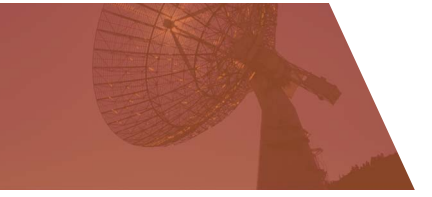
Natural Resources Canada
Ressources naturelles Canada

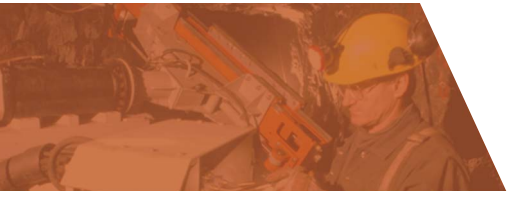
IMPORTANT FACTS ON CANADA'S NATURAL RESOURCES

(as of October 2008)

www.nrcan-rncan.gc.ca/stat

Canada





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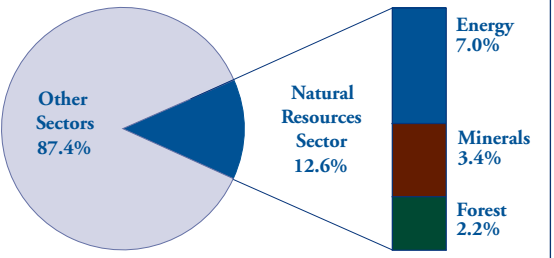
Canada's Natural Resources – Now and for the Future

Natural resources–our forests, energy, and minerals and metals–are fundamental to the daily lives of Canadians. How Canada harnesses and uses these resources has a significant impact on our global competitiveness, the health of our environment and our overall quality of life. The natural resources sectors and earth sciences industries have been an engine of economic growth and job creation for generations. As a leading exporter of natural resources and resource-based technology and knowledge, Canada contributes to the well-being of people in many countries and promotes the sustainable development of natural resources in today's investment climate. The new global context for natural resources demands that Canada fundamentally adapt, act strategically and challenge itself to maintain and enhance its status as a world leader in sustainable development and management of natural resources.

Natural Resources Canada (NRCan), a department of the Government of Canada, has a mandate to ensure the sustainable development and responsible use of the country's natural resources. NRCan's aim is to strengthen conditions for Canada's economic success, sound environmental leadership, and safety and security. This goal requires working innovatively with our partners to provide a prosperous, sustainable and secure natural resources future for Canadians.

This brochure provides a statistical snapshot of the importance of Canada's natural resources industrial sectors in 2007.

Figure 1 Natural resources sectors and Canada's gross domestic product in 2007



Canada's total GDP is $1,226.0 billion.
Note: Numbers may not add up due to rounding.

Facts for 2007[1]	Forest	Minerals	Energy	Total natural resources	Canada
Gross domestic product (GDP)	$26.5 B (2.2%)	$41.9 B (3.4%)	$86.6 B (7.0%)	$155.0 B (12.6%)	$1,226.0 B (100.0%)
Direct employment[2] (thousands of people)	259 (1.8%)	363 (2.5%)	272 (1.9%)	895 (6.3%)	14 307 (100.0%)
New capital investments	$2.6 B (0.8%)	$9.2 B (2.9%)	$69.1 B (21.4%)	$80.8 B (25.1%)	$322.6 B (100.0%)
Trade					
Total exports	$33.8 B (7.5%)	$84.3 B (18.7%)	$92.2 B (20.5%)	$210.2 B (46.7%)	$450.4 B (100.0%)
▸ Domestic exports (excluding re-exports)	$33.6 B (8.0%)	$80.7 B (19.2%)	$91.5 B (21.8%)	$205.8 B (49.0%)	$420.0 B (100.0%)
▸ Imports	$10.2 B (2.5%)	$62.8 B (15.4%)	$37.1 B (9.1%)	$110.0 B (27.0%)	$406.7 B (100.0%)
▸ Balance of trade	+$23.6 B	+$21.5 B	+$55.3 B	+$100.4 B	+$43.7 B

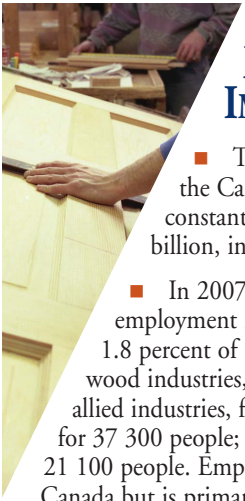
[1] The data reported for each of the natural resources sectors reflect the value of primary industries and related downstream manufacturing industries as of October 2008. "Minerals" includes uranium and coal mining. Balance of trade is the difference between the total exports and the total imports of goods. Services and capital flows are not included.

[2] Statistics Canada, Survey of Employment, Payrolls and Hours (SEPH).

Note: All dollar amounts shown are in current Canadian dollars, except GDP, which is shown in 2002 constant dollars.

Forest

- Canada has 10 percent of the world's forests.
- Canada has 402.1 million hectares (ha) of forest and other wooded lands, which represent 41.1 percent of its total surface area of 979.1 million ha.
- Canada's forest and other wooded lands are made up of 310.1 million ha (77 percent) of forest and 92 million ha (23 percent) of other wooded land; 294.8 million ha (95.1 percent) of the forest are potentially available for commercial forest activities.
- In 2006, Canada harvested 182.1 million cubic metres (m^3) of roundwood.
- Annually, Canada harvests 0.3 percent of its commercial forest area (0.9 million ha were harvested in 2007).
- A total of 19.5 million ha were affected by insect defoliation in 2006; 1.7 million ha were lost due to forest fires in 2007.
- In 2006, an estimated 449 696 ha were planted with 641 million seedlings, and 18 204 ha were seeded.
- Revenues from the sale of timber from provincial crown lands were estimated to be $1.5 billion in 2006.



National Economic Importance

- The forest sector's contribution to the Canadian economy (GDP) in 2002 constant dollars was 2.2 percent, or $26.5 billion, in 2007.

- In 2007, the sector provided direct employment for 259 000 people, representing 1.8 percent of total employment in Canada: wood industries, for 121 200 people; paper and allied industries, for 79 400 people; logging, for 37 300 people; and forestry services, for 21 100 people. Employment is spread across Canada but is primarily in Quebec (80 300 people), British Columbia (69 900 people) and Ontario (57 000 people).

- Wages and salaries for direct employment were $12.3 billion in 2006.

- In 2007, shipments of pulp, paper and paperboard reached a level of 28.1 million tonnes, a decrease of 3.2 percent from the previous year.

- Production of softwood lumber was 70.6 million m^3 in 2007.

- New capital investments totalled $2.6 billion in 2007: paper and allied industries, $1.1 billion (42.3 percent); wood industries, $1.2 billion (46.2 percent); and logging, $0.3 billion (11.5 percent).

- Revenue from manufactured goods was $75.2 billion in 2006.

International Importance

- In 2007, Canada was the world's largest forest-product exporter (12.0 percent).
- Forest products were a major contributor to Canada's surplus balance of trade in 2007 ($23.6 billion).
- The total value of Canadian forest-product domestic exports decreased by 12.0 percent in 2007 to $33.6 billion. British Columbia accounted for $12.1 billion (36.0 percent); Quebec, $9.6 billion (28.6 percent); Ontario, $5.8 billion (17.3 percent); and other provinces and territories, $6.1 billion (18.1 percent).

Commodities	World production[1] ranking 2007	Domestic Exports 2007	Destination
Total forest products	–	$33.6 B (100%)	U.S. $24.7 B (74%) E.U. $2.2 B (7%) China $1.7 B (5%)
Softwood lumber	Second (18.5%)	$7.1 B (21.1%)	U.S. $5.5 B (78%) Japan $0.8 B (11%) E.U. $0.3 B (4%)
Newsprint	First (17.4%)	$4.0 B (12.0%)	U.S. $2.6 B (65%) E.U. $0.5 B (13%) Brazil $0.2 B (5%)
Wood pulp	Second (12.1%)	$6.5 B (19.3%)	U.S. $3.0 B (46%) China $1.4 B (22%) E.U. $0.8 B (12%)
Other	–	$16.0 B (47.6%)	U.S. $13.6 B (85%) E.U. $0.5 B (3%) Japan $0.3 B (2%)

[1] United Nations Food and Agriculture Organization data for 2007.

E.U. – European Union
U.S. – United States

Forest and Other Wooded Land

Percentage of forest and other wooded land	Total land area (millions of ha)	Area of forest and other wooded land (millions of ha)
0 – <5	363.1	1.2
5 – <20	70.9	8.3
20 – <40	74.0	22.3
40 – <60	83.0	41.3
60 – <80	121.8	86.9
80 – <100	266.3	241.7
Total	979.1	402.1

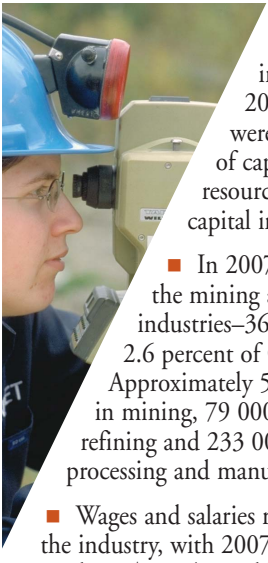
- Canada has the largest area of certified forest in the world–more than 137 million ha. Approximately 40 percent of the world's certified forest area is in Canada.
- Approximately 8 percent of Canada's forest area is protected by legislation. By law, all forests harvested (less than 1 percent annually) on Canada's public land must be successfully regenerated.

Minerals

- Canada is one of the leading mining nations in the world, producing more than 60 minerals and metals.
- In 2007, approximately 180 producing establishments (metal, non-metal including peat bogs, and coal mines), more than 3 000 stone quarries and sand and gravel pits, and approximately 50 non-ferrous smelters and refineries and steel mills were operating in Canada.
- Canada's estimated mineral production in 2007 was $40.4 billion; 80 percent of the total was accounted for by Ontario (26.4 percent), Saskatchewan (14.4 percent), British Columbia (14.0 percent), Quebec (13.7 percent) and Newfoundland and Labrador (12.4 percent).

National Economic Importance

- In 2007, mining and mineral-processing industries generated 3.4 percent of the national GDP and contributed $41.9 billion to the Canadian economy.
- The 2007 exploration and deposit appraisal expenditures were $2.8 billion, and spending intentions for 2008 indicate a further increase to $3.1 billion.
- Capital investment spending in the mining and mineral-processing industries is



expected to reach $10.6 billion in 2008–an increase of 16.1 percent from 2007. In 2007, these industries were responsible for 11.7 percent of capital investment in the natural resources sector and 2.9 percent of all capital investment in Canada.

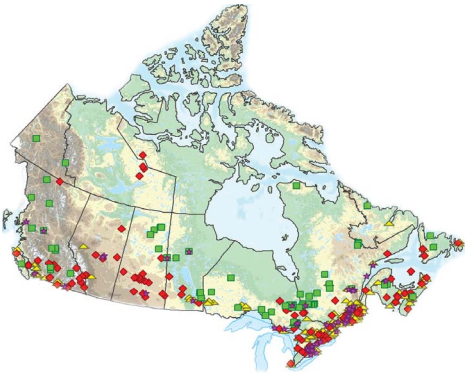
- In 2007, total direct employment in the mining and mineral-processing industries–363 000 people–accounted for 2.6 percent of Canada's total employment. Approximately 51 000 people were employed in mining, 79 000 people in smelting and refining and 233 000 people in the mineral-processing and manufacturing industries.
- Wages and salaries remained competitive in the industry, with 2007 average weekly earnings reaching $1,214. Weekly earnings in the Canadian economy averaged $771.
- In 2007, spending intentions on research and development in the mining and mineral-processing industries were an estimated $536 million.
- In 2007, nickel was the top metallic mineral produced in Canada, with shipments valued at $9.9 billion, followed by copper at $4.5 billion. Uranium saw a 76 percent increase in its value of shipments, reaching $2.5 billion due to its price doubling. The leading non-metallic minerals were potash at $3.1 billion, followed by cement at $1.8 billion and diamonds at $1.4 billion. Coal had shipments valued at $2.8 billion.

- Canada continues to be the third-largest producer of primary aluminum in the world, producing over 3.0 million tonnes from imported ores in 2007.
- Mineral and metals products (including coal) accounted for almost 36 percent of coastwise shipping and almost 52 percent of international shipping in 2005. They also accounted for 55 percent of the country's rail freight traffic in 2007.

Commodities	World Production Ranking 2007 (by volume)	Domestic Exports 2007	Destination
Total mineral products	–	$80.7 B	U.S. $47.5 B (59%) E.U. $15.8 B (20%) Japan $3.3 B (4%)
Selected metals			
Uranium	First (23.0%)	$2.9 B	U.K. $1.3 B (46%) U.S $0.6 B (19%)
Nickel	Second (15.9%)	$10.6 B	Norway $3.0 B (28%) U.S. $2.3 B (22%)
Zinc	Fifth (5.6%)	$2.7 B	U.S. $2.2 B (80%)
Gold	Eighth (4.4%)	$6.1 B	U.K. $2.9 B (47%) U.S. $2.4 B (39%)
Copper	Eighth (3.8%)	$6.5 B	U.S. $3.9 B (61%) Japan $0.8 B (12%)
Selected non-metals			
Potash	First (32.2%)	$3.0 B	U.S. $1.7 B (57%) China $0.4 B (14%)
Gypsum	Fourth (7.5%)	$0.2 B	U.S. $0.2 B (96%)
Salt	Fifth (6.0%)	$0.5 B	U.S. $0.4 B (88%)
Diamonds	Fith (10.0%)	$1.9 B	Belgium $1.1 B (60%) U.K. $0.7 B (35%)

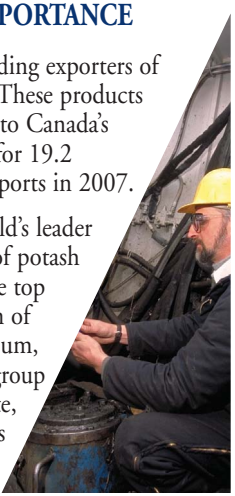
E.U. – European Union (27 countries)
U.K. – United Kingdom
U.S. – United States

Selected Mining Activities



- Industrial minerals (including diamonds)
- Metal mines
- Stone producers
- Metallurgical works (steel mills, non-ferrous smelters and refineries)

International Importance



- Canada is one of the world's leading exporters of minerals and mineral products. These products make a significant contribution to Canada's international trade, accounting for 19.2 percent of Canada's domestic exports in 2007.
- Canada continues to be the world's leader in the production (by volume) of potash and uranium, and it ranks in the top five countries for the production of primary aluminum, cobalt, gypsum, molybdenum, nickel, platinum group metals, salt, titanium concentrate, tungsten and zinc. Canada ranks third in the world in value of diamond production.

Energy

- Remaining established reserves of natural gas at the beginning of 2007 were 1 427.7 billion cubic metres (bcm)–1 418.5 bcm in conventional areas and 9.2 bcm in frontier areas. The total in-place, raw, undiscovered potential of natural gas in the Western Canada Sedimentary Basin is estimated to be 10 435 bcm.
- Crude oil reserves[1] in 2007 were estimated at 28.3 bcm–0.8 bcm from conventional areas (including 0.314 bcm from frontier areas) and 27.5 bcm from oil sands. The ultimate recoverable potential from the Alberta oil sands is more than 50.0 bcm.
- Primary energy production by commodity in 2007 was 36.1 percent gas, 38.7 percent petroleum, 8.4 percent coal, 7.4 percent hydro, 5.8 percent nuclear,[2] 3.5 percent waste wood, spent pulping liquor and firewood, and 0.1 percent solar, wind and tidal–for a total of 17 645 petajoules (PJ). Alberta accounted for 64 percent of total production; British Columbia, 13 percent; Saskatchewan, 9 percent; Quebec, 4 percent; and Ontario, 3 percent.

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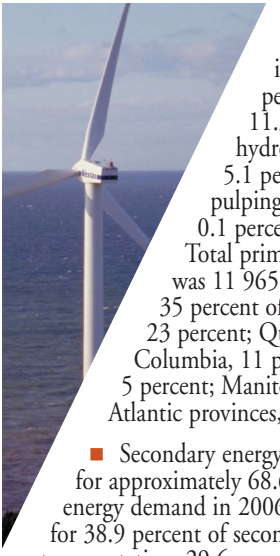
[1] Data about oil sands reserves are from the Alberta Energy Resources Conservation Board (ERCB); reserves include proven plus probable reserves and are calculated as initial established reserves less cumulative production. Probable reserves are contiguous recoverable reserves whose existence has been determined with reasonable certainty, based on geological or geophysical information. Data about conventional and frontier reserves are from the Canadian Association of Petroleum Producers (CAPP) and are calculated as proven reserves plus probable remaining established reserves.

Sources: *CAPP Statistical Handbook October 2008; Alberta's Energy Reserves 2007.*

[2] Based on nuclear electricity conversion factor of 11.564 megajoules per kilowatt hour.



- Primary energy consumption by commodity in 2007 was 39.4 percent petroleum, 25.5 percent gas, 11.3 percent coal, 10.1 percent hydro, 8.5 percent nuclear,[3] 5.1 percent waste wood, spent pulping liquor and firewood, and 0.1 percent solar, wind and tidal. Total primary energy consumption was 11 965 PJ. Ontario accounted for 35 percent of that amount; Alberta, 23 percent; Quebec, 17 percent; British Columbia, 11 percent; Saskatchewan, 5 percent; Manitoba, 2 percent; and the Atlantic provinces, 7 percent.

- Secondary energy consumption accounted for approximately 68.6 percent of primary energy demand in 2006. Industry accounted for 38.9 percent of secondary energy consumption; transportation, 29.6 percent; residential, 16.0 percent; commercial and institutional, 13.0 percent; and agriculture, 2.5 percent.

- Marketable production of natural gas in Canada in 2007 was 167.1 bcm.

- Production of crude oil in Canada in 2007 was 251.2 thousand cubic metres (tcm) per day of light crude oil and 188.8 tcm per day of heavy crude oil, for a total of 440.0 tcm per day (161 million cubic metres [mcm]).

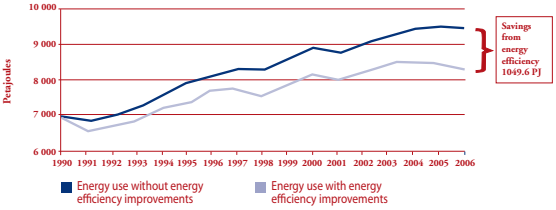
- Electricity generation in 2007 by source was as follows: 58.9 percent hydro; 17.6 percent coal; 14.3 percent nuclear; 8.7 percent oil, gas and other sources; and 0.5 percent solar, wind and tidal. Total electricity generation was 615 net terawatt hours. Quebec accounted for 30 percent of that amount (95 percent from hydro), and Ontario accounted for 26 percent (50 percent from nuclear sources).

[3] *Ibid.*

National Economic Importance

- Energy (all sources) contributed 7.0 percent to the GDP in 2007. Of the total energy GDP of $86.6 billion (2002 constant dollars), crude oil and natural gas industries accounted for $42.1 billion (49 percent); electric power, $26.0 billion (30 percent); and pipelines, $4.9 billion (4 percent).
- Approximately 73 percent ($80.4 billion) of petroleum and natural gas production in 2007 was in Alberta.
- The energy sector, excluding service stations and wholesale trade in petroleum products, provided direct employment for 272 072 people in 2007–1.9 percent of total employment in Canada. Service stations and wholesale trade in petroleum products provided direct employment for 101 505 people (0.7 percent).
- In 2007, energy accounted for 20.5 percent of total merchandise exports. The energy trade balance ranked first as a contributor to Canada's positive overall trade balance.
- In 2007, new capital investments in energy-related industries represented 21.4 percent of total Canadian investment and 5.6 percent of GDP.
- Despite a 55.4 percent increase in GDP between 1990 and 2006, end-use energy consumption grew by only 21 percent. As shown in Figure 2, energy efficiency played a major role in limiting this growth.

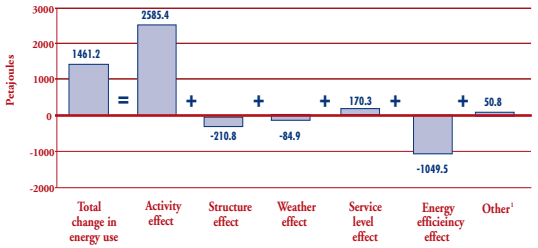
Figure 2 Secondary energy use, with and without energy efficiency improvements, 1990–2006



As Figure 3 shows, end-use energy consumption grew by 1461.2 PJ between 1990 and 2006. This increase takes into account such factors as:

- growth in economic activity
- warmer weather (in 2006, both winter and summer were warmer than in 1990; the net effect was energy savings)
- changes in the structure of the economy favouring less energy-intensive industries
- increased service level for auxiliary equipment in commercial/institutional buildings and appliances in homes
- increased amount of floor space cooled
- significant gains in energy efficiency

Figure 3 Impact of activity, structure, weather, service level and energy efficiency on the change in total energy use, 1990–2006 (petajoules)



[1] "Other" refers to street lighting, non-commercial airline aviation, off-road transportation and agriculture, which are included in "Total change in energy use" but are excluded from the factorization analysis.

- Overall, energy efficiency improved by 15.8 percent between 1990 and 2006. This "change" corresponds to a reduction of 1049 PJ in energy consumption. The gain in energy efficiency translated into savings of $20.7 billion in 2006 and an estimated 60.1 megatonnes of avoided greenhouse gas emissions.

International Importance

- The United States (U.S.) is Canada's major trade market for energy products, accounting for 99 percent ($91.1 billion) of all Canadian energy exports. In 2007, Canada imported $36.9 billion of energy products, mainly from the U.S. (27 percent), Norway (13 percent) and the United Kingdom (12 percent).

- Canada exported 109.9 bcm of natural gas, or 66 percent of its marketable production–all to the United States. The value of these exports was $28.3 billion. In volume terms, Canada accounted for more than 82 percent of U.S. gas imports and had a 15 percent share of the U.S. market.
- Exports of crude oil were 290 tcm per day in 2007 for a total annual value of $41.9 billion. More than 99 percent of these exports were to the United States. Canadian crude oil held a 12 percent share of the U.S. market in 2007 and accounted for 18 percent of U.S. crude imports. Exports of refined petroleum products in 2007 totalled 24.8 mcm, or $15.8 billion, and 95 percent, or $15.0 billion, went to the United States.

Commodities	World Production Ranking[2] 2007		Exports 2007 ($ billions)		Destination ($ billions)		
Total energy	–		$92.2 B	(100%)	U.S.	$91.1 B	(99%)
Petroleum[1]	Seventh	(4.1%)	$60.8 B	(66%)	U.S.	$59.6 B	(98%)
Natural gas	Third	(6.2%)	$28.3 B	(31%)	U.S.	$28.3 B	(100%)
Electricity	Seventh	(3.0%)	$3.1 B	(3%)	U.S.	$3.1 B	(100%)

U.S. – United States

[1] Trade data include crude oil, liquefied petroleum gases (LPGs) and petroleum products. The production ranking includes crude oil and LPGs.

[2] The world production ranking is based on statistics from British Petroleum's *Statistical Review of World Energy*.

Geomatics and Geoscience

- Geomatics and geoscience are complementary earth sciences that provide a detailed picture of the physical world and our place in it.
- Geomatics consists of products, services and tools involved in the collection, integration and management of geographic data. Geographic information can be retrieved from various sources, including earth-orbiting satellites, ground-based instruments, and airborne and seaborne sensors. These data are transformed into digital maps and other usable forms with state-of-the-art information technology.
- Geoscience includes geology, geophysics, geochemistry and geodesy and deals with all aspects of the physical earth, including mineral and energy resources; hazards such as earthquakes, tsunamis, landslides and space weather phenomena; and geological controls on groundwater and climate.
- Industry, governments and the public rely on geomatics and geoscience information and technologies for many purposes, ranging from forest management and energy and mineral exploration to environmental stewardship, emergency management and the monitoring of Canada's territory and borders.

National Economic Importance

- Geographic information systems (GISs), global positioning systems (GPSs), remote sensing, location-based services and technologies, and Web-based services are growing rapidly, bringing

modern geomatics tools to the computers and cell phones of the average citizen and small business.

- Canada's resource-based economy depends on innovations in geoscience for the entire life cycle of resource exploration, development and rehabilitation. Modern geoscience has helped Canada become a leading producer of diamonds.

International Importance

- Geomatics is rapidly growing as a professional field in the global market. Technological innovations and value-added applications in such fields as satellite -based remote sensing, GIS and GPS are experiencing considerable growth and show export potential.
- Canada is a world leader in the niche markets of remote sensing data and applications, including mapping from space, sea-floor mapping and hydrography.
- Canada is recognized internationally for developing customized GIS applications for urban planning, agriculture, geo-marketing and natural resources management.
- Major international markets for Canadian geomatics firms include North America, the Middle East and Latin America. International demand for geomatics products and services will continue to increase, sti-mulating the growth of the industry in the coming years.
- Canada continues to be a world leader in geoscience and geomatics applications and technology, principally in minerals and energy exploration and development. Canada provides much of the information, expertise and technology used around the world for the responsible development of natural resources.

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Natural Resources Canada would also like to acknowledge the contribution of information from the following organizations:

- Energy Resources Conservation Board (formerly part of the Alberta Energy and Utilities Board)
- Alberta Utilities Commission (formerly part of the Alberta and Utilities Board)
- Statistics Canada, Transportation Division
- U.S. Department of Energy, Energy Information Administration (EIA)

North American Industry Classification System (NAICS)

Forest sector:

113 Forestry and logging
1153 Support activities for forestry
321 Wood product manufacturing
322 Paper product manufacturing

Energy sector:

211 Oil and gas extraction
213 Support activities for mining & oil and gas extraction
2211 Electric power generation, transmission and distribution
2212 Natural gas distribution
324 Petroleum and coal product manufacturing
412 Petroleum product wholesalers-distributors
447 Gasoline stations
486 Pipeline transportation

Mining sector:

212 Mining (except oil and gas)
327 Non-metallic mineral product manufacturing
331 Primary metal manufacturing
332 Fabricated metal product manufacturing

Notes