

Aluminum

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2000 primary metal production: \$5.5 billion^P
 World rank: Fourth
 2000 exports (unwrought): \$4.5 billion
 Installed capacity: 2.7 Mt/y

Canada	2000	2001 ^e	2002 ^f
(000 tonnes)			
Production	2 400	2 600	2 600
Use of primary aluminum	798	800	825

^e Estimated; ^f Forecast; ^p Preliminary.

Aluminum, in both its pure and alloyed form, is used to make a wide variety of products for the consumer and capital goods markets. Aluminum's largest markets are transportation (30%), packaging (18%), building and construction (19%), electrical (9%), consumer goods (7%), and machinery and equipment (6%). North America uses the largest amount of all regions in the world, accounting for 31% of total world demand. Asia accounts for 28% and Europe accounts for another 25%.

AVERAGE (THREE-MONTH) ALUMINUM PRICES, LONDON METAL EXCHANGE

1998	1999	2000	2001 ^e
(US\$/t)			
1 379	1 389	1 555	1 430

^e Estimated.

CANADIAN OVERVIEW

- Alcan Inc. completed construction of its new 400 000-t/y smelter at Alma, Quebec; it reached full production before the end of September 2001.
- Alcan's 275 000-t/y Kitimat smelter continued to suffer from low water levels in the Nechako Reservoir. The company further reduced production in June. During the slowdown of up to 50% of the plant's capacity, Alcan will conduct studies on an expansion and pilot work on converting the smelter to pre-bake technology. (Alcan has a web site at www.alcan.com.)
- Alcoa Inc. signed a letter of intent with Newfoundland and Labrador Hydro and the Province of Newfoundland and Labrador on a joint review for a possible hydro-electric power expansion and a possible aluminum smelter located in that province. The review was expected to be completed in late 2001. (Alcoa has a web site at www.alcoa.com.)
- KPI Technology and Development LLC, an independent consulting firm, continued work on a feasibility study for a new 360 000-t/y smelter that would be located near Port Alberni, British Columbia.
- The Aluminium Association of Canada links the Canadian aluminum industry, aluminum users, the public and government. Further information and links to web sites of Canadian primary aluminum producers can be found on the Association's site at <http://aia.aluminium.qc.ca>.

WORLD OVERVIEW

- Power costs have declined from their highs in the western United States and about 1.3 Mt/y of the total U.S. annual primary aluminum capacity of approximately 3.7 Mt/y has been affected. Although spot power prices have now fallen, the timing of restarts is still uncertain.

- A lack of rainfall in Brazil has forced rationing of power to all users, including the aluminum industry. As a result, approximately 350 000 t/y of the country's 1.3-Mt/y capacity has been shut down, distributed among all producers. Further cuts are possible unless rainfall increases.
- The world economic slowdown now evident has resulted in a decline in the use of metals and metal-containing products with a resultant reduction in metal prices, despite the above-noted cut-backs in production.
- Expansions, generally at lower levels, continue in Chinese aluminum and alumina production. Aluminum Corp. of China (Chinalco) was expected to issue shares in a public offering, in part to fund further expansion of its interests. As a result, the rate of expansion in capacity may accelerate in the future.
- Expansions, smelter proposals and studies have been announced in several countries, although the current economic downturn may delay some construction. These include:

Country/Project	Comments
Australia - Aldoga consortium	Proposed 500 000-t/y smelter near Gladstone received major project status
Bahrain - Aluminium Bahrain	Approved a 250 000-t/y expansion
China - Aluminum Corp. of China (Chinalco)	Proposal to almost triple the capacity of the Pingguo aluminum smelter to 355 000 t/y by 2006
Dubai - Dubal	Dubal expansion discussions were under way
Iran - Iran Aluminium Company	Appears to be making progress on the 110 000-t/y Arak smelter proposal
India - Hindalco	100 000-t/y expansion
Indonesia - Perak smelter	Possible new 500 000-t/y smelter in Perak State
Mozambique - Mozal smelter	Billiton and partners will double the capacity of the Mozal smelter to 500 000 t/y
Russia, Leningrad	Proposed new 360 000-t/y Sosnovy Bor smelter

- New bauxite mine and alumina plant proposals/ongoing expansions/re-openings include:

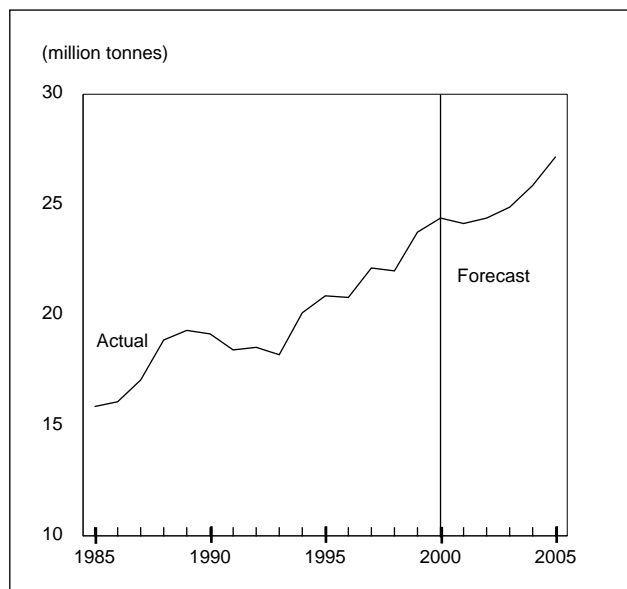
Country/Project	Comments
Australia - Rio Tinto's Comalco	Comalco's first stage of the proposed alumina refinery at Gladstone in central Queensland was approved for construction; will have a capacity of 1.4 Mt/y and requires an expansion of the Weipa bauxite mine
Brazil - Alunorte	Expansion by 350 000 t/y
China - Chinalco	Proposal to double the capacity of the Pingguo refinery to 800 000 t/y by 2003
India - Nalco	Doubled refining capacity at Damanjoi to 1.6 Mt/y
India - Hindalco	Expanding capacity by 200 000 t/y
Kuwait	900 000-t/y proposal
Kazakhstan - Pavlodar project	Alumina plant is to have a total capacity of 1.5 Mt/y by 2005
Ukraine - Russian Aluminium's Nikolayev	Well on its way to expand capacity to 1.5 Mt/y by 2005
United States	Kaiser completed rebuild of Gramercy alumina plant (1.08 Mt/y), although this was countered by the closure of Alcoa's 600 000-t/y St. Croix refinery
Venezuela - Bauxilium	Expanding by 350 000 t/y

DEMAND OUTLOOK

The world's apparent use of primary aluminum is estimated to be below 24 Mt in 2001, approximately 5% lower than the 25.2 Mt recorded in 2000. In 2002, world demand for aluminum, dependent on the world economy, is expected to be below its long-term trend of 3% annual growth. In the longer term, annual growth of 1-3% is forecast for the middle part of this decade. The transportation and packaging markets are expected to lead the increase in demand for aluminum.

Canada's apparent use of primary aluminum increased in 2000 to 798 000 t from a revised 777 200 t in 1999 and is expected to increase to 800 000 t in 2001. In the longer term, use is expected to increase at a rate of 2-5% annually.

Figure 1
World Primary Aluminum Use, 1985-2005



Sources: Natural Resources Canada; International Consultative Group on Nonferrous Metals Statistics.

CANADIAN AND WORLD PRODUCTION OUTLOOK

Canadian installed capacity for the production of primary aluminum is now 2.7 Mt/y with the completion of Alcan's new smelter at Alma. Canadian production rates will likely remain near this level for the immediate future depending on cutbacks at Kitimat. Studies are under way on several brownfield expansions and greenfield smelters and, should positive decisions result, this capacity could increase.

Canada is expected to produce approximately 2.6 Mt of primary aluminum in 2001 and a similar amount in 2002. Production in 2000 was 2.37 Mt valued at an estimated \$5.5 billion, ranking Canada fourth after the United States, Russia and China. Canadian monthly production statistics can be obtained from Natural Resources Canada's web site at <http://www.nrcan.gc.ca/mms/efab/data/default.html>.

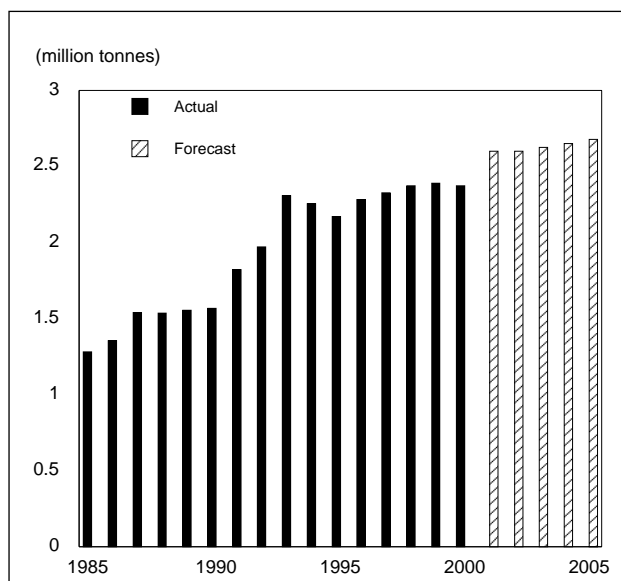
Smelter expansion projects in Quebec (at Alouette, A.B.I. and Lauralco) are dependent on the negotiation of new long-term power supply contracts with Hydro-Québec. Decisions on possible new capacity in British Columbia and elsewhere in eastern Canada are pending.

World production of primary aluminum increased to an estimated 25.2 Mt in 2000, up from 23.7 Mt in 1999, but is expected to remain flat or to decline slightly in 2001.

The International Aluminium Institute (IAI) indicates that world daily average primary aluminum production in September was 55 500 t, down 2200 t/d from September 2000, reflecting the reduced production rates in North and South America. Additional information can be obtained from the IAI's web site at <http://www.world-aluminium.org>.

IAI inventories of unwrought aluminum have remained around 1.8 Mt, while IAI total inventories have remained at approximately 3.1 Mt throughout the year. Primary aluminum inventories at the London Metal Exchange (LME) increased steadily throughout the year from 0.4 Mt in January to almost 0.7 Mt in October.

Figure 2
Canadian Primary Aluminum Production, 1985-2005



Source: Natural Resources Canada.

PRICE OUTLOOK

Cash prices for primary grade aluminum have remained weak since the early part of the year. LME cash prices started the year at approximately US\$1560/t (71¢/lb) and declined to around US\$1270/t (58¢/lb) at the end of September.

At the time of writing, prices appeared to be heading once again to lows established in 1999, and increased prices will depend on an increase in the economies of the world. Should this occur in 2002, aluminum prices could spike sharply unless closed facilities are re-opened and those smelters running at lower than capacity levels in North and South America return to

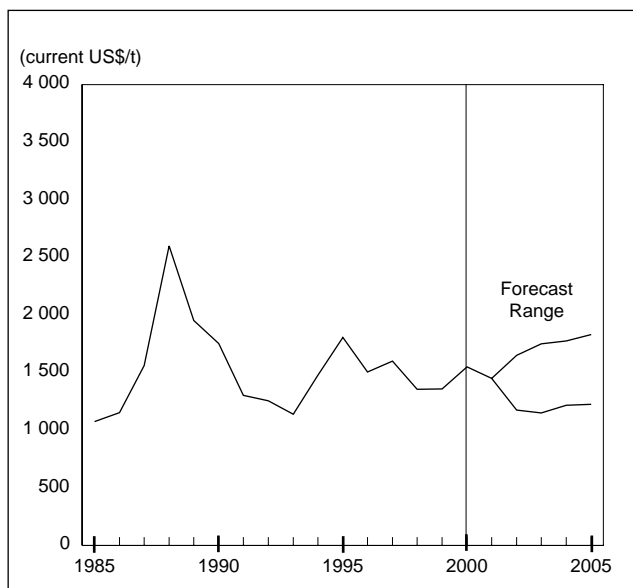
capacity. If the economy remains at current levels, prices can be expected to remain in the mid-to-lower part of their longer-term price range of between US\$1200 and \$1800/t (55¢ and 82¢/lb). Daily metal prices can be obtained from various news services, journals and newspapers, as well as from the LME web site at <http://www.lme.co.uk> and from <http://metalprices.com>.

Note: Information in this article was current as of November 1, 2001.

NOTE TO READERS

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Figure 3
Aluminum Settlement Price, 1985-2005
Annual LME Settlement



Sources: Natural Resources Canada; <http://metalprices.com> (Internet site).