Canada's oil and gas extraction industry spent $2.8 billion to protect the environment in 2006, more than any other industry. Environmental protection expenditures across all industries totalled $8.6 billion.

Although businesses spent more money in 2006 dealing with pollutants and waste after they were generated, they made the largest capital expenditures on pollution prevention measures: 41% of their spending on environmental protection in 2006 went into prevention projects to eliminate pollution at the source. This was the case across all provinces and most industry groups. The exceptions were the oil and gas extraction, mining, wood products manufacturing and primary metals manufacturing industries, for which pollution abatement and control received a higher share of spending.

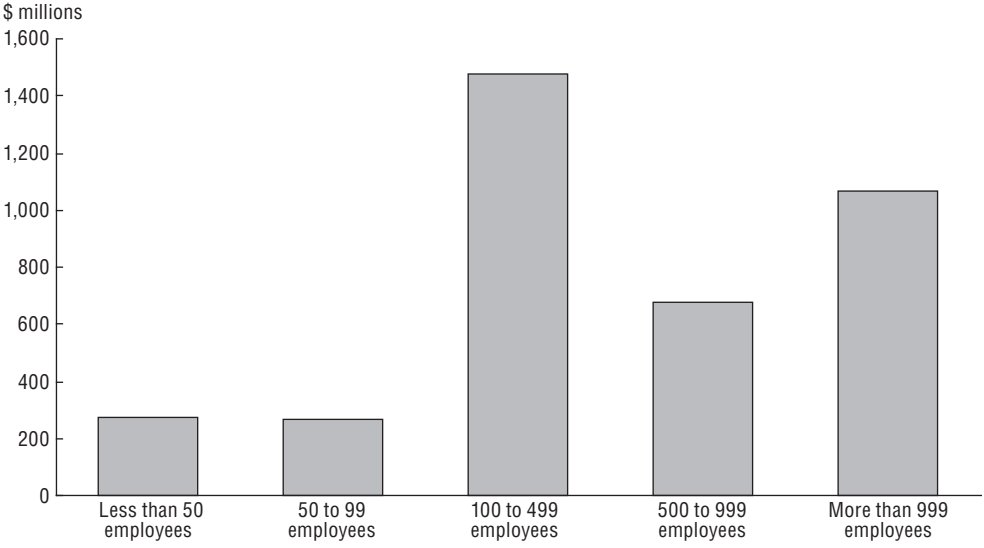
Over half of the total capital expenditures on pollution prevention in 2006 went toward processes aimed at preventing the release of substances into the air. Capital expenditures on pollution abatement and control projects were also directed largely at preventing the release of air pollutants, accounting for 60% of spending.

Business spending

Spending on environmental protection measures varies with the size of the business. Collectively, businesses with fewer than 500 employees accounted for 56% of all funds spent on environmental protection in 2006. Medium-sized businesses (100 to 499 employees) accounted for 39% of the total, despite the fact that this size of business represented only 25% of those surveyed.

In fiscal year 2006/2007, federal spending on research and development aimed at control and care of the

Chart 12.1
Capital expenditures on environmental protection, by establishment size, 2006



Source: Statistics Canada, CANSIM table 153-0056.

environment reached $360 million. This accounted for 6% of total federal research and development expenditures in 2006/2007.

Alberta leads spending

Alberta businesses invested the most in facilities and equipment to protect the environment in 2006, surpassing Ontario, the largest spender up until 2002. Capital investment by businesses in Alberta for environmental protection amounted to nearly $1.9 billion in 2006, almost half (49%) of the capital expenditures nationally. Ontario businesses reported $827 million in capital expenditures, followed by those in Quebec ($371 million).

In terms of operating expenses for environmental protection, however, establishments in Ontario spent the largest amount, at $1.6 billion. Alberta businesses were a close second with operating expenses of $1.3 billion.

Alberta's lead position in capital spending was mainly attributable to the oil and gas extraction industry. Capital investments for environmental protection by oil and gas producers, most of which operate in Alberta, totalled over $1.7 billion in 2006. Put in perspective, for every $100 invested by the oil and gas extraction industry, $4 was invested in environmental protection. This investment included pollution abatement and control, waste management, pollution prevention, and reclamation and decommissioning.

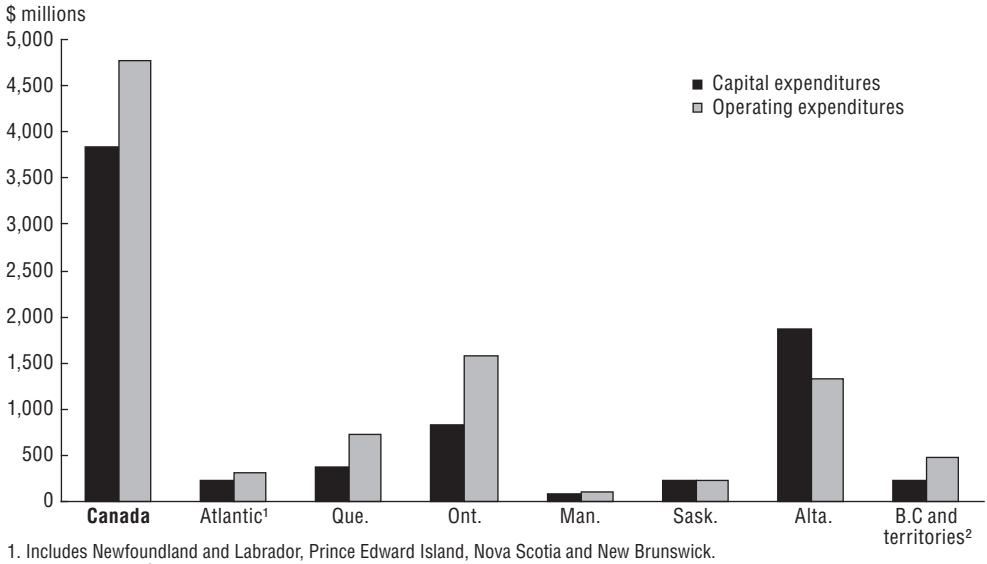
The oil and gas extraction industry also reported the highest operating expenses for environmental protection. Of every $100 invested by the petroleum and coal products industry, $20 was for environmental protection, as that industry continued to upgrade refineries to meet new sulphur regulations.

Table 12.a
Environmental protection, all industries, 2006

	$ millions
Capital expenditures[1]	3,836.4
Operating expenditures	4,769.0

1. Excludes fees, fines and licences, and other.
Source: Statistics Canada, CANSIM table 153-0053.

Chart 12.2
Capital and operating expenditures on environmental protection, by province or region, 2006



1. Includes Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick.
2. Includes British Columbia, Yukon, Northwest Territories and Nunavut.
Source: Statistics Canada, CANSIM table 153-0053.

The environmental cost of producing food

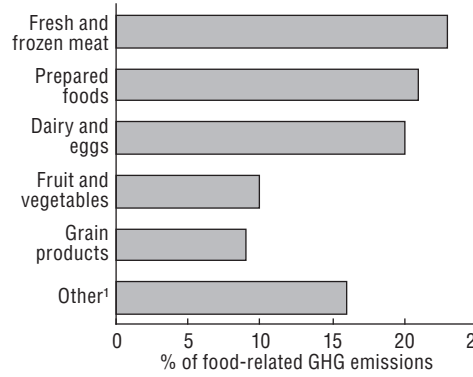
The food we eat has an environmental cost beyond what we see on the price tag. Food and non-alcoholic beverages bought in 2003 contributed 46,000 kilotonnes of greenhouse gas (GHG) emissions in Canada—equivalent to 6.4% of all GHG emissions.

Almost one-quarter of food-related GHG emissions were attributable to producing fresh and frozen meat. Beef alone accounted for 15% of the GHG emissions resulting from household spending on food.

More energy was used in 2003 to produce prepared foods (19%) than any other food group. Dairy and eggs came a close second, at 18%, while fresh and frozen meat accounted for 14%.

Much of this food is not eaten, however. In 2007, 38% of the solid food available for retail sale was wasted—the equivalent of 183 kilograms per person. Waste occurs from spoilage and other losses in stores, restaurants and homes.

Chart 12.3
Greenhouse gas emissions associated with household spending on food, 2003



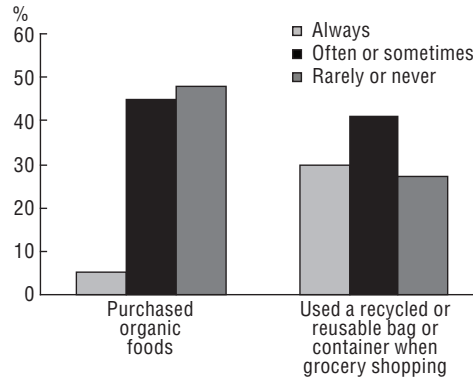
1. Includes fish, condiments, beverages and other foods.
Source: Statistics Canada, Catalogue no. 16-201-X.

Going green at the grocery store

Canadians choose to eat organic foods for many reasons, from health to environmental benefits. Regardless of the reason, both the market share and the number of organic food producers are on the rise. In 2007, 45% of all households reported purchasing organic foods at least often or sometimes, while 5% reported they always purchase organic foods.

Another means of reducing one's environmental impact is choosing reusable or recycled bags or containers to carry groceries. In 2007, 30% of households reported that they always use them for grocery shopping, while 41% reported using them often or sometimes. In the 'always use them' category, shoppers in Ontario and Quebec led the provinces at 35% and 33%, respectively.

Chart 12.4
Environmental purchasing decisions, 2007



Source: Statistics Canada, Catalogue no. 11-526-X.

Some countries, such as Ireland, Switzerland and Belgium, have introduced steep levies to discourage the use of non-reusable bags. In April 2007, Leaf Rapids, Manitoba became the first Canadian municipality to ban them outright.

Table 12.1 Greenhouse gas (GHG) emissions, by source, 1990 and 2007

	Carbon dioxide (CO_2)		Methane (CH_4)		Nitrous oxide (N_2O)	
	1990	2007	1990	2007	1990	2007
	kilotonnes		kilotonnes CO_2 equivalent[1]			
Total[2]	**456,000**	**590,000**	**74,000**	**100,000**	**50,000**	**48,000**
Energy	424,000	550,000	37,000	54,000	8,000	10,000
Stationary combustion sources	276,000	343,000	4,000	4,000	2,000	3,000
Electricity and heat generation	94,900	125,000	39	110	500	700
Fossil fuel industries	49,400	67,500	2,000	2,000	300	400
Petroleum refining and upgrading	16,000	18,000	–	–	100	100
Fossil fuel production	33,800	49,200	2,000	2,000	200	300
Mining and oil and gas extraction	6,150	23,100	3	9	40	200
Manufacturing industries	54,500	47,400	60	60	500	500
Iron and steel	6,420	6,580	5	5	60	60
Non-ferrous metals	3,170	3,360	1	2	10	20
Chemical	7,100	6,640	3	2.9	40	40
Pulp and paper	13,500	5,480	40	40	200	300
Cement	3,820	4,890	1	2	10	10
Other manufacturing	20,500	20,400	9	8	100	100
Construction	1,850	1,280	0.7	0.5	20	10
Commercial and institutional	25,500	34,900	10	10	200	200
Residential	40,900	41,100	2,000	2,000	500	500
Agriculture and forestry	2,370	2,220	0.8	0.8	20	20
Transport[3]	138,000	192,000	700	600	6,000	8,000
Civil aviation (domestic aviation)	6,180	7,600	10	9	200	200
Road transportation	94,900	133,000	310	200	3,200	3,300
Light-duty gasoline vehicles	43,800	40,000	160	64	1,900	1,100
Light-duty gasoline trucks	19,600	43,300	66	68	1,000	1,600
Heavy-duty gasoline vehicles	7,720	6,480	27	7.6	69	150
Motorcycles	143	260	3	3.6	0.9	1.6
Light-duty diesel vehicles	347	439	0.2	0.2	8	10
Light-duty diesel trucks	691	2,270	0.4	1	20	60
Heavy-duty diesel vehicles	20,500	39,700	20	40	200	400
Propane and natural gas vehicles	2,170	812	30	20	10	5
Railways	6,160	6,010	7	7	800	800
Navigation (domestic marine)	4,690	5,740	7	9	300	400
Other transportation	26,000	39,000	300	400	2,000	3,000
Off-road gasoline	6,500	7,200	200	200	40	50
Off-road diesel	13,000	22,000	20	30	2,000	3,000
Pipelines	6,650	9,520	140	200	60	80
Fugitive sources	11,000	16,000	32,000	49,000	30	40
Coal mining	–	–	2,000	800	–	–
Oil and natural gas	10,600	15,900	30,100	48,100	30	40
Oil	95	220	4,060	5,570	30	30
Natural gas	22.6	65.1	12,900	21,200	–	–
Venting	6,090	10,500	13,200	21,300	–	4
Flaring	4,400	5,200	54	76	0.4	2

See notes and source at the end of this table.

	Carbon dioxide (CO_2)		Methane (CH_4)		Nitrous oxide (N_2O)	
	1990	2007	1990	2007	1990	2007
	kilotonnes		kilotonnes CO_2 equivalent[1]			
Industrial processes	31,000	40,000	–	–	11,700	2,630
Mineral products	8,300	9,400	–	–	–	–
Cement production	5,400	7,300	–	–	–	–
Lime production	1,800	1,600	–	–	–	–
Mineral product use[4]	1,090	584	–	–	–	–
Chemical industry	5,000	6,200	–	–	11,700	2,630
Ammonia production	5,000	6,200	–	–	–	–
Nitric acid production	–	–	–	–	1,010	1,130
Adipic acid production	–	–	–	–	11,000	1,500
Metal production	9,770	11,100	–	–	–	–
Iron and steel production	7,060	6,030	–	–	–	–
Aluminum production	2,700	5,100	–	–	–	–
Sulfur hexafluoride used in magnesium smelters and casters	–	–	–	–	–	–
Production and consumption of halocarbons and sulfur hexafluoride	–	–	–	–	–	–
Other and undifferentiated production	8,000	13,000	–	–	–	–
Solvent and other product use	–	–	–	–	170	320
Agriculture	–	–	19,000	26,000	29,000	34,000
Enteric fermentation	–	–	17,000	23,000	–	–
Manure management	–	–	2,400	3,000	3,500	4,800
Agriculture soils	–	–	–	–	26,000	29,000
Direct sources	–	–	–	–	14,000	15,000
Pasture, range and paddock manure	–	–	–	–	2,600	3,900
Indirect sources	–	–	–	–	9,000	10,000
Waste	270	190	18,000	20,000	600	700
Solid waste disposal on land	–	–	18,000	20,000	–	–
Wastewater handling	–	–	220	260	500	700
Waste incineration	270	190	9	2	100	50
Land use, land-use change and forestry	-58,000	35,000	3,700	6,200	2,300	3,800
Forest land	-84,000	29,000	3,400	5,900	2,100	3,700
Cropland	12,000	-3,600	300	200	200	100
Grassland	–	–	–	–	–	–
Wetlands	5,000	3,000	6	–	4	–
Settlements	9,000	8,000	100	100	50	50

Note: – indicates no emissions.
1. Carbon dioxide equivalent emissions are the weighted sum of all greenhouse gas emissions. The following global warming potentials are used as the weights: carbon dioxide = 1; methane = 21; nitrous oxide = 310.
2. National totals exclude all GHGs from the land use, land-use change and forestry sector.
3. Emissions from fuel ethanol are reported within the gasoline transportation subcategories.
4. Includes CO_2 emissions coming from the use of limestone and dolomite, soda ash, and magnesite.

Source: Environment Canada, Greenhouse Gas Division, 2009, *National Inventory Report 1990-2007: Greenhouse Gas Sources and Sinks in Canada.*

Table 12.2 Environmental protection expenditures, by province and territory, 2006

	Capital expenditures	Operating expenditures
	$ millions	
Canada	**3,836.4**	**4,769.0**
Atlantic provinces[1]	234.3	320.5
Quebec	370.7	726.4
Ontario	827.1	1,584.1
Manitoba	93.0	106.4
Saskatchewan	222.7	228.0
Alberta	1,869.8	1,319.1
British Columbia and the territories[2]	218.8	484.5

Notes: Figures may not add to totals because of rounding.
Capital expenditures are not collected for the following categories: fees, fines and licences and (where not elsewhere classified) other types of environmental protection.
1. Includes Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick.
2. Includes British Columbia, Yukon, Northwest Territories and Nunavut.
Source: Statistics Canada, CANSIM table 153-0053.

Table 12.3 Capital expenditures on pollution abatement and control, by environmental milieu and by industry, 2006

	All environmental milieux	Air	Surface water	On-site contained solid and liquid waste	Noise, radiation and vibration
	$ millions				
All industries	**908.7**	**545.6**	**249.0**	**94.2**	**19.9**
Logging	**0.8**	F	F	F	F
Oil and gas extraction	**409.8**	271.2	61.8	67.4	9.4
Mining and quarrying	**174.5**	38.4	129.9	x	x
Electric power generation, transmission and distribution	**65.8**	52.5	x	x	x
Natural gas distribution	**3.0**	x	x	x	x
Food manufacturing	**12.8**	8.8	x	F	x
Beverage and tobacco product manufacturing	**x**	x	x	0.0	x
Wood product manufacturing	**30.7**	17.1	x	x	F
Paper manufacturing	**21.3**	15.7	5.2	x	x
Petroleum and coal product manufacturing	**45.7**	33.0	10.8	1.3	0.6
Chemical manufacturing	**25.8**	17.6	5.0	1.8	1.6
Non-metallic mineral product manufacturing	**16.1**	14.8	0.9	x	x
Primary metal manufacturing	**68.9**	49.5	13.0	5.1	1.2
Fabricated metal product manufacturing	**3.0**	2.2	0.1	F	x
Transportation equipment manufacturing	**15.7**	10.7	2.1	F	x
Other manufacturing industries	**12.8**	10.6	F	F	0.5
Pipeline transportation	**x**	0.2	x	x	x

Note: Figures may not add to totals because of rounding.
Source: Statistics Canada, CANSIM table 153-0054.

Table 12.4 Capital expenditures on pollution prevention, by environmental milieu and by industry, 2006

	All environmental milieux	Air	Surface water	On-site contained solid and liquid waste	Noise, radiation and vibration	Other
	$ millions					
All industries	**1,561.1**	**885.2**	**189.2**	**203.1**	**11.4**	**272.2**
Logging	**F**	F	F	F	F	F
Oil and gas extraction	**377.1**	122.9	63.7	x	4.4	x
Mining and quarrying	**49.2**	3.2	28.1	15.0	x	x
Electric power generation, transmission and distribution	**105.9**	36.6	22.7	45.3	x	F
Natural gas distribution	**54.1**	52.6	x	1.3	x	0.0
Food manufacturing	**41.0**	5.4	F	0.9	x	F
Beverage and tobacco product manufacturing	**3.1**	x	0.4	0.7	x	x
Wood product manufacturing	**18.3**	5.9	5.4	F	F	F
Paper manufacturing	**52.0**	31.8	11.7	2.3	0.8	5.4
Petroleum and coal product manufacturing	**533.1**	508.1	18.8	x	F	x
Chemical manufacturing	**44.0**	27.5	4.9	7.6	0.1	4.0
Non-metallic mineral product manufacturing	**22.7**	12.9	3.0	3.0	F	3.5
Primary metal manufacturing	**31.1**	19.1	3.8	6.8	0.0	1.5
Fabricated metal product manufacturing	**F**	F	0.3	F	x	F
Transportation equipment manufacturing	**18.7**	7.1	1.1	F	F	F
Other manufacturing industries	**73.0**	24.7	F	F	x	F
Pipeline transportation	**39.2**	4.4	13.1	16.5	1.6	3.5

Note: Figures may not add to totals because of rounding.
Source: Statistics Canada, CANSIM table 153-0054.

Table 12.5 Waste disposal and diversion, by province, 2002, 2004 and 2006

	Waste disposed			Materials diverted		
	2002	2004	2006	2002	2004	2006
	tonnes					
Canada	**24,081,371**	**25,226,766**	**27,249,178**	**6,641,546**	**7,112,735**	**7,749,030**
Newfoundland and Labrador	376,594	400,048	407,728	30,386	35,308	30,385
Nova Scotia	389,194	399,967	401,670	192,006	239,845	275,983
New Brunswick	413,606	442,173	450,238	130,728	139,262	252,174
Quebec	5,846,459	6,454,000	6,808,440	1,743,376	2,130,100	2,456,300
Ontario	9,645,633	9,809,264	10,437,780	2,265,968	2,414,552	2,396,856
Manitoba	896,556	928,117	1,024,272	215,815	157,490	152,799
Saskatchewan	795,124	794,933	833,753	116,296	114,182	106,868
Alberta	2,890,294	3,077,311	3,819,872	690,517	620,080	652,637
British Columbia	2,687,882	2,767,657	2,917,080	1,218,475	1,209,216	1,366,191

Note: Data for Prince Edward Island and the territories have been suppressed to meet the confidentiality requirements of the *Statistics Act*.
Source: Statistics Canada, CANSIM tables 153-0041 and 153-0043.

Table 12.6 Food imports into Canada, by selected country, 2007

	Total food imports	
	$ millions	%
Total	**23,729.0**	**100.0**
United States	13,542.5	57.1
Mexico	906.6	3.8
China	799.0	3.4
Italy	691.6	2.9
France	686.0	2.9
Brazil	665.1	2.8
Chile	523.1	2.2
Thailand	483.1	2.0
Australia	441.8	1.9
United Kingdom	393.6	1.7

Source: Statistics Canada, Catalogue no. 16-201-X.

Table 12.7 Household treatment of drinking water, by type of water supply, 2007

	Municipal and non-municipal water supply	Municipal water supply	Non-municipal water supply
		%	
Treated water prior to consumption[1]	54	54	49
Used a filter[2]	47	47	48
Used a filter or purifier on the main supply pipe[2]	9	6	31
Activated charcoal filter	46	56	32
Ultraviolet	8	F	16
Reverse osmosis system	15	17	13
Other	18	11	28
Used an on-tap filter or purifier[2]	12	12	10
Activated charcoal filter	64	65	48
Ceramic filter	3	3[E]	F
Ultraviolet	2[E]	F	F
Reverse osmosis system	9	7	23[E]
Other	5	5[E]	F
Used a jug filter[2]	32	34	17
Boiled water in order to make it safe to drink in the last 12 months[2]	11	11	3
To improve appearance, taste or odour[2]	56	58	42
To remove water treatment chemicals such as chlorine[2]	46	51	11
To remove metals or minerals[2]	41	40	51
To remove possible bacterial contamination[2]	42	43	31
For another reason[2]	13	12	17
Did not treat water prior to consumption[1]	46	46	51

1. As a percentage of all households.
2. Information relates only to households that reported primarily consuming tap water, or tap water and bottled water.
Source: Statistics Canada, CANSIM table 153-0066.

Table 12.8 Population served by drinking water plants, by type of source water and by province and territory, 2007

	Total	Surface water	Groundwater	Groundwater under the direct influence of surface water
	number			
Canada[1]	**27,856,304**	**23,998,655**	**3,388,934**	**456,017**
Newfoundland and Labrador	**406,364**	379,389	x	x
Prince Edward Island	**60,827**	0	60,827	0
Nova Scotia	**455,390**	394,879	60,511	0
New Brunswick	**352,640**	211,379	112,996	28,265
Quebec	**7,016,273**	5,949,804	867,892	186,798
Ontario	**10,805,048**	9,317,774	1,360,863	125,493
Manitoba	**926,429**	829,138	89,808	7,483
Saskatchewan	**736,265**	595,078	132,394	8,793
Alberta	**2,901,434**	2,751,250	130,034	20,151
British Columbia	**4,126,403**	3,526,439	538,906	61,058
Yukon and Northwest Territories	**69,230**	43,525	x	x

Note: Figures may not add to totals because of rounding.
1. Excludes Nunavut because of low response.
Source: Statistics Canada, Catalogue no. 16-403-X.

Table 12.9 Household participation rates for environmental behaviours, by province, 2007

	Low-flow showerhead	Reduced-volume toilet	Compact fluorescent light bulbs	Composting[1]	Recycling[1,2]	Lowering[3] temperatures
	%					
Canada	**62**	**39**	**69**	**27**	**97**	**55**
Newfoundland and Labrador	55	28	65	21	94	60
Prince Edward Island	59	32	73	91	99	63
Nova Scotia	63	37	77	69	99	60
New Brunswick	61	31	70	32	96	54
Quebec	63	30	63	13	95	56
Ontario	65	47	76	34	98	53
Manitoba	52	38	62	23	88	49
Saskatchewan	46	37	64	27	96	59
Alberta	58	47	64	22	96	58
British Columbia	57	35	71	30	99	58

1. 2006 data.
2. Percentage of all households that had access to at least one recycling program.
3. Percentage of all households that had a thermostat; temperature lowered in winter when asleep.
Source: Statistics Canada, Catalogue no. 11-526-X.

Table 12.10 Mineral production by province and territory, 2009

	Total	Metallics	Non-metallics	Coal	Share of production
	$ thousands				%
Canada	**32,151,501.8**	**16,151,492.5**	**11,455,586.3**	**4,544,423.0**	**100.0**
Newfoundland and Labrador	**2,289,796.1**	2,244,081.5	45,714.6	0	7.1
Prince Edward Island	**3,386.0**	0	3,386.0	0	0.0
Nova Scotia	**380,082.0**	0	380,082.0	0	1.2
New Brunswick	**1,090,375.2**	749,602.7	x	x	3.4
Quebec	**6,217,070.6**	4,624,393.9	1,592,676.7	0	19.3
Ontario	**6,330,146.6**	3,789,984.1	2,540,162.5	0	19.7
Manitoba	**1,320,504.2**	1,176,770.9	143,733.3	0	4.1
Saskatchewan	**5,010,467.2**	1,441,199.2	x	x	15.6
Alberta	**2,015,518.5**	1,968.6	951,889.9	1,061,690.0	6.3
British Columbia	**5,733,567.1**	1,828,374.9	588,682.1	3,316,510.0	17.8
Yukon	**250,960.1**	245,016.7	5,943.4	0	0.8
Northwest Territories	**1,509,628.1**	50,100.0	1,459,528.1	0	4.7
Nunavut[1]	**0**	0	0	0	0.0

Notes: Preliminary data.
Figures may not add to totals because of rounding.
Production is based on shipments.
1. Mineral production of sand and gravel for Nunavut is included in the Northwest Territories.
Source: Natural Resources Canada, *Mineral Production Information Bulletin,* March 2010.

Table 12.11 Production of leading minerals, 2009

	Production		Value	
	kilotonnes except where noted	% change from 2008	$ millions	% change from 2008
Metallic minerals	**...**	**...**	**16,151.5**	**-28.5**
Gold (kg)	95,697.5	0.8	3,364.9	18.7
Iron ore	31,698.8	-1.3	3,174.2	-21.9
Copper	480.4	-17.7	2,774.7	-35.9
Nickel	131.6	-46.5	2,238.6	-60.8
Uranium[1]	10.1	15.8	1,392.1	45.9
Zinc	672.4	-4.6	1,242.6	-11.8
Other metals	...	...	1,964.4	-40.3
Non-metallic minerals	**...**	**...**	**11,455.6**	**-40.9**
Potash (K_2O)[2]	4,318.4	-58.4	3,380.3	-55.9
Diamonds (000 ct)	10,946.1	-24.6	1,684.3	-28.9
Sand and gravel[3]	216,169.7	-10.5	1,487.4	-12.0
Cement[4]	10,950.8	-19.5	1,440.5	-16.9
Stone[3]	135,894.6	-11.5	1,324.0	-11.0
Salt	14,565.7	2.4	664.1	23.6
Other nonmetals	...	...	1,475.0	-62.1
Fuels				
Coal	62,615.0	-7.6	4,544.4	-8.9

Notes: Preliminary data.
Figures may not add to totals because of rounding.
1. Uranium value is calculated using spot market prices.
2. Excludes shipments to potassium sulphate plants.
3. Excludes shipments of sand and gravel and stone to Canadian cement, lime and clay plants.
4. Includes exported clinker minus imported clinker.
Source: Natural Resources Canada, *Mineral Production Information Bulletin,* March 2010.