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THE MINERAL INDUSTRY OF ARGENTINA

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Argentina's economy continued to grow at an accelerated pace, and the real gross domestic product (GDP) increased by 9.2%, which repeated the high performance levels achieved in 2003 and 2004. The country's nominal GDP was $182.5 billion[1] ($533.7 billion and about $14,800 per capita based on purchasing power parity). Inflation, however, increased by 9.6%. One of the issues that had burdened Argentina's economy in recent years was its external debt (the country had defaulted on its loans in 2002). In 2005, the country was able to reduce its debt by 70% and at yearend it announced that it would pay its debt to the International Monetary Fund in its entirety. Venezuela bought a portion of Argentina's debt through the purchase of Argentine bonds early in the year and announced further purchases later in the year (Venezuelanalysis.com, 2005§[2]; Economist, The, 2006§; International Monetary Fund, 2006§, Ministerio de Economía y Producción, 2006d§; Ríos, 2006§).

During the year, the value of the output of goods (in real terms) increased by 9.6%, and services, by 8.4%. The value of production in the construction sector (in real terms) increased by 20.4%; this sector was the leading performer in 2004. Mining and quarrying, which included petroleum and natural gas, once again decreased slightly (in real terms) despite strong prices that prevailed during the year (Ministerio de Economía y Producción, 2006b§).

Investment in Argentina's mining sector totaled $853 million in 2005; this was a more than $200 million[3] increase from that of 2004 and represented a fourfold investment increase in exploration and project development compared with that of 2003. A large portion of the investment was in the area of exploration, although investment in properties in operation reached a historic high of more than $458 million. Exploration, in terms of meters drilled, also reached a historic-high level, with a total of more than 400,000 meters in 250 projects, 50 of which were in 14 Provinces; this figure represented a 54% increase from that of 2004 and a fourfold increase since 2003. Direct employment in the mining sector increased to 32,000 from 27,000 in 2004 (Secretaría de Minería de la Nación, 2006, p. 6, 28; 2006a§, c§).

Government Policies and Programs

In September, the Governments of Argentina and Chile signed two protocols that would enable two new exploration projects in the frontier between the two countries to proceed. The protocols provide the legal and tax frameworks for the bi-national projects Vicuña and Amos Andres, which are located in the Provinces of San Juan and San Juan-La Rioja, respectively (Secretaría de Minería de la Nación, 2005c§).

In accordance with the agenda to increase mining activity in Argentina, the Government continued to work with international investors and foreign Governments to find areas of mutual interest. During 2005, several foreign delegations visited Argentina to explore such options; among them was a delegation from the Republic of Korea. During the visit, the two countries signed agreements in the areas of commercial relations, mining investment, and technical cooperation. Another delegation of Government official and private investors from the Republic of South Africa met with Argentine Government officials to discuss possible opportunities for investment in Argentina, mainly in metals (Panorama Minero, 2005a; Secretaría de Minería de la Nación, 2005e§).

In July 2005, the Province of Rio Negro passed Law 3981, which bans the use of cyanide and mercury in the production, processing, and/or industrialization of metallic minerals. This ban would mainly affect the production of gold in the Province. Law 3981 is similar to Law 5001 of the Province of Chubut, which was passed in 2003 and which prohibits open pit mining and the use of cyanide in the processing of metallic minerals (Diario de Madryn, 2006§).

Production

In 2005, the value of Argentina's nonfuel mineral production plus coal was $1.7 billion (Secretaría de Minería de la Nación, 2006a§). The country's mineral production was of regional importance. The country was an important producer of fuel and nonfuel minerals in Latin America (table 1). According to U.S. Geological Survey data, Argentina was one of only three producers of primary aluminum in Latin America and produced 11% of the regional total. The country was Latin America's third ranked producer of mine lead (after Peru and Mexico) and steel (after Brazil and Mexico) and the fourth ranked producer of mine copper (after Chile, Peru, and Mexico), primary iron (direct-reduced iron and pig iron) and silver (after Brazil, Mexico, and Venezuela). Argentina was one of six Latin American producers of mine zinc and was an important gold producer in the region.

Before the late 1990s, Argentina's nonfuel mineral production was focused on the production of industrial minerals. In 2005, Argentina ranked first in Latin America in the production of boron minerals and third worldwide, producing more than 10% of the world's output. The country was also one of only 3 producers of lithium in Latin America and one of the 10 countries that produced lithium in the world. The country also had a tradition of producing a variety of other industrial minerals and dimension stone.

Mineral fuels continued to be very important to Argentina's economy. In Latin America and the Caribbean, Argentina was the leading producer of natural gas and the fourth-ranked

[1]Where necessary, 2005 values have been converted from Argentine pesos (Arg$) to U.S. dollars (US$) at a rate of Arg$2.930=US$1.00.

[2]References that include a section mark (§) are found in the Internet References Cited section.

[3]Where necessary, 2004 values have been converted from Argentine pesos (Arg$) to U.S. dollars (US$) at a rate of Arg$2.946=US$1.00.

producer of crude petroleum (after Mexico, Venezuela, and Brazil) (BP p.l.c., 2006, p. 8, 24).

In 2005, about 89% of mineral production (excluding natural gas and petroleum) was from four Provinces. The leading producing Provinces were, in decreasing order of value, Catamarca, Buenos Aires, Santa Cruz, and San Juan. Catamarca was the sole producer of copper and lithium and the leading producer of gold. Buenos Aires' high ranking in production value was because of its important role in the production of industrial minerals and construction materials. Santa Cruz produced more than 80% of the country's silver, was an important producer of gold, and was the only producer of coal. San Juan's high ranking was because of the value of its production of gold and large production volumes of clays and limestone.

Trade

Argentina's exports of goods totaled $40.1 billion. The country's imports (cost, insurance, and freight) totaled $28.7 billion. The increase of trade in most categories was a result of increased economic activity and higher demand.

Argentina's main trading partners were, in order of value, the countries of the Mercado Común del Cono Sur (MERCOSUR), the countries of the European Union, and the countries of the North American Free Trade Agreement. Collectively, these three groups accounted for 83% of Argentina's imports and 51% of its exports. Individually, Brazil was Argentina's main trading partner. Brazil received 16% of Argentina's exports and provided 36% of its imports. The United States received 11% of Argentina's exports and provided 14% of its imports.

Exports of nonfuel minerals have increased significantly since 1991 when the value was only $10 million. In 2005, the value of Argentina's mineral exports totaled $1.6 billion. A large portion of this increase was owing to the production of copper, all of which was exported. The value of copper concentrate in 2005 was $762 million. Exports of manufactured goods of industrial origin totaled $11.9 billion; of this amount, metals (excluding precious metals) and their products accounted for $2.3 billion; precious metals and precious stones amounted to $149.3 million; and ceramic products, dimension stone, and gypsum were valued at $14.1 million. Exports of energy and fuels totaled $7.1 billion; of this amount, crude petroleum accounted for $2.5 billion (Ministerio de Economía y Producción, 2006e§; Secretaría de Minería de la Nación, 2006b§).

Structure of the Mineral Industry

Argentina's highest Government office with responsibility for the mining sector is the Secretaría de Minería de la Nación. After residing in the Ministerio de Producción since early 2002, the Secretaría was moved to the newly formed Ministerio de Planificación Federal, Inversión Pública y Servicios in 2003 by Decree No. 1142/2003. The Secretaría is responsible for developing the country's mineral policy, promoting the growth of the mineral sector, and creating the conditions to encourage investment in the area. It also has the authority to carry out norms and legislation relevant to the mineral sector and is the authority with the responsibility to negotiate national and international agreements on behalf of the Government. As the Government entity to which the Servicio Geológico Argentino (SEGEMAR) reports, the Secretaría also is responsible for promoting geologic and mining studies with the purpose of planning the use of the mineral resources of the country. SEGEMAR, which was formed by Decree No. 660/1996, is in charge of managing a variety of geological programs and services based on scientific studies. It coordinates and updates Argentina's geologic information, contributes to the discovery of resources, and offers technical assistance to the small- and medium-sized mining sectors.

The Dirección Nacional de Minería (DNDM) is responsible for administrating law No. 24.196 and its modifications. The DNDM coordinates and develops Argentina's short- and long-term strategic mining plans and serves as an advisor to the Secretariat on technical and legal matters that affect the mining sector. DNDM is responsible for promoting activities to maintain dynamic small- and medium-sized mining sectors. The Dirección processes and disseminates all mining statistics.

The Provincial governments are responsible for awarding mineral concessions in accordance with the Federal Mining Code. They ensure that the mining companies adhere to environmental protection laws and apply Provincial norms.

In the early 1990s, only seven international mining companies explored for or produced minerals in Argentina. This number increased to 50 companies in 2003. In 2005, more than 200 international mining companies were active in Argentina (Secretaría de Minería de la Nación, 2006c§). Some of the leading private mineral and manufacturing companies in the sector were Aluminio Argentino S.A.I.C. (ALUAR), Borax Argentina S.A., Cementos Loma Negra C.I.A.S.A., Cerro Vanguardia S.A., Cía. Minera Aguilar S.A. (a subsidiary of Glencore International AG of Switzerland), Cía. Minera Tea S.A.M.I.C.A.F., Cía. Sulfacid S.A.C.I.F., FMC Minera del Altiplano S.A., Minera Argentina Gold S.A. (a subsidiary of Barrick Gold Corporation of Canada), and Minera Alumbrera Ltd. (table 2). In 2005, direct employment in the mining sector was 32,000, which exceeded earlier projection figures by the Government (Secretaría de Minería de la Nación, 2006c§).

Commodity Review

Metals

Aluminum.—The only producer of aluminum in Argentina was ALUAR, which had one smelter and two semifabricated products facilities in Puerto Madryn in the Province of Chubut. The company, which also owned a lamination and extrusion plant in Abasto in the Province of Buenos Aires, had a total workforce of 1,800. In 2005, production of aluminum in Argentina decreased slightly to 270,714 metric tons (t) from 272,048 t in 2004. In the fiscal year that ended in June 2006, ALUAR produced 270,500 t, of which 153,600 t was primary aluminum, 26,500 t was finished products, and 90,400 t was semifinished products. Of the export total, 40% went to the domestic market and 60% was exported (Aluminio Argentino, S.A.I.C., 2006a§).

ALUAR, which had been producing near its production capacity of 275,000 metric tons per year (t/yr), announced plans to increase the production capacity of the smelter to 400,000 t/yr by mid-2007. The expansion would cost about $683 million (Aluminio Argentino, S.A.I.C., 2006b§).

Copper.—In April 2005, Wheaton River Minerals Limited of Canada, which owned a 37.5% equity share in the Bajo de la Alumbrera Mine in the Province of Catamarca, was acquired by Goldcorp Inc. of Canada. Bajo de la Alumbrera was Argentina's sole copper producer and was also an important producer of gold and silver. Xstrata plc of Switzerland, which had a 50% ownership and was the operator of the mine, announced that the capacity of the concentrator was to be expanded by 8%, which would increase mill throughput to 40 million metric tons per year (Mt/yr) at a cost of $15.5 million. The expansion was planned for completion and commissioning by yearend 2006. During 2005, the company continued with in-pit exploration encouraged by recent work that had increased reserves by 170,000 t of contained copper and about 15,600 kilograms (kg) (reported as 0.5 million troy ounces) of contained gold. Proven and probable reserves of Bajo de la Alumbrera totaled 390 million metric tons (Mt) of ore at a grade of 0.47% copper and 0.51 gram per metric ton (g/t) gold (Goldcorp Inc., 2005; Xstrata plc, 2005). Bajo de la Alumbrera increased mine production of copper during the year by 6% to about 187,300 t.

During the year, Northern Orion Resources Inc. of Canada, which was a minority partner (12.5%) in Bajo de la Alumbrera, continued to work on its Agua Rica copper, gold, and molybdenum property, which is located only 34 kilometers (km) from Bajo de la Alumbrera. Work in Agua Rica included a bankable feasibility study, that was begun in 2004 and was scheduled to be completed in 2006. The company was looking at financing options to construct a $1.9 million open pit mine to produce 150,000 t of copper and byproduct gold and molybdenum. Construction of the mine would require significant external financing or third-party participation. According to Northern Orion, the Agua Rica had reserves of 730.7 Mt of ore at grades of 0.5% copper, 0.23 g/t gold, and 0.03% molybdenum. The company estimated that production could begin within 3 years after all necessary permits were obtained (Northern Orion Resources Inc., 2006a§, b§).

Gold and Silver.—Production of gold in Argentina decreased slightly in 2005 to about 27,900 kg. The Province of Catamarca, where Bajo de la Alumbrera is located, produced 66% of Argentina's gold. The company produced almost 18,000 kg (reported as 577,298 troy ounces) of gold in concentrate and in doré, which was a 9% decrease from that of 2004 because of the lower grade of gold in the ore (Xstrata plc, 2006, p. 41, 44). The Province of Santa Cruz was another important producer and accounted for 26% of the country's output. Most if not all gold produced in the Province of Santa Cruz was by the Cerro Vanguardia Mine, which was 92.5% owned by AngloGold Ashanti Limited of South Africa. Small amounts were produced in the Provinces of Neuquen, Rioja, and San Juan. Production in the Province of Catamarca decreased by 12% during the year. This decrease was largely offset by new production from the Veladero Mine in the Province of San Juan.

Production of silver in Argentina increased by 53% to 263,766 kg. This increase was mainly owing to a significant increase in production in the Province of Santa Cruz, which produced about 85% of Argentina's silver. A portion of the increase in the Province was attributed to increased production from the Martha silver and gold mine, which had an output of about 65,000 kg (reported as 2.1 million troy ounces) of silver; this was a 24% increase from that of 2004. Despite this significant output, the Martha Mine had very small reserves. The company continued to explore the property and at yearend, the life of the mine was estimated to be 3.5 years (Coeur d'Alene Mines Corporation, 2006, p. 23-24).

The Veladero gold and silver open pit mine, which is located in the Frontera District, Province of San Juan, was owned by Minera Argentina Gold (a subsidiary of Barrick Gold). The mine, which is located 320 km northwest of the city of San Juan and had been constructed at a cost of $547 million, began production in September, ahead of the original schedule. Production at the mine was about 1,700 kg (reported as 56,000 troy ounces) of gold between September and December (Barrick Gold Corporation, 2006§). Measured and indicated reserves totaled 386 Mt of ore that contained about 393,000 kg (reported as 12.641 million troy ounces) of gold, which included about 20,200 kg (reported as 648,660 troy ounces) of byproduct silver (Barrick Gold Corporation, 2006, p. 127, 129). The company expected to produce an average of 21,000 kilograms per year (kg/yr) (reported as 700,000 troy ounces per year) of gold during the first 3 full years of operation. The life of the mine was expected to be 17 years (Barrick Gold Corporation, 2005).

In August 2005, Silver Standard Resources Inc., which owned the Pirquitas project in the Province of Jujuy, assigned Hatch Ltd. and Mines Development Associates Inc. to update the feasibility study of the project that had been completed in 2000. The new study, which was completed in April 2006, estimated that the project would be completed in about 2 years at a cost of $146 million plus value added tax and was expected to produce about 280,000 kg/yr (reported as 9 million troy ounces per year) of silver, 2,500 t/yr of tin, and 6,600 t/yr of zinc (Silver Standard Resources Inc., 2006a). The project had proven and probable reserves of more than 3.3 million kg (reported as 107.1 million troy ounces) of silver (Silver Standard Resources Inc., 2006b). Construction of the mine infrastructure began during 2005 (Secretaría de Minería de la Nación, 2005d§).

Viceroy Exploration Ltd. of Canada, which owned the three main deposits that make up the Gualcamayo Project (the Amelia Inés, the Magdalena, and the Quebrada del Diablo deposits) commissioned a prefeasibility study of the Quebrada del Diablo deposit that was completed in January 2005 by AMEC Americas Ltd. Based on the study, AMEC recommended that Viceroy Exploration proceed with a feasibility study in 2005, further explore and evaluate the other deposits, and complete all necessary work to begin production in early 2007. Quebrada del Diablo had measured and indicated resources of 37.1 Mt, at a grade of 1.04 g/t gold and inferred resources of 11.3 Mt at a grade of 1.2 g/t gold and an estimated cut-off grade of 0.5 g/t gold. The study proposed an operation that would consist of open pits and a heap-leaching facility that would have a recovery rate of 80% and a doré plant that would produce about

2,990 kg/yr (reported as 96,195 troy ounces per year) of gold at a cash cost of $133 per troy ounce; the mine life of the proposed operation was 10 years (AMEC Americas Ltd., 2005, p. 1, 3, 5, 16, 155-156; Viceroy Exploration Ltd., 2006§).

The feasibility study of Manantial Espejo silver and gold project in the Province of Santa Cruz was nearly complete at yearend 2005. In 2005, the project was a joint venture between Pan American Silver Corp. and Silver Standard Resources Inc. through Minera Triton Argentina (Silver Standard sold its share of Manantial Espejo to Pan American Silver in 2006). The project was scheduled to begin construction in early 2006; the planned investment was $120 million and anticipated production was 115,000 kg/yr (reported as 3.7 million troy ounces) of silver and about 1,740 kg/yr (reported as 56,000 troy ounces per year) of gold beginning in 2008 (Secretaría de Minería de la Nación, 2005a§). The environmental impact study was completed and submitted to the authorities in November 2005 (Cámara Argentina de Empresarios Mineros, 2006).

In October 2005, another company, Minera Andes Incorporated, announced the completion of the feasibility study of its 49% owned San Jose project in the Province of Santa Cruz. The San Jose project was a joint venture between Minera Andes and Minera Hochschild & Cía. to be operated by their subsidiary Minera Santa Cruz S.A. According to the study, the project, which includes the Frea and the Huevos Verdes veins, had proven and probable mineral reserves of 1.2 Mt at grades of 7.7 g/t gold and 406 g/t silver, although the study did not include the company's recent resource discoveries. The planned underground mine was projected to have a life of 4.3 years (Minera Andes Inc., 2005). Production from the San Jose project was scheduled to begin in 2007 (Minera Andes Inc., 2006§).

Iron and Steel.—Production of iron (direct-reduced iron and pig iron) increased by almost 8% to about 4.5 Mt. The leading steel producer was Siderar S.A.I.C.; its plant had a production capacity of 2.6 Mt/yr. Production of steel increased by 5% mainly because of the growth in the domestic construction and industrial sectors, especially the dynamic growth in the automotive sector. During the year, Siderar's production increased to 2.57 Mt, or 99% of its production capacity. The company's shipments during the year reached a record-high level, not only because of an increase in domestic demand but also a strong overseas market. Domestic shipments and exports increased by 4% (1.6 Mt) and 9% (612,000 t), respectively. The company's earnings, however, were lower than those of 2004 because of the high cost of such imported raw materials as iron ore and coal (Siderar S.A.I.C., 2006, p. 2, 4, 7).

Acindar Industria Argentina de Aceros S.A. was Argentina's second ranked producer of steel. In 2005, Acindar produced 1.38 Mt of steel, which was slightly more than its production capacity. This output was a 3% increase from that of 2004 and a historical high level. The company's shipments totaled about 1 Mt; of this amount, 79% went to the domestic market and 21% was exported. Almost 60% of Acindar's domestic shipments went to the construction sector. The company's financial situation improved during the year when it was able to pay off about 85% of its restructured debt. In view of the strong economic growth in Argentina, Acindar was investing $100 million to increase its crude steel production capacity by 25% to 1.7 Mt/yr by the second half of 2007. The company was investing an additional $45 million in other facilities (Acindar Industria Argentina de Aceros S.A., 2006).

Uranium.—Consolidated Pacific Bay Minerals Limited of Canada was exploring for uranium in Argentina. The company had the concession Cueva del Chacho, which is located near Los Colorados Mine in the Province of La Rioja; Los Colorados is a uranium mine that operated between 1992 and 1996 and that reportedly produced 55,000 kg of uranium concentrate. Consolidated Pacific also reported that it found analytical traces of uranium in its Regalo gold property in the Province of Chubut, including an outcrop sample that contained 225 parts per million. The company acquired an additional concession area to expand its uranium prospecting in the area. The Regalo property is located near the Cerro Solo uranium deposit, which is a property that the Government, through the Comisión Nacional de Energía Atómica (CNEA), was trying to bring into production with the private sector (Consolidated Pacific Bay Minerals Limited, 2006§). Another company exploring for uranium in Argentina was Urex Energy Corporation of the United States (formerly Lakefield Ventures Inc.), whose Rio Chubut project is located adjacent to Cerro Solo in the Province of Chubut (Urex Energy Corporation, 2006§). CNEA was also attempting to reopen the Sierra Pintada Mine in the Province of Mendoza, which had been in production between 1979 and 1995.

Interest in uranium exploration in Argentina was due partly to the Government's need to address the country's energy requirements and partly to the private sector's desire to take advantage of high prices in a tight market. Global demand was expected to increase significantly; this increase was driven by planned increased capacity of nuclear power, especially in Asia, where a number of nuclear reactors were under construction (Merrill Lynch, 2005§; Urex Energy Corporation, 2006§; Uranium Exploration Australia Limited, 2007§).

Industrial Minerals

Boron.—Despite a decrease of 23% in the production of crude boron minerals, Argentina remained Latin America's leading producer of boron minerals. During the year, there was a decrease in production from the three provinces that produced boron minerals—Catamarca (40%), Jujuy (34%), and Salta (4%). The sharpest decrease in terms of volume was from Jujuy where production decreased to 316,030 t in 2005 from 481,192 t in 2004. Even with the decrease, the total production level was higher than that of 2002 and 2003 and was similar to the output achieved in 2001 (table 1).

La Brava mining cooperative in the Province of Jujuy was set to begin production of ulexite from an inactive mine (La Ilusión) in the Salinas de Jama, Department of Susques. The mine had been closed in 1998 (Central de los Trabajadores Argentinos, 2006§).

Cement.—Argentina produced about 7.6 Mt of cement, which was a 21% increase from that of 2004 and the third consecutive increase. This increased production was in response to significant growth in the construction sector and, to a certain extent, to increased sales to the export market, which had

declined in 2004 because of increased demand in the domestic market. Domestic shipments in 2005 increased by 22.6% and exports increased by 9.6%. Preliminary data indicate that consumption of cement increased to 7.4 Mt from about 6.1 Mt in 2004. The per capita consumption also increased to 194 kg, or by 19% compared with that of 2004. In Latin America, only Chile and Mexico had higher per capita consumption of cement. Brazil's per capita consumption was the same as that of Argentina. The per capita consumption in Argentina in 2005, however, was slightly lower than that in 1997 though 1999 and in 1990, when per capita consumption was 264 kg (Asociación de Fabricantes de Cemento Portland, 2006§).

Potash.—Rio Tinto Limited of Australia, which exercised its option to acquire 100% of the Potasio Rio Colorado project in the Provinces of Mendoza and Neuquen, was completing the prefeasibility study of the project at yearend 2005. The feasibility study for the project was scheduled to start in 2006. Based on the results of the feasibility study, construction could begin in 2007, with production beginning in 2009. Potash production could range from 1.6 to 2.4 Mt/yr (Panorama Minero, 2005c). Possible markets for the potash would be Brazil, China, and the United States.

Mineral Fuels

Coal.— Argentine coal production in 2005 almost tripled to 320,000 t. The entire production was from Yacimientos Carboníferos de Río Turbio (YCRT), which is located in the Province of Santa Cruz. During the year, the Government signed an agreement with Kopex S.A. of Poland to supply all equipment necessary to increase production and improve the safety of the mine. Reportedly, Government plans for YCRT called for production of coal to increase to 600,000 t/yr in 2008, after improvements to the mine are completed. The plans also called for construction of a thermal plant that would consume 180,000 t/yr of coal and service the energy needs of El Calafate, the Rio Gallegos, the Rio Turbio, and the 28 de Noviembre areas. Investment in the mine included improvements in cars and train tracks, the opening of a new production area, replacement of equipment, and installation of a new industrial safety system with gas measurement capability. The Government plans for investment in the project progressed with the approval of the general terms for construction of a thermal plant by the Technical Commission in September (Panorama Minero, 2005d; Organismo de Control de Energía Eléctrica de Buenos Aires, 2005§; Secretaría de Minería de la Nación, 2005b§). Part of the production, which could be further expanded to exceed 1 Mt/yr of coal, was planned for the export market.

Natural Gas.—Argentina was one of Latin America's leading gas producers. In 2005, production of natural gas decreased by about 2% to 51,329 million cubic meters. Production was from five basins (the Austral, the Cuyana, the Golfo San Jorge, the Neuquina, and the Noroeste). The Province of Neuquen was the leading producer with 53% of the total. By company, Repsol YPF S.A., and Total Austral S.A. were the two leading producers with 30% and 23% of the national total, respectively. Low reserves and low investment in the natural gas sectors created a shortage and a crisis during 2004. As a result, Argentina began to import natural gas from Bolivia and to explore for other sources to meet its increasing demand and fulfill its export agreements with Chile, which receives the vast majority of Argentina's natural gas exports. The Government of Argentina expressed its desire to enter into a long-term contract with Bolivia to import natural gas from that country. Such a contract, which could be extended for another 30 years and would import as much as 30 million cubic meters per day of natural gas, would require the construction of a pipeline between the two countries (Secretaría de Energía, 2006§).

Petroleum.—Argentina was Latin America's fourth ranked producer of crude petroleum after Mexico, Venezuela, and Brazil (BP p.l.c., 2006, p. 8). The country was a net exporter of petroleum; production of crude petroleum, however, decreased by 4.5% from that of 2004. This was not a single year decline, but a downward trend that began in 1997, with the exception of 2001 when production increased slightly (Ministerio de Economía y Producción, 2006a§).

Outlook

Argentina's real GDP is expected to increase by 7.3% and 4.0% in 2006 and 2007, respectively. These growth rates would outpace the increases expected for Latin America as a region. If the construction sector continues to grow at the levels seen in recent years, production of cement and other construction-related commodities are expected to increase accordingly. There is plenty of room for this growth because cement production in Argentina is significantly below its production capacity of 16.6 Mt. In the steel market, although companies are producing at near capacity, they are positioning themselves to increase their production capacity to meet the domestic needs while keeping their position in the international markets (Ministerio de Economía y Producción, 2006c§).

In early 2005, the Government of Argentina estimated that mineral production could double by 2010 and that its mineral exports could reach $2.5 billion. Early Government estimates for investment for 2006 were more than $330 million.[4] A number of metal projects were in the feasibility of construction phase and production of several of them was planned for between 2007 and 2010. As a result, production of copper, gold, and silver are expected to increase (Panorama Minero, 2005b; Secretaría de Minería de la Nación, 2006b§).

The Government of Argentina is planning to revitalize its nuclear sector by extending the life of its two active nuclear plants—Atucha I and Embalse—by completing the construction of the Atucha II plant by 2010, and by resuming uranium production. As the price of petroleum remains high and the country's demand for energy increases, the Government seeks to develop a nuclear strategic plan and to update regulations by the appropriate Federal authorities. Although the Government has expressed its intention to revitalize this sector in the past, recent increased energy demand in an environment of decreased energy production could be enough incentive to move this plan forward. According to some industry sources, at the

[4]Where necessary, 2006 values have been converted from Argentine pesos (Arg$) to U.S. dollars (US$) at an estimated rate of Arg$3.00 =US$1.00.

present rate of exploration, the country could become a net importer of petroleum by 2008 or 2010 (Alexander's Gas & Oil Connections, 2006a§, b§)

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TABLE 1
ARGENTINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity		2001	2002	2003	2004	2005
METALS						
Aluminum:						
Primary		245,052	268,805	272,369	272,048	270,714
Secondary[e]		16,000	16,000	16,000	16,000	16,000
Cadmium:						
Mine output, Cd content		160	153	126	111	124
Refined		34	--	25	39	3
Copper:						
Mine output, Cu content		191,677	204,027	199,020	177,143	187,317
Refined[e]		16,000	16,000	16,000	16,000	16,000
Gold, mine output, Au content	kilograms	30,632	32,506	29,744	28,466	27,904
Iron and steel:						
Metal:						
Pig iron	thousand metric tons	1,916	2,180	2,402	2,392	2,644
Sponge iron (direct reduction)	do.	1,276	1,476	1,736	1,755	1,823
Total	do.	3,192	3,656	4,138	4,147	4,467
Ferroalloys, electric furnace:						
Ferrosilicomanganese		5,150	5,000 [e]	5,000 [e]	24,000 [r, e]	25,000
Ferrosilicon		2,740	2,700 [e]	2,700 [e]	10,000 [r, e]	10,000
Total		7,890	7,700 [e]	7,700 [e]	34,000 [r, e]	35,000
Steel, crude	thousand metric tons	4,107	4,363	5,033	5,131 [r]	5,382
Semimanufactures[2]	do.	3,859	3,821	4,680	4,799	4,925
Lead:						
Mine output, Pb content		12,334	12,011	12,079	9,551	10,683
Smelter, primary[e]		12,300	12,000	12,100	11,000 [r]	10,200
Refined:						
Primary		9,473	10,567	11,011	11,111 [r]	10,200
Secondary		25,960	33,000	30,300	48,000 [r]	35,000 [e]
Total		35,433	43,567	41,311	59,111 [r]	45,200 [e]
Silver, mine output, Ag content	kilograms	152,802	125,868	133,917	172,387	263,766
Tin, refined		100	100	100	120	120 [e]
Zinc:						
Mine output, Zn content		39,703	37,325	29,839	27,220	30,227
Metal, smelter:						
Primary		39,727	38,699	39,221	35,300	37,460
Secondary		3,180	3,098	3,139	2,837 [r]	3,174
Total		42,907	41,797	42,360	38,137 [r]	40,634
INDUSTRIAL MINERALS						
Asbestos		203	155	166	267	290
Barite		6,955	3,048	6,934 [r]	2,762	3,910
Boron materials, crude		631,519	515,555	512,167	821,031	632,792
Cement, hydraulic	thousand metric tons	5,545	3,911	5,217	6,254	7,595
Clays:						
Bentonite		104,335	120,006	146,845	163,028	243,590
Common		1,515,002	1,506,146	1,682,158	2,297,634	6,025,841
Foundry earth[e]		-- [r]	-- [r]	-- [r]	-- [r]	--
Fuller's earth (decolorizing clay)[e]		-- [r]	-- [r]	-- [r]	-- [r]	--
Kaolin		13,584	13,865	19,219	27,883	54,705
Diatomite		17,090	23,314	35,518	8,180	29,495
Feldspar		48,522	82,642	90,857	125,684 [r]	151,307
Fluorspar		9,075	5,168	5,422	6,189	6,962
Gypsum, crude		371,527	365,556	489,805	674,935 [r]	1,050,193
Lithium:[3]						
Carbonate		--	906	2,850	4,970	7,300
Chloride		4,512	4,729	4,700	6,303	8,400

See footnotes at end of table.

TABLE 1--Continued
ARGENTINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity		2001	2002	2003	2004	2005
INDUSTRIAL MINERALS--Continued						
Mica		2,120	1,770	1,894	2,518 r	4,101
Nitrogen, N content of ammonia		603,456 r	635,430 r	726,751 r	707,034 r	656,379
Perlite		17,916	17,152	21,480	21,193	21,991
Phosphate rock:						
Gross weight		--	--	--	70	225
P_2O_5		--	--	--	21	67
Pumice		2,097	3,070	3,531	9,188	9,969
Salt		1,269,815	1,080,346	1,667,851	1,371,969 r	1,699,539
Sand and gravel:						
Sand:						
Construction		10,516,803 r	9,342,924 r	11,978,789 r	17,022,020 r	19,617,088
Silica sand (glass sand)		891,127	280,065	300,707	847,767	461,244
Gravel		4,067,117	4,666,257	6,565,097	11,004,680 r	7,996,358
Stone:						
Basalt		436,947	177,090	334,542	615,412	620,727
Calcareous:						
Calcite, nonoptical		96,269	85,299	91,270	104,960	49,700
Calcium carbonate, chalk[e]		-- r	-- r	-- r	-- r	--
Dolomite		303,695	278,361	318,913	375,123 r	413,126
Limestone		6,073,902	7,060,763	8,147,901	10,525,343 r	12,514,933
Crushed, unidentified		9,744,301 r	8,449,517 r	11,030,714 r	16,258,773 r	17,612,199
Marble, onyx, travertine		38,228	40,397	44,411	49,725 r	146,172
Flagstone		146,909	155,079	390,350	521,837 r	209,330
Granite, in blocks		41,317	40,450	48,156	55,690 r	62,466
Quartz, crushed		49,720	93,614	99,097	88,334	170,668
Quartzite, crushed		386,336	247,394	284,503	384,079	517,100
Rhodochrosite		17	22	24	109	118
Gemstones (agate, amethyst, and so forth)	kilograms	10,200	1,250	43,288	50,599	70,326
Sandstone		20,000 r	21,313 r	3,612 r	25,980 r	69,001
Serpentine, crushed		--	826	950	1,200	1,302
Shell, marl		177,587	169,577	195,014	263,269	443,000
Tuff (tosca)	thousand metric tons	4,627	2,721	3,129	3,717	4,005
Strontium minerals, celestite		3,655	2,595	4,300	6,727	7,233
Sulfates, natural:						
Magnesium (epsomite)		6,900	6,900	7,383	8,490	1,440
Sodium (mirabilite)		11,856	10,081	10,787	12,405	51,190
Talc and related materials:						
Pyrophyllite		2,155	2,341 r	4,525 r	12,594 r	8,470
Steatite[e]		300	300	300	300	300
Talc		1,665	1,643	1,700	7,620	11,492
Total		4,120	4,284	6,525 r	20,514 r	20,262
Vermiculite		1,110	1,050	1,124	1,293	1,403
MINERAL FUELS AND RELATED MATERIALS						
Asphalt and bitumen:						
Natural (asphaltite)		--	--	--	521	923
Byproduct of refinery		393,386	318,290	478,991	645,181	665,593
Coal, bituminous	thousand metric tons	150	56	118	120	320
Coke, all types, including breeze	do.	1,545	1,582	1,621	1,546	1,496
Gas, natural:						
Gross	million cubic meters	45,916	45,770	50,576 r	52,317	51,329
Marketed	do.	37,145	36,468	41,119	45,000 e	41,000 e
Natural gas liquids[e]	thousand 42-gallon barrels	18,000 [4]	18,000	18,000	18,000	18,000
Peat, agricultural (turba)		1,067	8,208	8,782	9,110 r	11,447

See footnotes at end of table.

TABLE 1--Continued
ARGENTINA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity		2001	2002	2003	2004	2005
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	thousand 42-gallon barrels	284,054	275,355	270,336	254,202	242,743
Refinery products:[5]						
Liquefied petroleum gas	do.	13,025	12,208	13,236	12,652	11,624
Motor gasoline	do.	59,655 r	55,825 r	55,378 r	53,828	53,642
Aviation gasoline	do.	(6)	--	(6)	--	22
Jet fuel	do.	10,715 r	10,826 r	8,949 r	9,560 r	9,980
Kerosene	do.	570 r	305 r	218 r	231 r	191
Distillate fuel oil	do.	77,446 r	71,045 r	75,835 r	76,969 r	74,386
Residual fuel oil	do.	9,428 r	11,628	12,551	15,276	18,026
Lubricants	do.	2,549	2,570	3,357	3,003	2,247
Other	do.	30,755 r	27,432 r	28,842 r	30,087 r	30,170
Total	do.	204,143 r	191,839 r	198,366 r	201,606 r	200,288

eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. rRevised. -- Zero.

[1]Table includes data available through October 31, 2006.

[2]Hot-rolled semimanufactures only; excludes castings and cold-rolled semimanufactures produced from imported hot-rolled semimanufactures.

[3]New information was available from Argentine sources that prompted major revisions in how lithium production is reported.

[4]Reported figure.

[5]Excludes asphalt and coke production, which are reported separately.

[6]Less than 1/2 unit.

TABLE 2
ARGENTINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity[1]
Aluminum		Aluminio Argentino S.A.I.C. (Government, 52.1%, and private, 47.9%)	Puerto Madryn, Chubut Province	275.
Boron		Borax Argentina S.A. (Rio Tinto Borax, 100%)	El Porvenir Mine and plant, Jujuy Province; Sije and Tincalayu Mines and plants, Campo Quijano refinery, Salta Province	615.[2]
Do.		Procesadora de Boratos S.A. (Ferro Corp., U.S.A., and JEM Resources, Canada)	Loma Blanca, Jujuy Province, and plant at Papala	36.
Do.		Ulex S.A. (private, 100%)	Pastos Grandes, Salta Province	2.[2]
Do.		Norquímica S.A.	Salta Province	5 boric acid.
Cement		Cementos Loma Negra C.I.A.S.A. (private, 100%)	Buenos Aires, Cordoba, Corrientes, Salta, Salta Juan, Mendoza, and Jujuy Provinces	6,000.
Do.		Cementos Avellaneda, S.A. (Corporación Uniland S.A. and C. Molins International S.A.)	La Caldera plant, San Luis Province and Olavarria plant in Buenos Aires Province	2,800, 220 lime.
Do.		Juan Minetti S.A. (Holcim Ltd., 100%)	Cordoba, Jujuy, and Mendoza Provinces	1,700.
Coal		Yacimientos Carbonífero Río Turbio S.A. (private, 100%)	Rio Turbio, Santa Cruz Province	210.
Copper and gold[3]		Minera Alumbrera Ltd. (Xstrata plc, 50%; Golcorp Inc., 37.5%; Northern Orion Resources Inc., 12.5%)	Bajo de la Alumbrera Mine, Belen Department, Catamarca Province	200 Cu, 22,000 Au.
Gold and silver	kilograms	Cerro Vanguardia S.A. (AngloGold Limited, 92.5%, and Government of Santa Cruz Province, 7.5%)	Cerro Vanguardia Mine, Santa Cruz Province	100,000 Ag, 10,000 Au.
Do.	do.	Minera Argentina Gold (Barrick Gold Corporation, 100%)	Veladero Mine, San Juan Province	21,000 Au, Ag, NA.
Do.	do.	Yacimientos Mineros de Agua de Dionisio (Government, 100%)	Farallon Negro, Hualfin, and Belen, Catamarca Province	4,600 Au, 50,000 Ag.
Do.	do.	Small mines (private, 100%)	Various in Jujuy Province	5,000 Ag.
Iron and steel		Siderar S.A.I.C. (Techint Group, 53%; Inversora Siderúrgica Argentina, S.A., 11%; Usiminas, 5%; Companhia Vale do Rio Doce, 5%)	7 kilometers from San Nicolas de los Arroyos, Buenos Aires Province	2,600 steel, 1,100 pig iron.
Do.		Acindar Industria Argentina de Aceros S.A. (private, 100%)	Plant Nos.1 and 3, Buenos Aires Province; Plant No. 2, near Rio Parana, Santa Fe Province	1,370 steel, 1,000 DRI.
Do.		Siderca S.A.I.C. (Techint Group)	Buenos Aires Province	900 steel, 670 DRI.
Lead and silver refinery[4]		Cía. Minera Aguilar S.A. (Glencore International AG, 100%)	Refineria Aguilar, Palpala Industrial Park, Jujuy Province	15 Pb, 18,000 Ag.
Lead, silver, and zinc[4]		do.	Estacion Tres Cruces, El Aguilar, Jujuy Province	49,800 Ag, 24 Pb.
Lithium	metric tons	Minera del Altiplano S.A. (FMC Corporation)	Salar del Hombre Muerto, Salta Province	7,260 chloride, 11,350 carbonate.
Natural gas	million cubic meters	Repsol YPF S.A.	Neuquen, Santa Cruz, Tierra del Fuego, Salta, and Rio Negro Provinces	18,000.
Petroleum	million barrels	do.	Chubut, Santa Cruz, Neuquen, Rio Negro, Mendoza, Salta, Tierra del Fuego, Jujuy, La Pampa, and Formosa Provinces	366.
Uranium (ore)[5]		Empresa Nuclear Mendoza (subsidiary Nucleoélectrica Argentina S.A.)	Sierra Pintada, San Rafael, Mendoza Province	160.
Zinc refinery		Cía. Sulfacid S.A.I.C. and Cía Minera Aguilar S.A.	Near Rosario on the Parana River, Santa Fe Province	40.

NA Not available.

[1]Abbreviations used in this table for commodities include the following: Ag, silver; Au, gold; Cu, copper; DRI, direct-reduced iron; Pb lead.

[2]Crude minerals.

[3]Gold data reported in kilograms.

[4]Silver data reported in kilograms.

[5]Inactive.