

ALCOA INC  
Form 10-K  
February 17, 2009  
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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549  
FORM 10-K

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF  
THE SECURITIES EXCHANGE ACT OF 1934  
For The Fiscal Year Ended December 31, 2008

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d)  
OF THE SECURITIES EXCHANGE ACT OF 1934

Commission File Number 1-3610

**ALCOA INC.**

(Exact name of registrant as specified in its charter)

Pennsylvania  
(State of incorporation)

25-0317820  
(I.R.S. Employer Identification No.)

**390 Park Avenue, New York, New York 10022-4608**  
(Address of principal executive offices) (Zip code)

**Registrant's telephone numbers:**

**Investor Relations----- (212) 836-2674**

**Office of the Secretary----- (212) 836-2732**

**Securities registered pursuant to Section 12(b) of the Act:**

Title of each class	Name of each exchange on which registered
Common Stock, par value \$1.00	New York Stock Exchange

**Securities registered pursuant to Section 12(g) of the Act: None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐.

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Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ☐ No ☒.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months, and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐.

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer, and smaller reporting company in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒.

The aggregate market value of the outstanding common stock, other than shares held by persons who may be deemed affiliates of the registrant, as of the last business day of the registrant's most recently completed second fiscal quarter was approximately \$29 billion. As of February 10, 2009, there were 801,774,739 shares of common stock, par value \$1.00 per share, of the registrant outstanding.

### **Documents incorporated by reference.**

Part III of this Form 10-K incorporates by reference certain information from the registrant's definitive Proxy Statement for its 2009 Annual Meeting of Shareholders to be filed pursuant to Regulation 14A (Proxy Statement).

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In this Form 10-K, selected items of information and data are incorporated by reference to portions of the Proxy Statement. Unless otherwise provided herein, any reference in this report to disclosures in the Proxy Statement shall constitute incorporation by reference of only that specific disclosure into this Form 10-K.

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**PART I**

**Item 1. Business.**

**General**

Formed in 1888, Alcoa Inc. is a Pennsylvania corporation with its principal office in New York, New York. In this report, unless the context otherwise requires, Alcoa or the company means Alcoa Inc. and all subsidiaries consolidated for the purposes of its financial statements.

The company's Internet address is <http://www.alcoa.com>. Alcoa makes available free of charge on or through its website its annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 as soon as reasonably practicable after the company electronically files such material with, or furnishes it to, the Securities and Exchange Commission (SEC). The SEC maintains an Internet site that contains these reports at <http://www.sec.gov>.

**Forward-Looking Statements**

This report contains (and oral communications made by Alcoa may contain) statements that relate to future events and expectations and, as such, constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include those containing such words as anticipates, believes, estimates, expects, hopes, targets, should, will, will likely result, projects or other words of similar meaning. All statements that reflect Alcoa's expectations, assumptions or projections about the future other than statements of historical fact are forward-looking statements, including, without limitation, forecasts concerning aluminum industry growth or other trend projections, anticipated financial results or operating performance, and statements about Alcoa's strategies, objectives, goals, targets, outlook, and business and financial prospects. Forward-looking statements are subject to a number of known and unknown risks, uncertainties and other factors and are not guarantees of future performance. Actual results, performance or outcomes may differ materially from those expressed in or implied by those forward-looking statements. For a discussion of some of the specific factors that may cause Alcoa's actual results to differ materially from those projected in any forward-looking statements, see the following sections of this report: Part I, Item 1A (Risk Factors), Part II, Item 7 (Management's Discussion and Analysis of Financial Condition and Results of Operations), including the disclosures under Segment Information, Market Risks and Derivative Activities, and Environmental Matters, and Note N to the Consolidated Financial Statements in Part II, Item 8 (Financial Statements and Supplementary Data). Alcoa disclaims any intention or obligation to update publicly any forward-looking statements, whether in response to new information, future events or otherwise, except as required by applicable law.

**Overview**

Alcoa is the world leader in the production and management of primary aluminum, fabricated aluminum, and alumina combined, through its active and growing participation in all major aspects of the industry: technology, mining, refining, smelting, fabricating, and recycling. Aluminum is a commodity that is traded on the London Metal Exchange (LME) and priced daily based on market supply and demand. Aluminum and alumina represent more than three-fourths of Alcoa's revenues, and the price of aluminum influences the operating results of Alcoa. Nonaluminum products include precision castings and aerospace and industrial fasteners. Alcoa's products are used worldwide in aircraft, automobiles, commercial transportation, packaging, building and construction, oil and gas, defense, and industrial applications.

Alcoa is a global company operating in 35 countries. Based upon the country where the point of sale occurred, North America and Europe generated 54% and 26%, respectively, of Alcoa's sales in 2008. In addition, Alcoa has

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investments and activities in Australia, Brazil, China, Iceland, Guinea and Russia, all of which present opportunities for substantial growth. Governmental policies and other economic factors, including inflation and fluctuations in foreign currency exchange rates and interest rates, affect the results of operations in these countries.

Alcoa's operations consist of five worldwide segments: Alumina, Primary Metals, Flat-Rolled Products, Engineered Products and Solutions, and Packaging and Consumer (this segment no longer contains any operations as the businesses within this segment were divested during 2008).

## **Description of the Business**

Information describing Alcoa's businesses can be found on the indicated pages of this report:

<b>Item</b>	<b>Page(s)</b>
Discussion of Recent Business Developments:	
Management's Discussion and Analysis of Financial Condition and Results of Operations:	
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The following charts and related discussion of the company's Bauxite Interests, Alumina Refining and Primary Aluminum Facilities and Capacities, and Flat-Rolled Products, Engineered Products and Solutions and Corporate Facilities provide additional description of Alcoa's businesses. The Alumina segment primarily consists of a series of affiliated operating entities referred to as Alcoa World Alumina and Chemicals (AWAC). Alcoa owns 60% and Alumina Limited owns 40% of these individual entities. For more information on AWAC, see Exhibit Nos. 10 (a) through 10(f)(1) to this report.	

**Table of Contents****Bauxite Interests**

Aluminum is one of the most plentiful elements in the earth's crust. Aluminum is produced primarily from bauxite, an ore containing aluminum in the form of aluminum oxide, commonly referred to as alumina. Aluminum is made by extracting alumina from bauxite and then removing oxygen from the alumina. Alcoa processes most of the bauxite that it mines into alumina. The company obtains bauxite from resources held by AWAC, from the company's interests in the countries listed in the chart below, and under both long-term and short-term contracts and mining leases. In 2008, Alcoa consumed 35.2 million metric tons (mt) of bauxite from its own resources, 6.0 million mt from related third parties and 3.3 million mt from unrelated third parties. Alcoa's present sources of bauxite are sufficient to meet the forecasted requirements of its alumina refining operations for the foreseeable future. The following table provides information regarding the company's bauxite interests:

**Alcoa Active Bauxite Interests<sup>1</sup>**

				<b>Expiration</b>
				<b>Date of</b>
				<b>Mining</b>
<b>Country</b>	<b>Project</b>	<b>Owners Mining Rights (% Entitlement)</b>	<b>Rights</b>	
Australia	Darling Range Mines	Alcoa of Australia Limited (AofA) <sup>2</sup> (100%)	2045	
Brazil	Poços de Caldas	Alcoa Alumínio S.A. (Alumínio) (100%)	2020 <sub>3</sub>	
	Trombetas	Mineração Rio do Norte S.A. (MRN) <sup>4</sup> (100%)	2046 <sub>3</sub>	
Guinea	Boké	Compagnie des Bauxites de Guinée (CBG) <sup>5</sup> (100%)	2038 <sub>6</sub>	
Jamaica	Clarendon/Manchester	Alcoa Minerals of Jamaica, L.L.C. <sup>7</sup> (55%)		
Suriname	Plateau	Clarendon Alumina Production Ltd. <sup>8</sup> (45%)	2042	
	Caramacca	BHP Billiton (45%)		
		Suriname Aluminum Company, L.L.C. (Suralco) <sup>7</sup> (55%)	2012 <sub>9</sub>	
	Coermotibo	BHP Billiton (45%)		
		Suralco (55%)	2033 <sub>9</sub>	
	Kaimangrasi	BHP Billiton (45%)		
		Suralco (55%)	2033 <sub>9</sub>	
	Klaverblad	BHP Billiton (45%)		
		Suralco (55%)	2033 <sub>9</sub>	

<sup>1</sup> Alcoa also has interests at the following locations that are bauxite resources which do not currently produce bauxite: Cape Bougainville and Mitchell Plateau in Australia and Juruti in Brazil (currently scheduled for completion in mid 2009 and expected to initially produce 2.6 million mt per year) as well as Brownsberg, Coermotibo DS, Lely Mountains, and Nassau, all in eastern Suriname.

<sup>2</sup> AofA is part of the AWAC group of companies and is owned 60% by Alcoa and 40% by Alumina Limited.

<sup>3</sup> Brazilian mineral legislation does not establish the duration of mining concessions. The concession remains in force until the complete exhaustion of the deposit. The company estimates that (i) the concessions at Poços de Caldas will last at least until 2020 and (ii) the concessions at Trombetas will last until 2046. Depending, however, on actual and future needs, the rate at which the deposits are explored and government approval is obtained, the concessions may be extended to (or expire at) a later (or an earlier) date.

- <sup>4</sup> Alumínio holds an 8.125% interest, Alcoa World Alumina Brasil Ltda. (formerly Abalco S.A., which merged with Alcoa World Alumina Brasil Ltda. in December 2008) (AWA Brasil) holds a 4.375% interest and Alcoa World Alumina LLC (AWA LLC) holds a 5% interest in MRN. AWA Brasil and AWA LLC are both part of the AWAC group of companies and are owned 60% by Alcoa and 40% by Alumina Limited. MRN is jointly owned with affiliates of Rio Tinto Alcan Inc. (formerly Alcan Inc.), Companhia Brasileira de Alumínio, Companhia Vale do Rio Doce, BHP Billiton Plc (BHP Billiton) and Norsk Hydro. Alumínio, AWA Brasil, and AWA LLC purchase bauxite from MRN under long-term supply contracts.
- <sup>5</sup> AWA LLC owns a 45% interest in Halco (Mining), Inc. Halco owns 100% of Boké Investment Company, a Delaware company, which owns 51% of CBG. The Guinean Government owns 49% of CBG, which has the exclusive right through 2038 to develop and mine bauxite in certain areas within a 10,000 square-mile perimeter in northwestern Guinea.

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<sup>6</sup> AWA LLC has a bauxite purchase contract with CBG that will provide Alcoa with bauxite through 2011.

<sup>7</sup> This entity is part of the AWAC group of companies and is owned 60% by Alcoa and 40% by Alumina Limited.

<sup>8</sup> Clarendon Alumina Production Ltd. is a wholly-owned subsidiary of the Government of Jamaica.

<sup>9</sup> In addition to the other named Suriname interests, Lelydorp was an active site until the mine was exhausted and closed in February 2007. While mining rights at Caramacca extend until 2012 and rights at the remaining Suriname locations extend until 2033, it is likely that all Suriname bauxite resources will also be exhausted within the next several years. Alcoa is evaluating alternative sources of bauxite including resources from Suralco's concession in eastern Suriname, such as the Nassau plateau.

**Alumina Refining Facilities and Capacity**

Alcoa is the world's leading producer of alumina. Alcoa's alumina refining facilities and its worldwide alumina capacity are shown in the following table:

**Alcoa Worldwide Alumina Refining Capacity**

				Alcoa
				Consolidated Capacity <sup>2</sup>
		Owners	Nameplate Capacity <sup>1</sup>	
Country	Facility	(% of Ownership)	(000 MTPY)	(000 MTPY)
Australia	Kwinana	AofA <sup>3</sup> (100%)	2,150	2,150
	Pinjarra	AofA <sup>3</sup> (100%)	4,234	4,234
	Wagerup	AofA <sup>3</sup> (100%)	2,500	2,500
Brazil	Poços de Caldas	Alumínio (100%)	390	390
	São Luís (Alumar)	AWA Brasil <sup>3</sup> (18.9%)		
		Rio Tinto Alcan Inc. <sup>4</sup> (10%)		
		Alumínio (35.1%)		
Jamaica	Jamalco	BHP Billiton <sup>4</sup> (36%)	1,495	807
		Alcoa Minerals of Jamaica, L.L.C. <sup>3</sup> (55%)		
Spain	San Ciprián	Clarendon Alumina Production Ltd. (45%)	1,421 <sub>5</sub>	784
		Alúmina Española, S.A. <sup>3</sup> (100%)	1,500	1,500
Suriname	Suralco	BHP Billiton <sup>4</sup> (45%)		
U.S.	Point Comfort, TX	Suralco <sup>3</sup> (55%)	2,207	1,214
		Alcoa World Alumina LLC <sup>3</sup> (100%)	2,305 <sub>6</sub>	2,305
TOTAL			18,202	15,884

<sup>1</sup> Nameplate Capacity is an estimate based on design capacity and normal operating efficiencies and does not necessarily represent maximum possible production. Here, as in the remainder of this report MTPY or mtpy represents metric tons per year.



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- <sup>2</sup> The figures in this column reflect Alcoa's share of production from these facilities. For facilities owned by AWAC entities, Alcoa takes 100% of the production.
- <sup>3</sup> This entity is part of the AWAC group of companies and is owned 60% by Alcoa and 40% by Alumina Limited.
- <sup>4</sup> The named company or an affiliate holds this interest.
- <sup>5</sup> In August 2007, Hurricane Dean forced a temporary shut-down of the Jamalco refinery and caused substantial damage to the Rocky Point port from which Jamalco ships alumina. The refinery is currently operating at approximately 95% of nameplate capacity. The facility is shipping alumina from onsite port facilities constructed in 2007. Permanent repairs to the Rocky Point Pier are expected to be completed in 2010.
- <sup>6</sup> Production at Point Comfort was partially curtailed by 550,000 mtpy in the second half of 2008 as a result of overall market conditions.

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In September 2005, Alcoa announced that its Board of Directors approved plans to make further investments in the company's Brazilian upstream operations. Investments include (i) a 2.1 million mtpy expansion of the Alumar consortium alumina refinery in São Luís, state of Maranhão (expected to increase the refinery's current capacity to approximately 3.5 million mtpy in 2009, with Alcoa's share of the total facility output more than doubling to 1.89 million mtpy based on its 54% ownership stake through Alumínio and AWAC) and (ii) the modernization of the Poços de Caldas aluminum smelter, in the state of Minas Gerais.

In November 2005, Alcoa World Alumina LLC (AWA LLC) and Rio Tinto Alcan Inc. signed a Basic Agreement with the Government of Guinea that sets forth the framework for development of a 1.5 million mtpy alumina refinery in Guinea. In 2006, the Basic Agreement was approved by the Guinean National Assembly and was promulgated into law. The Basic Agreement was set to expire in November 2008 but has been extended to 2010. Pre-feasibility studies were completed in 2008. Further project activities may be considered in 2009, but execution is dependent upon global economic conditions and conditions within Guinea.

In September 2006, Alcoa received environmental approval from the Government of Western Australia for expansion of the Wagerup alumina refinery to a maximum capacity of 4.7 million mtpy, a potential increase of over 2 million mtpy. This approval included environmental conditions that must be satisfied before Alcoa can seek construction approval for the project. The project was suspended in November 2008 due to global economic conditions and the unavailability of a secure long term energy supply in Western Australia.

In 2007, Jamalco completed the Early Works Program at its Clarendon, Jamaica refinery, which added 146,000 mtpy of production, increasing the total capacity to 1.421 million mtpy. As a result of the Early Works Program, AWAC's ownership in Jamalco increased to approximately 55%, with the Government of Jamaica owning approximately 45%.

In June 2008 AWAC and Vietnam National Coal-Minerals Industries Group (Vinacomin) signed a Cooperation Agreement in which AWAC agreed to conduct due diligence on the acquisition of a 40% interest in the 600,000 mtpy Nhan Co alumina refinery to be constructed in Vietnam's Central Highlands in Dak Nong Province by a joint stock company majority owned by Vinacomin. Separately, AWAC and Vinacomin agreed to conduct a joint feasibility study of the Gia Nghia bauxite mine and alumina refinery project, also located in Dak Nong Province, with first stage capacity expected to be between 1.0 and 1.5 million mtpy. The due diligence on the Nhan Co project was undertaken in 2008 and Alcoa advised Vinacomin that it does not intend to acquire an interest in the refinery project at this time. The cooperation between AWAC and Vinacomin on Gia Nghia is subject to approval by the Government of Vietnam. If established, the Gia Nghia venture is expected to be 51% owned by Vinacomin, 40% by AWAC and 9% by others.

As a result of the poorer industry economics and liquidity constraints, during the fourth quarter of 2008, we determined the brown field expansion project in Jamaica will not be completed for at least the next several years. In the event the expansion of the Jamaican refinery is revisited at some point in the future, in all likelihood the utility of the costs incurred to date (primarily relating to preliminary engineering with a finite life) would be minimal. As a result, all previously-capitalized costs associated with the expansion (except costs associated with machinery and equipment that can be used elsewhere), totaling \$84 million, were written off in December 2008.

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The company's primary aluminum smelters and their respective capacities are shown in the following table:

**Alcoa Worldwide Smelting Capacity**

			Alcoa	
			Consolidated	
	Owners	Nameplate Capacity <sup>1</sup>	Capacity <sup>2</sup>	
Country	Facility	(% Of Ownership)	(000 MTPY)	(000 MTPY)
Australia	Point Henry Portland	AofA (100%)	190	190 <sub>3</sub>
		AofA <sup>4</sup> (55%)		
		CITIC (22.5%)		
Brazil	Poços de Caldas São Luís (Alumar)	Marubeni (22.5%)	358 <sub>5</sub>	197 <sub>3</sub>
		Alumínio (100%)	96 <sub>6</sub>	96
		Alumínio (60%)		
Canada	Baie Comeau, Que. Bécancour, Que.	BHP Billiton (40%)	447	268
		Alcoa (100%)	385 <sub>7</sub>	385
		Alcoa (74.95%)		
Iceland	Deschambault, Que. Fjarðaál	Rio Tinto Alcan Inc. <sup>8</sup> (25.05%)	413	310
		Alcoa (100%)	260	260
		Alcoa (100%)	344	344 <sub>9</sub>
Italy	Fusina Portovesme	Alcoa (100%)	44	44
		Alcoa (100%)	150	150
Spain	Avilés La Coruña	Alcoa (100%)	93	93
		Alcoa (100%)	87	87
		Alcoa (100%)	228	228
U.S.	San Ciprián	Alcoa (100%)	228	228
	Evansville, IN (Warrick)	Alcoa (100%)	309 <sub>10</sub>	309
	Frederick, MD (Eastalco)	Alcoa (100%)	195 <sub>11</sub>	195
	Badin, NC	Alcoa (100%)	60 <sub>12</sub>	60
	Massena West, NY	Alcoa (100%)	130	130
	Massena East, NY	Alcoa (100%)	125	125
	Mount Holly, SC	Alcoa (50.33%)		
	Alcoa, TN Rockdale, TX Ferndale, WA (Intalco) Wenatchee, WA	Century Aluminum Company (49.67%)	229	115
		Alcoa (100%)	215 <sub>13</sub>	215
		Alcoa (100%)	267 <sub>14</sub>	267
		Alcoa (100%)	279 <sub>15</sub>	279
		Alcoa (100%)	184 <sub>16</sub>	184
TOTAL			5,088	4,531

<sup>1</sup> Nameplate Capacity is an estimate based on design capacity and normal operating efficiencies and does not necessarily represent maximum possible production.

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- <sup>2</sup> The figures in this column reflect Alcoa's share of production from these facilities.
- <sup>3</sup> Figures include the minority interest of Alumina Limited in facilities owned by AofA. From these facilities, Alcoa takes 100% of the production allocated to AofA.
- <sup>4</sup> The named company or an affiliate holds this interest.

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- <sup>5</sup> In December 2008, approximately 15,000 mtpy of annualized production was curtailed at the Portland facility due to overall market conditions.
- <sup>6</sup> In January 2009, approximately 32,000 mtpy of annualized production was curtailed at the Poços de Caldas facility due to overall market conditions.
- <sup>7</sup> In November 2008, Baie Comeau permanently idled one potline as part of a modernization program.
- <sup>8</sup> Owned through Rio Tinto Alcan Inc. subsidiary, Pechiney Reynolds Quebec, Inc.
- <sup>9</sup> In April 2007, Alcoa began production at its new Fjarðaál aluminum smelter in east Iceland. Full production was achieved in April 2008.
- <sup>10</sup> The Warrick facility currently has one idled potline of approximately 40,000 mtpy of annualized production.
- <sup>11</sup> At the end of 2005, all production was temporarily curtailed at the Eastalco smelter located in Frederick, Maryland.
- <sup>12</sup> The Badin, North Carolina facility has been idled since August 2002. In addition, one of the two idled potlines was fully decommissioned in 2007 and will not be returned to service. The decommissioning reduced Nameplate and Alcoa Consolidated Capacities by 60,000 mtpy.
- <sup>13</sup> A power line failed during a severe storm at Tennessee Operations in April 2007. Production on a temporarily idled line increased throughout 2007 and 2008. Full curtailment of smelting at this facility is expected to be implemented by the end of the first quarter 2009.
- <sup>14</sup> Between June and October 2008, three of Rockdale's six potlines were idled as a result of uneconomical power prices. The remaining three operative lines were idled in November 2008 due to uncompetitive power supply and overall market conditions.
- <sup>15</sup> In November 2008, one of Intalco's three potlines (approximately 93,000 mtpy of annualized production) was idled.
- <sup>16</sup> Wenatchee is operating at approximately one-half of its capacity.  
As of December 31, 2008, Alcoa had approximately 807,000 mtpy of idle capacity against total Alcoa Consolidated Capacity of 4,531,000 mtpy.

Alcoa and the Government of Iceland began detailed feasibility studies for the development of a 250,000 mtpy aluminum smelter at Bakki near Húsavík in north Iceland in 2006; the MOU related to this activity was extended in 2008. Separate MOU agreements between Alcoa and Landsvirkjun and Alcoa and Landsnet covering development of power generation and transmission for this smelter project were signed in May 2006. Although the MOU between Alcoa and Landsvirkjun expired in 2008, the company anticipates continued negotiation and further studies on the project.

In 2007, Alcoa and Greenland Home Rule Government entered into an MOU regarding cooperation on a feasibility study for an aluminum smelter with a 360,000 mtpy capacity in Greenland. The MOU also encompasses a hydroelectric power system and related infrastructure improvements, including a port. In 2008, Greenland's parliament allocated funding to support the second phase of joint studies with Alcoa and endorsed that the smelter be located at Maniitsoq. Related studies are expected to extend through 2010. When it reconvenes in late 2009, Greenland's parliament is expected to consider Greenland's ownership position in the project.

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In September 2007, Alcoa, in partnership with Elkem Aluminium ANS (a Norwegian smelting partnership) (EA), opened a new 280,000 mtpy anode plant in Mosjøen, Norway to supply anodes to Alcoa's Fjarðaál, Iceland and EA's Mosjøen, Norway smelters. Historically, EA was a partnership owned 50% by Alcoa and 50% by Orkla ASA (Orkla), through Orkla's subsidiary Elkem AS. However, in December 2008 Alcoa and Orkla agreed to exchange their respective stakes in EA and Sapa AB (a Swedish extrusion joint venture) (Sapa) in order to focus on their respective areas of expertise and best practices. As a result, Alcoa will receive Orkla's 50% stake in EA while Orkla will receive Alcoa's 45.45% stake in Sapa. EA, which will be 100% owned by Alcoa upon completion of the transaction, operates smelters in Mosjøen and Lista, Norway, with a combined output of 282,000 mtpy, and supplies extrusion billets, rolling ingots and foundry ingots to rolling mills, extrusion plants and foundries in Europe. Included in the transaction is EA's stake in the Mosjøen anode plant in which Alcoa already holds an approximate 82% stake. The addition of

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these assets will increase Alcoa's global smelting capacity to more than 4.7 million mtpy. The transaction is expected to be completed in the first quarter of 2009.

In January 2008, Alcoa and the Brunei Economic Development Board signed a memorandum of understanding (MOU) to enable more detailed studies into the feasibility of establishing a modern, gas-powered aluminum smelter in Brunei Darussalam. The MOU extends a memorandum signed originally in 2003. Phase one of the feasibility study will determine scope and dimensions of the proposed facility, power-delivery strategy and location, as well as an associated port and infrastructure. At completion of phase one, the parties will determine whether a more detailed phase two study is warranted. If completed, it is expected that the smelter would have an initial operating capacity of 360,000 mtpy with the potential for future increase.

Alcoa owns interests in the following primary aluminum facilities that are accounted for on the equity or cost basis method. The capacity associated with these facilities is not included in Alcoa's consolidated capacity.

Country	Facility	Owners	Nameplate Capacity <sup>1</sup>
		(% Of Ownership)	(000 MTPY)
Norway	Lista <sup>2</sup>	Alcoa (50%)	
	Mosjøen <sup>2</sup>	Elkem AS (50%) Alcoa (50%)	94
Venezuela	Alcasa	Elkem AS (50%) Alcoa (<1%)	188
		Corporación Venezolana de Guayana (CVG) and Japanese Interests (>99%)	210

<sup>1</sup> Nameplate Capacity is an estimate based on design capacity and normal operating efficiencies and does not necessarily represent maximum possible production.

<sup>2</sup> As discussed above, in December 2008, Alcoa and Orkla agreed to exchange their respective stakes in the Sapa extrusion profiles business and EA. Once the exchange is final, Alcoa will own 100% of the Lista and Mosjøen smelters. In June 2008, Alcoa sold its 10% interest in the Tema facility in Ghana to the Government of Ghana.

**Table of Contents****Flat-Rolled Products Facilities**

The principal business of the company's Flat-Rolled Products segment is the production and sale of aluminum plate, sheet, foil and hard alloy extrusions. These products serve the packaging and consumer, transportation, building and construction, distribution, aerospace and automotive markets.

**Flat-Rolled Products Principal Facilities**

<b>COUNTRY</b>	<b>FACILITY</b>	<b>PRODUCTS<sup>1</sup></b>
Australia	Point Henry	Sheet and Plate
	Yennora	Can Reclamation/Sheet and Plate
Brazil	Itapissuma	Foil Products/Sheet and Plate
China	Kunming	Foil Products
	Kunshan <sup>2</sup>	Sheet and Plate
	Qinhuangdao <sup>3</sup>	Foil Products/Sheet and plate
	Shanghai	Foil Products
France	Castelsarrasin	Sheet and Plate
Germany	Hannover	Hard Alloy Extrusions
Hungary	Székesfehérvár	Sheet and Plate
Italy	Fusina	Sheet and Plate
Russia	Belaya Kalitva	Sheet and Plate/Aerospace/Auto Engineering/Hard Alloy Extrusions
	Samara	Sheet and Plate/Aerospace/Auto Engineering/Hard Alloy Extrusions
South Korea	Kyoungnam	Hard Alloy Extrusions
Spain	Alicante	Foil Products/Sheet and Plate
	Amorebieta	Sheet and Plate
	Sabiñánigo	Foil Products/Sheet and Plate
	Kitts Green	Sheet and Plate
United Kingdom	Kitts Green	Sheet and Plate
United States	Chandler, AZ	Hard Alloy Extrusions
	Davenport, IA	Sheet and Plate
	Danville, IL	Sheet and Plate
	Auburn, IN	Hard Alloy Extrusions
	Lafayette, IN	Hard Alloy Extrusions
	Newburgh, IN	Sheet and Plate
	Hutchinson, KS	Sheet and Plate
	Baltimore, MD	Hard Alloy Extrusions
	Massena, NY	Hard Alloy Extrusions
	Lancaster, PA	Sheet and Plate
	Knoxville, TN	Sheet and Plate
	Texarkana, TX	Sheet and Plate

<sup>1</sup> In January 2009, the company announced its intention to sell its Global Foil business.

<sup>2</sup> In September 2006, Alcoa completed the acquisition of its 70% interest in the aluminum brazing sheet venture in Kunshan City, China. Alcoa is the managing partner in the venture, with the remaining 30% interest held by Shanxi Yuncheng Engraving Group. Kunshan Aluminum is designed to produce 50,000 mtpy of aluminum brazing sheet primarily for the Asian automotive market. It is the third flat-rolled products facility managed by Alcoa in China including those owned and operated by Alcoa Bohai Aluminum Industries Company Limited (Bohai) in Qinhuangdao and Alcoa (Shanghai) Aluminum Products Limited.

<sup>3</sup> In September 2005, Alcoa inaugurated a restructured joint venture with China International Trust & Investment Corporation (CITIC), its equity partner, to produce aluminum rolled products in Bohai, Qinhuangdao City, Hebei Province, China. Alcoa was the managing partner in the new venture, holding a 73% stake, with CITIC holding a 27% stake. In March 2008, Alcoa acquired CITIC's 27% equity interest and



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Bohai became a wholly owned subsidiary of Alcoa. Bohai operates aluminum cold rolling facilities and is undertaking a major expansion, which includes a hot rolling mill and related equipment. Production from the expansion began in 2008 and is expected to reach approximately 90% of capacity in 2011. Although Bohai ceased foil products production at the end of 2008, it will ship its remaining foil products in the first quarter of 2009.

**Table of Contents****Engineered Products and Solutions Facilities**

The principal business of the company's Engineered Products and Solutions segment is the production and sale of titanium, aluminum and super alloy investment castings, forgings and fasteners, aluminum wheels, integrated aluminum structural systems and architectural extrusions. These products serve the aerospace, automotive, building and construction, commercial transportation and power generation markets.

**Engineered Products and Solutions Principal Facilities**

<b>COUNTRY</b>	<b>FACILITY</b>	<b>PRODUCTS<sup>1</sup></b>
Australia	Brisbane	Automotive Components
	Oakleigh	Fasteners
Brazil	Itajubá	Automotive Components
Canada	Georgetown, Ontario	Castings
	Laval, Quebec	Aerospace/Castings
	Lethbridge, Alberta	Architectural Products
	Scarborough, Ontario	Architectural Products
China	Shanghai	Automotive Components
	Suzhou	Fasteners
Czech Republic	Střebro	Automotive Components
France	Dives sur Mer	Aerospace/Castings
	Evron Cedex	Aerospace/Castings
	Gennenvilliers	Aerospace/Castings
	Guérande	Architectural Products
	Lézat-Sur-Lèze	Architectural Products
	Merxheim	Architectural Products
	Montbrison	Fasteners
	St. Cosme-en-Vairais	Fasteners
	Toulouse	Fasteners
	Us par Vigny	Fasteners
	Vendargues	Architectural Products
	Hannover	Aerospace
Germany	Hildesheim-Bavenstedt	Fasteners
	Iserlohn	Architectural Products
	Kelkheim	Fasteners
	Soest	Automotive Components and Engineering
Honduras	Choloma	Automotive Components
Hungary	Székesfehérvár	Automotive Components
	Nemesvámos	Fasteners
Ireland	Mór	Automotive Components
	Dundalk	Automotive Components
Italy	Modena	Automotive Engineering
Japan	Joetsu City	Automotive Components
	Nomi	Castings
Mexico	Ciudad Acuña	Aerospace/Castings/Fasteners/Automotive Components
	Nuevo León	Automotive Components
	Ciudad Juárez	Automotive Components
	Piedras Negras	Automotive Components
Morocco	Torreón	Automotive Components
	Casablanca	Architectural Products

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<b>COUNTRY</b>	<b>FACILITY</b>	<b>PRODUCTS<sup>1</sup></b>
Netherlands	Harderwijk	Architectural Products
Romania	Beiuș	Automotive Components
	Caransebeș	Automotive Components
	Nădab	Automotive Components
South Korea	Changwon	Aerospace
United Kingdom	Exeter	Aerospace/Castings
	Runcorn	Architectural Products
	Telford	Fasteners
United States	Gila River, AZ	Aerospace
	Springdale, AZ	Architectural Products
	Tucson, AZ	Fasteners
	Carson, CA	Fasteners
	City of Industry, CA	Fasteners
	Fullerton, CA	Fasteners
	Newbury Park, CA	Fasteners
	Torrance, CA	Fasteners
	Visalia, CA	Architectural Products
	Branford, CT	Aerospace/Castings
	Winsted, CT	Aerospace/Castings
	Eastman, GA	Architectural Products
	Auburn, IN	Automotive Engineering
	LaPorte, IN	Aerospace/Castings
	Matawan, MI	Automotive Components
	Traverse City, MI	Automotive Components
	Whitehall, MI	Aerospace/Castings
	Hernando, MS	Architectural Products
	Salisbury, NC	Castings
	Dover, NJ	Aerospace/Castings
	Kingston, NY	Fasteners
	Massena, NY	Aerospace
	Chillicothe, OH	Automotive Components
	Cleveland, OH	Aerospace/Automotive Components/Forgings
	Alcoa Center, PA	Aerospace/Automotive Engineering
	Bloomsburg, PA	Architectural Products
	Morristown, TN	Aerospace/Castings
	Nashville, TN	Automotive Components
	Waco, TX	Fasteners
	Wichita Falls, TX	Aerospace/Castings
	Hampton, VA	Aerospace/Castings
	Lebanon, VA	Automotive Components
	Auburn, WA	Automotive Components
	Beloit, WI <sup>2</sup>	Automotive Components

<sup>1</sup> In January 2009, the company announced its intention to sell its Electrical and Electronic Solutions and Transportation Products Europe businesses.

<sup>2</sup> The company intends to exit the auto cast wheel business and as a result, expects to consolidate this facility by June 2009.

**Table of Contents****Corporate Facilities**

In 2008, management approved a realignment of Alcoa's reportable segments to better reflect the core businesses in which Alcoa operates and how it is managed. As a result of this realignment, the Latin American extrusions business, previously a component of the former Extruded and End Products Segment, is reported in Corporate. For more information, see Note Q to the Consolidated Financial Statements in Part II, Item 8 (Financial Statements and Supplementary Data).

**Latin American Extrusions Facilities**

<b>COUNTRY</b>	<b>FACILITY</b>	<b>PRODUCTS</b>
Brazil	Itapissuma	Extrusions/Architectural Products
	Utinga	Extrusions/Architectural Products
	Sorocaba	Extrusions/Architectural Products/Dies
	Tubarão	Extrusions/Architectural Products

**Sources and Availability of Raw Materials**

The major purchased raw materials in 2008 for each of the company's reportable segments are listed below. The company completed the sale of its packaging and consumer business in February 2008. Therefore raw materials for the Packaging & Consumer segment are not included in the list below.

**Alumina**

Bauxite  
Caustic soda  
Electricity  
Fuel oil  
Natural gas

**Flat-Rolled Products**

Alloying materials  
Aluminum scrap  
Coatings  
Electricity  
Natural gas  
Nitrogen  
Primary aluminum (ingot, billet, P1020, high purity)  
Steam

**Primary Metals**

Alloying materials  
Alumina  
Aluminum fluoride  
Calcined petroleum coke  
Cathode blocks  
Electricity  
Liquid pitch  
Natural gas  
Silicon carbide

**Engineered Products and Solutions**

Cobalt  
Copper  
Electricity  
Natural gas  
Nickel  
Primary aluminum (ingot, billet)  
Resin  
Steel  
Titanium

Other materials generally are purchased from third party suppliers under competitively-priced supply contracts or bidding arrangements. The company believes that the raw materials necessary to its business are and will continue to be available.

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### **Energy**

Alcoa produces aluminum from alumina by an electrolytic process requiring large amounts of electric power. Electric power accounts for approximately 26% of the company's primary aluminum costs. Alcoa generates approximately 22% of the power used at its smelters worldwide and generally purchases the remainder under long-term arrangements. Power generated by natural gas, or in the alternative, by fuel oil, as purchased by the company, accounts for approximately 15% and 14%, respectively, of the company's total refining production costs. The paragraphs below summarize the sources of power and the long-term power arrangements for Alcoa's smelters and refineries.

#### *North America Electricity*

The Deschambault, Baie Comeau and Bécancour smelters in Quebec purchase electricity under long-term contracts with Hydro-Quebec that expire in 2014, subject to extension provisions. The smelter located in Baie Comeau, Quebec purchases approximately 65% of its power needs under the Hydro-Quebec contract and receives the remainder from a 40%-owned hydroelectric generating company, Manicouagan Power Company. In December 2008, new contracts with Hydro-Quebec were signed providing each of the three smelters with an assured power supply through December 2040, provided that Alcoa completes the modernization of the Baie Comeau smelter by the end of 2015. The modernization consists of replacing a Soderberg line with a pre-bake line.

The company's wholly-owned subsidiary, Alcoa Power Generating Inc. (APGI), generates approximately 23% of the power requirements for Alcoa's U.S. smelters. The company generally purchases the remainder under long-term contracts. APGI owns and operates two hydroelectric projects, Tapoco and Yadkin, consisting of eight dams, under Federal Energy Regulatory Commission (FERC) licenses. APGI hydroelectric facilities provide electric power for the aluminum smelters at Alcoa, Tennessee and Badin, North Carolina. The Tennessee smelter also purchases power from the Tennessee Valley Authority under a contract that extends to 2010.

APGI received a renewed 40-year FERC license for the Tapoco project in 2005. The relicensing process is nearing completion for the Yadkin hydroelectric project license. In 2007, APGI filed with FERC a Relicensing Settlement Agreement with the majority of the interested stakeholders that broadly resolved open issues. The National Environmental Policy Act process is complete, with a final environmental impact statement having been issued in April 2008. One remaining requirement for the relicensing is the issuance by North Carolina of the required water quality certification under Section 401 of the Clean Water Act. The Section 401 water quality certification process is ongoing, after the original certification was issued and then withdrawn due to certain technical defects. APGI received a year-to-year license renewal from FERC in May 2008, and will continue to operate under that annual license until the new Section 401 certification is issued and the FERC relicensing process is complete. The entire process is expected to be completed during 2009, including issuance of a new project license. With the Badin smelter idled, power generated from APGI's Yadkin system is largely being sold to an affiliate, Alcoa Power Marketing LLC, and then sold into the wholesale market.

In the Pacific Northwest, Alcoa has been operating under a contract with Chelan County Public Utility District (Chelan PUD) located in the State of Washington that is sufficient to supply about half of the capacity of the Wenatchee smelter through October 2011. In July 2008, Alcoa and Chelan PUD executed a new contract which will begin in November 2011 and run through October 2028 under which Alcoa will receive approximately 26% of the hydropower output of Chelan PUD's Rocky Reach and Rock Island dams.

Alcoa has a contract through September 2011 with the Bonneville Power Administration (BPA) under which Alcoa was receiving financial benefits to reduce the cost of power purchased from the market to partially operate the Intalco smelter. In December 2008, the 9<sup>th</sup> Circuit Court of Appeals issued its opinion in the Pacific Northwest Generating Cooperative v. BPA case which invalidated the financial benefits portion of that arrangement. In January 2009, Alcoa and BPA executed a short-term agreement running through September 2009 that transforms that arrangement into one consistent with the Court's opinion, and a further contract for the October 2009-September 2011 period is expected to be agreed upon in 2009. Alcoa and BPA continue to work on a long-term contract for the supply of a yet-undetermined amount of power for the Intalco smelter for the October 2011-September 2028 period, consistent with BPA's regional public process.

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The company, through APGI, generates substantially all of the power used at its Warrick smelter in Indiana using nearby coal reserves. In May 2005, Alcoa acquired mining rights to the nearby Friendsville, Illinois coal reserves and subsequently hired Vigo Coal Company, Inc. to manage and operate the mine. The mine is producing approximately one million tons of coal per year, 45% of the Warrick power plant's requirements. The balance of the coal used is purchased principally from local Illinois basin coal producers pursuant to term contracts of varying duration. In July 2005, Alcoa announced its plans to invest approximately \$525 million at the Warrick power plant to improve environmental performance and operational efficiency, as well as to lower costs. This project was completed in 2008.

Power for the Rockdale smelter in Texas was historically supplied from company-owned generating units and units owned by TXU Generation Company LP (now Luminant Generation Company LLC) (Luminant), both of which used lignite supplied by the company's Sandow Mine. Upon completion of lignite mining in the Sandow Mine in 2005, lignite supply transitioned to the formerly Alcoa-owned Three Oaks Mine. The company retired its three wholly-owned generating units at Rockdale (Units 1, 2 and 3) in late 2006, and transitioned to an arrangement under which Luminant supplies all of the Rockdale smelter's electricity requirements under a long-term power contract that does not expire until at least the end of 2038, with the parties having the right to terminate the contract after 2013 if there has been an unfavorable change in law (or after 2025 if the cost of the electricity exceeds the market price). In August 2007, Luminant and Alcoa closed on the definitive agreements under which Luminant will construct, own and operate a new circulating fluidized bed power plant adjacent to the existing Sandow Unit Four Power Plant, and in September 2007, on the sale of the Three Oaks Mine to Luminant. In June, 2008, Alcoa temporarily idled half of the capacity at the Rockdale smelter due to electricity supply issues with Luminant, and in September 2008 announced the curtailment of the remainder of Rockdale's smelting capacity due to an unreliable power supply and overall market conditions.

In the northeast, the purchased power contracts for both the Massena East and Massena West smelters in New York expire not earlier than June 30, 2013, following their extension in 2003 for 10 years upon New York Power Authority (NYPA) having relicensed its St. Lawrence-FDR Hydro Project. In December 2007, Alcoa and NYPA reached agreement in principle on a new energy contract to supply the Massena East and Massena West smelters for 30 years, beginning on July 1, 2013. The definitive agreement implementing this arrangement has been finalized, approved by the NYPA board, and awaits signatures by NYPA and the company, expected in the first quarter of 2009. Implementation of the Massena East modernization plan is subject to further approval of the Alcoa Board.

The Mt. Holly smelter in South Carolina purchases electricity from Santee Cooper under a contract that expires December 31, 2015, subject to certain extension provisions.

At the end of 2005, all production was temporarily curtailed at the Eastalco smelter located in Frederick, Maryland. The curtailment coincided with the expiration of the smelter's power contract on December 31, 2005, as a competitively-priced replacement power supply could not be obtained. Alcoa continues efforts to find an alternative power source for Eastalco.

### *Australia Electricity*

Power is generated from extensive brown coal deposits covered by a long-term mineral lease held by AofA, and that power currently provides approximately 40% of the electricity for the company's smelter in Point Henry, Victoria. The State Electricity Commission of Victoria provides the remaining power for this smelter and all power for the Portland smelter, under contracts with AofA that extend to 2014 and 2016, respectively.

### *Brazil Electricity*

The Alumar smelter is almost entirely supplied by Eletronorte (Centrais Elétricas do Norte do Brasil S.A.) through a long-term power purchase agreement expiring in December 2024. Eletronorte has supplied the Alumar smelter from the beginning of its operations in 1984. Alumínio's remaining power needs for the smelter are supplied from the Barra Grande hydroelectric project.

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Alumínio owns a 30.99% stake in Maesa Machadinho Energética S.A., which is the owner of 83.06% of the Machadinho hydroelectric power plant located in southern Brazil. Alumínio's share of the plant's output is supplied to the Poços de Caldas smelter, and is sufficient to cover 55% of its operating needs.

Alumínio also has a 42.18% interest in Energética Barra Grande S.A. BAESA, which built the Barra Grande hydroelectric power plant in southern Brazil. Alumínio's share of the power generated by BAESA covers the remaining power needs of the Poços de Caldas smelter and a portion of the power needs of Alumínio's interest in the Alumar smelter.

With Machadinho and Barra Grande, Alumínio's current power self-sufficiency is approximately 40%, to meet a total energy demand of approximately 695 megawatts from Brazilian primary plants.

Alumínio is also participating in a number of other Brazilian hydropower projects. Two of these projects have received the Environmental License Permits from the Federal Government and started construction in 2007:

*Estreito*, northern Brazil Alumínio's share is 25.49%

*Serra do Facão*, in the southeast of Brazil Alumínio's share is 34.97%

Both projects are expected to begin generating power in 2010.

The Pai Querê project in southern Brazil (Alumínio's share is 35%) and the Santa Isabel project in northern Brazil (Alumínio's share is 20%) are still in the process of obtaining necessary environmental licenses.

If these projects are completed, the power will be used in Alumínio's smelters or sold into the Brazilian grid.

### *Europe Electricity*

The company purchases electricity for its smelters at Portovesme and Fusina, Italy in the deregulated market, under contracts expiring in December 2009 for both locations. A new law went into effect on May 14, 2005, that extends through December 2010 the special tariff conditions applicable to the Italian smelters. That measure provides a competitive power supply to the primary aluminum industry and is not considered state aid by the Italian Government. However, in July 2006 the European Union (EU) opened an ongoing investigation into whether this provision should be considered unlawful state aid, which may not be compatible with European legislation. Alcoa understands that the Italian Government's continuation of the electricity tariff was done in conformity with all applicable laws and regulations. While Alcoa believes that any additional cost would only be assessed prospectively from the date of the decision of the EU Commission (EC) on this matter, it is possible that the EC could rule that the assessment must be retroactively applied to January 2006. A decision by the EC is not expected until late 2009. On November 29, 2006, Alcoa filed an appeal before the European Court of First Instance seeking the annulment of the decision of the EC to open the investigation alleging that such a decision did not follow the applicable procedural rules. This appeal, which may be withdrawn by Alcoa at any time, is expected to be resolved in 2009.

The company's smelters at San Ciprián, La Coruña and Avilés, Spain purchase electricity from the power grid at the lowest applicable industrial tariff rate under regulations that were to expire in December 2008, but which have been extended on an interim basis. Alcoa is currently negotiating power contracts for the supply of power to its three Spanish smelters in order to provide competitive supplies of electricity after the expiry of the extended industrial tariff, the finalization of which will depend on the completion of the Spanish Government's regulatory package for the electricity sector. On January 25, 2007, the EC announced that it has opened an investigation to establish whether the regulated electricity tariffs granted by Spain comply with EU state aid rules. Alcoa has been operating in Spain for more than ten years under a power supply structure approved by the Spanish Government in 1986, an equivalent tariff having been granted in 1983. The investigation is limited to the year 2005 and it is focused both on the energy-intensive consumers and the distribution companies. It is Alcoa's understanding that the Spanish tariff system for electricity is in conformity with all applicable laws and regulations, and therefore no state aid is present in that tariff system. A decision by the EC is expected in 2009. If the EC's investigation concludes that the regulated electricity tariffs for industries are unlawful, Alcoa will have an opportunity to challenge the decision in the EU courts.





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### *Iceland Electricity*

As noted above, Alcoa's new Fjarðaál smelter in eastern Iceland began operation in 2007. Central to those operations is a 40-year power contract under which Landsvirkjun, the Icelandic national power company, built the Kárahnjúkar dam and hydro-power project, and supplies competitively priced electricity to the smelter. First power was supplied to the Fjarðaál smelter in April 2007, and with the completion of the Kárahnjúkar project in late 2007, the smelter achieved full production in April 2008.

### *Minority Interests Electricity*

The smelter in Venezuela, in which Alcoa has only an equity stake and is not the operational manager, has a variety of electricity purchase arrangements through its managing or majority partners.

Pursuant to the exchange arrangement with Orkla described above, Alcoa expects to assume 100% ownership of the two smelters in Norway, Lista and Mosjøen, by the end of the first quarter of 2009. These smelters have long-term power arrangements in place which continue until at least 2019.

### *Canada & U.S. Natural Gas*

In order to supply its refineries and smelters in the U.S. and Canada, the company generally procures natural gas on a competitive bid basis from a variety of sources including producers in the gas production areas and independent gas marketers. For Alcoa's larger consuming locations in Canada and the U.S., the gas commodity as well as interstate pipeline transportation is procured to provide increased flexibility and reliability. Contract pricing for gas is typically based on a published industry index or New York Mercantile Exchange (NYMEX) price. The company may choose to reduce its exposure to NYMEX pricing by hedging a portion of required natural gas consumption.

### *Australia Natural Gas*

AofA holds a 20% equity interest in a consortium that bought the Dampier-to-Bunbury natural gas pipeline in October 2004. This pipeline transports gas from the northwest gas fields to Alcoa's alumina refineries and other users in the Southwest of Western Australia. AofA uses gas to co-generate steam and electricity for its alumina refining processes at the Kwinana, Pinjarra and Wagerup refineries. Gas supply from Apache Northwest Pty Ltd and a separate joint venture in which Apache is a participant was curtailed beginning in June 2008 following an explosion and fire at its Varanus Island gas processing plant. Supply was progressively restored beginning in August 2008, and full supply is expected to return in early 2009. Although AofA declared force majeure to its alumina customers, the shortfall in gas supply from Varanus Island has been covered by short term contracts with other gas producers and liquid fuels. Production at the Kwinana, Pinjarra and Wagerup refineries was not materially impacted.

## **Patents, Trade Secrets and Trademarks**

The company believes that its domestic and international patent, trade secret and trademark assets provide it with a significant competitive advantage. The company's rights under its patents, as well as the products made and sold under them, are important to the company as a whole and, to varying degrees, important to each business segment. The patents owned by Alcoa generally concern particular products or manufacturing equipment or techniques. Alcoa's business as a whole is not, however, materially dependent on any single patent, trade secret or trademark.

The company has a number of trade secrets, mostly regarding manufacturing processes and material compositions, that give many of its businesses important advantages in their markets. The company continues to strive to improve those processes and generate new material compositions that provide additional benefits.

The company also has a number of domestic and international registered trademarks that have significant recognition within the markets that are served. Examples include Alcoa and the Alcoa Symbol for aluminum products, Howmet metal castings, Huck® fasteners, Kawneer building panels and Dura-Bright® surface treatments. The company's rights under its trademarks are important to the company as a whole and, to varying degrees, important to each business segment.

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### **Competitive Conditions**

Alcoa is subject to highly competitive conditions in all aspects of its aluminum and nonaluminum businesses. Competitors include a variety of both U.S. and non-U.S. companies in all major markets. Price, quality and service are the principal competitive factors in Alcoa's markets. Where aluminum products compete with other materials—such as steel and plastics for automotive and building applications; magnesium, titanium, composites and plastics for aerospace and defense applications; steel, plastics and glass for packaging applications—aluminum's diverse characteristics, particularly its light weight, recyclability and flexibility are also significant factors. For Alcoa's segments that market products under Alcoa's brand names, brand recognition and brand loyalty also play a role.

### **Research and Development**

Alcoa, a technology leader in the aluminum industry, engages in research and development programs that include process and product development, and basic and applied research. Expenditures for R&D activities were \$246 million in 2008, \$238 million in 2007 and \$201 million in 2006.

Most of the major process areas within the company have a Technology Management Review Board (TMRB) consisting of members from various worldwide locations. Each TMRB is responsible for formulating and communicating a technology strategy for the corresponding process area, developing and managing the technology portfolio and ensuring the global transfer of technology. Certain business units alternatively conduct these activities and research and development programs within the worldwide business unit, supported by the Alcoa Technical Center. Technical personnel from the TMRBs, the Technical Center and such business units also participate in the corresponding Market Sector Teams. In this manner, research and development activities are aligned with corporate and business unit goals.

During 2008, the company continued to work on new developments for a number of strategic projects in all business segments. In Primary Metals, progress was made on inert anode technology. Progress has been successful in many respects as a result of full pot testing of anode assemblies, although there remain technical and cost targets to achieve. If the technology proves to be commercially feasible, the company believes that it would be able to convert its existing potlines to this new technology, resulting in significant operating cost savings. The new technology would also generate environmental benefits by reducing and eliminating certain emissions, especially carbon dioxide. No timetable has been established for commercial use. Progress was also made on carbothermic projects, which if commercially feasible may reduce capital and energy costs, as well as provide environmental benefits related to waste reduction.

In the semi-fabrication businesses, NASA has certified Alcoa's Davenport, Iowa facility as the only supplier in the U.S. to produce aluminum-lithium alloy 2195 thin plate for the Ares 1 crew launch vehicle, the rocket that will enable astronauts to explore space beyond low earth orbit with the goal of reaching the moon by 2020.

Alcoa has also moved from the research and development stage to pilot scale on its continuous cast-rolled products process. In addition, a number of low grade scrap use technologies were developed and implemented providing both cost and environmental benefits. Alcoa's first carbon capture technology plant was launched in 2008, which locks up significant amounts of carbon dioxide that would otherwise be released into the atmosphere. The Kwinana, Australia plant has demonstrated the viability of the technology, and the company is investigating options to deploy the technology throughout Alcoa's refinery system.

A number of products were commercialized in 2008 including Dura Bright® wheels for automotive applications; forged aluminum wheels that are 6% lighter than the traditional forged wheel; unique surface sheet for the consumer electronics market; the vented, wide-mouth can—the industry's first-ever can with a built-in vent that enables consumers to enjoy a smoother pour; lightweight, high-strength applications for the defense market; and high performance products for the oil and gas markets.

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For the aerospace market, new multi-material technologies continue to be developed to effectively compete with composites. Alcoa's advanced aerospace alloys contributed to the successful operation of China's first home-produced regional jet, ARJ21-700. In the automotive market, Alcoa also commercialized its proprietary aluminum mold alloy, QC-10®, offering an alternative to customers that produce plastic parts using steel tooling.

The company currently has at least 60 new products in various development stages. As a result of product development and technological advancement, the company continues to pursue patent protection in jurisdictions throughout the world.

## **Environmental Matters**

Information relating to environmental matters is included in the following sections of this report: under Management's Discussion and Analysis of Financial Condition and Results of Operations, under the heading, "Environmental Matters" on pages 55-57; in Note A to the Financial Statements under the caption "Environmental Expenditures" on pages 86-87 and in Note N to the Financial Statements under the caption "Environmental Matters" on page 114.

## **Employees**

Total worldwide employment at year-end 2008 was approximately 87,000 employees in 35 countries. About 57,000 of these employees are represented by labor unions. The company believes that relations with its employees and any applicable union representatives generally are good.

In the United States, approximately 12,000 employees are represented by various labor unions. The master collective bargaining agreement between Alcoa and the United Steelworkers covering 10 locations and approximately 7,000 United States employees is scheduled to expire on May 31, 2010. There are 20 other collective bargaining agreements in the United States with varying expiration dates. Various collective bargaining agreements with varying expiration dates cover about 27,000 employees in Europe, 7,000 employees in Mexico, 4,500 employees in South America, 4,000 employees in Australia and 2,500 employees in Canada.

In January 2009, Alcoa announced that it expects to reduce headcount by more than 13,500 worldwide employees by the end of 2009. The company also expects to eliminate 1,700 contractor positions. Alcoa has instituted a global salary and hiring freeze.

## **Item 1A. Risk Factors.**

Alcoa's business, financial condition or results of operations may be impacted by a number of factors. In addition to the factors discussed elsewhere in this report, the following are some of the important factors that could cause Alcoa's actual results to differ materially from those projected in any forward-looking statements:

### **Risks Relating to Global Economic Downturn and Disruptions in Financial Markets**

**The duration or severity of the current global economic downturn and disruptions in the financial markets, and their impact on Alcoa, are uncertain.**

The aluminum industry generally is highly cyclical, with prices subject to worldwide market forces of supply and demand and other influences. Alcoa is subject to cyclical fluctuations in LME prices, economic conditions generally, and aluminum end-use markets. The recent global economic downturn, coupled with the global financial and credit market disruptions, have had a historic negative impact on the aluminum industry and Alcoa. These events have contributed to an unprecedented decline (56% in the last five months of 2008) in LME-based aluminum prices, weak end markets, a sharp drop in demand, increased global inventories, and higher costs of borrowing and/or diminished credit availability. While Alcoa believes that the long-term prospects for aluminum remain bright, the company is unable to predict the duration or severity of the current global economic and financial crisis. The company has implemented or is taking a number of actions to conserve cash, reduce costs and strengthen its competitiveness, including curtailing production, halting non-critical capital expenditures, accelerating new sourcing strategies for raw

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materials, divesting non-core assets, initiating global headcount reductions, suspending its existing share repurchase program, and making other liquidity enhancements. However, there can be no assurance that these actions, or any others that the company may take in response to further deterioration in economic and financial conditions, will be sufficient. A protracted continuation or worsening of the global economic downturn or disruptions in the financial markets could have a material adverse effect on Alcoa's business, financial condition or results of operations.

### **Alcoa could be materially adversely affected by further declines in aluminum prices.**

The price of aluminum is frequently volatile and changes in response to general economic conditions, expectations for supply and demand growth or contraction, and the level of global inventories. The influence of hedge funds and other financial investment funds participating in commodity markets has also increased in recent years, contributing to higher levels of price volatility. During recent months, there has been a significant decline (56% over the second half of 2008), as well as substantial volatility in aluminum prices, due at least in part to the deteriorating global economic environment. At the same time, there is often a lag effect for a reduction in LME-linked costs of production. For example, reduction of certain key smelting input costs (such as alumina and power) may lag declining average primary metal revenue by up to three months. A sustained weak aluminum pricing environment or a further deterioration in aluminum prices could have a material adverse effect upon Alcoa's business, financial condition, results of operations or cash flow.

### **Recent downgrades in Alcoa's credit ratings, as well as any additional downgrades, will increase Alcoa's cost of borrowing and could further adversely affect Alcoa's access to the capital markets.**

Alcoa's cost of borrowing and ability to access the capital markets are affected not only by market conditions but also by the short- and long-term debt ratings assigned to Alcoa's debt by the major credit rating agencies. These ratings are based, in significant part, on the company's performance as measured by credit metrics such as interest coverage and leverage ratios. In February 2009, Standard & Poor's Ratings Services (S&P) and Fitch Ratings (Fitch) each lowered Alcoa's long-term debt rating to BBB-; S&P and Fitch lowered the company's short-term debt ratings to A-3 and F3, respectively; and both indicated that the current outlook is negative. Also in February 2009, Moody's Investors Service lowered Alcoa's long-term debt rating to Baa3 and the company's short-term debt rating to Prime-3, and indicated that the current outlook is stable. Although the company has available to it committed revolving credit facilities to provide liquidity, these recent downgrades in Alcoa's credit ratings, as well as any additional downgrades, will increase Alcoa's cost of borrowing and could have a further adverse effect on its access to the capital markets, including restricting, in whole or in part, its access to the commercial paper market. There can be no assurance that the commercial paper market will continue to be a reliable source of short-term financing for the company. An inability to access the capital markets could have a material adverse effect on Alcoa's financial condition, results of operations or cash flow.

### **Alcoa could be adversely affected by the failure of financial institutions to fulfill their commitments under committed credit facilities.**

As discussed in Part II, Item 7 (Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources) of this report, Alcoa has committed revolving credit facilities with financial institutions available for its use, for which the company pays commitment fees. Each facility is provided by a syndicate of several financial institutions, with each institution agreeing severally (and not jointly) to make revolving credit loans to Alcoa in accordance with the terms of the related credit agreement. If one or more of the financial institutions providing these committed credit facilities were to default on its obligation to fund its commitment, the portion of the committed facility provided by such defaulting financial institution would not be available to the company.

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**Other Business Risks**

**Alcoa's operations consume substantial amounts of energy; profitability may decline if energy costs rise or if energy supplies are interrupted.**

Alcoa consumes substantial amounts of energy in its operations. Although Alcoa generally expects to meet the energy requirements for its alumina refineries and primary aluminum smelters from internal sources or from long-term contracts, the following could affect Alcoa's results of operations:

significant increases in electricity costs rendering smelter operations uneconomic;

significant increases in natural gas prices;

unavailability of electrical power or other energy sources due to droughts, hurricanes or other natural causes;

unavailability of energy due to energy shortages resulting in insufficient supplies to serve consumers;

interruptions in energy supply due to equipment failure or other causes; or

curtailment of one or more refineries or smelters due to inability to extend energy contracts upon expiration or negotiate new arrangements on cost-effective terms.

**Alcoa's profitability could be adversely affected by increases in the cost of raw materials or by significant lag effects for decreases in commodity- or LME-linked costs.**

Alcoa's results of operations will be affected by increases in the cost of raw materials, including energy, carbon products, caustic soda and other key inputs, as well as freight costs associated with transporting raw materials to refining and smelting locations. Alcoa may not be able to offset fully the effects of higher raw material costs or energy costs through price increases, productivity improvements or cost reduction programs. Similarly, Alcoa's operating results will be affected by significant lag effects for declines in key costs of production that are commodity- or LME-linked. For example, declines in LME-linked costs of alumina and power in a particular period may not be adequate to offset sharp declines in metal price in that period.

**Alcoa may not be able to successfully implement its Brazilian growth projects or realize expected benefits from its portfolio streamlining strategy.**

As a result of the current global economic downturn and as part of the company's initiative to conserve cash, Alcoa has halted all non-critical capital investment, except for the completion of the São Luís refinery expansion and the greenfield Juruti bauxite mine in Brazil, which are targeted for completion in the first half of 2009. There can be no assurance that these projects will be completed within budget or by the targeted completion date, or that they will be beneficial to Alcoa, whether due to a further deteriorating global economic environment, lack of financing, increases in construction costs, currency fluctuations, or other factors.

In addition, as part of its strategy to strengthen its competitiveness, Alcoa has announced restructuring actions to streamline its portfolio and an agreement to exchange assets to increase Alcoa's smelter capacity while divesting itself of a business that operates in a difficult market. There can be no assurance that these actions will be beneficial to Alcoa, that targeted completion dates will be met, or that estimated proceeds from asset sales will be realized.

**Alcoa's global operations are exposed to political and economic risks and events beyond its control in the countries in which it operates.**

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Alcoa has operations or activities in numerous countries outside the U.S. having varying degrees of political and economic risk, including China, Guinea and Russia, among others. Risks include those associated with political instability, civil unrest, expropriation, nationalization, renegotiation or nullification of existing agreements, mining leases and permits, and changes in local government laws, regulations and policies, including those related to tariffs

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and trade barriers, taxation, exchange controls, employment regulations and repatriation of earnings. While the impact of these factors is difficult to predict, any one or more of them could adversely affect Alcoa's business, financial condition or operating results.

### **Alcoa is exposed to fluctuations in foreign currency exchange rates and interest rates, as well as inflation and other economic factors in the countries in which it operates.**

Economic factors, including inflation and fluctuations in foreign currency exchange rates and interest rates, competitive factors in the countries in which Alcoa operates, and continued volatility or deterioration in the global economic and financial environment, could affect Alcoa's revenues, expenses and results of operations. Changes in the valuation of the U.S. dollar against other currencies, particularly the Brazilian real, Canadian dollar, Euro and Australian dollar, may affect profitability as some important raw materials are purchased in other currencies, while products generally are sold in U.S. dollars.

### **A reduction in Chinese demand may negatively impact Alcoa's results.**

The Chinese market is a significant source of global demand for commodities. A sustained slowdown in China's economic growth, whether as part of the current global economic downturn or otherwise, could have an adverse effect on the global supply and demand for aluminum and aluminum prices. In addition, China's investments to increase its self-sufficiency in key commodities may impact future demand and supply balances and prices.

### **Alcoa faces significant competition.**

As discussed in Part I, Item 1 (Business – Competitive Conditions) of this report, the markets for most aluminum products are highly competitive. Alcoa's competitors include a variety of both U.S. and non-U.S. companies in all major markets. In addition, aluminum competes with other materials, such as steel, plastics, composites, and glass, among others, for various applications in Alcoa's key markets. The willingness of customers to accept substitutions for the products sold by Alcoa, the ability of large customers to exert leverage in the marketplace to affect the pricing for fabricated aluminum products, or other developments by or affecting Alcoa's competitors or customers could affect Alcoa's results of operations.

### **Further metals industry consolidation could impact Alcoa's business.**

The metals industry has experienced consolidation over the past several years, and there may be further industry consolidation in the future. Although current industry consolidation has not negatively impacted Alcoa's business, further consolidation in the aluminum industry could possibly have negative impacts that we cannot reliably predict.

### **Alcoa could be adversely affected by changes in the business or financial condition of a significant customer or customers.**

A significant downturn or further deterioration in the business or financial condition of a key customer or customers supplied by Alcoa, as a result of the current global economic and financial crisis or otherwise, could affect Alcoa's results of operations in a particular period. Alcoa's customers may experience delays in the launch of new products, labor strikes, diminished liquidity or credit unavailability, weak demand for their products, or other difficulties in their businesses. If Alcoa is not successful in replacing business lost from such customers, profitability may be adversely affected.

### **Alcoa may be exposed to significant legal proceedings, investigations or changes in law.**

Alcoa's results of operations or liquidity in a particular period could be affected by new or increasingly stringent laws, regulatory requirements or interpretations, or significant legal proceedings or investigations adverse to Alcoa. The company is subject to a variety of legal compliance risks. These risks include, among other things, potential claims

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relating to product liability, health and safety, environmental matters, intellectual property rights, government contracts, taxes, and compliance with U.S. and foreign export laws, competition laws and sales and trading practices. Alcoa could be subject to fines, penalties, damages (in certain cases, treble damages), or suspension or debarment from government contracts. While Alcoa believes it has adopted appropriate risk management and compliance programs to address and reduce these risks, the global and diverse nature of its operations means that these risks will continue to exist and additional legal proceedings and contingencies may arise from time to time. Alcoa's results of operations or liquidity in a particular period may be affected by the outcome of legal proceedings, changes in law or other contingencies that it cannot predict with certainty.

**Alcoa is subject to a broad range of health, safety and environmental laws and regulations in the jurisdictions in which it operates and may be exposed to substantial costs and liabilities associated with such laws.**

Alcoa's operations worldwide are subject to numerous complex and increasingly stringent health, safety and environmental laws and regulations. The costs of complying with such laws and regulations, including participation in assessments and cleanups of sites, as well as internal voluntary programs, are significant and will continue to be so for the foreseeable future. Alcoa's results of operations or liquidity in a particular period could be affected by certain health, safety or environmental matters, including remediation costs and damages related to several sites. Additionally, evolving regulatory standards and expectations can result in increased litigation and/or increased costs, all of which can have a material and adverse effect on earnings and cash flows.

**Climate change, climate change regulations and greenhouse effects may adversely impact Alcoa's operations and markets.**

Energy is a significant input in a number of Alcoa's operations. There is growing recognition that energy consumption is a contributor to global warming, greenhouse effects and potentially climate change.

A number of governments or governmental bodies have introduced or are contemplating regulatory change in response to the potential impacts of climate change. There is also current and emerging regulation, such as the mandatory renewable energy target in Australia, or potential carbon trading regimes that will affect energy prices. Alcoa will likely see changes in the margins of greenhouse gas-intensive assets and energy-intensive assets as a result of regulatory impacts in the countries in which the company operates. These regulatory mechanisms may be either voluntary or legislated and may impact Alcoa's operations directly or indirectly through customers. Inconsistency of regulations may also change the attractiveness of the locations of some of the company's assets. Assessments of the potential impact of future climate change regulation are uncertain, given the wide scope of potential regulatory change in countries in which Alcoa operates.

The potential physical impacts of climate change on the company's operations are highly uncertain, and will be particular to the geographic circumstances. These may include changes in rainfall patterns, water shortages, changing sea levels, changing storm patterns and intensities, and changing temperature levels. These effects may adversely impact the cost, production and financial performance of Alcoa's operations.

**Alcoa could be required to make additional contributions to its defined benefit pension plans as a result of adverse changes in interest rates and the capital markets.**

Alcoa's estimates of liabilities and expenses for pensions and other post-retirement benefits incorporate significant assumptions including the rate used to discount the future estimated liability, the long-term rate of return on plan assets and several assumptions relating to the employee workforce (salary increases, medical costs, retirement age and mortality). Alcoa's results of operations, liquidity or shareholders' equity in a particular period could be affected by a decline in the rate of return on plan assets, the rate used to discount the future estimated liability or changes in employee workforce assumptions.



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### **Union disputes and other employee relations issues could adversely affect Alcoa's financial results.**

Some of Alcoa's employees are represented by labor unions in a number of countries under various collective bargaining agreements with varying durations and expiration dates. Alcoa may not be able to satisfactorily renegotiate collective bargaining agreements in the United States and other countries when they expire. In addition, existing collective bargaining agreements may not prevent a strike or work stoppage at Alcoa's facilities in the future. Alcoa may also be subject to general country strikes or work stoppages unrelated to its business or collective bargaining agreements. Any such work stoppages (or potential work stoppages) could have a material adverse effect on Alcoa's financial results.

### **Alcoa may not realize expected benefits from its productivity and cost-reduction initiatives.**

Alcoa has undertaken and may continue to undertake productivity and cost-reduction initiatives to improve performance and conserve cash, including new procurement strategies for raw materials, such as backward integration and non-traditional sourcing from numerous geographies, and deployment of company-wide business process models, such as the Alcoa Business System and the Alcoa Enterprise Business Solution (an initiative designed to build a common global infrastructure across Alcoa for data, processes and supporting software). There can be no assurance that these initiatives will be completed or beneficial to Alcoa or that any estimated cost savings from such activities will be realized.

### **Alcoa may not be able to successfully develop and implement new technology initiatives.**

Alcoa is working on new developments in advanced smelting process technologies, including inert anode and carbothermic technology, in addition to multi-alloy casting processes. There can be no assurance that such technologies will be commercially feasible or beneficial to Alcoa.

### **Unexpected events may increase Alcoa's cost of doing business or disrupt Alcoa's operations.**

Unexpected events, including fires or explosions at facilities, natural disasters, war or terrorist activities, unplanned outages, supply disruptions, or failure of equipment or processes to meet specifications, may increase the cost of doing business or otherwise impact Alcoa's financial performance. Further, existing insurance arrangements may not provide protection for all of the costs that may arise from such events.

The above list of important factors is not all-inclusive or necessarily in order of importance.

### **Item 1B. Unresolved Staff Comments.**

None.

### **Item 2. Properties.**

Alcoa's principal office is located at 390 Park Avenue, New York, New York 10022-4608. Alcoa's corporate center is located at 201 Isabella Street, Pittsburgh, Pennsylvania 15212-5858. The Alcoa Technical Center for research and development is located at 100 Technical Drive, Alcoa Center, Pennsylvania 15069.

Alcoa leases some of its facilities, however, it is the opinion of management that the leases do not materially affect the continued use of the properties or the properties' values.

Alcoa believes that its facilities are suitable and adequate for its operations. Although no title examination of properties owned by Alcoa has been made for the purpose of this report, the company knows of no material defects in title to any such properties. See Notes A and H to the financial statements for information on properties, plants and equipment.

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Alcoa has active plants and holdings under the following segments and in the following geographic areas:

### **ALUMINA**

**Bauxite**: See the table and related text in the **Bauxite Interests** section on pages 5-6.

**Alumina**: See the table and related text in the **Alumina Refining Facilities and Capacity** section on pages 6-7.

### **PRIMARY METALS**

See the table and related text in the **Primary Aluminum Facilities and Capacity** section on pages 8-10.

### **FLAT-ROLLED PRODUCTS**

See the table and related text in the **Flat-Rolled Products Facilities** section on pages 11.

### **ENGINEERED PRODUCTS AND SOLUTIONS**

See the table and related text in the **Engineered Products and Solutions Facilities** section on pages 12-13.

### **PACKAGING AND CONSUMER**

Alcoa completed the sale of its packaging and consumer business in February 2008 and no longer maintains active plants under this segment.

### **CORPORATE**

See the table and related text in the **Corporate Facilities** section on page 14.

### **Item 3. Legal Proceedings.**

In the ordinary course of its business, Alcoa is involved in a number of lawsuits and claims, both actual and potential, including some that it has asserted against others. While the amounts claimed may be substantial, the ultimate liability cannot now be determined because of the considerable uncertainties that exist. It is possible that results of operations or liquidity in a particular period could be materially affected by certain contingencies. Management believes, however, that the disposition of matters that are pending or asserted will not have a material adverse effect on the financial position of the company.

#### **Environmental Matters**

As previously reported, Alcoa is involved in proceedings under the Comprehensive Environmental Response, Compensation and Liability Act, also known as Superfund (CERCLA) or analogous state provisions regarding the usage, disposal, storage or treatment of hazardous substances at a number of sites in the U.S. The company has committed to participate, or is engaged in negotiations with federal or state authorities relative to its alleged liability for participation, in clean up efforts at several such sites.

As previously reported, since 1989, Alcoa has been conducting investigations and studies of the Grasse River, adjacent to Alcoa's Massena, New York plant site, under order from the U.S. Environmental Protection Agency (EPA) issued under Section 106 of CERCLA. Sediments and fish in the river contain varying levels of polychlorinated biphenyl (PCB). In early 2002, Alcoa submitted a revised Analysis of Alternatives Report to EPA. This Report identified potential remedial actions related to PCB contamination of the river, including additional remedial alternatives that may be required by EPA. It also reflected certain recent studies and investigations on the river, including pilot tests of

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sediment capping techniques and other remediation technologies. The range of costs associated with the remedial alternatives evaluated in the 2002 Report was between \$2 million and \$525 million. Alcoa believes that rational, scientific analysis supports a remedy involving the containment of sediments in place via natural or man-made processes. Because the selection of the \$2 million alternative (natural recovery) was considered remote, the company adjusted the reserve for the Grasse River in 2002 to \$30 million representing the low end of the range of possible alternatives, as no single alternative could be identified as more probable than the others. In June 2003, based on then recent river observations, EPA requested that Alcoa gather additional field data to assess the potential for sediment erosion from winter river ice formation and breakup so that it could be factored into the range of remedial alternatives being considered. The results of these additional studies, submitted in a report to EPA in April 2004, suggest that this phenomenon has the potential to occur approximately every 10 years and may impact sediments in certain portions of the river under all remedial scenarios. Those evaluations were submitted to EPA along with a proposal to perform additional pilot remedial studies in the river. In May 2004, EPA approved Alcoa's proposed Remedial Options Pilot Study (ROPS) that includes sediment removal and capping, the installation of an ice control structure, and significant monitoring. At the same time, Alcoa adjusted the reserve for the river to include the \$35 million estimated cost of the ROPS, in addition to the \$30 million previously reserved. Most of the construction work for the ROPS was completed in 2005 with monitoring through 2008. The reserves for the Grasse River were re-evaluated in the fourth quarter of 2006 and an adjustment of \$4 million was made. This adjustment covered commitments made to the EPA for additional investigation work for the ongoing monitoring program, including that associated with the ROPS program; to prepare a revised Analysis of Alternatives Report, and for an interim measure that involves, annually, the mechanical ice breaking of the river to prevent the formation of ice jams until a permanent remedy is selected. EPA has since eliminated the ice breaking requirement. The findings from the ROPS program and from these additional investigations were incorporated into a revised Analysis of Alternatives Report that was submitted to EPA in 2008. This update incorporated new information obtained from the ROPS regarding the feasibility and costs associated with various capping and dredging alternatives and incorporated various options for ice control. EPA will use this information to develop a remedy for the river. Alcoa adjusted the reserve in the fourth quarter of 2008 by an additional \$40 million for increases associated with updated cost for a proposed remedy incorporating ice control and for partial settlement of potential resource damages. The EPA's ultimate selection of a remedy could result in additional liability. Alcoa may be required to record a subsequent reserve adjustment at the time the EPA's Record of Decision is issued, which is expected in 2009 or later.

As previously reported, representatives of various U.S. federal and state agencies and a Native American tribe, acting in their capacities as trustees for natural resources, have asserted that Alcoa and Reynolds Metals Company (Reynolds) may be liable for loss or damage to such resources under federal and state law based on Alcoa's and Reynolds' operations at their Massena, New York and St. Lawrence, New York facilities. While formal proceedings have not been instituted, the company continues to actively investigate these claims. The company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

As previously reported, in September 1998, Hurricane Georges struck the U.S. Virgin Islands, including the St. Croix Alumina, L.L.C. (SCA) facility on the island of St. Croix. The wind and rain associated with the hurricane caused material at the location to be blown into neighboring residential areas. Various cleanup and remediation efforts were undertaken by or on behalf of SCA. A Notice of Violation was issued by the Division of Environmental Protection of the Department of Planning and Natural Resources of the Virgin Islands Government, and has been contested by the company. A civil suit was commenced in the Territorial Court of the Virgin Islands by certain residents of St. Croix in February 1999 seeking compensatory and punitive damages and injunctive relief for alleged personal injuries and property damages associated with bauxite or red dust from the SCA facility. The suit, which has been removed to the District Court of the Virgin Islands (the Court), names SCA, Alcoa Inc., and Glencore Ltd. as defendants, and, in August 2000, was accorded class action treatment. The class is defined to include persons in various defined neighborhoods who suffered damages and/or injuries as a result of exposure during and after Hurricane Georges to red dust and red mud blown during Hurricane Georges. All of the defendants have denied liability, and discovery and other pretrial proceedings have been underway since 1999. In October 2003, the defendants received plaintiffs' expert reports. These reports also claim that the material blown during Hurricane Georges consisted of bauxite and red mud, and contained crystalline silica, chromium, and other substances. The reports further claim, among other things, that the population of the six subject neighborhoods as of the

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2000 census (a total of 3,730 people) has been exposed to toxic substances through the fault of the defendants, and hence will be able to show entitlement to lifetime medical monitoring as well as other compensatory and punitive relief. These opinions have been contested by the defendants' expert reports, that state, among other things, that plaintiffs were not exposed to the substances alleged and that in any event the level of alleged exposure does not justify lifetime medical monitoring. In August 2005, Alcoa and SCA moved to decertify the plaintiff class, and in March 2006, the assigned magistrate judge issued a recommendation that class certification be maintained for liability issues only, and that the class be decertified after liability issues have been resolved. This recommendation has been adopted by the assigned district judge. Alcoa and SCA have turned over this matter to their insurance carriers who are providing a defense. Glencore Ltd. is jointly defending the case with Alcoa and SCA and has a pending motion to dismiss. On June 3, 2008, the Court granted defendants' joint motion to decertify the class of plaintiffs, and simultaneously granted in part and denied in part plaintiffs' motion for certification of a new class. Under the new certification order, there is no class as to the personal injury, property damage, or punitive damages claims. (The named plaintiffs had previously dropped their claims for medical monitoring during the course of the briefing of the certification motions.) The Court did certify a new class as to the claim of on-going nuisance, insofar as plaintiffs seek cleanup, abatement, or removal of the red mud currently present at the facility. The Court expressly denied certification of a class as to any claims for remediation or clean up of any area outside the facility (including plaintiffs' property). The new class may seek only injunctive relief rather than monetary damages. Named plaintiffs, however, may continue to prosecute their claims for personal injury, property damage, and punitive damages. The company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

As previously reported, on September 26, 2003, EPA Region VI filed an Administrative Complaint, Compliance Order and Notice of Opportunity for Hearing against the Wichita Falls, Texas facility of Howmet Corporation (Howmet) for violations of hazardous waste regulations relating to shipments of used potassium hydroxide to a fertilizer manufacturer from 1997 until 2000. The Complaint proposes a penalty of \$265,128. In addition, EPA ordered Howmet to cease sending used potassium hydroxide to fertilizer manufacturers or employing used potassium hydroxide in any use constituting disposal and to certify compliance with hazardous waste regulations within 30 days. On October 22, 2003, EPA Region II issued an almost identical Complaint, Compliance Order and Notice of Opportunity for Hearing against Howmet's Dover, New Jersey facility, seeking \$180,021 in penalties. Howmet filed its Answers to EPA Region VI's and EPA Region II's Complaints. Howmet's Answers denied the substance of EPA's Complaints, requested that no penalties be imposed and requested Hearings on both the hazardous waste allegations and the Compliance Orders. On April 25, 2005, the administrative Court granted EPA's motions for partial accelerated decision with respect to both cases, finding that Howmet violated the cited regulatory provisions alleged in the Complaints and moved the case to the penalty phase. The Court rejected Howmet's interlocutory appeal of this decision on May 16, 2005. On September 2, 2005, EPA and Howmet stipulated to a penalty amount of \$309,091 for the consolidated matters should the finding of liability be upheld and Howmet appealed the administrative Court's decision to the Environmental Appeals Board on September 28, 2005. On May 24, 2007, the Environmental Appeals Board upheld the administrative Court's liability finding against Howmet and assessed the parties' stipulated penalty of \$309,091. On July 23, 2007, Howmet appealed the Environmental Appeals Board decision to the United States District Court for the District of Columbia.

As previously reported, in May 2005, Alcoa World Alumina LLC (AWA LLC) and SCA were among the defendants listed in a lawsuit brought by the Commissioner of the Department of Planning and Natural Resources, Dean Plaskett, in his capacity as Trustee for Natural Resources of the Territory of the United States Virgin Islands in the District Court of the Virgin Islands, Division of St. Croix. The complaint seeks damages for alleged injuries to natural resources caused by alleged releases from an alumina refinery facility in St. Croix that was owned by SCA from 1995 to 2002. Also listed in the lawsuit are previous and subsequent owners of the alumina refinery and the owners of an adjacent oil refinery. Claims are brought under CERCLA, U.S. Virgin Islands law, and common law. The plaintiff has not specified in the complaint the amount it seeks in damages. The defendants filed motions to dismiss and, in September 2006, filed a motion for an order staying discovery pending resolution of those motions. In September 2007, the court asked the parties to brief the issue of whether the natural resource provisions of the federal Superfund law preempted territorial statutory and common law claims in the case. The parties have complied. In October 2007, the plaintiff and St. Croix Renaissance Group, L.L.P. (SCRG) filed a joint Agreement and Consent Decree to resolve

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SCRG's liability in the lawsuit, along with any CERCLA liability it may have with respect to the facility. The remaining defendants each filed objections to the Agreement and Consent Decree, and on October 22, 2008, the court denied entry of the Agreement and Consent Decree. On October 31, 2008, the court ruled on the motions to dismiss that were submitted by all defendants in 2005. The court dismissed two counts from the complaint (common law trespass and V.I. Water Pollution Control Act), but denied the motions with regard to the other six counts (CERCLA, V.I. Oil Spill Prevention and Pollution Control Act, and common law strict liability, negligence, negligence per se and nuisance). The court also ruled that the Virgin Islands Government was the proper plaintiff for the territorial law claims and required re-filing of the complaint by the proper parties, which was done on November 18, 2008. AWA and SCA filed an answer, counterclaim and cross-claim against SCRG in response to the complaint on December 4, 2008. SCRG filed an answer to the AWA and SCA cross-claim on January 5, 2009. In response to the plaintiffs' amended complaint, the other former owners of the alumina refinery filed answers, counterclaims, and cross-claims against SCRG and certain agencies of the Virgin Islands government. The owners of the oil refinery filed a motion for summary judgment. Responsive pleadings from plaintiffs and cross-claimants are pending. By order of the magistrate judge, the parties are to make initial disclosures on or before February 17, 2009. At this stage of the proceeding, the company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

As previously reported, in August 2005, Dany Lavoie, a resident of Baie Comeau in the Canadian Province of Quebec, filed a Motion for Authorization to Institute a Class Action and for Designation of a Class Representative against Alcoa Canada Inc., Alcoa Limitee, Societe Canadienne de Metaux Reynolds Limitee and Canadian British Aluminum in the Superior Court of Quebec in the District of Baie Comeau. Plaintiff seeks to institute the class action on behalf of a putative class consisting of all past, present and future owners, tenants and residents of Baie Comeau's St. Georges neighborhood. He alleges that defendants, as the present and past owners and operators of an aluminum smelter in Baie Comeau, have negligently allowed the emission of certain contaminants from the smelter, specifically Polycyclic Aromatic Hydrocarbons or PAHs, that have been deposited on the lands and houses of the St. Georges neighborhood and its environs causing damage to the property of the putative class and causing health concerns for those who inhabit that neighborhood. If allowed to proceed as a class action, plaintiff seeks to compel additional remediation to be conducted by the defendants beyond that already undertaken by them voluntarily, seeks an injunction against further emissions in excess of a limit to be determined by the court in consultation with an independent expert, and seeks money damages on behalf of all class members. A hearing on plaintiff's motion for class certification was held April 24-26, 2007. On May 23, 2007, the court issued its ruling which granted the motion in part and authorized a class action suit to include only people who suffered property damage or personal injury damages caused by the emission of PAHs from the smelter. On September 13, 2007, the plaintiff filed its claim against the original defendants, which the court had authorized in May. At this stage of the proceeding, the company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

As previously reported, on December 5, 2005, Alcoa received service of a lawsuit filed in the United States District Court for the Northern District of New York and styled as Margaret George, et al., v. General Motors Corporation and Alcoa Inc., Docket No. 05-CV-1482. The complaint alleged personal injury and damages arising from exposure to PCB released from the defendants' industrial facilities in Massena, New York and sought certification of a class of plaintiffs comprised of individual Mohawk Indians residing on the Akwesane Territory, a Mohawk Indian Reservation, situated along the St. Lawrence River in the United States and Canada. The suit alleged that approximately 12,000 individuals reside on the reservation. Alcoa investigated the allegations and filed an answer denying liability. In February 2008, the parties reached an agreement on the terms of a settlement. By order of court dated November 19, 2008 all settlement funds were distributed pursuant to the settlement agreement which was filed under seal in the court. The case was dismissed and discontinued by court order dated November 20, 2008. There will be no further reporting on this matter.

As previously reported, in January 2006, in *Musgrave v. Alcoa, et al.*, Warrick Circuit Court, County of Warrick, Indiana; 87-C01-0601-CT-0006, Alcoa Inc. and a subsidiary were sued by an individual, on behalf of himself and all persons similarly situated, claiming harm from alleged exposure to waste that had been disposed in designated pits at the Squaw Creek Mine in the 1970s. During February 2007, class allegations were dropped and the matter now proceeds as an individual claim.

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Also as previously reported, in October 2006, in *Barnett, et al. v. Alcoa and Alcoa Fuels, Inc.*, Warrick Circuit Court, County of Warrick, Indiana; 87C01-0601-PL-499, forty-one plaintiffs sued Alcoa Inc. and a subsidiary, asserting claims similar to the Musgrave matter, discussed above. In November 2007, Alcoa Inc. and its subsidiary filed motions to dismiss both the Musgrave and Barnett cases. In October 2008, the Warrick County Circuit Court granted Alcoa's motions to dismiss, dismissing all claims arising out of alleged occupational exposure to wastes at the Squaw Creek Mine, but in November 2008, the trial court clarified its ruling, indicating that the order does not dispose of plaintiffs' personal injury claims based upon alleged recreational or non-occupational exposure. The parties have each requested that the court certify an interlocutory appeal from the court's rulings and the court indicated that it will grant the parties' request. Plaintiffs also filed a second amended complaint in response to the court's orders granting Alcoa's motions to dismiss. The trial court is likely to stay any further proceedings regarding the second amended complaint while the parties pursue an interlocutory appeal to the Indiana Court of Appeals. The Musgrave and Barnett matters are in their preliminary stages and the company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

As previously reported, on April 5, 2006, Alcoa was notified by the Court of Venice (Tribunal di Venezia) that Alcoa Trasformazioni S.r.l., Fusina site (Venice), was sued by the Italian Minister of Environment and Minister of Public Works for an alleged liability for environmental damages. The plaintiffs asserted that Alcoa, as present owner of the site contaminated by previous activities, had the duty to act promptly to prevent the site from contaminating the Venice Lagoon and its surrounding natural resources. Alcoa Trasformazioni denies responsibility for the pre-existing condition and for failing to eliminate or circumscribe the pollution which was already the object of initiatives by the public authorities and a clear duty of the previous owner and plant seller. Alcoa has sued Alumix and Efim (the sellers of the Fusina site) before the Court of Rome for indemnification against any liability related to the pollution of former Alumix sites, purchased by Alcoa in 1996 (Bolzano, Feltre, Fusina and Portovesme). Plaintiffs seek compensation for damages to the environment plus costs of installing a physical barrier along the plant's border with the Lagoon. At this stage of the proceeding, the company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

As previously reported, in December 2006, SCA was sued by the Commissioner of the Department of Planning and Natural Resources (DPNR), U.S. Virgin Islands, in the Superior Court of the Virgin Islands, Division of St. Croix. The plaintiff alleges violations of the Coastal Zone Management Act and a construction permit issued thereunder. The complaint seeks a civil fine of \$10,000 under the Coastal Zone Management Act, civil penalties of \$10,000 per day for alleged intentional and knowing violations of the Coastal Zone Management Act, exemplary damages, costs, interest and attorney's fees, and other such amounts as may be just and proper. SCA responded to the complaint on February 2, 2007 by filing an answer and motion to disqualify DPNR's private attorney. The parties fully briefed the motion and are awaiting a decision from the court. At this stage of the proceeding, the company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

As previously reported, in December 2006, SCA, along with unaffiliated prior and subsequent owners, were sued by the Commissioner of the DPNR, U.S. Virgin Islands, in the Superior Court of the Virgin Islands, Division of St. Croix. This second suit alleges violations by the defendants of certain permits and environmental statutes said to apply to the facility. The complaint seeks the completion of certain actions regarding the facility, a civil fine from each defendant of \$10,000 under the Coastal Zone Management Act, civil penalties of \$50,000 per day for each alleged violation of the Water Pollution Control Act, \$10,000 per day for alleged intentional and knowing violations of the Coastal Zone Management Act, exemplary damages, costs, interest and attorney's fees, and other such amounts as may be just and proper. SCA responded to the complaint on February 2, 2007 by filing an answer and motion to disqualify DPNR's private attorney. The parties fully briefed the motion and are awaiting a decision from the court. In October 2007, Plaintiff and defendant SCRG entered into a settlement agreement resolving claims against SCRG. Plaintiff filed a notice of dismissal with the court, and the court entered an order dismissing SCRG on November 2, 2007. SCA objected to the dismissal and requested that the court withdraw its order, and the parties have briefed SCA's objection and request. A decision from the court is pending. On November 10, 2007, SCA filed a motion for summary judgment seeking dismissal of all claims in the case. The parties completed briefing of the motion in January 2008. A decision from the court is pending. At this stage of the proceeding, the company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

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On December 8, 2008, Alcoa of Australia (AofA) received a formal notice of prosecution in connection with a dust event that allegedly occurred on May 14, 2006 in the area of AofA's Wagerup alumina refinery's residue storage areas. The Department of Environment and Conservation commenced a formal investigation into the alleged events in late 2007 and interviewed relevant AofA personnel in 2008. The prosecution purports to be undertaken under section 49(2) of the Environmental Protection Act 1986 (WA) which provides that a person who, with criminal negligence, causes or allows pollution to be caused, commits an offense. The maximum potential penalty is \$1,000,000 (AUD). At the initial hearing in January 2009, the matter was adjourned to April 2009. This litigation is in its preliminary stages and the company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

## **Other Matters**

As previously reported, along with various asbestos manufacturers and distributors, Alcoa and its subsidiaries as premises owners are defendants in several hundred active lawsuits filed on behalf of persons alleging injury predominantly as a result of occupational exposure to asbestos at various company facilities. In addition, an Alcoa subsidiary company has been named, along with a large common group of industrial companies, in a pattern complaint where the company's involvement is not evident. Since 1999, several thousand such complaints have been filed. To date, the subsidiary has been dismissed from almost every case that was actually placed in line for trial. Alcoa, its subsidiaries and acquired companies, all have had numerous insurance policies over the years that provide coverage for asbestos based claims. Many of these policies provide layers of coverage for varying periods of time and for varying locations. Alcoa believes that between its reserves and insurance it is adequately covered for its known asbestos exposure related liabilities. The costs of defense and settlement have not been and are not expected to be material to the financial condition of the company.

As previously reported, on July 20, 2006, the European Commission (EC) announced that it has opened an investigation to establish whether an extension of the regulated preferential electricity tariff granted by Italy to some energy intensive industries complies with European Union (EU) state aid rules. The new Italian power tariff modifies the preferential tariff that was in force until December 31, 2005 and extends it through 2010. Alcoa has been operating in Italy for more than 10 years under a power supply structure approved by the EC in 1996. That measure, like the new one, was based on Italian state legislation that provides a competitive power supply to the primary aluminum industry and is not considered state aid by the Italian Government. The EC's announcement states that it has doubts about the measure's compatibility with (EU) legislation and concerns about distortion of competition in the European market of primary aluminum, where energy is an important part of the production costs. The opening of an in-depth investigation gives interested parties the opportunity to comment on the proposed measures. It does not prejudice the outcome of the procedure. It is Alcoa's understanding that the Italian Government's continuation of the electricity tariff was done in conformity with all applicable laws and regulations. Alcoa believes that the total potential impact from a loss of the tariff would be approximately \$21 million, or 15 million, (pre-tax) per month in higher power costs at its Italian smelters. The estimated total potential impact has increased since 2006 due predominantly to the weakening of the U.S. dollar, as the liability would be payable in Euros in the event of a negative outcome. While Alcoa believes that any additional cost would only be assessed prospectively from the date of the EC's decision on this matter, it is possible that the EC could rule that the assessment must be retroactively applied to January 2006. If the EC's investigation concludes that extension of the regulated preferential electricity tariff is unlawful, Alcoa will follow through with the appeal it filed before the Court of First Instance in Luxembourg in November of 2006 in response to the investigation.

As previously reported, in November 2006, in *Curtis v. Alcoa Inc.*, Civil Action No. 3:06cv448 (E.D. Tenn.), a class action was filed by plaintiffs representing approximately 13,000 retired former employees of Alcoa or Reynolds and spouses and dependents of such retirees alleging violation of the Employee Retirement Income Security Act (ERISA) and the Labor-Management Relations Act by requiring plaintiffs, beginning January 1, 2007, to pay health insurance premiums and increased co-payments and co-insurance for certain medical procedures and prescription drugs. Plaintiffs allege these changes to their retiree health care plans violate their rights to vested health care benefits. Plaintiffs additionally allege that Alcoa has breached its fiduciary duty to plaintiffs under ERISA by misrepresenting to them that their health benefits would never change. Plaintiffs seek injunctive and declaratory relief, back payment of

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benefits and attorneys' fees. Alcoa has consented to treatment of plaintiffs' claims as a class action. During the fourth quarter of 2007, following briefing and argument, the court ordered consolidation of the plaintiffs' motion for preliminary injunction with trial, certified a plaintiff class, bifurcated and stayed the plaintiffs' breach of fiduciary duty claims, struck the plaintiffs' jury demand, but indicated it would use an advisory jury, and initially set a trial date of September 17, 2008. In August 2008, the court set a new trial date of March 24, 2009 and in January 2009 moved it to September 22, 2009. Alcoa estimates that, in the event of an unfavorable outcome, the maximum exposure would be an additional post-retirement benefit liability of approximately \$300 million and approximately \$40 million of expense (includes an interest cost component) annually, on average, for the next 11 years. Alcoa believes that it has valid defenses and intends to defend this matter vigorously. However, at this stage of the proceeding, the company is unable to reasonably predict the outcome.

As previously reported, on January 25, 2007, the EC announced that it has opened an investigation to establish whether the regulated electricity tariffs granted by Spain comply with EU state aid rules. Alcoa has been operating in Spain for more than 9 years under a power supply structure approved by the Spanish Government in 1986, an equivalent tariff having been granted in 1983. The investigation is limited to the year 2005 and it is focused both on the energy-intensive consumers and the distribution companies. The investigation provided 30 days to any interested party to submit observations and comments to the EC. With respect to the energy-intensive consumers, the EC is opening the investigation on the assumption that prices paid under the tariff in 2005 were lower than the pool price mechanism, therefore being, in principle, artificially below market conditions. Alcoa has submitted comments in which the company has provided evidence that prices paid by energy-intensive consumers were in line with the market, in addition to various legal arguments defending the legality of the Spanish tariff system. Therefore, it is Alcoa's understanding that the Spanish tariff system for electricity is in conformity with all applicable laws and regulations, and therefore no state aid is present in that tariff system. While Alcoa believes that any additional cost would only be assessed for the year 2005, it is possible that the EC could extend its investigation to later years. Alcoa believes that the total potential impact from an unfavorable decision would be approximately \$11 million, or \$8 million, (pre-tax) for 2005. If the EC's investigation concludes that the regulated electricity tariffs for industries are unlawful, Alcoa will have an opportunity to challenge the decision in the EU courts.

As previously reported, on February 27, 2008, Alcoa Inc. received notice that Aluminium Bahrain B.S.C. (Alba) had filed suit against Alcoa Inc. and Alcoa World Alumina LLC (collectively, "Alcoa"), and others, in the U.S. District Court for the Western District of Pennsylvania (the "Court"), Civil Action number 08-299, styled Aluminium Bahrain B.S.C. v. Alcoa Inc., Alcoa World Alumina LLC, William Rice, and Victor Phillip Dahdaleh. The complaint alleges that certain Alcoa entities and their agents, including Victor Phillip Dahdaleh, have engaged in a conspiracy over a period of 15 years to defraud Alba. The complaint further alleges that Alcoa and its employees or agents (1) illegally bribed officials of the government of Bahrain and (or) officers of Alba in order to force Alba to purchase alumina at excessively high prices, (2) illegally bribed officials of the government of Bahrain and (or) officers of Alba and issued threats in order to pressure Alba to enter into an agreement by which Alcoa would purchase an equity interest in Alba, and (3) assigned portions of existing supply contracts between Alcoa and Alba for the sole purpose of facilitating alleged bribes and unlawful commissions. The complaint alleges that Alcoa and the other defendants violated the Racketeer Influenced and Corrupt Organizations Act (RICO) and committed fraud. Alba's complaint seeks compensatory, consequential, exemplary, and punitive damages, rescission of the 2005 alumina supply contract, and attorneys' fees and costs. Alba seeks treble damages with respect to its RICO claims. On February 26, 2008, Alcoa Inc. had advised the U.S. Department of Justice (DOJ) and the Securities and Exchange Commission (SEC) that it had recently become aware of these claims, had already begun an internal investigation, and intended to cooperate fully in any investigation that the DOJ or the SEC may commence. On March 17, 2008, the DOJ notified Alcoa that it had opened a formal investigation and Alcoa has been cooperating with the government. In response to a motion filed by the DOJ on March 27, 2008, the Court ordered the suit filed by Alba to be administratively closed and that all discovery be stayed to allow the DOJ to fully conduct an investigation without the interference and distraction of ongoing civil litigation. The Court further ordered that the case will be reopened at the close of the DOJ's investigation. The company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.



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As previously reported, on July 21, 2008, the Teamsters Local #500 Severance Fund and the Southeastern Pennsylvania Transportation Authority filed a shareholder derivative suit in the civil division of the Court of Common Pleas of Allegheny County, Pennsylvania against certain officers and directors of Alcoa claiming breach of fiduciary duty, gross mismanagement, and other violations. This derivative action stems from the previously disclosed civil litigation brought by Aluminium Bahrain B.S.C. (Alba) against Alcoa, Alcoa World Alumina LLC, Victor Dahdaleh, and others, and the subsequent investigation of Alcoa by the DOJ and SEC with respect to Alba's claims. The Alba suit and the investigation are more fully described immediately above. This derivative action claims that the defendants caused or failed to prevent the matters alleged in the Alba lawsuit. The director defendants filed a motion to dismiss on November 21, 2008. The derivative action is in its preliminary stage and the company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

### **Item 4. Submission of Matters to a Vote of Security Holders.**

No matters were submitted to a vote of the company's security holders during the fourth quarter of 2008.

### **Item 4A. Executive Officers of the Registrant.**

The names, ages, positions and areas of responsibility of the executive officers of the company as of February 13, 2009 are listed below.

**Alain J. P. Belda**, 65, Director and Chairman of the Board. Mr. Belda was elected to Alcoa's Board of Directors in September 1998 and became Chairman in January 2001. He served as Chairman of the Board and Chief Executive Officer of Alcoa from January 2001 to May 8, 2008. He was President and Chief Executive Officer of Alcoa from May 1999 to January 2001; President and Chief Operating Officer from 1997 to May 1999; Vice Chairman from 1995 to 1997; and Executive Vice President from 1994 to 1995.

**William F. Christopher**, 54, Executive Vice President - Alcoa and Group President, Engineered Products and Solutions. In January 2003, Mr. Christopher assumed responsibility for Alcoa's global automotive market and since September 2002, has been Group President for Alcoa's Aerospace and Commercial Transportation Group. He also led the customer and marketing initiatives for growth for the company until January 2006. In 2001, he assumed responsibility for the global deployment of the Alcoa Business System and the company's customer and quality initiatives. Mr. Christopher was elected a Vice President of Alcoa in 1999 and Executive Vice President in 2001. He was President of Alcoa Forged Products from 1996 to 2001.

**Klaus Kleinfeld**, 51, Director, President and Chief Executive Officer. Mr. Kleinfeld was elected to Alcoa's Board of Directors in November 2003 and was elected President and Chief Executive Officer of Alcoa on May 8, 2008. He was President and Chief Operating Officer of Alcoa from October 1, 2007 to May 8, 2008. Mr. Kleinfeld was President and Chief Executive Officer of Siemens AG from January 2005 to June 2007. He served as Deputy Chairman of the Managing Board and Executive Vice President of Siemens AG from 2004 to January 2005. He was President and Chief Executive Officer of Siemens Corporation, the U.S. arm of Siemens AG, from 2002 to 2004, and was Chief Operating Officer of Siemens Corporation from January to December 2001.

**Charles D. McLane, Jr.**, 55, Executive Vice President and Chief Financial Officer. Mr. McLane was elected an Alcoa Executive Vice President in September 2007 and was elected Vice President and Chief Financial Officer of Alcoa in January 2007. He was elected Vice President and Corporate Controller in October 2002. He joined Alcoa in May 2000 as director of investor relations, following Alcoa's merger with Reynolds Metals Company. He became Assistant Treasurer of Reynolds in 1999 and Assistant Controller of that company in 1995.

**Bernt Reitan**, 60, Executive Vice President - Alcoa and Group President, Global Primary Products. Mr. Reitan was named Group President, Global Primary Products in October 2004 and was elected an Alcoa Executive Vice President in November 2004. He was named Group President, Alcoa Primary Products in January 2004. He was elected Vice President

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of Primary Metals in 2003. He was named President of Alcoa World Alumina and Chemicals and was elected a Vice President of Alcoa in July 2001. He joined Alcoa in 2000 as general manager of Alcoa World Alumina in Europe. Before joining Alcoa, Mr. Reitan held a series of positions with Elkem in Norway over a twenty-year period, serving as Senior Vice President of Materials and Technology and managing director of Elkem Aluminium ANS from 1988 to June 2000.

**J. Michael Schell**, 61, Executive Vice President – Business Development and Law/Chief Compliance Officer. Mr. Schell was elected Executive Vice President – Business Development and Law of Alcoa effective May 8, 2008 and Chief Compliance Officer of Alcoa effective July 18, 2008. He was Vice Chairman of Global Banking of Citigroup Inc. from mid-2005 until he joined Alcoa. He was a mergers and acquisitions lawyer with Skadden, Arps, Slate, Meagher & Flom LLP from 1979 to mid-2005, being elected a partner of that firm in 1984. He was an attorney with Cadwalader, Wickersham & Taft from 1976 to 1979.

**Tony R. Thene**, 48, Vice President and Controller. Mr. Thene was elected to his current position effective January 18, 2008. He joined Alcoa in 1989 and served in a series of financial management positions from that time to his most recent appointment. He was director of investor relations of Alcoa from January 2006 to January 2008. He served as chief financial officer of Alcoa's Global Mill Products from November 2004 to January 2006. He became vice president, finance, of Alcoa World Alumina and Chemicals in 2002 and was manager of Alcoa's corporate financial analysis and planning group in 2001. He served as division controller for the Alcoa Forging business from 1998 to 2001.

**Helmut Wieser**, 55, Executive Vice President – Alcoa and Group President, Global Rolled Products, Hard Alloy Extrusions & Asia. Mr. Wieser was elected an Alcoa Executive Vice President in November 2005 and was named Group President, Global Rolled Products, Hard Alloy Extrusions and Asia at that time. Mr. Wieser was named Group President, Mill Products Europe/North America in October 2004 and was elected a Vice President of Alcoa in November 2004. He joined Alcoa in October 2000 as Vice President of Operations in Europe and in 2004 he became President of Alcoa's flat rolled products business in Europe. Before joining Alcoa, Mr. Wieser worked for Austria Metall Group, where he was an executive member of the board and chief operating officer from 1997 to 2000.

The company's executive officers are elected or appointed to serve until the next annual meeting of the Board of Directors (held in conjunction with the annual meeting of shareholders) except in the case of earlier death, retirement, resignation or removal.

**Table of Contents****PART II****Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases****of Equity Securities.**

The company's common stock is listed on the New York Stock Exchange, Inc. (symbol AA). The company's quarterly high and low trading stock prices and dividends per common share for 2007 and 2008 are shown below.

Quarter	2008			2007		
	High	Low	Dividend	High	Low	Dividend
First	\$ 39.67	\$ 26.69	\$ .17	\$ 36.05	\$ 28.09	\$ .17
Second	44.77	33.65	.17	42.90	33.63	.17
Third	35.66	20.93	.17	48.77	30.25	.17
Fourth	22.35	6.80	.17	40.70	33.22	.17
Year	\$ 44.77	\$ 6.80	\$ .68	\$ 48.77	\$ 28.09	\$ .68

The number of record holders of common stock was approximately 292,000 as of February 11, 2009.

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### **Stock Performance Graphs**

The following graphs compare the most recent five-year and 10-year performance of Alcoa common stock with (1) the Standard & Poor's 500 Index and (2) the Standard & Poor's 500 Materials Index. Such information shall not be deemed to be filed. Alcoa is a component of the Standard & Poor's 500 Materials Index, a group of 29 companies which closely mirror the companies Alcoa used for return on capital comparisons to establish performance equity awards for senior management in 2008.

As of December 31,	2003	2004	2005	2006	2007	2008
Alcoa Inc.	\$ 100	\$ 84	\$ 81	\$ 84	\$ 104	\$ 33
S&P 500	\$ 100	\$ 111	\$ 116	\$ 135	\$ 142	\$ 90
S&P Materials	\$ 100	\$ 113	\$ 118	\$ 140	\$ 172	\$ 93

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As of December 31,	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Alcoa Inc.</b>	\$ 100	\$ 226	\$ 185	\$ 200	\$ 131	\$ 223	\$ 188	\$ 181	\$ 187	\$ 232	\$ 74
<b>S&amp;P 500</b>	\$ 100	\$ 121	\$ 110	\$ 97	\$ 76	\$ 97	\$ 108	\$ 113	\$ 131	\$ 138	\$ 87
<b>S&amp;P Materials</b>	\$ 100	\$ 125	\$ 106	\$ 109	\$ 103	\$ 143	\$ 162	\$ 169	\$ 200	\$ 245	\$ 133

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([www.researchdatagroup.com/S&P.htm](http://www.researchdatagroup.com/S&P.htm))

**Table of Contents****Issuer Purchases of Equity Securities**

Period		Total Number  of Shares Purchased (a)	Average Price  Paid  Per Share	Total Number of Shares Purchased as Part of Publicly Announced Repurchase Plans or Programs (b)	Maximum Number  of Shares that May Yet Be Purchased Under the Plans or Programs (b)
January 1	January 31, 2008	13,977,044	\$ 30.79	13,971,626	135,250,571
February 1	February 29, 2008	24,319	\$ 38.23	-	135,250,571
March 1	March 31, 2008	1,301	\$ 38.71	-	135,250,571
Total for quarter ended March 31, 2008		14,002,664	\$ 30.81	13,971,626	135,250,571
April 1	April 30, 2008	-	-	-	135,250,571
May 1	May 31, 2008	1,140,723	\$ 41.55	750,000	134,500,571
June 1	June 30, 2008	3,605,763	\$ 39.94	3,600,000	130,900,571
Total for quarter ended June 30, 2008		4,746,486	\$ 40.33	4,350,000	130,900,571
July 1	July 31, 2008	5,350,000	\$ 33.63	5,350,000	125,550,571
August 1	August 31, 2008	5,450,000	\$ 31.99	5,450,000	120,100,571
September 1	September 30, 2008	4,300,000	\$ 28.71	4,300,000	115,800,571
Total for quarter ended September 30, 2008		15,100,000	\$ 31.64	15,100,000	115,800,571
October 1	October 31, 2008	-	-	-	115,800,571
November 1	November 30, 2008	-	-	-	115,800,571
December 1	December 31, 2008	-	-	-	115,800,571
Total for quarter ended December 31, 2008		-	-	-	115,800,571

(a) This column includes (i) purchases under Alcoa's publicly announced share repurchase program described in (b) below and (ii) the deemed surrender to the company by plan participants of shares of common stock to satisfy the exercise price related to the exercise of employee stock options, in each case to the extent applicable during the period indicated. The shares used to satisfy the exercise price related to stock options are not considered part of the publicly announced share repurchase program approved by Alcoa's Board of Directors as described in (b) below.

(b) On October 8, 2007, Alcoa's Board of Directors approved a new share repurchase program, which was publicly announced by Alcoa on October 9, 2007. The new program authorizes the purchase of up to 25% (or approximately 217 million shares) of the outstanding common stock of Alcoa at December 31, 2006, in the open market or through privately negotiated transactions, directly or through brokers or agents, and expires on December 31, 2010. In October 2008, Alcoa elected to temporarily suspend share repurchases under this program to preserve liquidity in light of the global economic downturn.

**Table of Contents****Item 6. Selected Financial Data.**

(in millions, except per-share amounts and ingot prices)

<b>For the year ended December 31,</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>
Sales	\$ 26,901	\$ 29,280	\$ 28,950	\$ 24,149	\$ 21,370
Income from continuing operations	229	2,814	2,226	1,285	1,337
(Loss) income from discontinued operations	(303)	(250)	22	(50)	(27)
Cumulative effect of accounting changes	-	-	-	(2)	-
Net (loss) income	(74)	2,564	2,248	1,233	1,310
Earnings (loss) per share:					
Basic:					
Income from continuing operations	\$ 0.28	\$ 3.27	\$ 2.56	\$ 1.47	\$ 1.53
(Loss) income from discontinued operations	(0.37)	(0.29)	0.03	(.06)	(.03)
Cumulative effect of accounting changes	-	-	-	-	-
Net (loss) income	\$ (0.09)	\$ 2.98	\$ 2.59	\$ 1.41	\$ 1.50
Diluted:					
Income from continuing operations	\$ 0.28	\$ 3.23	\$ 2.54	\$ 1.46	\$ 1.52
(Loss) income from discontinued operations	(0.37)	(0.28)	0.03	(.06)	(.03)
Cumulative effect of accounting changes	-	-	-	-	-
Net (loss) income	\$ (0.09)	\$ 2.95	\$ 2.57	\$ 1.40	\$ 1.49
Alcoa's average realized price per metric ton of aluminum	\$ 2,714	\$ 2,784	\$ 2,665	\$ 2,044	\$ 1,867
Cash dividends paid per common share	\$ .68	\$ .68	\$ .60	\$ .60	\$ .60
Total assets*	37,822	38,803	37,149	33,489	32,498
Short-term borrowings	478	563	460	273	243
Commercial paper	1,535	856	1,472	912	630
Long-term debt, including amounts due within one year	8,565	6,573	5,287	5,334	5,398

\*Total assets as of December 31, 2006, 2005, and 2004 were reclassified to reflect \$34, \$207, and \$111, respectively, of cash collateral held that Alcoa elected to net against the fair value amounts recognized for certain derivative instruments executed with the same counterparties under master netting arrangements. There was no cash collateral held as of December 31, 2007. This election was made under the provisions of FSP FIN 39-1, which was adopted by Alcoa on January 1, 2008 (see Recently Adopted Accounting Standards in Part II Item 7 for additional information).

The financial information for all prior periods presented was reclassified to reflect discontinued operations and assets held for sale. See Note B to the Consolidated Financial Statements for additional information.

In addition to the operational results presented in Management's Discussion and Analysis of Financial Condition and Results of Operations, other significant items that impacted results included, but were not limited to, the following:

- 2008: Sale of the Packaging and Consumer businesses, restructuring and other charges associated with the disposition and planned sale of other businesses, and discontinued operations
- 2007: Sale of a significant investment in China, restructuring and other charges associated with the disposition and planned sale of businesses, including a related discrete income tax charge, and costs resulting from an acquisition offer for Alcan Inc.
- 2006: Disposition of a non-core business, restructuring and other charges, including impairment charges associated with the formation of a joint venture and other assets to be disposed of, and lower income tax expense associated with discrete items

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2005: Acquisitions and dispositions of businesses, restructuring and other charges, the sale of investments, and a tax benefit resulting from the finalization of certain tax reviews and audits



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2004: Disposition of businesses, restructuring and other charges, changes in the provision for income taxes, the restructuring of debt and associated settlement of interest rate swaps, the effects of the Bécancour strike, the sale of a portion of Alcoa's interest in the Juruti bauxite project, environmental charges, the termination of an alumina tolling arrangement, and discontinued operations

The data presented in the Selected Financial Data table should be read in conjunction with the information provided in Management's Discussion and Analysis of Financial Condition and Results of Operations and the Notes to the Consolidated Financial Statements.

### **Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.**

(dollars in millions, except per-share amounts and ingot prices; production and shipments in thousands of metric tons [kmt])

#### **Overview**

##### **Our Business**

Alcoa is the world leader in the production and management of primary aluminum, fabricated aluminum, and alumina combined, through its active and growing participation in all major aspects of the industry: technology, mining, refining, smelting, fabricating, and recycling. Aluminum is a commodity that is traded on the London Metal Exchange (LME) and priced daily based on market supply and demand. Aluminum and alumina represent more than three-fourths of Alcoa's revenues, and the price of aluminum influences the operating results of Alcoa. Nonaluminum products include precision castings and aerospace and industrial fasteners. Alcoa's products are used worldwide in aircraft, automobiles, commercial transportation, packaging, building and construction, oil and gas, defense, and industrial applications.

Alcoa is a global company operating in 35 countries. Based upon the country where the point of sale occurred, North America and Europe generated 54% and 26%, respectively, of Alcoa's sales. In addition, Alcoa has investments and activities in Australia, Brazil, China, Iceland, Guinea, and Russia, all of which present opportunities for substantial growth. Governmental policies and other economic factors, including inflation and fluctuations in foreign currency exchange rates and interest rates, affect the results of operations in these countries.

##### **Management Review of 2008 and Outlook for the Future**

The following items represent a summary of financial and nonfinancial information for 2008:

Sales of \$26,901, despite the absence of 10 months of revenue related to the Packaging and Consumer businesses;

Income from continuing operations of \$229, or \$0.28 per diluted share, which includes \$670 of restructuring and other charges;

Cash from operations of \$1,234, reduced by pension contributions of \$523;

Cash on hand of \$762, almost double historical levels;

Debt-to-capital ratio of 42.5%;

Significant progress made in the refinery expansion and bauxite mine development in Brazil;

Successful start-up of the first greenfield smelter in two decades;

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Secured long-term power contracts for almost half of the global smelting system; and

Completed the divestiture of the Packaging and Consumer businesses.

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In 2008, the Company was faced with numerous challenges, including significantly higher costs for raw materials, energy, and other input costs and the continued depreciation of the U.S. dollar against the Brazilian real. During the second half of 2008, global economic markets began an unprecedented decline, which resulted in a historic drop in the LME cash price per metric ton. In response to such extraordinary market conditions, management made the decision to reduce Alcoa's aluminum and alumina production by 750 kmt and 1,500 kmt, respectively. Management also initiated the following actions to secure cash and safeguard Alcoa's liquidity: halted all non-critical capital expenditures; suspended the existing share repurchase program; added a new 364-day revolving credit facility; initiated global headcount reductions; instituted a global salary and hiring freeze; and decided to sell the Electrical and Electronic Solutions, Global Foil, and Transportation Products Europe businesses and to close the lone remaining Auto Cast Wheels facility. Additionally, Alcoa agreed to exchange its stake in the Sapa AB joint venture for Orkla ASA's stake in the Elkem Aluminium ANS joint venture. This transaction will provide Alcoa with increased smelting capacity by gaining full control of two smelters with competitive hydropower contracts while divesting itself of a business that management determined to exit in 2007.

While global demand for aluminum is expected to continue to decline in 2009, the actions that were initiated near the end of 2008 will allow Alcoa to emerge even stronger when the global economy recovers. In 2009, management will work toward the following goals:

Conserve cash and preserve liquidity;

Complete the São Luis alumina refinery expansion and Juruti bauxite mine development in Brazil; and

Seek out and take advantage of unique opportunities that arise during the global economic downturn.

## **Results of Operations**

### **Earnings Summary**

Alcoa's income from continuing operations for 2008 was \$229, or \$0.28 per diluted share, compared with \$2,814, or \$3.23 per share, in 2007. The decrease in income from continuing operations was mostly due to the following: the absence of the gain related to the sale of Alcoa's investment in Aluminum Corporation of China Limited (Chalco); significantly higher charges for the 2008 restructuring program; continued increases in raw materials, energy, and other inputs; increased net unfavorable foreign currency movements; the absence of all of the businesses within the Packaging and Consumer segment for 10 months; and costs associated with a gas outage in Western Australia and a complete smelter curtailment in Rockdale, TX.

These negative impacts were slightly offset by the absence of certain costs associated with the Rockdale, Tennessee, and Iceland smelters and the absence of transaction costs and interest charges related to a potential business combination, all of which occurred in 2007.

Net loss for 2008 was \$74, or \$0.09 per diluted share, compared with net income of \$2,564, or \$2.95 per share, in 2007. In 2008, the net loss of \$74 included a loss from discontinued operations of \$303, all related to the Electrical and Electronic Solutions (EES) business.

Alcoa's income from continuing operations for 2007 was \$2,814, or \$3.23 per diluted share, compared with \$2,226, or \$2.54 per share, in 2006. The increase in income from continuing operations was primarily due to the following: higher realized prices for alumina and aluminum; strong demand in the downstream businesses serving the aerospace and packaging markets; a gain on the sale of the investment in Chalco; a favorable adjustment related to the estimated fair value of the soft alloy extrusion business, a decrease in the charge recorded for last-in, first-out (LIFO) inventory reserves; a non-recurring foreign currency gain in Russia; and the absence of labor contract and strike preparation costs recognized in 2006.

These positive impacts were mostly offset by the following items: significant increases in energy, raw materials, and other input costs; net unfavorable foreign currency movements due to a significantly weaker U.S. dollar; asset

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impairments and restructuring charges associated with the Packaging and Consumer businesses and the Automotive Castings business, as well as a discrete income tax charge related to the Packaging and Consumer businesses; smelter curtailment costs associated with the power outage in Tennessee and the shutdown of one of the potlines in Rockdale; startup costs at the Iceland smelter; costs associated with the national labor strike in Guinea, the repairs of the refinery in Jamaica, and the restart of one of Intalco's smelter lines; transaction costs and interest charges associated with a potential business acquisition; stock-based compensation expense for reloaded options; and the absence of a favorable legal settlement that occurred in 2006 related to a former Reynolds distribution business.

Net income for 2007 was \$2,564, or \$2.95 per diluted share, compared with \$2,248, or \$2.57 per share, in 2006. In 2007, net income of \$2,564 included a loss from discontinued operations of \$250, comprised of a \$243 loss related to the EES business, an \$11 loss related to working capital and other adjustments associated with the 2006 sale of the home exteriors business, and net operating income of \$4 of other discontinued businesses.

In June 2008, a major gas supplier to Alcoa's Western Australia refining operations (part of Alcoa of Australia) suffered a pipeline rupture and fire, which resulted in a complete shutdown of the supplier's gas production operations at a certain hub and a declaration of force majeure by the supplier to all customers. The disruption in gas supply caused an immediate reduction in Alcoa's production capacity and required the purchase of alternative fuel at a much higher cost than the natural gas displaced resulting in a significant negative impact on operations. As a result, shortly thereafter, Alcoa of Australia notified its own customers that it was declaring force majeure under its alumina supply contracts. During the second half of 2008, the supplier partially restored the gas supply to Alcoa of Australia (full restoration is expected in the first half of 2009). In addition, insurance recoveries of \$52 were received in the second half of 2008. Net of insurance benefits, Alcoa's earnings impact of the disruption in gas supply was \$49 after-tax and minority interest (\$102 before tax and minority interest) in 2008. The Alumina segment was impacted by \$33 after-tax (\$47 before tax) and the remaining impact of \$29 after-tax (\$55 before tax) was reflected in Corporate due to Alcoa's captive insurance program. Alcoa of Australia is part of Alcoa World Alumina and Chemicals (AWAC), which is 60% owned by Alcoa and 40% owned by Alumina Limited.

Also in June 2008, Alcoa temporarily idled half of the aluminum production (three of six operating potlines or 120 kmt) at its Rockdale smelter due to ongoing power supply issues with Rockdale's onsite supplier and the uneconomical power that Alcoa was forced to purchase in the open market as a result of such issues. In September 2008, Alcoa announced it was temporarily idling the remaining three potlines, or 147 kmt, as a result of the cumulative effect of operating only half of the smelter, well-known issues regarding the cost and long-term reliability of the power supply, and overall market conditions. In 2008, the earnings impact of the idled potlines was \$55 (\$90 pretax). Alcoa is seeking damages and other relief from its power supplier through ongoing litigation. Additionally, in conjunction with the idling of all six potlines, Alcoa recorded restructuring charges in 2008 of \$31 (\$48 pretax) mostly for the layoff of approximately 870 employees (see Restructuring and Other Charges below for additional information).

Late in 2008, management made the decision to reduce Alcoa's alumina and aluminum production in response to the significant economic downturn. As a result of this decision, including the already completed production curtailment at the Rockdale smelter, reductions of 750 kmt, or 18%, of annualized output of Alcoa's global smelting system were implemented. Smelters located in the United States (Tennessee, Indiana, and Washington) and Canada will be partially or fully curtailed. Also, alumina production will be reduced accordingly by a total of 1,500 kmt across the global refining system, including a partial curtailment at the Point Comfort, TX refinery. The alumina and aluminum production curtailments will be fully implemented by the end of the first quarter of 2009.

**Sales** Sales for 2008 were \$26,901 compared with sales of \$29,280 in 2007, a decline of \$2,379, or 8%. The decrease was driven mainly by the absence of 10 months of sales (\$2,781) from the businesses within the Packaging and Consumer segment, the absence of sales from the soft alloy extrusion business (\$1,115 in 2007), and volume declines for most downstream businesses, especially related to the automotive and commercial transportation markets in North America and Europe. These negative impacts were principally offset by significantly higher primary aluminum volumes, mostly as a result of sales related to the production of the Iceland smelter for a full year, and favorable foreign currency movements, primarily due to a stronger Euro and Australian dollar.

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Sales for 2007 were \$29,280 compared with sales of \$28,950 in 2006, an increase of \$330 or 1%. The increase was primarily due to higher realized prices for alumina and aluminum of 7% and 4%, respectively; an increase in primary aluminum volume; higher demand in the aerospace and packaging markets; and favorable foreign currency movements due to a stronger Euro. These positive contributions were mostly offset by the absence of seven months of sales associated with the soft alloy extrusion business.

**Cost of Goods Sold** COGS as a percentage of sales was 82.4% in 2008 compared with 77.9% in 2007. The increase in the percentage was mainly the result of continued cost increases in raw materials, energy, and other inputs; unfavorable foreign currency movements due to a significantly weaker U.S. dollar; the production at the Iceland smelter that did not occur in 2007; and the impacts of the gas outage in Western Australia and the 2008 smelter curtailment at Rockdale. These items were primarily offset by the absence of the businesses within the Packaging and Consumer segment for 10 months (84.0%); the absence of the soft alloy extrusion business (97.1% in 2007); productivity improvements in most of the businesses within the Engineered Products and Solutions segment; and the absence of certain costs incurred in 2007 as a result of production curtailments associated with the Tennessee and Rockdale smelters and startup costs at the Iceland smelter, among others.

COGS as a percentage of sales was 77.9% in 2007 compared with 75.8% in 2006. The percentage increase was negatively impacted by significant increases in energy, raw materials, and other input costs, as a result of global inflation, and unfavorable foreign currency movements due to a weaker U.S. dollar. Other items that contributed to the higher percentage include smelter curtailment costs associated with the power outage in Tennessee and the shutdown of one of the potlines in Rockdale; repair costs at the Jamaica refinery due to the damage caused by Hurricane Dean; startup costs at the Iceland smelter; costs associated with the national labor strike in Guinea; restart costs for one of Intalco's smelter lines; and the absence of a 2006 favorable legal settlement related to a former Reynolds distribution business. All of these items were partially offset by the absence of the soft alloy extrusion business; the increase in sales; a decrease in the charge recorded for LIFO inventory reserves; and the absence of labor contract and strike preparation costs that occurred in 2006.

**Selling, General Administrative, and Other Expenses** SG&A expenses were \$1,167, or 4.3% of sales, in 2008 compared with \$1,444, or 4.9% of sales, in 2007. Expenses decreased by \$277 mostly due to the absence of 10 months of expenses (\$180) from the businesses within the Packaging and Consumer segment; the absence of transaction costs related to the 2007 offer for Alcan Inc. (\$46); and the absence of expenses from the soft alloy extrusion business (\$33 in 2007).

SG&A expenses were \$1,444, or 4.9% of sales, in 2007 compared with \$1,372, or 4.7% of sales, in 2006. Expenses increased by \$72 primarily due to \$46 in transaction costs (investment banking, legal, audit-related, and other third-party expenses) related to the offer for Alcan Inc., an increase in stock-based compensation expense as a result of reload features of exercised stock options, and unfavorable foreign currency movements due to a weaker U.S. dollar. Partially offsetting these increases was the absence of seven months of expenses related to the soft alloy extrusion business.

**Research and Development Expenses** R&D expenses were \$246 in 2008 compared with \$238 in 2007 and \$201 in 2006. The increase in 2008 as compared to 2007 was driven mainly by expenditures related to various projects for the businesses within the Flat-Rolled Products segment and the Primary Metals segment, partially offset by the absence of 10 months of expenditures (\$16) from the businesses within the Packaging and Consumer segment. The increase in 2007 as compared to 2006 was primarily due to expenditures related to various projects for the businesses within the Flat-Rolled Products segment and the Primary Metals segment.

**Provision for Depreciation, Depletion, and Amortization** The provision for DD&A was \$1,234 in 2008 compared with \$1,244 in 2007. The decline of \$10, or 1%, was principally the result of the absence of nine months of depreciation from the businesses within the Packaging and Consumer segment (\$89 in 2007) and the extension of depreciable lives for the majority of refining and smelting locations and various rolled products and hard alloy extrusions locations based upon a review of estimated useful lives completed during 2008 (\$61). Offsetting these

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reductions was a significant increase (\$83) in depreciation expense related to the Iceland smelter and Norway anode facility being in service for a full year and unfavorable foreign currency movements as a result of a weaker U.S. dollar.

The provision for DD&A was \$1,244 in 2007 compared with \$1,252 in 2006. The decrease of \$8, or 1%, was primarily due to the cessation of depreciation beginning in November 2006 related to the soft alloy extrusion business and beginning in October 2007 associated with the businesses in the Packaging and Consumer segment, all of which was the result of the classification of these businesses as held for sale. These decreases were mostly offset by an increase in depreciation related to placing growth projects into service, such as the Pinjarra, Australia refinery expansion and the Jamaica Early Works Program that were both placed in service during 2006, and the start-up of operations related to the Iceland smelter and the Mosjøen anode facility during 2007.

**Restructuring and Other Charges** Restructuring and other charges for each of the three years in the period ended December 31, 2008 were comprised of the following:

	2008	2007	2006
Asset impairments	\$ 670	\$ 214	\$ 442
Layoff costs	183	35	71
Other exit costs	109	47	35
Reversals of previously recorded layoff and other exit costs*	(23)	(28)	(41)
Restructuring and other charges	\$ 939	\$ 268	\$ 507

\* Reversals of previously recorded layoff and other exit costs resulted from changes in facts and circumstances that led to changes in estimated costs.

Employee termination and severance costs were recorded based on approved detailed action plans submitted by the operating locations that specified positions to be eliminated, benefits to be paid under existing severance plans, union contracts or statutory requirements, and the expected timetable for completion of the plans.

**2008 Restructuring Program** Late in 2008, Alcoa took specific actions to reduce costs and strengthen its portfolio, partly due to the current economic downturn. Such actions include targeted reductions, curtailments, and plant closures and consolidations, which will reduce headcount by approximately 5,400 by the end of 2009, resulting in severance charges of \$138 (\$98 after-tax and minority interests), asset impairments of \$156 (\$88 after-tax and minority interests), and other exit costs of \$58 (\$57 after-tax). The significant components of these actions were as follows:

As a result of recent market conditions, the Primary Metals segment will reduce production by 483 kmt and the Alumina segment will reduce production by a total of 1,500 kmt, all of which will be fully implemented by the end of the first quarter of 2009. These production curtailments as well as targeted reductions will result in the elimination of approximately 1,110 positions totaling \$23 in severance costs. Asset impairments of \$116 related to these two segments were also recognized, including the write off of \$84 in engineering costs related to a 1,500 kmt planned expansion of Jamalco's Clarendon, Jamaica refinery.

The Flat-Rolled Products segment was restructured through the following actions:

Restructuring and downsizing of the Mill Products businesses in Europe and North America, resulting in severance charges of \$53 for the reduction of approximately 850 positions;

Optimization of the Global Hard Alloy Extrusion operations, resulting in severance charges of \$13 for a headcount reduction of approximately 240 and asset impairments of \$3;

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Alignment of production with demand at operations in Russia, through the elimination of approximately 1,400 positions resulting in severance charges of \$7;

The shutdown of the Foil business in Bohai, resulting in severance charges of \$6 for the reduction of approximately 400 positions, asset impairments of \$24, and other exits costs of \$54, primarily related to lease termination costs.

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The Engineered Products and Solutions segment was restructured through the following actions:

Exiting of the Auto Cast Wheel business, through the closure of the only remaining facility, which employs approximately 270, by June 2009 for severance costs of \$2;

Consolidation of operations in the Building and Construction Systems business to maximize operating efficiencies and align capacity with the decline in the commercial building and construction markets, resulting in severance charges of \$6 for the elimination of approximately 500 positions;

Alignment of production with demand across the Power and Propulsion business, resulting in the reduction of approximately 250 positions for a cost of \$6;

Other severance charges of \$8 for the elimination of approximately 250 positions, asset impairments of \$13, and other exit costs of \$1.

In order to reduce overhead serving various businesses, approximately 130 positions will be eliminated at Corporate, resulting in severance charges of \$14 and other exit costs of \$3.

In addition to the above actions, Alcoa intends to sell its Global Foil and Transportation Products Europe businesses in order to streamline its portfolio. As a result of this decision, the assets and related liabilities of the Global Foil and Transportation Products Europe businesses were classified as held for sale. Asset impairments of \$129 (\$100 after-tax) and \$52 (\$49 after-tax) were recognized to reflect the estimated fair values of the Global Foil and Transportation Products Europe businesses, respectively. Also, Alcoa and Orkla agreed to exchange their stakes in the Sapa AB and Elkem Aluminium ANS joint ventures. This portfolio action resulted in an impairment charge of \$333 (\$223 after-tax) to reflect the estimated fair value of Alcoa's investment in Sapa AB.

Earlier in 2008, Alcoa recorded \$48 (\$31 after-tax) in charges, which consists of \$44 (\$29 after-tax) for the layoff of approximately 870 employees and related curtailment of postretirement benefits and \$4 (\$2 after-tax) for other exit costs, associated with the complete production curtailment of the Rockdale, TX smelter (267 kmt) due to ongoing power supply issues with Rockdale's onsite supplier and the uneconomical power that Alcoa was forced to purchase in the open market as a result of such issues. Also during 2008, Alcoa recorded a loss of \$43 (\$32 after-tax) on the sale of its Packaging and Consumer businesses. The remaining net charges in 2008 were comprised of \$1 (\$1 after-tax and minority interests) for severance related to a reduction in headcount of approximately 30, \$4 for other exit costs (\$6 after-tax), and \$23 (\$15 after-tax and minority interests) for reversals of previously recorded costs, slightly more than half of which related to the reversal of a reserve related to a shutdown facility.

As of December 31, 2008, approximately 1,000 of the 6,300 employees were terminated. Cash payments of \$7 were made against the 2008 program reserves in 2008. As a result of the implementation of this restructuring plan, Alcoa expects to eliminate approximately \$330 (pretax) on an annual basis from its cost base once the program has been completed.

**2007 Restructuring Program** In 2007, Alcoa recorded restructuring and other charges of \$268 (\$201 after-tax and minority interests), which were comprised of the following components: \$257 (\$174 after-tax) in asset impairments associated with a strategic review of certain businesses; a \$62 (\$23 after-tax) reduction to the original impairment charge recorded in 2006 related to the estimated fair value of the soft alloy extrusion business, which was contributed to a joint venture effective June 1, 2007 (see the 2006 Restructuring Program for additional information); and \$73 (\$50 after-tax and minority interests) in net charges comprised of severance charges of \$35 (\$26 after-tax and minority interests) related to the elimination of approximately 400 positions and asset impairments of \$19 (\$12 after-tax) of various other businesses and facilities, other exit costs of \$47 (\$31 after-tax and minority interests), primarily for accelerated depreciation associated with the shutdown of certain facilities in 2007 related to the 2006 Restructuring Program, and reversals of previously recorded layoff and other exit costs of \$28 (\$19 after-tax and minority interests) due to normal attrition and changes in facts and circumstances.

In April 2007, Alcoa announced it was exploring strategic alternatives for the potential disposition of the businesses within the Packaging and Consumer segment and the Automotive Castings business. In September 2007, management completed its review of strategic alternatives and determined that the best course of action was to sell the Packaging





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and Consumer and Automotive Castings businesses. As a result of this decision, the assets and related liabilities of the Packaging and Consumer and Automotive Castings businesses were classified as held for sale. In the third quarter of 2007, Alcoa recorded impairment charges of \$215 (\$140 after-tax) related to the Packaging and Consumer businesses and \$68 (\$51 after-tax) for the Automotive Castings business to reflect the write-down of the carrying value of the assets of these businesses to their respective estimated fair values. In addition, Alcoa recorded a \$464 discrete income tax charge related to goodwill associated with the planned sale of the Packaging and Consumer businesses that would have been non-deductible for tax purposes under the transaction structure contemplated at the time. In November 2007, Alcoa completed the sale of the Automotive Castings business and recognized a loss of \$4 (\$2 after-tax) in Restructuring and other charges on the Statement of Consolidated Operations. In December 2007, Alcoa agreed to sell the Packaging and Consumer businesses for \$2,700 in cash, and reduced the impairment charge by \$26 (\$17 after-tax) and the discrete income tax charge by \$322 as a result of the structure of the agreed upon sale (this sale was completed in 2008).

As of December 31, 2008, the terminations associated with the 2007 restructuring program were essentially complete. Cash payments of \$20 and \$13 were made against the 2007 program reserves in 2008 and 2007, respectively.

**2006 Restructuring Program** In November 2006, Alcoa executed a plan to re-position several of its downstream operations in order to further improve returns and profitability, and to enhance productivity and efficiencies through a targeted restructuring of operations, and the creation of a soft alloy extrusion joint venture. The restructuring program encompassed identifying assets to be disposed of, plant closings and consolidations, that led to the elimination of approximately 1,800 positions across the company's global businesses. Restructuring charges of \$507 (\$347 after-tax and minority interests) were recorded in 2006 and were comprised of the following components: \$71 of charges for employee termination and severance costs spread globally across the company; \$442 related to asset impairments for structures, machinery, equipment, and goodwill, more than half of which relates to the soft alloy extrusion business; and \$35 for other exit costs, consisting primarily of accelerated depreciation associated with assets for which the useful life has been changed due to plans to close certain facilities in the near term and environmental clean-up costs. Partially offsetting these charges was \$41 of income related to the reversal of previously recorded layoff and other exit costs resulting from new facts and circumstances that arose subsequent to the original estimates.

The significant components of the 2006 restructuring program were as follows:

The hard and soft alloy extrusion businesses, included within the former Extruded and End Products segment, were restructured through the following actions:

Alcoa signed a letter of intent with Orkla ASA's Sapa Group (Sapa) to create a joint venture that would combine its soft alloy extrusion business with Sapa's Profiles extruded aluminum business. Effective June 1, 2007, the joint venture was completed. The new venture is majority-owned by Orkla ASA and operated by Sapa. In 2006, Alcoa recorded an impairment charge of \$301 to reduce the carrying value of the soft alloy extrusion business's assets to their estimated fair value. In conjunction with the contribution of the soft alloy extrusion business to the joint venture, Alcoa recorded a \$62 (\$23 after-tax) reduction to the original impairment charge recorded in 2006.

Consolidation of selected operations within the global hard alloy extrusion production operations serving the aerospace, automotive and industrial products markets, resulting in charges of \$7 for severance costs associated with the elimination of approximately 325 positions, primarily in the U.S. and Europe.

Operations within the Flat-Rolled Products segment were affected by the following actions:

Restructuring of the can sheet operations resulting in the elimination of approximately 320 positions, including the closure of the Swansea facility in the U.K. in the first quarter of 2007, resulting in charges of \$33, comprised of \$16 for severance costs and \$17 for other exit costs, including accelerated depreciation.

Conversion of the temporarily-idled San Antonio, TX rolling mill into a temporary research and development facility serving Alcoa's global flat-rolled products business, resulting in a \$53 asset impairment charge as these assets have no alternative future uses.



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Charges for asset impairments of \$47 related to a global flat-rolled product asset portfolio review and rationalization.

Reduction within the Primary Metals and Alumina segments' operations by approximately 330 positions to further strengthen the company's position on the global cost curve. This action resulted in charges of \$44, consisting of \$24 for asset impairments, \$14 for severance costs and \$6 for other exit costs.

Consolidation of selected operations within the Packaging and Consumer segment, resulting in the elimination of approximately 440 positions and charges of \$19, consisting of \$10 related to severance costs and \$9 for other exit costs, consisting primarily of accelerated depreciation.

Restructuring at various other locations accounted for the remaining charges of \$35, more than half of which are for severance costs related to approximately 400 layoffs and the remainder for asset impairments and other exit costs.

As of December 31, 2008, the terminations associated with the 2006 restructuring program were essentially complete. Cash payments of \$9 and \$37 were made against the 2006 program reserves in 2008 and 2007, respectively.

Alcoa does not include restructuring and other charges in the segment results. The pretax impact of allocating restructuring and other charges to the segment results would have been as follows:

	2008	2007	2006
Alumina	\$ 89	\$ -	\$ 4
Primary Metals	94	(2)	26
Flat-Rolled Products	289	56	139
Engineered Products and Solutions	88	67	-
Packaging and Consumer	45	189	15
Segment total	605	310	184
Corporate	334	(42)	323
Total restructuring and other charges	\$ 939	\$ 268	\$ 507

**Interest Expense** Interest expense was \$407 in 2008 compared with \$401 in 2007, resulting in an increase of \$6, or 1%. The increase was principally caused by a 22% higher average debt level, mostly due to the issuance of \$1,500 in new senior notes in July 2008 and significantly higher commercial paper levels; and a decrease in capitalized interest (\$32), primarily due to placing growth projects into service, such as the Iceland smelter and the Norway anode facility in 2007. These items were almost completely offset by the absence of credit facility commitment fees related to the 2007 offer for Alcan Inc. (\$67) and a lower weighted-average effective interest rate, driven mainly by the decrease in LIBOR rates.

Interest expense was \$401 in 2007 compared with \$384 in 2006, resulting in an increase of \$17, or 4%. The increase was primarily due to the amortization of \$30 in commitment fees paid and capitalized in June 2007 and an expense of \$37 for additional commitment fees paid in July 2007, both of which were paid to secure an 18-month \$30,000 senior unsecured credit facility associated with the offer for Alcan Inc., and a higher average debt level, partially offset by an increase in the amount of interest capitalized related to construction projects, including the Iceland smelter, the Juruti bauxite mine and São Luís refinery expansion in Brazil, and the Mosjøen anode facility.

**Other Income, net** Other income, net was \$59 in 2008 compared with \$1,920 in 2007. The decrease of \$1,861, or 97%, was mostly due to the absence of the \$1,754 gain related to the sale of Alcoa's investment in Chalco. Other items impacting this decline were losses related to the cash surrender value of life insurance as a result of the deterioration of the investment markets; unfavorable foreign currency movements due to a weaker U.S. dollar; the absence of dividend income from Alcoa's former stake in Chalco; and the absence of a non-recurring foreign currency gain in Russia; all of which was partially offset by mark-to-market gains on derivative contracts and income related to a negotiated partial refund of an indemnification payment previously made to the buyer of a prior Alcoa divestiture (\$39).

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Other income, net, was \$1,920 in 2007 compared with \$236 in 2006. The increase of \$1,684 was primarily due to the sale of Alcoa's investment in Chalco, which resulted in a gain of \$1,754, net of transaction fees and other expenses, and a non-recurring foreign currency gain in Russia, slightly offset by a decrease in the amount of dividends received from Chalco between periods, and the absence of interest related to a Brazilian court settlement in 2006.

**Income Taxes** Alcoa's effective tax rate was 43.2% in 2008 compared with the U.S. federal statutory rate of 35% and Alcoa's effective tax rate of 33.8% in 2007. The effective tax rate in 2008 differs from the U.S. federal statutory rate principally due to the following income tax charges: \$73 for the asset impairments included in the 2008 restructuring program; \$28 due to a decrease in deferred tax assets of the Iceland operations as a result of an applicable tax rate change; a net \$19 associated with the sale of the Packaging and Consumer businesses, mainly due to the allocation of sale proceeds to higher tax rate jurisdictions as opposed to the allocation previously contemplated, somewhat offset by changes in tax assumptions surrounding transaction costs and the finalization of the divestiture of certain foreign locations. These charges were partially offset by foreign income taxed in lower rate jurisdictions and a \$20 discrete income tax benefit related to the filing of the 2007 U.S. income tax return.

Alcoa's effective tax rate was 33.8% in 2007 compared with the U.S. federal statutory rate of 35% and Alcoa's effective tax rate of 24.3% in 2006. The effective tax rate in 2007 differs from the U.S. federal statutory rate of 35% primarily due to lower taxes on foreign income, mostly offset by a discrete income tax charge of \$142 related to goodwill that is non-deductible for tax purposes associated with the sale of the Packaging and Consumer businesses.

Management anticipates that the effective tax rate in 2009 will be approximately 30%. However, changes in the current economic environment, currency fluctuations, and the results of operations in certain taxing jurisdictions may cause this estimated rate to fluctuate significantly.

**Minority Interests** Minority interests' share of income from continuing operations was \$221 in 2008 compared with \$365 in 2007. The decline of \$144 was mostly due to lower earnings at AWAC attributed primarily to significant cost increases for raw materials and energy, unfavorable foreign currency movements due to a weaker U.S. dollar, and the impact of the gas outage in Western Australia.

Minority interests' share of income from continuing operations was \$365 in 2007 compared with \$436 in 2006. The \$71 decrease was principally due to lower earnings at AWAC driven mainly by unfavorable foreign currency movements due to a weaker U.S. dollar and a significant increase in energy costs.

**(Loss) Income From Discontinued Operations** Loss from discontinued operations was \$303 in 2008 compared with a loss of \$250 in 2007 and income of \$22 in 2006. The loss of \$303 in 2008 is all related to the EES business comprised of asset impairments of \$162 to reflect the estimated fair value of the business and a net operating loss of \$141, which includes restructuring charges of \$39 for headcount reductions of approximately 6,200 and a charge of \$16 for obsolete inventory. The loss of \$250 in 2007 consisted of a \$243 loss related to the EES business, including severance charges of \$36 for headcount reductions of approximately 5,900 as part of a strategic business review to restructure EES and impairment charges of \$93 for goodwill and \$60 for various fixed assets as the forecasted future earnings and cash flows of the EES business no longer supported the carrying values of such assets; an \$11 loss related to working capital and other adjustments associated with the 2006 sale of the home exteriors business; and net operating income of \$4 of other discontinued businesses. The income of \$22 in 2006 was comprised of a \$110 gain related to the sale of the home exteriors business; a \$65 operating loss related to the EES business, including severance charges of \$30 for headcount reductions of approximately 4,800; net operating losses of \$20 of other discontinued businesses; and a loss of \$3 related to the 2005 sale of the imaging and graphics communications business. See Note B to the Consolidated Financial Statements for additional information.

Late in 2008, Alcoa reclassified its EES business to discontinued operations based on the decision to sell the business. The Consolidated Financial Statements for all prior periods presented were reclassified to reflect the EES business in discontinued operations. The EES business designs and manufactures electrical and electronic systems, wire harnesses and components for the ground transportation industry worldwide. In 2008, the EES business generated sales of \$1,218

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and had approximately 19,000 employees as of December 31, 2008. During 2006, Alcoa reclassified its home exteriors business to discontinued operations upon the signing of a definitive sale agreement with Ply Gem Industries, Inc. The sale of the home exteriors business was completed in October 2006. Also during 2006, Alcoa reclassified the Hawesville, KY automotive casting facility to discontinued operations upon closure of the facility. The results of the Engineered Products and Solutions segment were reclassified to reflect the movement of EES, the home exteriors business, and the Hawesville automotive casting facility into discontinued operations.

## Segment Information

In 2008, management approved a realignment of Alcoa's reportable segments to better reflect the core businesses in which Alcoa operates and how it is managed. This realignment consisted of eliminating the Extruded and End Products segment and realigning its component businesses as follows: the building and construction systems business is reported in the Engineered Products and Solutions segment; the hard alloy extrusions business and the Russian extrusions business are reported in the Flat-Rolled Products segment; and the remaining segment components, consisting primarily of the equity investment/income of Alcoa's interest in the Sapa AB joint venture, and the Latin American extrusions business, are reported in Corporate. Additionally, the Russian forgings business was moved from the Engineered Products and Solutions segment to the Flat-Rolled Products segment, where all Russian operations are now reported. Prior period amounts were reclassified to reflect the new segment structure. Also, the Engineered Solutions segment was renamed the Engineered Products and Solutions segment.

Alcoa's operations consist of five worldwide segments: Alumina, Primary Metals, Flat-Rolled Products, Engineered Products and Solutions, and Packaging and Consumer (this segment no longer contains any operations as the businesses within this segment were divested during 2008). Segment performance under Alcoa's management reporting system is evaluated based on a number of factors; however, the primary measure of performance is the after-tax operating income (ATOI) of each segment. Certain items such as the impact of LIFO inventory accounting; interest income and expense; minority interests; corporate expense (general administrative and selling expenses of operating the corporate headquarters and other global administrative facilities, along with depreciation and amortization on corporate-owned assets); restructuring and other charges; discontinued operations; and other items, including intersegment profit and other metal adjustments, differences between tax rates used in the segments and the corporate effective tax rate, and other nonoperating items such as foreign currency translation gains/losses are excluded from segment ATOI. Segment assets exclude, among others, cash and cash equivalents, deferred income taxes, goodwill allocated to corporate, corporate fixed assets, LIFO reserves, and assets held for sale.

ATOI for all segments totaled \$2,199 in 2008, \$3,162 in 2007, and \$3,505 in 2006. See Note Q to the Consolidated Financial Statements for additional information. The following discussion provides shipments, sales, and ATOI data of each segment, and production data for the Alumina and Primary Metals segments for each of the three years in the period ended December 31, 2008.

## Alumina

	2008	2007	2006
Alumina production (kmt)	15,256	15,084	15,128
Third-party alumina shipments (kmt)	8,041	7,834	8,420
Third-party sales	\$ 2,924	\$ 2,709	\$ 2,785
Intersegment sales	2,803	2,448	2,144
Total sales	\$ 5,727	\$ 5,157	\$ 4,929
ATOI	\$ 727	\$ 956	\$ 1,050

This segment consists of Alcoa's worldwide alumina system, including the mining of bauxite, which is then refined into alumina. Alumina is sold directly to internal and external smelter customers worldwide or is processed into industrial chemical products. Slightly more than half of Alcoa's alumina production is sold under supply contracts to third parties worldwide, while the remainder is used internally.

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In 2008, alumina production increased by 172 kmt compared to 2007. Three of Alcoa's nine refineries achieved production records in 2008 with the largest increase occurring at the Pinjarra (Australia) refinery due to the continued positive effects of the efficiency upgrade expansion completed in 2006. Late in 2008, Alcoa reduced production at its Point Comfort, TX refinery by 550 kmt per year due to negative market conditions; however, production for the year slightly exceeded the refinery's 2007 production performance. In 2007, alumina production decreased by 44 kmt compared to 2006. Impacts from the national labor strike in Guinea and Hurricane Dean weighed on production with 8% and 14% decreases at Point Comfort, TX and Jamaica, respectively, offsetting a 4% increase at Pinjarra. Paranam (Suriname), São Luís, Wagerup (Australia), and Pinjarra set production records in 2007.

Third-party sales for the Alumina segment rose 8% in 2008 compared with 2007, primarily related to favorable foreign currency movements due to a stronger Australian dollar and increases of 3% and 2% in third-party shipments and realized prices, respectively. Third-party sales for this segment decreased 3% in 2007 compared with 2006, principally due to a 7% reduction in third-party shipments more than offsetting an LME-driven increase in realized prices.

Intersegment sales for the Alumina segment climbed 15% in 2008 compared with 2007 and 14% in 2007 compared with 2006, mainly as a result of a 6% and 7% increase in volumes, respectively, and higher realized prices.

ATOI for the Alumina segment decreased 24% in 2008 compared with 2007, mostly due to significant cost increases for bauxite, caustic soda, fuel oil, and natural gas; unfavorable foreign currency movements due to a weaker U.S. dollar; and the impact of the gas outage in Western Australia (\$33 net of insurance benefits), all of which was partially offset by higher realized prices, productivity improvements, and a positive impact due to the curtailment of production at the Point Comfort refinery. ATOI for this segment declined 9% in 2007 compared with 2006, principally due to unfavorable foreign currency movements due to a weaker U.S. dollar, significantly higher energy costs, and rising freight cost, all of which more than offset increases in realized prices.

In 2009, Alcoa will continue to focus on completing the expansion of the São Luís refinery (total additional alumina production of 2,100 kmt, Alcoa's share is 1,134 kmt) and the development of the Juruti bauxite mine (total additional 2,600 kmt of bauxite, Alcoa's share is 1,560 kmt) by the end of the first half. Also, in response to negative market conditions, Alcoa plans to reduce production by another 1,000 kmt per year by the end of the 2009 first quarter (1,500 kmt including the previously mentioned curtailment at Point Comfort). Additionally, fuel oil costs are expected to decrease while realized prices may decline significantly based on the LME's current prices and short-term outlook.

## Primary Metals

	2008	2007	2006
Aluminum production (kmt)	4,007	3,693	3,552
Third-party aluminum shipments (kmt)	2,926	2,291	2,087
Alcoa's average realized price per metric ton of aluminum	\$ 2,714	\$ 2,784	\$ 2,665
Third-party sales	\$ 8,021	\$ 6,576	\$ 6,171
Intersegment sales	3,927	4,994	6,208
Total sales	\$ 11,948	\$ 11,570	\$ 12,379
ATOI	\$ 931	\$ 1,445	\$ 1,760

This segment consists of Alcoa's worldwide smelter system. Primary Metals receives alumina, primarily from the Alumina segment, and produces primary aluminum used by Alcoa's fabricating businesses, as well as sold to external customers, aluminum traders, and commodity markets. Results from the sale of aluminum powder, scrap, and excess power are also included in this segment, as well as the results of aluminum derivative contracts. Primary aluminum produced by Alcoa and used internally is transferred to other segments at prevailing market prices. The sale of primary aluminum represents more than 90% of this segment's third-party sales.

In 2008, aluminum production increased by 314 kmt, mostly due to the Iceland smelter, as 2008 was its first full year of production; the Intalco, WA smelter as a result of the restart of additional pots early in the year; and the Tennessee smelter; all of which was slightly offset by a reduction at the Rockdale, TX smelter due to Alcoa's decision to curtail

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all production at this facility until competitive market conditions return (267 kmt per year). Late in 2008, Alcoa started partial production curtailments at various smelters, including Intalco and Baie Comeau, Quebec, which will result in an additional decline of 350 kmt per year. In 2007, aluminum production rose 141 kmt due to the Intalco smelter's completed restart of one potline in the second quarter of 2007, the acquisition of the minority interests in the Intalco smelter in June 2006, and the Iceland smelter's start-up in the second quarter of 2007.

Third-party sales for the Primary Metals segment climbed 22% in 2008 compared with 2007, mostly due to higher volumes, primarily the result of the sales related to the production from the Iceland smelter, shipments made to the Packaging and Consumer businesses subsequent to their divestiture in 2008, and shipments made in the first half of 2008 to the Sapa AB joint venture (shipments to Alcoa's soft alloy extrusion business were included in intersegment sales in the first half of 2007), somewhat offset by lower realized prices of 3%. Third-party sales for this segment increased 7% in 2007 compared with 2006, primarily due to an increase in realized prices of 4% and improved volumes, mainly due to shipments made in 2007 to the Sapa AB joint venture.

Intersegment sales for the Primary Metals segment declined 21% in 2008 compared with 2007, mainly as a result of lower demand from Alcoa's downstream businesses, the absence of 10 months of shipments to the Packaging and Consumer businesses that occurred in 2007, and the absence of shipments to the soft alloy extrusion business that occurred in 2007. Intersegment sales decreased 20% in 2007 compared with 2006 due to the absence of shipments to the soft alloy extrusion business that occurred in 2006 and production curtailments associated with the Tennessee and Rockdale smelters that occurred in 2007.

ATOI for the Primary Metals segment dropped 36% in 2008 compared with 2007 principally related to higher alumina, carbon, and energy costs; increased spending on repairs and maintenance, outside services, and labor; lower realized prices; the impact of the 2008 curtailment of all production at Rockdale (\$55); and unfavorable foreign currency movements due to a weaker U.S. dollar. These negative impacts were partially offset by the absence of costs incurred in 2007 associated with the following: the start-up of the Iceland smelter, the smelter production curtailment of one of the potlines in Rockdale, and the smelter curtailment associated with the power outage in Tennessee. ATOI for this segment declined 18% in 2007 compared with 2006 as unfavorable foreign currency movements related to a weaker U.S. dollar; costs associated with the Rockdale and Tennessee smelter curtailments; continued increases in raw material, freight, and energy costs; and Iceland smelter start-up costs were partially offset by higher realized prices.

At December 31, 2008, Alcoa had 807 kmt of idle capacity on a base capacity of 4,531 kmt. In 2008, idle capacity increased by 355 kmt as compared to 2007 due to the complete production curtailment at Rockdale (267 kmt) and partial curtailments of approximately 88 kmt related to other smelters, all of which are the result of current negative market conditions. At December 31, 2007, Alcoa had 452 kmt of idle capacity on a base capacity of 4,573 kmt. In 2007, idle capacity decreased by 93 kmt as compared to 2006 due to the completed restart of one of Intalco's smelter lines. Base capacity increased by 364 kmt in 2007 as compared to 2006 primarily due to the completion of the 344 kmt Iceland smelter.

In 2009, Alcoa will curtail production by an additional 395 kmt (750 kmt including the previously mentioned curtailments), which includes all smelting at the Tennessee operations (215 kmt), by the end of the first quarter. Also, input costs are expected to decrease while Alcoa anticipates the realization of cost savings from recent procurement initiatives. Lastly, realized prices may decline significantly based on the LME's current prices and short-term outlook.

**Flat-Rolled Products**

	2008	2007	2006
Third-party aluminum shipments (kmt)	2,296	2,441	2,387
Third-party sales	\$ 9,563	\$ 9,932	\$ 8,995
Intersegment sales	249	283	253
Total sales	\$ 9,812	\$ 10,215	\$ 9,248
ATOI	\$ 27	\$ 204	\$ 244



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This segment's principal business is the production and sale of aluminum plate, sheet, foil, and hard alloy extrusions. This segment includes rigid container sheet (RCS), which is sold directly to customers in the packaging and consumer market and is used to produce aluminum beverage cans. Seasonal increases in RCS sales are generally experienced in the second and third quarters of the year. This segment also includes sheet and plate used in the transportation, building and construction, and distribution markets (mainly used in the production of machinery and equipment and consumer durables), which is sold directly to customers and through distributors. Additionally, hard alloy extrusions products, which are also sold directly to customers and through distributors, serve the distribution, aerospace, automotive, and commercial transportation markets. Approximately one-third of the third-party sales in this segment consist of RCS, while the remaining two-thirds of third-party sales are derived from sheet and plate, foil used in industrial markets, and hard alloy extrusions. While the customer base for flat-rolled products is large, a significant amount of sales of RCS, sheet, and plate is to a relatively small number of customers.

Third-party sales for the Flat-Rolled Products segment decreased 4% in 2008 compared with 2007. The decline was principally due to lower volumes across all businesses, mainly the result of weak end markets in North America and Europe, partially offset by positive foreign currency movements, mostly due to a stronger Euro, and a favorable pricing and product mix. Third-party sales for this segment climbed 10% in 2007 compared with 2006. The increase was primarily due to passing through material price increases, favorable product mix associated with aerospace, higher volumes in the aerospace and packaging markets, and favorable foreign currency movements due to a stronger Euro. These increases were somewhat offset by the absence of sales associated with the shutdown of the Swansea, U.K. can sheet facility in the first quarter of 2007, as well as lower volumes in the distribution, automotive and commercial transportation markets.

ATOI for the Flat-Rolled Products segment fell 87% in 2008 compared with 2007, mainly the result of continued higher direct materials, energy, and other cost increases and lower volumes across all businesses, partially offset by favorable pricing and product mix. ATOI for this segment declined 16% in 2007 compared with 2006, primarily due to cost increases for direct materials and energy; higher ramp-up costs at facilities in both Russia and China; and the impact of distributor de-stocking in the second half of 2007; somewhat offset by favorable pricing and product mix, and higher volumes in the markets noted previously.

In 2009, the weakness in most end markets is expected to continue resulting in declining volumes while lower input costs, such as direct materials and energy, are anticipated. Also, the Global Foil business will be divested.

## Engineered Products and Solutions

	2008	2007	2006
Third-party aluminum shipments (kmt)	182	207	227
Third-party sales	\$ 5,602	\$ 5,251	\$ 4,877
ATOI	\$ 503	\$ 409	\$ 356

This segment includes titanium, aluminum, and super alloy investment castings; forgings and fasteners; aluminum wheels; integrated aluminum structural systems; and architectural extrusions used in the aerospace, automotive, building and construction, commercial transportation, and power generation markets. These products are sold directly to customers and through distributors. In 2008, the EES business was classified as discontinued operations; therefore, all periods presented exclude the results of this business.

Third-party sales for the Engineered Products and Solutions segment increased 7% in 2008 compared with 2007. The improvement was primarily due to higher demand in the aerospace and industrial gas turbine markets; favorable pricing in the building and construction market; positive foreign currency movements due to a stronger Euro; and the addition of two fastener businesses acquired early in 2008; all of which was partially offset by significant volume declines in the commercial transportation market. Third-party sales for this segment increased 8% in 2007 compared with 2006. The improvement was principally due to aerospace and power generation increases and higher volumes and prices in the building and construction business more than offsetting the decline in commercial transportation.

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ATOI for the Engineered Products and Solutions segment climbed 23% in 2008 compared with 2007, mainly due to continued strong demand and productivity improvements in the aerospace and industrial gas turbine markets, favorable foreign currency movements due to a stronger Euro, and the positive contribution of the acquired fastener businesses, all of which was somewhat offset by significantly lower volumes in the commercial transportation market. ATOI for this segment increased 15% in 2007 compared with 2006, largely due to continued strong demand and operational performance in the aerospace and industrial gas turbine markets; favorable prices and higher volumes in the building and construction business; and productivity improvements. These positive impacts were partially offset by demand decline in the North America heavy truck market.

In 2009, market conditions in the commercial transportation and building and construction markets are expected to further weaken. However, it is anticipated that productivity initiatives will materialize to partially offset the market downturn. Also, the lone remaining Cast Auto Wheels facility will be closed and the Transportation Products Europe business will be divested.

**Packaging and Consumer**

	2008	2007	2006
Third-party aluminum shipments (kmt)	19	157	169
Third-party sales	\$ 516	\$ 3,288	\$ 3,235
ATOI	\$ 11	\$ 148	\$ 95

The businesses within this segment were sold to Rank Group Limited in 2008; therefore, this segment no longer contains any operations. Prior to the sale of these businesses, this segment included consumer, foodservice, and flexible packaging products; food and beverage closures; and plastic sheet and film for the packaging industry. The principal products in this segment included aluminum foil; plastic wraps and bags; plastic beverage and food closures; flexible packaging products; thermoformed plastic containers; and extruded plastic sheet and film. Consumer products were marketed under brands including Reynolds Wrap®, Diamond®, Baco®, and Cut-Rite®. Seasonal increases generally occurred in the second and fourth quarters of the year for such products as consumer foil and plastic wraps and bags, while seasonal slowdowns for closures generally occurred in the fourth quarter of the year. Products were generally sold directly to customers, consisting of supermarkets, beverage companies, food processors, retail chains, and commercial foodservice distributors.

Third-party sales for the Packaging and Consumer segment increased 2% in 2007 compared with 2006, primarily due to higher volume and favorable pricing and mix across all businesses.

ATOI for the Packaging and Consumer segment climbed 56% in 2007 compared with 2006, primarily due to productivity improvements across all businesses and the cessation of depreciation beginning in October 2007, as the assets of this segment were classified as held for sale due to management's announced intent to actively pursue the sale of these businesses.

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**Reconciliation of ATOI to Consolidated Net (Loss) Income** The following table reconciles total segment ATOI to consolidated net (loss) income:

	2008	2007	2006
Total segment ATOI	\$ 2,199	\$ 3,162	\$ 3,505
Unallocated amounts (net of tax):			
Impact of LIFO	(7)	(24)	(170)
Interest income	35	40	58
Interest expense	(265)	(261)	(250)
Minority interests	(221)	(365)	(436)
Corporate expense	(328)	(388)	(317)
Restructuring and other charges	(693)	(201)	(347)
Discontinued operations	(303)	(250)	22
Other	(491)	851	183
Consolidated net (loss) income	\$ (74)	\$ 2,564	\$ 2,248

Items required to reconcile segment ATOI to consolidated net (loss) income include:

The impact of LIFO inventory accounting;

Interest income and expense;

Minority interests;

Corporate expense, comprised of general administrative and selling expenses of operating the corporate headquarters and other global administrative facilities, along with depreciation and amortization on corporate-owned assets;

Restructuring and other charges;

Discontinued operations; and

Other, which includes intersegment profit and other metal adjustments, differences between tax rates used in the segments and the corporate effective tax rate, and other nonoperating items such as foreign currency translation gains/losses.

The significant changes in the reconciling items between total segment ATOI and consolidated net (loss) income for 2008 compared with 2007 consisted of:

A \$4 increase in Interest expense, principally caused by a 22% higher average debt level, mostly due to the issuance of \$1,500 in new senior notes in July 2008 and significantly higher commercial paper levels; and a decrease in capitalized interest (\$21), primarily due to placing growth projects into service, such as the Iceland smelter and the Norway anode facility in 2007; both of which were almost completely offset by the absence of credit facility commitment fees related to the 2007 offer for Alcan Inc. (\$43) and a lower weighted-average effective interest rate, driven mainly by the decrease in LIBOR rates;

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A \$144 decrease in Minority interests, mostly due to lower earnings at AWAC, attributed primarily to significant cost increases for raw materials and energy, unfavorable foreign currency movements due to a weaker U.S. dollar, and the impact of the gas outage in Western Australia;

A \$60 decline in Corporate expense, principally due to the absence of transaction costs related to the 2007 offer for Alcan Inc. (\$30);

A \$492 increase in Restructuring and other charges, primarily due to significantly higher charges for the 2008 restructuring program;

A \$53 higher loss in Discontinued operations, mainly due to a \$51 increase in the net operating loss of the EES business; and

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A \$1,342 change in Other, mostly due to the following: the absence of a \$1,140 gain on the sale of the Chalco investment; a net income tax charge of \$100 for various items; losses related to the cash surrender value of life insurance as a result of the deterioration of the investment markets; and unfavorable foreign currency movements due to a weaker U.S. dollar; all of which was somewhat offset by the absence of a \$142 discrete income tax charge related to goodwill that is non-deductible for tax purposes associated with the sale of the Packaging and Consumer businesses; mark-to-market gains on derivative contracts; and income related to a negotiated partial refund of an indemnification payment previously made to the buyer of a prior Alcoa divestiture (\$24).

The significant changes in the reconciling items between total segment ATOI and consolidated net income for 2007 compared with 2006 consisted of:

A \$146 decrease in the Impact of LIFO, primarily due to a significantly lower increase in metal prices in 2007 as compared to 2006;

An \$18 decrease in Interest income, mainly due to the absence of \$11 in interest earned on a 2006 Brazilian court settlement;

An \$11 increase in Interest expense, primarily due to \$43 in credit facility commitment fees related to the offer for Alcan Inc., partially offset by an increase in capitalized interest related to construction projects, including the Iceland smelter, the Juruti bauxite mine, the São Luís refinery expansion, and the Mosjøen anode facility;

A \$71 decrease in Minority interests, principally due to lower earnings at AWAC driven mainly by unfavorable foreign currency movements due to a weaker U.S. dollar and a significant increase in energy costs;

A \$71 increase in Corporate expense, mostly due to \$30 in transaction costs related to the offer for Alcan and an increase in stock-based compensation expense as a result of reload features of exercised stock options;

A \$146 decrease in Restructuring and other charges, due to a smaller restructuring program in 2007 as compared to 2006;

A change of \$272 in Discontinued operations, primarily due to \$153 in impairment charges related to the EES business and the absence of a \$110 gain recognized on the sale of the home exteriors business in 2006; and

A \$668 increase in Other, principally due to a \$1,140 gain on the sale of the Chalco investment, partially offset by a \$142 discrete income tax charge related to goodwill that is non-deductible for tax purposes associated with the planned sale of the Packaging and Consumer businesses; the absence of \$83 in discrete income tax benefits in 2006 related to the finalization of certain tax reviews and audits and the reversal of valuation allowances related to international net operating losses; the absence of a \$26 favorable legal settlement in 2006 related to a former Reynolds distribution business; and an increase in income taxes in order to reconcile the estimated tax rates used in the segments with Alcoa's effective tax rate.

## **Environmental Matters**

Alcoa continues to participate in environmental assessments and cleanups at a number of locations. These include 31 owned or operating facilities and adjoining properties, 33 previously owned or operating facilities and adjoining properties, and 71 waste sites, including Superfund sites. A liability is recorded for environmental remediation when a cleanup program becomes probable and the costs or damages can be reasonably estimated.

As assessments and cleanups proceed, the liability is adjusted based on progress made in determining the extent of remedial actions and related costs and damages. The liability can change substantially due to factors such as the nature and extent of contamination, changes in remedial requirements, and technological changes.



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The following discussion provides details regarding the current status of certain significant reserves related to current or former Alcoa sites.

**Massena, NY** Alcoa has been conducting investigations and studies of the Grasse River, adjacent to Alcoa's Massena plant site, under a 1989 order from the U.S. Environmental Protection Agency (EPA) issued under the Comprehensive Environmental Response, Compensation and Liability Act, also known as Superfund. Sediments and fish in the river contain varying levels of polychlorinated biphenyls (PCBs).

Alcoa submitted various Analysis of Alternatives Reports to the EPA starting in 1998 through 2002 that reported the results of river and sediment studies, potential alternatives for remedial actions related to the PCB contamination, and additional information requested by the EPA.

In June 2003, the EPA requested that Alcoa gather additional field data to assess the potential for sediment erosion from winter river ice formation and breakup. The results of these additional studies, submitted in a report to the EPA in April 2004, suggest that this phenomenon has the potential to occur approximately every 10 years and may impact sediments in certain portions of the river under all remedial scenarios. The EPA informed Alcoa that a final remedial decision for the river could not be made without substantially more information, including river pilot studies on the effects of ice formation and breakup on each of the remedial techniques. Alcoa submitted to the EPA, and the EPA approved, a Remedial Options Pilot Study (ROPS) to gather this information. The scope of this study included sediment removal and capping, the installation of an ice control structure, and significant monitoring.

From 2004 through 2008, Alcoa completed the work outlined in the ROPS. In November 2008, Alcoa submitted an updated Analysis of Alternatives Report to the EPA incorporating the new information obtained from the ROPS related to the feasibility and costs associated with various capping and dredging alternatives, including options for ice control. As a result, Alcoa increased the reserve associated with the Grasse River by \$40 for the estimated costs of a proposed ice control remedy and for partial settlement of potential damages of natural resources.

This new information will be used by the EPA to select a remedy for the entire river. The EPA's ultimate selection of a remedy could result in additional liability. Alcoa may be required to record a subsequent reserve adjustment at the time the EPA's Record of Decision is issued, which is expected in 2009 or later.

**Sherwin, TX** In connection with the sale of the Sherwin alumina refinery, which was required to be divested as part of the Reynolds merger in 2000, Alcoa agreed to retain responsibility for the remediation of the then existing environmental conditions, as well as a pro rata share of the final closure of the active waste disposal areas, which remain in use. Alcoa's share of the closure costs is proportional to the total period of operation of the active waste disposal areas. Alcoa estimated its liability for the active disposal areas by making certain assumptions about the period of operation, the amount of material placed in the area prior to closure, and the appropriate technology, engineering, and regulatory status applicable to final closure.

**East St. Louis, IL** In response to questions regarding environmental conditions at the former East St. Louis operations, Alcoa and the City of East St. Louis, the owner of the site, entered into an administrative order with the EPA in December 2002 to perform a remedial investigation and feasibility study of an area used for the disposal of bauxite residue from historic alumina refining operations. A draft feasibility study was submitted to the EPA in April 2005. The feasibility study included remedial alternatives that ranged from no further action to significant grading, stabilization, and water management of the bauxite residue disposal areas. As a result, Alcoa increased the environmental reserve for this location by \$15 in 2005. The EPA's ultimate selection of a remedy could result in additional liability. Alcoa may be required to record a subsequent reserve adjustment at the time the EPA's Record of Decision is issued, which is expected late in 2009 or later.

**Vancouver, WA** In 1987, Alcoa sold its Vancouver smelter to a company that is now known as Evergreen Aluminum (Evergreen). The purchase and sale agreement contained a provision that Alcoa retain liability for any environmental issues that arise subsequent to the sale that pre-date 1987. As a result of this obligation, Alcoa recorded a reserve for the Vancouver location at that time. Evergreen decommissioned the smelter and cleaned up its portion of

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the site under a consent order with the Washington Department of Ecology (WDE). In February 2008, Evergreen notified Alcoa that it had identified numerous areas containing contamination that predated 1987.

Separately, in September 2008, Alcoa completed a Remedial Investigation/Feasibility Study (RI/FS) under the Washington State Model Toxics Control Act and negotiated a consent decree with WDE, which requires Alcoa to complete cleanup of PCB contaminated sediments in the Columbia River as well as remediate soil contamination in upland portions of the Vancouver property.

Late in 2008, Alcoa started cleanup work on the Columbia River and discovered additional contamination and waste materials along the shoreline area and in upland areas. In addition, Evergreen presented additional cost estimates for contaminated areas that were discovered since March 2008.

As a result of all of the above items related to the former Vancouver site, Alcoa increased the environmental reserve by \$16 in 2008. As cleanup work progresses and final remedies are negotiated with WDE, a subsequent reserve adjustment may be necessary.

Based on the foregoing, it is possible that Alcoa's financial position, liquidity, or results of operations, in a particular period, could be materially affected by matters relating to these sites. However, based on facts currently available, management believes that adequate reserves have been provided and that the disposition of these matters will not have a materially adverse effect on the financial position, liquidity, or the results of operations of the Company.

Alcoa's remediation reserve balance was \$316 and \$279 at December 31, 2008 and December 31, 2007 (of which \$39 and \$51 was classified as a current liability), respectively, and reflects the most probable costs to remediate identified environmental conditions for which costs can be reasonably estimated. In 2008, the remediation reserve was increased by \$69, mostly due to the adjustments related to the Grasse River and former Vancouver property discussed above. In 2007, the remediation reserve was decreased by \$10 consisting of a \$15 adjustment for the liabilities associated with a previously owned smelter site and a \$5 adjustment for liabilities at the Russian rolling mills and extrusion plants, both of which were partially offset by a net increase of \$10 in liabilities associated with various locations. The \$15 and \$5 adjustments were made after further investigations were completed and Alcoa was able to obtain additional information about the environmental condition and the associated liabilities related to these sites. The changes to the remediation reserve were recorded in Cost of goods sold on the Statement of Consolidated Operations in both periods. Payments related to remediation expenses applied against the reserve were \$32 and \$30 in 2008 and 2007, respectively. These amounts include expenditures currently mandated, as well as those not required by any regulatory authority or third party.

Included in annual operating expenses are the recurring costs of managing hazardous substances and environmental programs. These costs are estimated to be approximately 2% of cost of goods sold.

## **Liquidity and Capital Resources**

Alcoa takes a very disciplined approach to cash management and strengthening of its balance sheet. Management faced the significant challenge of maintaining this approach while providing the Company with the necessary liquidity to operate effectively, especially in the second half of 2008. In response to recent changes in the economic markets across the globe, management reacted quickly to solidify Alcoa's liquidity position. The following actions were initiated in the second half of 2008 to conserve cash and preserve liquidity: greater scrutiny over the daily management of Alcoa's cash position; higher risk tolerance on raw materials with lower minimum order quantities and lower carrying levels; targeted headcount reductions across the globe; a salary and hiring freeze at the Corporate level; suspension of the existing share repurchase program; and the addition of a new 364-day \$1,900 revolving credit facility. A number of changes were also made to Alcoa's capital expenditures strategy as follows: capital expenditure approval levels were lowered dramatically; growth projects were halted where it was deemed economically feasible; and all non-critical capital expenditures were stopped. Capital expenditures are deemed critical if they maintain Alcoa's compliance with the law, keep a facility operating, or satisfy customer requirements if the benefits outweigh the costs. The planned sale



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or shutdown of various businesses will also contribute positively to Alcoa's liquidity position in 2009. Along with the foregoing actions, cash provided from operations and financing activities is expected to be adequate to cover Alcoa's current operational and business needs. For a discussion of long-term liquidity, see the disclosures included in Contractual Obligations and Off-Balance Sheet Arrangements.

### **Cash from Operations**

Cash from operations in 2008 was \$1,234 compared with \$3,111 in 2007, resulting in a decrease of \$1,877, or 60%. The decline of \$1,877 was primarily due to a decrease in earnings after taking into account non-cash income and expenses; a \$988 cash outflow associated with working capital; \$201 in higher pension contributions; and the absence of \$93 in cash received on a long-term aluminum supply contract. These cash outflows were slightly offset by a \$336 cash inflow related to noncurrent assets and liabilities and a \$97 increase in cash provided from discontinued operations. The major components of the \$988 change in working capital are as follows: a \$351 smaller decrease in receivables, primarily as a result of improved sales from most businesses not classified as held for sale; a \$522 increase in inventories, mostly due to higher costs of raw materials and other inputs; a \$156 smaller increase in accounts payable, trade; a \$209 decrease in accrued expenses; and a \$213 increase in taxes, including taxes on income.

Cash from operations in 2007 was \$3,111 compared with \$2,567 in 2006, resulting in an increase of \$544, or 21%. The improvement of \$544 is principally related to a \$1,415 positive change associated with working capital, primarily due to improvements in receivables, inventories, and accounts payable and accrued expenses; higher net income of \$316; and a cash inflow of \$93 related to a long-term aluminum supply contract. These positive impacts were partially offset by a significant increase in non-cash adjustments, mostly related to the sale of the Chalco investment.

### **Financing Activities**

Cash provided from financing activities was \$1,478 in 2008 compared with cash used for financing activities of \$1,538 in 2007. The change of \$3,016 was primarily due to a \$1,414 reduction in the repurchase of common stock, mainly the result of the temporary suspension of the share repurchase program; a \$1,296 change in commercial paper, principally due to an increase in commercial paper issued and the absence of a \$1,132 reduction of commercial paper with the proceeds from newly-issued long-term debt in January 2007; and a \$669 decrease in payments on long-term debt, mostly due to the purchase (\$333) and repayment (\$459) of 4.25% Notes due August 2007, as compared to the repayment of \$150 in 6.625% Notes due March 2008. These cash inflows were somewhat offset by a \$658 decline in common stock issued for compensation plans, primarily due to fewer stock option exercises as result of the significant decline in the market price of Alcoa's common stock.

Cash used for financing activities was \$1,538 in 2007 compared with \$20 in 2006. The change of \$1,518 was primarily due to a \$2,206 increase in the repurchase of common stock due to a significant increase in the number of shares repurchased as a result of the January 2007 and October 2007 authorized programs; a \$1,177 change in the net change in commercial paper, mostly due to the repayment of commercial paper with the majority of the proceeds from the issuance of new long-term debt in 2007; an \$837 increase in payments on long-term debt, primarily related to the January 2007 purchase of \$333 of outstanding 4.25% Notes due August 2007 and the repayment of the remaining \$459 of outstanding 4.25% Notes in August 2007; \$126 in payments for debt issuance costs, including a commitment fee of \$30 paid to secure a credit facility related to the offer for Alcan Inc.; and a \$66 increase in dividends paid to shareholders as a result of the eight cents per share annual increase approved in January 2007. Partially offsetting these cash inflows was a \$2,021 increase in additions to long-term debt, principally due to proceeds received of \$1,994 (net of \$6 in original issue discounts) from the issuance of new 5.55% Notes due 2017, 5.9% Notes due 2027, and 5.95% Notes due 2037; a \$679 increase in common stock issued for stock compensation plans related to cash received for the exercise of stock options; and a \$132 increase in minority interest contributions, primarily from an increase in contributions received from Alumina Limited, related to their share of capital spending at the São Luís and Juruti facilities.

In October 2007, Alcoa entered into a Five-Year Revolving Credit Agreement, dated as of October 2, 2007 (the "Credit Agreement"), with a syndicate of lenders and issuers named therein. The Credit Agreement provides a \$3,250 senior unsecured revolving credit facility (the "Credit Facility"), the proceeds of which are to be used to provide working

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capital or for other general corporate purposes of Alcoa, including support of Alcoa's commercial paper program. Subject to the terms and conditions of the Credit Agreement, Alcoa may from time to time request increases in lender commitments under the Credit Facility, not to exceed \$500 in aggregate principal amount, and may also request the issuance of letters of credit, subject to a letter of credit sub-limit of \$500 under the Credit Facility.

The Credit Facility matures on October 2, 2012, unless extended or earlier terminated in accordance with the provisions of the Credit Agreement. Alcoa may make two one-year extension requests during the term of the Credit Facility, with any extension being subject to the lender consent requirements set forth in the Credit Agreement.

The Credit Facility is unsecured and amounts payable under it will rank *pari passu* with all other unsecured, unsubordinated indebtedness of Alcoa. Borrowings under the Credit Facility may be denominated in U.S. dollars or Euros. Loans will bear interest at (i) a base rate or (ii) a rate equal to LIBOR plus an applicable margin based on the credit ratings of Alcoa's outstanding senior unsecured long-term debt. The applicable margin on LIBOR loans will be 0.33% per annum based on Alcoa's long-term debt ratings, as of December 31, 2008. Loans may be prepaid without premium or penalty, subject to customary breakage costs.

The Credit Facility replaces \$3,000 in aggregate principal amount of revolving credit facilities maintained by Alcoa under the following credit agreements, which were terminated effective October 2, 2007: (i) \$1,000 Five-Year Revolving Credit Agreement dated as of April 22, 2005, (ii) \$1,000 Five-Year Revolving Credit Agreement dated as of April 23, 2004, as amended, and (iii) \$1,000 Five-Year Revolving Credit Agreement dated as of April 25, 2003, as amended (collectively, the Former Credit Agreements).

The Credit Agreement includes covenants substantially similar to those in the Former Credit Agreements, including, among others, (a) a leverage ratio, (b) limitations on Alcoa's ability to incur liens securing indebtedness for borrowed money, (c) limitations on Alcoa's ability to consummate a merger, consolidation or sale of all or substantially all of its assets and (d) limitations on Alcoa's ability to change the nature of its business.

The obligation of Alcoa to pay amounts outstanding under the Credit Facility may be accelerated upon the occurrence of an Event of Default as defined in the Credit Agreement. Such Events of Default include, among others, (a) Alcoa's failure to pay the principal of, or interest on, borrowings under the Credit Facility, (b) any representation or warranty of Alcoa in the Credit Agreement proving to be materially false or misleading, (c) Alcoa's breach of any of its covenants contained in the Credit Agreement, and (d) the bankruptcy or insolvency of Alcoa.

In July 2008, Alcoa increased the capacity of the Credit Facility by \$175 as provided for under the Credit Agreement. In October 2008, Lehman Commercial Paper Inc. (LCPI), a lender under the Credit Agreement with \$150 in commitments, filed for bankruptcy protection under section 11 of the United States Bankruptcy Code. It is not certain if LCPI will honor its obligations under the Credit Agreement. The total capacity of the Credit Facility, excluding LCPI's commitment, is \$3,275.

There were no amounts outstanding under the Credit Facility at December 31, 2008 and 2007.

In January 2008, Alcoa entered into a Revolving Credit Agreement (RCA-1) with two financial institutions. RCA-1 provided a \$1,000 senior unsecured revolving credit facility (RCF-1), with a stated maturity of March 28, 2008. RCA-1 contained a provision that if there were amounts borrowed under RCF-1 at the time Alcoa received the proceeds from the sale of the Packaging and Consumer businesses, the company must use the net cash proceeds to prepay the amount outstanding under RCF-1. Additionally, upon Alcoa's receipt of such proceeds, the lenders' commitments under RCF-1 would be reduced by a corresponding amount, up to the total commitments then in effect under RCF-1, regardless of whether there was an amount outstanding under RCF-1. In February 2008, Alcoa borrowed \$1,000 under RCF-1 and used the proceeds to reduce outstanding commercial paper and for general corporate purposes. Subsequent to the \$1,000 borrowing, Alcoa completed the sale of its Packaging and Consumer businesses in February 2008. As a result, Alcoa also repaid the \$1,000 under RCF-1 in February 2008, and the lenders' commitments under RCF-1 were reduced to zero effectively terminating RCA-1.

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Also in January 2008, Alcoa entered into a Revolving Credit Agreement (RCA-2) with LCPI, as administrative agent, and Lehman Brothers Commercial Bank (LBCB), as lender. RCA-2 provided a \$1,000 senior unsecured revolving credit facility (RCF-2), which would have matured on January 31, 2009. In October 2008, LCPI filed for bankruptcy protection under section 11 of the United States Bankruptcy Code. To Alcoa's knowledge, LBCB has not filed for bankruptcy protection. As a result, in October 2008, Alcoa gave notice in accordance with the provisions of RCA-2 to permanently terminate in whole LBCB's total commitments under RCF-2 effective October 30, 2008.

On October 14, 2008, Alcoa entered into a Revolving Credit Agreement (RCA-3) with a syndicate of lenders. RCA-3 provides a \$1,150 senior unsecured revolving credit facility (RCF-3), which matures on October 12, 2009. Loans will bear interest at (i) a base rate or (ii) a rate equal to LIBOR, plus an applicable margin based on the credit ratings of Alcoa's outstanding senior unsecured long-term debt. The applicable margin on base rate and LIBOR loans will be 1.375% and 1.875%, respectively, per annum based on Alcoa's long-term debt ratings, as of December 31, 2008. Alcoa will also pay a facility fee, currently 0.375%, on the aggregate commitments, whether used or unused, based on its long-term debt ratings. Additionally, if there is an amount outstanding under RCF-3 on the last calendar day of any of the next three quarterly periods, Alcoa will pay a duration fee to the lenders. The duration fee is equal to 0.5% of such outstanding amount on the respective day starting on December 31, 2008 and increases by 0.5% each quarter thereafter.

Loans may be prepaid without premium or penalty, subject to customary breakage costs. RCA-3 also provides for a mandatory prepayment, not to exceed the amount outstanding under RCF-3 at such time, equal to 100% of the net proceeds Alcoa receives from certain future debt or equity issuances in capital markets transactions or 50% of the net proceeds Alcoa receives from asset sales (other than those in the ordinary course of business), if the proceeds from all asset sales exceed \$50. Any prepayments made related to the net proceeds from assets sales or that would have been made if amounts were outstanding under RCF-3 also reduce the lenders' commitments by a corresponding amount. Amounts payable under RCF-3 will rank *pari passu* with all other unsecured, unsubordinated indebtedness of Alcoa.

RCA-3 includes the following covenants, among others, (a) a leverage ratio, (b) limitations on Alcoa's ability to incur liens securing indebtedness for borrowed money, (c) limitations on Alcoa's ability to consummate a merger, consolidation, or sale of all or substantially all of its assets, and (d) limitations on Alcoa's ability to change the nature of its business.

The obligation of Alcoa to pay amounts outstanding under RCF-3 may be accelerated upon the occurrence of an Event of Default as defined in RCA-3. Such Events of Default include, among others, (a) Alcoa's failure to pay the principal of, or interest on, borrowings under RCF-3, (b) any representation or warranty of Alcoa in RCA-3 proving to be materially false or misleading, (c) Alcoa's breach of any of its covenants contained in RCA-3, and (d) the bankruptcy or insolvency of Alcoa.

In October and November 2008, Alcoa increased the capacity of RCF-3 by \$500 and \$250, respectively, as provided for under RCA-3. Alcoa paid a total of \$43 in financing costs, which were deferred and will be amortized to interest expense over the term of the facility, for the initial capacity under RCF-3 as well as for the \$750 in increased capacity.

There were no amounts outstanding under RCF-3 at December 31, 2008.

In March 2008, Alcoa filed an automatic shelf registration statement with the Securities and Exchange Commission for an indeterminate amount of securities for future issuance. This shelf registration statement replaced Alcoa's existing shelf registration statement. As of December 31, 2008, \$1,500 in senior debt securities were issued under the new shelf registration statement.

Standard and Poor's Ratings Services (S&P) long-term debt rating of Alcoa is BBB+ and its short-term debt rating is A-2. The current outlook, which was revised in October 2008 (placed on negative creditwatch in January 2009), is negative, as S&P cited weaker than expected earnings, the result of falling aluminum prices, and weak end markets coupled with large capital spending and share repurchases (the existing share repurchase program has been temporarily suspended). Moody's Investors Service's (Moody's) long-term debt rating of Alcoa is Baa1 and its short-term debt rating of Alcoa is Prime-2. The current outlook, which was revised in October 2008 (placed on negative creditwatch in December 2008), is negative, as Moody's cited weak aluminum end markets. Fitch Ratings (Fitch) long-term debt

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rating of Alcoa is BBB and its short-term debt rating is F2. The current outlook, which was revised in April 2008 and affirmed in October 2008, is stable, as Fitch cited current aluminum market conditions and Alcoa's operating flexibility. See Note Y to the Consolidated Financial Statements for an update to these credit ratings and outlooks that occurred subsequent to December 31, 2008.

### **Investing Activities**

Cash used for investing activities was \$2,410 in 2008 compared with \$1,625 in 2007. The increase in cash used of \$785 was mainly due to a decline of \$1,939 in sales of investments, as a result of the absence of the \$1,942 in proceeds received from the sale of the Chalco investment; a \$1,172 increase in additions to investments, due to the \$1,200 investment made in Shining Prospect Pte. Ltd. to acquire common stock of Rio Tinto plc; and a \$399 rise in acquisitions, including minority interests, driven by the purchase of two aerospace fastener manufacturing businesses for \$276, the buyout of the outstanding minority interest in Bohai for \$79, and a \$47 contingent payment made to Camargo Corrêa Group related to the 2003 acquisition of 40.9% of Alcoa Alumínio S.A. These cash outflows were principally offset by a \$2,527 increase in proceeds from the sale of assets and businesses, mostly related to the \$2,651 in net proceeds received from the sale of the businesses within the Packaging and Consumer segment.

Cash used for investing activities was \$1,625 in 2007 compared with \$2,841 in 2006. The decrease in cash used of \$1,216 was primarily due to a \$1,976 increase in sales of investments, mostly related to the \$1,942 in proceeds received from the sale of the Chalco investment. This cash inflow was partially offset by a \$431 increase in capital expenditures, principally related to higher spending on certain growth projects, including the São Luís refinery expansion; the development of the Juruti bauxite mine; and projects at various facilities in Russia, Hungary, and China; all of which were partially offset by a decrease in capital expenditures related to the Iceland smelter and the Mosjøen anode facility, as these two projects were placed in service during 2007, and the Early Works Program in Jamaica, as this project was completed near the end of 2006; and a decrease of \$189 in proceeds from the sales of assets and businesses, principally due to the \$305 in cash received for the sale of the home exteriors business in 2006 as compared to the \$70 and \$33 in cash received from the sales of a mine in Texas and the Automotive Castings business, respectively, in 2007.

Capital expenditures were \$3,438 in 2008 compared with \$3,636 and \$3,205 in 2007 and 2006, respectively. Of the total capital expenditures in 2008, approximately 58% related to growth projects, including the refinery expansion in São Luís, the development of the Juruti bauxite mine, the Estreito hydroelectric power project in Brazil, and projects at various facilities in Russia and China. Also included are costs related to environmental control in new and expanded facilities totaling \$241 in 2008, \$274 in 2007, and \$182 in 2006. Total capital expenditures are anticipated to be approximately \$1,800 in 2009, approximately half of which is expected to occur in the first half of 2009 related to the São Luís refinery expansion and the development of the Juruti bauxite mine.

Alcoa added \$1,303, \$131, and \$58, to its investments in 2008, 2007, and 2006, respectively. As noted above, in 2008, Alcoa invested \$1,200 in Shining Prospect Pte. Ltd. to acquire common stock of Rio Tinto plc. In 2008, 2007, and 2006, Alcoa invested an additional \$9, \$31, and \$26, respectively, in the Dampier to Bunbury Natural Gas Pipeline in Western Australia. Also in 2008, Alcoa made additional investments related to its Serra do Falcão hydroelectric power project in Brazil.

### **Critical Accounting Policies and Estimates**

The preparation of the Consolidated Financial Statements in accordance with accounting principles generally accepted in the United States of America requires management to make certain judgments, estimates, and assumptions regarding uncertainties that affect the amounts reported in the Consolidated Financial Statements and disclosed in the accompanying Notes. Areas that require significant judgments, estimates, and assumptions include the accounting for derivatives and hedging activities; environmental matters; asset retirement obligations; the testing of goodwill, equity investments, and properties, plants, and equipment for impairment; estimated proceeds on businesses to be divested; pension plans and other postretirement benefits; stock-based compensation; and income taxes.

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Management uses historical experience and all available information to make these judgments, estimates, and assumptions, and actual results may differ from those used to prepare the Company's Consolidated Financial Statements at any given time. Despite these inherent limitations, management believes that Management's Discussion and Analysis of Financial Condition and Results of Operations and the Consolidated Financial Statements and accompanying Notes provide a meaningful and fair perspective of the Company. A discussion of the judgments, estimates, assumptions, and uncertainties associated with accounting for derivatives and hedging activities and environmental matters can be found in the Market Risks and Derivative Activities and the Environmental Matters sections, respectively.

A summary of the Company's significant accounting policies is included in Note A to the Consolidated Financial Statements. Management believes that the application of these policies on a consistent basis enables the Company to provide the users of the Consolidated Financial Statements with useful and reliable information about the Company's operating results and financial condition.

**Asset Retirement Obligations.** Alcoa recognizes asset retirement obligations (AROs) related to legal obligations associated with the normal operation of Alcoa's bauxite mining, alumina refining, and aluminum smelting facilities. These AROs consist primarily of costs associated with spent pot lining disposal, closure of bauxite residue areas, mine reclamation, and landfill closure. Alcoa also recognizes AROs for any significant lease restoration obligation, if required by a lease agreement, and for the disposal of regulated waste materials related to the demolition of certain power facilities. The fair values of these AROs are recorded on a discounted basis, at the time the obligation is incurred, and accreted over time for the change in present value. Additionally, Alcoa capitalizes asset retirement costs by increasing the carrying amount of the related long-lived assets and depreciating these assets over their remaining useful life.

Certain conditional asset retirement obligations (CAROs) related to alumina refineries, aluminum smelters, and fabrication facilities have not been recorded in the Consolidated Financial Statements due to uncertainties surrounding the ultimate settlement date. A CARO is a legal obligation to perform an asset retirement activity in which the timing and (or) method of settlement are conditional on a future event that may or may not be within Alcoa's control. Such uncertainties exist as a result of the perpetual nature of the structures, maintenance and upgrade programs, and other factors. At the date a reasonable estimate of the ultimate settlement date can be made, Alcoa would record a retirement obligation for the removal, treatment, transportation, storage and (or) disposal of various regulated assets and hazardous materials such as asbestos, underground and aboveground storage tanks, PCBs, various process residuals, solid wastes, electronic equipment waste and various other materials. Such amounts may be material to the Consolidated Financial Statements in the period in which they are recorded. If Alcoa was required to demolish all such structures immediately, the estimated CARO as of December 31, 2008 ranges from less than \$1 to \$52 per structure (157 structures) in today's dollars.

**Goodwill.** Goodwill is not amortized; instead, it is tested for impairment annually (in the fourth quarter) or more frequently if indicators of impairment exist or if a decision is made to sell a business. A significant amount of judgment is involved in determining if an indicator of impairment has occurred. Such indicators may include a decline in expected cash flows, a significant adverse change in legal factors or in the business climate, unanticipated competition, or slower growth rates, among others.

Goodwill is allocated among and evaluated for impairment at the reporting unit level, which is defined as an operating segment or one level below an operating segment. Alcoa has 10 reporting units, of which three are included in the Flat-Rolled Products segment and five are included in the Engineered Products and Solutions segment. The remaining two reporting units are the Alumina and Primary Metals segments. Almost 90% of Alcoa's total goodwill is allocated to three reporting units as follows: Alcoa Fastening Systems (AFS) (\$1,014) and Alcoa Power and Propulsion (APP) (\$1,601) businesses, both of which are included in the Engineered Products and Solutions segment, and Primary Metals (\$1,767). These amounts include an allocation of Corporate goodwill.

The evaluation of impairment involves comparing the current fair value of each reporting unit to its carrying value, including goodwill. Alcoa uses a discounted cash flow model (DCF model) to estimate the current fair value of its

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reporting units when testing for impairment. A number of significant assumptions and estimates are involved in the application of the DCF model to forecast operating cash flows, including markets and market share, sales volumes and prices, costs to produce, tax rates, capital spending, discount rate, and working capital changes. Most of these assumptions vary significantly among the reporting units. Cash flow forecasts are generally based on approved business unit operating plans for the early years' cash flows and historical relationships in later years. The betas used in calculating the individual reporting units' weighted average cost of capital (WACC) rate are estimated for each business with the assistance of valuation experts.

In 2008, the estimated fair value of nine of the ten reporting units, including AFS and APP, were well in excess of the carrying value of these businesses resulting in no impairment. For Primary Metals, while the estimated fair value of this business exceeded its carrying value, the excess was significantly impacted due to the historic drop in the LME price that occurred in the second half of 2008. Management performed an updated goodwill impairment test for Primary Metals in late December 2008, which again resulted in no impairment (the tests for the other nine reporting units were also updated).

Historically, LME pricing levels and the corresponding input costs (e.g., raw materials, energy) have generally trended in the same manner, resulting in relatively consistent cash margins over time. As a result, the estimated fair value of Primary Metals traditionally has been well in excess of its carrying value. However, during the second half of 2008, the LME price decreased at an unprecedented rate, significantly outpacing any decreases in associated input costs. As a result of this near-term disruption in the historical relationship between LME and input costs, the expected cash margins in the early years in the DCF model were lower than normal and lower than long-term expectations.

In the event the estimated fair value of a reporting unit per the DCF model is less than the carrying value, additional analysis would be required. The additional analysis would compare the carrying amount of the reporting unit's goodwill with the implied fair value of that goodwill, which may involve the use of valuation experts. The implied fair value of goodwill is the excess of the fair value of the reporting unit over the fair value amounts assigned to all of the assets and liabilities of that unit as if the reporting unit was acquired in a business combination and the fair value of the reporting unit represented the purchase price. If the carrying value of goodwill exceeds its implied fair value, an impairment loss equal to such excess would be recognized, which could significantly and adversely impact reported results of operations and shareholders' equity.

With Alcoa's common stock price at extraordinary lows late in 2008, management analyzed the valuations derived from the DCF models in relation to Alcoa's market capitalization. In management's judgment, a significant portion of the recent decline in Alcoa's stock price is related to the current unprecedented liquidity crisis in the overall economy and is not reflective of the underlying cash flows of the reporting units. As a result, management believes the Company's forecasted cash flows constitute a better indicator of the current fair value of Alcoa's reporting units than the current pricing of its common shares. The sum of the individual estimated fair values of Alcoa's reporting units per the DCF models is greater than the market value of Alcoa's common stock. However, fair values that could be realized in an actual transaction may differ from those used to evaluate the impairment of goodwill.

**Equity investments.** Alcoa invests in a number of privately-held companies, primarily through joint ventures and consortiums. These investments are accounted for on the equity method and include the Company's investment in Shining Prospect Pte. Ltd. The equity method is applied in situations where Alcoa has the ability to exercise significant influence, but not control, over the investee. Management reviews equity investments for impairment whenever certain indicators are present suggesting that the carrying value of an investment is not recoverable. This analysis requires a significant amount of judgment from management to identify events or circumstances indicating that an equity investment is impaired. The following items are examples of impairment indicators: significant, sustained declines in an investee's revenue, earnings, and cash flow trends; adverse market conditions of the investee's industry or geographic area; the investee's ability to continue operations measured by several items including liquidity; and other factors. Once an impairment indicator is identified, management uses considerable judgment to determine if the impairment is other than temporary, in which case the equity investment is written down to its estimated fair value. An impairment that is other than temporary could significantly and adversely impact reported results of operations.

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**Properties, Plants, and Equipment.** Properties, plants, and equipment are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets (asset group) may not be recoverable. Recoverability of assets is determined by comparing the estimated undiscounted net cash flows of the operations related to the assets (asset group) to their carrying amount. An impairment loss would be recognized when the carrying amount of the assets (asset group) exceeds the estimated undiscounted net cash flows. The amount of the impairment loss to be recorded is calculated as the excess of the carrying value of the assets (asset group) over their fair value, with fair value determined using the best information available, which generally is a DCF model.

**Discontinued Operations and Assets Held For Sale.** The fair values of all businesses to be divested are estimated using accepted valuation techniques such as a DCF model, valuations performed by third parties, earnings multiples, or indicative bids, when available. A number of significant estimates and assumptions are involved in the application of these techniques, including the forecasting of markets and market share, sales volumes and prices, costs and expenses, and multiple other factors. Management considers historical experience and all available information at the time the estimates are made; however, the fair values that are ultimately realized upon the sale of the businesses to be divested may differ from the estimated fair values reflected in the Consolidated Financial Statements.

**Pension Plans and Other Postretirement Benefits.** Liabilities and expenses for pension plans and other postretirement benefits are determined using actuarial methodologies and incorporate significant assumptions, including the rate used to discount the future estimated liability, the long-term rate of return on plan assets, and several assumptions relating to the employee workforce (salary increases, medical costs, retirement age, and mortality). The rate used to discount future estimated liabilities is determined considering the rates available at year-end on debt instruments that could be used to settle the obligations of the plan. The impact on the liabilities of a change in the discount rate of 1/4 of 1% is approximately \$325 and either a charge or credit of \$16 to after-tax earnings in the following year. The long-term rate of return on plan assets is estimated by considering historical returns and expected returns on current and projected asset allocations and is generally applied to a five-year average market value of assets. A change in the assumption for the long-term rate of return on plan assets of 1/4 of 1% would impact after-tax earnings by approximately \$15 for 2009. Although the 10-year moving average of actual performance fell below 9% for the first time in 20 years, the 20-year moving average has continued to exceed 9%. The expected long-term rate of return on plan assets will be reduced to 8.75% for 2009 reflecting recent market conditions.

In 2008, a net charge of \$2,181 (\$1,374 after-tax) was recorded in other comprehensive loss primarily due to the decrease in the fair value of plan assets, which was somewhat offset by the decrease in the accumulated benefit obligation (as a result of a 20 basis-point increase in the discount rate) and the recognition of actuarial losses and prior service costs. Additionally, a charge of \$8 was recorded in other comprehensive loss due to the reclassification of deferred taxes related to the Medicare Part D prescription drug subsidy. In 2007, a net credit of \$659 (\$426 after-tax) was recorded in other comprehensive income due to a net decrease in the accumulated benefit obligations (as a result of a 25 basis-point increase in the discount rate, which was partially offset by plan amendments) and the recognition of actuarial losses and prior service costs. Additionally, a credit of \$80 was recorded in other comprehensive income due to the reclassification of deferred taxes related to the Medicare Part D prescription drug subsidy.

**Stock-based Compensation.** Alcoa recognizes compensation expense for employee equity grants using the non-substantive vesting period approach, in which the expense (net of estimated forfeitures) is recognized ratably over the requisite service period based on the grant date fair value. The fair value of each new stock option is estimated on the date of grant using a lattice-pricing model. Determining the fair value of stock options at the grant date requires judgment including estimates for the average risk-free interest rate, dividend yield, volatility, annual forfeiture rate, and exercise behavior. If any of these assumptions differ significantly from actual, stock-based compensation expense could be impacted.

As part of Alcoa's stock-based compensation plan design, individuals who are retirement-eligible have a six-month requisite service period in the year of grant. Equity grants are issued in January each year. As a result, a larger portion of expense will be recognized in the first and second quarters of each year for these retirement-eligible employees. Compensation expense recorded in 2008, 2007, and 2006 was \$94 (\$63 after-tax), \$97 (\$63 after-tax), and \$72 (\$48

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after-tax), respectively. Of this amount, \$19, \$19, and \$20 in 2008, 2007, and 2006, respectively, pertains to the acceleration of expense related to retirement-eligible employees.

On December 31, 2005, Alcoa accelerated the vesting of 11 million unvested stock options granted to employees in 2004 and on January 13, 2005. The 2004 and 2005 accelerated options had weighted average exercise prices of \$35.60 and \$29.54, respectively, and in the aggregate represented approximately 12% of Alcoa's total outstanding options. The decision to accelerate the vesting of the 2004 and 2005 options was made primarily to avoid recognizing the related compensation expense in future Consolidated Financial Statements upon the adoption of a new accounting standard. The accelerated vesting of the 2004 and 2005 stock options reduced Alcoa's after-tax stock option compensation expense in 2007 and 2006 by \$7 and \$21, respectively.

Beginning in 2006, plan participants can choose whether to receive their award in the form of stock options, stock awards, or a combination of both. This choice is made before the grant is issued and is irrevocable.

**Income Taxes.** The provision for income taxes is determined using the asset and liability approach of accounting for income taxes. Under this approach, the provision for income taxes represents income taxes paid or payable for the current year plus the change in deferred taxes during the year. Deferred taxes represent the future tax consequences expected to occur when the reported amounts of assets and liabilities are recovered or paid, and result from differences between the financial and tax bases of Alcoa's assets and liabilities and are adjusted for changes in tax rates and tax laws when enacted. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized. Deferred tax assets for which no valuation allowance is recorded may not be realized upon changes in facts and circumstances. Tax benefits related to uncertain tax positions taken or expected to be taken on a tax return are recorded when such benefits meet a more likely than not threshold. Otherwise, these tax benefits are recorded when a tax position has been effectively settled, which means that the appropriate taxing authority has completed their examination even though the statute of limitations remains open, or the statute of limitation expires. Interest and penalties related to uncertain tax positions are recognized as part of the provision for income taxes and are accrued beginning in the period that such interest and penalties would be applicable under relevant tax law until such time that the related tax benefits are recognized. Alcoa also has unamortized tax-deductible goodwill of \$397 resulting from intercompany stock sales and reorganizations (generally at a 30% to 34% rate). Alcoa recognizes the tax benefits associated with this tax-deductible goodwill as it is being amortized for local income tax purposes rather than in the period in which the transaction is consummated.

## **Related Party Transactions**

Alcoa buys products from and sells products to various related companies, consisting of entities in which Alcoa retains a 50% or less equity interest, at negotiated arms-length prices between the two parties. These transactions were not material to the financial position or results of operations of Alcoa for all periods presented.

## **Recently Adopted Accounting Standards**

On January 1, 2008, Alcoa adopted Statement of Financial Accounting Standards (SFAS) No. 159, *The Fair Value Option for Financial Assets and Financial Liabilities* including an amendment of FASB Statement No. 115, (SFAS 159). SFAS 159 permits entities to choose to measure many financial instruments and certain other assets and liabilities at fair value on an instrument-by-instrument basis (the fair value option) with changes in fair value reported in earnings. Alcoa already records marketable securities at fair value in accordance with SFAS No. 115,

*Accounting for Certain Investments in Debt and Equity Securities*, and derivative contracts and hedging activities at fair value in accordance with SFAS No. 133, *Accounting for Derivative Instruments and Hedging Activities*, as amended (SFAS 133). The adoption of SFAS 159 had no impact on the Consolidated Financial Statements as management did not elect the fair value option for any other financial instruments or certain other assets and liabilities.

On January 1, 2008, Alcoa adopted SFAS No. 157, *Fair Value Measurements*, (SFAS 157) as it relates to financial assets and financial liabilities. In February 2008, the Financial Accounting Standards Board (FASB) issued FASB Staff Position (FSP) No. FAS 157-2, *Effective Date of FASB Statement No. 157*, which delayed the effective date of



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SFAS 157 for all nonfinancial assets and nonfinancial liabilities, except those that are recognized or disclosed at fair value in the financial statements on at least an annual basis, until January 1, 2009 for calendar year-end entities. Also in February 2008, the FASB issued FSP No. FAS 157-1, Application of FASB Statement No. 157 to FASB Statement No. 13 and Other Accounting Pronouncements That Address Fair Value Measurements for Purposes of Lease Classification or Measurement under Statement 13, which states that SFAS No. 13, Accounting for Leases, (SFAS 13) and other accounting pronouncements that address fair value measurements for purposes of lease classification or measurement under SFAS 13 are excluded from the provisions of SFAS 157, except for assets and liabilities related to leases assumed in a business combination that are required to be measured at fair value under SFAS No. 141, Business Combinations, (SFAS 141) or SFAS No. 141 (revised 2007), Business Combinations, (SFAS 141(R)).

SFAS 157 defines fair value, establishes a framework for measuring fair value in accounting principles generally accepted in the United States of America (GAAP), and expands disclosures about fair value measurements. The provisions of this standard apply to other accounting pronouncements that require or permit fair value measurements and are to be applied prospectively with limited exceptions. The adoption of SFAS 157, as it relates to financial assets, had no impact on the Consolidated Financial Statements. Management has determined that the adoption of SFAS 157, as it relates to nonfinancial assets and nonfinancial liabilities, will not have an impact on the Consolidated Financial Statements.

SFAS 157 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. This standard is now the single source in GAAP for the definition of fair value, except for the fair value of leased property as defined in SFAS 13. SFAS 157 establishes a fair value hierarchy that distinguishes between (1) market participant assumptions developed based on market data obtained from independent sources (observable inputs) and (2) an entity's own assumptions about market participant assumptions developed based on the best information available in the circumstances (unobservable inputs). The fair value hierarchy consists of three broad levels, which gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy under SFAS 157 are described below:

Level 1 Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.

Level 2 Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, including quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets or liabilities in markets that are not active; inputs other than quoted prices that are observable for the asset or liability (e.g., interest rates); and inputs that are derived principally from or corroborated by observable market data by correlation or other means.

Level 3 Inputs that are both significant to the fair value measurement and unobservable.

The following sections describe the valuation methodologies used by Alcoa to measure different financial instruments at fair value, including an indication of the level in the fair value hierarchy in which each instrument is generally classified. Where appropriate the description includes details of the valuation models, the key inputs to those models, and any significant assumptions.

**Available-for-sale securities.** Alcoa uses quoted market prices to determine the fair value of available-for-sale securities. These financial instruments consist of exchange-traded fixed income and equity securities, and are classified in Level 1 of the fair value hierarchy.

**Derivative contracts.** Derivative contracts are valued using quoted market prices and significant other observable and unobservable inputs. Such financial instruments consist of aluminum, interest rate, commodity (principally energy-related), and foreign currency contracts. The fair values for the majority of these derivative contracts are based upon current quoted market prices. These financial instruments are typically exchange-traded and are generally classified within Level 1 or Level 2 of the fair value hierarchy depending on whether the exchange is deemed to be an active market or not.

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For certain derivative contracts whose fair values are based upon trades in liquid markets, such as aluminum options, valuation model inputs can generally be verified and valuation techniques do not involve significant management judgment. The fair values of such financial instruments are generally classified within Level 2 of the fair value hierarchy.

Alcoa has other derivative contracts that do not have observable market quotes. For these financial instruments, management uses significant other observable inputs (i.e., information concerning time premiums and volatilities for certain option type embedded derivatives and regional premiums for swaps). For periods beyond the term of quoted market prices for aluminum, Alcoa uses a macroeconomic model that estimates the long-term price of aluminum based on anticipated changes in worldwide supply and demand. Where appropriate, valuations are adjusted for various factors such as liquidity, bid/offer spreads, and credit considerations. Such adjustments are generally based on available market evidence (Level 2). In the absence of such evidence, management's best estimate is used (Level 3).

The following table presents Alcoa's assets and liabilities that are measured and recognized at fair value on a recurring basis classified under the appropriate level of the fair value hierarchy as of December 31, 2008:

	Level 1	Level 2	Level 3	Collateral*	Total
<b>Assets:</b>					
Available-for-sale securities	\$ 27	\$ -	\$ -	\$ -	\$ 27
Derivative contracts	79	160	-	(67)	172
Total assets	\$ 106	\$ 160	\$ -	\$ (67)	\$ 199
<b>Liabilities:</b>					
Derivative contracts	\$ 569	\$ 30	\$ 341	\$ (119)	\$ 821

\*These amounts represent cash collateral paid (\$119) and held (\$67) that Alcoa elected to net against the fair value amounts recognized for certain derivative instruments executed with the same counterparties under master netting arrangements. This election was made under the provisions of FSP FIN 39-1, which was adopted by Alcoa on January 1, 2008 (see below). The collateral paid of \$119 relates to derivative contracts for aluminum included in Level 1 and the collateral held of \$67 relates to derivative contracts for interest rates included in Level 2. Financial instruments classified as Level 3 in the fair value hierarchy represent derivative contracts in which management has used at least one significant unobservable input in the valuation model. The following table presents a reconciliation of activity for such derivative contracts on a net basis:

	Year ended December 31, 2008
Balance at beginning of period	\$ 408
Total realized/unrealized (losses) or gains included in:	
Sales	(54)
Cost of goods sold	3
Other comprehensive loss	(35)
Purchases, sales, issuances, and settlements	19
Transfers in and (or) out of Level 3	-
Balance at end of period	\$ 341
Total (losses) or gains included in earnings attributable to the change in unrealized gains or losses relating to derivative contracts still held at December 31, 2008:	
Sales	\$ (54)
Cost of goods sold	3

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As reflected in the table above, the net unrealized loss on derivative contracts using Level 3 valuation techniques was \$341 as of December 31, 2008. This loss is mainly attributed to embedded derivatives in a power contract that index the price of power to the LME price of aluminum. These embedded derivatives are primarily valued using observable market prices. However, due to the length of the contract, the valuation model also requires management to estimate the long-term price of aluminum based upon anticipated changes in worldwide supply and demand. The embedded derivatives have been designated as hedges of forward sales of aluminum and their realized gains and losses are included in Sales on the Statement of Consolidated Operations. Also, included within Level 3 measurements are derivative financial instruments that hedge the cost of electricity. Transactions involving on-peak power are observable as there is an active market. However, due to Alcoa's power consumption, there are certain off-peak times when there is not an actively traded market for electricity. Therefore, management utilizes various forecast services, historical relationships, and near term market actual pricing to determine the fair value. Gains and losses realized for the electricity contracts are included in Cost of goods sold on the Statement of Consolidated Operations. Additionally, an embedded derivative in a power contract that indexes the difference between the long-term debt ratings of Alcoa and the counterparty from any of the three major credit rating agencies is included in Level 3. Management uses forecast services, historical relationships, and market prices to determine fair value. None of the Level 3 positions on hand at December 31, 2008 resulted in any unrealized gains in the Statement of Consolidated Operations.

Effective September 30, 2008, Alcoa adopted FSP No. FAS 157-3, *Determining the Fair Value of a Financial Asset When the Market for That Asset Is Not Active* (FSP FAS 157-3), which was issued on October 10, 2008. FSP FAS 157-3 clarifies the application of SFAS 157 in a market that is not active and provides an example to illustrate key considerations in determining the fair value of a financial asset when the market for that financial asset is not active. The adoption of FSP FAS 157-3 had no impact on the Consolidated Financial Statements.

On January 1, 2008, Alcoa adopted FSP No. FIN 39-1, *Amendment of FASB Interpretation No. 39*, (FSP FIN 39-1). FSP FIN 39-1 amends FIN No. 39, *Offsetting of Amounts Related to Certain Contracts*, by permitting entities that enter into master netting arrangements as part of their derivative transactions to offset in their financial statements net derivative positions against the fair value of amounts (or amounts that approximate fair value) recognized for the right to reclaim cash collateral or the obligation to return cash collateral under those arrangements. As a result, management elected to net cash collateral against fair value amounts recognized for derivative instruments executed with the same counterparty when a master netting arrangement exists. The provisions of FSP FIN 39-1 are to be applied retroactively for all financial statement periods presented. As of December 31, 2008, the obligation to return cash collateral in the amount of \$67 was netted against the fair value of derivative contracts, of which \$4 is included in Prepaid expenses and other current assets and \$63 is included in Other assets on the Consolidated Balance Sheet, and the right to receive cash collateral in the amount of \$119 was netted against the fair value of derivative contracts included in Other current liabilities on the Consolidated Balance Sheet. The adoption of FSP FIN 39-1 did not impact the Consolidated Balance Sheet as of December 31, 2007 as no cash collateral was held or posted.

On January 1, 2008, Alcoa adopted Emerging Issues Task Force (EITF) Issue No. 06-10, *Accounting for Collateral Assignment Split-Dollar Life Insurance Arrangements*, (EITF 06-10). Under the provisions of EITF 06-10, an employer is required to recognize a liability for the postretirement benefit related to a collateral assignment split-dollar life insurance arrangement in accordance with either SFAS No. 106, *Employers' Accounting for Postretirement Benefits Other Than Pensions*, or Accounting Principles Board Opinion No. 12, *Omnibus Opinion 1967*, if the employer has agreed to maintain a life insurance policy during the employee's retirement or provide the employee with a death benefit based on the substantive arrangement with the employee. The provisions of EITF 06-10 also require an employer to recognize and measure the asset in a collateral assignment split-dollar life insurance arrangement based on the nature and substance of the arrangement. The adoption of EITF 06-10 had no impact on the Consolidated Financial Statements.

On January 1, 2008, Alcoa adopted Statement 133 Implementation Issue No. E23, *Hedging General: Issues Involving the Application of the Shortcut Method under Paragraph 68* (Issue E23). Issue E23 provides guidance on certain practice issues related to the application of the shortcut method by amending paragraph 68 of SFAS 133 with respect to the conditions that must be met in order to apply the shortcut method for assessing hedge effectiveness of

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interest rate swaps. In addition to applying the provisions of Issue E23 on hedging arrangements designated on or after January 1, 2008, an assessment was required to be made on January 1, 2008 to determine whether preexisting hedging arrangements met the provisions of Issue E23 as of their original inception. Management performed such an assessment and determined that the adoption of Issue E23 had no impact on preexisting hedging arrangements. Alcoa will apply the provisions of Issue E23 on future hedging arrangements so designated.

On January 1, 2007, Alcoa adopted FASB Interpretation (FIN) No. 48, *Accounting for Uncertainty in Income Taxes* an interpretation of FASB Statement No. 109, (FIN 48). FIN 48 prescribes a comprehensive model for how a company should recognize, measure, present, and disclose in its financial statements, uncertain tax positions that it has taken or expects to take on a tax return. This Interpretation requires that a company recognize in its financial statements the impact of tax positions that meet a more likely than not threshold, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position should be measured based on the largest benefit that has a greater than fifty percent likelihood of being realized upon ultimate settlement.

Effective January 1, 2007, Alcoa adopted FSP No. FIN 48-1, *Definition of Settlement in FASB Interpretation No. 48*, (FSP FIN 48-1), which was issued on May 2, 2007. FSP FIN 48-1 amends FIN 48 to provide guidance on how an entity should determine whether a tax position is effectively settled for the purpose of recognizing previously unrecognized tax benefits. The term *effectively settled* replaces the term *ultimately settled* when used to describe recognition, and the terms *settlement* or *settled* replace the terms *ultimate settlement* or *ultimately settled* when used to describe measurement of a tax position under FIN 48. FSP FIN 48-1 clarifies that a tax position can be effectively settled upon the completion of an examination by a taxing authority without being legally extinguished. For tax positions considered effectively settled, an entity would recognize the full amount of tax benefit, even if the tax position is not considered more likely than not to be sustained based solely on the basis of its technical merits and the statute of limitations remains open.

The adoption of FIN 48 and FSP FIN 48-1 did not have an impact on the Consolidated Financial Statements. See Note T to the Consolidated Financial Statements for the required disclosures in accordance with the provisions of FIN 48.

Alcoa adopted SFAS No. 158, *Employers' Accounting for Defined Benefit Pension and Other Postretirement* an amendment of FASB Statements No. 87, 88, 106 and 132(R), (SFAS 158), effective December 31, 2006. SFAS 158 requires an employer to recognize the funded status of each of its defined pension and postretirement benefit plans as a net asset or liability in its statement of financial position with an offsetting amount in accumulated other comprehensive income, and to recognize changes in that funded status in the year in which changes occur through comprehensive income. Following the adoption of SFAS 158, additional minimum pension liabilities and related intangible assets are no longer recognized. The adoption of SFAS 158 resulted in the following impacts: a reduction of \$119 in existing prepaid pension costs and intangible assets, the recognition of \$1,234 in accrued pension and postretirement liabilities, and a charge of \$1,353 (\$877 after-tax) to accumulated other comprehensive loss.

Additionally, SFAS 158 requires an employer to measure the funded status of each of its plans as of the date of its year-end statement of financial position. This provision became effective for Alcoa for its December 31, 2008 year-end and resulted in a charge of \$9, which was recorded as an adjustment to December 31, 2008 retained earnings. Prior to the effective date of this provision, the funded status of most of Alcoa's pension and other postretirement benefit plans were already measured as of December 31st.

In September 2006, the Securities and Exchange Commission issued Staff Accounting Bulletin No. 108, *Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements*, (SAB 108). SAB 108 was issued to provide interpretive guidance on how the effects of the carryover or reversal of prior year misstatements should be considered in quantifying a current year misstatement. The provisions of SAB 108 were effective for Alcoa for its December 31, 2006 year-end. The adoption of SAB 108 did not have a material impact on Alcoa's Consolidated Financial Statements.

On January 1, 2006, Alcoa adopted SFAS No. 123 (revised 2004), *Share-Based Payment*, (SFAS 123(R)), which requires the company to recognize compensation expense for stock-based compensation based on the grant date fair

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value. SFAS 123(R) revises SFAS No. 123, Accounting for Stock-Based Compensation, and supersedes Accounting Principles Board Opinion No. 25, Accounting for Stock Issued to Employees, and related interpretations. Alcoa elected the modified prospective application method for adoption, and prior period financial statements have not been restated. As a result of the implementation of SFAS 123(R), Alcoa recognized additional compensation expense of \$29 (\$19 after-tax) in 2006 comprised of \$11 (\$7 after-tax) and \$18 (\$12 after-tax) related to stock options and stock awards, respectively.

Effective January 1, 2006, Alcoa adopted EITF Issue No. 04-6, Accounting for Stripping Costs Incurred During Production in the Mining Industry, (EITF 04-6). EITF 04-6 requires that stripping costs incurred during the production phase of a mine are to be accounted for as variable production costs that should be included in the costs of the inventory produced (that is, extracted) during the period that the stripping costs are incurred. Upon adoption, Alcoa recognized a cumulative effect adjustment in the opening balance of retained earnings of \$3, representing the reduction in the net book value of post-production stripping costs of \$8, offset by a related deferred tax liability of \$3 and minority interests of \$2.

## **Recently Issued Accounting Standards**

In March 2008, the FASB issued SFAS No. 161, Disclosures about Derivative Instruments and Hedging Activities an amendment of FASB Statement No. 133, (SFAS 161). SFAS 161 requires enhanced disclosures about an entity's derivative and hedging activities, including (i) how and why an entity uses derivative instruments, (ii) how derivative instruments and related hedged items are accounted for under SFAS 133, and (iii) how derivative instruments and related hedged items affect an entity's financial position, financial performance, and cash flows. This standard becomes effective for Alcoa on January 1, 2009. Earlier adoption of SFAS 161 and, separately, comparative disclosures for earlier periods at initial adoption are encouraged. As SFAS 161 only requires enhanced disclosures, management has determined that the adoption of SFAS 161 will not have an impact on the Consolidated Financial Statements.

In December 2007, the FASB issued SFAS No. 160, Noncontrolling Interests in Consolidated Financial Statements an amendment of ARB No. 51, (SFAS 160). SFAS 160 amends Accounting Research Bulletin No. 51, Consolidated Financial Statements, to establish accounting and reporting standards for the noncontrolling interest in a subsidiary and for the deconsolidation of a subsidiary. This standard defines a noncontrolling interest, sometimes called a minority interest, as the portion of equity in a subsidiary not attributable, directly or indirectly, to a parent. SFAS 160 requires, among other items, that a noncontrolling interest be included in the consolidated statement of financial position within equity separate from the parent's equity; consolidated net income to be reported at amounts inclusive of both the parent's and noncontrolling interest's shares and, separately, the amounts of consolidated net income attributable to the parent and noncontrolling interest all on the consolidated statement of income; and if a subsidiary is deconsolidated, any retained noncontrolling equity investment in the former subsidiary be measured at fair value and a gain or loss be recognized in net income based on such fair value. SFAS 160 becomes effective for Alcoa on January 1, 2009. Management has determined that the adoption of SFAS 160 will not have an impact on the Consolidated Financial Statements.

In December 2007, the FASB issued SFAS 141(R), which replaces SFAS 141 and retains the fundamental requirements in SFAS 141, including that the purchase method be used for all business combinations and for an acquirer to be identified for each business combination. This standard defines the acquirer as the entity that obtains control of one or more businesses in the business combination and establishes the acquisition date as the date that the acquirer achieves control instead of the date that the consideration is transferred. SFAS 141(R) requires an acquirer in a business combination, including business combinations achieved in stages (step acquisition), to recognize the assets acquired, liabilities assumed, and any noncontrolling interest in the acquiree at the acquisition date, measured at their fair values as of that date, with limited exceptions. It also requires the recognition of assets acquired and liabilities assumed arising from certain contractual contingencies as of the acquisition date, measured at their acquisition-date fair values. Additionally, SFAS 141(R) requires acquisition-related costs to be expensed in the period in which the costs are incurred and the services are received instead of including such costs as part of the acquisition price. SFAS 141(R) becomes effective for Alcoa for any business combination with an acquisition date on or after January 1, 2009.

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Management has determined that the adoption of SFAS 141(R) will result in a charge of \$18 (\$12 after-tax) in the Statement of Consolidated Operations for the write off of third-party costs related to potential business acquisitions.

In April 2008, the FASB issued FSP No. FAS 142-3, Determination of the Useful Life of Intangible Assets, (FSP FAS 142-3). FSP FAS 142-3 amends the factors that should be considered in developing renewal or extension assumptions used to determine the useful life of a recognized intangible asset under FASB Statement No. 142, Goodwill and Other Intangible Assets, (SFAS 142) in order to improve the consistency between the useful life of a recognized intangible asset under SFAS 142 and the period of expected cash flows used to measure the fair value of the asset under SFAS 141(R) and other GAAP. FSP FAS 142-3 becomes effective for Alcoa on January 1, 2009. Management has determined that the adoption of FSP FAS 142-3 will not have an impact on the Consolidated Financial Statements.

In June 2008, the FASB issued FSP No. EITF 03-6-1, Determining Whether Instruments Granted in Share-Based Payment Transactions Are Participating Securities, (FSP EITF 03-6-1). FSP EITF 03-6-1 states that unvested share-based payment awards that contain nonforfeitable rights to dividends or dividend equivalents (whether paid or unpaid) are participating securities and shall be included in the computation of earnings per share pursuant to the two-class method. FSP EITF 03-6-1 becomes effective for Alcoa on January 1, 2009. Management has determined that the adoption of FSP EITF 03-6-1 will not have an impact on the Consolidated Financial Statements.

In December 2008, the FASB issued FSP No. FAS 132(R)-1, Employers' Disclosures about Postretirement Benefit Plan Assets, (FSP FAS 132(R)-1). FSP FAS 132(R)-1 amends SFAS No. 132 (revised 2003), Employers' Disclosures about Pensions and Other Postretirement Benefits, to provide guidance on an employer's disclosures about plan assets of a defined benefit pension or other postretirement plan. This guidance is intended to ensure that an employer meets the objectives of the disclosures about plan assets in an employer's defined benefit pension or other postretirement plan to provide users of financial statements with an understanding of the following: how investment allocation decisions are made; the major categories of plan assets; the inputs and valuation techniques used to measure the fair value of plan assets; the effect of fair value measurements using significant unobservable inputs on changes in plan assets; and significant concentrations of risk within plan assets. FSP FAS 132(R)-1 becomes effective for Alcoa on December 31, 2009. As FSP FAS 132(R)-1 only requires enhanced disclosures, management has determined that the adoption of FSP FAS 132(R)-1 will not have an impact on the Consolidated Financial Statements.

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**Contractual Obligations and Off-Balance Sheet Arrangements**

**Contractual Obligations.** Alcoa is required to make future payments under various contracts, including long-term purchase obligations, debt agreements, and lease agreements. Alcoa also has commitments to fund its pension plans, provide payments for postretirement benefit plans, and finance capital projects. These contractual obligations are grouped in the same manner as they are classified in the Statement of Consolidated Cash Flows in order to provide a better understanding of the nature of the obligations and to provide a basis for comparison to historical information. As of December 31, 2008, a summary of Alcoa's outstanding contractual obligations is as follows:

	Total	2009	2010-2011	2012-2013	Thereafter
Operating activities:					