minerals Ltd.	Tracey Lake barite property, North Williams, Ontario	NA.
Bismuth metal	Teck Resources Ltd.	Trail refinery, Trail, British Columbia	NA.
Cadmium metal	Noranda Income Fund	Valleyfield refinery, Quebec	NA.
Do.	Teck Resources Ltd.	Trail refinery, Trail, British Columbia	100.
Cement	Ciment Québec Inc.	Plant in Saint-Basile, Quebec	1,571.
Do.	Colacem Canada Inc. (Colacem S.p.A.)	Plant in Grenville-sur-la-Rouge, Quebec	300.
Do.	ESSROC Canada Inc. (Italcementi Group)	Plant in Picton, Ontario	792.
Do.	Federal White Cement Ltd.	Plant in Woodstock, Ontario	544.
Do.	Lafarge Canada Inc. (Holcim Group)	Plant in Joliette, Quebec	1,475.
Do.	do.	Plant in Mississauga, Ontario	2,000.
Do.	do.	Plant in Bath, Ontario	1,176.
Do.	do.	Grinding plant, Stoney Creek, Ontario	814.
Do.	do.	Plant in Exshaw, Alberta	1,422.
Do.	do.	Plant in Kamloops, British Columbia	324.
Do.	do.	Plant in Richmond, British Columbia	1,319.
Do.	do.	Plant in St. Constant, Quebec	1,157.
Do.	do.	Plant in Brookfield, Nova Scotia	621.
Do.	Lehigh Inland Cement Ltd. (HeidelbergCement Group)	Plant in Edmonton, Alberta	1,380.
Do.	do.	Plant in Delta, British Columbia	1,356.
Do.	St. Marys Cement (Canada) Inc. (Votorantim Cimentos S.A.)	Plant in Bowmanville, Ontario	1,800.
Do.	do.	Plant in St. Marys, Ontario	645.
Clay, bentonite	Canadian Clay Products Inc.	Mine in Wilcox, Saskatchewan	NA.
Coal	Anglo American plc	Trend open pit mine, near Tumbler Ridge, British Columbia	2,000.
Do.	Bighorn Mining Ltd.	Vista Mine, near Hinton, Alberta	4,200.
Do.	Conuma Coal Resources Ltd.	Willow Creek Mine, Tumbler Ridge, British Columbia	1,200.
Do.	do.	Brule Mine, Tumbler Ridge, British Columbia	2,500.
Do.	do.	Wolverine Mine, Tumbler Ridge, British Columbia	2,000.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Coal—Continued	Teck Resources Ltd.	Cardinal River operations[2] near Hinton, Alberta	NA.
Do.	do.	Coal Mountain open pit mine[3] at Sparwood, British Columbia	NA.
Do.	do.	Fording River open pit mine, near Elkford, British Columbia	9,000.
Do.	do.	Line Creek Mine, near Sparwood, British Columbia	3,500.
Do.	Teck Resources Ltd., 95%; Nippon Steel Corp., 2.5%; POSCO Canada Ltd., 2.5%	Elkview open pit mine, near Sparwood, British Columbia	9,000.
Do.	Teck Resources Ltd., 80%, and POSCO Canada Ltd., 20%	Greenhills open pit mine, near Elkford, British Columbia	5,200.
Do.	TransAlta Utilities Corp.	Highvale open pit mine, near Seba Beach, Alberta	13,000.
Do.	Up Energy Dev. Group Ltd., 85.31%, and Winsway Coking Coal Holdings Ltd., 14.69%	Grande Cache Mine, near Grande Cache, Alberta	3,600.
Do.	Westmoreland Coal Co.	Coal Valley Mine, near Edson, Alberta	5,200.
Do.	do.	Boundary Dam open pit mine, near Estevan, Saskatchewan	6,500.
Do.	do.	Poplar River open pit mine, near Coronach, Saskatchewan	3,600.
Do.	do.	Bienfait open pit mine, near Bienfait, Saskatchewan	2,800.
Do.	do.	Genesee open pit mine, near Warburg, Alberta	5,600.
Do.	do.	Sheerness open pit mine, near Hanna, Alberta	3,000.
Do.	do.	Paintearth open pit mine, near Forestburg, Alberta	3,500.
Cobalt:			
Ore, Co content metric tons	Glencore plc	Raglan Mine in Ungave, Quebec	700.
Do. do.	Vale S.A.	Voisey's Bay Mine, Newfoundland and Labrador	NA.
Do. do.	do.	Ontario operations Sudbury Mine, Ontario	700.
Do. do.	do.	Manitoba operations Thompson Mine, Manitoba	NA.
Metal do.	Glencore plc	Sudbury smelter in Sudbury, Ontario	NA.
Do. do.	KGHM Polska Miedź S.A.	Sudbury smelter in Ontario	NA.
Do. do.	Vale S.A.	Copper Cliff refinery and smelter in Sudbury, Ontario	NA.
Do. do.	do.	Port Colborne refinery, Ontario	NA.
Do. do.	do.	Voisey's Bay refinery, Newfoundland and Labrador	NA.
Do. do.	do.	Long Harbour refinery, Newfoundland and Labrador	NA.
Copper:			
Ore, Cu content	Agnico Eagle Mines Ltd.	LaRonde Mine, about 650 kilometers northwest of Montreal, Quebec	5.
Do.	Copper Mountain Mining Corp, 75%, and Mitsubishi Materials Corp., 25%	Copper Mountain Mine, British Columbia	48.
Do.	Glencore plc	Kidd Creek Mine, about 20 kilometers north of Timmins, Ontario	46.
Do.	do.	Matagami Mine, near Matagami, Quebec	9.
Do.	do.	Nickel Rim South Mine, Sudbury Division, Sudbury, Ontario	18.
Do.	do.	Raglan Mine in Ungave, Quebec	7.
Do.	Impala Canada Ltd. (Impala Platinum Holdings Ltd.)	Lac des Iles Mine, about 85 kilometers northwest of Thunder Bay, Ontario	2.
Do.	Imperial Metals Corp.	Mount Polley Mine[4] at Williams Lake, British Columbia	25.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Copper:—Continued				
Ore, Cu content—Continued		Imperial Metals Corp., 50%; Mitsubishi Materials Corp., 31.25%; Dowa Metals & Mining Co., Ltd., 6.25%; Furukawa Co., Ltd., 6.25%; Marubeni Corp. 6.25%	Huckleberry Mine, 123 kilometers southwest of Houston, British Columbia	32.
Do.		KGHM Polska Miedź S.A.	Sudbury Mine, Ontario	30.
Do.		Nyrstar N.V. [Trafigura Group (Pte) Ltd.]	Langlois Mine,[5] 313 kilometers northeast of Val-d'Or, Quebec	39.
Do.		do.	Myra Falls Mine, British Columbia	4.
Do.		Pembridge Resources plc	Minto Mine, Yukon	21.
Do.		Taseko Mines Ltd., 75%, and Cariboo Copper Corp., 25%	Gibraltar Mine, British Columbia	63.
Do.		Teck Resources Ltd.	Duck Pond Mine, about 100 kilometers southwest of Grand Falls-Windsor, Newfoundland and Labrador	19.
Do.		do.	Highland Valley Mine, Kamloops, British Columbia	125.
Do.		Vale S.A.	Ontario Division, Ontario	120.
Do.		do.	Voisey's Bay Mine, Newfoundland and Labrador	55.
Do.		Yukon Zinc Corp.	Wolverine Mine, Yukon	5.
Smelter		Glencore plc	Horne smelter in Noranda, Quebec	194.
Do.		do.	Sudbury smelter, Ontario	131.
Do.		Vale S.A.	Copper Cliff smelter in Sudbury, Ontario	NA.
Do.		do.	Long Harbour smelter, Newfoundland and Labrador	NA.
Refinery		Cobalt Refinery Co. Inc.	Fort Saskatchewan refinery	NA.
Do.		Glencore plc	CCR refinery in Montreal-Est, Quebec	276.
Do.		Government	Royal Canadian Mint, Ottawa, Ontario	NA.
Do.		Noranda Income Fund	Valleyfield refinery, Quebec	NA.
Do.		Taseko Mines Ltd., 75%, and Cariboo Copper Corp., 25%	Gibraltar solvent extraction-electrowinning, (SX–EW) facility, British Columbia	1.
Do.		Vale S.A.	Copper Cliff refinery in Sudbury, Ontario	NA.
Do.		do.	Voisey's Bay refinery, Newfoundland and Labrador	NA.
Diamond	thousand carats	De Beers Group	Snap Lake underground mine, 220 kilometers northeast of Yellowknife, Northwest Territories	16,000.
Do.	do.	do.	Victor open pit mine,[3] 90 kilometers west of Attawapiskat, Ontario	600.
Do.	do.	De Beers Canada Inc., 51%, and Mountain Province Diamonds Inc., 49%	Gahcho Kué open pit mine, 280 kilometers northeast of Yellowknife, Northwest Territories	6,600.
Do.	do.	Dominion Diamond Corp., 88.9%, and other, 11.1%	Ekati Mine (includes the Koala and the Panda underground mines and the Beartooth, Fox, Koala, and Misery open pit mines) in the Lac de Gras region, Northwest Territories	5,000.
Do.	do.	Rio Tinto plc, 60%, and Dominion Diamond Corp., 40%	Diavik open pit mine (includes the A154 North and the A154 South kimberlite pipes), northeast of Yellowknife region, Northwest Territories	10,000.
Do.	do.	Stornoway Diamond Corp.	Renard Mine, 350 kilometers north of Chibougamau, Quebec	1,600.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Fluorspar		Canada Fluorspar Inc.	St. Lawrence Mine, St. Lawrence, Newfoundland and Labrador	200.
Gold:				
Ore, Au content	kilograms	Abcourt Mines Inc.	Elder Mine, Rouyn-Noranda, Quebec	
Do.	do.	Agnico Eagle Mines Ltd.	Goldex Mine, Val-d'Or, Quebec	5,000.
Do.	do.	do.	LaRonde Mine, about 60 kilometers west of Val-d'Or, Quebec	9,300.
Do.	do.	do.	Meadowbank Mine, about 70 kilometers north of Baker Lake, Nunavut	10,000.
Do.	do.	do.	Meliadine Mine, about 25 kilometers north of Rankin Inlet, Nunavut	12,400.
Do.	do.	Agnico Eagle Mines Ltd., 50%, and Yamana Gold Inc., 50%	Canadian Malartic Mine, about 20 kilometers west of Val d'Or, Quebec	17,000.
Do.	do.	Alamos Gold Inc.	Young-Davidson Mine, Larder-Cadillac Break, 487 kilometers northwest of Toronto, Ontario	5,400.
Do.	do.	Anaconda Mining Inc.	Pine Cove Mine, near Baie Verte, Newfoundland and Labrador	500.
Do.	do.	Aurizon Mines Ltd.	Casa Berardi Mine, about 95 kilometers north of La Sarre, Quebec	5,000.
Do.	do.	Barkerville Gold Mines Ltd.	QR Mine, British Columbia	400.
Do.	do.	Barrick Gold Inc.	Hemlo operation, includes David Bell underground mine and Williams open pit and underground mine, about 350 kilometers east of Thunder Bay, Ontario	7,100.
Do.	do.	Bonterra Resources Inc.	Bachelor Lake Mine and mill,[6] about 225 kilometers northeast of Val-d'Or, Quebec	1,200.
Do.	do.	Brigus Gold Corp.	Black Fox Mine, about 75 kilometers east of Timmins, Ontario	2,800.
Do.	do.	Capstone Mining Corp.	Minto Mine, about 240 kilometers northwest of Whitehorse, Yukon	600.
Do.	do.	Claude Resources Inc.	Seabee operations (includes the Seabee Deep and the Santoy 8 Mines), Laonil Lake, Saskatchewan	1,500.
Do.	do.	Kirkland Lake Gold Ltd.	Detour Lake Mine, 208 km northeast of Timmins, Cochrane District, Ontario	20,400.
Do.	do.	Eldorado Gold Corp.	Lamaque Mine, Val-d'Or, Quebec	4,700.
Do.	do.	Golden Band Resources Inc.	EP Mine and Roy Lloyd Mine, Saskatchewan	1,500.
Do.	do.	Harte Gold Corp.	Sugar Zone Mine, 30 kilometers north of White River, Ontario	1,900.
Do.	do.	IAMGOLD Corp.	Westwood Mine, 40 kilometers east of Rouyn-Noranda, Quebec	4,200.
Do.	do.	Impala Canada Ltd. (Impala Platinum Holdings Ltd.)	Lac des Iles Mine, about 85 kilometers northwest of Thunder Bay, Ontario	400.
Do.	do.	Imperial Metals Corp.	Mt. Polley Mine,[4] 8 kilometers southwest of Likely, British Columbia	1,200.
Do.	do.	Imperial Metals Corp., 50%; Mitsubishi Materials Corp., 31.25%; Dowa Metals & Mining Co., Ltd., 6.25%; Furukawa Co., Ltd., 6.25%; Marubeni Corp., 6.25%	Huckleberry Mine, 123 kilometers southwest of Houston, British Columbia	110.
Do.	do.	KGHM Polska Miedź S.A. GK	Sudbury Mine, Ontario	NA.
Do.	do.	Kirkland Lake Gold Inc.	Holloway Mine, Ontario	700.
Do.	do.	do.	Holt Mine, Ontario	2,700.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gold:—Continued				
Ore, Au content—Continued	kilograms	Kirkland Lake Gold Inc.	South Mine complex (Macassa Mine, Ontario)	2,400.
Do.	do.	Klondex Mines Ltd.	Rice Lake Mine, Manitoba	2,500.
Do.	do.	Monarch Mining Corp.	Beaufor Mine,[5] about 21 kilometers northeast of Val-d'Or, Quebec	800.
Do.	do.	New Gold Inc.	Rainy River Mine, about 50 kilometers northwest of Fort Francis, Ontario	11,000.
Do.	do.	Newmont Corp.	Eleonore Mine, Eeyou Istchee/James Bay, Quebec, 800 kilometers north of Montreal, Quebec	7,700.
Do.	do.	do.	Hoyle Pond Mine, 20 kilometers northeast of Timmins, Ontario	2,300.
Do.	do.	do.	Musselwhite Mine, 480 kilometers north of Thunder Bay, Ontario	8,100.
Do.	do.	do.	Porcupine Mine, Timmins, Ontario	10,000.
Do.	do.	Evolution Mining Ltd.	Red Lake Mine (includes Red Lake and the Cochenour complexes), 180 kilometers north of Dryden, Ontario	26,000.
Do.	do.	Nyrstar N.V. [Trafigura Group (Pte) Ltd.]	Myra Falls Mine, British Columbia	300.
Do.	do.	Pretium Resources Inc.	Brucejack Mine, about 65 kilometers north of Stewart, British Columbia	12,600.
Do.	do.	QMX Gold Corp.	Lac Herbin Mine, northwestern Quebec, Canada	1,000.
Do.	do.	Richmont Mines Inc.	Island Gold Mine, near Dubreuilville, Ontario	1,200.
Do.	do.	Tahoe Resources Inc.	Bell Creek Mine, northeast of Timmins, Ontario, and Timmins West Mine, 18 kilometers west of Timmins, Ontario	1,500.
Do.	do.	Stroud Resources Ltd.	Hislop Mine, Ontario	600.
Do.	do.	Vale S.A.	Manitoba Division (includes the Birchtree Mine and the Thompson Mine), Thompson, Manitoba	NA.
Do.	do.	do.	Ontario Division, Ontario	2,500.
Do.	do.	Victoria Gold Corp.	Eagle Mine, 350 kilometers north of Whitehorse, Yukon	6,500
Do.	do.	Wesdome Gold Mines Ltd.	Eagle River Mine, about 50 kilometers west of Wawa, Ontario	1,900.
Do.	do.	do.	Kiena Mine, about 10 kilometers west of Val-d'Or, Quebec	1,300.
Do.	do.	Yukon Zinc Corp.	Wolverine Mine, Yukon	628.
Refinery	do.	Glencore plc	CCR refinery in Montreal-Est, Quebec	300.
Do.		Government	Royal Canadian Mint, Ottawa, Ontario	NA.
Do.		Teck Resources Ltd.	Trail refinery, Trail, British Columbia	NA.
Graphite		Imerys Graphite and Carbon S.A.	Lac-des-Îles Mine, Quebec	15,000.
Gypsum		CertainTeed Gypsum Canada, Inc.	Amaranth Mine, Harcus, Manitoba	NA.
Do.		CGC Inc.	Hagersville Mine, Hagersville, Ontario	NA.
Do.		Mosher Limestone Co. Ltd.	Upper Musquodoboit Mine, Nova Scotia	NA.
Do.		National Gypsum (Canada) Ltd.	East Milford Quarry, Milford, Nova Scotia	3,100.
Ilmenite (titanium production)		QIT Fer et Titane Inc.	Lac Tio Mine, 43 kilometers north of Havre Saint Pierre, Quebec	600.
Indium:				
Mine	metric tons	do.	do.	70.
Refinery	do.	Glencore plc	Kidd Creek refinery, Timmins, Ontario	66.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Iron and steel:			
Iron ore:			
Ore	ArcelorMittal Inc., 85%, and POSCO-China Steel Consortium 15%	Fire Lake and Mont-Wright open pit mines, Quebec	24,000.
Do.	Baffinland Iron Mines Corp. (ArcelorMittal Inc., 50%, and The Energy and Minerals Group, 50%)	Mary River Mine, Baffin Island, Nunavut	6,000.
Do.	Quebec Iron Ore Inc. (Champion Iron Ltd., 63.2%, and Ressources Québec, 36.8%)	Bloom Lake, 13 kilometers north of Fermont, Quebec	20,000.
Do.	Rio Tinto Ltd., 58.72; Mitsubishi Corp., 26.18%; Labrador Iron Ore Royalty Income Fund, 15.1%	Carol Lake (IOC) open pit mine, Labrador City, Newfoundland and Labrador	23,000.
Do.	Tacora Resources Inc.	Scully Mine, Wabush Newfoundland and Labrador	6,130.
Do.	Tata Steel Minerals Canada Ltd. (Tata Steel Ltd., 77.68%; Ressources Quebec Inc., 18%; New Millenium Iron Corp., 4.32%)	DSO mine in Menihek, Newfoundland and Labrador	NA.
Do.	do.	DSO mine in Schefferville, Quebec	NA.
Pellets	ArcelorMittal Mines Canada Inc. (ArcelorMittal SA)	Pelleting plant, Port Cartier, Quebec	9,000.
Do.	Cliffs Natural Resources Inc.	Pelleting plant, Pointe Noire, Quebec	5,200.
Do.	Iron Ore Company of Canada (Rio Tinto Ltd., 58.72%; Mitsubishi Corp., 26.18%; Labrador Iron Ore Royalty Income Fund, 15.1%)	Pelleting plant, Labrador City, Newfoundland and Labrador	13,000.
Steel, raw	AltaSteel Ltd. (Arrium Ltd.)	Plant in Edmonton, Alberta	320.
Do.	ArcelorMittal Dofasco Inc. (ArcelorMittal SA)	Plant in Hamilton, Ontario	4,100.
Do.	ArcelorMittal Montreal Inc. (ArcelorMittal SA)	Contrecoeur East and Contrecoeur West plants, Quebec	2,500.
Do.	Essar Steel Algoma Inc. (Essar Global Ltd.)	Plant in Sault Ste. Marie, Ontario	2,800.
Do.	Gerdau Steel North America Inc. (Gerdau S.A.)	Plant in Whitby, Ontario	790.
Do.	do.	Plant in Selkirk, Manitoba	430.
Do.	do.	Plant in Cambridge, Ontario	380.
Do.	Hamilton Specialty Bar (2007) Inc.	Plant in Hamilton, Ontario	360.
Do.	Ivaco Rolling Mills Inc.	Plant in L'Orignal, Ontario	450.
Do.	MMFX Steel of Canada Inc. (MMFX Technologies Corp.)	Plant in Welland, Ontario	120.
Do.	Rio Tinto Fer et Titane Inc. (Rio Tinto plc)	Plant in Sorel, Quebec	500.
Do.	SSAB Svenskt Stål AB—IPSCO Division	Plant in Regina, Saskatchewan	1,500.
Do.	U.S. Steel Canada Inc. (United States Steel Corp.)	Lake Erie Works, Nanticoke, Ontario	2,400.
Lead:			
Ore, Pb content	Coeur Mining, Inc.	Silvertip Mine,[1] British Columbia, 8 kilometers south of the border with Yukon	16.8.
Do.	Trevali Mining Corp.	Caribou Mine, Bathurst, New Brunswick	NA.
Refinery	Teck Resources Ltd.	Trail operations, Trail, British Columbia	NA.
Smelter:			
Primary	Glencore Plc	Belledune smelter, New Brunswick	NA.
Do.	Teck Resources Ltd.	Trail operations, Trail, British Columbia	100.
Secondary, includes alloys	Metalex Products Ltd.	Richmond, British Columbia	300.
Do.	NovaPb Inc. (Newalta Corp.)	Ville Sainte Catherine, Quebec	100.
Do.	Tonolli Canada Ltd.	Mississauga, Ontario	35.
Lime	Brookville Manufacturing Co.	Brookville, Saint John, New Brunswick	NA.
Do.	E.C. King Contracting Ltd	Owen Sound, Ontario	NA.
Do.	Graymont Inc.	Havelock, New Brunswick	110.
Do.	do.	Bedford, Quebec	400.
Do.	do.	Faulkner, Manitoba	117.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Lithium, Li_2CO_3		North American Lithium Inc. (Contemporary Amperex Technology Co. Ltd.)	North American Lithium Mine,[7] La Corne, Quebec	23.
Magnesite		Baymag Inc.	Mount Brussilof Mine, British Columbia	NA.
Mica (phlogopite)		Imerys Mica Suzorite, Inc.	Suzorite Mine, Mauricie, Quebec	NA.
Molybdenum	metric tons	Imperial Metals Corp., 50%; Mitsubishi Materials Corp., 31.25%; Dowa Metals & Mining Co., Ltd., 6.25%; Furukawa Co., Ltd., 6.25%; Marubeni Corp., 6.25%	Huckleberry Mine, 123 kilometers southwest of Houston, British Columbia	140.
Do.	do.	Taseko Mines Ltd., 75%, and Cariboo Copper Corp., 25%	Gibraltar Mine, British Columbia	1,200.
Do.	do.	Teck Resources Ltd., 97.5%, and Highmont Mining Co., 2.5%	Highland Valley copper mine, Kamloops, British Columbia	5,000.
Do.	do.	Thompson Creek Metals Company Inc., 75%, and Sojitz Moly Resources, Inc., 25%	Endako Mine, near Fraser Lake, about 160 kilometers northwest of Prince George, British Columbia	5,200.
Natural gas	million cubic meters	Cenovus Energy Inc.	Deep Basin, numerous gasfields in northwestern Alberta and northeastern British Columbia	3,409.
Do.	do.	Chevron Canada Ltd., 70%, and Kuwait Foreign Petroleum Exploration Co., 30%	Kaybob Duvernay project, approximately 260 kilometers northwest of Edmonton, Alberta	816.
Do.	do.	CNOOC International Ltd.	Dilly Creek, northeastern British Columbia	207.
Do.	do.	Headwater Exploration Inc.	McCully field, about 10 kilometers northeast of Sussex, New Brunswick	362.
Do.	do.	Ikkuma Resources Corp. (Pieridae Energy Ltd.)	Foothills assets, central and southern Alberta Alberta	1,229.
Do.	do.	Keyera Corp.	Bigoray gas plant, 110 kilometers southwest of Edmonton, Alberta	919.
Do.	do.	do.	Brazeau North gas plant, 140 kilometers southwest of Edmonton, Alberta	516.
Do.	do.	do.	Pembina North gas plant, 140 kilometers southwest of Edmonton, Alberta	444.
Do.	do.	do.	Strachan gas plant, 200 kilometers southwest of Edmonton, Alberta	2,841.
Do.	do.	do.	Wapiti gas plant, about 40 kilometers south of Grande Prairie, Alberta	1,549.
Do.	do.	Keyra Corp., 70%; Bellatrix Exploration Ltd., 25%; O'Chiese EnergyLtd., 5%	Alder Flats gas plant, about 130 kilometers southwest of Edmonton, Alberta	2,376.
Do.	do.	Keyra Corp., 93.5%; Cenovus Energy Inc., 6.4%; Hamel Energy Inc., 0.1%	Brazeau River gas plant, approximately 170 kilometers southwest of Edmonton, Alberta	2,252.
Do.	do.	Keyra Corp., 98.8439%; Green Valley Energy Ltd., 0.9942%; AltaGas Ltd., 0.1365%; Centipede Resources, 0.017%; Canadian Natural Resources Ltd., 0.0053%; Bonavista Energy Corp., 0.003%	Rimbey gas plant, 100 kilometers southwest of Edmonton, Alberta	4,359.
Do.	do.	Keyra Corp., 83.1%; Paramount Resources Ltd., 4.2%; Boulder Energy Ltd., 3.2%; Canlin Resources Partnership, 3.2%; Canadian Natural Resources Ltd., 2.9%; Baytex Energy Corp., 2.6%; Canadian Natural Resources North Alberta Partnership, 0.7%; Tourmaline, 0.1%; Vermillion Resources Inc, 0.1%	West Pembina gas plant, 130 kilometers southwest of Edmonton, Alberta	1,498.
Do.	do.	Keyra Corp., 70.8%; TAQA North Ltd., 28.7%; Cenovus Energy Inc., 0.5%	Ricinus gas plant, 110 kilometers west of Red Deer, Alberta	2,283.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Natural gas—Continued	million cubic meters	Keyra Corp., 60%, and Velvet Energy Ltd., 40%	Zeta Creek gas plant, 60 kilometers west of Drayton Valley, Alberta	558.
Do.	do.	Keyra Corp., 89.4%; Westbrick Energy Ltd., 8.2%; TAQA North Ltd., 2.4%	Nordegg River gas plant, 165 kilometers southwest of Edmonton, Alberta	775.
Do.	do.	Keyra Corp., 94%; Whitecap Resources Inc., 5%; Enerplus Corp., 0.5%; Vermillion Resources Inc., 0.5%	Cynthia gas plant, approximately 50 kilometers west of Drayton Valley, Alberta	806.
Do.	do.	North Montney Joint Venture [Petroliam Nasional Berhad (PETRONAS), 62%; Sinopec Canada Energy Ltd.., 15%; Japan Petroleum Exploration Co. Ltd., 10%; Indian Oil Corp., 10%; PetroleumBRUNEI Sdn Bhd, 3%)	North Montney gas project, British Columbia	4,380.
Do.	do.	Ovintiv Inv.	Duvernay, about 125 kilometers west of Edmonton, Alberta	620.
Do.	do.	do.	Montney, 789,000 acres in northwest Alberta and northeast British Columbia	9,813.
Do.	do.	Pieridae Energy Ltd.	Sierra Gasfield, northeastern British Columbia	258.
Do.	do.	Shell Canada Ltd., 80%, and PetroChina Canada Ltd., 20%	Groundbirch, about 50 kilometers south of Fort John's, British Columbia	5,165.
Nepheline syenite (feldspar)		Unimin Canada Ltd.	Blue Mountain Quarry, Methuen Township, Ontario	NA.
Do.		do.	Nephton Quarry, Methuen Township, Ontario	NA.
Nickel:				
Ore, Ni content		Glencore plc	Raglan Mine in Ungave, Quebec	29.
Do.		do.	Fraser Mine and Nickel Rim South Mine in the Sudbury district, Ontario	20.
Do.		Impala Canada Ltd. (Impala Platinum Holdings Ltd.)	Lac des Iles Mine, about 85 kilometers northwest of Thunder Bay, Ontario	800.
Do.		KGHM Polska Miedź S.A.	Morrison (Levac) Mine, Sudbury, Ontario	6.
Do.		Vale Canada Ltd. (Vale S.A.)	Ontario operations, Ontario	85.
Do.		do.	Manitoba Division (includes the Birchtree Mine[8] and the Thompson Mine), Thompson, Manitoba	45.
Do.		Vale Newfoundland & Labrador Ltd. (Vale S.A.)	Voisey's Bay Mines (includes the Ovoid Mine), Newfoundland and Labrador	80.
Refinery		The Cobalt Refinery Company Inc. (Moa joint venture of General Nickel S.A., 50%, and Sherritt International Corp., 50%)	Fort Saskatchewan refinery, Fort Saskatchewan, Alberta	35 (Ni briquets and powder); 4 (Co briquets and powder).
Do.		Glencore plc	CCR refinery in Montreal-Est, Quebec	NA.
Do.		do.	Port Colborne refinery, Ontario	NA.
Do.		Vale S.A.	Copper Cliff refinery in Sudbury, Ontario	NA.
Do.		do.	Thompson refinery in Thompson, Manitoba	NA.
Do.		do.	Voisey's Bay refinery, Newfoundland and Labrador	NA.
Smelter, primary		do.	Copper Cliff smelter in Sudbury, Ontario	NA.
Do.		Glencore plc	Sudbury smelter, Ontario	131 (Cu-Ni matte).
Do.		Vale S.A.	Smelter in Thompson, Manitoba	82 (Ni anode).
Do.		do.	Long Harbour smelter, Newfoundland and Labrador	50.
Perlite		Le Groupe Berger Lté	Saint-Modeste Quarry, Saint-Modeste, Quebec	NA.
Do.		do.	Sarnia refinery, Sarnia, Ontario	85,000.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum:				
Crude	barrels per day	Athabasca Oil Corp.	Leismer Mine, 95 kilometers south of Fort McMurray, Alberta	20,000.
Do.	do.	Athabasca Project (Canadian Natural Resources Ltd., 70%; Chevron Canada Ltd., 20%; Shell Canada Ltd., 10%)	Jackpine Mine, about 70 kilometers north of Fort McMurray, Alberta	145,000.
Do.	do.	do.	Muskeg River Mine, about 70 kilometers north of Fort McMurray, Alberta	145,000.
Do.	do.	BP Canada, 50%, and Cenovus Energy Inc., 50%	Sunrise Mine, 60 kilometers north of Fort McMurray, Alberta	NA.
Do.	do.	Canadian Natural Resources Ltd.	Horizon Mine, 70 kilometers north of Fort McMurray, Alberta	294,000.
Do.	do.	do.	Jackfish Mine, 100 kilometers northeast of Lac La Biche, Alberta	105,000.
Do.	do.	do.	Kirby Mine, 75 kilometers northeast of Lac La Biche, Alberta	80,000.
Do.	do.	do.	Peace River Mine, 190 kilometers northeast of Grande Prairie, Alberta	12,500.
Do.	do.	do.	Primrose and Wolf Creek Mines, 45 kilometers northwest of Cold Lake, Alberta	120,000.
Do.	do.	Cenovus Energy Inc.	Christina Lake Mine, 120 kilometers southeast of Fort McMurray, Alberta	310,000.
Do.	do.	do.	Foster Creek Mine, 330 kilometers northeast of Edmonton, Alberta	295,000.
Do.		do.	Tucker Mine, 30 kilometers northwest of Cold Lake, Alberta	NA.
Do.		do.	White Rose oilfield (includes the North Amethyst, West White Rose, and South White Rose extensions), 350 kilometers east of St. John's, Newfoundland and Labrador	NA.
Do.	barrels per day	CNOOC International Ltd.	Long Lake Mine, 40 kilometers south of Fort McMurray, Alberta	92,000.
Do.	do.	ConocoPhillips Co., 50%, and Total SE, 50%	Surmont Mine, 35 kilometers south of Fort McMurray, Alberta	148,000.
Do.	do.	Corex Resources Ltd.	Daly–Sinclair Oilfield, near Virden, Manitoba	12,000.
Do.		Crescent Point Energy Corp.	Viewfield Bakken Field, Viewfield, Saskatchewan	NA.
Do.	barrels per day	Fort Hills Energy LP (Suncor Energy Inc., 54.11%; Total SE, 24.58%; Teck Resources Ltd., 21.31%)	Fort Hills Mine, 90 kilometers north of Fort McMurray, Alberta	194,000.
Do.	do.	Exxon Mobil Canada, 35.5%; Chevron Canada Resources, 29.6%; Suncor Energy Inc., 21%; Equinor ASA, 9%; Nalcor Energy-Oil and Gas Inc., 4.9%)	Hebron Oilfield, 340 kilometers southeast of St. John's, Newfoundland and Labrador	150,000.
Do.	do.	Hibernia Management and Development Co. Ltd. (Exxon Mobil Canada, 33.125%; Chevron Canada Resources, 26.875%; Suncor Energy Inc., 20%; Canada Hibernia Holding Corp., 8.5%; Murphy Oil Corp., 6.5%; Equinor Canada Ltd., 5%)	Hibernia offshore oilfield, 315 kilometers east of St. John's, Newfoundland and Labrador	220,000.
Do.	do.	Imperial Oil Ltd. (Exxon Mobil Corp., 69.6%)	Cold Lake Mine, northeastern Alberta	140,000.
Do.	do.	do.	Kearl Mine, 70 kilometers north of Fort McMurray, Alberta	220,000.
Do.	do.	MEG Energy Corp.	Christina Lake Mine, 150 kilometers south of Fort McMurray, Alberta	100,000.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Petroleum:—Continued				
Crude—Continued	barrels per day	Ovintiv Inv.	Montney Mine, 789,000 acres in northwest Alberta and northeast British Columbia	55,000.
Do.	do.	PetroChina Canada	MacKay River Mine, about 30 kilometers west of Fort McMurray, Alberta	35,000.
Do.	do.	Suncor Energy Inc.	Firebag Mine, about 65 kilometers northeast of Fort McMurray, Alberta	215,000.
Do.	do.	do.	MacKay River Mine, about 50 kilometers northwest of Fort McMurray, Alberta	38,000.
Do.	do.	do.	Millennium Mine and Steepbank extension, about 25 kilometers north of Fort McMurray, Alberta	330,000.
Do.	do.	Syncrude Project (Suncor Energy Inc., 58.7%; Imperial Oil Ltd., 25%; Sinopec Oil Sands Partnership, 9%; CNOOC Oil Sands Canada, 7.3%)	Aurora North Mine, 75 kilometers north of Fort McMurray, Alberta	225,000.
Do.	do.	do.	Mildred Lake Mine, 40 kilometers north of Fort McMurray, Alberta	150,000.
Do.	do.	Terra Nova (Suncor Energy Inc., 37.675%; Exxon Mobil Corp., 19%; Equinor ASA, 15%; Cenovus Energy Inc., 13%; Murphy Oil Corp., 10.475%; Mosbacher Operating Ltd., 3.85%; Chevron Canada Resources, 1%)	Terra Nova offshore oilfield, 350 kilometers southeast of Newfoundland and Labrador	40,000.
Do.	do.	Tundra Oil and Gas Ltd.	Whitewater Oilfield, southern Manitoba	30,000.
Refined	do.	Chevron Canada Ltd. (Chevron Corp.)	Burnaby refinery, Burnaby, British Columbia	55,000.
Do.	do.	Consumers' Co-operative Refineries Ltd. (Federated Co-operatives Ltd.)	Regina refinery, Saskatchewan	100,000.
Do.	do.	Husky Energy Inc.	Prince George refinery, Prince George, British Columbia	10,000.
Do.	do.	do.	Lloydminster asphalt refinery, Lloydminster, Alberta	25,000.
Do.	do.	Imperial Oil Ltd. (Exxon Mobil Corp., 69.6%)	Dartmouth refinery, Halifax, Nova Scotia	82,000.
Do.	do.	do.	Nanticoke refinery, 40 kilometers southwest of Hamilton, Ontario	112,000.
Do.	do.	do.	Sarnia refinery, Sarnia, Ontario	121,000.
Do.	do.	do.	Strathcona refinery, Edmonton, Alberta	187,000.
Do.	do.	Irving Oil Ltd.	Irving refinery, Saint John, New Brunswick	250,000.
Do.	do.	Moose Jaw Refinery (Gibson Energy ULC)	Moose Jaw asphalt refinery, Moose Jaw, Saskatchewan	4,100.
Do.	do.	North Atlantic Refining Ltd. (Harvest Operations Corp.)	North Atlantic refinery, Come by Chance, Newfoundland and Labrador	115,000.
Do.	do.	North West Redwater Partnership (Canadian Natural Resources Ltd., 50%, and North West Refining Inc., 50%)	Sturgeon refinery, 45 kilometers northeast of Edmonton, Alberta	79,000.
Do.	do.	Nova Chemicals Corp.	Corunna petrochemical and refinery complex, Corunna, Ontario	80,000.
Do.	do.	Shell Canada Ltd. (Royal Dutch Shell plc)	Scotford refinery, 40 kilometers northeast of Edmonton, Alberta	100,000.
Do.	do.	do.	Sarnia manufacturing center (Corunna refinery), Sarnia, Ontario	72,000.
Do.	do.	Suncor Energy Inc.	Edmonton refinery, Edmonton, Alberta	135,000.
Do.	do.	do.	Montreal refinery, Montreal East, Quebec	129,800.
Do.	do.	Ultramar Ltd. (Valero Energy Corp.)	Jean Gaulin refinery, Levis, Quebec	265,000.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Platinum-group metals:			
Palladium:			
Ore, kilograms Pd content	Impala Canada Ltd. (Impala Platinum Holdings Ltd.)	Lac des Iles Mine, about 85 kilometers northwest of Thunder Bay, Ontario	9,900.
Do.	KGHM Polska Miedź S.A.	Sudbury mining operations, Ontario	NA.
Do. kilograms	Vale S.A.	Ontario mining operations, Ontario	6,000.
Refinery	Glencore plc	Canadian copper refinery in Montreal-Est, Quebec	NA.
Do.	Vale S.A.	Port Colborne refinery, Ontario	NA.
Do.	do.	Copper Cliff refinery in Sudbury, Ontario	NA.
Smelter	do.	Copper Cliff smelter in Sudbury, Ontario	NA.
Platinum:			
Ore, kilograms Pt content	Impala Canada Ltd. (Impala Platinum Holdings Ltd.)	Lac des Iles Mine, about 85 kilometers northwest of Thunder Bay, Ontario	900.
Do.	KGHM Polska Miedź S.A.	Sudbury operations, Ontario	NA.
Do. kilograms	Vale S.A.	Ontario operations, Ontario	5,000.
Refinery	Glencore plc	Canadian copper refinery in Montreal-Est, Quebec	NA.
Do.	Vale S.A.	Copper Cliff refinery in Sudbury, Ontario	NA.
Do.	do.	Port Colborne refinery, Ontario	NA.
Smelter	do.	Copper Cliff smelter in Sudbury, Ontario	NA.
Potash (K_2O equivalent)	The Mosaic Co.	Colonsay Mine,[9] Saskatchewan	2,100.
Do.	do.	Esterhazy Mine, southeast Saskatchewan	5,300.
Do.	do.	Belle Plaine Mine, Saskatchewan	2,800.
Do.	Nutrien Ltd.	Lanigan Mine, near Lanigan, Saskatchewan	3,800.
Do.	do.	Rocanville Mine, southeast Saskatchewan	6,500.
Do.	do.	Allan Mining Division, Allan, Saskatchewan	4,000.
Do.	do.	Cory Mine, near Saskatoon, Saskatchewan	3,000.
Do.	do.	Patience Lake Mine, near Saskatoon, Saskatchewan	300.
Do.	do.	Vanscoy Mine, Saskatchewan	3,000.
Salt	Canadian Salt Co. Ltd.	Rock salt mine at Ojibway, Ontario	2,600.
Do.	do.	Pugwash Mine, Nova Scotia	1,400.
Do.	do.	Belle Plaine Mine, Saskatchewan	NA.
Do.	do.	Lindberg plant, Alberta	NA.
Do.	Dow Chemical Canada Inc.	Fort Saskatchewan Mine, Alberta	NA.
Do.	Junex Solnat (Junex Inc.)	Becancour Mine, Quebec	NA.
Do.	Mosaic Potash Esterhazy Limited Partnership Ltd. [The Mosaic Co., 75%, and Potash Corp. of Saskatchewan Inc. (Potash Corp.), 25%]	Esterhazy plant, southeast Saskatchewan	NA.
Do.	Nexen Inc. and Albchem Industries Ltd.	Plant near Bruderheim, Alberta	NA.
Do.	NSC Minerals Inc.	Salt recovery from potash tailings at Rocanville and Vanscoy, Saskatchewan	NA.
Do.	Potash Corp. of Saskatchewan Inc. (Potash Corp.)	Sussex Mine, New Brunswick	700.
Do.	Saskatoon Chemicals Holdings, Inc.	Plant near Saskatoon, Saskatchewan	NA.
Do.	Seleine Mines Division of Canadian Salt Co. Ltd.	Iles-de-la-Magdalen Mine, Quebec	1,625.
Do.	Sifco Canada Inc. (Compass Minerals Group Inc.)	Goderich Harbour Mine, Ontario	6,500.
Do.	do.	Amherst salt mine and plant, Nova Scotia	NA.
Do.	do.	Plant near Unity, Saskatchewan	NA.
Silicon, metal	Québec Silicon Ltd. (Globe Specialty Metals Inc., 51%, and Dow Corning Corp., 49%)	Plant at Becancour, Quebec	47.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Silver:			
Ore, Ag content kilograms	Agnico Eagle Mines Ltd., 50%, and Yamana Gold Inc., 50%	Canadian Malartic Mine, about 20 kilometers west of Val d'Or, Quebec	18,500.
Do. do.	Capstone Mining Corp.	Minto Mine, about 240 kilometers northwest of Whitehorse, Yukon	7,600.
Do. do.	Coeur Mining, Inc.,	Silvertip Mine,[1] British Columbia, 8 kilometers south of the border with Yukon	345,000.
Do. do.	Glencore plc	Kidd Creek underground mine, 25 kilometers north of Timmins, Ontario	115,000.
Do. do.	Imperial Metals Corp.	Mount Polley Mine[4] at Williams Lake, British Columbia	13,000.
Do. do.	KGHM Polska Miedź S.A.	Sudbury operations, Ontario	NA.
Do. do.	Trafigura Group (Pte) Ltd.	Langlois Mine,[5] 313 kilometers northeast of Val-d'Or, Quebec	11,500.
Do. do.	do.	Myra Falls Mine, British Columbia	17,000.
Do. do.	Yukon Zinc Corp.	Wolverine Mine, Yukon	153,000.
Refinery	Glencore plc	Canadian copper refinery in Montreal-Est, Quebec	NA.
Do.	Government	Royal Canadian Mint, Ottawa, Ontario	NA.
Do.	Teck Resources Ltd.	Trail refinery, Trail, British Columbia	NA.
Smelter	Glencore Plc	Belledune smelter, New Brunswick	NA.
Stone, dolomite and limestone	Antigonish Limestone Ltd.	Southside Antigonish Harbour Mine, Nova Scotia	NA.
Do.	Atlantic Minerals Ltd. (Newfoundland Cement Co. Ltd., 100%)	Lower Cove Quarry, Newfoundland and Labrador	800.
Do.	ESSROC Canada Inc	Picton Mine, Ontario	NA.
Do.	Graymont Inc.	Havelock Quarry, Havelock, New Brunswick	NA.
Do.	do.	Faulkner Mine, Manitoba	NA.
Do.	Holcim (Canada) Inc. (Holcim AG)	Joliette Mine and plant, Quebec	NA.
Do.	do.	Ogden Point Quarry, Victoria, British Columbia	NA.
Do.	Lafarge Canada Inc.	Brookfield Mine and plant, Brookfield, Nova Scotia	NA.
Do.	do.	Bath Mine, Ontario	NA.
Do.	do.	Woodstock Quarry, Ontario	NA.
Do.	Mosher Limestone Co. Ltd.	Upper Musquodoboit Mine, Nova Scotia	NA.
Do.	Nova Scotia Power Inc.	Glen Morrison Quarry, Cape Breton, Nova Scotia	NA.
Do.	St. Marys CBM (Canada) Inc.	Bowmanville Mine, Ontario	NA.
Do.	do.	St. Marys Mine, Ontario	NA.
Talc	IMERYS Talc	Penhorwood Mine, Ontario	NA.
Titanium, TiO_2 slag	Rio Tinto Fer et Titane Inc. (Rio Tinto plc)	Metallurgical complex at Sorel-Tracy, Quebec	1,100 (Sorelslag®); 250 (UGS™ slag); NA (RTCS™ slag).
Uranium:			
Oxide metric tons	Cameco Corp., 69.805%, and Orano, 30.195%	McArthur River Mine, Saskatchewan	9,300.
Do. do.	Cameco Corp., 50.025%; Orano, 37.1%; Idemitsu Canada Resources Ltd., 7.875%; and TEPCO, 5%	Cigar Lake Mine, Saskatchewan	4,100.
Dioxide	Cameco Corp.	Port Hope conversion facility, Ontario	NA.
Trioxide	do.	Blind River refinery, Ontario	NA.
Hexaflouiride	do.	Port Hope conversion facility, Ontario	NA.
Vermiculite	Le Groupe Berger Lté	Saint-Modeste Quarry, Saint-Modeste, Quebec	NA.
Wollastonite	Canadian Wollastonite (2005948 Ontario Ltd.)	St. Lawrence Mine, City of Kingston and the municipality of Leeds and the Thousand Islands, Ontario	NA.
Zeolites	Absorbent Products Ltd.	Red Lake deposit, British Columbia	NA.
Do.	HCA Mountain Minerals (Lethbridge) Ltd. (Heemskirk Canada Ltd.)	Processing plant at Lethbridge, Alberta	NA.

See footnotes at end of table.

TABLE 2—Continued
CANADA: STRUCTURE OF THE MINERAL INDUSTRY IN 2021

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Zeolites—Continued	Heemskirk Canada Ltd. (Heemskirk Consolidated Ltd.)	Bromley Creek (Princeton) Mine, near Copper Mountain, British Columbia	NA.
Do.	do.	Z1 (Ranchlands) Quarry, near Cache Creek, British Columbia	NA.
Do.	Industrial Mineral Processors Ltd.	Z2 Quarry, near Cache Creek, British Columbia	NA.
Do.	do.	Processing plant at Ashcroft, British Columbia	NA.
Zinc:			
Lead-zinc ore	Agnico Eagle Mines Ltd.	LaRonde Mine, 60 kilometers west of Val-d'Or, Quebec	55.
Ore, Zn content	Coeur Mining, Inc.	Silvertip Mine,[1] British Columbia, 8 kilometers south of the border with Yukon	20.
Do.	Glencore plc	Kidd Creek underground mine, 25 kilometers north of Timmins, Ontario	80.
Do.	do.	Matagami complex, near Matagami, Quebec	115
Do.	Nyrstar N.V. [Trafigura Group (Pte) Ltd.]	Langlois Mine,[7] 313 kilometers northeast of Val-d'Or, Quebec	39.
Do.	do.	Myra Falls Mine, British Columbia	35.
Do.	Trevali Mining Corp.	Caribou Mine, Bathurst, New Brunswick	NA.
Refined	Hudson Bay Mining and Smelting Co., Ltd. (HudBay Minerals Inc.)	Zinc plant (pressure leach and electrowinning) at Flin Flon, Manitoba	115.
Do.	Noranda Income Fund, 75%, and Glencore plc, 25%	CEZ refinery, Valleyfield, Quebec	265.
Do.	Teck Resources Ltd.	Trail operations, Trail, British Columbia	295.

Do., do. Ditto. NA Not available.

[1]Operations suspended in 2020.

[2]Closed in 2020.

[3]Closed in 2019.

[4]Placed on care-and-maintenance status since 2019.

[5]Placed on care-and-maintenance status since 2008.

[6]Placed on care-and-maintenance status since 2021.

[7]Operations suspended in 2019.

[8]Birchtree Mine placed on care-and-maintenance status in 2017.

[9]Closed in 2021.

TABLE 3
CANADA: RESERVES OF MAJOR MINERALS IN 2021

(Thousand metric tons unless otherwise specified)

Commodity		Reserves[1]
Cesium		120
Coal (anthracite, bituminous, subbituminous, and lignite)	million metric tons	6,583
Cobalt		220
Copper		7,620
Gold	metric tons	2,709
Iron ore	million metric tons	3,351
Lead		131
Molybdenum		80
Natural gas	trillion cubic meters	2.4
Nickel		1,909
Niobium		1,600
Peat	million metric tons	720
Petroleum, crude	billion barrels	172.5
Platinum-group metals	metric tons	310
Potash[2]	million metric tons	5,600
Rare-earth oxides		15,000
Selenium	metric tons	6,000
Silver	do.	4,197
Sulfur		103,403
Uranium (U content)		287 [3]
Zinc		1,238

do. Ditto.

[1]Proven and probable reserves.

[2]K_2O equivalent.

[3]Source: World Nuclear Association.