

# Coal

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## **Lisa Shapiro**

*The author is with the Minerals and Metals Sector, Natural Resources Canada.  
Telephone: (613) 992-1904  
E-mail: lshapiro@nrcan.gc.ca*

**C**oal is an organically derived material. It is formed from the remains of decayed plant material compacted into a solid through millions of years of pressure and heat. Coal is the world's most abundant and widely distributed fossil fuel. About 4.5 billion t are mined annually in more than 40 countries.

Coal is used primarily for the generation of electricity and the production of steel. Nearly 50% of the world's electricity is generated from coal and about 75% of the world's steel is produced with coal. Coal is also used as an energy source in industrial processes (such as cement manufacture and pulp and paper) and to produce a wide range of products (such as tars and chemicals). In some developing countries, coal is still used as a residential heating fuel.

## **CANADIAN DEVELOPMENTS**

Canada is the world's fourth largest coal exporter and eleventh largest coal producer.

### **Production**

Preliminary estimates for 1997 show record production of 78.7 Mt valued at \$1.9 billion, representing an increase of more than 3% in volume and a decrease of 1% in value. About 60% of the production is thermal coal, with the remainder being metallurgical coal.

Production occurs to meet domestic demand for thermal coal, primarily for the generation of electricity, and to meet export demand, primarily for metallurgical coal.

Nearly all (96%) of Canada's coal is produced in the three westernmost provinces. The remainder comes from Nova Scotia and New Brunswick.

British Columbia's coal production, all bituminous, increased in 1997 by 2.5 Mt to 27.9 Mt. With virtually all of British Columbia's production exported, the increase is a direct reflection of increased export demand. Ninety percent of British Columbia's coal is metallurgical.

Alberta remained Canada's largest coal-producing province in 1997. Its production is estimated to be up marginally to 36.3 Mt, consisting of 25.8 Mt of sub-bituminous coal (up 0.8 Mt from 1996) and 10.6 Mt of bituminous coal (down 0.6 Mt from 1996). The marginal increase in sub-bituminous production is a result of slightly higher demand for coal-fired electricity generation in the province. The slight drop in bituminous production is a result of lower metallurgical coal exports from Alberta. About 84% of Alberta's production is thermal coal.

Saskatchewan was again the country's third largest coal-producing province. Its production, all lignite, was up 0.8 Mt to 11.6 Mt. All of Saskatchewan's coal is used for thermal purposes.

Nova Scotia's bituminous coal production was down 0.5 Mt to 2.6 Mt because of lower production by the Cape Breton Development Corporation (DEVCO). About 97% of the coal produced in Nova Scotia in 1997 was thermal.

New Brunswick's bituminous coal production decreased 0.1 Mt to 0.2 Mt. N.B. Coal Limited, the only coal producer in the province, is owned by, and sells exclusively to, the provincial electric utility, New Brunswick Power Corporation.

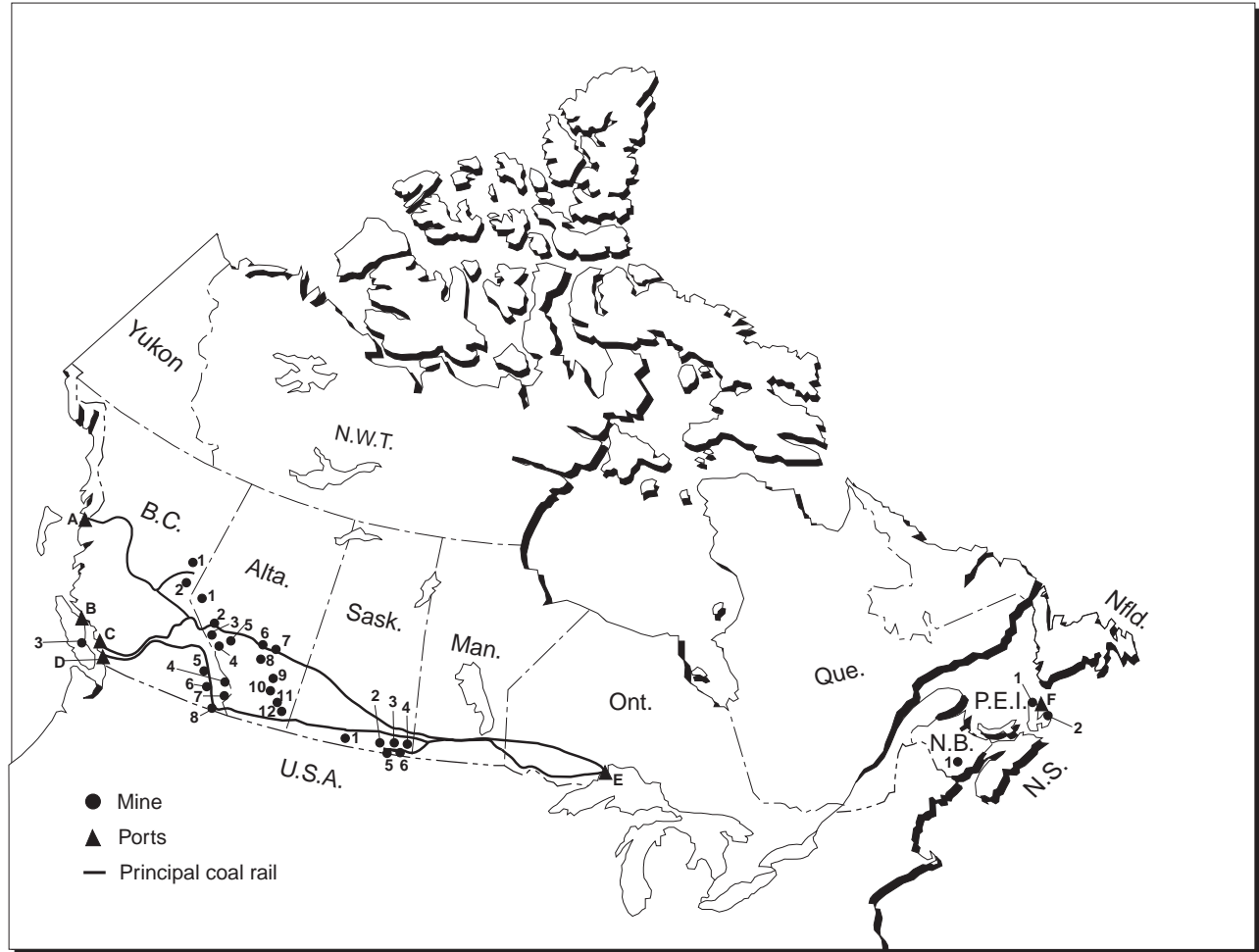
### **Consumption**

Canadian coal consumption in 1997 is estimated at 56 Mt, somewhat above the 1996 level of 53.5 Mt. The increase is due to higher consumption of coal to generate electricity.

In 1997, an estimated 49.5 Mt of coal were consumed for electricity generation, about 4.5 Mt were used in steel-making, and about 2 Mt were used by other industries, mainly cement.

British Columbia used about 0.2 Mt of bituminous coal for general industrial purposes.

**Figure 1**  
**Principal Canadian Coal Mines and Ports**



● **MINES**

**British Columbia**

1. Bullmoose
2. Quintette
3. Quinsam
4. Fording River
5. Greenhills
6. Elkview
7. Line Creek
8. Coal Mountain

**Alberta**

1. Smoky River
2. Obed
3. Gregg River
4. Luscar
5. Coal Valley
6. Highvale
7. Whitewood
8. Genesee
9. Paintearth
10. Vesta
11. Sheerness
12. Montgomery

**Saskatchewan**

1. Poplar River
2. Utility
3. Boundary Dam
4. Costello
5. Shand
6. Bienfait

**New Brunswick**

1. Minto

**Nova Scotia**

1. Prince
2. Phalen

▲ **PORTS**

**British Columbia**

- A. Ridley Island
- B. Texada Island Facility
- C. Neptune
- D. Roberts Bank

**Ontario**

- E. Thunder Bay

**Nova Scotia**

- F. International Pier

Alberta, the largest consuming province, used about 26.3 Mt of coal to generate electricity, close to 1 Mt higher than the previous year. With the exception of about 0.4 Mt of Alberta bituminous coal, all of the coal used was sub-bituminous coal from Alberta.

In Saskatchewan, coal consumption by the electric utility was an estimated 9.8 Mt, similar to the previous year's level. All of the coal used by the utility comes from provincial lignite mines. About 0.2 Mt of local lignite was also used by industrial consumers.

While Manitoba does not produce coal, it consumes a small amount of coal for electricity generation and general industrial uses. Consumption in 1997 was about 0.2 Mt, similar to the 1996 level. About 0.1 Mt was used for the generation of electricity, while the rest was used by general industry.

Ontario remains Canada's second largest coal consumer, using coal for electricity generation, steel-making, and general industrial purposes. Ontario's 1997 consumption of coal for the generation of electricity increased more than 2 Mt to an estimated 9 Mt. The higher coal use made up for the less-than-forecast nuclear generation. About one quarter of the coal consumed by Ontario Hydro was Canadian, with the rest coming from the United States. The Canadian portion consisted of bituminous coal from Alberta and lignite from Saskatchewan.

Coal utilization by the steel industry in Ontario in 1997 is estimated to be 4.5 Mt, similar to the 1996 level. All of the coal used by the steel industry was imported from the United States. Coal use by Ontario's industrial sector was similar to the previous year's level at about 0.7 Mt.

While Quebec does not produce coal, it consumes a small amount for general industrial uses. The province's 1997 consumption is expected to be similar to the 1996 level of 0.7 Mt. All of the coal consumed in Quebec (about half bituminous, the rest anthracite) is imported from the United States.

In New Brunswick, 1997 coal consumption is estimated to be 1.3 Mt, similar to 1996, and used all for the generation of electricity. Most of the coal was imported from Colombia and the United States with a small amount being supplied by the one New Brunswick mine.

Nova Scotia's 1997 coal consumption was an estimated 3 Mt, similar to the 1996 level. Nearly all of this coal was used to generate electricity, with a tiny amount for general industrial use. With the exception of about 0.2 Mt sourced from small producers in the province and a smaller amount imported from the United States, the utility bought its coal from DEVCO.

## Exports

In 1997, Canadian coal companies increased their exports by 2 Mt (6%) to a record 36.5 Mt. Canadian coal was sold to 21 countries. About 82% of Canada's exports were metallurgical coal.

The single largest buyer of this coal is Japan. In 1997, Canadian coal exports to Japan were flat at about 18.7 Mt. With a market share of about 14%, Canada was again Japan's second largest coal supplier after Australia. About 85% of Canadian coal exports to Japan were metallurgical coal.

In 1997, Canadian coal exports to the Republic of Korea (South Korea), Canada's second largest market, were up about 0.5 Mt to 6 Mt. With a market share of approximately 14%, Canada was the Republic of Korea's third largest coal supplier after Australia and China. Two thirds of Canadian coal exports to the Republic of Korea were metallurgical coal.

Canada's next largest coal markets in 1997 were the United Kingdom (1.6 Mt) and Brazil (1.4 Mt).

British Columbia remains the single largest coal-exporting province with exports up 2.8 Mt to about 27.3 Mt in 1997. About 90% of British Columbia's exports were metallurgical coal.

Alberta's coal exports were down 0.7 Mt to 9.2 Mt. About 60% of Alberta's exports were metallurgical coal.

In 1997, as in the previous year, Nova Scotia's coal exports were under 0.1 Mt. The only exporting company in the province is DEVCO, a federal Crown corporation. Again in 1997, nearly all of DEVCO's production was sold to its major customer, Nova Scotia Power Inc.

## Imports

Canada's 1997 coal imports were 13.9 Mt, about 1.8 Mt higher than in 1996. With the exception of less than 1 Mt from Colombia, all imports came from the United States.

The electric power industry imported more than 8 Mt. Ontario Hydro, the single largest importer of coal, bought about 7 Mt of U.S. coal in 1997, up from the previous year. New Brunswick Power Corporation bought about 1 Mt, while Nova Scotia Power Inc. imported about 0.2 Mt and Manitoba Hydro imported about 0.1 Mt.

Imports by the Ontario steel industry were estimated at somewhat under 5 Mt in 1997, similar to the 1996 level. All of this coal came from the United States.

The remaining imports, all from the United States, went to industrial users located primarily in Quebec and Ontario.

## Changes

In June 1997, Prairie Coal Ltd., a wholly owned subsidiary of Manalta Coal Ltd., received approval under *The Environmental Assessment Act of Saskatchewan* to expand the Costello lignite mine near Estevan. Costello's operations were suspended in 1993 because of shrinking demand. However, Prairie Coal will now expand Costello to a 3-Mt/y operation beginning in the summer of 1998. Coal from Costello will replace that from the nearby Utility mine where economically recoverable reserves are rapidly depleting. The expanded Costello mine, which will feed Saskatchewan Power Corporation's Boundary Dam power plant, is expected to employ approximately 120 people during its estimated mine life of 20 years.

In June 1997, a joint federal-provincial environmental assessment panel determined that the proposed Cheviot open-pit mine near Hinton, Alberta, met all regulatory requirements, subject to a number of conditions. In August, the Province of Alberta gave the project permission to proceed, and the federal government announced its approval in October. The mine will be owned and operated by Cardinal River Coals Ltd. (CRC), a joint venture of Luscar Ltd. of Edmonton and Consol of Canada Inc. Following approvals, CRC began construction. Mining is expected to begin in 1999. Its production, to be exported, will be about 3.5 Mt/y of metallurgical coal over an estimated mine life of 20 years. The work force will number about 450. The Cheviot mine will replace production from the existing Luscar mine some 20 km away where reserves are expected to be depleted in a couple of years. In late 1997, a number of environmental organizations filed a legal challenge to try to stop the project.

Pine Valley Coal Ltd. continued the regulatory process for its proposed Willow Creek project 45 km west of Chetwynd in northeastern British Columbia. Pine Valley Coal Ltd. is the operator for this joint venture of BC Rail, Globaltex Industries Inc. and Mitsui Matsushima Co. Ltd. The proposed open-pit mine will produce 0.9 Mt/y of coking and thermal coal for export over an estimated mine life of 15 years, with potential for an extension. The work force will number about 100-120. Subject to completion of the regulatory process, the operator plans to begin construction in 1998 with production to start in 1999. Globaltex Industries Inc. is a Vancouver-based junior resource company listed on the Vancouver Stock Exchange.

Manalta Coal Ltd. continued the regulatory process for its proposed Telkwa mine located approximately 6 km southwest of Telkwa in central British Columbia. The proposed open-pit mine will produce about 1-1.5 Mt/y of thermal and metallurgical coals

for export over an estimated mine life of 25 years. The work force will number about 120-140. Subject to completion of the regulatory process and coal sales arrangements, construction could begin in 1999 with production starting in 2000.

Luscar Sterco (1977) Ltd., a wholly owned subsidiary of Luscar Ltd., started the regulatory process for approval to extend its Coal Valley mine about 90 km southwest of Edson, Alberta. The company hopes to have approval to begin mining from the extension by the year 2000. The extension would produce about 2 Mt/y of thermal coal for foreign and domestic electricity generation markets for an estimated 10 years. Employment would continue for about 225 workers at the existing mine, which will be depleted in about three years.

Smoky River Coal Limited began the regulatory process for approval to extend its surface mine site in the Grande Cache area of Alberta. The proposed project would see approximately 5 Mt of metallurgical and thermal coal mined over two to three years. The tonnage, nearly all for export, would replace coal from surface operations that will be exhausted in mid-1998. The project would give the company time to develop longer-term plans for surface mine operations. Employment at Smoky River Coal Limited in January 1998 was approximately 570.

Smoky River also began the approval process for an underground room-and-pillar operation across from the present plant site. The new operation, expected to start up in 1998, would produce about 1 Mt/y of mostly metallurgical coal. While approval is being sought for only one year, reserves justify about an additional five years of operation. The company expects to request approval to extend the underground workings.

## WORLD DEVELOPMENTS

The Canada-Chile Free Trade Agreement came into force on July 5, 1997. It included removal of the 11% Chilean tariff on metallurgical coal imports from Canada effective July 5, 1997. For thermal coal, the 11% tariff dropped to 5.5% on July 5, 1997, to 4.4% on January 1, 1998, and will fall to 3.3% on January 1, 1999, to 2.2% on January 1, 2001, and to zero on January 1, 2002.

In the past quarter century, international coal trade has grown substantially. The International Energy Agency (IEA) dates the beginning of significant trade in coal to the sharp oil price increase of 1973, with a further spur in coal trade occurring with the second major oil price increase at the end of 1978. IEA statistics show coal trade growing from about 175 Mt in 1973 to 474 Mt in 1996. Trade in 1997 is estimated to be about 496 Mt. Nearly 95% of this trade is by sea. Trade continues to be split about 60:40 between thermal and metallurgical coal.

Demand continues to be high for thermal coal for the generation of electricity, particularly in Asia-Pacific nations. Demand for metallurgical coal for steel-making is fairly flat, reflecting the increasing efficiency in the ratio of coke to steel in blast furnaces, and technological changes in the production of steel, including the greater use of pulverized coal injection.

Two countries account for close to half of the world's coal exports. Australia will maintain its premier position in 1997 with exports projected to reach a record 157 Mt, up about 16 Mt from the 1996 level. The second largest exporter, the United States, saw exports of about 76 Mt in 1997, down from 82 Mt in 1996.

The third largest coal exporter, South Africa, is expected to have foreign sales of about 63 Mt, up 3 Mt over the 1996 level. The fourth largest exporter is expected to be Canada with exports of 36.5 Mt.

Preliminary information at the time of writing the 1996 coal review led to an over-estimation of Indonesia's 1996 coal exports and an erroneous ranking of Indonesia as the world's fourth largest exporter. In fact, Canada retained its position in 1996 as the fourth largest exporter. Revised information that was received after the review was published showed Indonesia's 1996 exports were about 32 Mt. Preliminary information puts Indonesia's 1997 exports at about 36 Mt.

China, the world's largest coal producer and consumer, is estimated to have increased its 1997 exports from 29 Mt to about 30 Mt. Poland's exports are forecast to be about 29 Mt, similar to 1996.

On the buying side, Japan remains the world's largest importer of coal, accounting for more than one quarter of all purchases. Its 1997 imports are estimated at 134 Mt, about 8 Mt above 1996. Approximately 60% of Japan's imports are metallurgical coal.

The Republic of Korea, the world's second largest coal importer, is estimated to have increased its foreign coal purchases to 50 Mt in 1997 from 46 Mt in 1996. The increase was mostly thermal coal, which accounts for about 65% of imports.

The third largest importer, Taiwan, increased its foreign coal purchases by an estimated 6 Mt to some 37 Mt in 1997.

The European Union (EU) as a bloc accounts for about 30% of world hard coal imports. In 1997, the 15 countries of the EU are estimated to have imported about 144 Mt from non-EU countries, about 4 Mt above the level of 1996. The four largest importing countries were the United Kingdom, Germany, Spain and France. EU countries, which were at one time significant coal producers (280 Mt in 1973), produced 127 Mt in 1996; that level dropped to an estimated 123 Mt in 1997.

## PRICES

International coal prices are quoted in U.S. currency and as either "free on board trimmed" (f.o.b.t.) or "cost, insurance and freight" (c.i.f.). In 1996, the Japanese steel industry, representing the largest coal-buying entity, changed the way it negotiated coking coal prices. Previously, there was a "benchmark" price for hard coking coal sales. After the benchmark was negotiated, it was, in principle, applied to all other types of coal.

In 1996, the Japanese steel industry replaced the benchmark system with the "fair treatment system." As the IEA describes the change, the new system values each individual coal brand on its own quality and properties to individual steel mills. As a result, different prices can be set for the same brand of coal to different steel mills.

While there is no longer a "benchmark" in the old sense, hard coking coal prices dropped from about US\$53.30/t f.o.b.t. in Japan's 1996 fiscal year (April 1996 through March 1997) to about US\$52-\$53/t in the 1997/98 coal year. Settlement prices for 1998/99 appear to be down about 5% to the range of US\$50-\$51/t.

The reference price for Japan's thermal coal imports dropped from about US\$40.30/t f.o.b.t. in coal year 1996/97 to US\$37.65/t in 1997/98. At the time of writing, prices for thermal coal for 1998/99 were still uncertain, but appeared to be settling in the range of US\$34/t.

For the EU, the guide c.i.f. price for imported coking coal was US\$57.70/t for the fourth quarter of 1997, compared to US\$57.50/t for the fourth quarter of 1996.

## THE ENVIRONMENT

*(Questions on this section should be directed to Frank Mourits of the Minerals and Metals Sector, Natural Resources Canada, telephone (613) 996-7857.)*

Environmental protection is being addressed at all stages of the coal chain. At the mining stage, environmental assessments are an integral part of the provincial mine permitting process. In certain instances, mining projects also trigger a federal environmental review under the *Canadian Environmental Assessment Act*.

Federal and provincial governments are committed to streamlining the environmental review process and eliminating overlap and duplication between the various regulatory agencies. The federal government is working to identify opportunities to improve the efficiency and effectiveness of environmental review processes in the mining sector while maintaining or

enhancing current environmental protection standards. A report by federal and provincial mines departments will be presented to mines ministers in July 1998. A recent example of a harmonized federal-provincial environmental assessment was the review, in 1997, of the Cheviot metallurgical coal mine project near Hinton, Alberta. More information on the Cheviot project is given elsewhere in this chapter under the section on "Changes."

Environmental assessments ensure that activities associated with coal mining, including the removal of vegetation, relocation of overburden, construction of roads, blasting, and reclamation of previously mined areas, are carried out in a manner that minimizes any negative effect on the environment. Several Canadian coal mining companies have been recognized for their successful environmental mine management programs.

At the coal utilization stage, air emissions are a concern. Coal accounts for about 20% of sulphur dioxide (SO<sub>2</sub>), 15% of nitrogen oxide (NO<sub>x</sub>) and 20% of carbon dioxide (CO<sub>2</sub>) emissions in Canada. Coal is also a source of heavy metals emissions.

A July 1997 report by Environment Canada showed that, in 1996, eastern Canadian coal-burning utilities, including Nova Scotia Power Inc., New Brunswick Power Corporation, and Ontario Hydro, were all below their SO<sub>2</sub> emission limits. Emissions were 267 000 t, compared to a legislated limit of 443 000 t. However, acid deposition continues to be a concern. The report is entitled *1996 Annual Report on the Federal-Provincial Agreements for the Eastern Canada Acid Rain Program*.

In October 1997, the multi-stakeholder Acidifying Emissions Task Group submitted its final report, *Towards a National Acid Rain Strategy*, to the National Air Issues Coordinating Committee. A key finding of the task group was that in 2010, with full implementation of existing Canadian and U.S. programs to control SO<sub>2</sub> emissions, 800 000 km<sup>2</sup> in southeastern Canada will continue to receive levels of acid rain harmful to aquatic systems.

In 1995, Environment Canada established a working group to develop guidelines for NO<sub>x</sub> emissions from coal-fired utility boilers to be constructed after the year 2000. In 1996, a technical background report was completed. The working group's activity is expected to increase in 1998.

The issues of climate change and greenhouse gas (GHG) emissions continue to receive attention. The Coal Association of Canada and the Canadian Electrical Association are both participants in the Voluntary Challenge and Registry (VCR) Program, and have developed action plans to limit or reduce net GHG emissions.

In December 1997, at the United Nations Framework Convention on Climate Change in Kyoto, Japan, Canada together with 150 other nations signed an international agreement that commits Canada to reduce its GHG emissions by 6% from 1990 levels for the period spanning 2008-2012.

In April 1997, the Electric Power Generation (Fossil Fuel) Sector Issue Table issued its *Strategic Options Report*. The goal of the issue table was to make recommendations on the management of metal and organic compounds declared toxic under the *Canadian Environmental Protection Act*. The group was not able to reach a consensus on all issues. Therefore, the report contains several minority positions on particulate matter reductions, their management options, and areas for further collaboration among stakeholders. Follow-up on the Electric Power and other strategic option reports is pending direction from the ministers of Health and the Environment.

In addition to air emissions, coal-fired generating stations produce large volumes of ash and waste products. Most ash is a powder-like fly ash and the remainder is a coarser bottom ash. Fly ash utilization in the manufacture of cement is increasing, and this results in several environmental benefits, including reduced landfill costs for the utility as well as reductions in emissions of carbon dioxide, particulates, organic compounds and sulphur dioxide for the cement manufacturer. About 23 000 t of fly ash were contained in the cement used to build the new Confederation Bridge linking Prince Edward Island and New Brunswick. Other major uses for coal ash are in road construction and as backfill for mines.

Flue gas desulphurization units produce large volumes of gypsum by-product. This material is increasingly being sold to wallboard manufacturers, which again results in reduced landfill costs for the utility.

## OUTLOOK

In *Canada's Energy Outlook 1996-2020*, published in April 1997, Natural Resources Canada predicted a relatively small increase in Canadian coal production over the next dozen years (79 Mt/y by 2010), with a larger increase to 88 Mt/y by 2020. The increase in the second decade of the next century reflects increases in domestic demand for thermal coal for electricity generation. Domestic demand will be met by a combination of indigenous sources and imports. The latter are expected to increase to 23 Mt/y by 2020. The report predicts only a small increase in exports to 2020. The report can be found on the internet at <http://www.es.nrcan.gc.ca/ceo/toc-96E.html>.

On the world scene, some coal forecasters expect increasing trade, falling prices and further cost reductions by producers. Most of the trade growth is expected to be in thermal coal, with most of that being in Asia. While the devaluation of currencies in 1997 lowered expectations concerning the rate of growth, the growth rate is nevertheless expected to remain high and the cost of coal is expected to remain relatively low.

*Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 65. (2) Information in this review was current as of March 3, 1998.*

**TABLE 1. COAL SUPPLY AND DEMAND, 1982-97**

	Production	Imports	Total Supply	Exports	Domestic Consumption	Total Demand	Stock Changes and Adjustment
				(000 tonnes)			
1982	42 811	15 775	58 586	16 004	41 353	57 357	1 229
1983	44 780	14 667	59 447	17 011	43 649	60 660	(1 213)
1984	57 402	18 359	75 761	25 138	48 699	73 837	1 924
1985	60 854	14 620	75 474	27 378	48 666	76 044	(570)
1986	57 812	13 312	71 124	25 904	44 532	70 436	688
1987	61 211	14 345	75 556	26 741	50 140	76 881	(1 325)
1988	70 644	17 418	88 062	31 725	54 466	86 191	1 871
1989	70 529	14 521	85 050	32 827	53 795	86 622	(1 572)
1990	68 331	14 113	82 444	31 009	49 036	80 045	2 399
1991	71 138	12 417	83 555	34 112	50 173	84 285	(730)
1992	65 610	12 834	78 444	28 097	51 683	79 780	(1 336)
1993	69 027	8 392	77 419	28 313	48 979	77 292	127
1994	72 823	9 176	81 999	31 746	52 348	84 094	(2 095)
1995	75 036	9 684	84 719	33 992	52 773	86 766	(2 046)
1996	75 851	12 025	87 876	34 459	53 511	87 971	(95)
1997	76 692	13 881	92 573	36 510	56 113	92 623	(50)

Sources: Natural Resources Canada; Statistics Canada.



**TABLE 2. COAL DISPOSITION FROM MINES, 1997**

	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Canada
(000 tonnes)						
<b>DELIVERIES TO:</b>						
Newfoundland	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-
Nova Scotia	2 583	-	-	-	-	2 583
New Brunswick	-	171	-	-	-	171
Quebec	-	-	-	-	-	-
Ontario	-	-	1 449	460	-	1 909
Manitoba	-	-	133	-	41	174
Saskatchewan	-	-	10 071	-	-	10 071
Alberta	-	-	-	26 310	-	26 310
British Columbia	-	-	-	21	409	430
<b>Total Canada</b>	<b>2 583</b>	<b>171</b>	<b>11 653</b>	<b>26 791</b>	<b>450</b>	<b>41 648</b>
To Pacific ports	-	-	-	9 552	27 115	36 667
To Atlantic ports	50	-	-	-	-	50
<b>Total ports</b>	<b>50</b>	<b>-</b>	<b>-</b>	<b>9 552</b>	<b>27 115</b>	<b>36 717</b>
To U.S.A. by land	-	-	-	-	328	328
<b>Total</b>	<b>2 633</b>	<b>171</b>	<b>11 653</b>	<b>36 343</b>	<b>27 893</b>	<b>78 692</b>

Sources: Natural Resources Canada; Statistics Canada.

- Nil.

Note: Numbers may not add to totals due to rounding.

**TABLE 3. COAL SUPPLY BY RANK, 1980-97**

	Production				Imports			Total Supply
	Sub- Bituminous	Bituminous	Lignite	Total	Anthracite	Bituminous	Total	
(million tonnes)								
1980	20.2	10.5	6.0	36.7	0.3	15.5	15.8	52.5
1981	21.7	11.6	6.8	40.1	0.4	14.4	14.8	54.9
1982	22.3	13.0	9.5	42.8	0.3	15.5	15.8	58.6
1983	22.5	14.5	7.8	44.8	0.3	14.4	14.7	59.4
1984	32.1	15.4	9.9	57.4	0.3	18.1	18.4	75.8
1985	34.4	16.8	9.7	60.9	0.1	14.5	14.6	75.5
1986	32.3	17.3	8.2	57.8	0.4	12.9	13.3	71.1
1987	32.7	18.5	10.0	61.2	0.1	14.2	14.3	75.6
1988	38.6	19.9	12.1	70.6	0.5	16.9	17.4	88.1
1989	38.8	20.9	10.8	70.5	0.2	14.3	14.5	85.1
1990	37.6	21.3	9.4	68.3	0.3	13.8	14.1	82.4
1991	39.9	22.2	9.0	71.1	0.2	12.2	12.4	83.6
1992	32.6	23.0	10.0	65.6	0.2	12.6	12.8	78.4
1993	35.3	23.7	10.0	69.0	0.3	8.1	8.4	77.4
1994	36.6	25.5	10.7	72.8	0.3	8.9	9.2	82.0
1995	38.6	25.6	10.8	75.0	0.4	9.3	9.7	84.7
1996	40.0	25.0	10.9	75.8	0.5	11.5	12.0	87.8
1997	41.3	25.8	11.7	78.7	0.5	13.4	13.9	92.6

Sources: Natural Resources Canada; Statistics Canada.



**TABLE 4. COAL PRODUCTION BY RANK AND VALUES, 1993-97**

	1993		1994		1995		1996		1997	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
<b>BITUMINOUS</b>										
Nova Scotia	3 647	229 000	3 509	217 000	2 473	162 000	3 170	197 000	2 633	154 000
New Brunswick	389	34 000	332	28 000	263	24 000	272	24 000	171	18 000
Alberta	10 658	348 000	10 196	319 000	11 523	334 000	11 164	350 000	10 561	277 000
British Columbia	20 629	854 000	22 608	860 000	24 350	967 000	25 420	1 027 000	27 893	1 114 000
Subtotal	35 323	1 465 000	36 645	1 424 000	38 609	1 487 000	40 026	1 598 000	41 258	1 563 000
<b>SUB-BITUMINOUS</b>										
Alberta	23 661	197 000	25 494	228 000	25 622	232 000	24 986	232 000	25 783	239 000
<b>LIGNITE</b>										
Saskatchewan	10 045	95 000	10 685	104 000	10 740	116 000	10 839	116 000	11 653	122 000
Total domestic	69 029	1 757 000	72 824	1 756 000	75 036	1 835 000	75 851	1 946 000	78 692	1 924 000

Sources: Natural Resources Canada; Statistics Canada.

Notes: Values are f.o.b. mines. Numbers may not add to totals due to rounding.

**TABLE 5. EXPORTS OF CANADIAN COAL BY TYPE AND DESTINATION, 1997**

Country	Metallurgical	Thermal	Total
(000 tonnes)			
Japan	16 041	2 658	18 699
Korea, Republic of	4 060	1 994	6 054
United Kingdom	1 306	276	1 582
Brazil	1 207	184	1 391
Italy	1 261	—	1 261
Taiwan	1 070	—	1 070
United States	917	49	966
Germany	490	364	854
Chile	293	483	776
France	547	91	638
Turkey	597	—	597
Belgium	209	289	498
Netherlands	442	—	442
Mexico	406	—	406
Spain	405	—	405
Romania	305	—	305
Portugal	168	—	168
Pakistan	153	—	153
Egypt	139	—	139
Sweden	56	—	56
Denmark	—	50	50
Total	30 071	6 439	36 510

Sources: Natural Resources Canada; Statistics Canada.

— Nil.

Note: Numbers may not add to totals due to rounding.

**TABLE 6. COAL CONSUMED BY THERMAL POWER STATIONS, 1972-97**

	Nova Scotia	New Brunswick	Ontario	Manitoba	Saskatchewan	Alberta	Total Canada
	(000 tonnes)						
1972	663	281	7 599	410	2 145	4 113	15 211
1973	585	193	6 615	386	2 806	4 474	15 059
1974	606	292	6 721	132	2 902	4 771	15 424
1975	571	248	6 834	323	3 251	5 345	16 572
1976	730	207	7 612	979	3 521	5 996	19 045
1977	572	198	8 795	1 113	4 304	7 461	22 443
1978	771	151	9 097	341	4 585	8 029	22 974
1979	644	198	9 901	73	4 956	9 181	24 953
1980	1 052	315	10 779	240	4 972	10 424	27 782
1981	1 126	515	11 460	332	4 935	11 445	29 813
1982	1 300	548	12 484	184	5 897	13 242	33 655
1983	1 400	564	13 025	109	6 625	14 492	36 215
1984	2 974	610	13 413	163	7 925	16 123	41 208
1985	2 235	521	10 985	253	8 290	18 112	40 396
1986	2 137	469	9 172	111	6 786	17 719	36 394
1987	2 077	526	12 016	457	7 672	19 077	41 825
1988	2 266	678	13 079	780	8 637	20 538	46 055
1989	2 141	705	12 809	327	8 534	21 410	45 839
1990	2 184	496	10 362	298	7 462	21 340	42 142
1991	2 290	426	10 850	232	7 548	22 480	43 826
1992	2 344	471	10 022	233	8 419	23 752	45 241
1993	2 416	506	7 004	178	8 428	24 194	42 726
1994	2 672	1 208	5 170	164	8 502	28 207	45 923
1995	2 578	1 304	6 707	117	9 597	26 201	46 504
1996	2 864	1 370	6 984	176	9 719	25 794	46 906
1997	2 981	1 327	9 008	86	9 820	26 310	49 532

Sources: Natural Resources Canada; Statistics Canada.

**TABLE 7. COAL DEMAND, 1988-97**

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
	(000 tonnes)									
<b>THERMAL ELECTRIC</b>										
Canadian	37 614	37 447	35 858	36 413	38 612	38 470	42 017	41 289	41 260	41 510
Imported	8 441	8 392	6 284	7 413	6 629	4 256	3 906	5 215	5 646	8 022
Total	46 055	45 839	42 142	43 826	45 241	42 726	45 923	46 504	46 906	49 532
<b>METALLURGICAL</b>										
Canadian	19	—	—	—	—	—	227	288	101	—
Imported	6 242	5 918	4 996	4 906	4 886	4 665	4 552	3 901	4 345	4 490
Total	6 261	5 918	4 996	4 906	4 886	4 665	4 779	4 189	4 446	4 490
<b>GENERAL INDUSTRY</b>										
Canadian	673	608	465	461	602	664	541	769	770	578
Imported	1 477	1 430	1 433	980	954	924	1 105	1 312	1 389	1 513
Total	2 150	2 038	1 898	1 441	1 556	1 588	1 646	2 080	2 160	2 091
<b>EXPORTS</b>										
Canadian	31 725	32 827	31 009	34 112	28 097	28 313	31 746	33 992	34 459	36 510
<b>TOTAL</b>										
Canadian	70 031	70 882	67 332	70 986	67 311	67 447	74 531	76 338	76 591	78 598
Imported	16 160	15 740	12 713	13 299	12 469	9 845	9 563	10 428	11 380	14 025
Total demand	86 191	86 622	80 045	84 285	79 780	77 292	84 094	86 766	87 971	92 623

Sources: Natural Resources Canada; Statistics Canada.

— Nil.

Note: Numbers may not add to totals due to rounding.