

ALCOA INC  
Form 10-K/A  
February 19, 2013

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K/A

(AMENDMENT NO. 1)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF

THE SECURITIES EXCHANGE ACT OF 1934

For The Fiscal Year Ended December 31, 2012

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 whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). 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 \$9 billion. As of February 11, 2013, there were 1,069,326,205 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 2013 Annual Meeting of Shareholders to be filed pursuant to Regulation 14A (Proxy Statement).

**EXPLANATORY NOTE**

Alcoa Inc. (the Registrant ) is filing this Amendment No. 1 on Form 10-K/A ( Form 10-K/A ) to its Annual Report on Form 10-K for the fiscal year ended December 31, 2012, filed with the Securities and Exchange Commission on February 15, 2013 (the Original Filing ), for the sole purpose of inserting the conformed signature of one of the two applicable persons on the certifications filed as Exhibit 31 pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. Such conformed signature was inadvertently omitted from the electronic version of Exhibit 31 filed with the Original Filing, although the Registrant had a manually signed copy of the certification in its possession when the Original Filing was made. Additionally, the certifications pursuant to both Section 302 and 906 of the Sarbanes-Oxley Act of 2002 included in the Original Filing have been updated to reflect the filing date of this Form 10-K/A.

Except as described above, no other changes have been made to the Original Filing, and this Form 10-K/A does not modify, amend or update in any way any of the financial or other information contained in the Original Filing.

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**TABLE OF CONTENTS**

|   | <b>Page(s)</b> |
|---|----------------|
| <b><u>Part I</u></b>  |                |
| Item 1. <u>Business</u>   | 3              |
| Item 1A. <u>Risk Factors</u>  | 29             |
| Item 1B. <u>Unresolved Staff Comments</u>   | 38             |
| Item 2. <u>Properties</u>   | 38             |
| Item 3. <u>Legal Proceedings</u>  | 39             |
| Item 4. <u>Mine Safety Disclosures</u>  | 48             |
| <b><u>Part II</u></b>   |                |
| Item 5. <u>Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u> | 49             |
| Item 6. <u>Selected Financial Data</u>  | 51             |
| Item 7. <u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>                        | 51             |
| Item 7A. <u>Quantitative and Qualitative Disclosures About Market Risk</u>  | 79             |
| Item 8. <u>Financial Statements and Supplementary Data</u>  | 80             |
| Item 9. <u>Changes in and Disagreements With Accountants on Accounting and Financial Disclosure</u>                         | 159            |
| Item 9A. <u>Controls and Procedures</u>   | 159            |
| Item 9B. <u>Other Information</u>   | 159            |
| <b><u>Part III</u></b>  |                |
| Item 10. <u>Directors, Executive Officers and Corporate Governance</u>  | 160            |
| Item 11. <u>Executive Compensation</u>  | 160            |
| Item 12. <u>Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>              | 160            |
| Item 13. <u>Certain Relationships and Related Transactions, and Director Independence</u>                                   | 160            |
| Item 14. <u>Principal Accounting Fees and Services</u>  | 161            |
| <b><u>Part IV</u></b>   |                |
| Item 15. <u>Exhibits, Financial Statement Schedules</u>   | 162            |
| <u>Signatures</u>   | 172            |
| <b>Note on Incorporation by Reference</b>   |                |

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, forecast, hopes, outlook, projects, should, likely result, 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 and Critical Accounting Policies and Estimates, and Note N and the Derivatives Section of Note X 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. Aluminum and alumina represent more than 80% of Alcoa's revenues, and the price of aluminum influences the operating results of Alcoa. Non-aluminum 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, consumer electronics, and industrial applications.

Alcoa is a global company operating in 30 countries. Based upon the country where the sale occurred, the U.S. and Europe generated 52% and 25%, respectively, of Alcoa's sales in 2012. In addition, Alcoa has investments and operating activities in, among others, Australia, Brazil, China, Guinea, Iceland, Russia, and the Kingdom of Saudi

Arabia, all of which present opportunities for substantial growth. Governmental policies, laws and regulations, 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 four worldwide reportable segments: Alumina, Primary Metals, Global Rolled Products, and Engineered Products and Solutions.

### **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:  |                |
| <u>Overview Results of Operations (Earnings Summary)</u>  | 53             |
| Notes to Consolidated Financial Statements:   |                |
| <u>Note D. Restructuring and Other Charges</u>  | 99             |
| <u>Note F. Acquisitions and Divestitures</u>  | 104            |
| Segment Information:  |                |
| Business Descriptions, Principal Products, Principal Markets, Methods of Distribution, Seasonality and Dependence Upon Customers: |                |
| <u>Alumina</u>  | 59             |
| <u>Primary Metals</u>   | 60             |
| <u>Global Rolled Products</u>   | 62             |
| <u>Engineered Products and Solutions</u>  | 63             |
| Financial Information about Segments and Financial Information about Geographic Areas:  |                |
| <u>Note O. Segment and Geographic Area Information</u>  | 125            |

The following tables and related discussion of the Company's Bauxite Interests, Alumina Refining and Primary Aluminum Facilities and Capacities, Global 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.

### **Bauxite Interests**

Aluminum is one of the most plentiful elements in the earth's crust and 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 its own resources and from those belonging to the AWAC enterprise, located in the countries listed in the table below, as well as pursuant to both long-term and short-term contracts and mining leases. In 2012, Alcoa consumed 45 million metric tons (mt) of bauxite from AWAC and its own resources, 7.1 million mt from related third parties and 1.1 million mt from unrelated third parties. Tons of bauxite are reported as bone dry metric tons (bdmt) unless otherwise stated. See the glossary of bauxite mining related terms at the end of this section.

The Company has access to large bauxite deposit areas with mining rights that extend in most cases more than 20 years from today. For purposes of evaluating the amount of bauxite that will be available to supply as feedstock to its refineries, the Company considers both estimates of bauxite resources as well as calculated bauxite reserves. Bauxite resources represent deposits for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence based on the amount of exploration sampling and testing

information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. Bauxite reserves represent the economically mineable part of resource deposits, and include diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out to define the reserves, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. Alcoa employs a conventional approach (including additional drilling with successive tightening of the drill grid) with customized techniques to define and characterize its various bauxite deposit types allowing Alcoa to confidently establish the extent of its bauxite resources and their ultimate conversion to reserves.

The table below only includes the amount of proven and probable reserves controlled by the Company. While the level of reserves may appear low in relation to annual production levels, they are consistent with historical levels of reserves for our mining locations. Given the Company's extensive bauxite resources, the abundant supply of bauxite globally and the length of the Company's rights to bauxite, it is not cost-effective to invest the significant resources necessary to establish bauxite reserves that reflect the total size of the bauxite resources available to the Company. Rather, bauxite resources are upgraded annually to reserves as needed by the location. Detailed assessments are progressively undertaken within a proposed mining area and mine activity is then planned to achieve a uniform quality in the supply of blended feedstock to the relevant refinery. Alcoa believes its present sources of bauxite on a global basis are sufficient to meet the forecasted requirements of its alumina refining operations for the foreseeable future.

#### **Bauxite Resource Development Guidelines**

Alcoa has developed best practice guidelines for bauxite reserve and resource classification at its operating bauxite mines. Alcoa's reserves are declared in accordance with Alcoa's internal guidelines as administered by the Alcoa Ore Reserve Committee (AORC). The reported ore reserves set forth in the table below are those that Alcoa estimates could be extracted economically with current technology and in current market conditions. Alcoa does not use a price for bauxite, alumina, or aluminum to determine its bauxite reserves. The primary criteria for determining bauxite reserves are the feed specifications required by the customer alumina refinery. In addition to these specifications, a number of modifying factors have been applied to differentiate bauxite reserves from other mineralized material. Alcoa mining locations have annual in-fill drilling programs designed to progressively upgrade the reserve classification of their bauxite.

Alcoa Bauxite Interests, Share of Reserves and Annual Production<sup>1</sup>

| Country                       | Project  | Owners<br>Mining<br>Rights (%<br>Entitlement)   | Expiration<br>Date of<br>Mining<br>Rights | Probable<br>Reserves<br>(million<br>bdmt) | Proven<br>Reserves<br>(million<br>bdmt) | Available<br>Alumina<br>Content<br>(%)<br>AvAl <sub>2</sub> O <sub>3</sub> | Reactive<br>Silica<br>Content<br>(%)<br>R <sub>x</sub> SiO <sub>2</sub> | 2012<br>Annual<br>Production   |
|-------------------------------|--|---|---|---|---|--|---|--------------------------------|
|                               |  |   |   |   |   |  |   | (million<br>bdmt)              |
| Australia                     | Darling Range<br>Mines ML15A                             | Alcoa of Australia Limited (AofA) <sup>2</sup><br>(100%)  | 2045                                      | 34.7                                      | 109.0                                   | 32.9   | 0.94  | 31.8                           |
| Brazil                        | Poços de Caldas<br>Juruti <sup>4,5</sup>                 | Alcoa Alumínio S.A. (Alumínio) <sup>3</sup><br>(100%)   | 2020 <sup>4</sup>                         | 0.5                                       | 1.1                                     | 39.5   | 4.3   | 0.8                            |
| Jamaica                       | RN102, RN103,<br>RN104<br>Harmon s Valley                | Alcoa World Alumina Brasil Ltda.<br>(AWA Brasil) <sup>2</sup> (100%)<br>Alcoa Minerals of Jamaica, L.L.C. <sup>2</sup><br>(55%) | 2100 <sup>4</sup>                         | 25.8                                      | 13.4                                    | 47.4   | 3.4   | 3.8                            |
| Suriname                      | South<br>Manchester<br>North<br>Manchester<br>Coermotibo | Clarendon Alumina Production Ltd. <sup>6</sup><br>(45%)<br>Suriname Aluminum Company, L.L.C.<br>(Suralco) <sup>2</sup> (55%)    | 2031                                      | 2.6                                       | 0.9                                     | 42.1   | 1.9   | 1.8                            |
|                               | Onverdacht   | N.V. Alcoa Minerals of Suriname<br>(AMS) <sup>7</sup> (45%)<br>Suralco (55%)  | 2033 <sup>8</sup>                         | -   | 2.6                                     | 39.1   | 4.9   | 1.4                            |
|                               |  | AMS <sup>7</sup> (45%)  | 2033 <sup>8</sup>                         | 3.1                                       | 0.7                                     | 51.8   | 4.5   | 1.6                            |
| <b>Equity interests:</b>      |  |   |   |   |   |  |   |                                |
| Brazil                        | Trombetas  | Mineração Rio do Norte S.A. (MRN) <sup>9</sup><br>(100%)  | 2046 <sup>4</sup>                         | 4.0                                       | 9.5                                     | 50.7   | 4.2   | 2.8                            |
| Guinea                        | Boké   | Compagnie des Bauxites de Guinée<br>(CBG) <sup>10</sup> (100%)  | 2038 <sup>11</sup>                        | 29.0                                      | 29.9                                    | TAI O <sub>2</sub> <sup>12</sup><br>50.2 <sup>3</sup>                      | TSiO <sub>2</sub> <sup>12</sup><br>1.7                                  | 3.2                            |
| Kingdom of<br>Saudi<br>Arabia | Al Baita   | Madena Bauxite & Alumina Company<br>(100%) <sup>13</sup>  | 2037                                      | 33.9                                      | 21.3                                    | TAA <sup>14</sup><br>47.2  | TSiO <sub>2</sub> <sup>14</sup><br>9.8                                  | Production<br>to begin<br>2014 |

<sup>1</sup> This table shows only the AWAC and/or Alcoa share (proportion) of reserve and annual production tonnage.

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

<sup>3</sup> Alumínio is owned 100% by Alcoa.

<sup>4</sup> Brazilian mineral legislation does not establish the duration of mining concessions. The concession remains in force until the exhaustion of the deposit. The Company estimates that (i) the concessions at Poços de Caldas will last at least until 2020, (ii) the concessions at



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Trombetas will last until 2046 and (iii) the concessions at Juruti will last until 2100. Depending, however, on actual and future needs, the rate at which the deposits are exploited and government approval is obtained, the concessions may be extended to (or expire at) a later (or an earlier) date.

- <sup>5</sup> In September 2009, development of a new bauxite mine was completed in Juruti, state of Pará in northern Brazil. The mine is fully operational and produced 3.8 million bdm in 2012.
- <sup>6</sup> Clarendon Alumina Production Ltd. is wholly-owned by the Government of Jamaica.

- <sup>7</sup> Alcoa World Alumina LLC (AWA LLC) owns 100% of N.V. Alcoa Minerals of Suriname (AMS). AWA LLC is part of the AWAC group of companies and is owned 60% by Alcoa and 40% by Alumina Limited.
- <sup>8</sup> Mining rights expired for the Caramacca area. The mining rights in the Onverdacht and Coermotibo areas where Suralco has active mines extend until 2033. Bauxite within these areas will likely be exhausted in the next few years. Alcoa is actively exploring and evaluating alternative sources of bauxite in Suriname. A feasibility study relating to the development of a mine at the Nassau Plateau is in progress.
- <sup>9</sup> Alumínio holds an 8.58% total interest, AWA Brasil (formerly Abalco S.A., which merged with Alcoa World Alumina Brasil Ltda. in December 2008) holds a 4.62% total interest and AWA LLC holds a 5% total interest in MRN. MRN is jointly owned with affiliates of Rio Tinto 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>10</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 concession in northwestern Guinea.
- <sup>11</sup> AWA LLC has a bauxite purchase contract with CBG that expires in 2029. Before that expiration date, AWA LLC expects to negotiate an extension of the contract as CBG will have concession rights until 2038. The CBG concession can be renewed beyond 2038 by agreement of the Government of Guinea and CBG should more time be required to commercialize the remaining economic bauxite within the concession.
- <sup>12</sup> Guinea Boké: CBG prices bauxite and plans the mine based on the bauxite qualities of total alumina ( $TA_2O_3$ ) and total silica ( $TSiO_2$ ).
- <sup>13</sup> Ma'aden Bauxite & Alumina Company is a joint venture owned by Saudi Arabian Mining Company (Ma'aden) (74.9%) and AWA Saudi Limited (25.1%). AWA Saudi Limited is part of the AWAC group of companies and is owned 60% by Alcoa and 40% by Alumina Limited.
- <sup>14</sup> Kingdom of Saudi Arabia Al Baita: Bauxite reserves and mine plans are based on the bauxite qualities of total available alumina (TAA) and total silica ( $TSiO_2$ ).
- Qualifying statements relating to the table above:

**Australia Darling Range Mines:** Huntly and Willowdale are the two active mines in the Darling Range of Western Australia. The mineral lease issued by the State of Western Australia to Alcoa is known as ML1SA and its term extends to 2045. The lease can be renewed beyond 2045. The declared reserves have been estimated to the end of December 2012. The amount of reserves reflect the total AWAC share. Additional resources are routinely upgraded by additional exploration and development drilling to reserve status. The Huntly and Willowdale mines supply bauxite to three local AWAC alumina refineries.

**Brazil Poços de Caldas:** Declared reserves are as of the end of October 2012. Tonnage is total Alcoa share. Additional resources are being upgraded to reserves as needed.

**Brazil Juruti RN102, RN103, RN104:** Declared reserves are as of November 1, 2012. Declared reserves are total AWAC share. Declared reserve tonnages and the annual production tonnage (estimate to the end of 2012) are washed product tonnages. The Juruti mine's operating license is periodically renewed and the next renewal is in 2014.

**Jamaica Jamalco:** Declared reserves are as of October 2012. The declared reserve and annual production tonnages are AWAC share only (55%). Declared reserves are in the following areas: Harmon's Valley, South Manchester, North Manchester and Porus/Victoria. Current ore mining is in Harmon's Valley and South Manchester with a small amount of ore from a test stockpile in North Manchester. The location has scheduled probable reserves from North Manchester and Porus/Victoria within the 2013-2016 period. Additional resources are in the process of being upgraded to reserves.



**Suriname Suralco Caramacca:** Caramacca has been removed from the reserves due to the expiration of the mining permits for this area. Some ore remains at Caramacca and the permit is awaiting renewal by the Government of Suriname so that the last ore can be recovered.

**Suriname Suralco Coermotibo and Onverdacht:** Declared reserves are as of October 1, 2012. AWAC owns 100%. Additional resources are being evaluated for upgrading to reserves.

**Kingdom of Saudi Arabia Al Baitha:** Declared reserves are as of March 2011 and are for the South Zone of the Az Zabirah Bauxite Deposit. The reserve tonnage in this declaration is AWAC share only (25.1%). The Al Baitha Mine is due to begin production during 2014.

**Brazil Trombetas-MRN:** Declared reserves are as of May 31, 2012. Declared and annual production tonnages reflect the total for Alumínio and AWAC shares (18.2%). Declared tonnages are washed product tonnages.

**Guinea Boké-CBG:** Declared reserves are as of January 1, 2012. The declared reserves are based on export quality bauxite reserves. The AWAC share of CBG equates to 22.95%. Declared reserve tonnages are based on the AWAC share of CBG's reserves. Annual production tonnage reported is based on AWAC's 22.95% share. Declared reserves quality is reported based on total alumina ( $\text{Al}_2\text{O}_3$ ) and total silica ( $\text{TSiO}_2$ ) because CBG export bauxite is sold on this basis. Additional resources are being routinely drilled and modeled to upgrade to reserves as needed.

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The following table provides additional information regarding the Company's bauxite mines:

| Mine & Location   | Means of Access   | Operator | Title, Lease or Options   |   | History         | Type of Mine   |   | Facilities, Use & Condition  |
|---|---|----------|---|---|-----------------|--|---|--|
|   |   |          | Lease or Options  | History   |                 | Mineralization   | Power Source  |  |
| Australia Darling Range Huntly and Willowdale.              | Mine locations accessed by roads. Ore is transported to refineries by long distance conveyor and rail.  | Alcoa    | Mining Lease from the Western Australia Government. MLISA. Expires in 2045.   | Mining began in 1963.   | Open-cut mines. | Bauxite is derived from the weathering of Archean granites and gneisses and Precambrian dolerite.                | Electrical energy from natural gas is supplied by the refinery.                                   | Infrastructure includes buildings for administration and services; workshops; power distribution; water supply; crushers; long distance conveyors. Mines and facilities are operating.   |
| Brazil Poços de Caldas town is Poços de Caldas, MG, Brazil. | Mine locations are accessed by road. Ore transport to the refinery is by road.  | Alcoa    | Mining licenses from the Government of Brazil and Minas Gerais. Company claims and third-party leases. Expire in 2020.                        | Mining began in 1965.   | Open-cut mines. | Bauxite derived from the weathering of nepheline syenite and phonolite.  | Commercial grid power.  | Mining offices and services are located at the refinery. Numerous small deposits are mined by contract miners and the ore is trucked to either the refinery stockpile or intermediate stockpile area. Mines and facilities are operating.  |
| Brazil Juruti is Juruti located on the Amazon River.        | The mine's port at Juruti is located on the Amazon River and accessed by ship. Ore is transported from the mine site to the port by Company owned rail. | Alcoa    | Mining licenses from the Government of Brazil and Pará. Mining rights do not have a legal expiration date. See footnote 4 to the table above. | The Juruti deposit was systematically evaluated by Reynolds Metals Company beginning in 1974. Alcoa merged Reynolds into the Company in 2000. Alcoa then executed a due diligence program | Open-cut mines. | Bauxite derived from weathering during the Tertiary of Cretaceous fine to medium grained feldspathic sandstones. | Electrical energy from fuel oil is generated at the mine site. Commercial grid power at the port. | At the mine site: Fixed plant facilities for crushing and washing the ore; mine services offices and workshops; power generation; water supply; stockpiles; rail sidings. At the port: Mine and rail administrative offices and services; port control facilities with stockpiles and ship loader. |

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|  |  |       |   |   |   |                        |   |
|--|--|-------|---|---|---|------------------------|---|
|  |  |       | The operating license's next renewal date is in 2014.   | and expanded the exploration area.  | The deposits are covered by the Belterra clays.   |                        | Mine and port facilities are operating.   |
| Jamaica Harmon's Valley South Manchester North Manchester All located in the Parish of Manchester. | The mines are accessed by road. Ore is transported to the refinery by Company rail. The refinery is located near Halse Hall, Clarendon Parish. | Alcoa | Mining licenses from the Government of Jamaica.   | Mining began in 2009. Mining began in 1963.   | Open-cut mines.   | Commercial grid power. | Numerous small to large deposits are mined within the license areas by contract miners and delivered to stockpile areas.  |
|  |  |       | Expire 2031.  |   | The karst landscape from the White Limestone Formation of Eocene to Miocene age host the quasi-funnel shaped bauxite deposits which are residual from the weathering of volcanic and terrestrial materials.   |                        | The main mine administrative offices and services are located near San Jago. Ore is delivered to San Jago by truck and by Ropecon conveyor. The train loadout area is at San Jago.  |
| Suriname Coermotibo and Onverdacht Mines are located in the districts of Para and Marowijne.       | The mines are accessed by road. Ore is delivered to the refinery by road from the Onverdacht area and by river barge from the Coermotibo area. | Alcoa | Brokopondo Concession from the Government of Suriname. Concessions formerly owned by a BHP Billiton (BHP) subsidiary that was a 45% joint venture partner in the Surinamese bauxite mining and alumina refining joint ventures. AWA LLC acquired that subsidiary in 2009. After the acquisition of the subsidiary, its name was changed to N.V. Alcoa Minerals of Suriname. | Alcoa began mining in Suriname in 1916. The Brokopondo Agreement was signed in 1958. As noted, Suralco bought the bauxite and alumina interests of a BHP subsidiary from BHP in 2009. | Open-cut mines. For some mines the overburden is dredged and mining progresses with conventional open-cut methods. The protoliths of the bauxite have been completely weathered. The bauxite deposits are mostly derived from the weathering of Tertiary Paleogene arkosic sediments. In a few spots the bauxite overlies Precambrian granitic and gneissic rocks | Commercial grid power. | In the Onverdacht mining areas the bauxite is mined and transported to the refinery by truck. In the Coermotibo mining areas the bauxite is mined and stockpiled and then transported to the refinery by barge. Some of the ore is washed in a small beneficiation plant located in the Coermotibo area. The main mining administrative offices and services and workshops and laboratory are located at the refinery in Paranam. The ore is crushed at Paranam. The mines and washing plant are operating. |

Expires in  
2033.

which are now  
sapolite.  
Bauxitization  
likely  
occurred during  
the  
middle to late  
Eocene Age.

| Mine & Location  | Means of Access  | Operator | Title, Lease or Options  |   | Type of Mine   |  | Facilities, Use & Condition   |
|--|--|----------|--|---|--|--|---|
|  |  |          | Options  | History   | Mineralization   | Power Source                                     |   |
| Brazil MRN Closest town is Trombetas in the State of Pará, Brazil. | The mine and port areas are connected by sealed road and company owned rail.<br><br>Washed ore is transported to Porto Trombetas by rail.<br><br>Trombetas is accessed by river and by air at the airport. | MRN      | Mining rights and licenses from the Government of Brazil.<br><br>Concession rights expire in 2046. | Mining began in 1979.<br><br>Major expansion in 2003. | Open-cut mines.<br><br>Bauxite derived from weathering during the Tertiary of Cretaceous fine to medium grained feldspathic sandstones.<br><br>The deposits are covered by the Belterra clays. | MRN generates its own electricity from fuel oil. | Ore is mined from several plateaus crushed and transported to the washing plant by long distance conveyors.<br><br>The washing plant is located in the mining zone.<br><br>Washed ore is transported to the port area by company owned and operated rail.<br><br>At Porto Trombetas the ore is loaded onto customer ships berthed in the Trombetas River. Some ore is dried and the drying facilities are located in the port area.<br><br>Mine planning and services; mining equipment workshops are located in the mine zone.<br><br>The main administrative, rail and port control offices and various workshops are located in the port area.<br><br>MRN's main housing facilities, the city, are located near the port.<br><br>The mines, port and all facilities are operating. |

CBG



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|  |   |   |  |  |  |  |
|--|---|---|--|--|--|--|
| <p>Guinea CBG Closest town to the mine is Sangaredi. Closest town to the port is Kamsar. The CBG Lease is located within the Boké, Telimele and Gaoual administrative regions.</p> | <p>The mine and port areas are connected by sealed road and company operated rail. Ore is transported to the port at Kamsar by rail. There are air strips near both the mine and port. These are not operated by the company.</p> | <p>CBG Lease expires in 2038. The lease is renewable in 25 year increments. CBG's rights are specified within the Basic Agreement and Amendment 1 to the Basic Agreement with the Government of Guinea.</p> | <p>Construction began in 1973. First export ore shipment was in 1973.</p>                                | <p>Open-cut mines. The bauxite deposits within the CBG lease are of two general types. TYPE 1: In-situ laterization of Ordovician and Devonian plateau sediments locally intruded by dolerite dikes and sills. TYPE 2: Sangaredi type deposits are derived from clastic deposition of material eroded from the Type 1 laterite deposits and possibly some of the proliths from the TYPE 1 plateaus deposits.</p> | <p>The company generates its own electricity from fuel oil at both Kamsar and Sangaredi.</p> | <p>Mine offices, workshops, power generation and water supply for the mine and company mine city are located at Sangaredi. The main administrative offices, port control, railroad control, workshops, power generation and water supply are located in Kamsar. Ore is crushed, dried and exported from Kamsar. CBG has company cities within both Kamsar and Sangaredi.</p> |
| <p>Kingdom of Saudi Arabia Al Baita Mine. Qibah is the closest regional centre to the mine, located in the Qassim province.</p>  | <p>The mine and refinery are connected by road and rail. Ore will be transported to the refinery at Ras Al Khair by rail.</p>   | <p>Maden Bauxite &amp; Alumina Company The current mining lease will expire in 2037.</p>  | <p>The initial discovery and delineation of bauxite resources was carried out between 1979 and 1984.</p> | <p>Open-cut mine. Bauxite occurs as a paleolaterite profile developed at an angular unconformity between underlying late Triassic to early Cretaceous sediments (parent rock sequence to Maden in Biyadh Formation) and the overlying late Cretaceous Wasia Formation (overburden).</p>  | <p>The company will generate electricity at the mine site from fuel oil.</p>                 | <p>The mine will include fixed plants for crushing and train loading; workshops and ancillary services; power plant; water supply. There will be a company village with supporting facilities. The mine is under construction. Mining operations are to commence in 2014.</p>  |

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Currently the (sequence).  
mine  
is in  
development.

Production is  
to  
begin in 2014.

*Kingdom of Saudi Arabia Joint Venture*

In December 2009, Alcoa and Saudi Arabian Mining Company (Ma'aden) entered into a joint venture to develop a fully integrated aluminum complex in the Kingdom of Saudi Arabia. In its initial phases, the complex includes a bauxite mine with an initial

capacity of 4 million bdmtpy; an alumina refinery with an initial capacity of 1.8 million mtpy; an aluminum smelter with an initial capacity of ingot, slab and billet of 740,000 mtpy; and a rolling mill with initial capacity of 380,000 mtpy. The mill will produce sheet, end and tab stock for the manufacture of aluminum cans, as well as other products to serve the automotive, construction, and other industries.

The refinery, smelter and rolling mill are located within the Ras Al Khair industrial zone on the east coast of the Kingdom of Saudi Arabia. First hot metal from the smelter was produced on December 12, 2012. Rolling mill production is anticipated to start sometime in 2013. First production from the mine and refinery is expected in 2014.

Total capital investment is expected to be approximately \$10.8 billion (SAR 40.5 billion). Ma'aden owns a 74.9% interest in the joint venture. Alcoa owns a 25.1% interest in the smelter and rolling mill, with the AWAC group holding a 25.1% interest in the mine and refinery. For additional information regarding the joint venture, see the Equity Investments section of Note I to the Consolidated Financial Statements in Part II, Item 8. (Financial Statements and Supplementary Data).

### Glossary of Bauxite Mining Related Terms

| Term                                 | Abbreviation | Definition   |
|--------------------------------------|--------------|--|
| Alcoa Ore Reserves Committee         | AORC         | The group within Alcoa, which is comprised of Alcoa geologists and engineers, that specifies the guidelines by which bauxite reserves and resources are classified. These guidelines are used by Alcoa managed mines.  |
| Alumina                              | $Al_2O_3$    | A compound of aluminum and oxygen. Alumina is extracted from bauxite using the Bayer Process. Alumina is a raw material for smelters to produce aluminum metal.  |
| AORC Guidelines                      |              | The Alcoa guidelines used by Alcoa managed mines to classify reserves and resources. These guidelines are issued by the Alcoa Ore Reserves Committee (AORC).   |
| Available alumina content<br>Bauxite | $AvAl_2O_3$  | The amount of alumina extractable from bauxite using the Bayer Process. The principal raw material (rock) used to produce alumina. Bauxite is refined using the Bayer Process to extract alumina.  |
| Bayer Process                        |              | The principal industrial means of refining bauxite to produce alumina.   |
| Bone dry metric ton<br>Coermotibo    | bdmT         | Tonnage reported on a zero moisture basis. The mining area in Suriname containing the deposits of Bushman Hill, CBO Explo, Lost Hill and Remnant.  |
| Juruti RN102, RN103, RN104           |              | Mineral claim areas in Brazil associated with the Juruti mine, within which Alcoa has the mining operating licenses issued by the state.   |
| ML1SA                                |              | The Mineral Lease issued by the State of Western Australia to Alcoa. Alcoa mines located at Huntly and Willowdale operate within ML1SA.  |
| Onverdacht                           |              | The mining area in Suriname containing the deposits of Kaaimangrasi, Klaverblad, Lelydorp1 and Sumau 1.  |
| Open-cut mine                        |              | The type of mine in which an excavation is made at the surface to extract mineral ore (bauxite). The mine is not underground and the sky is viewable from the mine floor.  |
| Probable reserve                     |              | That portion of a reserve, i.e. bauxite reserve, where the physical and chemical characteristics and limits are known with sufficient confidence for mining and to which various mining modifying factors have been applied. Probable reserves are at a lower confidence level than proven reserves. |

| Term                    | Abbreviation                    | Definition   |
|-------------------------|---------------------------------|--|
| Proven reserve          |                                 | That portion of a reserve, i. e. bauxite reserve, where the physical and chemical characteristics and limits are known with high confidence and to which various mining modifying factors have been applied. |
| Reactive silica         | RxSiO <sub>2</sub>              | The amount of silica contained in the bauxite that is reactive within the Bayer Process.   |
| Reserve                 |                                 | That portion of mineralized material, i.e. bauxite, that Alcoa has determined to be economically feasible to mine and supply to an alumina refinery.   |
| Silica                  | SiO <sub>2</sub>                | A compound of silicon and oxygen.  |
| Total alumina content   | TAI <sub>2</sub> O <sub>3</sub> | The total amount of alumina in bauxite. Not all of this alumina is extractable or available in the Bayer Process.  |
| Total available alumina | TAA                             | The total amount of alumina extractable from bauxite by the Bayer Process. Commonly this term is used when there is a hybrid or variant Bayer Process that will refine the bauxite.                          |
| Total silica            | TSiO <sub>2</sub>               | The total amount of silica contained in the bauxite.   |

### 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

| Country       | Facility          | Owners<br>(% of Ownership)                           | Nameplate Capacity <sup>1</sup><br>(000 MTPY) | Alcoa<br>Consolidated Capacity <sup>2</sup><br>(000 MTPY) |
|---------------|-------------------|--|---|---|
| Australia     | Kwinana           | AofA <sup>3</sup> (100%)                             | 2,190   | 2,190   |
|               | Pinjarra          | AofA (100%)  | 4,234   | 4,234   |
|               | Wagerup           | AofA (100%)  | 2,555   | 2,555   |
| Brazil        | Poços de Caldas   | Alumínio <sup>4</sup> (100%)                         | 390   | 390   |
|               | São Luís (Alumar) | AWA Brasil <sup>3</sup> (39%)                        |   |   |
|               |                   | Rio Tinto Alcan Inc. <sup>5</sup> (10%)              |   |   |
|               |                   | Alumínio (15%)                                       |   |   |
| Jamaica       | Jamalco           | BHP Billiton <sup>5</sup> (36%)                      | 3,500   | 1,890   |
|               |                   | Alcoa Minerals of Jamaica, L.L.C. <sup>3</sup> (55%) |   |   |
| Spain         | San Ciprián       | Clarendon Alumina Production Ltd. <sup>6</sup> (45%) | 1,478   | 841   |
| Suriname      | Suralco           | Alúmina Española, S.A. <sup>3</sup> (100%)           | 1,500   | 1,500   |
|               |                   | Suralco <sup>3</sup> (55%)                           |   |   |
| United States | Point Comfort, TX | AMS <sup>7</sup> (45%)                               | 2,207 <sup>8</sup>                            | 2,207   |
|               |                   | AWA LLC <sup>3</sup> (100%)                          | 2,305 <sup>9</sup>                            | 2,305   |
| TOTAL         |                   |  | 20,359  | 18,112  |

<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> The figures in this column reflect Alcoa's share of production from these facilities. For facilities wholly-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> This entity is owned 100% by Alcoa.

<sup>5</sup> The named company or an affiliate holds this interest.

<sup>6</sup> Clarendon Alumina Production Ltd. is wholly-owned by the Government of Jamaica.

<sup>7</sup> AWA LLC owns 100% of N.V. Alcoa Minerals of Suriname (AMS). AWA LLC is part of the AWAC group of companies and is owned 60% by Alcoa and 40% by Alumina Limited.

<sup>8</sup> In May 2009, the Suralco alumina refinery announced curtailment of 870,000 mtpy. The decision was made to protect the long-term viability of the industry in Suriname. The curtailment was aimed at deferring further bauxite extraction until additional in-country bauxite resources are developed and market conditions for alumina improve. The refinery currently has approximately 893,000 mtpy of idle capacity.

<sup>9</sup> Reductions in production at Point Comfort resulted mostly from the effects of curtailments initiated in late 2008 through early 2009, as a result of overall market conditions. The reductions included curtailments of approximately 1,500,000 mtpy. Of that original amount, 384,000 mtpy remain curtailed.

As noted above, Alcoa and Madaden are developing an alumina refinery in the Kingdom of Saudi Arabia. Initial capacity of the refinery is expected to be 1.8 million mtpy. First production is expected in 2014. For additional information regarding the joint venture, see the Equity Investments section of Note I to the Consolidated Financial Statements in Part II, Item 8. (Financial Statements and Supplementary Data).

The 2.1 million mtpy expansion of the Alumar consortium alumina refinery in São Luís, Maranhão, completed by the end of 2009, has increased the refinery's nameplate capacity to approximately 3.5 million mtpy, with Alcoa's share of such capacity more than doubling to 1.89 million mtpy based on its 54% ownership stake through Alumínio and AWAC.

In November 2005, 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 originally set to expire in November 2008, but was extended to November 2012, and has been recently extended again until 2015. Pre-feasibility studies were completed in 2008. Additional feasibility study work was completed in 2012, and further activities are planned for 2013.

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 had a term of 5 years and included environmental conditions that must be satisfied before Alcoa could 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. These constraints continue and as such the project remains under suspension. In May 2012, the Government of Western Australia granted Alcoa a 5 year extension of the 2006 environmental approval.

In 2008, AWAC signed a cooperation agreement with Vietnam National Coal-Minerals Industries Group (Vinacomin) in which they agreed to conduct a joint feasibility study of the Gia Nghia bauxite mine and alumina refinery project located in Vietnam's Central Highlands. 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.



**Primary Aluminum Facilities and Capacity**

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

**Alcoa Worldwide Smelting Capacity**

| Country       | Facility                             | Owners<br>(% Of Ownership)                     | Nameplate<br>Capacity <sup>1</sup><br>(000 MTPY) | Alcoa  |
|---------------|--------------------------------------|--|--|--|
|               |                                      |  |  | Consolidated<br>Capacity <sup>2</sup><br>(000<br>MTPY) |
| Australia     | Point Henry                          | AofA (100%)                                    | 190  | 190 <sup>3</sup>                                       |
|               | Portland                             | AofA (55%)                                     |  |  |
|               |                                      | CITIC <sup>4</sup> (22.5%)                     |  |  |
| Brazil        | Poços de Caldas<br>São Luís (Alumar) | Marubeni <sup>4</sup> (22.5%)                  | 358  | 197 <sup>3,5</sup>                                     |
|               |                                      | Alumínio (100%)                                | 96   | 96   |
|               |                                      | Alumínio (60%)                                 |  |  |
| Canada        | Baie Comeau, Que.<br>Bécancour, Que. | BHP Billiton <sup>4</sup> (40%)                | 447  | 268  |
|               |                                      | Alcoa (100%)                                   | 385  | 385  |
|               |                                      | Alcoa (74.95%)                                 |  |  |
| Iceland       | Deschambault, Que.<br>Fjarðaál       | Rio Tinto Alcan Inc. <sup>6</sup> (25.05%)     | 413  | 310  |
|               |                                      | Alcoa (100%)                                   | 260  | 260  |
|               |                                      | Alcoa (100%)                                   | 344  | 344  |
| Italy         | Fusina<br>Portovesme                 | Alcoa (100%)                                   | 44 <sup>7</sup>                                  | 44   |
|               |                                      | Alcoa (100%)                                   | 150 <sup>7</sup>                                 | 150  |
| Norway        | Lista<br>Mosjøen                     | Alcoa (100%)                                   | 94   | 94   |
|               |                                      | Alcoa (100%)                                   | 188  | 188  |
| Spain         | Avilés<br>La Coruña<br>San Ciprián   | Alcoa (100%)                                   | 93 <sup>8</sup>                                  | 93   |
|               |                                      | Alcoa (100%)                                   | 87 <sup>8</sup>                                  | 87   |
|               |                                      | Alcoa (100%)                                   | 228  | 228  |
| United States | Evansville, IN (Warrick)             | Alcoa (100%)                                   | 269  | 269  |
|               | Massena East, NY                     | Alcoa (100%)                                   | 125  | 125  |
|               | Massena West, NY                     | Alcoa (100%)                                   | 130  | 130  |
|               | Mount Holly, SC                      | Alcoa (50.33%)                                 |  |  |
|               |                                      | Century Aluminum Company <sup>4</sup> (49.67%) | 229  | 115  |
| TOTAL         | Rockdale, TX                         | Alcoa (100%)                                   | 191 <sup>9</sup>                                 | 191  |
|               | Ferndale, WA (Intalco)               | Alcoa (100%)                                   | 279 <sup>10</sup>                                | 279  |
|               | Wenatchee, WA                        | Alcoa (100%)                                   | 184 <sup>11</sup>                                | 184  |
|               |                                      |  | 4,784  | 4,227  |

<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> The figures in this column reflect Alcoa's share of production from these facilities.

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- <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.



<sup>5</sup> In December 2008, approximately 15,000 mtpy annualized production was idled at the Portland facility due to overall market conditions. In July 2009, an additional 15,000 mtpy annualized production was idled, again, due to overall market conditions. This production remains idled.

<sup>6</sup> Owned through Rio Tinto Alcan Inc.'s interest in Pechiney Reynolds Québec, Inc., which is owned by Rio Tinto Alcan Inc. and Alcoa.

<sup>7</sup> In May 2010, Alcoa and the Italian Government agreed to a temporary curtailment of the Fusina smelter. As of June 30, 2010, the Fusina smelter was fully curtailed. Additionally, in January 2012, as part of a restructuring of Alcoa's global smelting system, Alcoa announced that it had decided to curtail operations at the Portovesme smelter during the first half of 2012. In March 2012, Alcoa decided to delay the curtailment of the Portovesme smelter until the second half of 2012 based on negotiations with the Italian government and other stakeholders. In the third quarter of 2012, Alcoa began the process of curtailing the Portovesme smelter, and it has since been fully curtailed as of November 2012 with all 150,000 mtpy idled. This action may lead to the permanent closure of the Portovesme smelter.

<sup>8</sup> In January 2012, Alcoa announced its intentions to partially and temporarily curtail its Avilés and La Coruña smelters. The partial curtailments were completed in the first half of 2012. As a result of a modification to the load interruptibility regime currently in place in the Spanish power market, Alcoa has commenced the restart of a portion (25,000 mtpy combined for Avilés and La Coruña) of the capacity previously curtailed in the first half of 2012 in order to meet the requirements of the modified interruptibility regime. See the Management Discussion and Analysis of Financial Condition and Results of Operations section for more information.

<sup>9</sup> Between June and November 2008, three of Rockdale's six potlines were idled as a result of uneconomical power prices. The remaining three operating lines were idled in November 2008 due to uncompetitive power supply and overall market conditions. In January 2012, Alcoa announced that it will permanently shut down and demolish two of the six idled potlines as part of a larger strategy to improve its cost position and competitiveness. The remaining four potlines (191,000 mtpy) remain idled.

<sup>10</sup> Approximately half of one potline at the Intalco smelter remains idled, approximately 45,200 mtpy.

<sup>11</sup> One potline at the Wenatchee smelter remains idled, or approximately 41,000 mtpy. As of December 31, 2012, Alcoa had approximately 591,000 mtpy of idle capacity against total Alcoa Consolidated Capacity of 4,227,000 mtpy.

All production at the Tennessee smelter was idled in March 2009 due to economic conditions. In January 2012, Alcoa announced that it would permanently shut down the 215,000 mtpy facility as part of a larger strategy to improve its cost position and competitiveness. Demolition and remediation are ongoing.

In January 2011, Alcoa and China Power Investment Corporation (CPI) signed a Memorandum of Understanding (MOU) to collaborate on a broad range of aluminum and energy projects in China and other locations. The projects under consideration may range from mining, refining, smelting, and aluminum fabrication to collaboration on energy projects. A new joint venture company, established in November 2012, is discussed below under the Global Rolled Products segment.

As noted above, Alcoa and Ma'aden are developing an aluminum smelter in the Kingdom of Saudi Arabia. The smelter is expected to have an initial capacity of ingot, slab and billet of 740,000 mtpy. First hot metal was produced on December 12, 2012.

In December 2008, Alcoa and the Brunei Economic Development Board agreed to further extend an existing 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, 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. In 2012, the MOU was further extended to enable determination of feasibility.

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. In 2010, Alcoa and the Greenland Home Rule Government revised the completion dates for feasibility studies associated with development of the proposed integrated hydro system and aluminum smelter at Maniitsoq to enable more detailed consideration of aspects of the project related to construction and provision of energy and to allow the Greenland parliament sufficient time to deliberate and vote on critical aspects of national legislation concerning the project. The feasibility studies were completed in the fourth quarter of 2011. In December 2012, the Greenland parliament enacted framework legislation encompassing particular requirements of large scale developmental projects. The parliament also approved continuation of feasibility studies as described in the MOU.

In the fourth quarter of 2011, Alcoa and the Government of Angola, through the ministries of Energy, Water & Geology, Mines and Industry, entered into an exclusive MOU regarding cooperation on a feasibility study for an aluminum smelter in Angola with a 720,000 mtpy capacity. The MOU also encompasses a hydroelectric power system and power transmission facilities to be built by the Government and a resulting long term power purchase agreement.

### **Global Rolled Products**

The principal business of the Company's Global Rolled Products segment is the production and sale of aluminum plate, sheet and foil. This segment includes rigid container sheet, which is sold directly to customers in the packaging and consumer market. This segment also includes sheet and plate used in the aerospace, automotive, commercial transportation, and building and construction markets.

As noted above, Alcoa and Ma'aden are developing a rolling mill in the Kingdom of Saudi Arabia. In 2010, the joint venture entity, Ma'aden Rolling Company signed project financing for its rolling mill and broke ground on the construction of the mill. Initial capacity is approximately 380,000 mtpy. The rolling mill is anticipated to start sometime in 2013. In March 2012, Alcoa and Ma'aden announced commencement of work to extend the product mix of their aluminum complex currently under construction, enabling the two companies to include capability for producing approximately 100,000 metric tons of a wide range of products suitable for further downstream manufacturing in the complex's product lines. They include automotive heat-treated and non-heat-treated sheet, building and construction sheet and foil stock sheet. The line is expected to start production at the end of 2014.

As discussed above, in 2011, Alcoa and CPI signed an MOU followed by a Letter of Intent that provides a framework for the creation of a joint venture which includes a focus on producing high-end fabricated aluminum products in China. In February 2012, Alcoa and CPI announced that they finalized an agreement to establish a joint venture company to produce high-end fabricated aluminum products in China. The new joint venture company, Alcoa CPI Aluminum Investment Co. Ltd., was established in November 2012 and will be majority owned and managed by Alcoa and based in Shanghai.

In March 2012, the Company broke ground on a \$300 million expansion of its Davenport Works plant to meet rising demand for aluminum from the automotive market. The expansion will create an additional 150 full time jobs in Davenport once completed. The planned expansion was announced in September 2011 and is expected to be completed by the end of 2013. An economic development incentive package from the Iowa Department of Economic Development helped secure the selection of Davenport for the expansion.

On August 31, 2012, Alcoa assumed full control and ownership of Evermore Recycling LLC (Evermore). Evermore had previously been a joint venture between Alcoa and Novelis Corporation, created for the purpose of used beverage can procurement.

**Global Rolled Products Principal Facilities**

| Country        | Location       | Owners <sup>1</sup>                   |                  | Products                          |
|----------------|----------------|---------------------------------------|------------------|-----------------------------------|
|                |                |                                       | (% Of Ownership) |                                   |
| Australia      | Point Henry    | Alcoa (100%)                          |                  | Sheet                             |
|                | Yennora        | Alcoa (100%)                          |                  | Sheet                             |
| Brazil         | Itapissuma     | Alcoa (100%)                          |                  | Foil Products/Sheet and Plate     |
| China          | Kunshan        | Alcoa (70%)                           |                  | Sheet and Plate                   |
|                |                | Shanxi Yuncheng Engraving Group (30%) |                  |                                   |
| France         | Qinhuangdao    | Alcoa (100%)                          |                  | Sheet and Plate                   |
|                | Castelsarrasin | Alcoa (100%)                          |                  | Sheet and Plate                   |
| Hungary        | Székesfehérvár | Alcoa (100%)                          |                  | Sheet and Plate/Slabs and Billets |
| Italy          | Fusina         | Alcoa (100%)                          |                  | Sheet and Plate                   |
| Russia         | Belaya Kalitva | Alcoa (100%)                          |                  | Sheet and Plate                   |
|                | Samara         | Alcoa (100%)                          |                  | Sheet and Plate                   |
| Spain          | Alicante       | Alcoa (100%)                          |                  | Sheet and Plate                   |
|                | Amorebieta     | Alcoa (100%)                          |                  | Sheet and Plate                   |
| United Kingdom | Birmingham     | Alcoa (100%)                          |                  | Plate                             |
| United States  | Davenport, IA  | Alcoa (100%)                          |                  | Sheet and Plate                   |
|                | Danville, IL   | Alcoa (100%)                          |                  | Sheet and Plate                   |
|                | Newburgh, IN   | Alcoa (100%)                          |                  | Sheet                             |
|                | Hutchinson, KS | Alcoa (100%)                          |                  | Sheet and Plate                   |
|                | Lancaster, PA  | Alcoa (100%)                          |                  | Sheet and Plate                   |
|                | Alcoa, TN      | Alcoa (100%)                          |                  | Sheet                             |
|                | Texarkana, TX  | Alcoa (100%)                          |                  | Sheet and Plate <sup>2</sup>      |

<sup>1</sup> Facilities with ownership described as Alcoa (100%) are either leased or owned by the Company.

<sup>2</sup> The Texarkana rolling mill facility has been idle since September 2009 due to a continued weak outlook in common alloy markets.

**Engineered Products and Solutions**

This segment represents Alcoa's downstream operations and 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. Additionally, hard alloy extrusions products, which are also sold directly to customers and through distributors, serve the aerospace, automotive, commercial transportation, and industrial products markets.

In 2012, Alcoa announced that it will expand its aluminum lithium capacity and capabilities and began construction of a greenfield state-of-the-art facility adjacent to Alcoa's Lafayette, Indiana plant. When completed the facility will produce more than 20,000 metric tons of aluminum lithium and be capable of casting round and rectangular ingot for rolled, extruded and forged applications. The facility is expected to cast its first aluminum lithium ingots by the end of 2014. Alcoa is also expanding production at Alcoa's Technical Center in Alcoa Center, PA and Alcoa's Kitts Green plant in the United Kingdom where upgrades undertaken in 2012 will create additional aluminum lithium casting capacity.

**Engineered Products and Solutions Principal Facilities**

| <b>Owners<sup>1</sup></b> |                             |                         |  |
|---------------------------|-----------------------------|-------------------------|--|
| <b>Country</b>            | <b>Facility</b>             | <b>(% Of Ownership)</b> | <b>Products</b>  |
| Australia                 | Oakleigh                    | Alcoa (100%)            | Fasteners  |
| Canada                    | Georgetown, Ontario         | Alcoa (100%)            | Aerospace Castings                                     |
|                           | Laval, Québec               | Alcoa (100%)            | Aerospace Castings                                     |
|                           | Lethbridge, Alberta         | Alcoa (100%)            | Architectural Products                                 |
|                           | Pointe Claire, Quebec       | Alcoa (100%)            | Architectural Products                                 |
|                           | Vaughan, Ontario            | Alcoa (100%)            | Architectural Products                                 |
| China                     | Suzhou                      | Alcoa (100%)            | Fasteners/Forgings and Extrusions                      |
| France                    | Dives sur Mer               | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings          |
|                           | Evron                       | Alcoa (100%)            | Aerospace and Specialty Castings                       |
|                           | Gennevilliers               | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings          |
|                           | Guérande                    | Alcoa (100%)            | Architectural Products                                 |
|                           | Lézat-Sur-Lèze              | Alcoa (100%)            | Architectural Products                                 |
|                           | Merxheim                    | Alcoa (100%)            | Architectural Products                                 |
|                           | Montbrison                  | Alcoa (100%)            | Fasteners  |
|                           | St. Cosme-en-Vairais        | Alcoa (100%)            | Fasteners  |
|                           | Toulouse                    | Alcoa (100%)            | Fasteners  |
|                           | Us par Vigny                | Alcoa (100%)            | Fasteners  |
|                           | Vendargues                  | Alcoa (100%)            | Architectural Products                                 |
| Germany                   | Hannover                    | Alcoa (100%)            | Extrusions   |
|                           | Hildesheim-Bavenstedt       | Alcoa (100%)            | Fasteners  |
|                           | Iserlohn                    | Alcoa (100%)            | Architectural Products                                 |
|                           | Kelkheim                    | Alcoa (100%)            | Fasteners  |
| Hungary                   | Nemesvámos                  | Alcoa (100%)            | Fasteners  |
|                           | Székesfehérvár              | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings/Forgings |
| Japan                     | Joetsu City                 | Alcoa (100%)            | Forgings   |
|                           | Nomi                        | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings          |
| Netherlands               | Harderwijk                  | Alcoa (100%)            | Architectural Products                                 |
| Mexico                    | Ciudad Acuña                | Alcoa (100%)            | Aerospace Castings/Fasteners                           |
|                           | Monterrey                   | Alcoa (100%)            | Forgings   |
| Morocco                   | Casablanca                  | Alcoa (100%)            | Fasteners  |
| Russia                    | Belaya Kalitva <sup>2</sup> | Alcoa (100%)            | Extrusions and Forgings                                |
|                           | Samara <sup>2</sup>         | Alcoa (100%)            | Extrusions and Forgings                                |
| South Korea               | Kyoungnam                   | Alcoa (100%)            | Extrusions   |
| Spain                     | Iritzun                     | Alcoa (100%)            | Architectural Products                                 |
| United Kingdom            | Exeter                      | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings/Alloy    |
|                           | Leicester                   | Alcoa (100%)            | Fasteners  |
|                           | Redditch                    | Alcoa (100%)            | Fasteners  |
|                           | Runcorn                     | Alcoa (100%)            | Architectural Products                                 |
|                           | Telford                     | Alcoa (100%)            | Fasteners  |

| <b>Owners<sup>1</sup></b> |                      |                         |  |
|---------------------------|----------------------|-------------------------|--|
| <b>Country</b>            | <b>Facility</b>      | <b>(% Of Ownership)</b> | <b>Products</b>  |
| United States             | Springdale, AR       | Alcoa (100%)            | Architectural Products   |
|                           | Chandler, AZ         | Alcoa (100%)            | Extrusions   |
|                           | Tucson, AZ           | Alcoa (100%)            | Fasteners  |
|                           | Carson, CA           | Alcoa (100%)            | Fasteners  |
|                           | City of Industry, CA | Alcoa (100%)            | Fasteners  |
|                           | Fullerton, CA        | Alcoa (100%)            | Fasteners  |
|                           | Newbury Park, CA     | Alcoa (100%)            | Fasteners  |
|                           | Sylmar, CA           | Alcoa (100%)            | Fasteners  |
|                           | Torrance, CA         | Alcoa (100%)            | Fasteners  |
|                           | Visalia, CA          | Alcoa (100%)            | Architectural Products   |
|                           | Branford, CT         | Alcoa (100%)            | Aerospace Coatings   |
|                           | Winsted, CT          | Alcoa (100%)            | Aerospace Machining  |
|                           | Eastman, GA          | Alcoa (100%)            | Architectural Products   |
|                           | Auburn, IN           | Alcoa (100%)            | Extrusions   |
|                           | Lafayette, IN        | Alcoa (100%)            | Extrusions   |
|                           | LaPorte, IN          | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings                                      |
|                           | Baltimore, MD        | Alcoa (100%)            | Extrusions   |
|                           | Whitehall, MI        | Alcoa (100%)            | Aerospace/Industrial Gas Turbine Castings/Coatings/Ti Alloy and Specialty Products |
|                           | Dover, NJ            | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings and Alloy                            |
|                           | Kingston, NY         | Alcoa (100%)            | Fasteners  |
|                           | Massena, NY          | Alcoa (100%)            | Extrusions   |
|                           | Barberton, OH        | Alcoa (100%)            | Forgings/Ingot Castings  |
|                           | Chillicothe, OH      | Alcoa (100%)            | Forgings   |
|                           | Cleveland, OH        | Alcoa (100%)            | Forgings   |
|                           | Alcoa Center, PA     | Alcoa (100%)            | Ingot Castings   |
|                           | Bloomsburg, PA       | Alcoa (100%)            | Architectural Products   |
|                           | Cranberry, PA        | Alcoa (100%)            | Architectural Products   |
|                           | Morristown, TN       | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Ceramic Products                              |
|                           | Waco, TX             | Alcoa (100%)            | Fasteners  |
|                           | Wichita Falls, TX    | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings                                      |
|                           | Hampton, VA          | Alcoa (100%)            | Aerospace and Industrial Gas Turbine Castings                                      |

<sup>1</sup> Facilities with ownership described as Alcoa (100%) are either leased or owned by the Company.

<sup>2</sup> The operating results of this facility are reported in the Global Rolled Products segment.

#### **Corporate Facilities**

The Latin American soft alloy extrusions business is reported in Corporate Facilities. 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>Owners<sup>1</sup></b> |                 |                         |                 |
|---------------------------|-----------------|-------------------------|-----------------|
| <b>Country</b>            | <b>Facility</b> | <b>(% Of Ownership)</b> | <b>Products</b> |
| Brazil                    | Itapissuma      | Alcoa (100%)            | Extrusions      |
|                           | Utinga          | Alcoa (100%)            | Extrusions      |
|                           | Tubarão         | Alcoa (100%)            | Extrusions      |

<sup>1</sup> Facilities with ownership described as Alcoa (100%) are owned by the Company.

**Sources and Availability of Raw Materials**

The major raw materials purchased in 2012 for each of the Company's reportable segments are listed below.

**Alumina**

Bauxite  
Caustic soda  
Electricity  
Fuel oil  
Lime (CaO)  
Natural gas

**Primary Metals**

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

**Global Rolled Products**

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

**Engineered Products and Solutions**

Alloying materials  
Electricity  
Natural gas  
Nickel  
Primary aluminum (ingot, billet, P1020, high purity)  
Resin  
Stainless Steel  
Steel  
Titanium

Generally, other materials 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.

For each metric ton of alumina produced, Alcoa consumes the following amounts of the identified raw material inputs (approximate range across relevant facilities):

| <b>Raw Material</b>      | <b>Units</b> | <b>Consumption per MT of Alumina</b> |                             |
|--------------------------|--------------|--------------------------------------|-----------------------------|
| Bauxite                  | mt           | 2.5                                  | 3.8                         |
| Caustic soda             | kg           | 50                                   | 100                         |
| Electricity              | kWh          | 192                                  | 273 (global average of 234) |
| Fuel oil and natural gas | GJ           | 7                                    | 12                          |
| Lime (CaO)               | kg           | 11                                   | 50                          |

For each metric ton of aluminum produced, Alcoa consumes the following amounts of the identified raw material inputs (approximate range across relevant facilities):

| Raw Material            | Units | Consumption per MT of Aluminum |
|-------------------------|-------|--------------------------------|
| Alumina                 | mt    | 1.92 ±0.02                     |
| Aluminum fluoride       | kg    | 16.5 ±6.5                      |
| Calcined petroleum coke | mt    | 0.36 ±0.02                     |
| Cathode blocks          | mt    | 0.006 ±0.002                   |
| Electricity             | kWh   | 12.9 17.0                      |
| Liquid pitch            | mt    | 0.10 ±0.03                     |
| Natural gas             | mcf   | 2.0±1.0                        |

Explanatory Note: Certain aluminum produced by Alcoa also includes alloying materials. Because of the number of different types of elements that can be used to produce alloy aluminum products, providing a range of such elements would not be meaningful. With the exception of a very small number of internally used products, Alcoa produces its alloys in adherence to an Aluminum Association standard. The Aluminum Association, of which Alcoa is an active member, uses a specific designation system to identify alloy types. In general, each alloy type has a major alloying element other than aluminum but will also have other constituents as well, but of lesser amounts.

### Energy

Employing the Bayer process, Alcoa refines alumina from bauxite ore. Alcoa then produces aluminum from the alumina by an electrolytic process requiring substantial amounts of electric power. Energy accounts for approximately 25% of the Company's total alumina refining production costs. Electric power accounts for approximately 26% of the Company's primary aluminum production costs. Alcoa generates approximately 20% of the power used at its smelters worldwide and generally purchases the remainder under long-term arrangements. 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 Québec purchase electricity under existing contracts that run through 2015, which will be followed by long-term contracts with Hydro-Québec first executed in December 2008, revised in 2012 and expiring in 2040, provided that Alcoa completes the modernization of the Baie Comeau smelter by September 2016. The smelter located in Baie Comeau, Québec has historically purchased approximately 65% of its power needs under the Hydro-Québec contract, receiving the remainder from a 40% owned hydroelectric generating company, Manicouagan Power Limited Partnership (MPLP). Beginning on January 1, 2011, these percentages changed such that approximately 80% is sourced from Hydro-Québec, with the remaining 20% from MPLP.

The Company's wholly-owned subsidiary, Alcoa Power Generating Inc. (APGI), generates approximately 29% of the power requirements for Alcoa's smelters operating in the U.S. The Company generally purchases the remainder under long-term contracts. APGI owns and operates the Yadkin hydroelectric project, consisting of four dams in North Carolina. In November 2012, APGI finalized the sale of its Tapoco Hydroelectric Project to Brookfield Renewable Energy Partners.

The relicensing process continues for Yadkin. In 2007, APGI filed with the Federal Energy Regulatory Commission (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. The remaining requirement for the relicensing was 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 was issued on May 7, 2009, but was appealed, and has been stayed since late May 2009 pending substantive determination on the appeal. On December 1,



2010, APGI received notice from North Carolina of its revocation of the Section 401 water quality certification, and APGI appealed the revocation. In September 2012, the North Carolina administrative law judge dismissed without prejudice the revocation appeal, and APGI filed a new application for a 401 certificate. This enables APGI to have a fresh start to the 401 application process, and the state is required to act on the application within one year, or it is deemed granted. APGI received a year-to-year license renewal from FERC in May 2008, and will continue to operate under annual licenses until a new Section 401 certification is issued and the FERC relicensing process is complete. Since the permanent closure of the Badin, North Carolina smelter, 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. Proceeds from sales to the wholesale market are used to offset higher priced power contracts at other U.S. operations.

APGI generates substantially all of the power used at the Company's Warrick smelter using nearby coal reserves. Since May 2005, Alcoa has owned the nearby Friendsville, Illinois coal reserves, with the mine being operated by Vigo Coal Company, Inc. The mine is producing approximately one million tons of coal per year. In June 2011, the Red Brush West Mine, owned by Alcoa and operated by Vigo Coal, was opened and produced approximately 60,000 tons per month over an eighteen-month period. In 2012, the two owned mines provided approximately 85% 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. Red Brush West Mine will halt production in the first quarter of 2013. Liberty Mine, owned by Alcoa and operated by Vigo Coal, will begin producing coal in the second quarter of 2013 and will be a one million ton per year mine. Friendsville and Liberty Mines will combine to supply 95% of the power plant's future needs.

In the State of Washington, Alcoa's Wenatchee smelter operates under a contract with Chelan County Public Utility District (Chelan PUD) under which Alcoa receives approximately 26% of the hydropower output of Chelan PUD's Rocky Reach and Rock Island dams.

For the period from December 22, 2009 to December 31, 2012, Alcoa and the Bonneville Power Administration (BPA) operated under a contract providing for the sale of physical power to the Intalco smelter at the Northwest Power Act mandated industrial firm power (IP) rate. On January 1, 2013, a new contract executed between Alcoa and BPA became effective, under which Alcoa receives physical power at the IP rate through September 30, 2022.

Prior to 2007, power for the Rockdale smelter in Texas was historically supplied from Company-owned generating units and units owned by Luminant Generation Company LLC (formerly TXU Generation Company LP) (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 (Sandow Units 1, 2 and 3) in late 2006, and transitioned to an arrangement under which Luminant is to supply 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 has constructed and operates a new circulating fluidized bed power plant (Sandow Unit 5) adjacent to the existing Sandow Unit 4 and, in September 2007, on the sale of Three Oaks Mine to Luminant. Concurrent with entering into the agreements under which Luminant constructed and operates Sandow Unit 5, Alcoa and Luminant entered into a power purchase agreement whereby Alcoa purchased power from Luminant. That Sandow Unit 5 power purchase agreement was terminated by Alcoa, effective December 1, 2010. In June 2008, Alcoa temporarily idled half of the capacity at the Rockdale smelter and in November 2008 curtailed the remainder of Rockdale's smelting capacity. In late 2011, Alcoa announced that it would permanently close two of the six idled potlines at its Rockdale, Texas smelter. Demolition and remediation activities related to these actions began in the first half of 2012 and are expected to be completed in 2013. In August 2012, Alcoa and the Lower Colorado River Authority (LCRA) announced that they had entered into an agreement whereby Alcoa will sell to LCRA all of the real estate associated with the Rockdale location, along with all of Alcoa's surface and groundwater rights and certain plant and equipment assets (other than the smelter and atomizer), and assign Alcoa's power contracts with Luminant to LCRA. LCRA is currently conducting due diligence associated with the proposed transaction. If consummated, closing is expected to occur prior to September 2013.

In the northeast, the purchased power contracts for both the Massena East and Massena West smelters in New York expire December 31, 2013, subject to their terms and conditions. In December 2007, Alcoa and The New York Power Authority (NYPA) reached agreement in principle on a new energy contract to supply the Massena East and Massena West smelters for 30 years, beginning on January 1, 2014, following an amendment in January 2011. The definitive agreement implementing this arrangement became effective February 24, 2009. A subsequent amendment, providing Alcoa additional time to complete the design and engineering work for its Massena East modernization plan, and providing for the return of 256 megawatts (MW) of power to NYPA while Massena East was idled, was entered into effective April 16, 2009 and was superseded by the January 2011 amendment. Implementation of the Massena East modernization plan is subject to further approval of the Alcoa Board of Directors. Alcoa restarted production at Massena East in the first quarter of 2011.

The Mt. Holly smelter in South Carolina purchases electricity from Santee Cooper under a contract that was amended and restated in 2012, and expires December 31, 2015. The contract includes a provision for follow-on service at the then current rate schedule for industrial customers.

#### *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 AofA's Point Henry smelter. The State Electricity Commission of Victoria (SECV) provides the remaining power for this smelter, and all power for the Portland smelter, under contracts with AofA and Eastern Aluminium (Portland) Pty Ltd, a wholly-owned subsidiary of AofA, in respect of its interest in Portland, that extend to 2014 and 2016, respectively. Upon the expiration of these contracts both smelters will purchase power from the Australian National Energy Market (NEM) variable spot market. In March 2010, AofA and Eastern Aluminium (Portland) Pty Ltd (in respect of the Portland Smelter only) separately entered into fixed for floating swap contracts with Loy Yang Power in order to manage exposure to variable energy rates from the NEM for the Point Henry and Portland smelters. The contracts commence from the date of expiration of the current contracts with the SECV and are in place until December 2036.

#### *Brazil Electricity*

The Alumar smelter is partially supplied by Eletronorte (Centrais Elétricas do Norte do Brasil S.A.) under a long-term power purchase agreement originally expiring in December 2024. Eletronorte has supplied the Alumar smelter from the beginning of its operations in 1984. Since 2006, Alcoa Alumínio S.A.'s (Alumínio) remaining power needs for the smelter are supplied from self-generated energy. In March 2012, the Eletronorte contract supply was reduced from 423 MW to 263 MW and will be further reduced to 200 MW in January 2014. In March 2012, Alumínio declared that the Eletronorte contract will be terminated by March 2014 and alternatives for supplying the remaining power needs of both smelters are being analyzed.

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 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, as noted above, a portion of the power needs of Alumínio's interest in the Alumar smelter.

Alumínio also has 34.97% share in Serra do Facão in the southeast of Brazil, which began commercial generation in August 2010. Alumínio's share of the Serra do Facão output is currently being sold in the market. Power from Serra do Facão will replace Eletronorte starting January 1, 2014 when the existing contract will be further reduced by 60 MW. Until then, power from Serra do Facão will be sold externally to the market.

Alumínio is also participating in the Estreito hydropower project in northern Brazil, holding a 25.49% share. Four out of its eight generation units began commercial operation in 2011. Three additional units began operation in 2012, and the remaining unit is expected to begin commercial operation by March 2013. Alumínio's share of the plant's output is supplied to the Alumar smelter which replaced the 160 MW Electronorte power contract reduction on March 26, 2012.

With Machadinho, Barra Grande, Serra do Facão and Estreito, Alumínio's current power self-sufficiency is approximately 70%, to meet a total energy demand of approximately 690 MW from Brazilian primary aluminum plants.

Consortia in which Alumínio participates have received concessions for the Pai Querê hydropower project in southern Brazil (Alumínio's share is 35%) and the Santa Isabel hydropower project in northern Brazil (Alumínio's share is 20%). Development of these concessions has not yet begun.

#### *Europe Electricity*

Until December 31, 2005, the Company purchased electricity for its smelters at Portovesme and Fusina, Italy under a power supply structure approved by the European Commission (EC) in 1996. That measure provided a competitive power supply to the primary aluminum industry and was not considered state aid from the Italian Government. In 2005, Italy granted an extension of the regulated electricity tariff that was in force until December 31, 2005 through November 19, 2009. (The extension was originally through 2010, but the date was changed by legislation adopted by the Italian Parliament effective on August 15, 2009). In July 2006, the EC announced that it had opened an investigation to establish whether the extension of the regulated electricity tariff granted by Italy complied with European Union (EU) state aid rules. On November 19, 2009, the EC announced a decision in its investigation, stating that the extension of the tariff by Italy constituted unlawful state aid, in part, and ordered the Italian government to recover a portion of the benefit Alcoa received since January 2006 (including interest). On April 19, 2010, Alcoa filed an appeal against the decision of the EC with the European General Court. Additionally on May 22, 2010, Alcoa filed an application for interim measures (suspension of decision) in connection with the EC at the European General Court. On July 12, 2010, the European General Court dismissed the request for interim measures due to lack of urgency. Alcoa appealed this ruling on September 10, 2010. This appeal was dismissed by the European Court of Justice on December 16, 2011. On February 25, 2010, the Italian government issued a decree law (No.3 2010) implementing a request from the electrical transmission system operator to reinforce the level of system security on the islands of Sicily and Sardinia. The decree law provides the means for end-consumers to provide and, be paid for, interruptible services up to December 31, 2012. On May 26, 2010, the EC ruled that the scheme introduced by the decree law to be a non-aid. Alcoa applied for and gained rights to sell this service in Sardinia from the Portovesme smelter. Additional details about this matter are in Part I, Item 3 (Legal Proceedings) of this report. On July 29, 2010, Alcoa reached agreement with a power supplier to enter into a new contract expiring on December 31, 2012. This arrangement would have enabled operation of the Portovesme smelter through December 31, 2012. In January 2012, Alcoa announced that it decided to curtail operations at its Portovesme smelter. This curtailment was completed in November 2012. This curtailment may lead to the permanent closure of the facility. Additionally, in 2010, the Fusina smelter was temporarily curtailed due to high energy costs. As of June 30, 2010, the Fusina smelter was fully curtailed.

Alcoa's smelters at San Ciprián, La Coruña and Avilés, Spain purchase electricity under bilateral power contracts. The contracts that commenced in May 2009 expired on December 31, 2012 and have been replaced with new bilateral contracts commencing on January 1, 2013. The contracts for San Ciprián and Avilés smelters each have a 4 year term. The contract for the La Coruña smelter is for a single year. Prior to the establishment of power supply under the bilateral contracts, Alcoa was supplied under a regulated power tariff. 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 operated 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 has not yet been made. 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. Due to the high cost position of the La Coruña and Avilés smelters, combined with rising raw material costs and falling aluminum prices, in early January 2012, Alcoa announced its intentions to partially and temporarily curtail its La Coruña and Avilés, Spain smelters. The partial curtailments were completed in the first half of 2012. As a result of a modification to the load interruptibility regime currently in place in the Spanish power market, Alcoa has commenced the restart of a portion (25,000 mpty combined for Avilés and La Coruña) of the capacity previously curtailed in the first half of 2012 to meet the requirements of the modified interruptibility regime. See the Management's Discussion and Analysis of Financial Condition and Results of Operations section for more information.

In March 2009, Alcoa and Orkla ASA exchanged respective stakes in the Sapa AB and Elkem Aluminium ANS companies. Pursuant to the exchange, Alcoa assumed 100% ownership of the two smelters in Norway, Lista and Mosjøen, at the end of the first quarter of 2009. These smelters have long-term power arrangements in place which continue until at least 2019.

#### *Iceland Electricity*

Alcoa's Fjarðaál smelter in eastern Iceland began operation in 2007. Central to those operations is a forty-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. In late 2009, Iceland imposed two new taxes on power intensive industries, both for a period of three years, from 2010 through 2012. One tax is based on energy consumption; the other is a pre-payment of certain other charges, and will be recoverable from 2013 through 2015. In 2012, Iceland extended the energy consumption tax through 2015.

#### *North America Natural Gas*

In order to supply its refineries and smelters in the U.S. and Canada, Alcoa 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 and the interstate pipeline transportation are 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 AofA'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. Approximately 85% of AofA's gas supplies are under long-term contract out to 2020. AofA is progressing multiple supply options to replace expiring contracts, including investing directly in projects that have the potential to deliver cost-based gas.

**Energy Facilities**

The following table sets forth the electricity generation capacity and 2012 generation of Company-owned facilities:

| <b>Country</b> | <b>Facility</b> | <b>Alcoa Consolidated Capacity<br/>(MW)</b> | <b>2012 Generation (MWh)</b> |
|----------------|-----------------|---|------------------------------|
| Australia      | Anglesea        | 150   | 1,253,000                    |
| Brazil         | Barra Grande    | 161   | 785,000                      |
|                | Estreito        | 159   | 1,063,000                    |
|                | Machadinho      | 119   | 756,000                      |
|                | Serro do Facão  | 64  | 385,000                      |
|                | Manicouagan     | 132   | 1,161,000                    |
| Canada         | Manicouagan     | 132   | 1,161,000                    |
| Suriname       | Afobaka         | 156   | 1,114,000                    |
| United States  | Warrick         | 524   | 4,364,000                    |
|                | Yadkin          | 215   | 595,000                      |
| <b>TOTAL</b>   |                 | <b>1,680</b>                                | <b>11,477,000</b>            |

**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 the name Alcoa and the Alcoa symbol for aluminum products, Howmet metal castings, HucFasteners, Kawneer® building panels and Dura-Bright® wheels with easy-clean 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.

**Competitive Conditions**

Alcoa is subject to highly competitive conditions in all aspects of its aluminum and non-aluminum 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 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. In addition Alcoa's competitive position depends, in part, on the Company's access to an economical power supply to sustain its operations in various countries.

**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 research and development (R&D) activities were \$197 million in 2012, \$184 million in 2011, and \$174 million in 2010.

Most of the major process areas within the Company have a Technology Management Review Board (TMRB) or Center of Excellence (CoE) consisting of members from various worldwide locations. Each TMRB or CoE 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. Alternatively, certain business units conduct these activities and research and development programs within the worldwide business unit, supported by the Alcoa Technical Center (ATC). Technical personnel from the TMRBs, ATC 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 2012, 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 with tests carried out on a pilot scale. 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 result in significant operating cost savings, and generate environmental benefits by reducing certain emissions and eliminating carbon dioxide. No timetable has been established for commercial use. The Company is also continuing to develop the carbothermic aluminum process, which is in the research and development phase. The technology holds the potential to produce aluminum at a lower cost, driven by reduced conversion costs, lower energy requirements and lower emissions at a lower capital cost than traditional smelting.

The Company continued its progress leveraging new science and technologies in 2012. For example, riblets that reduce aerodynamic drag have been analyzed and produced on a test basis. Self-cleaning nano coatings have been demonstrated on building products (an example of such was commercialized in 2011 as EcoClean, which is the world's first coil-coated aluminum architectural panel that helps clean itself and the air around it). Energy saving sensing devices are being integrated in Company manufacturing plants. Integrated thermal management products for consumer electronics have been developed and are being validated by our customers.

A number of products were commercialized in 2012 including new fasteners, aluminum lithium (Al-Li) and more traditional 7xxx series alloys for various aerospace applications, numerous innovations in the building and construction market for enhanced thermal performance and increased functionality. The Company continues to develop its Micromill™ technology and ran numerous customer trials in the rigid container sheet (RCS) and packaging markets. There has been considerable progress in the development of next generation commercial truck wheels. The Company has also continued to externally license technology including the A951 pretreatment technology, shaping technology, and Colorkast™ products for the consumer electronics segment.

Alcoa's research and development focus is on product development to support sustainable, profitable growth; manufacturing technologies to improve efficiencies and reduce costs; and environmental risk reductions. Environmental technologies continue to be an area of focus for the Company, with projects underway that address emissions reductions, the reduction of spent pot lining, advanced recycling, and the beneficial use of bauxite residue.

As a result of product development and technological advancement, the Company continues to pursue patent protection in jurisdictions throughout the world. At the end of 2012, the Company's worldwide patent portfolio consisted of 870 pending patent applications and 1,895 granted patents.

### **Environmental Matters**

Information relating to environmental matters is included in Note N to the Consolidated Financial Statements under the caption "Environmental Matters" on pages 119-122.

### **Employees**

Total worldwide employment at the end of 2012 was approximately 61,000 employees in 30 countries. About 34,000 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 U.S., approximately 9,600 employees are represented by various labor unions. The largest of these is the master collective bargaining agreement between Alcoa and the United Steelworkers (USW). This agreement covers 10 locations and approximately 6,200 U.S. employees. It expires on May 15, 2014. There are 17 other collective bargaining agreements in the U.S. with varying expiration dates. Collective bargaining agreements with varying expiration dates also cover approximately 6,300 employees in Europe, 4,300 employees in Russia, 6,750 employees in Central and South America, 3,900 employees in Australia, 1,200 employees in China and 2,200 employees in Canada.

#### **Executive Officers of the Registrant**

The names, ages, positions and areas of responsibility of the executive officers of the Company as of February 15, 2013 are listed below.

**Nicholas J. Ashooh**, 58, Vice President, Corporate Affairs. Mr. Ashooh was elected to his current position upon joining Alcoa in January 2010. Before joining Alcoa, he was Senior Vice President Communications of American International Group, Inc. (AIG), a leading international insurance organization, from September 2006 to January 2010. Prior to AIG, he held executive communication positions in the electric utility industry as Senior Vice President, Corporate Communications of American Electric Power Service Corporation (2000 to 2006); Vice President, Public Affairs and Corporate Communications of Niagara Mohawk Power Corporation (1992 to 2000); and Director, Corporate Communications of Public Service of New Hampshire (1978 to 1990). From 1990 to 1992, he was Vice President, Corporate Communications of Paramount Communications Inc., a global entertainment and publishing company.

**Chris L. Ayers**, 46, Executive Vice President Alcoa and Group President, Global Primary Products. Mr. Ayers was elected an Alcoa Executive Vice President in August 2010 and was named Group President, Global Primary Products effective May 18, 2011. He served as Chief Operating Officer of Global Primary Products from August 2010 to May 18, 2011. He was elected a Vice President of Alcoa in April 2010. Mr. Ayers joined Alcoa in February 2010 as Chief Operating Officer, Alcoa Cast, Forged and Extruded Products. Before joining Alcoa, from 1999 through December 2008, Mr. Ayers served in various management roles at Precision Castparts Corp., including as Executive Vice President from May 2006 to July 2008, President PCC Forgings Division from December 2006 to July 2008, President Wyman Gordon Forgings from 2004 to December 2006, and Vice President/General Manager from 2003 to 2004.

**Michael T. Barriere**, 50, Vice President, Human Resources. Mr. Barriere was elected to his current position in May 2012. He joined Alcoa in 2011 as Chief Talent Officer. Before coming to Alcoa, Mr. Barriere was Senior Vice President, Human Resources at New York Life Insurance from 2008 to 2010. Prior to New York Life Insurance, he held executive human resource positions at Citigroup from 2002 to 2008. From 1995 to 2002, Mr. Barriere had his own consultancy business, providing corporate clients with training evaluation and leadership development processes.

**Graeme W. Bottger**, 54, Vice President and Controller. Mr. Bottger was elected to his current position effective August 1, 2010. He joined Alcoa in 1980 as a product accountant trainee at Alcoa's Point Henry facility in Australia and from that time to his most recent appointment held a series of accounting and financial management positions in Alcoa's Australian smelting, rolling, extrusion, foil and alumina businesses and Alcoa's corporate office. Mr. Bottger was Chief Financial Officer of Alcoa's Engineered Products and Solutions business group from 2005 to August 2010. From 2003 to 2005, he was Vice President, Sales, for Alcoa Home Exteriors. From 2001 to 2003, Mr. Bottger was Vice President, Finance for Alcoa Home Exteriors. Before his move to the United States in 1999 to accept an assignment in Alcoa's financial analysis and planning department, Mr. Bottger held the position of Chief Financial Officer for Alcoa's joint venture with Kobe Steel, Ltd. in Australia (Kaal Australia Pty. Ltd.).

**Olivier M. Jarrault**, 51, Executive Vice President Alcoa and Group President, Engineered Products and Solutions. Mr. Jarrault was elected an Alcoa Executive Vice President effective January 21, 2011 and was named Group President of Engineered Products and Solutions effective January 1, 2011. He served as Chief Operating Officer of Engineered Products and Solutions from February 2010 to January 1, 2011. Mr. Jarrault joined Alcoa in 2002 when Alcoa acquired Fairchild Fasteners from The Fairchild Corporation. He served as President of Alcoa Fastening Systems from 2002 to February 2010. He was elected a Vice President of Alcoa in November 2006.

**Klaus Kleinfeld**, 55, Director, Chairman of the Board and Chief Executive Officer. Mr. Kleinfeld was elected to Alcoa's Board of Directors in November 2003 and became Chairman on April 23, 2010. He has been Chief Executive Officer of Alcoa since May 8, 2008. He was President and Chief Executive Officer from May 8, 2008 to April 23, 2010. 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, the global electronics and industrial conglomerate, 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.

**Charles D. McLane, Jr.**, 59, 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.

**Kay H. Meggers**, 48, Executive Vice President Alcoa and Group President, Global Rolled Products. Mr. Meggers was elected an Alcoa Executive Vice President in December 2011. He was named Group President, Global Rolled Products effective November 14, 2011. Before his most recent appointment, he led Alcoa's Business Excellence/Corporate Strategy resource unit and was also responsible for overseeing Alcoa's Asia-Pacific region. He joined Alcoa in February 2010 as Vice President, Corporate Initiatives, a position responsible for planning and coordinating major strategic initiatives from enhancing technology and innovation as part of the Alcoa Technology Advantage program to spearheading growth strategies for China and Brazil. He was elected a Vice President of Alcoa in June 2011. Before joining Alcoa, Mr. Meggers was Senior Vice President at Siemens U.S. Building Technologies Division and served for three years as Business Unit Head of Building Automation. In 2006 he served for nine months as Division Head of Fire Safety, also part of Siemens U.S. Building Technologies Division. Between 2002 and 2005, he served as Vice President of Strategic Planning at Siemens U.S.

**Audrey Strauss**, 65, Executive Vice President, Chief Legal and Compliance Officer and Secretary. Ms. Strauss was elected to her current position upon joining Alcoa in May 2012. Prior to joining Alcoa, she was a senior litigation partner from 1990 to 2012 at Fried Frank Harris Shriver and Jacobson LLP (Fried Frank), a law firm based in New York. Prior to her practice at Fried Frank, Ms. Strauss served in the U.S. Attorney's office for the Southern District of New York from 1975 to 1982, where she was Chief Appellate Attorney and Chief of the Fraud Unit.

On January 4, 2013, Mr. McLane informed the Company that he had decided to retire effective August 1, 2013 after a 40-year career with the Company. On January 8, 2013, the Company announced that William F. Oplinger, 45, will become Chief Financial Officer of the Company effective April 1, 2013, succeeding Mr. McLane. Mr. Oplinger has been chief operating officer of the Company's Global Primary Products business since December 2011. He also serves on the Company's Executive Council, the senior leadership team that sets strategic direction for the Company. Since joining the Company in 2000, Mr. Oplinger has held key corporate positions in financial analysis and planning and as director of investor relations. He also has had major assignments in the Company's largest business, Global Primary Products, including controller, operational excellence director, chief financial officer, and his most recent position as chief operating officer.

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

Alcoa's business, financial condition and results of operations may be impacted by a number of factors. In addition to the factors discussed elsewhere in this report, the following risks and uncertainties could materially harm our business, financial condition or results of operations, including causing Alcoa's actual results to differ materially from those projected in any forward-looking statements. The following list of significant risk factors is not all-inclusive or necessarily in order of importance. Additional risks and uncertainties not presently known to Alcoa or that Alcoa currently deems immaterial also may materially adversely affect us in future periods.



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**The aluminum industry generally remains highly cyclical and is influenced by a number of factors, including global economic conditions.**

The aluminum industry generally is highly cyclical, and Alcoa is subject to cyclical fluctuations in global economic conditions and aluminum end-use markets. Alcoa sells many products to industries that are cyclical, such as the commercial construction and transportation industries, and the demand for our products is sensitive to, and quickly impacted by, demand for the finished goods manufactured by our customers in these industries, which may change as a result of changes in the general U.S. or worldwide economy, currency exchange rates, energy prices or other factors beyond our control. For example, 2012 was a turbulent year in the world economy, characterized by an uneven recovery in many regions and prolonged volatility and crisis in others, namely Europe, and demand for aluminum was impacted by this turbulence. While Alcoa believes that the long-term prospects for aluminum remain positive, the Company is unable to predict the future course of industry variables or the strength, pace or sustainability of the economic recovery and the effects of government intervention. Negative economic conditions, such as another major economic downturn, a prolonged recovery period, or disruptions in the financial markets, could have a material adverse effect on Alcoa's business, financial condition or results of operations.

**Market-driven balancing of global aluminum supply and demand may be disrupted by non-market forces or other impediments to production closures.**

In response to market-driven factors relating to the global supply and demand of aluminum, Alcoa has recently curtailed portions of its aluminum production. Certain other aluminum producers have independently undertaken to make cuts in production as well. However, the existence of non-market forces on global aluminum industry capacity, such as political pressures in certain countries to keep jobs or to maintain or further develop industry self-sufficiency, may prevent or delay the closure or curtailment of certain producers' smelters, irrespective of their position on the industry cost curve. Other production cuts may be impeded by long-term contracts to buy power or raw materials. If industry overcapacity persists due to the disruption by such non-market forces on the market-driven balancing of the global supply and demand of aluminum, the resulting weak pricing environment and margin compression may adversely affect the operating results of aluminum producers, including Alcoa.

**A reduction in demand, or a lack of increased demand, for aluminum by China, Europe or a combined number of other countries may negatively impact Alcoa's results.**

The aluminum industry's demand is highly correlated to economic growth. For example, the ongoing European sovereign debt crisis has had, and may continue to have, an adverse effect on European supply and demand for aluminum and aluminum products. The Chinese market is a significant source of global demand for commodities, including aluminum. A sustained slowdown in China's economic growth and aluminum demand that is not offset by increased aluminum demand in emerging economies, such as India, Brazil, and several South East Asian countries, or the combined slowdown of other markets, could have an adverse effect on the global supply and demand for aluminum and aluminum prices. A reduction in demand, or a lack of increased demand, in global markets could materially harm Alcoa's business, financial condition or results of operations.

**Alcoa could be materially adversely affected by 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 institutions participating in commodity markets has also increased in recent years, contributing to higher levels of price volatility. In 2012, the LME price of aluminum reached a high of approximately \$2,300 per metric ton and a low of approximately \$1,800 per metric ton. Declines in the LME price have had a negative impact on Alcoa's results of operations. Continued high LME inventories could lead to a reduction in the price of aluminum. A sustained weak aluminum pricing environment or a deterioration in aluminum prices could have a material, adverse effect on Alcoa's business, financial condition, results of operations or cash flow.

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

Alcoa's operations consume substantial amounts of energy. 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, certain conditions could negatively affect Alcoa's results of operations, including the following:

significant increases in electricity costs rendering smelter operations uneconomic;

significant increases in fuel oil or 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 or unplanned outages due to equipment failure or other causes;

curtailment of one or more refineries or smelters due to the inability to extend energy contracts upon expiration or to negotiate new arrangements on cost-effective terms or due to the unavailability of energy at competitive rates; or

curtailment of one or more smelters due to a regulatory authority's determination that power supply interruptibility rights granted to Alcoa under an interruptibility regime in place under the laws of the country in which the smelter is located do not comply with the regulatory authority's state aid rules, thus rendering the smelter operations that had been relying on such country's interruptibility regime uneconomic.

If events such as those listed above were to occur, the resulting high energy costs or the disruption of an energy source or the requirement to repay all or a portion of the benefit Alcoa received under a power supply interruptibility regime could have a material adverse effect on Alcoa's business and results of operations.

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

Alcoa's results of operations are affected by changes in the cost of raw materials, including energy, carbon products, caustic soda and other key inputs, as well as freight costs associated with transportation of raw materials to refining and smelting locations. Alcoa may not be able to fully offset the effects of higher raw material costs or energy costs through price increases, productivity improvements or cost reduction programs. Similarly, Alcoa's operating results are affected by significant lag effects of declines in key costs of production that are commodity or LME-linked. For example, declines in the LME-linked costs of alumina and power during a particular period may not be adequate to offset sharp declines in metal price in that period. Increases in the cost of raw materials or decreases in input costs that are disproportionate to concurrent sharper decreases in the price of aluminum could have a material adverse effect on Alcoa's 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 Australian dollar, Brazilian real, Canadian dollar, Euro and Norwegian kroner, may affect Alcoa's profitability as some important raw materials are purchased in other currencies, while the Company's products are generally sold in U.S. dollars.



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**Alcoa may not be able to successfully realize goals established in each of its four business segments, at the levels or by the dates targeted for such goals.**

Alcoa established targets for each of its four major business segments, including the following:

by 2015, driving the alumina business down into the first quartile of the industry cost curve and realizing profit levels (per mt) that are beyond its recent historic norms;

by 2015, driving the smelting business down into the second quartile of the industry cost curve and increasing profitability (per mt) beyond the Company's past ten-year average;

by 2013, increasing the revenues of the Global Rolled Products segment by \$2.5 billion by growing 50% faster than the market and achieving performance levels above its historic norms; and

by 2013, increasing the revenues of the Engineered Products and Solutions segment by \$1.6 billion, through market growth, new product introductions, and share gains.

There can be no assurance that any of these initiatives will be completed as anticipated. Market conditions or other factors may prevent Alcoa from accomplishing its goals at the levels or by the dates targeted, if at all, and failure to do so may have a material adverse effect on our business, financial condition, results of operations or the market price of our securities.

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

Alcoa's growth projects include the joint venture with Ma'aden in Saudi Arabia, the completed São Luís refinery expansion, the Juruti bauxite mine and the ongoing Estreito hydroelectric power project in Brazil, the automotive expansion at the Davenport, Iowa fabrication plant and the China and Russia growth projects. Although management believes that these projects will be beneficial to Alcoa, there is no assurance that anticipated benefits will be realized. Adverse factors may prevent Alcoa from realizing the benefits of its growth projects, including unfavorable global economic conditions, currency fluctuations, or unexpected delays in target timelines.

Alcoa has made, and may continue to plan and execute, acquisitions and divestitures and take other actions to grow or streamline its portfolio. Alcoa may face barriers to exit from unprofitable businesses or operations, including high exit costs or objections from various stakeholders. In addition, Alcoa may retain unforeseen liabilities for divested entities if the buyer fails to honor all commitments. Acquisitions also present significant challenges and risks, including the effective integration of the business into the Company and unanticipated costs and liabilities, and the Company may be unable to manage acquisitions successfully. There can be no assurance that acquisitions and divestitures will be undertaken or completed in their entirety as planned or that they will be beneficial to Alcoa.

**Joint ventures and other strategic alliances may not be successful.**

Alcoa participates in joint ventures and has formed strategic alliances and may enter into other similar arrangements in the future. For example, in December 2009, Alcoa formed a joint venture with Ma'aden, the Saudi Arabian Mining Company, to develop a fully integrated aluminum complex (including a bauxite mine, alumina refinery, aluminum smelter and rolling mill) in the Kingdom of Saudi Arabia. In November 2012, Alcoa and China Power Investment Corporation (CPI) established a joint venture company to produce high-end fabricated aluminum products in China. Although the Company has, in connection with the Saudi Arabia joint venture and its other existing joint ventures and strategic alliances, sought to protect its interests, joint ventures and strategic alliances inherently involve special risks. Whether or not Alcoa holds majority interests or maintains operational control in such arrangements, its partners may:

have economic or business interests or goals that are inconsistent with or opposed to those of the Company;

exercise veto rights so as to block actions that Alcoa believes to be in its or the joint venture's or strategic alliance's best interests;



take action contrary to Alcoa's policies or objectives with respect to its investments; or

as a result of financial or other difficulties, be unable or unwilling to fulfill their obligations under the joint venture, strategic alliance or other agreements, such as contributing capital to expansion or maintenance projects.

In addition, the joint venture with Maden is subject to risks associated with large infrastructure construction projects, including the consequences of non-compliance with the timeline and other requirements under the gas supply arrangements for the joint venture. There can be no assurance that the project as a whole will be completed within budget or that the project phases will be completed by their targeted completion dates, or that it or Alcoa's other joint ventures or strategic alliances will be beneficial to Alcoa, whether due to the above-described risks, unfavorable global economic conditions, increases in construction costs, currency fluctuations, political risks, or other factors.

**Alcoa faces significant competition, which may have an adverse effect on profitability.**

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, including some that are subsidized. 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. In addition, Alcoa's competitive position depends, in part, on the Company's access to an economical power supply to sustain its operations in various countries.

**Failure to maintain investment grade credit ratings could limit Alcoa's ability to obtain future financing, increase its borrowing costs, adversely affect the market price of its existing securities, or otherwise impair its business, financial condition and results of operations.**

Alcoa's long-term debt is currently rated BBB- with stable outlook by Standard and Poor's Ratings Services and BBB- with stable outlook by Fitch Ratings. Moody's Investors Services rates Alcoa's long-term debt at Baa3 but announced in December 2012 that it has placed Alcoa's credit ratings on review for possible downgrade. There can be no assurance that any rating assigned by a rating agency will remain in effect for any given period of time or that a rating will not be lowered, suspended or withdrawn entirely by a rating agency, if, in that rating agency's judgment, circumstances so warrant.

Maintaining an investment-grade credit rating is an important element of Alcoa's financial strategy. A downgrade of Alcoa's credit ratings could adversely affect the market price of its securities, adversely affect existing financing, limit access to the capital or credit markets or otherwise adversely affect the availability of other new financing on favorable terms, if at all, result in more restrictive covenants in agreements governing the terms of any future indebtedness that the Company incurs, increase the cost of borrowing, or impair its business, financial condition and results of operations. In addition, under the project financings for the joint venture project in the Kingdom of Saudi Arabia, a downgrade of Alcoa's credit ratings below investment grade by at least two rating agencies would require Alcoa to provide a letter of credit or fund an escrow account for a portion or all of Alcoa's remaining equity commitment to the joint venture. For additional information regarding the project financings, see Note I to the Consolidated Financial Statements in Part II, Item 8 (Financial Statements and Supplementary Data) of this report.

**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 a committed revolving credit facility with financial institutions available for its use, for which the Company pays commitment fees. The 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 credit agreement. If one or more of the financial institutions providing the committed credit facility 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.

**Alcoa may not be able to realize expected benefits from the change to index pricing of alumina.**

Alcoa has implemented a move to a pricing mechanism for alumina based on an index of alumina prices rather than a percentage of the LME-based aluminum price. Alcoa believes that this change, expected to affect approximately 20% of annual contracts coming up for renewal each year, will more fairly reflect the fundamentals of alumina including raw materials and other input costs involved. There can be no assurance that such index pricing ultimately will be accepted or that such index pricing will result in consistently greater profitability from sales of alumina.

**Alcoa's business and growth prospects may be negatively impacted by reductions in its capital expenditures.**

Alcoa requires substantial capital to invest in greenfield and brownfield projects and to maintain and prolong the life and capacity of its existing facilities. For 2013, Alcoa's target is to generate positive cash flow from operations that will exceed capital spending. Insufficient cash generation may negatively impact Alcoa's ability to fund as planned its sustaining and growth capital projects. Over the long term, Alcoa's ability to take advantage of improved aluminum market conditions may be constrained by earlier capital expenditure restrictions, and the long-term value of its business could be adversely impacted. The Company's position in relation to its competitors may also deteriorate.

Alcoa may also need to address commercial and political issues in relation to its reductions in capital expenditures in certain of the jurisdictions in which it operates. If Alcoa's interest in its joint ventures is diluted or it loses key concessions, its growth could be constrained. Any of the foregoing could have a material adverse effect on the Company's business, results of operations, financial condition and prospects.

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

Alcoa has operations or activities in numerous countries and regions outside the U.S. that have varying degrees of political and economic risk, including China, Europe, Guinea, Russia, and the Kingdom of Saudi Arabia. Risks include those associated with sovereign and private debt default, political instability, civil unrest, expropriation, nationalization, renegotiation or nullification of existing agreements, mining leases and permits, commercial instability caused by corruption, and changes in local government laws, regulations and policies, including those related to tariffs 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 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 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.

**Cyber attacks and security breaches may threaten the integrity of Alcoa's trade secrets, intellectual property and other sensitive information, disrupt our business operations, and result in reputational harm and other negative consequences.**

Alcoa faces cybersecurity threats, including threats to its information technology infrastructure and attempts to misappropriate or compromise its confidential information or that of third parties or create system disruptions. The

Company has experienced cybersecurity attacks in the past that attempted to gain unauthorized access to its information systems to export company-sensitive data, and may experience them in the future, potentially with more frequency or sophistication. Although its technology security measures have been able to prevent the majority of these attempts from being successful, the Company is aware of breaches of its systems in which information from its servers has been taken. The Company continues to investigate these incidents and, based on the information known to date, the Company does not believe that the theft of the information is material to the Company. However, the impact of these and other such attacks and the resulting damage may only be clear over time and after more intensive analysis. In addition, due to the evolving nature of cybersecurity threats, the impact of any future incident cannot be predicted. While we continually work to implement additional steps to safeguard our systems, there is no assurance that we can prevent future breaches. If Alcoa is unable to detect or ward off attacks on its information systems or if an attack results in the theft of material company-sensitive information, such as intellectual property, trade secrets, product development data and other business development data, or if an attack results in a material disruption of its systems, Alcoa's business, financial condition and reputation may be materially adversely affected. Additionally, the Company has been subject to attempts to disrupt its website through denial of service attacks. Although such attempts did not have a material negative impact on the Company, no assurance can be given that future attempts will not impact the Company.

**Alcoa may be exposed to significant legal proceedings, investigations or changes in U.S. federal, state or foreign law, regulation or policy.**

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 outcomes of significant legal proceedings or investigations adverse to Alcoa. The Company may experience a change in effective tax rates or become subject to unexpected or rising costs associated with business operations or provision of health or welfare benefits to employees due to changes in laws, regulations or policies. The Company is also subject to a variety of legal compliance risks. These risks include, among other things, potential claims relating to product liability, health and safety, environmental matters, intellectual property rights, government contracts, taxes, and compliance with U.S. and foreign export laws, anti-bribery 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. In addition, various factors or developments can lead the Company to change current estimates of liabilities or make such estimates for matters previously not susceptible of reasonable estimates, such as a significant judicial ruling or judgment, a significant settlement, significant regulatory developments or changes in applicable law. A future adverse ruling or settlement or unfavorable changes in laws, regulations or policies, or other contingencies that the Company cannot predict with certainty could have a material adverse effect on the Company's results of operations or cash flows in a particular period. For additional information regarding the legal proceedings involving the Company, see the discussion in Part I, Item 3. (Legal Proceedings), of this report and in Note N to the Consolidated Financial Statements in Part II, Item 8. (Financial Statements and Supplementary Data).

**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 and regulations.**

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. Environmental laws may impose cleanup liability on owners and occupiers of contaminated property, including past or divested properties, regardless of whether the owners and occupiers caused the contamination or whether the activity that caused the contamination was lawful at the time it was conducted. Environmental matters for which we may be liable may arise in the future at our present sites, where no problem is currently known, at previously owned sites, sites previously operated by us, sites owned by our predecessors or sites



that we may acquire in the 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 certain 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 legislation or 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 consumption of energy derived from fossil fuels is a contributor to global warming.

A number of governments or governmental bodies have introduced or are contemplating legislative and 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, Australia's carbon pricing mechanism introduced in 2012, Quebec's transition to a cap and trade system with compliance required in 2013 and European direct emission regulations expected by 2013. 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 or Alcoa's supply chain. 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 legislation, regulation and international treaties and accords are uncertain, given the wide scope of potential regulatory change in countries in which Alcoa operates. The Company may realize increased capital expenditures resulting from required compliance with revised or new legislation or regulations, costs to purchase or profits from sales of, allowances or credits under a cap and trade system, increased insurance premiums and deductibles as new actuarial tables are developed to reshape coverage, a change in competitive position relative to industry peers and changes to profit or loss arising from increased or decreased demand for goods produced by the Company and indirectly, from changes in costs of goods sold.

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, shortages of water or other natural resources, 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.

**Additional tax expense or additional tax exposures could affect Alcoa's future profitability.**

Alcoa is subject to income taxes in both the United States and various non-U.S. jurisdictions, and its domestic and international tax liabilities are dependent upon the distribution of income among these different jurisdictions. Alcoa's tax expense includes estimates of additional tax which may be incurred for tax exposures and reflects various estimates and assumptions, including assessments of future earnings of the Company that could impact the valuation of its deferred tax assets. The Company's future results of operations could be adversely affected by changes in the effective tax rate as a result of a change in the mix of earnings in countries with differing statutory tax rates, changes in the overall profitability of the Company, changes in tax legislation and rates, changes in generally accepted accounting principles, changes in the valuation of deferred tax assets and liabilities, the results of audits and examinations of previously filed tax returns and continuing assessments of its tax exposures. Corporate tax reform and tax law changes continue to be analyzed in the United States and in many other jurisdictions. Significant changes to the U.S. corporate tax system in particular could have a substantial impact, positive and negative, on Alcoa's effective tax rate, cash tax expenditures, and deferred tax assets and liabilities.

**Adverse changes in discount rates, lower-than-expected investment return on pension assets and other factors could affect Alcoa's results of operations or level of pension funding contributions in future periods.**

Alcoa's results of operations may be negatively affected by the amount of expense Alcoa records for its pension and other postretirement benefit plans, reductions in the fair value of plan assets and other factors. U.S. generally accepted accounting principles (GAAP) require that Alcoa calculate income or expense for the plans using actuarial valuations.

These valuations reflect assumptions about financial market and other economic conditions, which may change based on changes in key economic indicators. The most significant year-end assumptions used by Alcoa to estimate pension or other postretirement benefit income or expense for the following year are the discount rate and the expected long-term rate of return on plan assets. The large decline in our funded status in 2008 due to the financial crisis generated significant unrecognized actuarial losses. We anticipate that expense in future years will continue to be affected as the unrecognized losses are recognized in earnings. In addition, Alcoa is required to make an annual measurement of plan assets and liabilities, which may result in a significant charge to shareholders' equity. For a discussion regarding how Alcoa's financial statements can be affected by pension and other postretirement benefits accounting policies, see Part II, Item 7. (Management's Discussion and Analysis of Financial Condition and Results of Operations) under the caption "Critical Accounting Policies and Estimates - Pension and Other Postretirement Benefits," and Part II, Item 8. (Financial Statements and Supplementary Data) under Note W to the Consolidated Financial Statements "Pension and Other Postretirement Benefits."

Although GAAP expense and pension funding contributions are not directly related, the key economic factors that affect GAAP expense would also likely affect the amount of cash or securities Alcoa would contribute to the pension plans. Potential pension contributions include both mandatory amounts required under federal law and discretionary contributions to improve the plans' funded status. The recently enacted Moving Ahead for Progress in the 21<sup>st</sup> Century Act provides temporary relief for employers like Alcoa who sponsor defined benefit pension plans related to funding contributions under the Employee Retirement Income Security Act of 1974 by allowing the use of a 25-year average interest rate within an upper and lower range for purposes of determining minimum funding obligations instead of an average interest rate for the two most recent years, as currently is the case. Alcoa has elected this temporary relief and believes that it will moderately reduce the cash flow sensitivity of the Company's U.S. pension plans' funded status to additional declines in discount rates over the next two to three years. However, higher than expected pension contributions due to a further decline in our funded status as a result of additional declines in the discount rate or lower-than-expected investment returns on plan assets could have a material negative effect on our cash flows. Adverse capital market conditions could result in reductions in the fair value of plan assets and increase the Company's liabilities related to such plans, adversely affecting Alcoa's liquidity and results of operations.

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

A significant portion 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. While Alcoa was successful in renegotiating the master collective bargaining agreement with the United Steelworkers in June 2010, Alcoa may not be able to satisfactorily renegotiate other collective bargaining agreements in the U.S. 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's human resource talent pool may not be adequate to support the Company's growth.**

Alcoa's existing operations and development projects require highly skilled executives, and staff with relevant industry and technical experience. The inability of the Company or the industry to attract and retain such people may adversely impact Alcoa's ability to adequately meet project demands and fill roles in existing operations. Skills shortages in engineering, technical service, construction and maintenance contractors and other labor market inadequacies may also impact activities. These shortages may adversely impact the cost and schedule of development projects and the cost and efficiency of existing operations.

**Alcoa may not realize expected long-term 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 is no assurance that these initiatives will all be completed or beneficial to Alcoa or that estimated cost savings from such activities will be realized.

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

Alcoa is working on 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.

**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.

**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.

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

**ALUMINA**

**Bauxite:** See the tables and related text in the **Bauxite Interests** section on pages 6-10 of this report.

**Alumina:** See the table and related text in the **Alumina Refining Facilities and Capacity** section on pages 12-13 of this report.

**PRIMARY METALS**

See the table and related text in the **Primary Aluminum Facilities and Capacity** section on pages 14-15 of this report.

## **GLOBAL ROLLED PRODUCTS**

See the table and related text in the **Global Rolled Products Facilities** section on page 17 of this report.

## **ENGINEERED PRODUCTS AND SOLUTIONS**

See the table and related text in the **Engineered Products and Solutions Facilities** section on pages 18-19 of this report.

## **CORPORATE**

See the table and related text in the **Corporate Facilities** section on page 20 of this report.

### **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.

#### **Litigation**

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 has significant insurance coverage and believes that its reserves are adequate 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 results of operations, cash flows, and financial position of the Company.

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 Metals Company 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 alleged these changes to their retiree health care plans violated their rights to vested health care benefits. Plaintiffs additionally alleged that Alcoa had breached its fiduciary duty to plaintiffs under ERISA by misrepresenting to them that their health benefits would never change. Plaintiffs sought injunctive and declaratory relief, back payment of benefits, and attorneys' fees. Alcoa had 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 set a trial date of September 17, 2008. In August 2008, the court set a new trial date of March 24, 2009 and, subsequently, the trial date was moved to September 22, 2009. In June 2009, the court indicated that it would not use an advisory jury at trial. Trial in the matter was held over eight days commencing September 22, 2009 and ending on October 1, 2009 in federal court in Knoxville, TN before the Honorable Thomas Phillips, U.S. District Court Judge. At the conclusion of evidence, the court set a post-hearing briefing schedule for submission of proposed findings of fact and conclusions of law by the parties and for replies to the same. Post trial briefing was submitted on December 4, 2009.

On March 9, 2011, the court issued a judgment order dismissing plaintiffs' lawsuit in its entirety with prejudice for the reasons stated in its Findings of Fact and Conclusions of Law. On March 23, 2011, plaintiffs filed a motion for clarification and/or amendment of the judgment order, which seeks, among other things, a declaration that plaintiffs

retiree benefits are vested subject to an annual cap and an injunction preventing Alcoa, prior to 2017, from modifying the plan design to which plaintiffs are subject or changing the premiums and deductibles that plaintiffs must pay. Also on March 23, 2011, plaintiffs filed a motion for award of attorneys' fees and expenses. Alcoa filed its opposition to both motions on April 11, 2011. On June 11, 2012, the court issued its memorandum and order denying plaintiffs' motion for clarification and/or amendment to the original judgment order. On July 6, 2012, plaintiffs filed a notice of appeal of the court's March 9, 2011 judgment. On July 12, 2012, the trial court stayed Alcoa's motion for assessment of costs pending resolution of plaintiffs' appeal. The appeal is docketed in the United States Court of Appeals for the Sixth Circuit as case number 12-5801. On August 29, 2012, the trial court dismissed plaintiffs' motion for attorneys' fees without prejudice to refiling the motion following the resolution of the appeal at the Sixth Circuit Court of Appeals. Briefing on the appeal is complete and oral argument is scheduled for March 6, 2013.

#### *Alba Civil Suit*

As previously reported, on February 27, 2008, Alcoa Inc. (Alcoa) received notice that Aluminium Bahrain B.S.C. (Alba) had filed suit against Alcoa, AWA, and William Rice (collectively, the Alcoa Parties), 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 alleged that certain Alcoa entities and their agents, including Victor Phillip Dahdaleh, had engaged in a conspiracy over a period of 15 years to defraud Alba. The complaint further alleged 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 alleged that Alcoa and the other defendants violated the Racketeer Influenced and Corrupt Organizations Act (RICO) and committed fraud. Alba claimed damages in excess of \$1 billion. Alba's complaint sought treble damages with respect to its RICO claims; compensatory, consequential, exemplary, and punitive damages; rescission of the 2005 alumina supply contract; and attorneys' fees and costs.

In response to a motion filed by the U.S. Department of Justice (DOJ) on March 27, 2008 (see Government Investigations below), the Court ordered the Alba civil suit administratively closed and stayed all discovery to allow the DOJ to fully conduct an investigation. On November 8, 2011, at Alcoa's request, the Court removed the case from administrative stay and ordered Alba to file an Amended Complaint by November 28, 2011, and a RICO Case Statement 30 days thereafter for the limited purpose of allowing Alcoa to move to dismiss Alba's lawsuit. Alcoa filed a motion to dismiss, which was denied on June 11, 2012.

During the second quarter of 2012, Alcoa proposed to settle the suit by offering Alba a cash payment of \$45 million. Alcoa also offered Alba a long-term alumina supply contract. Based on the cash offer, Alcoa recorded a \$45 million (\$18 million after-tax and noncontrolling interest) charge in the 2012 second quarter representing Alcoa's estimate of the minimum end of the range probable to settle the case, and estimated an additional reasonably possible charge of up to \$75 million to settle the suit.

On October 9, 2012, the Alcoa Parties, without admitting any liability, entered into a settlement agreement with Alba. The agreement called for AWA to pay Alba \$85 million in two equal installments, one-half at time of settlement and one-half one year later, and for the case against the Alcoa Parties to be dismissed with prejudice. Additionally, AWA and Alba entered into a long-term alumina supply agreement. On October 9, 2012, pursuant to the settlement agreement, AWA paid Alba \$42.5 million, and all claims against the Alcoa Parties were dismissed with prejudice. Under the agreement, AWA is obligated to pay an additional \$42.5 million, without interest or contingency, on October 9, 2013. Based on the settlement agreement, in the 2012 third quarter, Alcoa recorded a \$40 million (\$15 million after-tax and noncontrolling interest) charge in addition to the \$45 million (\$18 million after-tax and noncontrolling interest) charge it recorded in the 2012 second quarter in respect of the suit. In addition, based on an agreement between Alcoa and Alumina Limited (which holds a 40% equity interest in AWA), Alcoa estimates an additional reasonably possible after-tax charge of between \$25 million to \$30 million to reallocate a portion of the

costs (including legal fees) of the Alba civil settlement from AWA to Alcoa, but this would occur only if a settlement is reached with the DOJ and the Securities and Exchange Commission (the SEC) regarding their investigations (see Government Investigations below).

#### *Government Investigations*

As previously reported, on February 26, 2008, Alcoa Inc. advised the DOJ and the SEC that it had recently become aware of the claims by Alba as alleged in the Alba civil suit, 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 since that time.

Alcoa is actively negotiating with the DOJ and the SEC to reach a resolution of their investigations of the Alba matter; however, Alcoa has not reached any agreement with either agency. Given the uncertainty regarding whether a settlement can be reached and, if reached, on what terms, Alcoa is not able to estimate a range of reasonably possible loss with regard to any such settlement. If a settlement of the government investigations is reached, Alcoa believes that the settlement amount would be material to Alcoa's results of operations for the relevant fiscal period. If a settlement cannot be reached, Alcoa will proceed to trial with the DOJ and the SEC and under those circumstances is unable to predict an outcome or to estimate its reasonably possible loss. There can be no assurance that the final outcome of the government's investigations will not have a material adverse effect on Alcoa.

#### *Derivative Actions*

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 civil litigation brought by Alba against Alcoa, AWA, Victor Phillip Dahdaleh, and others, and the subsequent investigation of Alcoa by the DOJ and the SEC with respect to Alba's claims. 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. On September 3, 2009, a hearing was held on Alcoa's motion and, on October 12, 2009, the court issued its order denying Alcoa's motion to dismiss but finding that a derivative action during the conduct of the DOJ investigation and pendency of the underlying complaint by Alba would be contrary to the interest of shareholders and, therefore, stayed the case until further order of the court. This derivative action is in its 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 March 6, 2009, the Philadelphia Gas Works Retirement Fund filed a shareholder derivative suit in the civil division of the Court of Common Pleas of Philadelphia County, Pennsylvania. This action was brought against certain officers and directors of Alcoa claiming breach of fiduciary duty and other violations and is based on the allegations made in the previously disclosed civil litigation brought by Alba against Alcoa, AWA, Victor Phillip Dahdaleh, and others, and the subsequent investigation of Alcoa by the DOJ and the SEC with respect to Alba's claims. This derivative action claims that the defendants caused or failed to prevent the conduct alleged in the Alba lawsuit. On August 7, 2009, the director and officer defendants filed an unopposed motion to coordinate the case with the Teamsters Local #500 suit, described immediately above, in the Allegheny County Common Pleas Court. The Allegheny County court issued its order consolidating the case on September 18, 2009. Thereafter, on October 31, 2009, the court assigned this action to the Commerce and Complex Litigation division of the Allegheny Court of Common Pleas and on November 20, 2009, the court granted defendants' motion to stay all proceedings in the Philadelphia Gas action until the earlier of the court lifting the stay in the Teamsters derivative action or further order of the court in this action. This derivative action is in its 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 June 19, 2012, Catherine Rubery (plaintiff) filed a shareholder derivative suit in the United States District Court for the Western District of Pennsylvania against William Rice, Victor Dahdaleh and current and former members of the Alcoa Board of Directors (collectively, defendants) claiming breach of fiduciary duty and

corporate waste. This derivative action stems from the previously disclosed civil litigation brought by Alba against Alcoa, and the subsequent investigation of Alcoa by the DOJ and the SEC described above. This derivative action claims that defendants caused or failed to prevent illegal bribes of foreign officials, failed to implement an internal controls system to prevent bribes from occurring and wasted corporate assets by paying improper bribes and incurring substantial legal liability. Furthermore, plaintiff seeks an order of contribution and indemnification from defendants. The derivative action is in its preliminary stage and Alcoa is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

#### *Italian Energy Matter*

As previously reported, before 2002, Alcoa purchased power in Italy in the regulated energy market and received a drawback of a portion of the price of power under a special tariff in an amount calculated in accordance with a published resolution of the Italian Energy Authority, Energy Authority Resolution n. 204/1999 (204/1999). In 2001, the Energy Authority published another resolution, which clarified that the drawback would be calculated in the same manner, and in the same amount, in either the regulated or unregulated market. At the beginning of 2002, Alcoa left the regulated energy market to purchase energy in the unregulated market. Subsequently, in 2004, the Energy Authority introduced regulation no. 148/2004 which set forth a different method for calculating the special tariff that would result in a different drawback for the regulated and unregulated markets. Alcoa challenged the new regulation in the Administrative Court of Milan and received a favorable judgment in 2006. Following this ruling, Alcoa continued to receive the power price drawback in accordance with the original calculation method, through 2009, when the European Commission declared all such special tariffs to be impermissible state aid. In 2010, the Energy Authority appealed the 2006 ruling to the Consiglio di Stato (final court of appeal). On December 2, 2011, the Consiglio di Stato ruled in favor of the Energy Authority and against Alcoa, thus presenting the opportunity for the energy regulators to seek reimbursement from Alcoa of an amount equal to the difference between the actual drawback amounts received over the relevant time period, and the drawback as it would have been calculated in accordance with regulation 148/2004. On February 23, 2012, Alcoa filed its appeal of the decision of the Consiglio di Stato, and that appeal remains pending. On March 26, 2012, Alcoa received a letter from the agency (Cassa Conguaglio per il Settore Elettrico (CCSE)) responsible for making and collecting payments on behalf of the Energy Authority demanding payment in the amount of approximately \$110 million ( 85 million), including interest. By letter dated April 5, 2012, Alcoa informed CCSE that it disputes the payment demand of CCSE since (i) CCSE was not authorized by the Consiglio di Stato decisions to seek payment of any amount, (ii) the decision of the Consiglio di Stato has been appealed and that appeal remains pending, and (iii) in any event, no interest should be payable. On April 29, 2012, Law No. 44 of 2012 (44/2012) came into effect, changing the method to calculate the drawback. Alcoa believes that under 44/2012 its range of reasonably possible loss is from \$0 to \$50 million ( 39 million). Following the effectiveness of 44/2012, Alcoa has received no further demands from CCSE. At this time, the Company is unable to reasonably predict an outcome for this matter.

#### **European Commission Matters**

As previously reported, in July 2006, the European Commission (EC) announced that it had opened an investigation to establish whether an extension of the regulated electricity tariff granted by Italy to some energy-intensive industries complies with European Union (EU) state aid rules. The Italian power tariff extended the tariff that was in force until December 31, 2005 through November 19, 2009 (Alcoa has been incurring higher power costs at its smelters in Italy subsequent to the tariff end date). The extension was originally through 2010, but the date was changed by legislation adopted by the Italian Parliament effective on August 15, 2009. Prior to expiration of the tariff in 2005, Alcoa had been operating in Italy for more than 10 years under a power supply structure approved by the EC in 1996. That measure provided a competitive power supply to the primary aluminum industry and was not considered state aid from the Italian Government. The EC's announcement expressed concerns about whether Italy's extension of the tariff beyond 2005 was compatible with EU legislation and potentially distorted competition in the European market of primary aluminum, where energy is an important part of the production costs.

On November 19, 2009, the EC announced a decision in this matter stating that the extension of the tariff by Italy constituted unlawful state aid, in part, and, therefore, the Italian Government is to recover a portion of the benefit Alcoa received since January 2006 (including interest). The amount of this recovery will be based on a calculation that

is being prepared by the Italian Government (see below). In late 2009, after discussions with legal counsel and reviewing the bases on which the EC decided, including the different considerations cited in the EC decision regarding Alcoa's two smelters in Italy, Alcoa recorded a charge of \$250 million (€ 173 million), which included \$20 million (€ 14 million) to write off a receivable from the Italian Government for amounts due under the now expired tariff structure and \$230 million (€ 159 million) to establish a reserve. On April 19, 2010, Alcoa filed an appeal of this decision with the General Court of the EU. Alcoa will pursue all substantive and procedural legal steps available to annul the EC's decision. On May 22, 2010, Alcoa also filed with the General Court a request for injunctive relief to suspend the effectiveness of the decision, but, on July 12, 2010, the General Court denied such request. On September 10, 2010, Alcoa appealed the July 12, 2010 decision to the European Court of Justice (ECJ); this appeal was dismissed on December 16, 2011.

In June 2012, Alcoa received formal notification from the Italian Government with a calculated recovery amount of \$375 million (€ 303 million); this amount was reduced by \$65 million (€ 53 million) of amounts owed by the Italian Government to Alcoa, resulting in a net payment request of \$310 million (€ 250 million). In a notice published in the Official Journal of the European Union on September 22, 2012, the EC announced that it had filed an action against the Italian Government on July 18, 2012 to compel it to collect the recovery amount. On September 27, 2012, Alcoa received a request for payment in full of the \$310 million (€ 250 million) by October 31, 2012. Since then, Alcoa has been in discussions with the Italian Government regarding the timing of such payment. Alcoa commenced payment of the requested amount in five quarterly installments of \$66 million (€ 50 million), paying the first installment on October 31, 2012. It is possible that Alcoa may be required to accelerate payment or pay in a lump sum. Notwithstanding the payment request or the timing of such payments, Alcoa's estimate of the most probable loss of the ultimate outcome of this matter and the low end of the range of reasonably possible loss, which is \$209 million (€ 159 million) to \$375 million (€ 303 million), remains the \$209 million (€ 159 million) (the U.S. dollar amount reflects the effects of foreign currency movements since 2009) recorded in November 2009. At December 31, 2012, Alcoa's reserve for this matter stands at \$143 million (€ 109 million), reflecting the payment made in October 2012. The full extent of the loss will not be known until the final judicial determination, which could be a period of several years.

Separately, on November 29, 2006, Alcoa filed an appeal before the General Court (formerly the European Court of First Instance) seeking the annulment of the EC's decision to open an investigation alleging that such decision did not follow the applicable procedural rules. On March 25, 2009, the General Court denied Alcoa's appeal. On May 29, 2009, Alcoa appealed the March 25, 2009 ruling before the ECJ. The hearing of the May 29, 2009 appeal was held on June 24, 2010. On July 21, 2011, the ECJ denied Alcoa's appeal.

As previously reported, in January 2007, the EC announced that it had opened an investigation to establish whether the regulated electricity tariffs granted by Spain comply with EU state aid rules. At the time the EC opened its investigation, Alcoa had been operating in Spain for more than nine 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 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 opened the investigation on the assumption that prices paid under the tariff in 2005 were lower than a pool price mechanism, therefore being, in principle, artificially below market conditions. Alcoa submitted comments in which the Company 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. 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 the tariff system. While Alcoa does not believe that an unfavorable decision is probable, management has estimated that the total potential impact from an unfavorable decision could be approximately \$90 million (€ 70 million) pretax. Also, 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. 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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**Environmental Matters**

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. The most significant of these matters, including the remediation of the Grasse River in Massena, NY, are discussed in the Environmental Matters section of Note N to the Consolidated Financial Statements under the caption Environmental Matters on pages 119-120.

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 (Trustees), 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 has continued to actively investigate these claims. Pursuant to an agreement entered into with the Trustees in 1991, Alcoa and Reynolds had been working cooperatively with General Motors Corporation, which is facing similar claims by the Trustees, to assess potential injuries to natural resources in the region. With the bankruptcy of General Motors in 2009, Motors Liquidation Company (MLC) took over General Motors' liability in this matter. In September 2009, MLC notified Alcoa and the Trustees that it would no longer participate in the cooperative process. Alcoa and the Trustees agreed to continue to work together cooperatively without MLC to resolve Alcoa's and Reynolds' natural resources damages liability in this matter. In January 2011, the Trustees, representing the United States, the State of New York and the Mohawk tribe, and Alcoa reached an agreement in principle to resolve the natural resource damage claims. The parties have now finalized a consent decree which is in the process of being executed. Once fully executed, the consent decree will need to be approved by the federal court following a minimum 30-day public comment period.

As previously reported, in August 2005, Dany Lavoie, a resident of Baie Comeau in the Canadian Province of Québec, filed a Motion for Authorization to Institute a Class Action and for Designation of a Class Representative against Alcoa Canada Ltd., Alcoa Limitée, Societe Canadienne de Metaux Reynolds Limitée and Canadian British Aluminum in the Superior Court of Québec 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. Plaintiff originally moved to certify a class action, sought to compel additional remediation to be conducted by the defendants beyond that already undertaken by them voluntarily, sought an injunction against further emissions in excess of a limit to be determined by the court in consultation with an independent expert, and sought money damages on behalf of all class members. In May 2007, the court 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. In September 2007, the plaintiff filed his claim against the original defendants, which the court had authorized in May. Alcoa has filed its Statement of Defense and plaintiff has filed an Answer to that Statement. Alcoa also filed a Motion for Particulars with respect to certain paragraphs of plaintiff's Answer and a Motion to Strike with respect to certain paragraphs of plaintiff's Answer. In late 2010, the Court denied these motions. While no further formal proceedings have occurred, Alcoa has reviewed technical data provided by the plaintiffs and is preparing to provide its own analysis to the plaintiffs. The action continues in the discovery phase. The plaintiffs have not quantified the damages sought. Without such amount and given the various damages alleged, 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 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 proceeded as an individual claim. Alcoa filed a renewed motion to dismiss (arguing that the claims are barred by the Indiana Workers' Compensation Act), amended its answer to include Indiana's Recreational Use Statute as an affirmative defense and filed a motion for summary judgment based on the Recreational Use Statute. The court granted Alcoa's motion to dismiss regarding plaintiffs' occupationally-related claims and denied the motion regarding plaintiffs' recreationally-related claims. On January 17, 2012, the court denied all outstanding motions with no opinion issued. A jury trial commenced on April 10, 2012 and on May 1, 2012 the jury returned a verdict in favor of defendants Alcoa Inc. and its subsidiary. The court entered its judgment on May 14, 2012. On May 31, 2012, plaintiffs filed a notice of appeal. Plaintiffs' brief was filed on January 25, 2013; Alcoa's response is due by March 29. All subsequent briefing replies are to be completed by April 2, 2013.

Also as previously reported, in October 2006, in *Barnett, et al. v. Alcoa and Alcoa Fuels, Inc.*, Warrick Circuit Court, County of Warrick, Indiana; 87-C01-0601-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. Plaintiffs also filed a second amended complaint in response to the court's orders granting Alcoa's motions to dismiss. On July 7, 2010, the court granted the parties' joint motions for a general continuance of trial settings. Discovery in this matter is stayed pending the outcome of the Musgrave matter. The Company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss because plaintiffs have merely alleged that their medical condition is attributable to exposure to materials at the Squaw Creek Mine but no further information is available due to the discovery stay.

As previously reported, in 1996, Alcoa acquired the Fusina, Italy smelter and rolling operations and the Portovesme, Italy smelter (both of which are owned by Alcoa's subsidiary, Alcoa Trasformazioni S.r.l.) from Alumix, an entity owned by the Italian Government. Alcoa also acquired the extrusion plants located in Feltre and Bolzano, Italy. At the time of the acquisition, Alumix indemnified Alcoa for pre-existing environmental contamination at the sites. In 2004, the Italian Ministry of Environment (MOE) issued orders to Alcoa Trasformazioni S.r.l. and Alumix for the development of a clean-up plan related to soil contamination in excess of allowable limits under legislative decree and to institute emergency actions and pay natural resource damages. On April 5, 2006, Alcoa Trasformazioni S.r.l.'s Fusina site was also sued by the MOE and Minister of Public Works (MOPW) in the Civil Court of Venice for an alleged liability for environmental damages, in parallel with the orders already issued by the MOE. Alcoa Trasformazioni S.r.l. appealed the orders, defended the civil case for environmental damages (which is still pending) and filed suit against Alumix, as discussed below. Similar issues also existed with respect to the Bolzano and Feltre plants, based on orders issued by local authorities in 2006. All the orders have been challenged in front of the Administrative Regional Courts, and all trials are still pending. However, in Bolzano the Municipality of Bolzano withdrew the order, and the Regional Administrative Tribunal of Veneto suspended the order in Feltre. Most, if not all, of the underlying activities occurred during the ownership of Alumix, the governmental entity that sold the Italian plants to Alcoa.

As noted above, in response to the 2006 civil suit by the MOE and MOPW, Alcoa Trasformazioni S.r.l. filed suit against Alumix claiming indemnification under the original acquisition agreement, but brought that suit in the Court of Rome due to jurisdictional rules. The Court of Rome has appointed an expert to assess the causes of the pollution. In June 2008, the parties (Alcoa and now Ligestra S.r.l. (Ligestra), the successor to Alumix) signed a preliminary agreement by which they have committed to pursue a settlement and asked for a suspension of the technical assessment during the negotiations. The Court of Rome accepted the request, and postponed the technical assessment, reserving its ability to fix the deadline depending on the development of negotiations. Alcoa and Ligestra agreed to a settlement in December 2008 with respect to the Feltre site. Ligestra paid the sum of 1.08 million Euros and Alcoa committed to clean up the site. Further postponements were granted by the Court of Rome, and the next hearing was fixed for November 2011. The trial was then suspended under the joint request of the parties, and was to be restarted in 2012. The parties applied for a new postponement, that was granted by the Court, and a new hearing was fixed for

December 3, 2013. In the meantime, in December 2009, Alcoa Trasformazioni S.r.l. and Ligestra reached an initial agreement for settlement of the liabilities related to Fusina. The settlement would also allow Alcoa to settle the 2006 civil suit by the MOE and MOPW for the environmental damages pending before the Civil Court of Venice. The agreement outlines an allocation of payments to the MOE for emergency action and natural resource damages and the scope and costs for a proposed soil remediation. In February 2011, a further and more detailed settlement relating to Fusina was reached, allocating 80% and 20% of the remediation costs to Ligestra and Alcoa, respectively. Later in 2011, Alcoa and Ligestra signed a similar agreement relating to the Portovesme site. The agreements are contingent upon final acceptance of the remediation project by the MOE. A proposed soil remediation project for Portovesme was formally presented to the MOE in June 2012. To provide time for settlement with Ligestra, the Minister of Environment and Alcoa jointly requested and the Civil Court of Venice has granted a series of postponements of hearings in the Venice trial, assuming that the case will be closed. The last hearing was fixed for March 25, 2013. Alcoa is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss beyond what is described in Footnote N for several reasons. First, the MOE has not yet approved the remediation plans. The Company understands that the MOE has substantial discretion in defining what must be managed under the Italian soils law. The availability of appropriate landfills must also be considered as well as the nature of these sites. As a result, the scope and cost of the final remediation plans remain uncertain. Secondly, in the case in which the plan is not approved and the settlement with Ligestra becomes void, Alcoa should be held responsible only for its share of pollution, but the area is impacted by many sources of pollution, as well as historical pollution. Consequently, the allocation of liabilities would need a very complex technical evaluation by the authorities that has not yet been performed.

As previously reported, on November 30, 2010, Alcoa Alumínio S.A. (Alumínio) received service of a lawsuit that had been filed by the public prosecutors of the State of Pará in Brazil in November 2009. The suit names the Company and the State of Pará, which, through its Environmental Agency, had issued the operating license for the Company's new bauxite mine in Juruti. The suit concerns the impact of the project on the region's water system and alleges that certain conditions of the original installation license were not met by the Company. In the lawsuit, plaintiffs requested a preliminary injunction suspending the operating license and ordering payment of compensation. On April 14, 2010, the court denied plaintiffs' request. Alumínio presented its defense in March 2011, on grounds that it was in compliance with the terms and conditions of its operating license, which included plans to mitigate the impact of the project on the region's water system. In April, 2011, the State of Pará defended itself in the case asserting that the operating license contains the necessary plans to mitigate such impact, that the State monitors the performance of Alumínio's obligations arising out of such license, that the licensing process is valid and legal, and that the suit is meritless. The Company's position is that any impact from the project had been fully repaired when the suit was filed. The Company also believes that Jará Lake has not been affected by any project activity and any evidence of pollution from the project would be unreliable. Following the preliminary injunction, the plaintiffs have taken no further action. The Company is not certain whether or when the action will proceed. Given that this proceeding is in its preliminary stage and the current uncertainty in this case, the Company is unable to reasonably predict an outcome or to estimate a range of reasonably possible loss.

As previously reported, by an amended complaint filed April 21, 2005, Alcoa Global Fasteners, Inc. was added as a defendant in Orange County Water District (OCWD) v. Northrop Corporation, et al., civil action 04cc00715 (Superior Court of California, County of Orange). OCWD alleges contamination or threatened contamination of a drinking water aquifer by Alcoa, certain of the entities that preceded Alcoa at the same locations as property owners and/or operators, and other current and former industrial and manufacturing businesses that operated in Orange County in past decades. OCWD seeks to recover the cost of aquifer remediation and attorney's fees. Trial on statutory, non-jury claims commenced on February 10, 2012, and continued through September 2012 when the case was submitted to the court for decision. On December 11, 2012, the court issued its tentative ruling in the matter dismissing plaintiff OCWD's remaining statutory claims against all defendants. The court's tentative ruling also invited further briefing on the decision and it is subject to modification. On January 21, 2013, defendants filed a joint brief responding to ten specific questions posed by the court's tentative ruling. The joint brief argued that the court should make further findings of fact and law in favor of the defendants in response to the ten questions. Alcoa Global Fasteners, Inc. also filed a separate brief on two of the questions arguing that the court should determine that it is neither a cause of ground water contamination nor a cause of plaintiffs' incurred costs. A hearing is scheduled on February 28, 2013. A final decision

will be announced thereafter. Remaining in the case at this time are common law trespass and nuisance claims for a Phase 2 trial which has not been scheduled. OCWD has asserted a total remedy cost of at least \$150 million plus attorneys' fees; however the amount in controversy at this stage is limited to sums already expended by the OCWD, approximately \$4 million. The court has indicated that it is not likely to grant the OCWD's request for declaratory relief as to future sums the OCWD expends. Alcoa believes that it is not responsible for any contamination as alleged in the complaint or that if any liability were to be established, its liability would be insignificant. While the court has issued a tentative decision on the statutory claims, it is not possible at this time to reasonably predict the court's final determination as to this stage of the proceedings, nor any claims presented to a jury in the future nor the impact of claims presented against third party defendants and it is therefore not possible to estimate a range of reasonably possible loss for this matter. A similar matter, Orange County Water District v. Sabic, et al, civil action 30-2008-00078246 (Superior Court of California, County of Orange) was filed against Alcoa Global Fasteners, Inc. on June 23, 2008. This matter also alleges contamination or threatened contamination of a drinking water aquifer by Alcoa and others. A trial has been set for 2013. Alcoa believes that it is not responsible for any contamination as alleged in the complaint or that if any liability were to be established, its liability would be insignificant. Plaintiff Orange County Water District has made a statutory settlement demand to Alcoa and other similar demands to certain other defendants. The demand to Alcoa is \$2.5 million and is being evaluated.

*St. Croix Proceedings*

Josephat Henry. 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. SCA undertook or arranged various cleanup and remediation efforts. The Division of Environmental Protection (DEP) of the Department of Planning and Natural Resources (DPNR) of the Virgin Islands Government issued a Notice of Violation that Alcoa has contested. In February 1999, certain residents of St. Croix commenced a civil suit in the Territorial Court of the Virgin Islands 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 and Glencore Ltd. as defendants, and, in August 2000, was accorded class action treatment. The class was 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. Plaintiffs' expert reports 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 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. Alcoa and SCA turned over this matter to their insurance carriers who have been providing a defense. Glencore Ltd. is jointly defending the case with Alcoa and SCA and has a pending motion to dismiss. In June 2008, the Court granted defendants' joint motion to decertify the original class of plaintiffs, and certified a new class as to the claim of ongoing nuisance, insofar as plaintiffs seek cleanup, abatement, or removal of the red mud currently present at the facility. (The named plaintiffs had previously dropped their claims for medical monitoring as a consequence of the court's rejection of plaintiffs' proffered expert opinion testimony). The Court expressly denied certification of a class as to any claims for remediation or cleanup of any area outside the facility (including plaintiffs' property). The new class could seek only injunctive relief rather than monetary damages. Named plaintiffs, however, could continue to prosecute their claims for personal injury, property damage, and punitive damages. In August 2009, in response to defendants' motions, the Court dismissed the named plaintiffs' claims for personal injury and punitive damages, and denied the motion with respect to their property damage claims. In September 2009, the Court granted defendants' motion for summary judgment on the class plaintiffs' claim for injunctive relief. In October 2009, plaintiffs appealed the Court's summary judgment order dismissing the claim for injunctive relief and in March 2011, the U.S. Court of Appeals for the 3rd Circuit dismissed plaintiffs' appeal of that order. In September 2011, the parties reached an oral agreement to

settle the remaining claims in the case which would resolve the personal property damage claims of the 12 remaining individual plaintiffs. On March 12, 2012, final judgment was entered in the District Court for the District of the Virgin Islands. Alcoa's share of the settlement is fully insured. On March 23, 2012, plaintiffs filed a notice of appeal of numerous non-settled matters, including but not limited to discovery orders, Daubert rulings, summary judgment rulings, as more clearly set out in the settlement agreement/release between the parties. Plaintiffs' appellate brief was filed in the 3rd Circuit Court on January 4, 2013, together with a motion seeking leave to file a brief of excess length. The court has suspended the remainder of the briefing schedule, including the date for Alcoa's reply brief, until it rules on plaintiffs' motion to file its brief of excess length.

*Abednego*. As previously reported, on January 14, 2010, Alcoa was served with a complaint involving approximately 2,900 individual persons claimed to be residents of St. Croix who are alleged to have suffered personal injury or property damage from Hurricane Georges or winds blowing material from the property since the time of the hurricane. This complaint, *Abednego, et al. v. Alcoa, et al.* was filed in the Superior Court of the Virgin Islands, St. Croix Division. The complaint names as defendants the same entities as were sued in the February 1999 action earlier described and have added as a defendant the current owner of the alumina facility property. In February 2010, Alcoa and SCA removed the case to the federal court for the District of the Virgin Islands. Subsequently, plaintiffs filed motions to remand the case to territorial court as well as a third amended complaint, and defendants have moved to dismiss the case for failure to state a claim upon which relief can be granted. On March 17, 2011, the court granted plaintiffs' motion to remand to territorial court. Thereafter, Alcoa filed a motion for allowance of appeal. The motion was denied on May 18, 2011. The parties await assignment of the case to a trial judge.

*Phillip Abraham*. As previously reported, on March 1, 2012, Alcoa was served with a complaint involving approximately 200 individual persons claimed to be residents of St. Croix who are alleged to have suffered personal injury or property damage from Hurricane Georges or winds blowing material from the property since the time of the hurricane in September 1998. This complaint, *Abraham, et al. v. Alcoa, et al.* alleges claims essentially identical to those set forth in the *Abednego v. Alcoa* complaint. The matter was originally filed in the Superior Court of the Virgin Islands, St. Croix Division, on March 30, 2011. By motion filed March 12, 2012, Alcoa sought dismissal of this complaint on several grounds, including failure to timely serve the complaint and being barred by the statute of limitations.

#### **Other Contingencies**

In addition to the matters discussed above, various other lawsuits, claims, and proceedings have been or may be instituted or asserted against Alcoa, including those pertaining to environmental, product liability, safety and health, and tax matters. While the amounts claimed in these other matters may be substantial, the ultimate liability cannot now be determined because of the considerable uncertainties that exist. Therefore, it is possible that the Company's liquidity or results of operations in a particular period could be materially affected by one or more of these other matters. However, based on facts currently available, management believes that the disposition of these other matters that are pending or asserted will not have a material adverse effect, individually or in the aggregate, on the financial position of the Company.

#### **Item 4. Mine Safety Disclosures.**

The information concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K (17 CFR 229.104) is included in Exhibit 95 of this report, which is incorporated herein by reference.

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**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 where it trades under the symbol AA. The Company's quarterly high and low trading stock prices and dividends per common share for 2012 and 2011 are shown below.

| Quarter | 2012     |          |          | 2011     |          |          |
|---------|----------|----------|----------|----------|----------|----------|
|         | High     | Low      | Dividend | High     | Low      | Dividend |
| First   | \$ 10.92 | \$ 10.61 | \$ 0.03  | \$ 17.75 | \$ 15.42 | \$ 0.03  |
| Second  | 10.24    | 9.97     | 0.03     | 18.47    | 14.56    | 0.03     |
| Third   | 9.93     | 9.78     | 0.03     | 16.60    | 9.56     | 0.03     |
| Fourth  | 9.34     | 7.98     | 0.03     | 11.66    | 8.45     | 0.03     |
| Year    | 10.92    | 7.98     | \$ 0.12  | 18.47    | 8.45     | \$ 0.12  |

The number of holders of common stock was approximately 318,000 as of February 4, 2013.

**Stock Performance Graph**

The following graph compares the most recent five-year performance of Alcoa's common stock with (1) the Standard & Poor's 500 Index and (2) the Standard & Poor's 500 Materials Index, a group of 27 companies categorized by Standard & Poor's as active in the materials market sector. Such information shall not be deemed to be filed.

| As of December 31,       | 2007   | 2008  | 2009  | 2010  | 2011  | 2012  |
|--------------------------|--------|-------|-------|-------|-------|-------|
| Alcoa Inc.               | \$ 100 | \$ 32 | \$ 47 | \$ 45 | \$ 26 | \$ 26 |
| S&P 500® Index           | 100    | 63    | 80    | 92    | 94    | 109   |
| S&P 500® Materials Index | 100    | 54    | 81    | 99    | 89    | 102   |

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Source: Research Data Group, Inc. ([www.researchdatagroup.com/S&P.htm](http://www.researchdatagroup.com/S&P.htm))

**Item 6. Selected Financial Data**

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

| For the year ended December 31,                               | 2012      | 2011      | 2010      | 2009       | 2008      |
|---|-----------|-----------|-----------|------------|-----------|
| Sales   | \$ 23,700 | \$ 24,951 | \$ 21,013 | \$ 18,439  | \$ 26,901 |
| Amounts attributable to Alcoa common shareholders:            |           |           |           |            |           |
| Income (loss) from continuing operations                      | \$ 191    | \$ 614    | \$ 262    | \$ (985)   | \$ 229    |
| Loss from discontinued operations                             | -         | (3)       | (8)       | (166)      | (303)     |
| Net income (loss)   | \$ 191    | \$ 611    | \$ 254    | \$ (1,151) | \$ (74)   |
| Earnings per share attributable to Alcoa common shareholders: |           |           |           |            |           |
| Basic:  |           |           |           |            |           |
| Income (loss) from continuing operations                      | \$ 0.18   | \$ 0.58   | \$ 0.25   | \$ (1.06)  | \$ 0.27   |
| Loss from discontinued operations                             | -         | (0.01)    | -         | (0.17)     | (0.37)    |
| Net income (loss)   | \$ 0.18   | \$ 0.57   | \$ 0.25   | \$ (1.23)  | \$ (0.10) |
| Diluted:  |           |           |           |            |           |
| Income (loss) from continuing operations                      | \$ 0.18   | \$ 0.55   | \$ 0.25   | \$ (1.06)  | \$ 0.27   |
| Loss from discontinued operations                             | -         | -         | (0.01)    | (0.17)     | (0.37)    |
| Net income (loss)   | \$ 0.18   | \$ 0.55   | \$ 0.24   | \$ (1.23)  | \$ (0.10) |
| Shipments of alumina (kmt)                                    | 9,295     | 9,218     | 9,246     | 8,655      | 8,041     |
| Shipments of aluminum products (kmt)                          | 5,197     | 5,037     | 4,757     | 5,097      | 5,481     |
| Alcoa's average realized price per metric ton of aluminum     | \$ 2,327  | \$ 2,636  | \$ 2,356  | \$ 1,856   | \$ 2,714  |
| Cash dividends declared per common share                      | \$ 0.12   | \$ 0.12   | \$ 0.12   | \$ 0.26    | \$ 0.68   |
| Total assets  | 40,179    | 40,120    | 39,293    | 38,472     | 37,822    |
| Short-term borrowings   | 53        | 62        | 92        | 176        | 478       |
| Commercial paper  | -         | 224       | -         | -          | 1,535     |
| Long-term debt, including amounts due within one year         | 8,776     | 9,085     | 9,073     | 9,643      | 8,565     |

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 in Part II Item 7 and the Consolidated Financial Statements in Part II Item 8 of this Form 10-K.

**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. Aluminum and alumina represent more than 80% 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, consumer electronics, and industrial applications.



Alcoa is a global company operating in 30 countries. Based upon the country where the point of sale occurred, the U.S. and Europe generated 52% and 25%, respectively, of Alcoa's sales in 2012. In addition, Alcoa has investments and operating activities in, among others, Australia, Brazil, China, Guinea, Iceland, Russia, and Saudi Arabia, all of which present opportunities for substantial growth. Governmental policies, laws and regulations, 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 2012 and Outlook for the Future

At the end of 2011, management had projected growth in global aluminum demand of 7% for 2012. In the first half of the year, demand was on course; however, a slowdown in growth in China in the second half resulted in an actual growth rate of 6%. Additionally, LME pricing levels declined on average 16% year-over-year, mainly due to macroeconomic events, including significant uncertainty of the sovereign debt of many European countries and the U.S. fiscal cliff. The Company also faced significant headwinds for certain costs, including maintenance supplies and services; labor, especially in emerging markets; transportation costs, mostly fuel oil; and higher pension costs. Consequently, the 2012 operating results of the Company's upstream businesses declined compared with 2011. Partially offsetting this decrease was the Company's midstream and downstream businesses achieving their highest profitability ever driven by net productivity improvements and higher volumes. Management continued its relentless focus on liquidity and cash flows generating incremental improvements in procurement efficiencies, overhead rationalization, working capital, and disciplined capital spending. These actions enabled Alcoa to decrease debt while maintaining a stable level of cash on hand.

The following financial information reflects some key measures of Alcoa's 2012 results:

Sales of \$23,700 and Income from continuing operations of \$191, or \$0.18 per diluted share;

Total segment after-tax operating income of \$1,369;

Cash from operations of \$1,497, reduced by pension contributions of \$561;

Capital expenditures of \$1,261, under \$1,500 for the third consecutive year;

Cash on hand at the end of the year of \$1,861, in excess of \$1,400 for the fourth consecutive year;

Decrease in total debt of \$542, and a decline of \$1,749 since 2008; and

Debt-to-capital ratio of 34.8%, a decrease of 50 basis points from 2011 and within the targeted range of 30% to 35%.

In 2013, management is projecting continued growth (increase of 7%) in the global consumption of primary aluminum, consistent with that of 2012. All regions, except North America, are expected to have one-to-three percentage point increases in aluminum demand over 2012 with China (11%) and India (9%) expected to have the highest growth rates in 2013. However, added production, along with few industry-wide capacity curtailments, will result in supply slightly exceeding demand for primary aluminum. For alumina, growth in global consumption is estimated to be 9%, and overall demand is expected to slightly exceed supply. Management also anticipates improved market conditions for aluminum products in all major global end markets, particularly aerospace, despite declines in certain regions. Relative to input costs, labor and maintenance expenses will continue to be a challenge; however, management has established and is committed to achieving the following specific goals in 2013:

generating incremental savings over those realized in 2009 through 2012 from procurement, overhead, and working capital programs;

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generating positive cash flow from operations that will exceed capital spending; and

maintaining a debt-to-capital ratio between 30% and 35%.

Looking ahead over the next one to three years, management will continue to focus on its aggressive strategic targets established two years ago. These targets include lowering Alcoa's refining and smelting operations on the cost curve to the 23rd (from 30th) and 41st (from 51st) percentiles, respectively, by 2015 and driving revenue growth in the

midstream (increase of \$2,500) and downstream (increase of \$1,600) operations by 2013. In conjunction with the revenue targets, management is committed to improving margins that will exceed historical levels in the midstream and downstream operations. Management has made significant progress on these targets as described below.

In 2012, actions taken to improve Alcoa's position on the cost curve for both refining and smelting operations included production curtailments of 390 kmt of the Atlantic refinery system; the creep of low-cost capacity at the refineries in Australia; full or partial curtailment of 240 kmt of smelting capacity in Europe and the permanent closure of 291 kmt of smelting capacity in the U.S.; the near full-startup of the Estreito hydroelectric power project in Brazil; and new energy contracts for two U.S. smelters. Additionally, the aluminum complex in Saudi Arabia continues to be on target as first production from the smelter occurred in December 2012 and the mine and refinery are expected to commence in 2014. At December 31, 2012, Alcoa's refining operations were in the 30th percentile and smelting operations were in the 47th percentile, a four-percentage point improvement, on the respective cost curves.

The midstream and downstream operations both achieved margins that exceeded historical levels for the second year in a row and are making progress against the respective revenue growth targets. The midstream operations will continue to build on this success in 2013 through expansion of the rolling facilities in Davenport, IA to meet rising U.S. automotive demand, due to changing emissions regulations, and volume growth in Russia and China, including emerging markets like consumer electronics. The downstream operations will extend their profitable growth in 2013 through continued innovative solutions to meet a wide-range of customer needs, as well as expansion of aluminum lithium capabilities in Lafayette, IN to meet the growing demand in the aerospace market and the opening of a forged wheels facility in Suzhou, China that will serve the commercial transportation market.

## **Results of Operations**

### **Earnings Summary**

Income from continuing operations attributable to Alcoa for 2012 was \$191, or \$0.18 per diluted share, compared with \$614, or \$0.55 per share, in 2011. The decline of \$423 in continuing operations was primarily due to the following: lower realized prices for aluminum and alumina, higher input costs, and charges for litigation and environmental remediation matters. These items were partially offset by net productivity improvements, a gain on the sale of U.S. hydroelectric power assets, a decline in the results attributable to noncontrolling interests, lower restructuring charges, net favorable foreign currency movements, lower income taxes due to a decline in operating results, a favorable LIFO (last in, first out) impact, and higher volumes in the midstream and downstream segments.

Income from continuing operations attributable to Alcoa for 2011 was \$614, or \$0.55 per share, compared with \$262, or \$0.25 per share, in 2010. The improvement of \$352 in continuing operations was primarily due to the following: higher realized prices for alumina and aluminum, stronger volumes in the midstream and downstream segments, net productivity improvements, and a net favorable change in mark-to-market derivative contracts. These items were partially offset by higher input costs, net unfavorable foreign currency movements, higher income taxes due to better operating results, and additional restructuring charges.

Net income attributable to Alcoa for 2012 was \$191, or \$0.18 per share, compared with \$611, or \$0.55 per share, in 2011, and \$254, or \$0.24 per share, in 2010. In 2011, net income of \$611 included a loss from discontinued operations of \$3, and, in 2010, net income of \$254 included a loss from discontinued operations of \$8.

In 2011, Alcoa restarted the following previously curtailed production capacity in the U.S.: Massena East, NY (125 kmt-per-year); Wenatchee, WA (43 kmt-per-year); and Ferndale, WA (Intalco: 47 kmt-per-year (11 kmt more than previously planned)). These restarts occurred to help meet anticipated growth in aluminum demand and to meet obligations outlined in power agreements with energy providers. As a result of these restarts, aluminum production increased by approximately 150 kmt during 2011 and by 215 kmt in 2012.

In late 2011, management approved the permanent shutdown and demolition of the smelter located in Tennessee (215 kmt-per-year) and two potlines (capacity of 76 kmt-per-year) at the smelter located in Rockdale, TX (remaining capacity of 191 kmt-per-year composed of four potlines). This decision was made after a comprehensive strategic analysis was performed to determine the best course of action for each facility. Factors leading to this decision were in general focused on achieving sustained competitiveness and included, among others: lack of an economically viable, long-term power solution; changed market fundamentals; cost competitiveness; required future capital investment; and restart costs.

Also, at the end of 2011, management approved a partial or full curtailment of three European smelters as follows: Portovesme, Italy (150 kmt-per-year); Avilés, Spain (46 kmt out of 93 kmt-per-year); and La Coruña, Spain (44 kmt out of 87 kmt-per-year). These curtailments were completed by the end of 2012. The curtailment of the Portovesme smelter may lead to the permanent closure of the facility, while the curtailments at the two smelters in Spain are planned to be temporary. These actions were the result of uncompetitive energy positions, combined with rising material costs and falling aluminum prices (mid-2011 to late 2011).

In December 2012, the Spanish Government issued a Ministerial Order that modified the interruptibility regime previously in place in the Spanish power market. The interruptibility regime allows certain industrial customers who are willing to be subject to temporary interruptions in the supply of power to sell interruption rights to the high voltage transmission system operator. In January 2013, Alcoa applied for and was granted rights to sell interruption services under the modified regime from its San Ciprian, Avilés, and La Coruña smelters in Spain. The commitment is taken for a one-year period. Alcoa understands that the Spanish Government intends to notify the European Commission of the modification in the interruptibility regime for review under European state aid rules. As a result of the modification to the interruptibility regime, Alcoa has commenced the restart of a portion (25 kmt combined for Avilés and La Coruña) of the capacity previously curtailed in the first half of 2012 in order to meet the requirements of the modified interruptibility regime.

**Sales** Sales for 2012 were \$23,700 compared with sales of \$24,951 in 2011, a decrease of \$1,251, or 5%. The decline was mainly the result of a drop in realized prices for aluminum and alumina, driven by lower London Metal Exchange (LME) prices, unfavorable pricing in the midstream segment due to a decrease in metal prices, and unfavorable foreign currency movements, mostly due to a weaker euro, somewhat offset by higher volumes in the midstream and downstream segments and favorable product mix in the midstream segment.

Sales for 2011 were \$24,951 compared with sales of \$21,013 in 2010, an improvement of \$3,938, or 19%. The increase was primarily due to a rise in realized prices for alumina and aluminum, better pricing in the midstream segment, and higher volumes in the Primary Metals segment and virtually all businesses in the midstream and downstream segments.

**Cost of Goods Sold** COGS as a percentage of Sales was 86.4% in 2012 compared with 82.1% in 2011. The percentage was negatively impacted by the previously mentioned lower realized prices in the upstream and midstream segments, higher input costs, a net charge for adjustments to certain environmental reserves (\$194), and a charge for a civil litigation reserve (\$85). These items were somewhat offset by net productivity improvements, net favorable foreign currency movements due to a stronger U.S. dollar, and a change in LIFO adjustments from unfavorable to favorable, primarily due to lower prices for alumina and metal and lower costs for calcined coke.

COGS as a percentage of Sales was 82.1% in 2011 compared with 81.7% in 2010. The percentage was negatively impacted by higher energy and raw materials costs and net unfavorable foreign currency movements due to a weaker U.S. dollar, mostly offset by the previously mentioned higher realized prices and net productivity improvements.

**Selling, General Administrative, and Other Expenses** SG&A expenses were \$997, or 4.2% of Sales, in 2012 compared with \$1,027, or 4.1% of Sales, in 2011. The decline of \$30 was mostly due to lower stock-based compensation expense, a decrease in bad debt expense (see below), a decline in travel expense, and less spending across various other expenses. These items were partially offset by higher pension costs, due to the recognition of higher net actuarial losses, and increased professional expenses, due to consulting fees associated with productivity initiatives and higher legal expenses.

SG&A expenses were \$1,027, or 4.1% of Sales, in 2011 compared with \$961, or 4.6% of Sales, in 2010. The increase of \$66 was principally the result of higher labor costs and an increase in bad debt expense. The increase in labor costs was the result of a higher average employee base and a higher cost of employee benefits. The higher bad debt expense was caused by charges for anticipated customer credit losses, primarily related to those in Europe.

**Research and Development Expenses** R&D expenses were \$197 in 2012 compared with \$184 in 2011 and \$174 in 2010. The increase in 2012 as compared to 2011 was primarily caused by additional spending related to inert anode technology for the Primary Metals segment. The increase in 2011 as compared to 2010 was mainly driven by incremental increases across various expenses necessary to support R&D activities.

**Provision for Depreciation, Depletion, and Amortization** The provision for DD&A was \$1,460 in 2012 compared with \$1,479 in 2011. The decrease of \$19, or 1%, was principally the result of the cessation of DD&A due to the decision at the end of 2011 to permanently shut down and demolish the smelter in Tennessee (see Restructuring and Other Charges below) and the absence of DD&A on various in-use assets that reached the end of their estimated useful life in 2011, partially offset by an increase related to assets placed into service associated with a new hydroelectric power facility in Brazil and higher DD&A due to the capitalization of new haul roads and the write-off of old haul roads no longer in use for mining sites in Australia.

The provision for DD&A was \$1,479 in 2011 compared with \$1,450 in 2010. The increase of \$29, or 2%, was mostly due to a portion of the assets placed into service in mid-2011 related to a new hydroelectric power facility in Brazil, along with a number of small increases at various locations.

**Restructuring and Other Charges** Restructuring and other charges for each year in the three-year period ended December 31, 2012 were comprised of the following:

|  | 2012  | 2011   | 2010   |
|--|-------|--------|--------|
| Asset impairments  | \$ 40 | \$ 150 | \$ 139 |
| Layoff costs   | 47    | 93     | 43     |
| Other exit costs   | 21    | 61     | 58     |
| Reversals of previously recorded layoff and other exit costs | (21)  | (23)   | (33)   |
| Restructuring and other charges                              | \$ 87 | \$ 281 | \$ 207 |

Layoff 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.

**2012 Actions** In 2012, Alcoa recorded Restructuring and other charges of \$87 (\$73 after-tax and noncontrolling interests), which were comprised of the following components: \$47 (\$29 after-tax and noncontrolling interests) for the layoff of approximately 800 employees (390 in the Engineered Products and Solutions segment, 250 in the Primary Metals segment, 85 in the Alumina segment, and 75 in Corporate), including \$10 (\$7 after-tax) for the layoff of an additional 170 employees related to the previously reported smelter curtailments in Spain (see 2011 Actions below); \$30 (\$30 after-tax) in asset impairments and \$6 (\$6 after-tax) for lease and contract termination costs due to a decision to exit the lithographic sheet business in Bohai, China; \$11 (\$11 after-tax) in costs to idle the Portovesme smelter (see 2011 Actions below); \$10 (\$8 after-tax) in other asset impairments; a net charge of \$4 (\$4 after-tax and noncontrolling interests) for other miscellaneous items; and \$21 (\$15 after-tax and noncontrolling interests) for the reversal of a number of layoff reserves related to prior periods, including \$10 (\$7 after-tax) related to the smelters in Spain. The reversal related to the smelters in Spain is due to lower than expected costs based on agreements with employee representatives and the government, as well as a reduction of 55 in the number of layoffs due to the anticipation of the restart of a portion of the previously curtailed capacity based on an agreement with the Spanish government that will provide interruptibility rights (i.e. compensation for power interruptions when grids are overloaded) to the smelters during 2013. A portion of this reversal relates to layoff costs recorded at the end of 2011 (see 2011 Actions below) and a portion of this reversal relates to layoff costs recorded during 2012 (see above).

As of December 31, 2012, approximately 270 of the 800 employees were separated. The remaining separations for the 2012 restructuring programs are expected to be completed by the end of 2013. In 2012, cash payments of \$16 were made against layoff reserves related to the 2012 restructuring programs.

**2011 Actions** In 2011, Alcoa recorded Restructuring and other charges of \$281 (\$181 after-tax and noncontrolling interests), which were comprised of the following components: \$127 (\$82 after-tax) in asset impairments and \$36 (\$23 after-tax) in other exit costs related to the permanent shutdown and planned demolition of certain idled structures at two U.S. locations (see below); \$93 (\$68 after-tax and noncontrolling interests) for the layoff of approximately 1,600 employees (820 in the Primary Metals segment, 470 in the Global Rolled Products segment, 160 in the Alumina segment, 20 in the Engineered Products and Solutions segment, and 130 in Corporate), including the effects of planned smelter curtailments (see below); \$23 (\$12 after-tax and noncontrolling interests) for other asset impairments, including the write-off of the carrying value of an idled structure in Australia that processed spent pot lining and adjustments to the fair value of the one remaining foil location while it was classified as held for sale due to foreign currency movements; \$20 (\$8 after-tax and noncontrolling interests) for a litigation matter related to the former St. Croix location; a net charge of \$5 (\$4 after-tax) for other small items; and \$23 (\$16 after-tax) for the reversal of previously recorded layoff reserves due to normal attrition and changes in facts and circumstances, including a change in plans for Alcoa's aluminum powder facility in Rockdale, TX.

In late 2011, management approved the permanent shutdown and demolition of certain facilities at two U.S. locations, each of which was previously temporarily idled for various reasons. The identified facilities are the smelter located in Alcoa, TN (capacity of 215 kmt-per-year) and two potlines (capacity of 76 kmt-per-year) at the smelter located in Rockdale, TX (remaining capacity of 191 kmt-per-year composed of four potlines). Demolition and remediation activities related to these actions began in 2012 and are expected to be completed in 2015 for the Tennessee smelter and in 2013 for the two potlines at the Rockdale smelter. This decision was made after a comprehensive strategic analysis was performed to determine the best course of action for each facility. Factors leading to this decision were in general focused on achieving sustained competitiveness and included, among others: lack of an economically viable, long-term power solution; changed market fundamentals; cost competitiveness; required future capital investment; and restart costs. The asset impairments of \$127 represent the write off of the remaining book value of properties, plants, and equipment related to these facilities. Additionally, remaining inventories, mostly operating supplies, were written down to their net realizable value resulting in a charge of \$6 (\$4 after-tax), which was recorded in Cost of goods sold on the accompanying Statement of Consolidated Operations. The other exit costs of \$36 represent \$18 (\$11 after-tax) in environmental remediation and \$17 (\$11 after-tax) in asset retirement obligations, both triggered by the decision to permanently shut down and demolish these structures, and \$1 (\$1 after-tax) in other related costs.

Also, at the end of 2011, management approved a partial or full curtailment of three European smelters as follows: Portovesme, Italy (150 kmt-per-year); Avilés, Spain (46 kmt out of 93 kmt-per-year); and La Coruña, Spain (44 kmt out of 87 kmt-per-year). These curtailments were completed by the end of 2012. The curtailment of the Portovesme smelter may lead to the permanent closure of the facility, which would result in future charges, while the curtailments at the two smelters in Spain are planned to be temporary. These actions were the result of uncompetitive energy positions, combined with rising material costs and falling aluminum prices (mid-2011 to late 2011). As a result of these decisions, Alcoa recorded costs of \$33 (\$31 after-tax) for the layoff of approximately 650 employees. As Alcoa engaged in discussions with the respective employee representatives and governments, additional charges were recognized in 2012 (see 2012 Actions above).

As of December 31, 2012, approximately 895 of the 1,475 employees were separated. The total number of employees associated with the 2011 restructuring programs was updated to reflect changes in plans (agreement related to the smelters in Spain see 2012 Actions above), better than expected operating performance at certain locations, and natural attrition. The remaining separations for the 2011 restructuring programs are expected to be completed by the end of 2013. In 2012 and 2011, cash payments of \$23 and \$24, respectively, were made against layoff reserves related to the 2011 restructuring programs.

**2010 Actions** In 2010, Alcoa recorded Restructuring and other charges of \$207 (\$130 after-tax and noncontrolling interests), which were comprised of the following components: \$127 (\$80 after-tax and noncontrolling interests) in

asset impairments and \$46 (\$29 after-tax and noncontrolling interests) in other exit costs related to the permanent shutdown and planned demolition of certain idled structures at five U.S. locations (see below); \$43 (\$29 after-tax and noncontrolling interests) for the layoff of approximately 875 employees (625 in the Engineered Products and Solutions segment; 75 in the Primary Metals segment; 60 in the Alumina segment; 25 in the Global Rolled Products segment; and 90 in Corporate); \$22 (\$14 after-tax) in net charges (including \$12 (\$8 after-tax) for asset impairments) related to divested and to be divested businesses (Automotive Castings, Global Foil, Transportation Products Europe, and Packaging and Consumer) for, among other items, the settlement of a contract with a former customer, foreign currency movements, working capital adjustments, and a tax indemnification; \$2 (\$2 after-tax and noncontrolling interests) for various other exit costs; and \$33 (\$24 after-tax and noncontrolling interests) for the reversal of prior periods' layoff reserves, including a portion of those related to the Portovesme smelter in Italy due to the execution of a new power agreement.

In early 2010, management approved the permanent shutdown and demolition of the following structures, each of which was previously temporarily idled for different reasons: the Eastalco smelter located in Frederick, MD (capacity of 195 kmt-per-year); the smelter located in Badin, NC (capacity of 60 kmt-per-year); an aluminum fluoride plant in Point Comfort, TX; a paste plant and cast house in Massena, NY; and one potline at the smelter in Warrick, IN (capacity of 40 kmt-per-year). This decision was made after a comprehensive strategic analysis was performed to determine the best course of action for each facility. Factors leading to this decision included current market fundamentals, cost competitiveness, other existing idle capacity, required future capital investment, and restart costs, as well as the elimination of ongoing holding costs. The asset impairments of \$127 represent the write off of the remaining book value of properties, plants, and equipment related to these facilities. Additionally, remaining inventories, mostly operating supplies, were written down to their net realizable value resulting in a charge of \$8 (\$5 after-tax and noncontrolling interests), which was recorded in Cost of goods sold on the accompanying Statement of Consolidated Operations. The other exit costs of \$46 represent \$30 (\$19 after-tax and noncontrolling interests) in asset retirement obligations and \$14 (\$9 after-tax) in environmental remediation, both triggered by the decision to permanently shut down and demolish these structures, and \$2 (\$1 after-tax and noncontrolling interests) in other related costs.

As of December 31, 2012, the separations associated with 2010 restructuring programs were essentially complete. In 2012 and 2011, cash payments of \$3 and \$7, respectively, were made against layoff reserves related to 2010 restructuring programs.

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

|                                       | 2012  | 2011   | 2010   |
|---------------------------------------|-------|--------|--------|
| Alumina                               | \$ 3  | \$ 39  | \$ 12  |
| Primary Metals                        | 20    | 212    | 145    |
| Global Rolled Products                | 43    | 19     | (11)   |
| Engineered Products and Solutions     | 13    | (3)    | 18     |
| Segment total                         | 79    | 267    | 164    |
| Corporate                             | 8     | 14     | 43     |
| Total restructuring and other charges | \$ 87 | \$ 281 | \$ 207 |

**Interest Expense** Interest expense was \$490 in 2012 compared with \$524 in 2011. The decline of \$34, or 6%, was principally caused by the absence of a \$41 net charge related to the early retirement of various outstanding notes (see below), somewhat offset by lower capitalized interest (\$8). The decrease in capitalized interest was largely attributable to the Estreito hydroelectric power project in Brazil as construction nears completion, partially offset by an increase related to the aluminum complex in Saudi Arabia.

Interest expense was \$524 in 2011 compared with \$494 in 2010. The increase of \$30, or 6%, was primarily due to a \$41 net charge related to the early retirement of various outstanding notes (\$74 in purchase premiums paid partially offset by a \$33 gain for in-the-money interest rate swaps), somewhat offset by the absence of a \$14 net charge related to the early retirement of various outstanding notes (\$42 in purchase premiums paid partially offset by a \$28 gain for in-the-money interest rate swaps).

**Other (Income) Expenses, net** Other income, net was \$341 in 2012 compared with \$87 in 2011. The increase of \$254 was mostly due to a gain on the sale of U.S. hydroelectric power assets (\$320; see Primary Metals in Segment Information below) and net favorable foreign currency movements (\$21). These two items were somewhat offset by lower equity income (\$43), largely attributable to Alcoa's share of expenses of the joint venture in Saudi Arabia and the absence of a discrete income tax benefit recognized by the consortium related to an investment in a natural gas pipeline in Australia (see below); the absence of a gain on the sale of land (see below); and a net unfavorable change in mark-to-market derivative contracts (\$39), principally driven by the absence of a favorable change in an energy contract that expired in September 2011.

Other income, net was \$87 in 2011 compared with Other expenses, net of \$5 in 2010. The change of \$92 was mainly the result of a net favorable change of \$89 in mark-to-market derivative contracts, a gain of \$43 from the sale of land in Australia, and higher equity income from an investment in a natural gas pipeline in Australia due to the recognition of a discrete income tax benefit by the consortium (Alcoa World Alumina and Chemicals' share of the benefit was \$24), slightly offset by a decrease in the cash surrender value of company-owned life insurance.

**Income Taxes** Alcoa's effective tax rate was 50.0% in 2012 compared with the U.S. federal statutory rate of 35%. The effective tax rate differs from the U.S. federal statutory rate principally due to the tax impact from the gain recognized on the sale of U.S. hydroelectric power assets (see Primary Metals in Segment Information below) and an \$8 discrete income tax charge related to prior year U.S. taxes on certain depletable assets, slightly offset by a \$13 discrete income tax benefit related to a change in the legal structure of an investment.

Alcoa's effective tax rate was 24.0% in 2011 compared with the U.S. federal statutory rate of 35%. The effective tax rate differs from the U.S. federal statutory rate mainly due to foreign income taxed in lower rate jurisdictions.

Alcoa's effective tax rate was 26.9% in 2010 compared with the U.S. federal statutory rate of 35%. The effective tax rate differs from the U.S. federal statutory rate primarily due to foreign income taxed in lower rate jurisdictions, a \$57 discrete income tax benefit for the reversal of a valuation allowance as a result of previously restricted net operating losses of a foreign subsidiary now available, a \$24 discrete income tax benefit related to a Canadian provincial tax law change permitting a tax return to be filed in U.S. dollars, and a \$13 net discrete income tax benefit for various other items, partially offset by a \$79 discrete income tax charge as a result of a change in the tax treatment of federal subsidies received related to prescription drug benefits provided under certain retiree health care benefit plans that were determined to be actuarially equivalent to Medicare Part D and a \$19 discrete income tax charge based on settlement discussions of several matters with international taxing authorities (this amount represents a decrease to Alcoa's unrecognized tax benefits).

Management anticipates that the effective tax rate in 2013 will be approximately 30%. However, changes in the current economic environment, tax legislation or rate changes, currency fluctuations, ability to realize deferred tax assets, and the results of operations in certain taxing jurisdictions may cause this estimated rate to fluctuate.

On January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law and extended through 2013 various expired or expiring temporary business tax provisions. Two specific temporary business tax provisions that expired in 2011 and impacted Alcoa are the look-through rule for payments between related controlled foreign corporations and the research and experimentation credit. The expiration of these two provisions resulted in Alcoa recognizing a higher income tax provision of \$18 in 2012. As tax law changes are accounted for in the period of enactment, Alcoa will recognize an \$18 discrete income tax benefit in 2013 related to the 2012 tax year to reflect the extension of these provisions.

In December 2011, one of the Company's subsidiaries in Brazil applied for a tax holiday related to its expanded mining and refining operations. If approved, the tax rate for this subsidiary will decrease significantly, resulting in future cash tax savings over the 10-year holiday period (would be effective as of January 1, 2013). Additionally, the net deferred tax asset of the subsidiary would be remeasured at the lower rate in the period the holiday is approved. This remeasurement would result in a decrease to the net deferred tax asset and a noncash charge to earnings of approximately \$60 to \$120. As of December 31, 2012, Alcoa's subsidiary's application is still pending.



**Noncontrolling Interests** Net loss attributable to noncontrolling interests was \$29 in 2012 compared with Net income attributable to noncontrolling interests of \$194 in 2011. The change of \$223 was mostly due to lower earnings at Alcoa World Alumina and Chemicals (AWAC), which is owned 60% by Alcoa and 40% by Alumina Limited. The decline in earnings at AWAC were attributed primarily to lower realized prices, due to a decrease in contractual LME-based pricing, higher input costs, particularly caustic and fuel oil, and a charge for a litigation reserve of \$34. These items were somewhat offset by net productivity improvements and net favorable foreign currency movements due to a stronger U.S. dollar.

Net income attributable to noncontrolling interests was \$194 in 2011 compared with \$138 in 2010. The increase of \$56 was largely the result of higher earnings at AWAC. The improved earnings at AWAC were mainly driven by higher realized prices, partially offset by higher input costs and net unfavorable foreign currency movements due to a weaker U.S. dollar.

**Loss From Discontinued Operations** Loss from discontinued operations in 2011 was \$3 comprised of an additional loss of \$3 (\$5 pretax) related to the wire harness and electrical portion (divested in June 2009) of the Electrical and Electronic Solutions (EES) business as a result of a negotiated preliminary settlement related to claims filed in 2010 against Alcoa by Platinum Equity in an insolvency proceeding in Germany, a net gain of \$2 (\$3 pretax) related to both the wire harness and electrical portion and the electronics portion (divested in December 2009) of the EES business for a number of small post-closing and other adjustments, and a \$2 (\$2 pretax) reversal of the gain recognized in 2006 related to the sale of the home exteriors business for an adjustment to an outstanding obligation, which was part of the terms of sale.

Loss from discontinued operations in 2010 was \$8 comprised of an additional loss of \$6 (\$9 pretax) related to the wire harness and electrical portion of the EES business as a result of a contract settlement with a former customer of this business and an additional loss of \$2 (\$4 pretax) related to the electronics portion of the EES business for the settling of working capital, which was not included in the divestiture transaction.

### Segment Information

Alcoa's operations consist of four worldwide reportable segments: Alumina, Primary Metals, Global Rolled Products, and Engineered Products and Solutions. 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 expense; noncontrolling 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 eliminations and other metal adjustments, differences between tax rates applicable to the segments and the consolidated effective tax rate, the results of the soft alloy extrusions business in Brazil, and other nonoperating items such as foreign currency transaction gains/losses and interest income are excluded from segment ATOI.

ATOI for all reportable segments totaled \$1,369 in 2012, \$1,893 in 2011, and \$1,424 in 2010. See Note Q to the Consolidated Financial Statements in Part II Item 8 of this Form 10-K for additional information. The following discussion provides shipments, sales, and ATOI data for each reportable segment and production data for the Alumina and Primary Metals segments for each of the three years in the period ended December 31, 2012.

### Alumina

|                                     | 2012     | 2011     | 2010     |
|-------------------------------------|----------|----------|----------|
| Alumina production (kmt)            | 16,342   | 16,486   | 15,922   |
| Third-party alumina shipments (kmt) | 9,295    | 9,218    | 9,246    |
| Third-party sales                   | \$ 3,092 | \$ 3,462 | \$ 2,815 |
| Intersegment sales                  | 2,310    | 2,727    | 2,212    |
| Total sales                         | \$ 5,402 | \$ 6,189 | \$ 5,027 |
| ATOI                                | \$ 90    | \$ 607   | \$ 301   |

This segment represents a portion of Alcoa's upstream operations and consists of the Company's worldwide refinery system, including the mining of bauxite, which is then refined into alumina. Alumina is mainly sold directly to internal and external smelter customers worldwide or is sold to customers who process it into industrial chemical products. A portion of this segment's third-party sales are completed through the use of agents, alumina traders, and distributors. Slightly more than half of Alcoa's alumina production is sold under supply contracts to third parties worldwide, while the remainder is used internally by the Primary Metals segment.

In 2012, alumina production decreased by 144 kmt compared to 2011. The decline was mainly driven by lower production in the Atlantic refinery system as a result of management's plan to reduce annual production capacity by approximately 390 kmt. This decision was made to align production with smelter curtailments initiated at the beginning of 2012 and to reflect prevailing market conditions. The decrease at these three refineries was partially offset by higher production at the Pinjarra and Kwinana refineries in Australia, due to system process improvements.

In 2011, alumina production increased by 564 kmt compared to 2010. The improvement was mostly the result of higher production at the São Luís (Brazil) refinery, as the ramp-up of the 2,100 kmt expanded capacity (the Alumina segment's share is approximately 1,100 kmt-per-year) that began in late 2009 continued through 2011.

Third-party sales for the Alumina segment dropped 11% in 2012 compared with 2011, primarily related to a 15% decline in realized prices, driven by a decrease in contractual LME-based pricing, slightly offset by realized benefits from moving customer contracts to alumina index pricing and from improved spot pricing. Third-party sales for this segment improved 23% in 2011 compared with 2010, largely attributable to a 21% increase in realized prices, driven by the movement of customer contracts to alumina index pricing, benefits from improved spot prices, and improved pricing from LME-based contracts.

Intersegment sales for the Alumina segment decreased 15% in 2012 compared with 2011, principally due to lower realized prices and decreased demand from the Primary Metals segment. Intersegment sales for this segment climbed 23% in 2011 compared with 2010, primarily the result of higher realized prices and an increase in demand from the Primary Metals segment.

ATOI for the Alumina segment dropped \$517 in 2012 compared with 2011, mostly due to the previously mentioned lower realized prices, higher input costs, particularly caustic and fuel oil, and the absence of a gain on the sale of land in Australia (\$30), somewhat offset by net productivity improvements and net favorable foreign currency movements due to a stronger U.S. dollar, especially against the Brazilian real.

ATOI for this segment increased \$306 in 2011 compared with 2010, mainly caused by the significant improvement in realized prices and a gain on the sale of land in Australia (\$30), partially offset by considerably higher input costs, particularly related to caustic and fuel oil, and net unfavorable foreign currency movements due to a weaker U.S. dollar, especially against the Australian dollar.

In 2013, the continued shift towards alumina index or spot pricing is expected to average 48% of third-party sales, while those still contractually linked to the LME will follow a 30-day lag. Additionally, net productivity improvements are expected to continue.

## Primary Metals

|   | 2012      | 2011      | 2010     |
|---|-----------|-----------|----------|
| Aluminum production (kmt)                                 | 3,742     | 3,775     | 3,586    |
| Third-party aluminum shipments (kmt)                      | 3,056     | 2,981     | 2,845    |
| Alcoa's average realized price per metric ton of aluminum | \$ 2,327  | \$ 2,636  | \$ 2,356 |
| Third-party sales   | \$ 7,432  | \$ 8,240  | \$ 7,070 |
| Intersegment sales  | 2,877     | 3,192     | 2,597    |
| Total sales   | \$ 10,309 | \$ 11,432 | \$ 9,667 |
| ATOI  | \$ 309    | \$ 481    | \$ 488   |

This segment represents a portion of Alcoa's upstream operations and consists of the Company's worldwide smelter system. Primary Metals receives alumina, mostly 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 and buy/resell activity. 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. Buy/resell activity refers to when this segment purchases metal from external or internal sources and resells such metal to external customers or the midstream and downstream segments in order to maximize smelting system efficiency and to meet customer requirements.

In November 2012, Alcoa completed the sale of its 351-megawatt Tapoco Hydroelectric Project ( Tapoco ) to Brookfield Renewable Energy Partners for \$597 in cash. Alcoa recognized a gain of \$320 (\$173 after-tax) in Other income, net on the accompanying Statement of Consolidated Operations, of which a gain of \$426 (\$275 after-tax) was reflected in the Primary Metals segment and a loss of \$106 (\$102 after-tax) was reflected in Corporate. The amount in Corporate represents the write-off of goodwill and capitalized interest related to Tapoco that were not included in the assets of the Primary Metals segment. Tapoco is a four-station hydroelectric project located on the Little Tennessee and Cheoah Rivers in eastern Tennessee and western North Carolina. The transaction included four generating stations and dams, 86 miles of transmission lines, and approximately 14,500 acres of land associated with and surrounding Tapoco. The power generated by Tapoco was primarily consumed by Alcoa's smelter in Tennessee, which was temporarily idled in 2009 and permanently shut down in 2011. Since 2009, the power generated from Tapoco was sold into the open market.

At December 31, 2012, Alcoa had 591 kmt of idle capacity on a base capacity of 4,227 kmt. In 2012, idle capacity decreased 53 kmt compared to 2011 due to the permanent shutdown of the smelter in Tennessee (215 kmt-per-year) and two potlines at the smelter located in Rockdale, TX (76 kmt-per-year), mostly offset by the curtailment of the Portovesme smelter in Italy (150 kmt-per-year) and the temporarily curtailment of a portion of the smelters in Spain: Avilés (46 kmt out of 93 kmt-per-year) and La Coruña (44 kmt out of 87 kmt-per-year). Additionally, base capacity declined 291 kmt between December 31, 2012 and 2011 due to the previously mentioned permanent shutdowns.

In late 2011, management approved the permanent shutdown and demolition of the Tennessee smelter and two potlines at the Rockdale smelter (remaining capacity of 191 kmt-per-year composed of four potlines), each of which was previously temporarily idled for various reasons. This decision was made after a comprehensive strategic analysis was performed to determine the best course of action for each facility. Factors leading to this decision were in general focused on achieving sustained competitiveness and included, among others: lack of an economically viable, long-term power solution; changed market fundamentals; cost competitiveness; required future capital investment; and restart costs.

Also, at the end of 2011, management approved a full curtailment of the Portovesme smelter and a partial curtailment at the Avilés and La Coruña smelters. The curtailment of the Portovesme smelter may lead to the permanent closure of the facility, while the curtailments at the two smelters in Spain are planned to be temporary. These actions were the result of uncompetitive energy positions, combined with rising material costs and falling aluminum prices (mid-2011 to late 2011).

At December 31, 2011, Alcoa had 644 kmt of idle capacity on a base capacity of 4,518 kmt. In 2011, idle capacity decreased 234 kmt compared to 2010 due to the full restart of previously curtailed production capacity in the U.S.: Massena East, NY (125 kmt-per-year); Wenatchee, WA (43 kmt-per-year); and Ferndale, WA (Intalco: 47 kmt-per-year (11 kmt more than previously planned)). These restarts occurred to help meet anticipated growth in aluminum demand and to meet obligations outlined in power agreements with energy providers. As a result of these restarts, aluminum production increased by approximately 150 kmt during 2011 and by 215 kmt in 2012.

In 2012, aluminum production decreased by 33 kmt, mostly due to the previously mentioned curtailments at the Portovesme, Avilés, and La Coruña smelters, partially offset by the benefit of a full year of production related to the capacity restarted in 2011 at the Massena East, Wenatchee, and Ferndale smelters. In 2011, aluminum production

improved by 189 kmt, mainly the result of the previously mentioned restarted capacity at Massena East, Ferndale, and Wenatchee, as well as higher production at the Avilés smelter, where production had been previously halted due to torrential flooding in 2010.

Third-party sales for the Primary Metals segment dropped 10% in 2012 compared with 2011, mainly due to a 12% decline in average realized prices, driven by 16% lower average LME prices, slightly offset by higher buy/resell activity. The U.S. capacity restarted in 2011 contributed positively to third-party sales in 2012, but was completely offset by the curtailments of European capacity in 2012. Third-party sales for this segment improved 17% in 2011 compared with 2010, primarily due to a 12% rise in average realized prices, driven by 10% higher average LME prices, higher volumes, largely attributable to the previously mentioned restarted U.S. capacity, and increased revenue from the sale of excess power.

Intersegment sales for the Primary Metals segment decreased 10% in 2012 compared with 2011, principally due to a decline in realized prices, driven by a lower LME. Intersegment sales for this segment rose 23% in 2011 compared with 2010, mainly the result of an improvement in realized prices, driven by the higher LME, and an increase in buy/resell activity.

ATOI for the Primary Metals segment dropped \$172 in 2012 compared with 2011, principally related to the previously mentioned decrease in realized prices; higher costs, particularly labor and other raw materials; and an unfavorable impact as a result of business interruption and repair costs related to a fire in March 2012 at the Massena West, NY cast house (\$21); partially offset by a gain on the sale of Tapoco (see above); lower costs for alumina and energy; net favorable foreign currency movements due to a stronger U.S. dollar, particularly against the euro and Brazilian real; and net productivity improvements.

ATOI for this segment declined \$7 in 2011 compared with 2010, primarily caused by significantly higher input costs, including carbon, alumina, and energy, and net unfavorable foreign currency movements due to a weaker U.S. dollar, virtually offset by improved realized prices, net productivity improvements, and higher excess power sales.

In 2013, pricing is anticipated to follow a 15-day lag on the LME and net productivity improvements are expected to continue. Also, Alcoa's share of start-up costs for the smelter in Saudi Arabia will negatively impact results. Additionally, planned maintenance for power plants during the first half of the year and higher energy costs are expected. Furthermore, in January 2013, Alcoa applied for and was granted rights to sell power interruption services from its San Ciprian, Avilés, and La Coruña smelters in Spain for a one-year period. As a result, Alcoa has commenced the restart of a portion (25 kmt combined for Avilés and La Coruña) of the capacity previously curtailed in the first half of 2012 in order to meet the requirements of the interruption services (see the Earnings Summary section above for additional information).

#### Global Rolled Products

|                                      | 2012     | 2011     | 2010     |
|--------------------------------------|----------|----------|----------|
| Third-party aluminum shipments (kmt) | 1,867    | 1,780    | 1,658    |
| Third-party sales                    | \$ 7,378 | \$ 7,642 | \$ 6,277 |
| Intersegment sales                   | 163      | 218      | 180      |
| Total sales                          | \$ 7,541 | \$ 7,860 | \$ 6,457 |
| ATOI                                 | \$ 358   | \$ 266   | \$ 220   |

This segment represents Alcoa's midstream operations, whose principal business is the production and sale of aluminum plate and sheet. A small portion of this segment's operations relate to foil produced at one plant in Brazil. 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 aerospace, automotive, commercial transportation, and building and construction markets (mainly used in the production of machinery and

equipment and consumer durables), which is sold directly to customers and through distributors. Approximately one-half of the third-party sales in this segment consist of RCS, while the other one-half of third-party sales are derived from sheet and plate and foil used in industrial markets. 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 Global Rolled Products segment decreased 3% in 2012 compared with 2011, principally caused by unfavorable pricing, due to a decrease in metal prices, and unfavorable foreign currency movements, mostly due to a weaker euro, somewhat offset by higher volumes and favorable product mix. The higher volumes were largely attributable to the packaging, automotive, building and construction, and aerospace end markets, slightly offset by the industrial products end market. Third-party sales for this segment climbed 22% in 2011 compared with 2010, primarily driven by better pricing; higher volumes across most businesses, particularly related to the packaging, aerospace, and commercial transportation end markets; favorable foreign currency movements, mainly due to a stronger euro; and favorable product mix.

ATOI for the Global Rolled Products segment improved \$92 in 2012 compared with 2011, mainly the result of net productivity improvements across all businesses, favorable product mix, and the previously mentioned higher volumes, somewhat offset by higher input costs, particularly labor and transportation. ATOI for this segment rose \$46 in 2011 compared with 2010, primarily attributable to the previously mentioned positive pricing, volume, and product mix impacts, partially offset by higher input costs and charges for anticipated customer credit losses.

In 2013, demand in the aerospace and automotive markets is expected to remain strong. European and North American industrial markets are uncertain; beverage can packaging markets are expected to remain mixed (by region). Continued net productivity improvements are anticipated.

### Engineered Products and Solutions

|                                      | 2012     | 2011     | 2010     |
|--------------------------------------|----------|----------|----------|
| Third-party aluminum shipments (kmt) | 222      | 221      | 197      |
| Third-party sales                    | \$ 5,525 | \$ 5,345 | \$ 4,584 |
| ATOI                                 | \$ 612   | \$ 539   | \$ 415   |

This segment represents Alcoa's downstream operations and 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. Additionally, hard alloy extrusions products, which are also sold directly to customers and through distributors, serve the aerospace, automotive, commercial transportation, and industrial products markets.

On March 9, 2011, Alcoa completed an acquisition of the aerospace fastener business of TransDigm Group Inc. for \$240. This business is a leading global designer, producer, and supplier of highly engineered aircraft components, with three locations (one in the state of California and two in the United Kingdom) that employ a combined 400 people (at time of acquisition). Specifically, this business provides a wide variety of high-strength, high temperature nickel alloy specialty engine fasteners, airframe bolts, and slotted entry bearings. In 2010, this business generated sales of \$61. The assets and liabilities of this business were included in the Engineered Products and Solutions segment as of March 31, 2011; this business' results of operations were included in this segment beginning March 9, 2011.

In July 2010, Alcoa completed an acquisition of the commercial building and construction business of a privately-held company, Traco, for \$77. This business, located in Cranberry, Pennsylvania, employing 650 people (at time of acquisition), is a premier manufacturer of windows and doors for the commercial building and construction market and generated sales of approximately \$100 in 2009. The assets and liabilities of this business were included in the Engineered Products and Solutions segment as of the end of July 2010 and this business' results of operations were included in this segment since the beginning of August 2010.

Third-party sales for the Engineered Products and Solutions segment increased 3% in 2012 compared with 2011, primarily due to higher volumes, slightly offset by unfavorable foreign currency movements due to a weaker euro. The higher volumes were mostly related to the aerospace, industrial gas turbine, and commercial transportation end markets, slightly offset by lower volumes from the building and construction end market. Third-party sales for this segment climbed 17% in 2011 compared with 2010, largely attributable to higher volumes across all businesses, especially related to the aerospace and commercial transportation end markets. Additionally, sales from the acquired fastener business (\$58) and from the acquired building and construction business (increase of \$40) and favorable foreign currency movements due to a stronger euro were positive impacts. Slightly offsetting the positive contributions was the absence of sales related to the April 2010 divestiture of the Transportation Products Europe business (\$28).

ATOI for the Engineered Products and Solutions segment climbed \$73 in 2012 compared with 2011, mainly due to net productivity improvements in four of the five businesses and the previously mentioned higher volumes. ATOI for this segment rose \$124 in 2011 compared with 2010, principally the result of the previously mentioned volume impacts and net productivity improvements across most businesses, somewhat offset by unfavorable price/product mix.

In 2013, the aerospace end market is expected to remain strong, while the commercial transportation and building and construction end markets are expected to weaken. Also, continued net productivity improvements are anticipated.

#### Reconciliation of ATOI to Consolidated Net Income Attributable to Alcoa

Items required to reconcile total segment ATOI to consolidated net income attributable to Alcoa include: the impact of LIFO inventory accounting; interest expense; noncontrolling 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 eliminations and other metal adjustments, differences between tax rates applicable to the segments and the consolidated effective tax rate, the results of the soft alloy extrusions business in Brazil, and other nonoperating items such as foreign currency transaction gains/losses and interest income.

The following table reconciles total segment ATOI to consolidated net income attributable to Alcoa:

|   | 2012     | 2011     | 2010     |
|---|----------|----------|----------|
| Total segment ATOI                            | \$ 1,369 | \$ 1,893 | \$ 1,424 |
| Unallocated amounts (net of tax):             |          |          |          |
| Impact of LIFO                                | 20       | (38)     | (16)     |
| Interest expense                              | (319)    | (340)    | (321)    |
| Noncontrolling interests                      | 29       | (194)    | (138)    |
| Corporate expense                             | (282)    | (290)    | (291)    |
| Restructuring and other charges               | (75)     | (196)    | (134)    |
| Discontinued operations                       | -        | (3)      | (8)      |
| Other   | (551)    | (221)    | (262)    |
| Consolidated net income attributable to Alcoa | \$ 191   | \$ 611   | \$ 254   |

The significant changes in the reconciling items between total segment ATOI and consolidated net income attributable to Alcoa for 2012 compared with 2011 consisted of:

a change in the Impact of LIFO, due to lower prices for alumina and metal, both of which were driven by a decline in LME prices, and lower costs for calcined coke;

a decrease in Interest expense, primarily due to the absence of a \$27 net charge related to the early retirement of various outstanding notes (see below), somewhat offset by lower capitalized interest (\$6);

a change in Noncontrolling interests, mainly the result of lower earnings at AWAC, principally driven by lower realized prices, due to a decrease in contractual LME-based pricing, higher input costs, particularly



caustic and fuel oil, and a charge for a litigation reserve (\$34), somewhat offset by net productivity improvements and net favorable foreign currency movements due to a stronger U.S. dollar;

a decrease in Restructuring and other charges, principally caused by fewer asset impairments and a lower number of employee separations; and

a change in Other, largely attributable to a net charge for adjustments to certain environmental reserves (\$129), a charge for the write-off of goodwill and capitalized interest related to the sale of Tapoco that were not included in the assets of the Primary Metals segment (\$102), a charge for a litigation reserve (\$67), and a net unfavorable change in mark-to-market derivative contracts (\$24).

The significant changes in the reconciling items between total segment ATOI and consolidated net income attributable to Alcoa for 2011 compared with 2010 consisted of:

a change in the Impact of LIFO, due to higher prices for alumina and metal, both of which were driven by an increase in LME prices and higher input costs, particularly coke, energy, and caustic soda;

an increase in Interest expense, principally caused by a \$27 net charge related to the early retirement of various outstanding notes (\$48 in purchase premiums paid partially offset by a \$21 gain for in-the-money interest rate swaps), somewhat offset by the absence of a \$9 net charge related to the early retirement of various outstanding notes (\$27 in purchase premiums paid partially offset by an \$18 gain for in-the-money interest rate swaps);

an increase in Noncontrolling interests, mainly due to higher earnings at AWAC, principally driven by higher realized prices, partially offset by higher input costs and net unfavorable foreign currency movements due to a weaker U.S. dollar;

an increase in Restructuring and other charges, mostly due to higher layoff costs, largely attributable to Alcoa's plans to curtail three smelters in Europe; and

a change in Other, primarily due to a net favorable change of \$57 in mark-to-market derivative contracts and the difference between the consolidated effective tax rate and the estimated tax rates applicable to the segments, partially offset by a decrease in the cash surrender value of company-owned life insurance.

#### **Environmental Matters**

See the Environmental Matters section of Note N to the Consolidated Financial Statements in Part II Item 8 of this Form 10-K.

#### **Liquidity and Capital Resources**

Alcoa maintains a disciplined approach to cash management and strengthening of its balance sheet. In 2012, as in the prior three years, management initiated actions to significantly improve Alcoa's cost structure and liquidity, providing the Company with the ability to operate effectively as the global economy continues to recover from the economic downturn that began in 2008. Such actions include procurement efficiencies and overhead rationalization to reduce costs, working capital initiatives to yield significant cash improvements, and maintaining a sustainable level of capital expenditures. In 2013, this approach will continue with the ultimate goal of generating cash from operations that exceeds capital expenditures.

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 an analysis of long-term liquidity, see Contractual Obligations and Off-Balance Sheet Arrangements.

At December 31, 2012, cash and cash equivalents of Alcoa was \$1,861, of which \$659 was held outside the U.S. Alcoa has a number of commitments and obligations related to the Company's growth strategy in foreign jurisdictions, resulting in the need for cash outside the U.S. As such, management does not have a current expectation of repatriating cash held in foreign jurisdictions.





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## Cash from Operations

Cash from operations in 2012 was \$1,497 compared with \$2,193 in 2011. The decrease of \$696, or 32%, was primarily due to lower operating results, higher pension contributions of \$225, and a lower net cash inflow associated with working capital of \$36, somewhat offset by a higher cash inflow of \$425 in noncurrent liabilities and a positive change of \$163 in noncurrent assets.

The higher pension contributions were principally driven by the fact that in 2012 all contributions to the U.S. pension plans were made in cash, whereas, in 2011, a \$600 noncash contribution to the U.S. pension plans was made in the form of Company common stock.

The major components of the lower net cash inflow in working capital were as follows: a favorable change of \$219 in receivables, primarily related to fewer uncollected receivables related to sales programs and lower customer sales; a positive change of \$435 in inventories, mostly due to lower levels of on-hand alumina and aluminum products and a decrease in the LME price of aluminum; a negative change of \$74 in prepaid expenses and other current assets, largely attributable to the absence of a reduction in collateral posted related to mark-to-market derivative contracts and an increase in both excess carbon emission credits and prepayments for natural gas in Australia, somewhat offset by an income tax refund received for the carryback of a loss from a prior year in Canada; an unfavorable change of \$406 in accounts payable, trade, principally the result of timing of payments and receipt of vendor invoices; a higher outflow of \$45 in accrued expenses, largely attributable to a payment made to the Italian Government (see below), a decrease in deferred revenue, the absence of a charge related to the former St. Croix location, somewhat offset by an increase in the litigation reserve (\$42.5 see below); and a negative change of \$165 in taxes, including income taxes, mainly due to less income taxes caused by lower operating results.

The higher cash inflow in noncurrent liabilities was primarily caused by an increase in certain environmental reserves of \$194, higher accrual for pension plans, and an increase in deferred revenue related to a contract to deliver sheet and plate to a customer beginning in 2014.

In June 2012, Alcoa received formal notification from the Italian Government requesting a net payment of \$310 ( 250) related to a November 2009 European Commission decision on electricity pricing for smelters. Alcoa has been in discussions with the Italian Government regarding the timing of such payment. Alcoa commenced payment of the requested amount in five quarterly installments of \$66 ( 50) paying the first installment on October 31, 2012. It is possible that Alcoa may be required to accelerate payment or pay in a lump sum.

On July 6, 2012, the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) was signed into law by the United States government. MAP-21, in part, provides temporary relief for employers who sponsor defined benefit pension plans related to funding contributions under the Employee Retirement Income Security Act of 1974. Specifically, MAP-21 allows for the use of a 25-year average interest rate within an upper and lower range for purposes of determining minimum funding obligations instead of an average interest rate for the two most recent years. This relief had an immediate impact on the calculation of the then remaining funding contributions in 2012, resulting in a reduction of \$130 in minimum required pension funding. Management expects to reduce its estimated minimum required pension funding by \$225 to \$250 in 2013.

On October 9, 2012, Alcoa World Alumina LLC, a majority-owned subsidiary of Alcoa, paid \$42.5 to the plaintiff of a civil litigation matter pursuant to a settlement agreement. Another \$42.5 is scheduled to be paid on October 9, 2013.

Cash from operations in 2011 was \$2,193 compared with \$2,261 in 2010. The decline of \$68, or 3%, was largely attributable to higher pension contributions of \$223, a lower net cash inflow associated with working capital of \$206, an additional cash outflow of \$71 in noncurrent assets, and a lower cash inflow of \$36 in noncurrent liabilities, mostly offset by better operating results.

The higher pension contributions were principally driven by cash contributions made to U.S. pension plans towards maintaining an approximately 80% funded status.

The major components of the lower net cash inflow in working capital were as follows: an additional outflow of \$122 in inventories, mostly due to higher production as a result of increased demand and rising input costs; a higher inflow of \$47 in prepaid expenses and other current assets, primarily driven by the absence of collateral posted related to a mark-to-market energy contract that ended in September 2011; an additional inflow of \$66 in accounts payable, trade, principally the result of higher purchasing needs and timing of vendor payments; a lower outflow of \$201 in accrued expenses, mostly related to fewer cash payments for restructuring programs and the absence of a reduction in collateral held related to mark-to-market energy contracts; and a smaller inflow of \$385 in taxes, including income taxes, mainly due to the absence of a \$347 federal income tax refund for the carryback of Alcoa's 2009 net loss to prior tax years.

### Financing Activities

Cash used for financing activities was \$798 in 2012 compared with cash provided from financing activities of \$62 in 2011 and cash used for financing activities of \$952 in 2010.

The use of cash in 2012 was principally the result of \$1,489 in payments on debt, mainly related to \$600 for the repayment of borrowings under four new short-term facilities (see below), \$322 for the repayment of 6% Notes due 2012 as scheduled, \$280 for the repayment of the new short-term loans to support the export operations of a subsidiary in Brazil, and \$272 for previous borrowings on the loans supporting the São Luís refinery expansion, Juruti bauxite mine development, and Estreito hydroelectric power project in Brazil; a change of \$224 in commercial paper; and \$131 in dividends paid to shareholders. These items were partially offset by \$972 in additions to debt, due to \$600 in borrowings under four new short-term facilities (see below), \$280 in new short-term loans to support the export operations of a subsidiary in Brazil, and \$92 in borrowings under loans that support the Estreito hydroelectric power project in Brazil; and net cash received from noncontrolling interests of \$76, all of which relates to Alumina Limited's share of AWAC.

The source of cash in 2011 was mostly driven by \$1,256 in additions to long-term debt, of which \$1,248 was for the issuance of 5.40% Notes due 2021, and a change of \$224 in commercial paper. These items were mostly offset by \$1,194 in payments on long-term debt, principally related to \$881 for the early retirement of all of the 5.375% Notes due 2013 and a portion of the 6.00% Notes due 2013, \$217 for previous borrowings on the loans supporting the São Luís refinery expansion, Juruti bauxite mine development, and Estreito hydroelectric power project in Brazil, and \$45 for a loan associated with the Samara, Russia facility; net cash distributed to noncontrolling interests of \$88, all of which relates to Alumina Limited's share of AWAC; and \$131 in dividends paid to shareholders.

The use of cash in 2010 was primarily due to \$1,757 in payments on long-term debt, mostly related to \$511 for the repayment of 7.375% Notes due 2010 as scheduled, \$825 for the early retirement of all of the 6.50% Notes due 2011 and a portion of the 6.00% Notes due 2012 and 5.375% Notes due 2013, and \$287 related to previous borrowings on the loans supporting the São Luís refinery expansion and Juruti bauxite mine development in Brazil; \$125 in dividends paid to shareholders; net cash paid to noncontrolling interests of \$94, all of which relates to Alumina Limited's share of AWAC; \$66 in acquisitions of noncontrolling interests, mainly the result of the \$60 paid to redeem the convertible securities of a subsidiary that were held by Alcoa's former partner related to the joint venture in Saudi Arabia; and a change of \$44 in short-term borrowings. These items were partially offset by \$1,126 in additions to long-term debt, of which \$998 was for the issuance of 6.150% Notes due 2020 and \$76 was related to borrowings under the loans that support the Estreito hydroelectric power project in Brazil.

As a result of an agreement between Alcoa and Alumina Limited in September 2012, Alcoa of Australia (part of the AWAC group of companies) will make minimum dividend payments to Alumina Limited of \$100 in 2013.

On July 25, 2011, Alcoa entered into a Five-Year Revolving Credit Agreement (the "Credit Agreement") with a syndicate of lenders and issuers named therein. The Credit Agreement provides a \$3,750 senior unsecured revolving credit facility (the "Credit Facility"), the proceeds of which are to be used to provide working 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 sublimit of \$1,000 under the Credit Facility.

The Credit Facility was scheduled to mature on July 25, 2016; however, on December 7, 2012, Alcoa received approval for a one-year extension of the maturity date by the lenders and issuers that support \$3,700 of the Credit Facility (approval for the remaining \$50 was received on January 8, 2013). As such, the Credit Facility now matures on July 25, 2017, unless extended or earlier terminated in accordance with the provisions of the Credit Agreement. Alcoa may make one additional one-year extension request during the remaining term of the Credit Facility, subject to the lender consent requirements set forth in the Credit Agreement. Under the provisions of the Credit Agreement, Alcoa will pay a fee of 0.25% (based on Alcoa's long-term debt ratings as of December 31, 2012) of the total commitment per annum to maintain the Credit Facility.

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 a base rate or a rate equal to LIBOR, plus, in each case, an applicable margin based on the credit ratings of Alcoa's outstanding senior unsecured long-term debt. The applicable margin on base rate loans and LIBOR loans will be 0.50% and 1.50% per annum, respectively, based on Alcoa's long-term debt ratings as of December 31, 2012. Loans may be prepaid without premium or penalty, subject to customary breakage costs.

The Credit Facility replaces Alcoa's Five-Year Revolving Credit Agreement, dated as of October 2, 2007 (the Former Credit Agreement), which was scheduled to mature on October 2, 2012. The Former Credit Agreement, which had a total capacity (excluding the commitment of Lehman Commercial Paper Inc.) of \$3,275 and was undrawn, was terminated effective July 25, 2011.

The Credit Agreement includes covenants substantially similar to those in the Former Credit Agreement, 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. As of December 31, 2012 and 2011, Alcoa was in compliance with all such covenants.

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.

There were no amounts outstanding at December 31, 2012 and 2011 and no amounts were borrowed during 2012 or 2011 under the Credit Facility.

In January 2012, Alcoa entered into two term loan agreements, totaling \$350, with two separate financial institutions. Additionally, throughout 2012, Alcoa entered into six revolving credit agreements, providing a combined \$640 in credit facilities, with six different financial institutions. The purpose of any borrowings under all eight arrangements will be to provide working capital and for other general corporate purposes, including contributions to Alcoa's pension plans (\$561 was contributed in 2012).

The two term loans were fully drawn on the same dates as the agreements and were subject to an interest rate equivalent to the 1-month LIBOR (changed from the 3-month LIBOR in April 2012) plus a 1.5% margin. A \$150 term loan was repaid between October and November 2012 and a \$200 term loan was repaid in December 2012, effectively terminating both agreements. In February 2012, Alcoa fully borrowed \$100 under one of the credit facilities, which was repaid in August 2012. This borrowing was subject to an interest rate equivalent to the 6-month LIBOR plus a 1.25% margin. In July 2012, Alcoa fully borrowed \$150 under one of the credit facilities, which was repaid in December 2012. This borrowing was subject to an interest rate equivalent to the 3-month LIBOR plus a 1.375% margin.

The six revolving credit facilities expire as follows: \$150 in March 2013; \$100 in September 2013 (originally December 2012, extended in September 2012); \$100 in September 2013; \$140 in October 2013; \$100 in December 2013 (originally December 2012, extended in December 2012); and \$50 in December 2015. The covenants contained in all eight arrangements are the same as the Credit Agreement (see above).

In February 2011, 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 (filed in March 2008). As of December 31, 2012 and 2011, \$1,250 in senior debt securities were issued under the current shelf registration statement.

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.

On April 12, 2011, Standard and Poor's Ratings Services (S&P) affirmed the following ratings for Alcoa: long-term debt at BBB- and short-term debt at A-3. Additionally, S&P changed the current outlook from negative to stable.

On March 2, 2011, Moody's Investors Service (Moody's) confirmed the following ratings for Alcoa: long-term debt at Baa3 and short-term debt at Prime-3. Additionally, Moody's changed the current outlook from negative to stable. On September 7, 2011, Moody's affirmed the ratings and outlook published in its March 2, 2011 report. On December 18, 2012, Moody's placed Alcoa's long-term debt and short-term debt ratings under review.

On February 22, 2011, Fitch Ratings (Fitch) affirmed the following ratings for Alcoa: long-term debt at BBB- and short-term debt at F3. Additionally, Fitch changed the current outlook from negative to stable. On August 2, 2012, Fitch reaffirmed its previous ratings and outlook for Alcoa.

### **Investing Activities**

Cash used for investing activities was \$759 in 2012 compared with \$1,852 in 2011 and \$1,272 in 2010.

The use of cash in 2012 was mainly due to \$1,261 in capital expenditures (includes costs related to environmental control in new and expanded facilities of \$153), 33% of which related to growth projects, including the automotive expansion at the Davenport, IA fabrication plant and the Estreito hydroelectric power project; and \$300 in additions to investments, principally for the equity contributions of \$253 related to the aluminum complex joint venture in Saudi Arabia. These items were somewhat offset by \$615 in proceeds from the sale of assets, mostly the result of \$597 received for the sale of U.S. hydroelectric power assets (see Primary Metals in Segment Information above), and a net change in restricted cash of \$87, principally related to the release of funds to be used for capital expenditures of the automotive expansion at the Davenport, IA fabrication plant.

The use of cash in 2011 was principally due to \$1,287 in capital expenditures (includes costs related to environmental control in new and expanded facilities of \$148), 28% of which related to growth projects, including the Estreito hydroelectric power project and Juruti bauxite mine development; \$374 in additions to investments, mostly for the equity contributions of \$249 related to the aluminum complex joint venture in Saudi Arabia and purchase of \$41 in available-for-sale securities held by Alcoa's captive insurance company; and \$239 (net of cash acquired) for the acquisition of an aerospace fastener business. These items were slightly offset by \$54 in sales of investments, primarily related to available-for-sale securities held by Alcoa's captive insurance company, and \$38 in proceeds from the sale of assets, mainly attributable to the sale of land in Australia.

The use of cash in 2010 was primarily due to \$1,015 in capital expenditures (includes costs related to environmental control in new and expanded facilities of \$87), 44% of which related to growth projects, including the Estreito hydroelectric power project, Juruti bauxite mine development, and São Luís refinery expansion; \$352 in additions to investments, mostly for the equity contributions of \$160 related to the joint venture in Saudi Arabia and purchase of \$126 in available-for-sale securities held by Alcoa's captive insurance company; and \$72 for acquisitions, principally related to the purchase of a new building and construction systems business. These items were slightly offset by \$141 in sales of investments, virtually all of which related to the sale of available-for-sale securities held by Alcoa's captive insurance company.

**Noncash Financing and Investing Activities**

In August 2012, Alcoa received a loan of \$250 for the purpose of financing all or part of the cost of acquiring, constructing, reconstructing, and renovating certain facilities at Alcoa's rolling mill plant in Davenport, IA. Because this loan can only be used for this purpose, the net proceeds of \$248 were classified as restricted cash. Since restricted cash is not part of cash and cash equivalents, this transaction was not reflected in the Statement of Consolidated Cash Flows as it represents a noncash activity. As funds are expended for the project, the release of the cash will be reflected as both an inflow on the Net change in restricted cash line and an outflow on the Capital expenditures line in the Investing Activities section of the Statement of Consolidated Cash Flows. At December 31, 2012, Alcoa had \$171 of restricted cash remaining related to this transaction.

**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 other postretirement benefit plans, and finance capital projects. As of December 31, 2012, a summary of Alcoa's outstanding contractual obligations is as follows (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):

|  | Total     | 2013     | 2014-2015 | 2016-2017 | Thereafter |
|--|-----------|----------|-----------|-----------|------------|
| <b>Operating activities:</b>               |           |          |           |           |            |
| Energy-related purchase obligations        | \$ 29,352 | \$ 1,770 | \$ 3,110  | \$ 3,834  | \$ 20,638  |
| Raw material purchase obligations          | 5,773     | 1,756    | 1,147     | 766       | 2,104      |
| Other purchase obligations                 | 1,283     | 152      | 316       | 152       | 663        |
| Operating leases                           | 1,256     | 198      | 282       | 179       | 597        |
| Interest related to total debt             | 4,699     | 501      | 907       | 860       | 2,431      |
| Estimated minimum required pension funding | 2,480     | 460      | 1,110     | 910       | -          |
| Other postretirement benefit payments      | 2,590     | 285      | 560       | 545       | 1,200      |
| Layoff and other restructuring payments    | 111       | 56       | 41        | 14        | -          |
| Deferred revenue arrangements              | 156       | 8        | 31        | 36        | 81         |
| Uncertain tax positions                    | 81        | -        | -         | -         | 81         |
| <b>Financing activities:</b>               |           |          |           |           |            |
| Total debt                                 | 8,811     | 518      | 695       | 813       | 6,785      |
| Dividends to shareholders                  | -         | -        | -         | -         | -          |
| <b>Investing activities:</b>               |           |          |           |           |            |
| Capital projects                           | 1,007     | 636      | 304       | 36        | 31         |
| Equity contributions                       | 439       | 350      | 89        | -         | -          |
| Payments related to acquisitions           | -         | -        | -         | -         | -          |
| Totals                                     | \$ 58,038 | \$ 6,690 | \$ 8,592  | \$ 8,145  | \$ 34,611  |

**Obligations for Operating Activities**

Energy-related purchase obligations consist primarily of electricity and natural gas contracts with expiration dates ranging from 1 year to 35 years. Raw material obligations consist mostly of bauxite (relates to Alcoa's bauxite mine interests in Guinea and Brazil), caustic soda, alumina, aluminum fluoride, calcined petroleum coke, cathode blocks, and various metals with expiration dates ranging from less than 1 year to 15 years. Other purchase obligations consist principally of freight for bauxite and alumina with expiration dates ranging from 2 to 19 years. Many of these purchase obligations contain variable pricing components, and, as a result, actual cash payments may differ from the estimates provided in the preceding table. Operating leases represent multi-year obligations for certain computer equipment, plant equipment, vehicles, and buildings and alumina refinery process control technology.

Interest related to total debt is based on interest rates in effect as of December 31, 2012 and is calculated on debt with maturities that extend to 2042. The effect of outstanding interest rate swaps, which are accounted for as fair value hedges, are included in interest related to total debt. As of December 31, 2012, these hedges effectively convert the interest rate from fixed to floating on \$200 of debt through 2018. As the contractual interest rates for certain debt and interest rate swaps are variable, actual cash payments may differ from the estimates provided in the preceding table.

Estimated minimum required pension funding and postretirement benefit payments are based on actuarial estimates using current assumptions for discount rates, long-term rate of return on plan assets, rate of compensation increases, and health care cost trend rates, among others. The minimum required contributions for pension funding are estimated to be \$460 for 2013, \$575 for 2014, \$535 for 2015, \$465 for 2016, and \$445 for 2017. These expected pension contributions reflect the impacts of the Pension Protection Act of 2006, the Worker, Retiree, and Employer Recovery Act of 2008, and the Moving Ahead for Progress in the 21<sup>st</sup> Century Act. Pension contributions are expected to continue to decline if all actuarial assumptions are realized and remain the same in the future. Other postretirement benefit payments are expected to approximate \$270 to \$285 annually for years 2013 through 2017 and \$240 annually for years 2018 through 2022. Such payments will be slightly offset by subsidy receipts related to Medicare Part D, which are estimated to be approximately \$30 to \$35 annually for years 2013 through 2022. Alcoa has determined that it is not practicable to present pension funding and other postretirement benefit payments beyond 2017 and 2022, respectively.

Layoff and other restructuring payments expected to be paid within one year primarily relate to severance costs. Amounts scheduled to be paid beyond one year are related to lease termination costs, special termination benefit payments, and ongoing site remediation work.

Deferred revenue arrangements require Alcoa to deliver alumina and sheet and plate to certain customers over the specified contract period (through 2027 for an alumina contract and through 2020 for a sheet and plate contract). While these obligations are not expected to result in cash payments, they represent contractual obligations for which the Company would be obligated if the specified product deliveries could not be made.

Uncertain tax positions taken or expected to be taken on an income tax return may result in additional payments to tax authorities. The amount in the preceding table includes interest and penalties accrued related to such positions as of December 31, 2012. The total amount of uncertain tax positions is included in the *Thereafter* column as the Company is not able to reasonably estimate the timing of potential future payments. If a tax authority agrees with the tax position taken or expected to be taken or the applicable statute of limitations expires, then additional payments will not be necessary.

### **Obligations for Financing Activities**

Total debt amounts in the preceding table represent the principal amounts of all outstanding debt, including short-term borrowings and long-term debt. Maturities for long-term debt extend to 2042.

Alcoa has historically paid quarterly dividends on its preferred and common stock. Including dividends on preferred stock, Alcoa paid \$131 in dividends to shareholders during 2012. Because all dividends are subject to approval by Alcoa's Board of Directors, amounts are not included in the preceding table unless such authorization has occurred. As of December 31, 2012, there were 1,067,211,953 and 546,024 shares of outstanding common stock and preferred stock, respectively. The annual preferred stock dividend is at the rate of \$3.75 per share and the annual common stock dividend is \$0.12 per share.

### **Obligations for Investing Activities**

Capital projects in the preceding table only include amounts approved by management as of December 31, 2012. Funding levels may vary in future years based on anticipated construction schedules of the projects. It is expected that significant expansion projects will be funded through various sources, including cash provided from operations. Total capital expenditures are anticipated to be approximately \$1,550 in 2013.

Equity contributions represent Alcoa's committed investment related to a joint venture in Saudi Arabia. In December 2009, Alcoa signed an agreement to enter into a joint venture to develop a new aluminum complex in Saudi Arabia, comprised of a bauxite mine, alumina refinery, aluminum smelter, and rolling mill, which will require the Company to contribute approximately \$1,100 over a five-year period (2010 through 2014). As of December 31, 2012, Alcoa has made equity contributions of \$661. The timing of the amounts included in the preceding table may vary based on changes in anticipated construction schedules of the project.

Payments related to acquisitions are based on provisions in certain acquisition agreements that state additional funds are due to the seller from Alcoa if the businesses acquired achieve stated financial and operational thresholds. Amounts are only presented in the preceding table if it has been determined that payment is more likely than not to occur. In connection with the 2005 acquisition of two fabricating facilities in Russia, Alcoa could be required to make contingent payments of approximately \$50 through 2015, but are not included in the preceding table as they have not met such standard.

**Off-Balance Sheet Arrangements.** At December 31, 2012, Alcoa has maximum potential future payments for guarantees issued on behalf of certain third parties of \$621. These guarantees expire in 2015 through 2019 and relate to project financing for a hydroelectric power project in Brazil and the aluminum complex in Saudi Arabia. Alcoa also has outstanding bank guarantees related to tax matters, outstanding debt, workers compensation, environmental obligations, energy contracts, and customs duties, among others. The total amount committed under these guarantees, which expire at various dates between 2013 and 2017 was \$494 at December 31, 2012.

Alcoa has outstanding letters of credit primarily related to workers' compensation, energy contracts, and leasing obligations. The total amount committed under these letters of credit, which automatically renew or expire at various dates, mostly in 2013, was \$299 at December 31, 2012. Alcoa also has outstanding surety bonds primarily related to tax matters, contract performance, workers compensation, environmental-related matters, and customs duties. The total amount committed under these bonds, which automatically renew or expire at various dates, mostly in 2013 and 2014 was \$193 at December 31, 2012.

Alcoa has three arrangements, each with a different financial institution, to sell certain customer receivables outright without recourse on a continuous basis. As of December 31, 2012, sold receivables, which were derecognized from the Consolidated Balance Sheet, in the amount of \$37 under the three arrangements combined were uncollected. Alcoa services the customer receivables for the financial institutions at market rates; therefore, no servicing asset or liability was recorded.

On March 30, 2012, Alcoa finalized a one-year arrangement with a financial institution to sell certain customer receivables without recourse on a revolving basis. The sale of such receivables is completed through the use of a bankruptcy remote special purpose entity, which is a consolidated subsidiary of Alcoa. This arrangement provides for minimum funding of \$50 up to a maximum of \$250 for receivables sold. Alcoa initially sold \$304 of customer receivables in exchange for \$50 in cash and \$254 of deferred purchase price under this arrangement. Alcoa received additional cash funding of \$155 throughout 2012. As of December 31, 2012, the deferred purchase price receivable was \$18, which was included in Other receivables on the Consolidated Balance Sheet. The deferred purchase price receivable is reduced as collections of the underlying receivables occur; however, as this is a revolving program, the sale of new receivables will result in an increase in the deferred purchase price receivable. The net change in the deferred purchase price receivable was reflected in the Decrease in receivables line item on the Statement of Consolidated Cash Flows. This activity is reflected as an operating cash flow because the related customer receivables are the result of an operating activity with an insignificant, short-term interest rate risk. In 2012, the gross cash outflows and inflows associated with the deferred purchase price receivable were \$3,339 and \$3,321, respectively. The gross amount of receivables sold and total cash collections under this program since its inception was \$3,339 and \$3,116, respectively. Alcoa services the customer receivables for the financial institution at market rates; therefore, no servicing asset or liability was recorded.

### **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 accounting for



derivatives and hedging activities; environmental and litigation matters; asset retirement obligations; the testing of goodwill, equity investments, and properties, plants, and equipment for impairment; estimating fair value of businesses to be divested; pension plans and other postretirement benefits obligations; stock-based compensation; and income taxes.

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 summary of the Company's significant accounting policies is included in Note A to the Consolidated Financial Statements in Part II Item 8 of this Form 10-K. 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.

**Derivatives and Hedging.** Derivatives are held for purposes other than trading and are part of a formally documented risk management program. For derivatives designated as fair value hedges, Alcoa measures hedge effectiveness by formally assessing, at least quarterly, the historical high correlation of changes in the fair value of the hedged item and the derivative hedging instrument. For derivatives designated as cash flow hedges, Alcoa measures hedge effectiveness by formally assessing, at least quarterly, the probable high correlation of the expected future cash flows of the hedged item and the derivative hedging instrument. The ineffective portions of both types of hedges are recorded in sales or other income or expense in the current period. If the hedging relationship ceases to be highly effective or it becomes probable that an expected transaction will no longer occur, future gains or losses on the derivative instrument are recorded in other income or expense.

Alcoa accounts for interest rate swaps related to its existing long-term debt and hedges of firm customer commitments for aluminum as fair value hedges. As a result, the fair values of the derivatives and changes in the fair values of the underlying hedged items are reported in other current and noncurrent assets and liabilities in the Consolidated Balance Sheet. Changes in the fair values of these derivatives and underlying hedged items generally offset and are recorded each period in sales or interest expense, consistent with the underlying hedged item.

Alcoa accounts for hedges of foreign currency exposures and certain forecasted transactions as cash flow hedges. The fair values of the derivatives are recorded in other current and noncurrent assets and liabilities in the Consolidated Balance Sheet. The effective portions of the changes in the fair values of these derivatives are recorded in other comprehensive income and are reclassified to sales, cost of goods sold, or other income or expense in the period in which earnings are impacted by the hedged items or in the period that the transaction no longer qualifies as a cash flow hedge. These contracts cover the same periods as known or expected exposures, generally not exceeding five years.

If no hedging relationship is designated, the derivative is marked to market through earnings.

Cash flows from derivatives are recognized in the Statement of Consolidated Cash Flows in a manner consistent with the underlying transactions.

**Environmental Matters.** Expenditures for current operations are expensed or capitalized, as appropriate. Expenditures relating to existing conditions caused by past operations, which will not contribute to future revenues, are expensed. Liabilities are recorded when remediation costs are probable and can be reasonably estimated. The liability may include costs such as site investigations, consultant fees, feasibility studies, outside contractors, and monitoring expenses. Estimates are generally not discounted or reduced by potential claims for recovery. Claims for recovery are recognized as agreements are reached with third parties. The estimates also include costs related to other potentially responsible parties to the extent that Alcoa has reason to believe such parties will not fully pay their proportionate share. The liability is continuously reviewed and adjusted to reflect current remediation progress, prospective estimates of required activity, and other factors that may be relevant, including changes in technology or regulations.

**Litigation Matters.** For asserted claims and assessments, liabilities are recorded when an unfavorable outcome of a matter is deemed to be probable and the loss is reasonably estimable. Management determines the likelihood of an unfavorable outcome based on many factors such as the nature of the matter, available defenses and case strategy, progress of the matter, views and opinions of legal counsel and other advisors, applicability and success of appeals processes, and the outcome of similar historical matters, among others. Once an unfavorable outcome is deemed probable, management weighs the probability of estimated losses, and the most reasonable loss estimate is recorded. If an unfavorable outcome of a matter is deemed to be reasonably possible, then the matter is disclosed and no liability is recorded. With respect to unasserted claims or assessments, management must first determine that the probability that an assertion will be made is likely, then, a determination as to the likelihood of an unfavorable outcome and the ability to reasonably estimate the potential loss is made. Legal matters are reviewed on a continuous basis to determine if there has been a change in management's judgment regarding the likelihood of an unfavorable outcome or the estimate of a potential loss.

**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 an ARO for the removal, treatment, transportation, storage and (or) disposal of various regulated assets and hazardous materials such as asbestos, underground and aboveground storage tanks, polychlorinated biphenyls, 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, 2012 ranges from less than \$1 to \$52 per structure (132 structures) in today's dollars.

**Goodwill.** Goodwill is not amortized; instead, it is reviewed 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 deterioration in general economic conditions, negative developments in equity and credit markets, adverse changes in the markets in which an entity operates, increases in input costs that have a negative effect on earnings and cash flows, or a trend of negative or declining cash flows over multiple periods, among others. The fair value that could be realized in an actual transaction may differ from that used to evaluate the impairment of goodwill.

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 nine reporting units, of which five are included in the Engineered Products and Solutions segment. The remaining four reporting units are the Alumina segment, the Primary Metals segment, the Global Rolled Products segment, and the soft alloy extrusions business in Brazil, which is included in Corporate. Almost 90% of Alcoa's total goodwill is allocated to three reporting units as follows: Alcoa Fastening Systems (AFS) (\$1,160) and Alcoa Power and Propulsion (APP) (\$1,628) businesses, both of which are included in the Engineered Products and Solutions segment, and Primary Metals (\$1,748). These amounts include an allocation of Corporate's goodwill.

In September 2011, the Financial Accounting Standards Board issued new accounting guidance for testing goodwill for impairment (see the Recently Adopted Accounting Guidance section of Note A to the Consolidated Financial Statements in Part II Item 8 of this Form 10-K). The guidance provides an entity the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (more than 50%) that the estimated fair value of a reporting unit is less than its carrying amount. If an entity elects to perform a qualitative assessment and determines that an impairment is more likely than not, the entity is then required to perform the existing two-step quantitative impairment test (described below), otherwise no further analysis is required. An entity also may elect not to perform the qualitative assessment and, instead, proceed directly to the two-step quantitative impairment test. The ultimate outcome of the goodwill impairment review for a reporting unit should be the same whether an entity chooses to perform the qualitative assessment or proceeds directly to the two-step quantitative impairment test.

In the 2011 fourth quarter, in conjunction with management's annual review of goodwill, Alcoa early adopted the new guidance. As a result, Alcoa instituted a policy for its annual review of goodwill to perform the qualitative assessment for all reporting units not subjected directly to the two-step quantitative impairment test. Management will proceed directly to the two-step quantitative impairment test for a minimum of three reporting units (based on facts and circumstances) during each annual review of goodwill. This policy will result in each of the nine reporting units being subjected to the two-step quantitative impairment test at least once during every three-year period.

Under the qualitative assessment, various events and circumstances (or factors) that would affect the estimated fair value of a reporting unit are identified (similar to impairment indicators above). These factors are then classified by the type of impact they would have on the estimated fair value using positive, neutral, and adverse categories based on current business conditions. Additionally, an assessment of the level of impact that a particular factor would have on the estimated fair value is determined using high, medium, and low weighting. Furthermore, management considers the results of the most recent two-step quantitative impairment test completed for a reporting unit (this would be 2011 and 2010 in which the estimated fair values of three and nine reporting units, respectively, were substantially in excess of their carrying values) and compares the weighted average cost of capital (WACC) between the current and prior years for each reporting unit.

During the 2012 annual review of goodwill, management performed the qualitative assessment for six reporting units. Management concluded that it was not more likely than not that the estimated fair values of the six reporting units were less than their carrying values. As such, no further analysis was required.

Under the two-step quantitative impairment test, the evaluation of impairment involves comparing the current fair value of each reporting unit to its carrying value, including goodwill. Alcoa uses a DCF model to estimate the current fair value of its reporting units when testing for impairment, as management believes forecasted cash flows are the best indicator of such fair value. 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 and historical relationships in later years. The betas used in calculating the individual reporting units' WACC rate are estimated for each business with the assistance of valuation experts.

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.

During the 2012 annual review of goodwill, management proceeded directly to the two-step quantitative impairment test for three reporting units as follows: the Primary Metals segment, the Alumina segment, and the Global Rolled Products segment. For Global Rolled Products, the estimated fair value exceeded carrying value by more than 150%, resulting in no impairment. For Primary Metals and Alumina, the estimated fair values exceeded their carrying values by 9.2% and 7.4%, respectively, resulting in no impairment. These two reporting units have goodwill of \$1,748 and \$171, respectively. In developing the fair value of these reporting units, the Company estimates future cash flows using LME forward curve pricing and operating cost assumptions management believes are reasonable based on expected and historical performance. The following could have a negative impact on the estimated fair values of Primary Metals and Alumina: a significant, protracted decrease in LME and alumina prices; decrease in long-term profitability; decrease in the long-term demand for aluminum; substantial reductions in Alcoa's end markets and volume assumptions; and an increase in discount rates.

As part of the 2012 annual review of goodwill, management considered the market capitalization of Alcoa's common stock in relation to the Company's total shareholders' equity. At December 31, 2012, the market capitalization of Alcoa's common stock was \$9,263. While this amount is less than the Company's total shareholders' equity at December 31, 2012, the estimated aggregate fair value of Alcoa's reporting units was substantially in excess of the aforementioned market capitalization amount. In management's judgment, the main reason for the difference between Alcoa's market capitalization and total shareholders' equity at December 31, 2012 is significantly lower commodity prices for aluminum. Management believes these commodity prices are being adversely impacted by turmoil in the macroeconomic environment, which do not necessarily reflect aluminum industry fundamentals. For example, there was, and continues to be, significant uncertainty of the sovereign debt of many European countries. This uncertainty has affected the liquidity of many companies that either operate or are located in Europe, although, Alcoa has not been impacted significantly. Additionally, during 2012, there was great concern over what was labeled the fiscal cliff in the U.S. and a slowdown in the growth of China. The combination of this economic uncertainty and the continuing decline in commodity prices caused the price of Alcoa's common stock to remain depressed. As a result, management believes the quoted market price of Alcoa's common stock does not fully reflect the underlying value of the future aggregate cash flows of the Company's reporting units. Accordingly, management does not believe that the comparison of Alcoa's market capitalization and total shareholders' equity as of December 31, 2012 is an indication that goodwill is impaired.

**Equity Investments.** Alcoa invests in a number of privately-held companies, primarily through joint ventures and consortia, which are accounted for on the equity method. 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.

**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. The determination of what constitutes an asset group, the associated estimated undiscounted net cash flows, and the estimated useful lives of assets also require significant judgments.

**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 value that is ultimately realized upon the divestiture of a business may differ from the estimated fair value reflected in the Consolidated Financial Statements.

**Pension and Other Postretirement Benefits.** Liabilities and expenses for pension and other postretirement benefits are determined using actuarial methodologies and incorporate significant assumptions, including the interest rate used to discount the future estimated liability, the expected long-term rate of return on plan assets, and several assumptions relating to the employee workforce (salary increases, health care cost trend rates, retirement age, and mortality).

The interest rate used to discount future estimated liabilities is determined using a Company-specific yield curve model (above-median) developed with the assistance of an external actuary. The cash flows of the plans' projected benefit obligations are discounted using a single equivalent rate derived from yields on high quality corporate bonds, which represent a broad diversification of issuers in various sectors, including finance and banking, manufacturing, transportation, insurance, and pharmaceutical, among others. The yield curve model parallels the plans' projected cash flows, which have an average duration of 10 years, and the underlying cash flows of the bonds included in the model exceed the cash flows needed to satisfy the Company's plans' obligations multiple times. In 2012, 2011, and 2010, the discount rate used to determine benefit obligations for U.S. pension and other postretirement benefit plans was 4.15%, 4.90%, and 5.75%, respectively. The impact on the liabilities of a change in the discount rate of 1/4 of 1% would be approximately \$475 and either a charge or credit of \$19 to after-tax earnings in the following year.

The expected long-term rate of return on plan assets is generally applied to a five-year market-related value of plan assets (a four-year average or the fair value at the plan measurement date is used for certain non-U.S. plans). The process used by management to develop this assumption has expanded from one that relied primarily on historical asset return information to one that also incorporates forward-looking returns by asset class, as described below.

Prior to developing the expected long-term rate of return for calendar year 2009, management focused on historical actual returns (annual, 10-year moving, and 20-year moving averages) when developing this assumption. Based on that process, management utilized 9% for the expected long-term rate of return for several years through 2008. For calendar year 2009, the expected long-term rate of return was reduced to 8.75% due to lower future expected market returns as a result of the then global economic downturn. This was supported by the fact that, in 2008, the 10-year moving average of actual performance fell below 9% for the first time in 20 years, although the 20-year moving average continued to exceed 9%.

For calendar year 2010, management expanded its process by incorporating expected future returns on current and planned asset allocations using information from various external investment managers and management's own judgment. Management considered this forward-looking analysis as well as the historical return information, and concluded the expected rate of return for calendar 2010 would remain at 8.75%, which was between the 20-year moving average actual return performance and the estimated future return developed by asset class.

For calendar year 2012 and 2011, management again incorporated both actual historical return information and expected future returns into its analysis. Based on strategic asset allocation changes and estimates of future returns by asset class, management used 8.50% as its expected long-term rate of return for both years. This rate again falls within the range of the 20-year moving average of actual performance and the expected future return developed by asset class.

For calendar year 2013, management used the same methodology as it did for 2012 and 2011 and determined that 8.50% will be the expected long-term rate of return.

A change in the assumption for the expected long-term rate of return on plan assets of 1/4 of 1% would impact after-tax earnings by approximately \$16 for 2013.

In 2012, a net charge of \$769 (\$529 after-tax) was recorded in other comprehensive loss, primarily due to a 75 basis point decrease in the discount rate, which was slightly offset by the favorable performance of the plan assets and the recognition of actuarial losses and prior service costs. In 2011, a net charge of \$991 (\$593 after-tax) was recorded in other comprehensive loss, primarily due to an 85 basis point decrease in the discount rate, which was slightly offset by the favorable performance of the plan assets and the recognition of actuarial losses and prior service costs. In 2010, a net charge of \$216 (\$138 after-tax) was recorded in other comprehensive income, primarily due to a 40 basis point decrease in the discount rate, which was somewhat offset by the favorable performance of the plan assets and the recognition of actuarial losses and prior service costs. Additionally, in 2010, a charge of \$2 was recorded in accumulated other comprehensive loss 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 new stock options 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. These assumptions may differ significantly between grant dates because of changes in the actual results of these inputs that occur over time.

Equity grants are issued in January each year. 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. As a result, a larger portion of expense will be recognized in the first half of each year for these retirement-eligible employees. Compensation expense recorded in 2012, 2011, and 2010 was \$67 (\$46 after-tax), \$83 (\$56 after-tax), and \$84 (\$57 after-tax), respectively. Of this amount, \$13, \$18, and \$19 in 2012, 2011, and 2010, respectively, pertains to the acceleration of expense related to retirement-eligible employees.

Most 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 (or received or receivable) 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. In evaluating the need for a valuation allowance, management considers all potential sources of taxable income, including income available in carryback periods, future reversals of taxable temporary differences, projections of taxable income, and income from tax planning strategies, as well as all available positive and negative evidence. Positive evidence includes factors such as a history of profitable operations, projections of future profitability within the carryforward period, including from tax planning strategies, and the Company's experience with similar operations. Existing favorable contracts and the ability to sell products into established markets are additional positive evidence. Negative evidence includes items such as cumulative losses, projections of future losses, or carryforward periods that are not long enough to allow for the utilization of a deferred tax asset based on existing projections of income. Deferred tax assets for which no valuation allowance is recorded may not be realized upon changes in facts and circumstances, resulting in a future charge to establish a valuation allowance.

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 statute of limitation has expired or the appropriate taxing authority has completed their examination even though the statute of limitations remains open. 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.

**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 Guidance**

See the Recently Adopted Accounting Guidance section of Note A to the Consolidated Financial Statements in Part II Item 8 of this Form 10-K.

**Recently Issued Accounting Guidance**

See the Recently Issued Accounting Guidance section of Note A to the Consolidated Financial Statements in Part II Item 8 of this Form 10-K.

**Item 7A. Quantitative and Qualitative Disclosures About Market Risk.**

See the Derivatives section of Note X to the Consolidated Financial Statements in Part II Item 8 of this Form 10-K.

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**Item 8. Financial Statements and Supplementary Data**  
**Management's Reports to Alcoa Shareholders**

**Management's Report on Financial Statements and Practices**

The accompanying Consolidated Financial Statements of Alcoa Inc. and its subsidiaries (the Company) were prepared by management, which is responsible for their integrity and objectivity. The statements were prepared in accordance with generally accepted accounting principles and include amounts that are based on management's best judgments and estimates. The other financial information included in the annual report is consistent with that in the financial statements.

Management also recognizes its responsibility for conducting the Company's affairs according to the highest standards of personal and corporate conduct. This responsibility is characterized and reflected in key policy statements issued from time to time regarding, among other things, conduct of its business activities within the laws of the host countries in which the Company operates and potentially conflicting outside business interests of its employees. The Company maintains a systematic program to assess compliance with these policies.

**Management's Report on Internal Control over Financial Reporting**

Management is responsible for establishing and maintaining adequate internal control over financial reporting for the Company. In order to evaluate the effectiveness of internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act, management has conducted an assessment, including testing, using the criteria in *Internal Control Integrated Framework*, issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's system of internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. The Company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Based on the assessment, management has concluded that the Company maintained effective internal control over financial reporting as of December 31, 2012, based on criteria in *Internal Control Integrated Framework* issued by the COSO.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2012 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

/s/ Klaus Kleinfeld  
Klaus Kleinfeld

Chairman and

Chief Executive Officer

/s/ Charles D. McLane, Jr.  
Charles D. McLane, Jr.

Executive Vice President and

Chief Financial Officer





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**Report of Independent Registered Public Accounting Firm**

To the Shareholders and Board of Directors of Alcoa Inc.

In our opinion, the accompanying consolidated balance sheets and the related statements of consolidated operations, consolidated comprehensive (loss) income, changes in consolidated equity, and consolidated cash flows present fairly, in all material respects, the financial position of Alcoa Inc. and its subsidiaries (the Company) at December 31, 2012 and 2011, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2012 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2012, based on criteria established in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP

Pittsburgh, Pennsylvania

February 15, 2013

## Alcoa and subsidiaries

## Statement of Consolidated Operations

(in millions, except per-share amounts)

| For the year ended December 31,  | 2012          | 2011          | 2010          |
|--|---------------|---------------|---------------|
| Sales (Q)  | \$ 23,700     | \$ 24,951     | \$ 21,013     |
| Cost of goods sold (exclusive of expenses below)                         | 20,486        | 20,480        | 17,174        |
| Selling, general administrative, and other expenses                      | 997           | 1,027         | 961           |
| Research and development expenses  | 197           | 184           | 174           |
| Provision for depreciation, depletion, and amortization                  | 1,460         | 1,479         | 1,450         |
| Restructuring and other charges (D)                                      | 87            | 281           | 207           |
| Interest expense (V)   | 490           | 524           | 494           |
| Other (income) expenses, net (O)   | (341)         | (87)          | 5             |
| Total costs and expenses   | 23,376        | 23,888        | 20,465        |
| Income from continuing operations before income taxes                    | 324           | 1,063         | 548           |
| Provision for income taxes (T)   | 162           | 255           | 148           |
| Income from continuing operations  | 162           | 808           | 400           |
| Loss from discontinued operations (B)                                    | -             | (3)           | (8)           |
| Net income   | 162           | 805           | 392           |
| Less: Net (loss) income attributable to noncontrolling interests         | (29)          | 194           | 138           |
| <b>Net Income Attributable to Alcoa</b>                                  | <b>\$ 191</b> | <b>\$ 611</b> | <b>\$ 254</b> |
| <b>Amounts Attributable to Alcoa Common Shareholders:</b>                |               |               |               |
| Income from continuing operations  | \$ 191        | \$ 614        | \$ 262        |
| Loss from discontinued operations  | -             | (3)           | (8)           |
| Net income   | \$ 191        | \$ 611        | \$ 254        |
| <b>Earnings per Share Attributable to Alcoa Common Shareholders (S):</b> |               |               |               |
| Basic:   |               |               |               |
| Income from continuing operations  | \$ 0.18       | \$ 0.58       | \$ 0.25       |
| Loss from discontinued operations  | -             | (0.01)        | -             |
| Net income   | \$ 0.18       | \$ 0.57       | \$ 0.25       |
| Diluted:   |               |               |               |
| Income from continuing operations  | \$ 0.18       | \$ 0.55       | \$ 0.25       |
| Loss from discontinued operations  | -             | -             | (0.01)        |
| Net income   | \$ 0.18       | \$ 0.55       | \$ 0.24       |

The accompanying notes are an integral part of the consolidated financial statements.

## Alcoa and subsidiaries

## Statement of Consolidated Comprehensive (Loss) Income

(in millions)

| For the year ended  | Alcoa        |                 |                 | Noncontrolling Interests |                 |                | Total         |                 |                 |                 |
|---|--------------|-----------------|-----------------|--------------------------|-----------------|----------------|---------------|-----------------|-----------------|-----------------|
|   | December 31, | 2012            | 2011            | 2010                     | 2012            | 2011           | 2010          | 2012            | 2011            | 2010            |
| Net income (loss)   |              | \$ 191          | \$ 611          | \$ 254                   | \$ (29)         | \$ 194         | \$ 138        | \$ 162          | \$ 805          | \$ 392          |
| Other comprehensive (loss) income, net of tax:  |              |                 |                 |                          |                 |                |               |                 |                 |                 |
| Change in unrecognized net actuarial loss and prior service cost/benefit related to pension and other postretirement benefits (W) |              | (529)           | (593)           | (140)                    | 22              | (59)           | (4)           | (507)           | (652)           | (144)           |
| Foreign currency translation adjustments (A)  |              | (202)           | (543)           | 441                      | (94)            | (165)          | 334           | (296)           | (708)           | 775             |
| Unrealized gains on available-for-sale securities (I):  |              |                 |                 |                          |                 |                |               |                 |                 |                 |
| Unrealized holding gains (losses)   |              | 2               | -               | (5)                      | -               | -              | -             | 2               | -               | (5)             |
| Net amount reclassified to earnings   |              | -               | -               | 4                        | -               | -              | -             | -               | -               | 4               |
| Net change in unrealized gains on available-for-sale securities   |              | 2               | -               | (1)                      | -               | -              | -             | 2               | -               | (1)             |
| Unrecognized losses on derivatives (X):   |              |                 |                 |                          |                 |                |               |                 |                 |                 |
| Net change from periodic revaluations   |              | (12)            | 63              | (21)                     | (1)             | (6)            | 4             | (13)            | 57              | (17)            |
| Net amount reclassified to earnings   |              | (34)            | 121             | 138                      | -               | 1              | -             | (34)            | 122             | 138             |
| Net change in unrecognized losses on derivatives  |              | (46)            | 184             | 117                      | (1)             | (5)            | 4             | (47)            | 179             | 121             |
| Total Other comprehensive (loss) income, net of tax   |              | (775)           | (952)           | 417                      | (73)            | (229)          | 334           | (848)           | (1,181)         | 751             |
| <b>Comprehensive (loss) income</b>  |              | <b>\$ (584)</b> | <b>\$ (341)</b> | <b>\$ 671</b>            | <b>\$ (102)</b> | <b>\$ (35)</b> | <b>\$ 472</b> | <b>\$ (686)</b> | <b>\$ (376)</b> | <b>\$ 1,143</b> |

The accompanying notes are an integral part of the consolidated financial statements.

## Alcoa and subsidiaries

## Consolidated Balance Sheet

(in millions)

| December 31,   | 2012             | 2011             |
|--|------------------|------------------|
| <b>Assets</b>  |                  |                  |
| Current assets:  |                  |                  |
| Cash and cash equivalents (X)  | \$ 1,861         | \$ 1,939         |
| Receivables from customers, less allowances of \$39 in 2012 and \$46 in 2011 (U) | 1,399            | 1,571            |
| Other receivables  | 340              | 371              |
| Inventories (G)  | 2,825            | 2,899            |
| Prepaid expenses and other current assets  | 1,275            | 933              |
| Total current assets   | 7,700            | 7,713            |
| Properties, plants, and equipment, net (H)                                       | 18,947           | 19,282           |
| Goodwill (E)   | 5,170            | 5,157            |
| Investments (I)  | 1,860            | 1,626            |
| Deferred income taxes (T)  | 3,790            | 3,546            |
| Other noncurrent assets (J)  | 2,712            | 2,796            |
| <b>Total Assets</b>  | <b>\$ 40,179</b> | <b>\$ 40,120</b> |
| <b>Liabilities</b>   |                  |                  |
| Current liabilities:   |                  |                  |
| Short-term borrowings (K & X)  | \$ 53            | \$ 62            |
| Commercial paper (K & X)   | -                | 224              |
| Accounts payable, trade  | 2,702            | 2,692            |
| Accrued compensation and retirement costs  | 1,058            | 985              |
| Taxes, including income taxes  | 366              | 438              |
| Other current liabilities  | 1,298            | 1,167            |
| Long-term debt due within one year (K & X)                                       | 465              | 445              |
| Total current liabilities  | 5,942            | 6,013            |
| Long-term debt, less amount due within one year (K & X)                          | 8,311            | 8,640            |
| Accrued pension benefits (W)   | 3,722            | 3,261            |
| Accrued other postretirement benefits (W)  | 2,603            | 2,583            |
| Other noncurrent liabilities and deferred credits (L)                            | 3,078            | 2,428            |
| Total liabilities  | 23,656           | 22,925           |
| Contingencies and commitments (N)  |                  |                  |
| <b>Equity</b>  |                  |                  |
| Alcoa shareholders' equity:  |                  |                  |
| Preferred stock (R)  | 55               | 55               |
| Common stock (R)   | 1,178            | 1,178            |
| Additional capital   | 7,560            | 7,561            |
| Retained earnings  | 11,689           | 11,629           |
| Treasury stock, at cost  | (3,881)          | (3,952)          |
| Accumulated other comprehensive loss   | (3,402)          | (2,627)          |
| Total Alcoa shareholders' equity   | 13,199           | 13,844           |
| Noncontrolling interests (M)   | 3,324            | 3,351            |
| Total equity   | 16,523           | 17,195           |
| <b>Total Liabilities and Equity</b>  | <b>\$ 40,179</b> | <b>\$ 40,120</b> |

The accompanying notes are an integral part of the consolidated financial statements.

## Alcoa and subsidiaries

## Statement of Consolidated Cash Flows

(in millions)

| For the year ended December 31,   | 2012    | 2011    | 2010    |
|---|---------|---------|---------|
| <b>Cash from Operations</b>   |         |         |         |
| Net income  | \$ 162  | \$ 805  | \$ 392  |
| Adjustments to reconcile net income to cash from operations:  |         |         |         |
| Depreciation, depletion, and amortization   | 1,462   | 1,481   | 1,451   |
| Deferred income taxes (T)   | (99)    | (181)   | (287)   |
| Equity loss (income), net of dividends  | 2       | (26)    | (22)    |
| Restructuring and other charges (D)   | 87      | 281     | 207     |
| Net gain from investing activities asset sales (O)  | (321)   | (41)    | (9)     |
| Loss from discontinued operations (B)   | -       | 3       | 8       |
| Stock-based compensation (R)  | 67      | 83      | 84      |
| Excess tax benefits from stock-based payment arrangements   | (1)     | (6)     | (1)     |
| Other   | 63      | 53      | 151     |
| Changes in assets and liabilities, excluding effects of acquisitions, divestitures, and foreign currency translation adjustments: |         |         |         |
| Decrease (increase) in receivables  | 104     | (115)   | (102)   |
| Decrease (increase) in inventories  | 96      | (339)   | (217)   |
| Decrease in prepaid expenses and other current assets   | -       | 74      | 27      |
| (Decrease) increase in accounts payable, trade  | (12)    | 394     | 328     |
| (Decrease) in accrued expenses  | (83)    | (38)    | (239)   |
| (Decrease) increase in taxes, including income taxes  | (47)    | 118     | 503     |
| Pension contributions (W)   | (561)   | (336)   | (113)   |
| (Increase) in noncurrent assets   | 9       | (154)   | (83)    |
| Increase in noncurrent liabilities  | 572     | 147     | 183     |
| (Increase) in net assets held for sale (B)  | -       | -       | (7)     |
| <b>Cash provided from continuing operations</b>   | 1,500   | 2,203   | 2,254   |
| <b>Cash (used for) provided from discontinued operations</b>  | (3)     | (10)    | 7       |
| <b>Cash provided from operations</b>  | 1,497   | 2,193   | 2,261   |
| <b>Financing Activities</b>   |         |         |         |
| Net change in short-term borrowings (original maturities of three months or less) (K)   | (10)    | (31)    | (44)    |
| Net change in commercial paper (K)  | (224)   | 224     | -       |
| Additions to debt (original maturities greater than three months) (K)   | 972     | 1,256   | 1,126   |
| Debt issuance costs (K)   | (5)     | (17)    | (6)     |
| Payments on debt (original maturities greater than three months) (K)  | (1,489) | (1,194) | (1,757) |
| Proceeds from exercise of employee stock options (R)  | 12      | 37      | 13      |
| Excess tax benefits from stock-based payment arrangements   | 1       | 6       | 1       |
| Dividends paid to shareholders  | (131)   | (131)   | (125)   |
| Distributions to noncontrolling interests   | (95)    | (257)   | (256)   |
| Contributions from noncontrolling interests (M)   | 171     | 169     | 162     |
| Acquisitions of noncontrolling interests (P)  | -       | -       | (66)    |
| <b>Cash (used for) provided from financing activities</b>   | (798)   | 62      | (952)   |
| <b>Investing Activities</b>   |         |         |         |
| Capital expenditures  | (1,261) | (1,287) | (1,015) |
| Acquisitions, net of cash acquired (F & P)  | -       | (240)   | (72)    |
| Proceeds from the sale of assets and businesses (F)   | 615     | 38      | 4       |
| Additions to investments (I & N)  | (300)   | (374)   | (352)   |
| Sales of investments (I)  | 31      | 54      | 141     |
| Net change in restricted cash (P)   | 87      | (4)     | 7       |
| Other   | 69      | (39)    | 15      |
| <b>Cash used for investing activities</b>   | (759)   | (1,852) | (1,272) |
| <b>Effect of exchange rate changes on cash and cash equivalents</b>   | (18)    | (7)     | 25      |

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|   |                 |                 |                 |
|---|-----------------|-----------------|-----------------|
| Net change in cash and cash equivalents         | (78)            | 396             | 62              |
| Cash and cash equivalents at beginning of year  | 1,939           | 1,543           | 1,481           |
| <b>Cash and cash equivalents at end of year</b> | <b>\$ 1,861</b> | <b>\$ 1,939</b> | <b>\$ 1,543</b> |

The accompanying notes are an integral part of the consolidated financial statements.

## Alcoa and subsidiaries

## Statement of Changes in Consolidated Equity

(in millions, except per-share amounts)

|  | Alcoa Shareholders |                 |                       |                      |                   | Accumulated<br>other compre-<br>hensive loss | Noncontrolling<br>interests | Total<br>equity |
|--|--------------------|-----------------|-----------------------|----------------------|-------------------|--|-----------------------------|-----------------|
|  | Preferred<br>stock | Common<br>stock | Additional<br>capital | Retained<br>earnings | Treasury<br>stock |  |                             |                 |
| <b>Balance at December 31, 2009</b>                    | \$ 55              | \$ 1,097        | \$ 6,608              | \$ 11,020            | \$ (4,268)        | \$ (2,092)                                   | \$ 3,100                    | \$ 15,520       |
| Net income   | -                  | -               | -                     | 254                  | -                 | -  | 138                         | 392             |
| Other comprehensive income                             | -                  | -               | -                     | -                    | -                 | 417  | 334                         | 751             |
| Cash dividends declared:                               |                    |                 |                       |                      |                   |  |                             |                 |
| Preferred @ \$3.75 per share                           | -                  | -               | -                     | (2)                  | -                 | -  | -                           | (2)             |
| Common @ \$0.12 per share                              | -                  | -               | -                     | (123)                | -                 | -  | -                           | (123)           |
| Stock-based compensation (R)                           | -                  | -               | 84                    | -                    | -                 | -  | -                           | 84              |
| Common stock issued: compensation plans<br>(R)         | -                  | -               | (139)                 | -                    | 122               | -  | -                           | (17)            |
| Issuance of common stock (R)                           | -                  | 44              | 556                   | -                    | -                 | -  | -                           | 600             |
| Distributions  | -                  | -               | -                     | -                    | -                 | -  | (256)                       | (256)           |
| Contributions (M)                                      | -                  | -               | -                     | -                    | -                 | -  | 162                         | 162             |
| Purchase of equity from noncontrolling<br>interest (P) | -                  | -               | (2)                   | -                    | -                 | -  | (4)                         | (6)             |
| Other (P)  | -                  | -               | (20)                  | -                    | -                 | -  | 1                           | (19)            |
| <b>Balance at December 31, 2010</b>                    | 55                 | 1,141           | 7,087                 | 11,149               | (4,146)           | (1,675)                                      | 3,475                       | 17,086          |
| Net income   | -                  | -               | -                     | 611                  | -                 | -  | 194                         | 805             |
| Other comprehensive loss                               | -                  | -               | -                     | -                    | -                 | (952)  | (229)                       | (1,181)         |
| Cash dividends declared:                               |                    |                 |                       |                      |                   |  |                             |                 |
| Preferred @ \$3.75 per share                           | -                  | -               | -                     | (2)                  | -                 | -  | -                           | (2)             |
| Common @ \$0.12 per share                              | -                  | -               | -                     | (129)                | -                 | -  | -                           | (129)           |
| Stock-based compensation (R)                           | -                  | -               | 83                    | -                    | -                 | -  | -                           | 83              |
| Common stock issued: compensation plans<br>(R)         | -                  | -               | (172)                 | -                    | 194               | -  | -                           | 22              |
| Issuance of common stock (R)                           | -                  | 37              | 563                   | -                    | -                 | -  | -                           | 600             |
| Distributions  | -                  | -               | -                     | -                    | -                 | -  | (257)                       | (257)           |
| Contributions (M)                                      | -                  | -               | -                     | -                    | -                 | -  | 169                         | 169             |
| Other  | -                  | -               | -                     | -                    | -                 | -  | (1)                         | (1)             |
| <b>Balance at December 31, 2011</b>                    | 55                 | 1,178           | 7,561                 | 11,629               | (3,952)           | (2,627)                                      | 3,351                       | 17,195          |
| Net income (loss)                                      | -                  | -               | -                     | 191                  | -                 | -  | (29)                        | 162             |
| Other comprehensive loss                               | -                  | -               | -                     | -                    | -                 | (775)  | (73)                        | (848)           |
| Cash dividends declared:                               |                    |                 |                       |                      |                   |  |                             |                 |
| Preferred @ \$3.75 per share                           | -                  | -               | -                     | (2)                  | -                 | -  | -                           | (2)             |
| Common @ \$0.12 per share                              | -                  | -               | -                     | (129)                | -                 | -  | -                           | (129)           |
| Stock-based compensation (R)                           | -                  | -               | 67                    | -                    | -                 | -  | -                           | 67              |
| Common stock issued: compensation plans<br>(R)         | -                  | -               | (68)                  | -                    | 71                | -  | -                           | 3               |
| Distributions  | -                  | -               | -                     | -                    | -                 | -  | (95)                        | (95)            |
| Contributions (M)                                      | -                  | -               | -                     | -                    | -                 | -  | 171                         | 171             |
| Other  | -                  | -               | -                     | -                    | -                 | -  | (1)                         | (1)             |
| <b>Balance at December 31, 2012</b>                    | \$ 55              | \$ 1,178        | \$ 7,560              | \$ 11,689            | \$ (3,881)        | \$ (3,402)                                   | \$ 3,324                    | \$ 16,523       |

The accompanying notes are an integral part of the consolidated financial statements.



**Alcoa and subsidiaries**

**Notes to the Consolidated Financial Statements**

**(dollars in millions, except per-share amounts)**

**A. Summary of Significant Accounting Policies**

**Basis of Presentation.** The Consolidated Financial Statements of Alcoa Inc. and subsidiaries ( Alcoa or the Company ) are prepared in conformity with accounting principles generally accepted in the United States of America (GAAP) and require management to make certain judgments, estimates, and assumptions. These may affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements. They also may affect the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates upon subsequent resolution of identified matters. Certain amounts in previously issued financial statements were reclassified to conform to the 2012 presentation (see Note B).

**Principles of Consolidation.** The Consolidated Financial Statements include the accounts of Alcoa and companies in which Alcoa has a controlling interest. Intercompany transactions have been eliminated. The equity method of accounting is used for investments in affiliates and other joint ventures over which Alcoa has significant influence but does not have effective control. Investments in affiliates in which Alcoa cannot exercise significant influence are accounted for on the cost method.

Management also evaluates whether an Alcoa entity or interest is a variable interest entity and whether Alcoa is the primary beneficiary. Consolidation is required if both of these criteria are met. Alcoa does not have any variable interest entities requiring consolidation.

**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.

**Cash Equivalents.** Cash equivalents are highly liquid investments purchased with an original maturity of three months or less.

**Inventory Valuation.** Inventories are carried at the lower of cost or market, with cost for a substantial portion of U.S. and Canadian inventories determined under the last-in, first-out (LIFO) method. The cost of other inventories is principally determined under the average-cost method.

**Properties, Plants, and Equipment.** Properties, plants, and equipment are recorded at cost. Depreciation is recorded principally on the straight-line method at rates based on the estimated useful lives of the assets. For greenfield assets, which refer to the construction of new assets on undeveloped land, the units of production method is used to record depreciation. These assets require a significant period (generally greater than one-year) to ramp-up to full production capacity. As a result, the units of production method is deemed a more systematic and rational method for recognizing depreciation on these assets. Depreciation is recorded on temporarily idled facilities until such time management approves a permanent shutdown. The following table details the weighted-average useful lives of structures and machinery and equipment by reporting segment (numbers in years):

| Segment                           | Structures | Machinery and equipment |
|-----------------------------------|------------|-------------------------|
| Alumina:                          |            |                         |
| Alumina refining                  | 30         | 25                      |
| Bauxite mining                    | 33         | 19                      |
| Primary Metals:                   |            |                         |
| Aluminum smelting                 | 35         | 21                      |
| Power generation                  | 34         | 24                      |
| Global Rolled Products            | 32         | 21                      |
| Engineered Products and Solutions | 29         | 18                      |

Gains or losses from the sale of assets are generally recorded in other income or expenses (see policy that follows for assets classified as held for sale and discontinued operations). Repairs and maintenance are charged to expense as incurred. Interest related to the construction of qualifying assets is capitalized as part of the construction costs.

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 discounted cash flow model (DCF model). The determination of what constitutes an asset group, the associated estimated undiscounted net cash flows, and the estimated useful lives of assets also require significant judgments.

**Mineral Rights.** Alcoa recognizes mineral rights upon specific acquisitions of land that include such underlying rights, primarily in Jamaica. This land is purchased for the sole purpose of mining bauxite. The underlying bauxite reserves are known at the time of acquisition based on associated drilling and analysis and are considered to be proven reserves. The acquisition cost of the land and mineral rights are amortized as the bauxite is produced based on the level of minable tons determined at the time of purchase. Mineral rights are included in Properties, plants, and equipment on the accompanying Consolidated Balance Sheet.

**Deferred Mining Costs.** Alcoa recognizes deferred mining costs during the development stage of a mine life cycle. Such costs include the construction of access and haul roads, detailed drilling and geological analysis to further define the grade and quality of the known bauxite, and overburden removal costs. These costs relate to sections of the related mines where Alcoa is either currently extracting bauxite or is preparing for production in the near term. These sections are outlined and planned incrementally and generally are mined over periods ranging from one to five years, depending on mine specifics. The amount of geological drilling and testing necessary to determine the economic viability of the bauxite deposit being mined is such that the reserves are considered to be proven, and the mining costs are amortized based on this level of reserves. Deferred mining costs are included in Other noncurrent assets on the accompanying Consolidated Balance Sheet.

**Goodwill and Other Intangible Assets.** Goodwill is not amortized; instead, it is reviewed 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 deterioration in general economic conditions, negative developments in equity and credit markets, adverse changes in the markets in which an entity operates, increases in input costs that have a negative effect on earnings and cash flows, or a trend of negative or declining cash flows over multiple periods, among others. The fair value that could be realized in an actual transaction may differ from that used to evaluate the impairment of goodwill.

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 nine reporting units, of which five are included in the Engineered Products and Solutions segment. The remaining four reporting units are the Alumina segment, the Primary Metals segment, the Global Rolled Products segment, and the soft alloy extrusions business in Brazil, which is included in Corporate. Almost 90% of Alcoa's total goodwill is allocated to three reporting units as follows: Alcoa Fastening Systems (AFS) (\$1,160) and Alcoa Power and Propulsion (APP) (\$1,628) businesses, both of which are included in the Engineered Products and Solutions segment, and Primary Metals (\$1,748). These amounts include an allocation of Corporate's goodwill.

In September 2011, the Financial Accounting Standards Board issued new accounting guidance for testing goodwill for impairment (see Recently Adopted Accounting Guidance section of Note A below). The guidance provides an entity the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (more than 50%) that the estimated fair value of a reporting unit is less than

its carrying amount. If an entity elects to perform a qualitative assessment and determines that an impairment is more likely than not, the entity is then required to perform the existing two-step quantitative impairment test (described below), otherwise no further analysis is required. An entity also may elect not to perform the qualitative assessment and, instead, proceed directly to the two-step quantitative impairment test. The ultimate outcome of the goodwill impairment review for a reporting unit should be the same whether an entity chooses to perform the qualitative assessment or proceeds directly to the two-step quantitative impairment test.

In the 2011 fourth quarter, in conjunction with management's annual review of goodwill, Alcoa early adopted the new guidance. As a result, Alcoa instituted a policy for its annual review of goodwill to perform the qualitative assessment for all reporting units not subjected directly to the two-step quantitative impairment test. Management will proceed directly to the two-step quantitative impairment test for a minimum of three reporting units (based on facts and circumstances) during each annual review of goodwill. This policy will result in each of the nine reporting units being subjected to the two-step quantitative impairment test at least once during every three-year period.

Under the qualitative assessment, various events and circumstances (or factors) that would affect the estimated fair value of a reporting unit are identified (similar to impairment indicators above). These factors are then classified by the type of impact they would have on the estimated fair value using positive, neutral, and adverse categories based on current business conditions. Additionally, an assessment of the level of impact that a particular factor would have on the estimated fair value is determined using high, medium, and low weighting. Furthermore, management considers the results of the most recent two-step quantitative impairment test completed for a reporting unit (this would be 2011 and 2010 in which the estimated fair values of three and nine reporting units, respectively, were substantially in excess of their carrying values) and compares the weighted average cost of capital (WACC) between the current and prior years for each reporting unit.

During the 2012 annual review of goodwill, management performed the qualitative assessment for six reporting units. Management concluded that it was not more likely than not that the estimated fair values of the six reporting units were less than their carrying values. As such, no further analysis was required.

Under the two-step quantitative impairment test, the evaluation of impairment involves comparing the current fair value of each reporting unit to its carrying value, including goodwill. Alcoa uses a DCF model to estimate the current fair value of its reporting units when testing for impairment, as management believes forecasted cash flows are the best indicator of such fair value. 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 and historical relationships in later years. The betas used in calculating the individual reporting units' WACC rate are estimated for each business with the assistance of valuation experts.

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.

During the 2012 annual review of goodwill, management proceeded directly to the two-step quantitative impairment test for three reporting units as follows: the Primary Metals segment, the Alumina segment, and the Global Rolled Products segment. For Global Rolled Products, the estimated fair value exceeded carrying value by more than 150%, resulting in no impairment. For Primary Metals and Alumina, the estimated fair values exceeded their carrying values by 9.2% and 7.4%, respectively, resulting in no impairment. These two reporting units have goodwill of \$1,748 and

\$171, respectively. In developing the fair value of these reporting units, the Company estimates future cash flows using London Metal Exchange (LME) forward curve pricing and operating cost assumptions management believes are reasonable based on expected and historical performance. The following could have a negative impact on the estimated fair values of Primary Metals and Alumina: a significant, protracted decrease in LME and alumina prices; decrease in long-term profitability; decrease in the long-term demand for aluminum; substantial reductions in Alcoa's end markets and volume assumptions; and an increase in discount rates.

As part of the 2012 annual review of goodwill, management considered the market capitalization of Alcoa's common stock in relation to the Company's total shareholders' equity. At December 31, 2012, the market capitalization of Alcoa's common stock was \$9,263. While this amount is less than the Company's total shareholders' equity at December 31, 2012, the estimated aggregate fair value of Alcoa's reporting units was substantially in excess of the aforementioned market capitalization amount. In management's judgment, the main reason for the difference between Alcoa's market capitalization and total shareholders' equity at December 31, 2012 is significantly lower commodity prices for aluminum. Management believes these commodity prices are being adversely impacted by turmoil in the macroeconomic environment, which do not necessarily reflect aluminum industry fundamentals. For example, there was, and continues to be, significant uncertainty of the sovereign debt of many European countries. This uncertainty has affected the liquidity of many companies that either operate or are located in Europe, although, Alcoa has not been impacted significantly. Additionally, during 2012, there was great concern over what was labeled the fiscal cliff in the U.S. and a slowdown in the growth of China. The combination of this economic uncertainty and the continuing decline in commodity prices caused the price of Alcoa's common stock to remain depressed. As a result, management believes the quoted market price of Alcoa's common stock does not fully reflect the underlying value of the future aggregate cash flows of the Company's reporting units. Accordingly, management does not believe that the comparison of Alcoa's market capitalization and total shareholders' equity as of December 31, 2012 is an indication that goodwill is impaired.

Intangible assets with indefinite useful lives are not amortized while intangible assets with finite useful lives are amortized generally on a straight-line basis over the periods benefited. The following table details the weighted-average useful lives of software and other intangible assets by reporting segment (numbers in years):

| Segment                           | Software | Other intangible assets |
|-----------------------------------|----------|-------------------------|
| Alumina                           | 10       | -                       |
| Primary Metals                    | 9        | 36                      |
| Global Rolled Products            | 10       | 13                      |
| Engineered Products and Solutions | 9        | 19                      |

**Equity Investments.** Alcoa invests in a number of privately-held companies, primarily through joint ventures and consortia, which are accounted for on the equity method. 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.

**Revenue Recognition.** Alcoa recognizes revenue when title, ownership, and risk of loss pass to the customer, all of which occurs upon shipment or delivery of the product and is based on the applicable shipping terms. The shipping terms vary across all businesses and depend on the product, the country of origin, and the type of transportation (truck, train, or vessel).

Alcoa periodically enters into long-term supply contracts with alumina and aluminum customers and receives advance payments for product to be delivered in future periods. These advance payments are recorded as deferred revenue, and revenue is recognized as shipments are made and title, ownership, and risk of loss pass to the customer during the term of the contracts. Deferred revenue is included in Other current liabilities and Other noncurrent liabilities and deferred credits on the accompanying Consolidated Balance Sheet.

**Environmental Matters.** Expenditures for current operations are expensed or capitalized, as appropriate. Expenditures relating to existing conditions caused by past operations, which will not contribute to future revenues, are expensed. Liabilities are recorded when remediation costs are probable and can be reasonably estimated. The liability may include costs such as site investigations, consultant fees, feasibility studies, outside contractors, and monitoring expenses. Estimates are generally not discounted or reduced by potential claims for recovery. Claims for recovery are recognized as agreements are reached with third parties. The estimates also include costs related to other potentially responsible parties to the extent that Alcoa has reason to believe such parties will not fully pay their proportionate share. The liability is continuously reviewed and adjusted to reflect current remediation progress, prospective estimates of required activity, and other factors that may be relevant, including changes in technology or regulations.

**Litigation Matters.** For asserted claims and assessments, liabilities are recorded when an unfavorable outcome of a matter is deemed to be probable and the loss is reasonably estimable. Management determines the likelihood of an unfavorable outcome based on many factors such as the nature of the matter, available defenses and case strategy, progress of the matter, views and opinions of legal counsel and other advisors, applicability and success of appeals processes, and the outcome of similar historical matters, among others. Once an unfavorable outcome is deemed probable, management weighs the probability of estimated losses, and the most reasonable loss estimate is recorded. If an unfavorable outcome of a matter is deemed to be reasonably possible, then the matter is disclosed and no liability is recorded. With respect to unasserted claims or assessments, management must first determine that the probability that an assertion will be made is likely, then, a determination as to the likelihood of an unfavorable outcome and the ability to reasonably estimate the potential loss is made. Legal matters are reviewed on a continuous basis to determine if there has been a change in management's judgment regarding the likelihood of an unfavorable outcome or the estimate of a potential loss.

**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 an ARO for the removal, treatment, transportation, storage, and (or) disposal of various regulated assets and hazardous materials such as asbestos, underground and aboveground storage tanks, polychlorinated biphenyls (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.

**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 (or received

or receivable) 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. In evaluating the need for a valuation allowance, management considers all potential sources of taxable income, including income available in carryback periods, future reversals of taxable temporary differences, projections of taxable income, and income from tax planning strategies, as well as all available positive and negative evidence. Positive evidence includes factors such as a history of profitable operations, projections of future profitability within the carryforward period, including from tax planning strategies, and the Company's experience with similar operations. Existing favorable contracts and the ability to sell products into established markets are additional positive evidence. Negative evidence includes items such as cumulative losses, projections of future losses, or carryforward periods that are not long enough to allow for the utilization of a deferred tax asset based on existing projections of income. Deferred tax assets for which no valuation allowance is recorded may not be realized upon changes in facts and circumstances, resulting in a future charge to establish a valuation allowance.

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 statute of limitation has expired or the appropriate taxing authority has completed their examination even though the statute of limitations remains open. 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.

**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 new stock options 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. These assumptions may differ significantly between grant dates because of changes in the actual results of these inputs that occur over time.

Most 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.

**Derivatives and Hedging.** Derivatives are held for purposes other than trading and are part of a formally documented risk management program. For derivatives designated as fair value hedges, Alcoa measures hedge effectiveness by formally assessing, at least quarterly, the historical high correlation of changes in the fair value of the hedged item and the derivative hedging instrument. For derivatives designated as cash flow hedges, Alcoa measures hedge effectiveness by formally assessing, at least quarterly, the probable high correlation of the expected future cash flows of the hedged item and the derivative hedging instrument. The ineffective portions of both types of hedges are recorded in sales or other income or expense in the current period. If the hedging relationship ceases to be highly effective or it becomes probable that an expected transaction will no longer occur, future gains or losses on the derivative instrument are recorded in other income or expense.

Alcoa accounts for interest rate swaps related to its existing long-term debt and hedges of firm customer commitments for aluminum as fair value hedges. As a result, the fair values of the derivatives and changes in the fair values of the underlying hedged items are reported in other current and noncurrent assets and liabilities in the Consolidated Balance Sheet. Changes in the fair values of these derivatives and underlying hedged items generally offset and are recorded each period in sales or interest expense, consistent with the underlying hedged item.

Alcoa accounts for hedges of foreign currency exposures and certain forecasted transactions as cash flow hedges. The fair values of the derivatives are recorded in other current and noncurrent assets and liabilities in the Consolidated Balance Sheet. The effective portions of the changes in the fair values of these derivatives are recorded in other comprehensive income and are reclassified to sales, cost of goods sold, or other income or expense in the period in which earnings are impacted by the hedged items or in the period that the transaction no longer qualifies as a cash flow hedge. These contracts cover the same periods as known or expected exposures, generally not exceeding five years.

If no hedging relationship is designated, the derivative is marked to market through earnings.

Cash flows from derivatives are recognized in the Statement of Consolidated Cash Flows in a manner consistent with the underlying transactions.

**Foreign Currency.** The local currency is the functional currency for Alcoa's significant operations outside the U.S., except for certain operations in Canada, Russia and Iceland, where the U.S. dollar is used as the functional currency. The determination of the functional currency for Alcoa's operations is made based on the appropriate economic and management indicators.

Effective January 1, 2010, the functional currency of a subsidiary located in Brazil (that is part of Alcoa World Alumina and Chemicals, which is 60% owned by Alcoa and 40% owned by Alumina Limited) was changed from the U.S. dollar to the Brazilian real (BRL). This change was made as a result of changes in the operations of the business following the completion of the São Luís refinery expansion and Juruti bauxite mine development. In connection with this change, on January 1, 2010, an adjustment of \$309 was recorded as an increase to the net nonmonetary assets of this subsidiary (primarily properties, plants, and equipment) with a corresponding adjustment to the foreign currency translation component of Accumulated other comprehensive loss. The functional currency of all of Alcoa's Brazilian operations is now BRL.

**Acquisitions.** Alcoa's business acquisitions are accounted for using the acquisition method. The purchase price is allocated to the assets acquired and liabilities assumed based on their estimated fair values. Any excess purchase price over the fair value of the net assets acquired is recorded as goodwill. For all acquisitions, operating results are included in the Statement of Consolidated Operations since the dates of the acquisitions.

**Discontinued Operations and Assets Held For Sale.** For those businesses where management has committed to a plan to divest, each business is valued at the lower of its carrying amount or estimated fair value less cost to sell. If the carrying amount of the business exceeds its estimated fair value, an impairment loss is recognized. Fair value is 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 value that is ultimately realized upon the divestiture of a business may differ from the estimated fair value reflected in the Consolidated Financial Statements. Depreciation, depletion, and amortization expense is not recorded on assets of a business to be divested once they are classified as held for sale. Businesses to be divested are classified in the Consolidated Financial Statements as either discontinued operations or held for sale.

For businesses classified as discontinued operations, the balance sheet amounts and results of operations are reclassified from their historical presentation to assets and liabilities of operations held for sale on the Consolidated Balance Sheet and to discontinued operations on the Statement of Consolidated Operations, respectively, for all periods presented. The gains or losses associated with these divested businesses are recorded in discontinued operations on the Statement of Consolidated Operations. The Statement of Consolidated Cash Flows is also reclassified for assets and liabilities of operations held for sale and discontinued operations for all periods presented. Additionally, segment information does not include the assets or operating results of businesses classified as discontinued operations for all

periods presented. Management does not expect any continuing involvement with these businesses following their divestiture, and these businesses are expected to be disposed of within one year.

For businesses classified as held for sale that do not qualify for discontinued operations treatment, the balance sheet and cash flow amounts are reclassified from their historical presentation to assets and liabilities of operations held for sale for all periods presented. The results of operations continue to be reported in continuing operations. The gains or losses associated with these divested businesses are recorded in restructuring and other charges on the Statement of Consolidated Operations. The segment information includes the assets and operating results of businesses classified as held for sale for all periods presented. Management expects that Alcoa will have continuing involvement with these businesses following their divestiture, primarily in the form of equity participation, or ongoing aluminum or other significant supply contracts.

#### **Recently Adopted Accounting Guidance.**

**Fair Value Accounting** On January 1, 2012, Alcoa adopted changes issued by the Financial Accounting Standards Board (FASB) to conform existing guidance regarding fair value measurement and disclosure between GAAP and International Financial Reporting Standards. These changes both clarify the FASB's intent about the application of existing fair value measurement and disclosure requirements and amend certain principles or requirements for measuring fair value or for disclosing information about fair value measurements. The clarifying changes relate to the application of the highest and best use and valuation premise concepts, measuring the fair value of an instrument classified in a reporting entity's shareholders' equity, and disclosure of quantitative information about unobservable inputs used for Level 3 fair value measurements. The amendments relate to measuring the fair value of financial instruments that are managed within a portfolio; application of premiums and discounts in a fair value measurement; and additional disclosures concerning the valuation processes used and sensitivity of the fair value measurement to changes in unobservable inputs for those items categorized as Level 3, a reporting entity's use of a nonfinancial asset in a way that differs from the asset's highest and best use, and the categorization by level in the fair value hierarchy for items required to be measured at fair value for disclosure purposes only. Other than the additional disclosure requirements (see Note X), the adoption of these changes had no impact on the Consolidated Financial Statements.

On January 1, 2011, Alcoa adopted changes issued by the FASB to disclosure requirements for fair value measurements. Specifically, the changes require a reporting entity to disclose, in the reconciliation of fair value measurements using significant unobservable inputs (Level 3), separate information about purchases, sales, issuances, and settlements (that is, on a gross basis rather than as one net number). These changes were applied to the disclosures in Note W and the Derivatives section of Note X to the Consolidated Financial Statements.

Effective January 1, 2010, Alcoa adopted changes issued by the FASB on January 21, 2010 to disclosure requirements for fair value measurements. Specifically, the changes require a reporting entity to disclose separately the amounts of significant transfers in and out of Level 1 and Level 2 fair value measurements and describe the reasons for the transfers. The changes also clarify existing disclosure requirements related to how assets and liabilities should be grouped by class and valuation techniques used for recurring and nonrecurring fair value measurements. The adoption of these changes had no impact on the Consolidated Financial Statements.

**Business Combinations and Consolidation Accounting** On January 1, 2011, Alcoa adopted changes issued by the FASB to the disclosure of pro forma information for business combinations. These changes clarify that if a public entity presents comparative financial statements, the entity should disclose revenue and earnings of the combined entity as though the business combination that occurred during the current year had occurred as of the beginning of the comparable prior annual reporting period only. Also, the existing supplemental pro forma disclosures were expanded to include a description of the nature and amount of material, nonrecurring pro forma adjustments directly attributable to the business combination included in the reported pro forma revenue and earnings. The adoption of these changes had no impact on the Consolidated Financial Statements.

On January 1, 2010, Alcoa adopted changes issued by the FASB to accounting for variable interest entities. These changes require an enterprise to perform an analysis to determine whether the enterprise's variable interest or interests



give it a controlling financial interest in a variable interest entity; to require ongoing reassessments of whether an enterprise is the primary beneficiary of a variable interest entity; to eliminate the solely quantitative approach previously required for determining the primary beneficiary of a variable interest entity; to add an additional reconsideration event for determining whether an entity is a variable interest entity when any changes in facts and circumstances occur such that holders of the equity investment at risk, as a group, lose the power from voting rights or similar rights of those investments to direct the activities of the entity that most significantly impact the entity's economic performance; and to require enhanced disclosures that will provide users of financial statements with more transparent information about an enterprise's involvement in a variable interest entity. The adoption of these changes had no impact on the Consolidated Financial Statements.

Effective January 1, 2010, Alcoa adopted changes issued by the FASB on January 6, 2010 for a scope clarification to the FASB's previously-issued guidance (in December 2007) on accounting for noncontrolling interests in consolidated financial statements. These changes clarify the accounting and reporting guidance for noncontrolling interests and changes in ownership interests of a consolidated subsidiary. An entity is required to deconsolidate a subsidiary when the entity ceases to have a controlling financial interest in the subsidiary. Upon deconsolidation of a subsidiary, an entity recognizes a gain or loss on the transaction and measures any retained investment in the subsidiary at fair value. The gain or loss includes any gain or loss associated with the difference between the fair value of the retained investment in the subsidiary and its carrying amount at the date the subsidiary is deconsolidated. In contrast, an entity is required to account for a decrease in its ownership interest of a subsidiary that does not result in a change of control of the subsidiary as an equity transaction. The adoption of these changes had no impact on the Consolidated Financial Statements.

**Goodwill and Other Intangible Assets** On January 1, 2011, Alcoa adopted changes issued by the FASB to the testing of goodwill for impairment. These changes require an entity to perform all steps in the test for a reporting unit whose carrying value is zero or negative if it is more likely than not (more than 50%) that a goodwill impairment exists based on qualitative factors. This will result in the elimination of an entity's ability to assert that such a reporting unit's goodwill is not impaired and additional testing is not necessary despite the existence of qualitative factors that indicate otherwise. Based on the then most recent impairment review of Alcoa's goodwill (2011 fourth quarter), the adoption of these changes had no impact on the Consolidated Financial Statements.

In September 2011, the FASB issued changes to the testing of goodwill for impairment. These changes provide an entity the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (more than 50%) that the fair value of a reporting unit is less than its carrying amount. Such qualitative factors may include the following: macroeconomic conditions; industry and market considerations; cost factors; overall financial performance; and other relevant entity-specific events. If an entity elects to perform a qualitative assessment and determines that an impairment is more likely than not, the entity is then required to perform the existing two-step quantitative impairment test, otherwise no further analysis is required. An entity also may elect not to perform the qualitative assessment and, instead, proceed directly to the two-step quantitative impairment test. Under either option, the ultimate outcome of the goodwill impairment test should be the same. These changes are required to become effective for Alcoa for any goodwill impairment test performed on January 1, 2012 or later; however, early adoption is permitted. Alcoa elected to early adopt these changes in conjunction with management's annual review of goodwill in the fourth quarter of 2011 (see the Goodwill and Other Intangible Assets section of Note A above). The adoption of these changes had no impact on the Consolidated Financial Statements.

**Other** On January 1, 2012, Alcoa adopted changes issued by the FASB to the presentation of comprehensive income. These changes give an entity the option to present the total of comprehensive income, the components of net income, and the components of other comprehensive income either in a single continuous statement of comprehensive income or in two separate but consecutive statements; the option to present components of other comprehensive income as part of the statement of changes in stockholders' equity was eliminated. The items that must be reported in other comprehensive income or when an item of other comprehensive income must be reclassified to net income were not changed. Additionally, no changes were made to the calculation and presentation of earnings per share. Management elected to present the two-statement option. Other than the change in presentation, the adoption of these changes had no impact on the Consolidated Financial Statements.

On January 1, 2011, Alcoa adopted changes issued by the FASB to revenue recognition for multiple-deliverable arrangements. These changes require separation of consideration received in such arrangements by establishing a selling price hierarchy (not the same as fair value) for determining the selling price of a deliverable, which will be based on available information in the following order: vendor-specific objective evidence, third-party evidence, or estimated selling price; eliminate the residual method of allocation and require that the consideration be allocated at the inception of the arrangement to all deliverables using the relative selling price method, which allocates any discount in the arrangement to each deliverable on the basis of each deliverable's selling price; require that a vendor determine its best estimate of selling price in a manner that is consistent with that used to determine the price to sell the deliverable on a standalone basis; and expand the disclosures related to multiple-deliverable revenue arrangements. The adoption of these changes had no impact on the Consolidated Financial Statements, as Alcoa does not currently have any such arrangements with its customers.

On January 1, 2011, Alcoa adopted changes issued by the FASB to the classification of certain employee share-based payment awards. These changes clarify that there is not an indication of a condition that is other than market, performance, or service if an employee share-based payment award's exercise price is denominated in the currency of a market in which a substantial portion of the entity's equity securities trade and differs from the functional currency of the employer entity or payroll currency of the employee. An employee share-based payment award is required to be classified as a liability if the award does not contain a market, performance, or service condition. Prior to this guidance, the difference between the currency denomination of an employee share-based payment award's exercise price and the functional currency of the employer entity or payroll currency of the employee was not a factor considered by management when determining the proper classification of a share-based payment award. The adoption of these changes had no impact on the Consolidated Financial Statements.

On January 1, 2010, Alcoa adopted changes issued by the FASB to accounting for transfers of financial assets. These changes remove the concept of a qualifying special-purpose entity and remove the exception from the application of variable interest accounting to variable interest entities that are qualifying special-purpose entities; limit the circumstances in which a transferor derecognizes a portion or component of a financial asset; define a participating interest; require a transferor to recognize and initially measure at fair value all assets obtained and liabilities incurred as a result of a transfer accounted for as a sale; and require enhanced disclosure. The adoption of these changes had no impact on the Consolidated Financial Statements. In March 2010, management terminated the Company's accounts receivable securitization program; had this program not been terminated, the adoption of these changes would have resulted in a \$250 increase to both Receivables from customers and Short-term borrowings on the accompanying Consolidated Balance Sheet.

Effective January 1, 2010, Alcoa adopted changes issued by the FASB on February 24, 2010 to accounting for and disclosure of events that occur after the balance sheet date but before financial statements are issued or available to be issued, otherwise known as subsequent events. Specifically, these changes clarify that an entity that is required to file or furnish its financial statements with the Securities and Exchange Commission is not required to disclose the date through which subsequent events have been evaluated, as had been previously required by changes issued by the FASB in May 2009. Other than the elimination of disclosing the date through which management has performed its evaluation for subsequent events (see Note Y), the adoption of these changes had no impact on the Consolidated Financial Statements.

On July 1, 2010, Alcoa adopted changes to existing accounting requirements for embedded credit derivatives. Specifically, the changes clarify the scope exception regarding when embedded credit derivative features are not considered embedded derivatives subject to potential bifurcation and separate accounting. The adoption of these changes had no impact on the Consolidated Financial Statements.

**Recently Issued Accounting Guidance.** In July 2012, the FASB issued changes to the testing of indefinite-lived intangible assets for impairment, similar to the goodwill changes issued in September 2011. These changes provide an entity the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not (more than 50%) that the fair value of an indefinite-lived intangible asset is less than its carrying amount. Such qualitative factors may include the following: macroeconomic conditions; industry and

market considerations; cost factors; overall financial performance; and other relevant entity-specific events. If an entity elects to perform a qualitative assessment and determines that an impairment is more likely than not, the entity is then required to perform the existing two-step quantitative impairment test, otherwise no further analysis is required. An entity also may elect not to perform the qualitative assessment and, instead, proceed directly to the two-step quantitative impairment test. These changes become effective for Alcoa for any indefinite-lived intangible asset impairment test performed on January 1, 2013 or later, although early adoption is permitted. Upon adoption of these changes, management plans to proceed directly to the two-step quantitative test for Alcoa's indefinite-lived intangible assets. As these changes should not affect the outcome of the impairment analysis of an indefinite-lived intangible asset, management has determined these changes will not have an impact on the Consolidated Financial Statements.

In December 2011, the FASB issued changes to the disclosure of offsetting assets and liabilities. These changes require an entity to disclose both gross information and net information about both instruments and transactions eligible for offset in the statement of financial position and instruments and transactions subject to an agreement similar to a master netting arrangement. The enhanced disclosures will enable users of an entity's financial statements to understand and evaluate the effect or potential effect of master netting arrangements on an entity's financial position, including the effect or potential effect of rights of setoff associated with certain financial instruments and derivative instruments. These changes become effective for Alcoa on January 1, 2013. Other than the additional disclosure requirements, management has determined that the adoption of these changes will not have an impact on the Consolidated Financial Statements.

### B. Discontinued Operations and Assets Held for Sale

For the years ended December 31, 2012, 2011, and 2010, there were no active businesses classified as discontinued operations in the accompanying Statement of Consolidated Operations.

The following table details selected financial information of discontinued operations:

|  | 2012 | 2011   | 2010    |
|--|------|--------|---------|
| Sales                                    | \$ - | \$ -   | \$ -    |
| Loss from operations before income taxes | \$ - | \$ (4) | \$ (11) |
| Benefit for income taxes                 | -    | 1      | 3       |
| Loss from discontinued operations        | \$ - | \$ (3) | \$ (8)  |

In 2011, discontinued operations included an additional loss of \$3 (\$5 pretax) related to the wire harness and electrical portion (divested in June 2009) of the Electrical and Electronic Solutions (EES) business as a result of a negotiated preliminary settlement related to claims filed in 2010 against Alcoa by Platinum Equity in an insolvency proceeding in Germany, a net gain of \$2 (\$3 pretax) related to both the wire harness and electrical portion and the electronics portion (divested in December 2009) of the EES business for a number of small post-closing and other adjustments, and a \$2 (\$2 pretax) reversal of the gain recognized in 2006 related to the sale of the home exteriors business for an adjustment to an outstanding obligation, which was part of the terms of sale. In 2010, discontinued operations included an additional loss of \$6 (\$9 pretax) related to the wire harness and electrical portion of the EES business as a result of a contract settlement with a former customer of this business and an additional loss of \$2 (\$4 pretax) related to the electronics portion of the EES business for the settling of working capital, which was not included in the divestiture transaction.

For both periods presented in the accompanying Consolidated Balance Sheet, the assets and liabilities of operations classified as held for sale included the electronics portion of the EES business (working capital components) and the Hawesville, KY automotive casting facility. Additionally, assets of the Tapoco Hydroelectric Project ( Tapoco ), along with an allocation of goodwill from the Primary Metals reporting unit, were classified as held for sale as of December 31, 2011.

In June 2012, management committed to a plan to sell the assets, consisting of properties, plants, and equipment and intangible assets, of Tapoco. As a result, these assets were reclassified to held for sale. The Consolidated Financial Statements for all prior periods presented were reclassified to reflect this change. In November 2012, Alcoa completed the sale of Tapoco (see Note F).

The major classes of assets and liabilities of operations held for sale were as follows:

| <b>December 31,</b>                      | <b>2012</b> | <b>2011</b> |
|--|-------------|-------------|
| Assets:                                  |             |             |
| Properties, plants, and equipment        | \$ 2        | \$ 136      |
| Goodwill                                 | -           | 94          |
| Other assets                             | -           | 13          |
| Assets held for sale*                    | \$ 2        | \$ 243      |
| Liabilities:                             |             |             |
| Accounts payable, trade                  | \$ -        | \$ 1        |
| Accrued expenses                         | 1           | 5           |
| Liabilities of operations held for sale* | \$ 1        | \$ 6        |

\* Assets held for sale were included in Other noncurrent assets and Liabilities of operations held for sale were included in Other noncurrent liabilities and deferred credits on the accompanying Consolidated Balance Sheet.

### C. Asset Retirement Obligations

Alcoa has recorded AROs related to legal obligations associated with the normal operations of 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.

In addition to AROs, certain 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. 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 (e.g., planned demolition), Alcoa would record an ARO 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. If Alcoa was required to demolish all such structures immediately, the estimated CARO as of December 31, 2012 ranges from less than \$1 to \$52 per structure (132 structures) in today's dollars.

The following table details the carrying value of recorded AROs by major category (of which \$75 and \$76 was classified as a current liability as of December 31, 2012 and 2011, respectively):

| <b>December 31,</b>              | <b>2012</b> | <b>2011</b> |
|----------------------------------|-------------|-------------|
| Spent pot lining disposal        | \$ 182      | \$ 187      |
| Closure of bauxite residue areas | 190         | 173         |
| Mine reclamation                 | 189         | 164         |
| Demolition*                      | 28          | 34          |
| Landfill closure                 | 17          | 17          |
| Other                            | 4           | 4           |
|                                  | \$ 610      | \$ 579      |

\* In 2011, AROs were recorded as a result of management's decision to permanently shut down and demolish certain structures, each of which was previously temporarily idled for different reasons (see Note D).

The following table details the changes in the total carrying value of recorded AROs:

| <b>December 31,</b>                    | <b>2012</b> | <b>2011</b> |
|--|-------------|-------------|
| Balance at beginning of year           | \$ 579      | \$ 534      |
| Accretion expense                      | 25          | 22          |
| Payments                               | (81)        | (86)        |
| Liabilities incurred                   | 80          | 115         |
| Foreign currency translation and other | 7           | (6)         |
| Balance at end of year                 | \$ 610      | \$ 579      |

#### **D. Restructuring and Other Charges**

Restructuring and other charges for each year in the three-year period ended December 31, 2012 were comprised of the following:

|  | <b>2012</b> | <b>2011</b> | <b>2010</b> |
|--|-------------|-------------|-------------|
| Asset impairments  | \$ 40       | \$ 150      | \$ 139      |
| Layoff costs   | 47          | 93          | 43          |
| Other exit costs   | 21          | 61          | 58          |
| Reversals of previously recorded layoff and other exit costs | (21)        | (23)        | (33)        |
| Restructuring and other charges                              | \$ 87       | \$ 281      | \$ 207      |

Layoff 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.

**2012 Actions.** In 2012, Alcoa recorded Restructuring and other charges of \$87 (\$73 after-tax and noncontrolling interests), which were comprised of the following components: \$47 (\$29 after-tax and noncontrolling interests) for the layoff of approximately 800 employees (390 in the Engineered Products and Solutions segment, 250 in the Primary Metals segment, 85 in the Alumina segment, and 75 in Corporate), including \$10 (\$7 after-tax) for the layoff of an additional 170 employees related to the previously reported smelter curtailments in Spain (see 2011 Actions below); \$30 (\$30 after-tax) in asset impairments and \$6 (\$6 after-tax) for lease and contract termination costs due to a decision to exit the lithographic sheet business in Bohai, China; \$11 (\$11 after-tax) in costs to idle the Portovesme smelter (see 2011 Actions below); \$10 (\$8 after-tax) in other asset impairments; a net charge of \$4 (\$4 after-tax and noncontrolling interests) for other miscellaneous items; and \$21 (\$15 after-tax and noncontrolling interests) for the reversal of a number of layoff reserves related to prior periods, including \$10 (\$7 after-tax) related to the smelters in Spain. The reversal related to the smelters in Spain is due to lower than expected costs based on agreements with employee representatives and the government, as well as a reduction of 55 in the number of layoffs due to the anticipation of the restart of a portion of the previously curtailed capacity based on an agreement with the Spanish government that will provide interruptibility rights (i.e. compensation for power interruptions when grids are overloaded) to the smelters during 2013. A portion of this reversal relates to layoff costs recorded at the end of 2011 (see 2011 Actions below) and a portion of this reversal relates to layoff costs recorded during 2012 (see above).

As of December 31, 2012, approximately 270 of the 800 employees were separated. The remaining separations for the 2012 restructuring programs are expected to be completed by the end of 2013. In 2012, cash payments of \$16 were made against layoff reserves related to the 2012 restructuring programs.

**2011 Actions.** In 2011, Alcoa recorded Restructuring and other charges of \$281 (\$181 after-tax and noncontrolling interests), which were comprised of the following components: \$127 (\$82 after-tax) in asset impairments and \$36 (\$23 after-tax) in other exit costs related to the permanent shutdown and planned demolition of certain idled structures at two U.S. locations (see below); \$93 (\$68 after-tax and noncontrolling interests) for the layoff of approximately 1,600 employees (820 in the Primary Metals segment, 470 in the Global Rolled Products segment, 160 in the Alumina

segment, 20 in the Engineered Products and Solutions segment, and 130 in Corporate), including the effects of planned smelter curtailments (see below); \$23 (\$12 after-tax and noncontrolling interests) for other asset impairments, including the write-off of the carrying value of an idled structure in Australia that processed spent pot lining and adjustments to the fair value of the one remaining foil location while it was classified as held for sale due to foreign currency movements; \$20 (\$8 after-tax and noncontrolling interests) for a litigation matter related to the former St. Croix location (see the Litigation section of Note N); a net charge of \$5 (\$4 after-tax) for other small items; and \$23 (\$16 after-tax) for the reversal of previously recorded layoff reserves due to normal attrition and changes in facts and circumstances, including a change in plans for Alcoa's aluminum powder facility in Rockdale, TX.

In late 2011, management approved the permanent shutdown and demolition of certain facilities at two U.S. locations, each of which was previously temporarily idled for various reasons. The identified facilities are the smelter located in Alcoa, TN (capacity of 215 kmt-per-year) and two potlines (capacity of 76 kmt-per-year) at the smelter located in Rockdale, TX (remaining capacity of 191 kmt-per-year composed of four potlines). Demolition and remediation activities related to these actions began in 2012 and are expected to be completed in 2015 for the Tennessee smelter and in 2013 for the two potlines at the Rockdale smelter. This decision was made after a comprehensive strategic analysis was performed to determine the best course of action for each facility. Factors leading to this decision were in general focused on achieving sustained competitiveness and included, among others: lack of an economically viable, long-term power solution; changed market fundamentals; cost competitiveness; required future capital investment; and restart costs. The asset impairments of \$127 represent the write off of the remaining book value of properties, plants, and equipment related to these facilities. Additionally, remaining inventories, mostly operating supplies, were written down to their net realizable value resulting in a charge of \$6 (\$4 after-tax), which was recorded in Cost of goods sold on the accompanying Statement of Consolidated Operations. The other exit costs of \$36 represent \$18 (\$11 after-tax) in environmental remediation (see Note N) and \$17 (\$11 after-tax) in asset retirement obligations (see Note C), both triggered by the decision to permanently shut down and demolish these structures, and \$1 (\$1 after-tax) in other related costs.

Also, at the end of 2011, management approved a partial or full curtailment of three European smelters as follows: Portovesme, Italy (150 kmt-per-year); Avilés, Spain (46 kmt out of 93 kmt-per-year); and La Coruña, Spain (44 kmt out of 87 kmt-per-year). These curtailments were completed by the end of 2012. The curtailment of the Portovesme smelter may lead to the permanent closure of the facility, which would result in future charges, while the curtailments at the two smelters in Spain are planned to be temporary. These actions were the result of uncompetitive energy positions, combined with rising material costs and falling aluminum prices (mid-2011 to late 2011). As a result of these decisions, Alcoa recorded costs of \$33 (\$31 after-tax) for the layoff of approximately 650 employees. As Alcoa engaged in discussions with the respective employee representatives and governments, additional charges were recognized in 2012 (see 2012 Actions above).

As of December 31, 2012, approximately 895 of the 1,475 employees were separated. The total number of employees associated with the 2011 restructuring programs was updated to reflect changes in plans (agreement related to the smelters in Spain - see 2012 Actions above), better than expected operating performance at certain locations, and natural attrition. The remaining separations for the 2011 restructuring programs are expected to be completed by the end of 2013. In 2012 and 2011, cash payments of \$23 and \$24, respectively, were made against layoff reserves related to the 2011 restructuring programs.

**2010 Actions.** In 2010, Alcoa recorded Restructuring and other charges of \$207 (\$130 after-tax and noncontrolling interests), which were comprised of the following components: \$127 (\$80 after-tax and noncontrolling interests) in asset impairments and \$46 (\$29 after-tax and noncontrolling interests) in other exit costs related to the permanent shutdown and planned demolition of certain idled structures at five U.S. locations (see below); \$43 (\$29 after-tax and noncontrolling interests) for the layoff of approximately 875 employees (625 in the Engineered Products and Solutions segment; 75 in the Primary Metals segment; 60 in the Alumina segment; 25 in the Global Rolled Products segment; and 90 in Corporate); \$22 (\$14 after-tax) in net charges (including \$12 (\$8 after-tax) for asset impairments) related to divested and to be divested businesses (Automotive Castings, Global Foil, Transportation Products Europe, and Packaging and Consumer) for, among other items, the settlement of a contract with a former customer, foreign currency movements, working capital adjustments, and a tax indemnification; \$2 (\$2 after-tax and noncontrolling interests) for various other exit costs; and \$33 (\$24 after-tax and noncontrolling interests) for the reversal of prior

periods layoff reserves, including a portion of those related to the Portovesme smelter in Italy due to the execution of a new power agreement (see the European Commission Matters section of Note N).

In early 2010, management approved the permanent shutdown and demolition of the following structures, each of which was previously temporarily idled for different reasons: the Eastalco smelter located in Frederick, MD (capacity of 195 kmt-per-year); the smelter located in Badin, NC (capacity of 60 kmt-per-year); an aluminum fluoride plant in Point Comfort, TX; a paste plant and cast house in Massena, NY; and one potline at the smelter in Warrick, IN (capacity of 40 kmt-per-year). This decision was made after a comprehensive strategic analysis was performed to determine the best course of action for each facility. Factors leading to this decision included current market fundamentals, cost competitiveness, other existing idle capacity, required future capital investment, and restart costs, as well as the elimination of ongoing holding costs. The asset impairments of \$127 represent the write off of the remaining book value of properties, plants, and equipment related to these facilities. Additionally, remaining inventories, mostly operating supplies, were written down to their net realizable value resulting in a charge of \$8 (\$5 after-tax and noncontrolling interests), which was recorded in Cost of goods sold on the accompanying Statement of Consolidated Operations. The other exit costs of \$46 represent \$30 (\$19 after-tax and noncontrolling interests) in asset retirement obligations and \$14 (\$9 after-tax) in environmental remediation, both triggered by the decision to permanently shut down and demolish these structures, and \$2 (\$1 after-tax and noncontrolling interests) in other related costs.

As of December 31, 2012, the separations associated with 2010 restructuring programs were essentially complete. In 2012 and 2011, cash payments of \$3 and \$7, respectively, were made against layoff reserves related to 2010 restructuring programs.

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

|                                       | <b>2012</b> | <b>2011</b> | <b>2010</b> |
|---------------------------------------|-------------|-------------|-------------|
| Alumina                               | \$ 3        | \$ 39       | \$ 12       |
| Primary Metals                        | 20          | 212         | 145         |
| Global Rolled Products                | 43          | 19          | (11)        |
| Engineered Products and Solutions     | 13          | (3)         | 18          |
| Segment total                         | 79          | 267         | 164         |
| Corporate                             | 8           | 14          | 43          |
| Total restructuring and other charges | \$ 87       | \$ 281      | \$ 207      |

Activity and reserve balances for restructuring charges were as follows:

|                                       | Layoff<br>costs | Other<br>exit costs | Total  |
|---------------------------------------|-----------------|---------------------|--------|
| Reserve balances at December 31, 2009 | \$ 160          | \$ 66               | \$ 226 |
| <b>2010:</b>                          |                 |                     |        |
| Cash payments                         | (93)            | (15)                | (108)  |
| Restructuring charges                 | 43              | 53                  | 96     |
| Other*                                | (57)            | (41)                | (98)   |
| Reserve balances at December 31, 2010 | 53              | 63                  | 116    |
| <b>2011:</b>                          |                 |                     |        |
| Cash payments                         | (45)            | (9)                 | (54)   |
| Restructuring charges                 | 93              | 37                  | 130    |
| Other*                                | (24)            | (34)                | (58)   |
| Reserve balances at December 31, 2011 | 77              | 57                  | 134    |
| <b>2012:</b>                          |                 |                     |        |
| Cash payments                         | (44)            | (13)                | (57)   |
| Restructuring charges                 | 47              | 13                  | 60     |
| Other*                                | (21)            | (5)                 | (26)   |
| Reserve balances at December 31, 2012 | \$ 59           | \$ 52               | \$ 111 |

\* Other includes reversals of previously recorded restructuring charges and the effects of foreign currency translation. In 2011, Other for other exit costs also included a reclassification of the following restructuring charges: \$18 in environmental and \$17 in asset retirement obligations, as these liabilities are included in Alcoa's separate reserves for environmental remediation (see Note N) and asset retirement obligations (see Note C), respectively. In 2010, Other for other exit costs also included a reclassification of the following restructuring charges: \$30 in asset retirement and \$14 in environmental obligations, as these liabilities are included in Alcoa's separate reserves for asset retirement obligations and environmental remediation, respectively.

The remaining reserves are expected to be paid in cash during 2013, with the exception of approximately \$50 to \$55, which is expected to be paid over the next several years for lease termination costs, special separation benefit payments, and ongoing site remediation work.



**E. Goodwill and Other Intangible Assets**

The following table details the changes in the carrying amount of goodwill:

|                                      | Alumina | Primary<br>Metals | Global<br>Rolled<br>Products | Engineered<br>Products<br>and<br>Solutions | Corporate* | Total    |
|--------------------------------------|---------|-------------------|------------------------------|--|------------|----------|
| <b>Balance at December 31, 2010:</b> |         |                   |                              |  |            |          |
| Goodwill                             | \$ 12   | \$ 993            | \$ 207                       | \$ 2,551                                   | \$ 1,293   | \$ 5,056 |
| Accumulated impairment losses        | -       | -                 | -                            | (28)                                       | -          | (28)     |
|                                      | 12      | 993               | 207                          | 2,523                                      | 1,293      | 5,028    |
| Acquisition of businesses            | -       | -                 | -                            | 150  | -          | 150      |
| Translation                          | (1)     | (2)               | 1                            | (7)  | (12)       | (21)     |
| <b>Balance at December 31, 2011:</b> |         |                   |                              |  |            |          |
| Goodwill                             | 11      | 991               | 208                          | 2,694                                      | 1,281      | 5,185    |
| Accumulated impairment losses        | -       | -                 | -                            | (28)                                       | -          | (28)     |
|                                      | 11      | 991               | 208                          | 2,666                                      | 1,281      | 5,157    |
| Acquisition of businesses            | -       | -                 | -                            | (1)  | -          | (1)      |
| Translation                          | (1)     | 6                 | 6                            | 12   | (9)        | 14       |
| <b>Balance at December 31, 2012:</b> |         |                   |                              |  |            |          |
| Goodwill                             | 10      | 997               | 214                          | 2,705                                      | 1,272      | 5,198    |
| Accumulated impairment losses        | -       | -                 | -                            | (28)                                       | -          | (28)     |
|                                      | \$ 10   | \$ 997            | \$ 214                       | \$ 2,677                                   | \$ 1,272   | \$ 5,170 |

\* As of December 31, 2012, \$1,247 of the amount reflected in Corporate is allocated to each of Alcoa's four reportable segments (\$161 to Alumina, \$751 to Primary Metals, \$62 to Global Rolled Products, and \$273 to Engineered Products and Solutions) included in the table above for purposes of impairment testing (see Note A). This goodwill is reflected in Corporate for segment reporting purposes because it is not included in management's assessment of performance by the four reportable segments.

Other intangible assets, which are included in Other noncurrent assets on the accompanying Consolidated Balance Sheet, were as follows:

| <b>December 31, 2012</b>                    | <b>Gross<br/>carrying<br/>amount</b> | <b>Accumulated<br/>amortization</b> |
|---|--------------------------------------|-------------------------------------|
| Computer software                           | \$ 907                               | \$ (664)                            |
| Patents and licenses                        | 133                                  | (88)                                |
| Other intangibles                           | 101                                  | (28)                                |
| Total amortizable intangible assets         | 1,141                                | (780)                               |
| Indefinite-lived trade names and trademarks | 46                                   | -                                   |
| Total other intangible assets               | \$ 1,187                             | \$ (780)                            |

| <b>December 31, 2011</b>                     | <b>Gross<br/>carrying<br/>amount</b> | <b>Accumulated<br/>amortization</b> |
|--|--------------------------------------|-------------------------------------|
| Computer software                            | \$ 902                               | \$ (595)                            |
| Patents and licenses                         | 133                                  | (83)                                |
| Other intangibles*                           | 101                                  | (23)                                |
| Total amortizable intangible assets          | 1,136                                | (701)                               |
| Indefinite-lived trade names and trademarks* | 46                                   | -                                   |
| Total other intangible assets                | \$ 1,182                             | \$ (701)                            |

\* In 2011, customer relationships were identified as an intangible asset (\$31) related to the acquisition of an aerospace fastener business (see Note F) and were preliminarily classified as indefinite-lived in the table above. Upon the completion of the final valuation in 2012, it was determined that the customer relationships should have a finite life. As a result, the 2011 gross carrying amounts for indefinite-lived intangible assets and other intangible assets were revised to conform to the 2012 presentation.

Computer software consists primarily of software costs associated with an enterprise business solution (EBS) within Alcoa to drive common systems among all businesses.

Amortization expense related to the intangible assets in the tables above for the years ended December 31, 2012, 2011, and 2010 was \$82, \$86, and \$86, respectively, and is expected to be in the range of approximately \$80 to \$90 annually from 2013 to 2017.

#### F. Acquisitions and Divestitures

Pro forma results of the Company, assuming all acquisitions described below were made at the beginning of the earliest prior period presented, would not have been materially different from the results reported.

**2012 Divestitures.** In November 2012, Alcoa completed the sale of its 351-megawatt Tapoco Hydroelectric Project ( Tapoco ) to Brookfield Renewable Energy Partners for \$597 in cash. Alcoa recognized a gain of \$320 (\$173 after-tax) in Other income, net on the accompanying Statement of Consolidated Operations, of which a gain of \$426 (\$275 after-tax) was reflected in the Primary Metals segment and a loss of \$106 (\$102 after-tax) was reflected in Corporate. The amount in Corporate represents the write-off of goodwill and capitalized interest related to Tapoco that were not included in the assets of the Primary Metals segment. This transaction is subject to certain post-closing adjustments as defined in the purchase agreement. Tapoco is a four-station hydroelectric project located on the Little Tennessee and Cheoah Rivers in eastern Tennessee and western North Carolina. The transaction included four generating stations and dams, 86 miles of transmission lines, and approximately 14,500 acres of land associated with and surrounding Tapoco. The power generated by Tapoco was primarily consumed by Alcoa's smelter in Tennessee, which was temporarily idled in 2009 and permanently shut down in 2011. Since 2009, the power generated from Tapoco was sold into the

open market. Prior to November 2012, the carrying value of the assets sold, which consisted of properties, plants, and equipment and intangible assets, along with an allocation of goodwill (\$94) from the Primary Metals reporting unit, were classified as held for sale (see Note B).

**2011 Acquisitions.** On March 9, 2011, Alcoa completed an acquisition of the aerospace fastener business of TransDigm Group Inc. for \$240 (cash acquired and post-closing adjustments resulted in a net purchase price of \$239). This business is a leading global designer, producer, and supplier of highly engineered aircraft components, with three locations (one in the state of California and two in the United Kingdom) that employ a combined 400 people. Specifically, this business provides a wide variety of high-strength, high temperature nickel alloy specialty engine fasteners, airframe bolts, and slotted entry bearings. In 2010, this business generated sales of \$61. The assets and liabilities of this business were included in the Engineered Products and Solutions segment as of March 31, 2011; this business' results of operations were included in this segment beginning March 9, 2011. Based on the preliminary purchase price allocation, goodwill of \$154 was recorded for this transaction. In 2012, the purchase price allocation was finalized based on the completion of a valuation study resulting in a \$1 reduction of the initial goodwill amount. Approximately \$60 of goodwill is deductible for income tax purposes. No other intangible assets were identified as a result of the final valuation. This transaction is no longer subject to post-closing adjustments. This acquisition is part of a strategic plan to accelerate the growth of Alcoa's fastener business, while adding efficiencies, broadening the existing technology base, and expanding product offerings to better serve customers and increase shareholder value.

**2010 Acquisitions.** In July 2010, Alcoa completed an acquisition of the commercial building and construction business of a privately-held company, Traco, for \$77. This business, located in Cranberry, Pennsylvania, employing 650 people, is a premier manufacturer of windows and doors for the commercial building and construction market and generated sales of approximately \$100 in 2009. The assets and liabilities of this business were included in the Engineered Products and Solutions segment as of the end of July 2010 and this business' results of operations were included in this segment since the beginning of August 2010. Based on the preliminary purchase price allocation, goodwill of \$28 was recorded for this transaction. In 2011, the purchase price allocation was finalized based on the completion of a valuation study resulting in a reduction in the initial goodwill amount of \$4. All of the \$24 in goodwill is deductible for income tax purposes. Also in 2011, Alcoa paid an additional \$1 to settle working capital, as provided for in the acquisition agreement, reflecting an adjustment to the purchase price. This transaction is no longer subject to post-closing adjustments.

**2010 Divestitures.** In April 2010, Alcoa completed the divestiture of the Transportation Products Europe business, the assets and liabilities of which were classified as held for sale in 2008, to two separate buyers. Combined, this business sold for \$14, which was included in Proceeds from the sale of assets and businesses on the accompanying Statement of Consolidated Cash Flows; a gain of \$5 (\$5 after-tax) was recognized in Restructuring and other charges on the accompanying Statement of Consolidated Operations. These two transactions are no longer subject to post-closing adjustments. This business generated sales of \$78 in 2009 and, at the time of divestiture, had approximately 360 employees at three locations.

**Contingent Payments.** In connection with the 2005 acquisition of two fabricating facilities in Russia, Alcoa could be required to make contingent payments of approximately \$50 through 2015 based upon the achievement of various financial and operating targets. Any such payment would be reflected as additional goodwill.

## G. Inventories

| December 31,            | 2012     | 2011     |
|-------------------------|----------|----------|
| Finished goods          | \$ 542   | \$ 537   |
| Work-in-process         | 866      | 911      |
| Bauxite and alumina     | 618      | 656      |
| Purchased raw materials | 536      | 532      |
| Operating supplies      | 263      | 263      |
|                         | \$ 2,825 | \$ 2,899 |

At December 31, 2012 and 2011, the total amount of inventories valued on a LIFO basis was 35%. If valued on an average-cost basis, total inventories would have been \$770 and \$801 higher at December 31, 2012 and 2011, respectively. During the three-year period ended December 31, 2012, reductions in LIFO inventory quantities caused partial liquidations of the lower cost LIFO inventory base. These liquidations resulted in the recognition of income of \$1 (\$1 after-tax) in 2012, \$2 (\$1 after-tax) in 2011, and \$27 (\$17 after-tax) in 2010.

#### H. Properties, Plants, and Equipment, Net

| December 31,  | 2012      | 2011      |
|---|-----------|-----------|
| Land and land rights, including mines                       | \$ 676    | \$ 665    |
| Structures:   |           |           |
| Alumina:  |           |           |
| Alumina refining  | 3,319     | 3,280     |
| Bauxite mining  | 1,563     | 1,597     |
| Primary Metals:   |           |           |
| Aluminum smelting   | 4,042     | 3,950     |
| Power generation  | 604       | 667       |
| Global Rolled Products                                      | 1,232     | 1,204     |
| Engineered Products and Solutions                           | 678       | 648       |
| Other   | 760       | 714       |
|   | 12,198    | 12,060    |
| Machinery and equipment:                                    |           |           |
| Alumina:  |           |           |
| Alumina refining  | 5,279     | 5,223     |
| Bauxite mining  | 650       | 661       |
| Primary Metals:   |           |           |
| Aluminum smelting   | 8,114     | 8,266     |
| Power generation  | 994       | 1,012     |
| Global Rolled Products                                      | 5,174     | 5,059     |
| Engineered Products and Solutions                           | 2,415     | 2,252     |
| Other   | 883       | 764       |
|   | 23,509    | 23,237    |
|   | 36,383    | 35,962    |
| Less: accumulated depreciation, depletion, and amortization | 19,190    | 18,326    |
|   | 17,193    | 17,636    |
| Construction work-in-progress                               | 1,754     | 1,646     |
|   | \$ 18,947 | \$ 19,282 |

As of December 31, 2012 and 2011, the net carrying value of temporarily idled smelting assets was \$325 and \$166, representing 591 kmt and 353 kmt of idle capacity, respectively. Additionally, the net carrying value of permanently idled smelting assets, representing 291 kmt, was written off at the end of 2011 (see Note D). Also, the net carrying value of temporarily idled refining assets was \$68 and \$65 as of December 31, 2012 and 2011, representing 1,277 and 1,177 kmt of idle capacity, respectively.

#### I. Investments

| December 31,       | 2012     | 2011     |
|--------------------|----------|----------|
| Equity investments | \$ 1,782 | \$ 1,524 |
| Other investments  | 78       | 102      |
|                    | \$ 1,860 | \$ 1,626 |

**Equity Investments.** As of December 31, 2012 and 2011, Equity investments included an interest in a project to develop a fully-integrated aluminum complex in Saudi Arabia (see below), hydroelectric power projects in Brazil (see Note N), a smelter operation in Canada (50% of Pechiney Reynolds Quebec, Inc.), bauxite mining interests in Guinea (45% of Halco Mining, Inc.) and Brazil (18.2% of Mineração Rio do Norte S.A.), and a natural gas pipeline in Australia (see Note N). Pechiney Reynolds Quebec, Inc. owns a 50.1% interest in the Bécancour smelter in Quebec, Canada thereby entitling Alcoa to a 25.05% interest in the smelter. Through two wholly-owned Canadian subsidiaries, Alcoa also owns 49.9% of the Bécancour smelter. Halco Mining, Inc. owns 100% of Boké Investment Company, which owns 51% of Compagnie des Bauxites de Guinée. The investments in the bauxite mining interests in Guinea and Brazil and the natural gas pipeline in Australia are held by wholly-owned subsidiaries of Alcoa World Alumina and Chemicals (AWAC), which is owned 60% by Alcoa and 40% by Alumina Limited. In 2012, 2011, and 2010, Alcoa received \$101, \$100, and \$33, respectively, in dividends from its equity investments.

Alcoa and Saudi Arabian Mining Company (known as Ma'aden) have a 30-year joint venture shareholders' agreement (automatic extension for an additional 20 years, unless the parties agree otherwise or unless earlier terminated) setting forth the terms for the development, construction, ownership, and operation of an integrated bauxite mine, alumina refinery, aluminum smelter, and rolling mill, in Saudi Arabia. Specifically, the project to be developed by the joint venture will consist of: (i) a bauxite mine for the extraction of approximately 4,000 kmt of bauxite from the Al Baita bauxite deposit near Quiba in the northern part of Saudi Arabia; (ii) an alumina refinery with an initial capacity of 1,800 kmt; (iii) a primary aluminum smelter with an initial capacity of 740 kmt; and (iv) a rolling mill with an initial capacity of 380 kmt. The refinery, smelter, and rolling mill are being constructed in an industrial area at Ras Al Khair (formerly Ras Az Zawr) on the east coast of Saudi Arabia. The facilities will use critical infrastructure, including power generation derived from reserves of natural gas, as well as port and rail facilities, developed by the government of Saudi Arabia. First production from the smelter occurred in December 2012. For the rolling mill and mine and refinery, first production is expected in 2013 and 2014, respectively.

In 2012, Alcoa and Ma'aden agreed to expand the capabilities of the rolling mill to include a capacity of 100 kmt dedicated to supplying aluminum automotive, building and construction, and foil stock sheet. First production related to the expanded capacity is expected in 2014. This expansion is not expected to result in additional equity investment (see below) due to significant savings anticipated from a change in the project execution strategy of the initial 380 kmt capacity of the rolling mill.

The joint venture is owned 74.9% by Ma'aden and 25.1% by Alcoa and consists of three separate companies as follows: one each for the mine and refinery, the smelter, and the rolling mill. Following the signing of the joint venture shareholders' agreement, Alcoa paid Ma'aden \$80 representing the initial investment in the project. In addition, Alcoa paid \$22 and \$34 to Ma'aden in 2011 and 2010, respectively, representing Alcoa's pro rata share of certain agreed upon pre-incorporation costs incurred by Ma'aden before formation of the joint venture.

Ma'aden and Alcoa have put and call options, respectively, whereby Ma'aden can require Alcoa to purchase from Ma'aden, or Alcoa can require Ma'aden to sell to Alcoa, a 14.9% interest in the joint venture at the then fair market value. These options may only be exercised in a six-month window that opens five years after the Commercial Production Date (as defined in the joint venture shareholders' agreement) and, if exercised, must be exercised for the full 14.9% interest.

The Alcoa affiliate that holds Alcoa's interests in the smelting company and the rolling mill company is wholly owned by Alcoa, and the Alcoa affiliate that holds Alcoa's interests in the mining and refining company is wholly owned by AWAC. Except in limited circumstances, Alcoa may not sell, transfer or otherwise dispose of or encumber or enter into any agreement in respect of the votes or other rights attached to its interests in the joint venture without Ma'aden's prior written consent.

A number of Alcoa employees perform various types of services for the smelting, rolling mill, and refining and mining companies as part of the construction of the fully-integrated aluminum complex. At December 31, 2012 and 2011, Alcoa had an outstanding receivable of \$28 and \$25, respectively, from the smelting, rolling mill, and refining and mining companies for labor and other employee-related expenses.

Capital investment in the project is expected to total approximately \$10,800 (SAR 40.5 billion). Alcoa's equity investment in the joint venture will be approximately \$1,100 over a five-year period (2010 through 2014), and Alcoa will be responsible for its pro rata share of the joint venture's project financing. Alcoa has contributed \$661, including \$253 and \$249 in 2012 and 2011, respectively, towards the \$1,100 commitment. As of December 31, 2012 and 2011, the carrying value of Alcoa's investment in this project was \$816 and \$565, respectively.

In late 2010, the smelting and rolling mill companies entered into project financing totaling \$4,035, of which \$1,013 represents Alcoa's share (the equivalent of Alcoa's 25.1% interest in the smelting and rolling mill companies). Also, in late 2012, the smelting and rolling mill companies entered into additional project financing totaling \$480, of which \$120 represents Alcoa's share. In conjunction with the financings, Alcoa issued guarantees on behalf of the smelting and rolling mill companies to the lenders in the event that such companies default on their debt service requirements through June 2017 and December 2018, respectively, (Maden issued similar guarantees for its 74.9% interest). Alcoa's guarantees for the smelting and rolling mill companies cover total debt service requirements of \$121 in principal and up to a maximum of approximately \$60 in interest per year (based on projected interest rates). At December 31, 2012 and 2011, the combined fair value of the guarantees was \$10 and \$8, respectively, and was included in Other noncurrent liabilities and deferred credits on the accompanying Consolidated Balance Sheet. Under the project financings, a downgrade of Alcoa's credit ratings below investment grade by at least two agencies would require Alcoa to provide a letter of credit or fund an escrow account for a portion or all of Alcoa's remaining equity commitment to the joint venture project in Saudi Arabia.

In late 2011, the refining and mining company entered into project financing totaling \$1,992, of which \$500 represents AWAC's 25.1% interest in the refining and mining company. In conjunction with the financing, Alcoa, on behalf of AWAC, issued guarantees to the lenders in the event that the refining and mining company defaults on its debt service requirements through June 2019 (Maden issued similar guarantees for its 74.9% interest). Alcoa's guarantees for the refining and mining company cover total debt service requirements of \$60 in principal and up to a maximum of approximately \$25 in interest per year (based on projected interest rates). At December 31, 2012 and 2011, the combined fair value of the guarantees was \$4. In the event Alcoa would be required to make payments under the guarantees, 40% of such amount would be contributed to Alcoa by Alumina Limited, consistent with its ownership interest in AWAC. Under the project financing, a downgrade of Alcoa's credit ratings below investment grade by at least two agencies would require Alcoa to provide a letter of credit or fund an escrow account for a portion or all of Alcoa's remaining equity commitment to the joint venture project in Saudi Arabia.

Power for the refinery, smelter, and rolling mill will be supplied under a gas allocation from Saudi Aramco, based on authorization of the Ministry of Petroleum and Mineral Resources of Saudi Arabia (the Ministry of Petroleum). The letter authorizing the gas allocation provides for gas to be tolled and power to be supplied to the refinery, smelter, and rolling mill from an adjacent power and water desalination plant being constructed by a company ultimately owned by the government of Saudi Arabia, with the major tolling elements fixed at cost. The gas allocation is contingent on the finalization of implementing contractual arrangements and on the achievement of certain milestones, as defined in the joint venture shareholders' agreement, and includes possible penalties if the milestones are not met, including the following: (i) potential forfeiture of a \$350 letter of credit required to be provided to the Ministry of Petroleum by Maden (with Alcoa responsible for its pro rata share) to ensure completion of the refinery, (ii) potential forfeiture of the gas allocation if the smelter is not completed, (iii) a potential requirement for the smelter to allocate 275 kmt of aluminum to other entities determined by the Ministry of Petroleum if the rolling mill is not constructed, and (iv) under a new version of the gas allocation (issued in early 2011 and further extended in May 2012), forfeiture of a \$60 letter of credit if certain auxiliary rolling facilities are not completed.

The parties subject to the joint venture shareholders' agreement may not sell, transfer, or otherwise dispose of, pledge, or encumber any interests in the joint venture until certain milestones have been met as defined in both agreements. Under the joint venture shareholders' agreement, upon the occurrence of an unremedied event of default by Alcoa, Maden may purchase, or, upon the occurrence of an unremedied event of default by Maden, Alcoa may sell, its interest for consideration that varies depending on the time of the default.

**Other Investments.** As of December 31, 2012 and 2011, Other investments included \$67 and \$92, respectively, in exchange-traded fixed income and equity securities, which are classified as available-for-sale and are carried at fair value with unrealized gains and losses recognized in other comprehensive income. Unrealized and realized gains and losses related to these securities were immaterial in 2012, 2011, and 2010.

#### J. Other Noncurrent Assets

| December 31,                           | 2012     | 2011     |
|--|----------|----------|
| Intangibles, net (E)                   | \$ 407   | \$ 481   |
| Cash surrender value of life insurance | 464      | 455      |
| Value-added tax receivable             | 408      | 510      |
| Fair value of derivative contracts (X) | 364      | 44       |
| Prepaid gas transmission contract (N)  | 363      | 346      |
| Deferred mining costs, net             | 223      | 221      |
| Prepaid pension benefit (W)            | 86       | 109      |
| Unamortized debt expense               | 86       | 98       |
| Assets held for sale (B)               | 2        | 243      |
| Other                                  | 309      | 289      |
|  | \$ 2,712 | \$ 2,796 |

#### K. Debt

##### Long-Term Debt.

| December 31,  | 2012     | 2011     |
|---|----------|----------|
| 6% Notes, due 2012  | \$ -     | \$ 322   |
| 6% Notes, due 2013  | 422      | 422      |
| 5.25% Convertible Notes, due 2014                                 | 575      | 575      |
| 5.55% Notes, due 2017   | 750      | 750      |
| 6.5% Bonds, due 2018  | 250      | 250      |
| 6.75% Notes, due 2018   | 750      | 750      |
| 5.72% Notes, due 2019   | 750      | 750      |
| 6.15% Notes, due 2020   | 1,000    | 1,000    |
| 5.40% Notes, due 2021   | 1,250    | 1,250    |
| 5.87% Notes, due 2022   | 627      | 627      |
| 5.9% Notes, due 2027  | 625      | 625      |
| 6.75% Bonds, due 2028   | 300      | 300      |
| 5.95% Notes due 2037  | 625      | 625      |
| BNDES Loans, due 2013-2029 (see below for weighted average rates) | 397      | 627      |
| Iowa Finance Authority Loan, due 2042 (4.75%)                     | 250      | -        |
| Other*  | 205      | 212      |
|   | 8,776    | 9,085    |
| Less: amount due within one year                                  | 465      | 445      |
|   | \$ 8,311 | \$ 8,640 |

\* Other includes various financing arrangements related to subsidiaries, unamortized debt discounts related to the outstanding notes and bonds listed in the table above, a beneficial conversion feature related to the convertible notes, and adjustments to the carrying value of long-term debt related to interest swap contracts accounted for as fair value hedges (see the Derivatives section of Note X).

The principal amount of long-term debt maturing in each of the next five years is \$465 in 2013, \$661 in 2014, \$34 in 2015, \$33 in 2016, and \$780 in 2017.

**Public Debt** In January 2012, Alcoa repaid the \$322 in outstanding principal of its 6% Notes as scheduled using available cash on hand.

In August 2012, Alcoa and the Iowa Finance Authority entered into a loan agreement for the proceeds from the issuance of \$250 in Midwestern Disaster Area Revenue Bonds Series 2012 due 2042 (the Bonds). The Bonds were issued by the Iowa Finance Authority pursuant to the Heartland Disaster Tax Relief Act of 2008 for the purpose of financing all or part of the cost of acquiring, constructing, reconstructing, and renovating certain facilities at Alcoa's rolling mill plant in Davenport, IA. Alcoa received \$248 in net proceeds (reflecting payment of financing costs), which was classified as restricted cash. This transaction is not reflected in the accompanying Statement of Consolidated Cash Flows as it represents a non-cash financing and investing activity. At December 31, 2012, Alcoa had \$171 of restricted cash remaining, all of which was classified in Prepaid expenses and other current assets on the accompanying Consolidated Balance Sheet. Interest on the Bonds is at a rate of 4.75% per annum and will be paid semi-annually in February and August, which will commence in February 2013. Alcoa has the option through the loan agreement to redeem the Bonds, as a whole or in part, on or after August 1, 2022, on at least 30 days, but not more than 60 days, prior notice to the holders of the Bonds at a redemption price equal to 100% of the principal amount thereof, without premium, plus accrued interest, if any, to the redemption date. The loan agreement ranks *pari passu* with Alcoa's other unsecured senior unsubordinated indebtedness.

In February 2011, 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 (filed in March 2008). As of December 31, 2012 and 2011, \$1,250 in senior debt securities were issued under the current shelf registration statement.

In April 2011, Alcoa completed a public debt offering under its current shelf registration statement (dated February 18, 2011) for \$1,250 of 5.40% Notes due 2021 (the 2021 Notes). Alcoa received \$1,241 in net proceeds from the public debt offering reflecting an original issue discount and payment of financing costs. The net proceeds were used for the early retirement of \$881 in outstanding notes (see below), early repayment of \$101 in outstanding loans related to the bauxite mine development in Brazil (see BNDES Loans below), and the remainder was used for general corporate purposes. The original issue discount and financing costs were deferred and are being amortized to interest expense over the term of the 2021 Notes. Interest on the 2021 Notes is paid semi-annually in April and October, which commenced in October 2011. Alcoa has the option to redeem the 2021 Notes, as a whole or in part, at any time or from time to time, on at least 30 days, but not more than 60 days, prior notice to the holders of the 2021 Notes at a redemption price specified in the 2021 Notes. The 2021 Notes are subject to repurchase upon the occurrence of a change in control repurchase event (as defined in the 2021 Notes) at a repurchase price in cash equal to 101% of the aggregate principal amount of the 2021 Notes repurchased, plus any accrued and unpaid interest on the 2021 Notes repurchased. The 2021 Notes rank *pari passu* with Alcoa's other unsecured senior unsubordinated indebtedness.

In May 2011, Alcoa completed the following tender offers: (i) any and all of its 5.375% Notes due 2013 (the 5.375% Notes) and (ii) up to \$400 of its 6.00% Notes due 2013 (the 6.00% Notes and collectively with the 5.375% Notes, the Notes). Upon expiration of the tender offers, \$269 and \$328 of the aggregate outstanding principal amount of the 5.375% Notes and 6.00% Notes, respectively, were validly tendered and accepted. Additionally in May 2011, subsequent to the expiration of the tender offer for the 5.375% Notes, Alcoa elected to call for redemption the remaining outstanding principal of \$284 under the provisions of the 5.375% Notes. The total cash paid to the holders of the tendered 5.375% Notes and 6.00% Notes and the called 5.375% Notes was \$972, which consisted of \$881 in debt principal, \$74 in purchase premiums, and \$17 in accrued and unpaid interest from the respective last interest payment dates up to, but not including, the respective settlement dates. The \$74 was recorded in Interest expense on the accompanying Statement of Consolidated Operations. Subsequent to the respective tender offer, the 6.00% Notes had a remaining outstanding principal of \$422.



In conjunction with the early retirement of the 5.375% Notes, Alcoa terminated interest rate swaps with a notional amount totaling \$550. These swaps were accounted for as fair value hedges and were used to convert the stated interest rate of the 5.375% Notes from fixed to floating. At the time of termination, the swaps were in-the-money resulting in a gain of \$33, which was recorded in Interest expense on the accompanying Statement of Consolidated Operations.

**BNDES Loans** In March 2008, Alcoa Alumínio (Alumínio) entered into two separate loan agreements (the First Loans ) with Brazil's National Bank for Economic and Social Development (BNDES) related to the Juruti bauxite mine development and the São Luís refinery expansion.

The first loan agreement provides for a commitment of \$248 (R\$500), which is divided into five subloans, and was used to pay for certain expenditures of the Juruti bauxite mine development. Interest on four of the subloans totaling \$233 (R\$470) is a Brazil real rate of interest equal to BNDES long-term interest rate, 5.00% and 6.00% as of December 31, 2012 and 2011, respectively, plus a weighted-average margin of 2.13%. Interest on the fifth subloan of \$15 (R\$30) is a U.S. dollar rate of interest equal to the average cost incurred by BNDES in raising capital outside of Brazil, 3.56% and 3.59% as of December 31, 2012 and 2011, respectively, plus a margin of 2.40%.

Principal and interest were payable monthly beginning in September 2009 and ending in November 2014 for the four subloans totaling \$233 (R\$470) and beginning in November 2009 and ending in January 2015 for the subloan of \$15 (R\$30). Prior to these dates, interest was payable quarterly on borrowed amounts.

As of December 31, 2012, Alumínio had no outstanding borrowings under any of the subloans. During 2012, Alumínio repaid \$51 (R\$102) and \$3 (R\$7) of outstanding borrowings related to the subloans totaling \$233 (R\$470) and the subloan of \$15 (R\$30), respectively.

As of December 31, 2011, Alumínio's outstanding borrowings were \$55 (R\$102) and \$3 (R\$7) and the weighted-average interest rate was 8.13% and 5.99% for the subloans totaling \$233 (R\$470) and the subloan of \$15 (R\$30), respectively. During 2011, Alumínio repaid \$131 (R\$209) and \$7 (R\$11) of outstanding borrowings related to the subloans totaling \$233 (R\$470) and the subloan of \$15 (R\$30), respectively.

The second loan agreement provides for a commitment of \$374 (R\$650), which is divided into three subloans, and was used to pay for certain expenditures of the São Luís refinery expansion. Interest on two of the subloans totaling \$339 (R\$589) is a Brazil real rate of interest equal to BNDES long-term interest rate plus a weighted-average margin of 1.99%. Interest on the third subloan of \$35 (R\$61) is a U.S. dollar rate of interest equal to the average cost incurred by BNDES in raising capital outside of Brazil plus a margin of 2.02%.

Principal and interest were payable monthly beginning in December 2009 and ending in February 2015 for the two subloans totaling \$339 (R\$589) and beginning in February 2010 and ending in April 2015 for the subloan of \$35 (R\$61). Prior to these dates, interest was payable quarterly on borrowed amounts.

As of December 31, 2012, Alumínio had no outstanding borrowings under any of the subloans. During 2012, Alumínio repaid \$176 (R\$356) and \$22 (R\$46) of outstanding borrowings related to the subloans totaling \$339 (R\$589) and the subloan of \$35 (R\$61), respectively.

As of December 31, 2011, Alumínio's outstanding borrowings were \$191 (R\$356) and \$23 (R\$42) and the weighted-average interest rate was 7.99% and 5.61% for the subloans totaling \$339 (R\$589) and the subloan of \$35 (R\$61), respectively. During 2011, Alumínio repaid \$67 (R\$113) and \$7 (R\$11) of outstanding borrowings related to the subloans totaling \$339 (R\$589) and the subloan of \$35 (R\$61), respectively.

The First Loans were repaid early without penalty under the approval of BNDES. With the full repayment of the First Loans, the commitments were effectively terminated.

In June 2008, Alumínio finalized certain documents related to another loan agreement with BNDES. This loan agreement provides for a commitment of \$397 (R\$687), which is divided into three subloans, and is being used to pay for certain expenditures of the Estreito hydroelectric power project. Interest on the three subloans is a Brazil real rate of interest equal to BNDES long-term interest rate plus a weighted-average margin of 1.48%. Principal and interest are payable monthly beginning in October 2011 and ending in September 2029 for two of the subloans totaling R\$667 and beginning in July 2012 and ending in June 2018 for the subloan of R\$20. This loan may be repaid early without penalty with the approval of BNDES.

As of December 31, 2012 and 2011, Alumínio's outstanding borrowings were \$311 (R\$637) and \$355 (R\$661), respectively, and the weighted-average interest rate was 6.49% and 7.50%, respectively. During 2012 and 2011, Alumínio repaid \$20 (R\$38) and \$5 (R\$9), respectively, of outstanding borrowings. Additionally, Alumínio borrowed \$7 (R\$13) and \$5 (R\$8), under the loan in 2012 and 2011, respectively.

In December 2012, Alumínio finalized certain documents related to another loan agreement with BNDES. This loan agreement provides for a commitment of \$85 (R\$177) and is being used to pay for certain expenditures of the Estreito hydroelectric power project. Due to the timing of the finalization of the loan documents and the expenditures of the project, Alumínio advanced the cash necessary to the consortium to pay for the expenditures supported by this loan. Interest on the loan is a Brazil real rate of interest equal to BNDES long-term interest rate plus a margin of 1.55%. Principal and interest are payable monthly beginning in January 2013 and ending in September 2029. This loan may be repaid early without penalty with the approval of BNDES. As of December 31, 2012, Alumínio's outstanding borrowings were \$86 (R\$177) and the interest rate was 6.55%.

**Commercial Paper.** Alcoa had no outstanding commercial paper at December 31, 2012. Outstanding commercial paper was \$224 at December 31, 2011. In 2012 and 2011, the average outstanding commercial paper was \$354 and \$197. Commercial paper matures at various times within one year and had an annual weighted average interest rate of 0.8%, 0.6%, and 0.7% during 2012, 2011, and 2010, respectively.

On July 25, 2011, Alcoa entered into a Five-Year Revolving Credit Agreement (the *Credit Agreement*) with a syndicate of lenders and issuers named therein. The *Credit Agreement* provides a \$3,750 senior unsecured revolving credit facility (the *Credit Facility*), the proceeds of which are to be used to provide working 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 sublimit of \$1,000 under the *Credit Facility*.

The *Credit Facility* was scheduled to mature on July 25, 2016; however, on December 7, 2012, Alcoa received approval for a one-year extension of the maturity date by the lenders and issuers that support \$3,700 of the *Credit Facility* (approval for the remaining \$50 was received on January 8, 2013). As such, the *Credit Facility* now matures on July 25, 2017, unless extended or earlier terminated in accordance with the provisions of the *Credit Agreement*. Alcoa may make one additional one-year extension request during the remaining term of the *Credit Facility*, subject to the lender consent requirements set forth in the *Credit Agreement*. Under the provisions of the *Credit Agreement*, Alcoa will pay a fee of 0.25% (based on Alcoa's long-term debt ratings as of December 31, 2012) of the total commitment per annum to maintain the *Credit Facility*.

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 a base rate or a rate equal to LIBOR, plus, in each case, an applicable margin based on the credit ratings of Alcoa's outstanding senior unsecured long-term debt. The applicable margin on base rate loans and LIBOR loans will be 0.50% and 1.50% per annum, respectively, based on Alcoa's long-term debt ratings as of December 31, 2012. Loans may be prepaid without premium or penalty, subject to customary breakage costs.

The *Credit Facility* replaces Alcoa's Five-Year Revolving Credit Agreement, dated as of October 2, 2007 (the *Former Credit Agreement*), which was scheduled to mature on October 2, 2012. The *Former Credit Agreement*, which had a

total capacity (excluding the commitment of Lehman Commercial Paper Inc.) of \$3,275 and was undrawn, was terminated effective July 25, 2011.

The Credit Agreement includes covenants substantially similar to those in the Former Credit Agreement, 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. As of December 31, 2012 and 2011, Alcoa was in compliance with all such covenants.

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.

There were no amounts outstanding at December 31, 2012 and 2011 and no amounts were borrowed during 2012 or 2011 under the Credit Facility.

**Short-Term Borrowings.** At December 31, 2012 and 2011, Short-term borrowings were \$53 and \$62, respectively. These amounts included \$48 and \$53 at December 31, 2012 and 2011, respectively, related to accounts payable settlement arrangements with certain vendors and third-party intermediaries. These arrangements provide that, at the vendor's request, the third-party intermediary advances the amount of the scheduled payment to the vendor, less an appropriate discount, before the scheduled payment date and Alcoa makes payment to the third-party intermediary on the date stipulated in accordance with the commercial terms negotiated with its vendors. Alcoa records imputed interest related to these arrangements as interest expense in the Statement of Consolidated Operations.

In January 2012, Alcoa entered into two term loan agreements, totaling \$350, with two separate financial institutions. Additionally, throughout 2012, Alcoa entered into six revolving credit agreements, providing a combined \$640 in credit facilities, with six different financial institutions. The purpose of any borrowings under all eight arrangements will be to provide working capital and for other general corporate purposes, including contributions to Alcoa's pension plans (\$561 was contributed in 2012).

The two term loans were fully drawn on the same dates as the agreements and were subject to an interest rate equivalent to the 1-month LIBOR (changed from the 3-month LIBOR in April 2012) plus a 1.5% margin. A \$150 term loan was repaid between October and November 2012 and a \$200 term loan was repaid in December 2012, effectively terminating both agreements. In February 2012, Alcoa fully borrowed \$100 under one of the credit facilities, which was repaid in August 2012. This borrowing was subject to an interest rate equivalent to the 6-month LIBOR plus a 1.25% margin. In July 2012, Alcoa fully borrowed \$150 under one of the credit facilities, which was repaid in December 2012. This borrowing was subject to an interest rate equivalent to the 3-month LIBOR plus a 1.375% margin.

The six revolving credit facilities expire as follows: \$150 in March 2013; \$100 in September 2013 (originally December 2012, extended in September 2012); \$100 in September 2013; \$140 in October 2013; \$100 in December 2013 (originally December 2012, extended in December 2012); and \$50 in December 2015. The covenants contained in all eight arrangements are the same as the Credit Agreement (see the Commercial Paper section above).

During 2012, Alcoa's subsidiary, Alumínio, borrowed and repaid a total of \$280 in new loans with a weighted-average interest rate of 2.32% and a weighted-average maturity of 172 days from two financial institutions. The purpose of these borrowings was to support Alumínio's export operations.

**L. Other Noncurrent Liabilities and Deferred Credits**

| <b>December 31,</b>                                | <b>2012</b>     | <b>2011</b>     |
|--|-----------------|-----------------|
| Fair value of derivative contracts (X)             | \$ 606          | \$ 624          |
| Asset retirement obligations (C)                   | 535             | 503             |
| Environmental remediation (N)                      | 458             | 289             |
| Deferred income taxes (T)                          | 460             | 395             |
| Deferred credit related to derivative contract (X) | 330             | -               |
| Accrued compensation and retirement costs          | 322             | 304             |
| Deferred alumina sales revenue                     | 108             | 116             |
| Other  | 259             | 197             |
|  | <b>\$ 3,078</b> | <b>\$ 2,428</b> |

**M. Noncontrolling Interests**

The following table summarizes the noncontrolling shareholders' interests in the equity of Alcoa's majority-owned consolidated subsidiaries:

| <b>December 31,</b>               | <b>2012</b>     | <b>2011</b>     |
|-----------------------------------|-----------------|-----------------|
| Alcoa World Alumina and Chemicals | \$ 3,295        | \$ 3,324        |
| Other                             | 29              | 27              |
|                                   | <b>\$ 3,324</b> | <b>\$ 3,351</b> |

In 2012, 2011, and 2010, Alcoa received \$171, \$169, and \$162, respectively, in contributions from the noncontrolling shareholder (Alumina Limited) of Alcoa World Alumina and Chemicals.

**N. Contingencies and Commitments****Contingencies****Litigation***Alba Civil Suit*

On February 27, 2008, Alcoa Inc. (Alcoa) received notice that Aluminium Bahrain B.S.C. (Alba) had filed suit against Alcoa, Alcoa World Alumina LLC (AWA), and William Rice (collectively, the Alcoa Parties), 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 alleged that certain Alcoa entities and their agents, including Victor Phillip Dahdaleh, had engaged in a conspiracy over a period of 15 years to defraud Alba. The complaint further alleged 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 alleged that Alcoa and the other defendants violated the Racketeer Influenced and Corrupt Organizations Act (RICO) and committed fraud. Alba claimed damages in excess of \$1,000. Alba's complaint sought treble damages with respect to its RICO claims; compensatory, consequential, exemplary, and punitive damages; rescission of the 2005 alumina supply contract; and attorneys' fees and costs.

In response to a motion filed by the U.S. Department of Justice (DOJ) on March 27, 2008 (see Government Investigations below), the Court ordered the Alba civil suit administratively closed and stayed all discovery to allow the DOJ to fully conduct an investigation. On November 8, 2011, at Alcoa's request, the Court removed the case from

administrative stay and ordered Alba to file an Amended Complaint by November 28, 2011, and a RICO Case Statement 30 days thereafter for the limited purpose of allowing Alcoa to move to dismiss Alba's lawsuit. Alcoa filed a motion to dismiss, which was denied on June 11, 2012.

During the second quarter of 2012, Alcoa proposed to settle the suit by offering Alba a cash payment of \$45. Alcoa also offered Alba a long-term alumina supply contract. Based on the cash offer, Alcoa recorded a \$45 (\$18 after-tax and noncontrolling interest) charge in the 2012 second quarter representing Alcoa's estimate of the minimum end of the range probable to settle the case, and estimated an additional reasonably possible charge of up to \$75 to settle the suit.

On October 9, 2012, the Alcoa Parties, without admitting any liability, entered into a settlement agreement with Alba. The agreement called for AWA to pay Alba \$85 in two equal installments, one-half at time of settlement and one-half one year later, and for the case against the Alcoa Parties to be dismissed with prejudice. Additionally, AWA and Alba entered into a long-term alumina supply agreement. On October 9, 2012, pursuant to the settlement agreement, AWA paid Alba \$42.5, and all claims against the Alcoa Parties were dismissed with prejudice. Under the agreement, AWA is obligated to pay an additional \$42.5, without interest or contingency, on October 9, 2013. Based on the settlement agreement, in the 2012 third quarter, Alcoa recorded a \$40 (\$15 after-tax and noncontrolling interest) charge in addition to the \$45 (\$18 after-tax and noncontrolling interest) charge it recorded in the 2012 second quarter in respect of the suit. In addition, based on an agreement between Alcoa and Alumina Limited (which holds a 40% equity interest in AWA), Alcoa estimates an additional reasonably possible after-tax charge of between \$25 to \$30 to reallocate a portion of the costs (including legal fees) of the Alba civil settlement from AWA to Alcoa, but this would occur only if a settlement is reached with the DOJ and the Securities and Exchange Commission (the SEC) regarding their investigations (see Government Investigations below).

#### *Government Investigations*

On February 26, 2008, Alcoa Inc. advised the DOJ and the SEC that it had recently become aware of the claims by Alba as alleged in the Alba civil suit, 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 since that time.

Alcoa is actively negotiating with the DOJ and the SEC to reach a resolution of their investigations of the Alba matter; however, Alcoa has not reached any agreement with either agency. Given the uncertainty regarding whether a settlement can be reached and, if reached, on what terms, Alcoa is not able to estimate a range of reasonably possible loss with regard to any such settlement. If a settlement of the government investigations is reached, Alcoa believes that the settlement amount would be material to Alcoa's results of operations for the relevant fiscal period. If a settlement cannot be reached, Alcoa will proceed to trial with the DOJ and the SEC and under those circumstances is unable to predict an outcome or to estimate its reasonably possible loss. There can be no assurance that the final outcome of the government's investigations will not have a material adverse effect on Alcoa.

#### *Other Matters*

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 Metals Company 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 alleged these changes to their retiree health care plans violated their rights to vested health care benefits. Plaintiffs additionally alleged that Alcoa had breached its fiduciary duty to plaintiffs under ERISA by misrepresenting to them that their health benefits would never change. Plaintiffs sought injunctive and declaratory relief, back payment of benefits, and attorneys' fees. Alcoa had 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 set a trial date of September 17, 2008. In August 2008, the court set a new trial date of March 24, 2009 and, subsequently, the trial date was moved to September 22, 2009. In June 2009, the court indicated that it would not use an advisory jury at trial. Trial in the matter was held over eight days commencing September 22, 2009 and ending on October 1, 2009 in federal court in Knoxville, TN before the Honorable Thomas Phillips, U.S. District Court Judge. At the conclusion of evidence, the court set a post-hearing briefing schedule for submission of proposed findings of fact and conclusions of law by the parties and for replies to the same. Post trial briefing was submitted on December 4, 2009.

On March 9, 2011, the court issued a judgment order dismissing plaintiffs' lawsuit in its entirety with prejudice for the reasons stated in its Findings of Fact and Conclusions of Law. On March 23, 2011, plaintiffs filed a motion for clarification and/or amendment of the judgment order, which seeks, among other things, a declaration that plaintiffs' retiree benefits are vested subject to an annual cap and an injunction preventing Alcoa, prior to 2017, from modifying the plan design to which plaintiffs are subject or changing the premiums and deductibles that plaintiffs must pay. Also on March 23, 2011, plaintiffs filed a motion for award of attorney's fees and expenses. Alcoa filed its opposition to both motions on April 11, 2011. On June 11, 2012, the court issued its memorandum and order denying plaintiffs' motion for clarification and/or amendment to the original judgment order. On July 6, 2012, plaintiffs filed a notice of appeal of the court's March 9, 2011 judgment. On July 12, 2012, the trial court stayed Alcoa's motion for assessment of costs pending resolution of plaintiffs' appeal. The appeal is docketed in the United States Court of Appeals for the Sixth Circuit as case number 12-5801. On July 26, 2012, the appellate court issued a briefing schedule requiring briefing to be complete by the end of October 2012. On August 29, 2012, the trial court dismissed plaintiffs' motion for attorneys' fees without prejudice to refile the motion following the resolution of the appeal at the Sixth Circuit Court of Appeals. Briefing on the appeal is complete and oral argument is scheduled for March 6, 2013.

On April 23, 2004, St. Croix Renaissance Group, L.L.P. (SCRG), Brownfield Recovery Corp., and Energy Answers Corporation of Puerto Rico (collectively referred to as Plaintiffs) filed a suit against St. Croix Alumina L.L.C. and Alcoa World Alumina, LLC (collectively referred to as Alcoa) in the Territorial Court of the Virgin Islands, Division of St. Croix for claims related to the sale of Alcoa's former St. Croix alumina refinery to Plaintiffs. Alcoa thereafter removed the case to federal court and after a several year period of discovery and motion practice, a jury trial on the matter took place in St. Croix from January 11, 2011 to January 20, 2011. The jury returned a verdict in favor of Plaintiffs and awarded damages as described: on a claim of breaches of warranty, the jury awarded \$13; on the same claim, the jury awarded punitive damages in the amount of \$6; and on a negligence claim for property damage, the jury awarded \$10. Plaintiffs filed a motion seeking pre-judgment interest on the jury award. On February 17, 2011, Alcoa filed post-trial motions seeking judgment notwithstanding the verdict or, in the alternative, a new trial. On May 31, 2011, the court granted Alcoa's motion for judgment regarding Plaintiffs' \$10 negligence award and denied the remainder of Alcoa's motions. Additionally, the court awarded Plaintiffs pre-judgment interest of \$2 on the breach of warranty award. As a result of the court's post-trial decisions, Alcoa recorded a charge of \$20 in 2011 (see Note D). On June 14, 2011, Alcoa filed a notice of appeal with the U.S. Court of Appeals for the Third Circuit regarding Alcoa's denied post-trial motions. On June 22, 2011, SCRG filed a notice of cross appeal with the Third Circuit Court related to certain pre-trial decisions of the court and of the court's post-trial ruling on the negligence claim. The Third Circuit Court referred this matter to mediation as is its standard practice in appeals. Following mediation and further, separate settlement discussions, the parties executed an agreement dated September 30, 2011 resolving the matter in its entirety, and subsequently jointly petitioned (i) the District Court to release Alcoa from the jury verdict and (ii) the Third Circuit Court of Appeals to dismiss the matter. On March 13, 2012, the District Court entered an order discharging Alcoa from the jury verdict and, on March 14, 2012, the Third Circuit Court of Appeals dismissed the matter. This matter is now fully resolved.

Before 2002, Alcoa purchased power in Italy in the regulated energy market and received a drawback of a portion of the price of power under a special tariff in an amount calculated in accordance with a published resolution of the Italian Energy Authority, Energy Authority Resolution n. 204/1999 (204/1999). In 2001, the Energy Authority published another resolution, which clarified that the drawback would be calculated in the same manner, and in the same amount, in either the regulated or unregulated market. At the beginning of 2002, Alcoa left the regulated energy market to purchase energy in the unregulated market. Subsequently, in 2004, the Energy Authority introduced regulation no.

148/2004 which set forth a different method for calculating the special tariff that would result in a different drawback for the regulated and unregulated markets. Alcoa challenged the new regulation in the Administrative Court of Milan and received a favorable judgment in 2006. Following this ruling, Alcoa continued to receive the power price drawback in accordance with the original calculation method, through 2009, when the European Commission declared all such special tariffs to be impermissible state aid. In 2010, the Energy Authority appealed the 2006 ruling to the Consiglio di Stato (final court of appeal). On December 2, 2011, the Consiglio di Stato ruled in favor of the Energy Authority and against Alcoa, thus presenting the opportunity for the energy regulators to seek reimbursement from Alcoa of an amount equal to the difference between the actual drawback amounts received over the relevant time period, and the drawback as it would have been calculated in accordance with regulation 148/2004. On February 23, 2012, Alcoa filed its appeal of the decision of the Consiglio di Stato, and that appeal remains pending. On March 26, 2012, Alcoa received a letter from the agency (Cassa Conguaglio per il Settore Elettrico (CCSE)) responsible for making and collecting payments on behalf of the Energy Authority demanding payment in the amount of approximately \$110 (€ 85), including interest. By letter dated April 5, 2012, Alcoa informed CCSE that it disputes the payment demand of CCSE since (i) CCSE was not authorized by the Consiglio di Stato decisions to seek payment of any amount, (ii) the decision of the Consiglio di Stato has been appealed and that appeal remains pending, and (iii) in any event, no interest should be payable. On April 29, 2012, Law No. 44 of 2012 (44/2012) came into effect, changing the method to calculate the drawback. Alcoa believes that under 44/2012 its range of reasonably possible loss is from \$0 to \$50 (€ 39). Following the effectiveness of 44/2012, Alcoa has received no further demands from CCSE. At this time, the company is unable to reasonably predict an outcome for this matter.

**European Commission Matters.** In July 2006, the European Commission (EC) announced that it had opened an investigation to establish whether an extension of the regulated electricity tariff granted by Italy to some energy-intensive industries complies with European Union (EU) state aid rules. The Italian power tariff extended the tariff that was in force until December 31, 2005 through November 19, 2009 (Alcoa has been incurring higher power costs at its smelters in Italy subsequent to the tariff end date). The extension was originally through 2010, but the date was changed by legislation adopted by the Italian Parliament effective on August 15, 2009. Prior to expiration of the tariff in 2005, Alcoa had been operating in Italy for more than 10 years under a power supply structure approved by the EC in 1996. That measure provided a competitive power supply to the primary aluminum industry and was not considered state aid from the Italian Government. The EC's announcement expressed concerns about whether Italy's extension of the tariff beyond 2005 was compatible with EU legislation and potentially distorted competition in the European market of primary aluminum, where energy is an important part of the production costs.

On November 19, 2009, the EC announced a decision in this matter stating that the extension of the tariff by Italy constituted unlawful state aid, in part, and, therefore, the Italian Government is to recover a portion of the benefit Alcoa received since January 2006 (including interest). The amount of this recovery will be based on a calculation that is being prepared by the Italian Government (see below). In late 2009, after discussions with legal counsel and reviewing the bases on which the EC decided, including the different considerations cited in the EC decision regarding Alcoa's two smelters in Italy, Alcoa recorded a charge of \$250 (€ 173), which included \$20 (€ 14) to write off a receivable from the Italian Government for amounts due under the now expired tariff structure and \$230 (€ 159) to establish a reserve. On April 19, 2010, Alcoa filed an appeal of this decision with the General Court of the EU. Alcoa will pursue all substantive and procedural legal steps available to annul the EC's decision. On May 22, 2010, Alcoa also filed with the General Court a request for injunctive relief to suspend the effectiveness of the decision, but, on July 12, 2010, the General Court denied such request. On September 10, 2010, Alcoa appealed the July 12, 2010 decision to the European Court of Justice (ECJ); this appeal was dismissed on December 16, 2011.

In June 2012, Alcoa received formal notification from the Italian Government with a calculated recovery amount of \$375 (€ 303); this amount was reduced by \$65 (€ 53) of amounts owed by the Italian Government to Alcoa, resulting in a net payment request of \$310 (€ 250). In a notice published in the Official Journal of the European Union on September 22, 2012, the EC announced that it had filed an action against the Italian Government on July 18, 2012 to compel it to collect the recovery amount. On September 27, 2012, Alcoa received a request for payment in full of the \$310 (€ 250) by October 31, 2012. Since then, Alcoa has been in discussions with the Italian Government regarding the

timing of such payment. Alcoa commenced payment of the requested amount in five quarterly installments of \$66 ( 50), paying the first installment on October 31, 2012. It is possible that Alcoa may be required to accelerate payment or pay in a lump sum. Notwithstanding the payment request or the timing of such payments, Alcoa's estimate of the most probable loss of the ultimate outcome of this matter and the low end of the range of reasonably possible loss, which is \$209 ( 159) to \$375 ( 303), remains the \$209 ( 159) (the U.S. dollar amount reflects the effects of foreign currency movements since 2009) recorded in November 2009. At December 31, 2012, Alcoa's reserve for this matter stands at \$143 ( 109), reflecting the payment made in October 2012. The full extent of the loss will not be known until the final judicial determination, which could be a period of several years.

Separately, on November 29, 2006, Alcoa filed an appeal before the General Court (formerly the European Court of First Instance) seeking the annulment of the EC's decision to open an investigation alleging that such decision did not follow the applicable procedural rules. On March 25, 2009, the General Court denied Alcoa's appeal. On May 29, 2009, Alcoa appealed the March 25, 2009 ruling before the ECJ. The hearing of the May 29, 2009 appeal was held on June 24, 2010. On July 21, 2011, the ECJ denied Alcoa's appeal.

As a result of the EC's November 19, 2009 decision, management had contemplated ceasing operations at its Italian smelters due to uneconomical power costs. In February 2010, management agreed to continue to operate its smelters in Italy for up to six months while a long-term solution to address increased power costs could be negotiated.

Also in February 2010, the Italian Government issued a decree, which was converted into law by the Italian Parliament in March 2010, to provide interruptibility rights to certain industrial customers who were willing to be subject to temporary interruptions in the supply of power (i.e. compensation for power interruptions when grids are overloaded) over a three-year period. Alcoa applied for and was granted such rights (expired on December 31, 2012) related to its Portovesme smelter. In May 2010, the EC stated that, based on their review of the validity of the decree, the interruptibility rights should not be considered state aid. On July 29, 2010, Alcoa executed a new power agreement effective September 1, 2010 through December 31, 2012 for the Portovesme smelter, replacing the short-term, market-based power contract that was in effect since early 2010.

Additionally in May 2010, Alcoa and the Italian Government agreed to a temporary idling of the Fusina smelter. As of June 30, 2010, the Fusina smelter was fully curtailed (44 kmt-per-year).

At the end of 2011, as part of a restructuring of Alcoa's global smelting system (see Note D), management decided to curtail operations at the Portovesme smelter during the first half of 2012. This action may lead to the permanent closure of the Portovesme smelter, due to the uncertain prospects for viable, long-term power, along with rising raw materials costs and falling global aluminum prices (mid-2011 to late 2011). In March 2012, Alcoa decided to delay the curtailment of the Portovesme smelter until the second half of 2012 based on negotiations with the Italian Government and other stakeholders. In September 2012, Alcoa began the process of curtailing the Portovesme smelter, which was fully curtailed by the end of 2012.

In January 2007, the EC announced that it had opened an investigation to establish whether the regulated electricity tariffs granted by Spain comply with EU state aid rules. At the time the EC opened its investigation, Alcoa had been operating in Spain for more than nine 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 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 opened the investigation on the assumption that prices paid under the tariff in 2005 were lower than a pool price mechanism, therefore being, in principle, artificially below market conditions. Alcoa submitted comments in which the company 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. 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 the tariff system. While Alcoa does not believe that an unfavorable decision is probable, management has estimated that the total potential impact from an unfavorable decision could be approximately \$90 ( 70) pretax. Also,



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. 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.

**Environmental Matters.** Alcoa continues to participate in environmental assessments and cleanups at a number of locations (more than 100). These include owned or operating facilities and adjoining properties, previously owned or operating facilities and adjoining properties, and waste sites, including Superfund (Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)) 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, among others.

Alcoa's remediation reserve balance was \$532 and \$347 at December 31, 2012 and 2011 (of which \$74 and \$58 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 2012, the remediation reserve was increased by \$206 due to charges of \$165 related to the Massena West, NY site (see below), charges totaling \$45 related to smelter sites in Canada and Norway (see below), a charge of \$14 related to the former East St. Louis, IL site (see below), a reversal of \$30 related to the former Sherwin, TX site (see below), and a net increase of \$12 associated with a number of other sites. In 2011, the remediation reserve was increased by \$31 due to charges of \$18 related to the decision to permanently shut down and demolish a U.S. smelter (see Note D) and a net increase of \$13 associated with a number of other sites. In both periods, the changes to the remediation reserve, except for the aforementioned \$18 in 2011, were recorded in Cost of goods sold on the accompanying Statement of Consolidated Operations.

Payments related to remediation expenses applied against the reserve were \$22 and \$19 in 2012 and 2011, respectively. These amounts include expenditures currently mandated, as well as those not required by any regulatory authority or third party. In 2012 and 2011, the change in the reserve also reflects an increase of \$1 and a decrease of \$1, respectively, due to the effects of foreign currency translation. Additionally, the change in the 2011 reserve reflects an increase of \$3 related to the acquisition of an aerospace fasteners business (see Note F).

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.

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

**Massena West, 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 CERCLA. 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 update 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.

In late 2009, the EPA requested that Alcoa submit a complete revised Analysis of Alternatives Report in March 2010 to address questions and comments from the EPA and various stakeholders. On March 24, 2010, Alcoa submitted the revised report, which included an expanded list of proposed remedial alternatives, as directed by the EPA. Alcoa increased the reserve associated with the Grasse River by \$17 to reflect an increase in the estimated costs of the Company's recommended capping alternative as a result of changes in scope that occurred due to the questions and comments from the EPA and various stakeholders. While the EPA reviewed the revised report, Alcoa continued with its on-going monitoring and field studies activities. In late 2010, Alcoa increased the reserve by \$2 based on the then most recent estimate of costs expected to be incurred for on-going monitoring and field studies activities. In late 2011, the EPA and various stakeholders completed their review of the March 2010 revised report and submitted questions and comments to Alcoa. As a result, Alcoa increased the reserve by \$1 to reflect a revision in the estimate of costs expected to be incurred for on-going monitoring and field studies activities.

In the first half of 2012, Alcoa received final questions and comments from the EPA and other stakeholders on the revised Analysis of Alternatives Report submitted in March 2010, including a requirement that would increase the scope of the recommended capping alternative. In June 2012, Alcoa submitted a revised Analysis of Alternatives Report, which included four less alternatives than the previous report and addressed the final questions and comments from all stakeholders. These final questions and comments resulted in a change to Alcoa's recommended capping alternative by increasing the area to be remediated. Consequently, Alcoa increased the reserve associated with the Grasse River by \$37 to reflect the changes to the recommended alternative.

In October 2012, the EPA selected a proposed remedy from the alternatives included in the June 2012 Analysis of Alternatives Report and released a Proposed Remedial Action Plan (PRAP). The alternative selected by the EPA recommends capping PCB contaminated sediments with concentration in excess of one part per million in the main channel of the river and dredging PCB contaminated sediments in the near-shore areas where total PCBs exceed one part per million. This alternative will result in additional estimated costs above that of the alternative recommended by Alcoa in the June 2012 Analysis of Alternatives Report. As a result, Alcoa increased the reserve associated with the Grasse River by \$128 to reflect such additional estimated costs of the EPA's proposed remedy. The PRAP was open for public comment until November 29, 2012 (extended from November 15, 2012 due to the effects of Hurricane Sandy). The EPA is in the process of reviewing the comments received and, at the conclusion of that review, will issue a final Record of Decision (ROD), which may require Alcoa to record a subsequent reserve adjustment. Once a ROD is issued, the planning and design phase is expected to take approximately two to three years, followed by the actual remediation fieldwork that is expected to take approximately four years. The majority of the project funding is expected to be spent between 2016 and 2020.

**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 bauxite residue waste disposal areas (known as the Copano facility). 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 waste 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. The most probable cost for remediation was reserved.

For a number of years, Alcoa has been working with Sherwin Alumina Company to develop a sustainable closure plan for the active waste disposal areas, which is partly conditioned on Sherwin's operating plan for the Copano facility. In 2012, Alcoa received the technical analysis of the closure plan and the operating plan from Sherwin in order to develop a closure cost estimate, including an assessment of Alcoa's potential liability. It was determined that the most probable course of action would result in a smaller liability than originally reserved due to new information related to the amount of storage capacity in the waste disposal areas and revised assumptions regarding Alcoa's share of the obligation based on the operating plan provided by Sherwin. As such, Alcoa reduced the reserve associated with Sherwin by \$30.

**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.

In April 2012, in response to comments from the EPA and other stakeholders, Alcoa submitted a revised feasibility study to the EPA, which soon thereafter issued a PRAP identifying a soil cover as the EPA's recommended alternative. Based on this recommendation, Alcoa submitted a detailed design and cost estimate for implementation of the remedy. A draft consent decree was issued in May 2012 by the EPA and all parties are actively engaged in negotiating a final consent decree and statement of work. As a result, Alcoa increased the reserve associated with East St. Louis by \$14 to reflect the necessary costs for this remedy.

On July 30, 2012, the EPA issued a ROD for this matter and Alcoa began the process of bidding and contracting for the construction work. The ultimate outcome of negotiations and the bidding of the construction work could result in additional liability.

**Fusina and Portovesme, Italy** In 1996, Alcoa acquired the Fusina smelter and rolling operations and the Portovesme smelter, both of which are owned by Alcoa's subsidiary Alcoa Trasformazioni S.r.l. (Trasformazioni), from Alumix, an entity owned by the Italian Government. At the time of the acquisition, Alumix indemnified Alcoa for pre-existing environmental contamination at the sites. In 2004, the Italian Ministry of Environment (MOE) issued orders to Trasformazioni and Alumix for the development of a clean-up plan related to soil contamination in excess of allowable limits under legislative decree and to institute emergency actions and pay natural resource damages. Trasformazioni appealed the orders and filed suit against Alumix, among others, seeking indemnification for these liabilities under the provisions of the acquisition agreement. In 2009, Ligestra S.r.l. (Ligestra), Alumix's successor, and Trasformazioni agreed to a stay on the court proceedings while investigations were conducted and negotiations advanced towards a possible settlement.

In December 2009, Trasformazioni and Ligestra reached an agreement for settlement of the liabilities related to Fusina while negotiations continued related to Portovesme. The agreement outlines an allocation of payments to the MOE for emergency action and natural resource damages and the scope and costs for a proposed soil remediation project, which was formally presented to the MOE in mid-2010. The agreement is contingent upon final acceptance of the remediation project by the MOE. As a result of entering into this agreement, Alcoa increased the reserve by \$12 for Fusina. Based on comments received from the MOE and local and regional environmental authorities, Trasformazioni submitted a revised remediation plan in the first half of 2012; however, such revisions did not require any change to the existing reserve.

Additionally, due to new information derived from the site investigations conducted at Portovesme, Alcoa increased the reserve by \$3 in 2009. In November 2011, Trasformazioni and Ligestra reached an agreement for settlement of the liabilities related to Portovesme, similar to the one for Fusina. A proposed soil remediation project for Portovesme was formally presented to the MOE in June 2012. Neither the agreement with Ligestra nor the proposal to the MOE resulted in a change to the reserve for Portovesme.

**Baie Comeau, Quebec, Canada** In August 2012, Alcoa presented an analysis of remediation alternatives to the Quebec Ministry of Sustainable Development, Environment, Wildlife and Parks (MDDEP), in response to a previous request, related to known PCBs and polycyclic aromatic hydrocarbons (PAHs) contained in sediments of the Anse du Moulin bay. As such, Alcoa increased the reserve for Baie Comeau by \$25 to reflect the estimated cost of Alcoa's recommended alternative, consisting of both dredging and capping of the contaminated sediments. The ultimate selection of a remedy may result in additional liability at the time the MDDEP issues a final decision.

**Mosjøen, Norway** In September 2012, Alcoa presented an analysis of remediation alternatives to the Norwegian Climate and Pollution Agency (known as Klif), in response to a previous request, related to known PAHs in the sediments located in the harbor and extending out into the fjord. As such, Alcoa increased the reserve for Mosjøen by \$20 to reflect the estimated cost of the baseline alternative for dredging of the contaminated sediments. The ultimate selection of a remedy may result in additional liability at the time the Klif issues a final decision.

**Other.** In addition to the matters discussed above, various other lawsuits, claims, and proceedings have been or may be instituted or asserted against Alcoa, including those pertaining to environmental, product liability, safety and health, and tax matters. While the amounts claimed in these other matters may be substantial, the ultimate liability cannot now be determined because of the considerable uncertainties that exist. Therefore, it is possible that the Company's liquidity or results of operations in a particular period could be materially affected by one or more of these other matters. However, based on facts currently available, management believes that the disposition of these other matters that are pending or asserted will not have a material adverse effect, individually or in the aggregate, on the financial position of the Company.

### Commitments

**Investments.** Alumínio, a wholly-owned subsidiary of Alcoa, is a participant in four consortiums that each owns a hydroelectric power project in Brazil. The purpose of Alumínio's participation is to increase its energy self-sufficiency and provide a long-term, low-cost source of power for its two smelters and one refinery. These projects are known as Machadinho, Barra Grande, Serra do Facão, and Estreito.

Alumínio committed to taking a share of the output of the Machadinho and Barra Grande projects each for 30 years and the Serra do Facão and Estreito projects each for 26 years at cost (including cost of financing the project). In the event that other participants in any of these projects fail to fulfill their financial responsibilities, Alumínio may be required to fund a portion of the deficiency. In accordance with the respective agreements, if Alumínio funds any such deficiency, its participation and share of the output from the respective project will increase proportionately.

The Barra Grande project reached full capacity in 2006. Alumínio's investment in this project is 42.18% and is accounted for under the equity method. This entitles Alumínio to approximately 160 megawatts of assured power. Alumínio's total investment in this project was \$159 (R\$326) and \$169 (R\$314) at December 31, 2012 and 2011, respectively.

The Machadinho project reached full capacity in 2002. Alumínio's investment in this project is 30.99% and is accounted for under the equity method. This entitles Alumínio to approximately 120 megawatts of assured power. Alumínio's total investment in this project was \$95 (R\$195) and \$97 (R\$182) at December 31, 2012 and 2011, respectively. Alumínio has also issued a third-party guarantee related to its share of the consortium's debt. Alcoa's maximum exposure to loss on this project is approximately \$120 (R\$240), which represents Alumínio's investment and guarantee of debt as of December 31, 2012.

The Serra do Facão project reached full capacity in 2010. Alumínio's investment in this project is 34.97% and is accounted for under the equity method. This entitles Alumínio to approximately 65 megawatts of assured power. Alumínio's total investment in this project was \$98 (R\$200) and \$105 (R\$196) at December 31, 2012 and 2011, respectively. Alumínio previously issued a third-party guarantee related to its share of the consortium's debt; however, in October 2012, the lender released all of the consortium's investors from their respective guarantees.

Even though the Serra do Facão project has been fully operational since 2010, construction costs continue to be incurred to complete the facility related to environmental compliance in accordance with the installation license. Total estimated project costs are approximately \$490 (R\$1,000) and Alumínio's share is approximately \$170 (R\$350). As of December 31, 2012, approximately \$170 (R\$350) of Alumínio's commitment was expended on the project (includes both funds provided by Alumínio and Alumínio's share of the long-term financing).

The Estreito project is expected to reach full capacity in March 2013. Alumínio's investment in this project is 25.49%, which entitles Alumínio to approximately 150 megawatts of assured power. The Estreito consortium is an unincorporated joint venture, and, therefore, Alumínio's share of the assets and liabilities of the consortium are reflected in the respective lines on the accompanying Consolidated Balance Sheet. Total estimated project costs are approximately \$2,520 (R\$5,170) and Alumínio's share is approximately \$640 (R\$1,320). These amounts reflect an approved increase by the consortium in 2012 of approximately \$130 (R\$270) to complete the Estreito project due to fluctuations in currency, inflation, and the price and scope of construction, among other factors. As of December 31, 2012, approximately \$610 (R\$1,250) of Alumínio's commitment was expended on the project.

Based on the operational capabilities of all four projects at the end of 2012, Alumínio's current power self-sufficiency satisfies almost 70% of a total energy demand of approximately 690 megawatts from two smelters (São Luís (Alumar) and Poços de Caldas) and one refinery (Poços de Caldas) in Brazil.

In 2004, Alcoa acquired a 20% interest in a consortium, which subsequently purchased the Dampier to Bunbury Natural Gas Pipeline (DBNGP) in Western Australia, in exchange for an initial cash investment of \$17 (A\$24). The investment in the DBNGP, which is classified as an equity investment, was made in order to secure a competitively priced long-term supply of natural gas to Alcoa's refineries in Western Australia. Alcoa has made additional contributions of \$141 (A\$176) for its share of the pipeline capacity expansion and other operational purposes of the consortium through September 2011. No further expansion of the pipeline's capacity is planned at this time. In late 2011, the consortium initiated a three-year equity call plan to improve its capitalization structure. This plan requires Alcoa to contribute \$40 (A\$40), of which \$12 (A\$11) and \$5 (A\$6) was made in 2012 and 2011, respectively. In addition to its equity ownership, Alcoa has an agreement to purchase gas transmission services from the DBNGP. At December 31, 2012, Alcoa has an asset of \$363 (A\$349) representing prepayments made under the agreement for future gas transmission services. Alcoa's maximum exposure to loss on the investment and the related contract is approximately \$520 (A\$500) as of December 31, 2012.

**Purchase Obligations.** Alcoa is party to unconditional purchase obligations for energy that expire between 2015 and 2036. Commitments related to these contracts total \$176 in 2013, \$175 in 2014, \$176 in 2015, \$165 in 2016, \$165 in 2017, and \$2,688 thereafter. Expenditures under these contracts totaled \$161 in 2012, \$227 in 2011, and \$129 in 2010. Additionally, Alcoa has entered into other purchase commitments for energy, raw materials, and other goods and services, which total \$3,502 in 2013, \$2,137 in 2014, \$2,085 in 2015, \$1,926 in 2016, \$2,496 in 2017, and \$20,717 thereafter.

**Operating Leases.** Certain computer equipment, plant equipment, vehicles, and buildings and alumina refinery process control technology are under operating lease agreements. Total expense from continuing operations for all leases was \$244 in 2012, \$255 in 2011, and \$260 in 2010. Under long-term operating leases, minimum annual rentals are \$198 in 2013, \$155 in 2014, \$127 in 2015, \$102 in 2016, \$77 in 2017, and \$597 thereafter.

**Guarantees.** At December 31, 2012, Alcoa has maximum potential future payments for guarantees issued on behalf of certain third parties of \$621. These guarantees expire in 2015 through 2019 and relate to project financing for a hydroelectric power project in Brazil (see Investments section above) and the aluminum complex in Saudi Arabia (see Note I). Alcoa also has outstanding bank guarantees related to tax matters, outstanding debt, workers compensation, environmental obligations, energy contracts, and customs duties, among others. The total amount committed under these guarantees, which expire at various dates between 2013 and 2017, was \$494 at December 31, 2012.

**Letters of Credit.** Alcoa has outstanding letters of credit primarily related to workers' compensation, energy contracts, and leasing obligations. The total amount committed under these letters of credit, which automatically renew or expire at various dates, mostly in 2013, was \$299 at December 31, 2012.

**Surety Bonds.** Alcoa has outstanding surety bonds primarily related to tax matters, contract performance, workers compensation, environmental-related matters, and customs duties. The total amount committed under these bonds, which automatically renew or expire at various dates, mostly in 2013 and 2014, was \$193 at December 31, 2012.

#### O. Other (Income) Expenses, Net

|  | 2012     | 2011    | 2010    |
|--|----------|---------|---------|
| Equity loss (income)                                       | \$ 28    | \$ (15) | \$ (14) |
| Interest income  | (31)     | (20)    | (19)    |
| Foreign currency (gains) losses, net                       | (5)      | 16      | 13      |
| Net gain from asset sales                                  | (321)    | (41)    | (9)     |
| Net (gain) loss on mark-to-market derivative contracts (X) | (13)     | (52)    | 37      |
| Other, net   | 1        | 25      | (3)     |
|  | \$ (341) | \$ (87) | \$ 5    |

In 2012, Net gain from asset sales included a \$320 gain related to the sale of the Tapoco Hydroelectric Project (see Note F). In 2011, Equity income included higher earnings from an investment in a natural gas pipeline in Australia due to the recognition of a discrete income tax benefit by the consortium (Alcoa World Alumina and Chemicals' share of the benefit was \$24). Also in 2011, Net gain from asset sales included a \$43 gain related to the sale of land in Australia.

#### P. Cash Flow Information

Cash paid for interest and income taxes was as follows:

|                                      | 2012   | 2011   | 2010   |
|--------------------------------------|--------|--------|--------|
| Interest, net of amount capitalized  | \$ 454 | \$ 491 | \$ 452 |
| Income taxes, net of amount refunded | 223    | 382    | (67)   |

The details related to cash paid for acquisitions were as follows:

|  | 2012 | 2011   | 2010   |
|--|------|--------|--------|
| Assets acquired                                    | \$ - | \$ 253 | \$ 87  |
| Liabilities assumed                                | -    | (12)   | (15)   |
| Noncontrolling interests acquired                  | -    | -      | 4      |
| Redemption of convertible securities of subsidiary | -    | -      | 40     |
| Reduction in Alcoa shareholders' equity            | -    | -      | 22     |
| Cash paid  | -    | 241    | 138    |
| Less: cash acquired                                | -    | 1      | -      |
| Net cash paid                                      | \$ - | \$ 240 | \$ 138 |

**Noncash Financing and Investing Activities.** In August 2012, Alcoa received a loan of \$250 for the purpose of financing all or part of the cost of acquiring, constructing, reconstructing, and renovating certain facilities at Alcoa's rolling mill plant in Davenport, IA (see Note K). Because this loan can only be used for this purpose, the net proceeds of \$248 were classified as restricted cash. Since restricted cash is not part of cash and cash equivalents, this transaction was not reflected in the accompanying Statement of Consolidated Cash Flows as it represents a noncash activity. As funds are expended for the project, the release of the cash will be reflected as both an inflow on the Net change in restricted cash line and an outflow on the Capital expenditures line in the Investing Activities section of the Statement of Consolidated Cash Flows. At December 31, 2012, Alcoa had \$171 of restricted cash remaining related to this transaction.

In 2011 and 2010, Alcoa issued \$600 in common stock to satisfy a portion of its accrued pension benefits liability (see Notes R and W).

#### Q. Segment and Geographic Area Information

Alcoa is primarily a producer of aluminum products. Aluminum and alumina represent more than 80% of Alcoa's revenues. Nonaluminum products include precision castings and aerospace and industrial fasteners. Alcoa's segments are organized by product on a worldwide basis. 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 expense; noncontrolling 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 eliminations and other metal adjustments, differences between tax rates applicable to the segments and the consolidated effective tax rate, the results of the soft alloy extrusions business in Brazil, and other nonoperating items such as foreign currency transaction gains/losses and interest income are excluded from segment ATOI. Segment assets exclude, among others, cash and cash equivalents; deferred income taxes; goodwill not allocated to businesses for segment reporting purposes; corporate fixed assets; LIFO reserves; and other items, including the assets of the soft alloy extrusions business in Brazil and assets classified as held for sale related to discontinued operations.

The accounting policies of the segments are the same as those described in the Summary of Significant Accounting Policies (see Note A). Transactions among segments are established based on negotiation among the parties. Differences between segment totals and Alcoa's consolidated totals for line items not reconciled are in Corporate.

Alcoa's products are used worldwide in transportation (including aerospace, automotive, truck, trailer, rail, and shipping), packaging, building and construction, oil and gas, defense, and industrial applications. Total export sales from the U.S. included in continuing operations were \$2,107 in 2012, \$1,988 in 2011, and \$1,543 in 2010.

Alcoa's operations consist of four worldwide reportable segments as follows:

**Alumina.** This segment represents a portion of Alcoa's upstream operations and consists of the Company's worldwide refinery system, including the mining of bauxite, which is then refined into alumina. Alumina is mainly sold directly to internal and external smelter customers worldwide or is sold to customers who process it into industrial chemical products. A portion of this segment's third-party sales are completed through the use of agents, alumina traders, and distributors. Slightly more than half of Alcoa's alumina production is sold under supply contracts to third parties worldwide, while the remainder is used internally by the Primary Metals segment.

**Primary Metals.** This segment represents a portion of Alcoa's upstream operations and consists of the Company's worldwide smelter system. Primary Metals receives alumina, mostly 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 and buy/resell activity. 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. Buy/resell activity refers to when this segment purchases metal from external or internal sources and resells such metal to external customers or the midstream and downstream segments in order to maximize smelting system efficiency and to meet customer requirements.

**Global Rolled Products.** This segment represents Alcoa's midstream operations, whose principal business is the production and sale of aluminum plate and sheet. A small portion of this segment's operations relate to foil produced at one plant in Brazil. 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 aerospace, automotive, commercial transportation, and building and construction markets (mainly used in the

production of machinery and equipment and consumer durables), which is sold directly to customers and through distributors. Approximately one-half of the third-party sales in this segment consist of RCS, while the other one-half of third-party sales are derived from sheet and plate and foil used in industrial markets. 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.

**Engineered Products and Solutions.** This segment represents Alcoa's downstream operations and 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. Additionally, hard alloy extrusions products, which are also sold directly to customers and through distributors, serve the aerospace, automotive, commercial transportation, and industrial products markets.



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The operating results and assets of Alcoa's reportable segments were as follows:

|   | Alumina  | Primary<br>Metals | Global<br>Rolled<br>Products | Engineered<br>Products<br>and<br>Solutions | Total     |
|---|----------|-------------------|------------------------------|--|-----------|
| <b>2012</b>                               |          |                   |                              |  |           |
| Sales:                                    |          |                   |                              |  |           |
| Third-party sales                         | \$ 3,092 | \$ 7,432          | \$ 7,378                     | \$ 5,525                                   | \$ 23,427 |
| Intersegment sales                        | 2,310    | 2,877             | 163                          | -  | 5,350     |
| Total sales                               | \$ 5,402 | \$ 10,309         | \$ 7,541                     | \$ 5,525                                   | \$ 28,777 |
| Profit and loss:                          |          |                   |                              |  |           |
| Equity income (loss)                      | \$ 5     | \$ (27)           | \$ (6)                       | \$ -                                       | \$ (28)   |
| Depreciation, depletion, and amortization | 455      | 532               | 229                          | 158  | 1,374     |
| Income taxes                              | (27)     | 106               | 167                          | 297  | 543       |
| ATOI                                      | 90       | 309               | 358                          | 612  | 1,369     |
| <b>2011</b>                               |          |                   |                              |  |           |
| Sales:                                    |          |                   |                              |  |           |
| Third-party sales                         | \$ 3,462 | \$ 8,240          | \$ 7,642                     | \$ 5,345                                   | \$ 24,689 |
| Intersegment sales                        | 2,727    | 3,192             | 218                          | -  | 6,137     |
| Total sales                               | \$ 6,189 | \$ 11,432         | \$ 7,860                     | \$ 5,345                                   | \$ 30,826 |
| Profit and loss:                          |          |                   |                              |  |           |
| Equity income (loss)                      | \$ 25    | \$ (7)            | \$ (3)                       | \$ 1                                       | \$ 16     |
| Depreciation, depletion, and amortization | 444      | 556               | 237                          | 158  | 1,395     |
| Income taxes                              | 179      | 92                | 104                          | 260  | 635       |
| ATOI                                      | 607      | 481               | 266                          | 539  | 1,893     |
| <b>2010</b>                               |          |                   |                              |  |           |
| Sales:                                    |          |                   |                              |  |           |
| Third-party sales                         | \$ 2,815 | \$ 7,070          | \$ 6,277                     | \$ 4,584                                   | \$ 20,746 |
| Intersegment sales                        | 2,212    | 2,597             | 180                          | -  | 4,989     |
| Total sales                               | \$ 5,027 | \$ 9,667          | \$ 6,457                     | \$ 4,584                                   | \$ 25,735 |
| Profit and loss:                          |          |                   |                              |  |           |
| Equity income                             | \$ 10    | \$ 1              | \$ -                         | \$ 2                                       | \$ 13     |
| Depreciation, depletion, and amortization | 406      | 571               | 238                          | 154  | 1,369     |
| Income taxes                              | 60       | 96                | 92                           | 195  | 443       |
| ATOI                                      | 301      | 488               | 220                          | 415  | 1,424     |
| <b>2012</b>                               |          |                   |                              |  |           |
| Assets:                                   |          |                   |                              |  |           |
| Capital expenditures                      | \$ 374   | \$ 318            | \$ 258                       | \$ 200                                     | \$ 1,150  |
| Equity investments                        | 658      | 917               | 188                          | -  | 1,763     |
| Goodwill                                  | 10       | 997               | 214                          | 2,677                                      | 3,898     |
| Total assets                              | 9,709    | 11,709            | 4,603                        | 5,891                                      | 31,912    |
| <b>2011</b>                               |          |                   |                              |  |           |
| Assets:                                   |          |                   |                              |  |           |
| Capital expenditures                      | \$ 371   | \$ 463            | \$ 157                       | \$ 173                                     | \$ 1,164  |
| Equity investments                        | 450      | 925               | 123                          | -  | 1,498     |
| Goodwill                                  | 11       | 991               | 208                          | 2,666                                      | 3,876     |
| Total assets                              | 9,782    | 11,867            | 4,559                        | 5,831                                      | 32,039    |

The following tables reconcile certain segment information to consolidated totals:

|                                   | 2012      | 2011      | 2010      |
|-----------------------------------|-----------|-----------|-----------|
| <b>Sales:</b>                     |           |           |           |
| Total segment sales               | \$ 28,777 | \$ 30,826 | \$ 25,735 |
| Elimination of intersegment sales | (5,350)   | (6,137)   | (4,989)   |
| Corporate*                        | 273       | 262       | 267       |
| Consolidated sales                | \$ 23,700 | \$ 24,951 | \$ 21,013 |

\* For all periods presented, the Corporate amount includes third-party sales of three soft alloy extrusion facilities located in Brazil.

|   | 2012     | 2011     | 2010     |
|---|----------|----------|----------|
| <b>Net income attributable to Alcoa:</b>      |          |          |          |
| Total segment ATOI                            | \$ 1,369 | \$ 1,893 | \$ 1,424 |
| <b>Unallocated amounts (net of tax):</b>      |          |          |          |
| Impact of LIFO                                | 20       | (38)     | (16)     |
| Interest expense                              | (319)    | (340)    | (321)    |
| Noncontrolling interests                      | 29       | (194)    | (138)    |
| Corporate expense                             | (282)    | (290)    | (291)    |
| Restructuring and other charges               | (75)     | (196)    | (134)    |
| Discontinued operations                       | -        | (3)      | (8)      |
| Other   | (551)    | (221)    | (262)    |
| Consolidated net income attributable to Alcoa | \$ 191   | \$ 611   | \$ 254   |

| <b>December 31,</b>                     | 2012      | 2011      |
|---|-----------|-----------|
| <b>Assets:</b>                          |           |           |
| Total segment assets                    | \$ 31,912 | \$ 32,039 |
| Elimination of intersegment receivables | (444)     | (483)     |
| <b>Unallocated amounts:</b>             |           |           |
| Cash and cash equivalents               | 1,861     | 1,939     |
| Deferred income taxes                   | 4,061     | 3,738     |
| Corporate goodwill                      | 1,272     | 1,281     |
| Corporate fixed assets, net             | 961       | 935       |
| LIFO reserve                            | (770)     | (801)     |
| Other                                   | 1,326     | 1,472     |
| Consolidated assets                     | \$ 40,179 | \$ 40,120 |

Sales by major product grouping were as follows:

|   | 2012      | 2011      | 2010      |
|---|-----------|-----------|-----------|
| <b>Sales:</b>                               |           |           |           |
| Alumina                                     | \$ 2,962  | \$ 3,350  | \$ 2,740  |
| Primary aluminum                            | 7,121     | 7,907     | 6,842     |
| Flat-rolled aluminum                        | 7,378     | 7,642     | 6,277     |
| Investment castings                         | 1,747     | 1,700     | 1,521     |
| Fastening systems                           | 1,414     | 1,313     | 1,070     |
| Architectural aluminum systems              | 970       | 973       | 884       |
| Aluminum wheels                             | 692       | 656       | 475       |
| Other extruded aluminum and forged products | 955       | 1,010     | 930       |
| Other                                       | 461       | 400       | 274       |
|   | \$ 23,700 | \$ 24,951 | \$ 21,013 |

Geographic information for sales was as follows (based upon the country where the point of sale occurred):

|                | 2012      | 2011      | 2010      |
|----------------|-----------|-----------|-----------|
| <b>Sales:</b>  |           |           |           |
| U.S.*          | \$ 12,361 | \$ 12,295 | \$ 10,560 |
| Australia      | 3,222     | 3,587     | 2,842     |
| Brazil         | 1,244     | 1,371     | 1,182     |
| Spain          | 1,203     | 1,487     | 1,234     |
| Netherlands**  | 949       | 1,025     | 940       |
| Norway         | 820       | 927       | 809       |
| France         | 807       | 825       | 662       |
| Russia         | 713       | 761       | 584       |
| Hungary        | 492       | 665       | 505       |
| United Kingdom | 438       | 412       | 331       |
| Italy          | 379       | 537       | 418       |
| China          | 326       | 283       | 188       |
| Germany        | 216       | 229       | 231       |
| Other          | 530       | 547       | 527       |
|                | \$ 23,700 | \$ 24,951 | \$ 21,013 |

\* Sales that occurred in the U.S. include a portion of alumina from Alcoa's refineries in Suriname, Brazil, Australia, and Jamaica and aluminum from the Company's smelters in Canada.

\*\* Sales that occurred in the Netherlands include aluminum from Alcoa's smelter in Iceland.

Geographic information for long-lived assets was as follows (based upon the physical location of the assets):

| <b>December 31,</b>       | 2012      | 2011      |
|---------------------------|-----------|-----------|
| <b>Long-lived assets:</b> |           |           |
| U.S.                      | \$ 4,621  | \$ 4,439  |
| Brazil                    | 4,318     | 4,844     |
| Australia                 | 3,548     | 3,390     |
| Iceland                   | 1,571     | 1,615     |
| Canada                    | 1,399     | 1,447     |
| Norway                    | 898       | 894       |
| Russia                    | 494       | 531       |
| Spain                     | 445       | 451       |
| Jamaica                   | 414       | 417       |
| China                     | 395       | 424       |
| Other                     | 844       | 830       |
|                           | \$ 18,947 | \$ 19,282 |

#### **R. Preferred and Common Stock**

**Preferred Stock.** Alcoa has two classes of preferred stock: Class A Preferred Stock and Class B Serial Preferred Stock. Class A Preferred Stock has 660,000 shares authorized at a par value of \$100 per share with an annual \$3.75 cumulative dividend preference per share. There were 546,024 of such shares outstanding at December 31, 2012 and 2011. Class B Serial Preferred Stock has 10 million shares authorized (none issued) and a par value of \$1 per share.

**Common Stock.** There are 1.8 billion shares authorized at a par value of \$1 per share, and 1,177,906,557 shares were issued at December 31, 2012 and 2011. The current dividend yield as authorized by Alcoa's Board of Directors is \$0.12 per annum or \$0.03 per quarter.

In January 2011, Alcoa contributed 36,518,563 newly issued shares of its common stock to a master trust that holds the assets of certain U.S. defined benefit pension plans in a private placement transaction. These shares were valued at \$16.43 per share (the closing price of Alcoa's common stock on January 24, 2011), or \$600 in the aggregate, and were issued to satisfy the estimated minimum required funding and to provide additional funding towards maintaining an approximately 80% funded status of Alcoa's U.S. pension plans. On January 25, 2011, the 36,518,563 shares were registered under Alcoa's then-current shelf registration statement dated March 10, 2008 (replaced by shelf registration statement dated February 18, 2011) for resale by the master trust, as selling stockholder.

In January 2010, Alcoa contributed 44,313,146 newly issued shares of its common stock to a master trust that holds the assets of certain U.S. defined benefit pension plans in a private placement transaction. These shares were valued at \$13.54 per share (the closing price of Alcoa's common stock on January 26, 2010), or \$600 in the aggregate, and were issued to satisfy a portion of Alcoa's future funding obligations to these plans, including a portion of the estimated minimum required funding for 2011. On January 27, 2010, the 44,313,146 shares were registered under Alcoa's then-current shelf registration statement dated March 10, 2008 for resale by the master trust, as selling stockholder.

As of December 31, 2012, 110 million and 86 million shares of common stock were reserved for issuance upon conversion of convertible notes and under Alcoa's stock-based compensation plans, respectively. Alcoa issues shares from treasury stock to satisfy the exercise of stock options and the conversion of stock awards.

**Share Activity** (number of shares)

|   | <b>Common stock</b> |                    |
|---|---------------------|--------------------|
|   | <b>Treasury</b>     | <b>Outstanding</b> |
| <b>Balance at end of 2009</b>             | 122,695,718         | 974,378,820        |
| Private placement                         | -                   | 44,313,146         |
| Conversion of convertible notes           | -                   | 310                |
| Issued for stock-based compensation plans | (3,333,689)         | 3,333,689          |
| <b>Balance at end of 2010</b>             | 119,362,029         | 1,022,025,965      |
| Private placement                         | -                   | 36,518,563         |
| Issued for stock-based compensation plans | (5,867,538)         | 5,867,538          |
| <b>Balance at end of 2011</b>             | 113,494,491         | 1,064,412,066      |
| Issued for stock-based compensation plans | (2,799,887)         | 2,799,887          |
| <b>Balance at end of 2012</b>             | 110,694,604         | 1,067,211,953      |
| <b>Stock-based Compensation</b>           |                     |                    |

Stock options under Alcoa's stock-based compensation plans are granted in January each year at market prices on the dates of grant. Prior to 2011, performance stock options were also granted to certain individuals. For performance stock options granted in 2010, the final number of options earned was based on Alcoa's adjusted free cash flow and profitability against pre-established targets. Stock option features based on date of original grant were as follows:

**Date of**

| <b>original grant</b> | <b>Vesting</b>             | <b>Term</b> | <b>Reload feature</b>  |
|-----------------------|----------------------------|-------------|--|
| 2002 and prior        | 1 year                     | 10 years    | One reload   |
| 2003                  | 3 years<br>(1/3 each year) | 10 years    | over option term<br>One reload in 2004 for 1/3<br>vesting in |
| 2004 - 2009           | 3 years                    | 6 years     | 2004<br>None   |
| 2010 and forward      | (1/3 each year)<br>3 years | 10 years    | None   |



In addition to the stock options described above, Alcoa grants stock awards that vest three years from the date of grant. In 2010, certain of these stock awards were granted with the same performance conditions described above for performance stock options. In 2012 and 2011, the final number of performance stock awards earned will be based on the achievement of sales and profitability targets over a three-year period. One-third of the award will be earned each year based on the performance against pre-established targets for that year. The performance stock awards earned over the three-year period vest at the end of the third year.

Most 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.

The following table summarizes the total compensation expense recognized for all stock options and stock awards (there was no stock-based compensation expense capitalized in 2012, 2011, or 2010):

|   | 2012  | 2011  | 2010  |
|---|-------|-------|-------|
| Compensation expense recognized:                |       |       |       |
| Stock option grants                             | \$ 27 | \$ 34 | \$ 44 |
| Stock award grants                              | 40    | 49    | 40    |
| Total compensation expense before income taxes  | 67    | 83    | 84    |
| Benefit for income taxes                        | 21    | 27    | 27    |
| Total compensation expense, net of income taxes | \$ 46 | \$ 56 | \$ 57 |

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. As a result, a larger portion of expense will be recognized in the first half of each year for these retirement-eligible employees. Of the total compensation expense before income taxes included in the table above, \$13, \$18, and \$19 in 2012, 2011, and 2010, respectively, pertains to the acceleration of expense related to retirement-eligible employees.

The fair value of new options was estimated on the date of grant using a lattice-pricing model with the following assumptions:

|  | 2012       | 2011       | 2010       |
|--|------------|------------|------------|
| Weighted average fair value per option | \$ 3.11    | \$ 4.96    | \$ 4.67    |
| Average risk-free interest rate        | 0.06-1.89% | 0.19-3.44% | 0.14-3.62% |
| Dividend yield                         | 0.9%       | 0.9%       | 1.1%       |
| Volatility                             | 39-45%     | 36-43%     | 47-51%     |
| Annual forfeiture rate                 | 5%         | 5%         | 4%         |
| Exercise behavior                      | 45%        | 45%        | 35%        |
| Life (years)                           | 5.8        | 5.8        | 5.6        |

The range of average risk-free interest rates was based on a yield curve of interest rates at the time of the grant based on the contractual life of the option. The dividend yield was based on a one-year average. Volatility was based on historical and implied volatilities over the term of the option. Alcoa utilized historical option forfeiture data to estimate annual pre- and post-vesting forfeitures. Exercise behavior was based on a weighted average exercise ratio (exercise patterns for grants issued over the number of years in the contractual option term) of an option's intrinsic value resulting from historical employee exercise behavior. Based upon the other assumptions used in the determination of the fair value, the life of an option was an output of the lattice-pricing model.

The activity for stock options was as follows (options in millions):

|                                 | 2012     | 2011     | 2010     |
|---------------------------------|----------|----------|----------|
| Outstanding, beginning of year: |          |          |          |
| Number of options               | 46.8     | 56.1     | 65.5     |
| Weighted average exercise price | \$ 17.41 | \$ 19.29 | \$ 24.44 |
| Granted:                        |          |          |          |
| Number of options               | 10.5     | 4.5      | 9.0      |
| Weighted average exercise price | \$ 10.17 | \$ 16.24 | \$ 13.52 |
| Exercised:                      |          |          |          |
| Number of options               | (1.5)    | (4.3)    | (1.6)    |
| Weighted average exercise price | \$ 8.28  | \$ 8.59  | \$ 8.34  |
| Expired or forfeited:           |          |          |          |
| Number of options               | (10.8)   | (9.5)    | (16.8)   |
| Weighted average exercise price | \$ 31.83 | \$ 31.90 | \$ 37.21 |
| Outstanding, end of year:       |          |          |          |
| Number of options               | 45.0     | 46.8     | 56.1     |
| Weighted average exercise price | \$ 12.58 | \$ 17.41 | \$ 19.29 |
| Exercisable, end of year:       |          |          |          |
| Number of options               | 29.8     | 28.8     | 30.2     |
| Weighted average exercise price | \$ 13.02 | \$ 20.90 | \$ 26.91 |

The total intrinsic value of options exercised during 2012, 2011, and 2010 was \$2, \$34, and \$8, respectively. In 2012, 2011, and 2010, the cash received from option exercises was \$12, \$37, and \$13 and the total tax benefit realized from these exercises was \$1, \$11, and \$2, respectively.

The following tables summarize certain stock option information at December 31, 2012 (number of options and intrinsic value in millions):

#### Options Fully Vested and/or Expected to Vest\*

| Range of exercise price | Number | Weighted average remaining contractual life | Weighted average exercise price | Intrinsic Value |
|-------------------------|--------|---|---------------------------------|-----------------|
| \$6.12 - \$8.33         | 17.9   | 2.06  | \$ 8.33                         | \$ 7            |
| \$8.34 - \$11.33        | 10.3   | 8.93  | 10.17                           | -               |
| \$11.34 - \$17.40       | 11.2   | 7.21  | 14.47                           | -               |
| \$17.41 - \$46.77       | 5.6    | 0.26  | 26.96                           | -               |
| Total                   | 45.0   | 4.69  | 12.58                           | \$ 7            |

\* Expected forfeitures are immaterial to the Company and are not reflected in the table above.

**Options Fully Vested and Exercisable**

| Range of<br>exercise price | Number | Weighted<br>average<br>remaining | Weighted<br>average | Intrinsic<br>Value |
|----------------------------|--------|----------------------------------|---------------------|--------------------|
|                            |        | contractual<br>life              | exercise<br>price   |                    |
| \$6.12 - \$8.33            | 17.9   | 2.06                             | \$ 8.33             | \$ 7               |
| \$8.34 - \$11.33           | 0.1    | 6.65                             | 10.72               | -                  |
| \$11.34 - \$17.40          | 6.2    | 7.07                             | 14.10               | -                  |
| \$17.41 - \$46.77          | 5.6    | 0.26                             | 26.96               | -                  |
| Total                      | 29.8   | 2.77                             | 13.02               | \$ 7               |

In addition to stock option awards, the Company grants stock awards and performance share awards, both of which vest three years from the date of grant. Performance share awards are issued at target and the final award amount is determined at the end of the performance period.

The following table summarizes the outstanding stock and performance share awards (awards in millions):

|                                | Stock<br>Awards | Performance<br>Share Awards | Total | Weighted<br>average<br>FMV<br>per award |
|--------------------------------|-----------------|-----------------------------|-------|---|
| Outstanding, January 1, 2012   | 6.4             | 2.9                         | 9.3   | \$ 13.63                                |
| Granted                        | 3.0             | 1.9                         | 4.9   | 10.08                                   |
| Converted                      | (1.0)           | (0.8)                       | (1.8) | 8.42                                    |
| Forfeited                      | (0.5)           | (0.2)                       | (0.7) | 13.49                                   |
| Performance share adjustment   | -               | 0.2                         | 0.2   | 12.74                                   |
| Outstanding, December 31, 2012 | 7.9             | 4.0                         | 11.9  | 12.96                                   |

At December 31, 2012, there was \$22 and \$35 of unrecognized compensation expense (pretax) related to non-vested stock option grants and non-vested stock award grants, respectively. This expense is expected to be recognized over a weighted average period of 1.5 years. As of December 31, 2012, the following table summarizes the unrecognized compensation expense expected to be recognized in future periods:

|        | Stock-based compensation<br>expense (pretax) |
|--------|--|
| 2013   | \$ 38  |
| 2014   | 18   |
| 2015   | 1  |
| Totals | \$ 57  |

**S. Earnings Per Share**

Basic earnings per share (EPS) amounts are computed by dividing earnings, after the deduction of preferred stock dividends declared and dividends and undistributed earnings allocated to participating securities, by the average number of common shares outstanding. Diluted EPS amounts assume the issuance of common stock for all potentially dilutive share equivalents outstanding not classified as participating securities.



The information used to compute basic and diluted EPS attributable to Alcoa common shareholders was as follows (shares in millions):

|  | 2012   | 2011   | 2010   |
|--|--------|--------|--------|
| Income from continuing operations attributable to Alcoa common shareholders      | \$ 191 | \$ 614 | \$ 262 |
| Less: preferred stock dividends declared   | 2      | 2      | 2      |
| Income from continuing operations available to common equity                     | 189    | 612    | 260    |
| Less: dividends and undistributed earnings allocated to participating securities | -      | 1      | 1      |
| Income from continuing operations available to Alcoa common shareholders basic   | 189    | 611    | 259    |
| Add: interest expense related to convertible notes                               | -      | 30     | -      |
| Income from continuing operations available to Alcoa common shareholders diluted | \$ 189 | \$ 641 | \$ 259 |
| Average shares outstanding basic   | 1,067  | 1,061  | 1,018  |
| Effect of dilutive securities:   |        |        |        |
| Stock options  | 3      | 7      | 6      |
| Stock and performance awards   | 6      | 4      | 1      |
| Convertible notes  | -      | 89     | -      |
| Average shares outstanding diluted   | 1,076  | 1,161  | 1,025  |

Participating securities are defined as unvested share-based payment awards that contain nonforfeitable rights to dividends or dividend equivalents (whether paid or unpaid) and are included in the computation of earnings per share pursuant to the two-class method. Prior to January 1, 2010, under Alcoa's stock-based compensation programs, certain employees were granted stock and performance awards, which entitle those employees to receive nonforfeitable dividends during the vesting period on a basis equivalent to the dividends paid to holders of Alcoa's common stock. As such, these unvested stock and performance awards met the definition of a participating security. Under the two-class method, all earnings, whether distributed or undistributed, are allocated to each class of common stock and participating securities based on their respective rights to receive dividends. At December 31, 2012, there were no outstanding participating securities, as all such securities have vested and were converted into shares of common stock. At December 31, 2011 and 2010 there were 2 million and 4 million participating securities outstanding, respectively.

Effective January 1, 2010, new grants of stock and performance awards do not contain a nonforfeitable right to dividends during the vesting period. As a result, an employee will forfeit the right to dividends accrued on unvested awards if that person does not fulfill their service requirement during the vesting period. As such, these awards are not treated as participating securities in the EPS calculation as the employees do not have equivalent dividend rights as common shareholders. These awards are included in the EPS calculation utilizing the treasury stock method similar to stock options. At December 31, 2012, 2011, and 2010, there were 12 million, 8 million, and 4 million such awards outstanding, respectively.

In 2012 and 2010, 89 million share equivalents related to convertible notes were not included in the computation of diluted EPS because their effect was anti-dilutive.

Options to purchase 27 million, 27 million, and 23 million shares of common stock at a weighted average exercise price of \$15.41, \$24.00, and \$32.73 per share were outstanding as of December 31, 2012, 2011, and 2010, respectively, but were not included in the computation of diluted EPS because they were anti-dilutive, as the exercise prices of the options were greater than the average market price of Alcoa's common stock.

**T. Income Taxes**

The components of income from continuing operations before income taxes were as follows:

|         | 2012   | 2011     | 2010     |
|---------|--------|----------|----------|
| U.S.    | \$ 394 | \$ (98)  | \$ (403) |
| Foreign | (70)   | 1,161    | 951      |
|         | \$ 324 | \$ 1,063 | \$ 548   |

The provision for income taxes on income from continuing operations consisted of the following:

|                 | 2012   | 2011   | 2010   |
|-----------------|--------|--------|--------|
| Current:        |        |        |        |
| Federal*        | \$ 85  | \$ 10  | \$ 33  |
| Foreign         | 167    | 427    | 409    |
| State and local | 9      | (1)    | (7)    |
|                 | 261    | 436    | 435    |
| Deferred:       |        |        |        |
| Federal*        | 129    | 28     | 37     |
| Foreign         | (227)  | (211)  | (320)  |
| State and local | (1)    | 2      | (4)    |
|                 | (99)   | (181)  | (287)  |
| Total           | \$ 162 | \$ 255 | \$ 148 |

\* Includes U.S. taxes related to foreign income

Included in discontinued operations is a tax benefit of \$1 in 2011 and \$3 in 2010.

The exercise of employee stock options generated a tax charge of \$1 in 2012 and a tax benefit of \$6 in 2011 and \$2 in 2010, representing only the difference between compensation expense recognized for financial reporting and tax purposes. These amounts decreased or increased equity and increased or reduced current taxes payable in their respective periods.

Alcoa has unamortized tax-deductible goodwill of \$97 resulting from intercompany stock sales and reorganizations. Alcoa recognizes the tax benefits (generally at a 30% to 34% rate) 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.

A reconciliation of the U.S. federal statutory rate to Alcoa's effective tax rate for continuing operations was as follows:

|  | 2012  | 2011   | 2010  |
|--|-------|--------|-------|
| U.S. federal statutory rate  | 35.0% | 35.0%  | 35.0% |
| Taxes on foreign operations  | (0.1) | (11.0) | (5.4) |
| Permanent differences on restructuring charges and asset disposals           | 10.8  | -      | 0.7   |
| Audit and other adjustments to prior years' accruals                         | 3.5   | (1.1)  | 1.2   |
| Noncontrolling interests   | 3.8   | 0.8    | 2.6   |
| Statutory tax rate and law changes   | (0.4) | 0.8    | (5.1) |
| Tax law change related to Medicare Part D                                    | -     | -      | 14.4  |
| Changes in valuation allowances  | 15.2  | 2.3    | (8.7) |
| Amortization of goodwill related to intercompany stock sales/reorganizations | (7.7) | (2.8)  | (5.2) |
| Change in legal structure of investment                                      | (4.1) | -      | -     |
| Interest income related to income tax positions                              | (1.3) | (0.2)  | -     |
| Company-owned life insurance/split-dollar net premiums                       | (3.9) | (0.2)  | (1.8) |
| Other  | (0.8) | 0.4    | (0.8) |
| Effective tax rate   | 50.0% | 24.0%  | 26.9% |



On March 23, 2010, the Patient Protection and Affordable Care Act (the "PPACA") was signed into law, and, on March 30, 2010, the Health Care and Education Reconciliation Act of 2010 (the "HCERA" and, together with PPACA, the "Acts"), which makes various amendments to certain aspects of the PPACA, was signed into law. The Acts effectively change the tax treatment of federal subsidies paid to sponsors of retiree health benefit plans that provide prescription drug benefits that are at least actuarially equivalent to the corresponding benefits provided under Medicare Part D.

Alcoa pays a portion of the prescription drug cost for eligible retirees under certain postretirement benefit plans. These benefits were determined to be actuarially equivalent to the Medicare Part D prescription drug benefit of the Medicare Prescription Drug, Improvement and Modernization Act of 2003 (the "MPDIMA"). Alcoa has been receiving the federal subsidy since the 2006 tax year related to the aforementioned postretirement benefit plans. Under the MPDIMA, the federal subsidy did not reduce an employer's income tax deduction for the costs of providing such prescription drug plans nor was it subject to income tax individually.

Under the Acts, beginning in 2013, an employer's income tax deduction for the costs of providing Medicare Part D-equivalent prescription drug benefits to retirees will be reduced by the amount of the federal subsidy. Under GAAP, any impact from a change in tax law must be recognized in earnings in the period enacted regardless of the effective date. As a result, Alcoa recognized a noncash charge of \$79 in 2010 for the elimination of a related deferred tax asset to reflect the change in the tax treatment of the federal subsidy.

The components of net deferred tax assets and liabilities were as follows:

|                                    | 2012     |             | 2011     |             |
|------------------------------------|----------|-------------|----------|-------------|
|                                    | Deferred | Deferred    | Deferred | Deferred    |
| December 31,                       | tax      | tax         | tax      | tax         |
|                                    | assets   | liabilities | assets   | liabilities |
| Depreciation                       | \$ 104   | \$ 1,015    | \$ 74    | \$ 933      |
| Employee benefits                  | 2,742    | 46          | 2,668    | 51          |
| Loss provisions                    | 368      | 17          | 325      | 9           |
| Deferred income/expense            | 53       | 203         | 45       | 181         |
| Tax loss carryforwards             | 2,186    | -           | 2,035    | -           |
| Tax credit carryforwards           | 508      | -           | 477      | -           |
| Derivatives and hedging activities | 117      | 16          | 109      | 43          |
| Other                              | 324      | 297         | 315      | 288         |
|                                    | 6,402    | 1,594       | 6,048    | 1,505       |
| Valuation allowance                | (1,400)  | -           | (1,398)  | -           |
|                                    | \$ 5,002 | \$ 1,594    | \$ 4,650 | \$ 1,505    |

The following table details the expiration periods of the deferred tax assets presented above:

|                          | Expires  |             | Expires     |          | No | Total    |
|--------------------------|----------|-------------|-------------|----------|----|----------|
|                          | within   | within      | within      | within   |    |          |
| December 31, 2012        | 10 years | 11-20 years | expiration* | Other*   |    |          |
| Tax loss carryforwards   | \$ 332   | \$ 886      | \$ 968      | \$ -     |    | \$ 2,186 |
| Tax credit carryforwards | 370      | 73          | 65          | -        |    | 508      |
| Other                    | -        | -           | 762         | 2,946    |    | 3,708    |
| Valuation allowance      | (212)    | (659)       | (244)       | (285)    |    | (1,400)  |
|                          | \$ 490   | \$ 300      | \$ 1,551    | \$ 2,661 |    | \$ 5,002 |

\* Deferred tax assets with no expiration may still have annual limitations on utilization. Other represents deferred tax assets whose expiration is dependent upon the reversal of the underlying temporary difference. A substantial amount of Other relates to employee benefits that will become deductible for tax purposes over an extended period of time as contributions are made to employee benefit plans and payments are made to retirees.

The total deferred tax asset (net of valuation allowance) is supported by taxable temporary differences that reverse within the carryforward period (approximately 25%), tax planning strategies (approximately 5%), and projections of future taxable income exclusive of reversing temporary differences (approximately 70%).

Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized. In evaluating the need for a valuation allowance, management considers all potential sources of taxable income, including income available in carryback periods, future reversals of taxable temporary differences, projections of taxable income, and income from tax planning strategies, as well as all available positive and negative evidence. Positive evidence includes factors such as a history of profitable operations, projections of future profitability within the carryforward period, including from tax planning strategies, and the Company's experience with similar operations. Existing favorable contracts and the ability to sell product into established markets are additional positive evidence. Negative evidence includes items such as cumulative losses, projections of future losses, or carryforward periods that are not long enough to allow the utilization of the deferred tax asset based on existing projections of income. In certain jurisdictions, deferred tax assets related to cumulative losses exist without a valuation allowance where in management's judgment the weight of the positive evidence more than offsets the negative evidence of the cumulative losses. Upon changes in facts and circumstances, management may conclude that deferred tax assets for which no valuation allowance is currently recorded may not be realizable in future periods, resulting in a future charge to record a valuation allowance. Existing valuation allowances are re-examined under the same standards of positive and negative evidence. If it is determined that it is more likely than not that a deferred tax asset will be realized, the appropriate amount of the valuation allowance, if any, is released. Deferred tax assets and liabilities are also re-measured to reflect changes in underlying tax rates due to law changes and the granting and lapse of tax holidays.

In December 2011, one of the Company's subsidiaries in Brazil applied for a tax holiday related to its expanded mining and refining operations. If approved, the tax rate for this subsidiary will decrease significantly, resulting in future cash tax savings over the 10-year holiday period (would be effective as of January 1, 2013). Additionally, the net deferred tax asset of the subsidiary would be remeasured at the lower rate in the period the holiday is approved. This remeasurement would result in a decrease to the net deferred tax asset and a noncash charge to earnings of approximately \$60 to \$120. As of December 31, 2012, Alcoa's subsidiary's application is still pending.

The following table details the changes in the valuation allowance:

| <b>December 31,</b>          | <b>2012</b> | <b>2011</b> |
|------------------------------|-------------|-------------|
| Balance at beginning of year | \$ 1,398    | \$ 1,268    |
| Increase to allowance        | 45          | 157         |
| Release of allowance         | (48)        | (25)        |
| Foreign currency translation | 5           | (2)         |
| Balance at end of year       | \$ 1,400    | \$ 1,398    |

The cumulative amount of Alcoa's foreign undistributed net earnings for which no deferred taxes have been provided was approximately \$8,000 at December 31, 2012. Alcoa has a number of commitments and obligations related to the Company's growth strategy in foreign jurisdictions. As such, management has no plans to distribute such earnings in the foreseeable future, and, therefore, has determined it is not practicable to determine the related deferred tax liability.

Alcoa and its subsidiaries file income tax returns in the U.S. federal jurisdiction and various states and foreign jurisdictions. With a few minor exceptions, Alcoa is no longer subject to income tax examinations by tax authorities for years prior to 2002. All U.S. tax years prior to 2012 have been audited by the Internal Revenue Service. Various state and foreign jurisdiction tax authorities are in the process of examining Alcoa's income tax returns for various tax years through 2010.

A reconciliation of the beginning and ending amount of unrecognized tax benefits (excluding interest and penalties) was as follows:

| <b>December 31,</b>                             | <b>2012</b> | <b>2011</b> | <b>2010</b> |
|---|-------------|-------------|-------------|
| Balance at beginning of year                    | \$ 51       | \$ 46       | \$ 48       |
| Additions for tax positions of the current year | -           | -           | -           |
| Additions for tax positions of prior years      | 39          | 13          | 30          |
| Reductions for tax positions of prior years     | (7)         | (3)         | (5)         |
| Settlements with tax authorities                | (18)        | (4)         | (22)        |
| Expiration of the statute of limitations        | -           | -           | (5)         |
| Foreign currency translation                    | 1           | (1)         | -           |
| Balance at end of year                          | \$ 66       | \$ 51       | \$ 46       |

For all periods presented, a portion of the balance at end of year pertains to state tax liabilities, which are presented before any offset for federal tax benefits. The effect of unrecognized tax benefits, if recorded, that would impact the annual effective tax rate for 2012, 2011, and 2010 would be approximately 6%, 2%, and 4%, respectively, of pretax book income. Alcoa does not anticipate that changes in its unrecognized tax benefits will have a material impact on the Statement of Consolidated Operations during 2013.

It is Alcoa's policy to recognize interest and penalties related to income taxes as a component of the Provision for income taxes on the accompanying Statement of Consolidated Operations. In 2012, 2011, and 2010, Alcoa recognized \$3, \$2, and \$1, respectively, in interest and penalties. Due to the expiration of the statute of limitations, settlements with tax authorities, and refunded overpayments, Alcoa also recognized interest income of \$7, \$2, and \$4 in 2012, 2011, and 2010, respectively. As of December 31, 2012 and 2011, the amount accrued for the payment of interest and penalties was \$15 and \$12, respectively.

## U. Receivables

### Sale of Receivables Programs

Alcoa has three arrangements, each with a different financial institution, to sell certain customer receivables outright without recourse on a continuous basis. As of December 31, 2012, sold receivables, which were derecognized from the accompanying Consolidated Balance Sheet, in the amount of \$37 under the three arrangements combined were uncollected. Alcoa services the customer receivables for the financial institutions at market rates; therefore, no servicing asset or liability was recorded.

On March 30, 2012, Alcoa finalized a one-year arrangement with a financial institution to sell certain customer receivables without recourse on a revolving basis. The sale of such receivables is completed through the use of a bankruptcy remote special purpose entity, which is a consolidated subsidiary of Alcoa. This arrangement provides for minimum funding of \$50 up to a maximum of \$250 for receivables sold. Alcoa initially sold \$304 of customer receivables in exchange for \$50 in cash and \$254 of deferred purchase price under this arrangement. Alcoa received additional cash funding of \$155 throughout 2012. As of December 31, 2012, the deferred purchase price receivable was \$18, which was included in Other receivables on the accompanying Consolidated Balance Sheet. The deferred purchase price receivable is reduced as collections of the underlying receivables occur; however, as this is a revolving program, the sale of new receivables will result in an increase in the deferred purchase price receivable. The net change in the deferred purchase price receivable was reflected in the Decrease in receivables line item on the accompanying Statement of Consolidated Cash Flows. This activity is reflected as an operating cash flow because the related customer receivables are the result of an operating activity with an insignificant, short-term interest rate risk. In 2012, the gross cash outflows and inflows associated with the deferred purchase price receivable were \$3,339 and \$3,321, respectively. The gross amount of receivables sold and total cash collections under this program since its inception was \$3,339 and \$3,116, respectively. Alcoa services the customer receivables for the financial institution at market rates; therefore, no servicing asset or liability was recorded.

**Allowance for Doubtful Accounts**

The following table details the changes in the allowance for doubtful accounts related to customer receivables and other receivables:

| December 31,                        | Customer receivables |       | Other receivables |       |
|-------------------------------------|----------------------|-------|-------------------|-------|
|                                     | 2012                 | 2011  | 2012              | 2011  |
| Balance at beginning of year        | \$ 46                | \$ 46 | \$ 79             | \$ 87 |
| Provision for doubtful accounts     | 2                    | 19    | 9                 | 7     |
| Write off of uncollectible accounts | (8)                  | (14)  | (3)               | (3)   |
| Recoveries of prior write-offs      | (1)                  | (3)   | (6)               | (5)   |
| Other                               | -                    | (2)   | (5)               | (7)   |
| Balance at end of year              | \$ 39                | \$ 46 | \$ 74             | \$ 79 |

**V. Interest Cost Components**

|                           | 2012   | 2011   | 2010   |
|---------------------------|--------|--------|--------|
| Amount charged to expense | \$ 490 | \$ 524 | \$ 494 |
| Amount capitalized        | 93     | 101    | 96     |
|                           | \$ 583 | \$ 625 | \$ 590 |

**W. Pension and Other Postretirement Benefits**

Alcoa maintains pension plans covering most U.S. employees and certain employees in foreign locations. Pension benefits generally depend on length of service, job grade, and remuneration. Substantially all benefits are paid through pension trusts that are sufficiently funded to ensure that all plans can pay benefits to retirees as they become due. Most salaried and non-bargaining hourly U.S. employees hired after March 1, 2006 participate in a defined contribution plan instead of a defined benefit plan.

Alcoa also maintains health care and life insurance benefit plans covering eligible U.S. retired employees and certain retirees from foreign locations. Generally, the medical plans pay a percentage of medical expenses, reduced by deductibles and other coverages. These plans are generally unfunded, except for certain benefits funded through a trust. Life benefits are generally provided by insurance contracts. Alcoa retains the right, subject to existing agreements, to change or eliminate these benefits. All salaried and certain non-bargaining hourly U.S. employees hired after January 1, 2002 and certain bargaining hourly U.S. employees hired after July 1, 2010 are not eligible for postretirement health care benefits. All salaried and certain hourly U.S. employees that retire on or after April 1, 2008 are not eligible for postretirement life insurance benefits.

The funded status of all of Alcoa's pension and other postretirement benefit plans are measured as of December 31 each calendar year.

On June 24, 2010, the United Steelworkers ratified a new four-year labor agreement covering approximately 5,400 employees at 11 U.S. locations; the previous labor agreement expired on May 31, 2010. In 2010, as a result of the preparation for and ratification of the new agreement, Alcoa recognized \$20 (\$13 after-tax) in Cost of goods sold on the accompanying Statement of Consolidated Operations for strike preparation costs, a one-time signing bonus for employees, and an increase to pension net periodic benefit cost (see below). Additionally, as a result of the provisions of the new labor agreement, a significant plan amendment was adopted by one of Alcoa's U.S. pension plans. Accordingly, this plan was required to be remeasured, and through this process, the discount rate was updated from 6.15% at December 31, 2009 to 5.95% at May 31, 2010. The plan remeasurement resulted in an increase to both Alcoa's pension liability of \$166 and the plan's unrecognized net actuarial loss (included in other comprehensive loss) of \$108 (after-tax). The plan remeasurement also resulted in an increase to 2010 net periodic benefit cost of \$9.

**Obligations and Funded Status**

| December 31,   | Pension benefits |            | Other postretirement benefits |            |
|--|------------------|------------|-------------------------------|------------|
|  | 2012             | 2011       | 2012                          | 2011       |
| <b>Change in benefit obligation</b>  |                  |            |                               |            |
| Benefit obligation at beginning of year  | \$ 13,526        | \$ 12,343  | \$ 2,844                      | \$ 2,902   |
| Service cost   | 203              | 183        | 14                            | 17         |
| Interest cost  | 647              | 687        | 132                           | 159        |
| Amendments   | 6                | 40         | -                             | (1)        |
| Actuarial losses   | 1,120            | 1,163      | 107                           | 17         |
| Settlements  | -                | (32)       | -                             | -          |
| Curtailments   | -                | (7)        | -                             | -          |
| Benefits paid, net of participants' contributions  | (833)            | (813)      | (256)                         | (275)      |
| Medicare Part D subsidy receipts   | -                | -          | 21                            | 25         |
| Foreign currency translation impact  | 82               | (38)       | 1                             | -          |
| Benefit obligation at end of year*   | \$ 14,751        | \$ 13,526  | \$ 2,863                      | \$ 2,844   |
| <b>Change in plan assets</b>   |                  |            |                               |            |
| Fair value of plan assets at beginning of year   | \$ 10,311        | \$ 9,451   | \$ 8                          | \$ 58      |
| Actual return on plan assets   | 925              | 783        | -                             | 2          |
| Employer contributions   | 571              | 945        | -                             | -          |
| Participants' contributions  | 32               | 35         | -                             | -          |
| Benefits paid  | (822)            | (805)      | (8)                           | (52)       |
| Administrative expenses  | (42)             | (38)       | -                             | -          |
| Settlements  | -                | (34)       | -                             | -          |
| Foreign currency translation impact  | 68               | (26)       | -                             | -          |
| Fair value of plan assets at end of year*  | \$ 11,043        | \$ 10,311  | \$ -                          | \$ 8       |
| <b>Funded status*</b>  | \$ (3,708)       | \$ (3,215) | \$ (2,863)                    | \$ (2,836) |
| Less: Amounts attributed to joint venture partners   | (40)             | (34)       | (4)                           | (5)        |
| Net funded status  | \$ (3,668)       | \$ (3,181) | \$ (2,859)                    | \$ (2,831) |
| <b>Amounts recognized in the Consolidated Balance Sheet consist of:</b>  |                  |            |                               |            |
| Noncurrent assets  | \$ 86            | \$ 109     | \$ -                          | \$ -       |
| Current liabilities  | (32)             | (29)       | (256)                         | (248)      |
| Noncurrent liabilities   | (3,722)          | (3,261)    | (2,603)                       | (2,583)    |
| Net amount recognized  | \$ (3,668)       | \$ (3,181) | \$ (2,859)                    | \$ (2,831) |
| <b>Amounts recognized in Accumulated Other Comprehensive Loss consist of:</b>                                  |                  |            |                               |            |
| Net actuarial loss   | \$ 5,880         | \$ 5,191   | \$ 593                        | \$ 511     |
| Prior service cost (benefit)   | 119              | 129        | (76)                          | (92)       |
| Total, before tax effect   | 5,999            | 5,320      | 517                           | 419        |
| Less: Amounts attributed to joint venture partners   | 54               | 46         | (1)                           | (1)        |
| Net amount recognized, before tax effect   | \$ 5,945         | \$ 5,274   | \$ 518                        | \$ 420     |
| <b>Other Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Loss consist of:</b> |                  |            |                               |            |
| Net actuarial loss   | \$ 1,073         | \$ 1,216   | \$ 107                        | \$ 17      |
| Amortization of accumulated net actuarial loss   | (384)            | (246)      | (25)                          | (26)       |
| Prior service cost (benefit)   | 9                | 42         | -                             | (1)        |
| Amortization of prior service (cost) benefit   | (19)             | (19)       | 16                            | 17         |
| Total, before tax effect   | 679              | 993        | 98                            | 7          |
| Less: Amounts attributed to joint venture partners   | 8                | 10         | -                             | (1)        |
| Net amount recognized, before tax effect   | \$ 671           | \$ 983     | \$ 98                         | \$ 8       |

\* At December 31, 2012, the benefit obligation, fair value of plan assets, and funded status for U.S. pension plans were \$11,521, \$8,437, and \$(3,084), respectively. At December 31, 2011, the benefit obligation, fair value of plan assets, and funded status for U.S. pension plans were \$10,702, \$7,988, and \$(2,714), respectively.



**Pension Plan Benefit Obligations**

|  | Pension benefits |           |
|--|------------------|-----------|
|  | 2012             | 2011      |
| The projected benefit obligation and accumulated benefit obligation for all defined benefit pension plans was as follows:  |                  |           |
| Projected benefit obligation   | \$ 14,751        | \$ 13,526 |
| Accumulated benefit obligation   | 14,186           | 13,025    |
| The aggregate projected benefit obligation and fair value of plan assets for pension plans with projected benefit obligations in excess of plan assets was as follows:     |                  |           |
| Projected benefit obligation   | 13,973           | 12,828    |
| Fair value of plan assets  | 10,142           | 9,470     |
| The aggregate accumulated benefit obligation and fair value of plan assets for pension plans with accumulated benefit obligations in excess of plan assets was as follows: |                  |           |
| Accumulated benefit obligation   | 13,421           | 12,184    |
| Fair value of plan assets  | 10,123           | 9,281     |

**Components of Net Periodic Benefit Cost**

|  | Pension benefits <sup>(1)</sup> |        |        | Other postretirement benefits <sup>(2)</sup> |        |        |
|--|---------------------------------|--------|--------|--|--------|--------|
|  | 2012                            | 2011   | 2010   | 2012   | 2011   | 2010   |
| Service cost                                 | \$ 186                          | \$ 165 | \$ 148 | \$ 14  | \$ 17  | \$ 20  |
| Interest cost                                | 639                             | 678    | 682    | 131  | 158    | 174    |
| Expected return on plan assets               | (808)                           | (806)  | (787)  | -  | (2)    | (7)    |
| Recognized net actuarial loss                | 384                             | 247    | 181    | 25   | 26     | 33     |
| Amortization of prior service cost (benefit) | 19                              | 19     | 17     | (16)   | (17)   | (15)   |
| Settlements <sup>(3)</sup>                   | -                               | 2      | 2      | -  | -      | (3)    |
| Curtailments <sup>(4)</sup>                  | -                               | (9)    | (10)   | -  | -      | -      |
| Net periodic benefit cost <sup>(5)</sup>     | \$ 420                          | \$ 296 | \$ 233 | \$ 154                                       | \$ 182 | \$ 202 |

<sup>(1)</sup> In 2012, 2011, and 2010, net periodic benefit cost for U.S. pension plans was \$288, \$190, and \$155, respectively.

<sup>(2)</sup> In 2012, 2011, and 2010, net periodic benefit cost for other postretirement benefits reflects a reduction of \$64, \$43, and \$39, respectively, related to the recognition of the federal subsidy awarded under Medicare Part D.

<sup>(3)</sup> In all periods presented, settlements were due to the payment of significant lump sum benefits and/or purchases of annuity contracts.

<sup>(4)</sup> In each period presented, curtailments were due to elimination of benefits or workforce reductions (see Note D).

<sup>(5)</sup> Amounts attributed to joint venture partners are not included.

**Amounts Expected to be Recognized in Net Periodic Benefit Cost**

|  | Pension benefits | Other postretirement benefits |
|--|------------------|-------------------------------|
|  | 2013             | 2013                          |
| Net actuarial loss recognition           | \$ 494           | \$ 36                         |
| Prior service cost (benefit) recognition | 19               | (18)                          |

## Assumptions

Weighted average assumptions used to determine benefit obligations for U.S. pension and other postretirement benefit plans were as follows (assumptions for non-U.S plans did not differ materially):

| <b>December 31,</b>           | <b>2012</b> | <b>2011</b> |
|-------------------------------|-------------|-------------|
| Discount rate                 | 4.15%       | 4.90%       |
| Rate of compensation increase | 3.5         | 3.5         |

The discount rate is determined using a Company-specific yield curve model (above-median) developed with the assistance of an external actuary. The cash flows of the plans' projected benefit obligations are discounted using a single equivalent rate derived from yields on high quality corporate bonds, which represent a broad diversification of issuers in various sectors, including finance and banking, manufacturing, transportation, insurance, and pharmaceutical, among others. The yield curve model parallels the plans' projected cash flows, which have an average duration of 10 years, and the underlying cash flows of the bonds included in the model exceed the cash flows needed to satisfy the Company's plans' obligations multiple times.

The rate of compensation increase is based upon actual experience. For 2013, the rate of compensation increase will be 3.5%, which approximates the five-year average.

Weighted average assumptions used to determine net periodic benefit cost for U.S. pension and other postretirement benefit plans were as follows (assumptions for non-U.S plans did not differ materially):

|  | <b>2012</b> | <b>2011</b> | <b>2010</b> |
|--|-------------|-------------|-------------|
| Discount rate*                                   | 4.90%       | 5.75%       | 6.15%       |
| Expected long-term rate of return on plan assets | 8.50        | 8.50        | 8.75        |
| Rate of compensation increase                    | 3.50        | 3.50        | 3.50        |

\* In all periods presented, the respective discount rates were used to determine net periodic benefit cost for most U.S. pension plans for the full annual period. However, the discount rates for a limited number of plans were updated during 2011 and 2010 to reflect the remeasurement of these plans due to new union labor agreements, settlements, and (or) curtailments. The updated discount rates used were not significantly different from the discount rates presented.

The expected long-term rate of return on plan assets is generally applied to a five-year market-related value of plan assets (a four-year average or the fair value at the plan measurement date is used for certain non-U.S. plans). The process used by management to develop this assumption has expanded from one that relied primarily on historical asset return information to one that also incorporates forward-looking returns by asset class, as described below.

Prior to developing the expected long-term rate of return for calendar year 2009, management focused on historical actual returns (annual, 10-year moving, and 20-year moving averages) when developing this assumption. Based on that process, management utilized 9% for the expected long-term rate of return for several years through 2008. For calendar year 2009, the expected long-term rate of return was reduced to 8.75% due to lower future expected market returns as a result of the then global economic downturn. This was supported by the fact that, in 2008, the 10-year moving average of actual performance fell below 9% for the first time in 20 years, although the 20-year moving average continued to exceed 9%.

For calendar year 2010, management expanded its process by incorporating expected future returns on current and planned asset allocations using information from various external investment managers and management's own judgment. Management considered this forward-looking analysis as well as the historical return information, and concluded the expected rate of return for calendar 2010 would remain at 8.75%, which was between the 20-year moving average actual return performance and the estimated future return developed by asset class.

For calendar year 2012 and 2011, management again incorporated both actual historical return information and expected future returns into its analysis. Based on strategic asset allocation changes and estimates of future returns by asset class, management used 8.50% as its expected long-term rate of return for both years. This rate again falls within the range of the 20-year moving average of actual performance and the expected future return developed by asset class.

For calendar year 2013, management used the same methodology as it did for 2012 and 2011 and determined that 8.50% will be the expected long-term rate of return.

Assumed health care cost trend rates for U.S. other postretirement benefit plans were as follows (assumptions for non-U.S plans did not differ materially):

|  | <b>2012</b> | <b>2011</b> | <b>2010</b> |
|--|-------------|-------------|-------------|
| Health care cost trend rate assumed for next year                    | 6.0%        | 6.5%        | 6.5%        |
| Rate to which the cost trend rate gradually declines                 | 4.5%        | 5.0%        | 5.0%        |
| Year that the rate reaches the rate at which it is assumed to remain | 2017        | 2016        | 2015        |

The assumed health care cost trend rate is used to measure the expected cost of gross eligible charges covered by Alcoa's other postretirement benefit plans. For 2013, a 6.0% trend rate will be used, reflecting management's best estimate of the change in future health care costs covered by the plans. The plans' actual annual health care cost trend experience over the past three years has ranged from (6.2)% to 3.8%. Management does not believe this three-year range is indicative of expected increases for future health care costs over the long-term.

Assumed health care cost trend rates have an effect on the amounts reported for the health care plan. A one-percentage point change in these assumed rates would have the following effects: