



2010 Minerals Yearbook

VENEZUELA [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF VENEZUELA

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Venezuela's gross domestic product (GDP) based on purchasing power parity decreased to \$347.0 billion in 2010 from \$348.6 billion (revised) in 2009, or by almost 0.5%. This decrease and lower crude oil prices affected the Government's budget and private consumption. In 2010, Venezuela's natural resources sector continued to be dominated by the hydrocarbon sector. Petroleum and natural gas production represented about 30% of Venezuela's GDP, more than 94% of its exports, and more than 50% of the central Government's revenues. Venezuela's leading produced mineral commodities, which consisted primarily of, in order of value, petroleum, natural gas, coal, bauxite, alumina and primary aluminum, iron ore and steel, gold, nickel, and diamond, represented less than 1% of Venezuela's GDP. The state-owned petroleum company *Petróleos de Venezuela S.A. (PDVSA)* continued to control the exploration for and production of asphalt, natural gas, and petroleum and its derivatives. PDVSA was a member of the Organization of the Petroleum Exporting Countries (OPEC) and an active participant in the global crude oil market. Venezuela accounted for almost 1.2% of the world's bauxite output, almost 1.1% of the world's aluminum output, and almost 1.0% of the world's nickel output in 2010 (table 1; Banco Central de Venezuela 2011; Bray, 2011a, b; International Monetary Fund, 2011; Kuck, 2011; *Petróleos de Venezuela S.A.*, 2011; U.S. Central Intelligence Agency, 2011).

Minerals in the National Economy

PDVSA controls Venezuela's petroleum sector. Government companies also control the electricity sector and important parts of the telecommunications and media sectors. During 2009, the Government had nationalized assets in the banking, chemicals, and crude oil industries. The nationalization process, high inflation, and foreign exchange controls had led to reduced private investment. In 2010, Venezuela's leading mineral resources included, in order of value, petroleum, natural gas, coal, iron ore, gold, nickel, diamond, and bauxite. Petroleum exports accounted for 18% of Venezuela's GDP; the manufacturing sector accounted for 16%; construction, 7%; and mining, 1% (Banco Central de Venezuela, 2011; *Petróleos de Venezuela S.A.*, 2011).

Government Policies and Programs

Under the Venezuelan Constitution, all mineral and hydrocarbon resources belong to the state. The mining law (Decree No. 295 of September 5, 1999) establishes the rules for all mines and minerals (except hydrocarbons and some industrial minerals not found on Government lands) within Venezuelan territory, including the exploration, development, production, marketing, and transportation of minerals. The *Ministerio del Poder Popular para las Industrias Básicas y Minería (MIBAM)* is responsible for all matters related to

mining operations. Mining is allowed by the Government through concessions or under production authorization issued to artisanal miners, mining cooperatives, and other small-scale mining operations. The General Regulation of the Mining Law (Decree No. 1234 of March 9, 2001) establishes terms, conditions, and administrative procedures in support of Decree No. 295. Most industrial minerals found on private lands continue to be governed by Articles 7 through 10 of the Mining Law of 1945 until the individual States establish regulations. The *Ministerio del Poder Popular para la Energía y Petróleo (MPE)* manages the crude oil and natural gas sectors. The hydrocarbon law, which is known as the Decree with Force of Organic Law on Hydrocarbons (Decree No. 1510 of November 2001), and Article 302 of the Constitution of 1999 reserve all primary hydrocarbon activities for the state. The hydrocarbon law was amended in 2006 by the Partial Amendment Law to Decree 1510 with Force of Law, Organic Law of Hydrocarbons. Nonassociated gas (natural gas that is not produced simultaneously with crude oil) and downstream natural gas operations are excluded from the hydrocarbon law; they are regulated instead by the Decree with Rank and Force of Organic Law on Gaseous Hydrocarbons (Decree 310 of September 1999) and by the Regulation of the Law on Gaseous Hydrocarbons (Decree 840 of June 2000), as amended by the MPE's Resolution 244 of January 9, 2006 (Banco Central de Venezuela, 2011; *Petróleos de Venezuela S.A.*, 2011).

The Norms of Environmental Evaluation of Activities Susceptible to Degrade the Environment (Decree No. 1257 of 1996) establishes the *Ministerio del Poder Popular para el Ambiente (Minamb)*. The law requires an environmental impact study for projects and operations in the hydrocarbon and the mining sectors. The Minamb and the MPE implement Decrees No. 1510 and No. 1257 through the "Ley Orgánica del Ambiente" (*Ministerio del Poder Popular para el Ambiente*, 2010; *República Bolivariana de Venezuela*, 2010).

During 2009, the Government had passed a series of new laws, including laws to centralize control over ports, roads, and airports. In May 2009, Venezuela's Congress passed a crude oil services law that reserves to the central Government all primary hydrocarbon activity. This legislation laid the foundation for the expropriation of nearly 80 crude oil services companies, including three U.S. firms. In June 2009, the Government passed legislation that requires private-sector petrochemical producers to enter into joint ventures with the Government-owned chemicals company *Petroquímica de Venezuela S.A. (Pequiven)* in order to continue doing business in Venezuela. The Government would allow private sector consortia to negotiate the formation of joint ventures to produce crude oil and to develop heavy-crude-oil upgrades in the Carabobo region of the Orinoco Belt during 2010-11. Since 2008, owing to the Venezuelan Government's nationalization drive, such foreign investors as *Eni S.p.A.* of Italy, *Statoil ASA* of Norway, and

Total S.A. of France had entered into joint ventures with the Government in which the Government's equity share was 60% (Petróleos de Venezuela S.A., 2011; República Bolivariana de Venezuela, 2011, p. 6-7).

The Venezuelan Government imposes a windfall profits tax on royalties from oil projects when crude prices are above \$40 per barrel. If crude remains above \$90 during 2011, an estimated \$9 billion could be collected; if Venezuela's oil prices top \$110, an estimated \$16.3 billion could be collected, mostly from foreign oil companies operating in the country (Sanchez, 2011).

The Venezuelan Government promotes technical and administrative audits for foreign and domestic oil companies interested in partnerships, within the framework of the strategic collateral plan called the National Social and Economic Development Plan for the period 2007-13 (República Bolivariana de Venezuela, 2011, p. 3-5).

Production

In 2010, Venezuela's production data for minerals are estimated owing to a lack of response to the USGS Minerals Questionnaire since 2005 (table 1). According to the BP Statistical Review of World Energy, Venezuela's crude oil production amounted to about 986 million 42-gallon barrels in 2010 compared with 890 million 42-gallon barrels in 2009, or a 1.4% increase. The country's gross natural gas production amounted to 28.5 billion cubic meters in 2010 compared with 28.7 billion cubic meters in 2009, or a 0.7% decrease (table 1; BP p.l.c., 2011b, p. 8, 22).

Structure of the Mineral Industry

The Government-owned mineral and industrial producer Corporación Venezolana de Guayana Minerven C.A. (CVG Minerven), its subsidiary companies, and the Instituto Nacional de Geología y Mina were units of MIBAM. The Government-owned Compañía Nacional de Industrias Básicas (a holding company under CVG Minerven) participated in the production of bauxite and alumina, aluminum, and iron ore. PDVSA continued to be responsible for the development and management of the hydrocarbon sector and produced about 70% of the national output of crude oil. As a PDVSA affiliate, CVG Minerven managed the Government's 32 operating service agreements (OSAs) with such international oil companies as BP p.l.c. of the United Kingdom and Chevron Corp. of the United States and the 8 risk- and profit-sharing agreements that accounted for about 20% of Venezuelan crude oil production in 2010. Corporación Venezolana de Petróleos (CVP), a wholly owned subsidiary of PDVSA, also managed four OSAs that produced and processed extra-heavy crude oil and accounted for about 10% of the total national output of petroleum. International companies dominated the cement sector (Cementos Mexicanos S.A. of Mexico, LaFarge Group of France, and Holcim Ltd. of Switzerland) and the nickel sector (Anglo American plc of the United Kingdom). Many companies in the coal, iron, synthetic crude oil (including heavy crude oil), and steel (including hot-briquetted iron) sectors were owned by joint ventures of the Government and

private sector companies, such as Kobe Steel Ltd. and Mitsui and Co. Ltd. of Japan (table 2).

China's state-owned and Japan's privately owned corporations were planning to invest in Venezuela. The Venezuelan Government announced that China was planning to invest \$16 billion by 2012 to develop oil reserves in the country's eastern Orinoco Belt. China International Engineering Consulting Corp., China Petroleum and Petrochemical Engineering, and PDVSA were considering developing technology for crude oil refining and upgrading. PDVSA was planning to increase its output to about 4 million barrels per day (Mbbbl/d) from its current production level of 2.7 Mbbbl/d after experiencing cash flow problems and declining production in recent years. In 2009, China had extended a \$20 billion loan to Venezuela for housing and infrastructure projects. The loan was expected to be paid back in crude oil shipments (Mendez, 2011; PennEnergy, 2011).

Similarly, private Japanese companies, such as Japan Oil, Gas & Metals National Corp. (JOGMEC), were planning to provide funding to a subsidiary of Inpex Corp. and Mitsubishi Corp., which, along with subsidiaries of Chevron and the Venezuelan Suelopetrol C.A., was participating in an extra-heavy crude oil development project on three blocks of the Venezuela's Carabobo area. The four firms had participated jointly in the bidding round for development of Carabobo projects, which was held in January 2010, and were awarded the contract for Project 3a, which would entail the development, production, and upgrading of Block 5, Block 2 South, and Block 3 North. The consortium was conducting a feasibility study with a plan to form a joint venture with PDVSA to produce about 400,000 barrels per day (bbl/d) of crude oil at the project. JOGMEC was planning to invest \$40.2 billion once the joint venture was established. PDVSA was expected to take a 60% stake in the venture; Chevron, 34%; Inpex and Mitsubishi jointly, 5%; and Suelopetrol, 1% (Ministerio del Poder Popular para la Energía y Petróleo, 2010; Oil & Gas Journal, 2011; República Bolivariana de Venezuela, 2011).

Mineral Trade

Venezuela's economy has benefited from its mineral industry owing to the significant contributions the petroleum sector has made to its trade balance. In 2010, Venezuela's mineral exports amounted to \$65.8 billion and included, in order of value, petroleum (\$62.3 billion), and bauxite and aluminum, steel, cement, chemical products, iron ore, and other products (\$3.5 billion). The country's leading export partners were the United States (27.3%), China (12.8%), Colombia (11.4%), Brazil (8.8%), and others (39.7%). Venezuela's imports amounted to \$38.6 billion of consumer goods, machinery and transport equipment, manufactured goods, and construction materials. Venezuela's leading suppliers were the United States (20.6%), Colombia (17.8%), China (12.8%), Mexico (8.7%), Brazil (4.7%), and others (35.4%) (Banco Central de Venezuela, 2011; Petróleos de Venezuela, S.A., 2011; República Bolivariana de Venezuela, 2011; U.S. Energy Information Administration, 2011).

The United States remained Venezuela's leading trading partner. In 2010, bilateral trade amounted to \$26 billion.

Venezuelan exports to the United States were valued at \$20 billion (or almost 30.4% of total Venezuelan exports), and U.S. exports to Venezuela were valued at \$8 billion (or almost 20.6% of total Venezuelan imports). The United States continued to be the leading customer for Venezuelan crude oil. Venezuela shipped an average of 1.1 million barrels per day (Mbbbl/d) of crude oil and petroleum products to the United States in 2010, which accounted for about 50% of Venezuelan oil exports and 12% of U.S. oil imports (Banco Central de Venezuela, 2011; *Petróleos de Venezuela, S.A.*, 2011; U.S. Department of State, 2011).

Commodity Review

Metals

Gold.—Most of the gold activities in Venezuela took place in the State of Bolívar. Canadian-Russian Rusoro Mining Ltd. (RML.V) was engaged in the acquisition, exploration, development, and operation of gold properties in Venezuela and operated as a joint venture with CVG Minerven. RML.V held a 95% interest in the Choco gold mine and a 50% interest in the Isidora gold mine, and CVG Minerven owned the remaining shares of each; both mines are located in the State of Bolívar. RML.V was interested in Las Cristinas gold project after the Government withdrew a permit for Crystallex International Corp. to develop the project, which is located at Kilometro 88 in Bolívar State. As of December 31, 2009, Las Cristinas had proven and probable reserves of 464.4 million metric tons (Mt) grading 1.13 grams per metric ton (g/t) gold containing 16,862,000 troy ounces, or the equivalent of 524.5 metric tons (t) of gold. In addition, Las Cristinas had measured and indicated resources of 165 Mt grading 0.73 g/t gold containing 3,899,000 troy ounces, or the equivalent of 121.3 t of gold (*República Bolivariana de Venezuela*, 2011; Reuters, 2011).

Mineral Fuels and Related Materials

Coal.—Carbones del Guasare (CdG) used the truck-shovel system to access about 175 Mt of coal reserves in the Guasare coal basin. CdG owned and operated the Paso Diablo coal mine, which is located in the State of Zulia in northern Venezuela and which produced about 7.5 million metric tons per year (Mt/yr) of thermal and metallurgical pulverized coal injection (PCI) coal. CdG was a joint venture of Carbozulia, S.A. (a 49% Government-owned company); Anglo Coal, which was a subsidiary of Anglo American (25.5%); and Peabody Energy Corp. of the United States (25.5%). Peabody marketed its share of the mine's production to customers seeking high-Btu, low-sulfur thermal coal for electricity generation and PCI coal to be used in the steel industry. The Mina Norte coal mine, which is located at El Brillante in the municipality of Paez, State of Zulia, was operated by the joint venture of Carbomar Corp. (64%) and Carbozulia (36%). The Government continued to express an interest in developing a coal-powered electricity-generating plant to supplement the national electricity grid, much of which was supplied by hydroelectric plants (*Anglo American plc*, 2011; Carbozulia, S.A., 2011; Peabody Energy Corp., 2011).

Natural Gas.—In 2010, natural gas production and consumption remained at about the same level as that of 2009 (28,000 million cubic meters and 29,500 million cubic meters, respectively); the difference between production and consumption appears to have been imported from Colombia. Most natural gas output was associated with petroleum production. According to BP p.l.c. and the U.S. Energy Information Administration, Venezuela has the second largest natural gas reserves (about 5.1 trillion cubic meters) in the Western Hemisphere behind the United States (6.1 trillion cubic meters). The petroleum sector consumed more than 65% of Venezuela's natural gas production in the form of reinjection to produce crude oil. Venezuela's most important natural gas projects included the Barrancas and Yucal Placer Blocks. Since early 2008, the Antonio Ricaurte 224-kilometer gas pipeline, which connects western Venezuela to Colombia's Punta Ballenas area, had delivered between 2,700 and 4,300 million cubic meters per day of natural gas from Colombia to Venezuela; the flow of gas was to be reversed by no later than 2012 when Venezuela was to begin exporting more than 3,960 million cubic meters per day to Colombia, and that contracted volume was reportedly the pipeline's average flow in 2010 (BP p.l.c., 2011a; 2011b, p. 24, 27; *Petróleos de Venezuela, S.A.*, 2011; U.S. Energy Information Administration, 2011).

Venezuela planned to increase its natural gas supply to cover domestic and regional demand, and the excess was to be exported to the world markets. Proposed natural gas projects included the development of the offshore nonassociated natural gas resources in the Plataforma Deltana area, which is located south of Trinidad and Tobago in the Atlantic Ocean; the development of natural gas resources in the Gulf of Venezuela and the State of Falcon; the construction of the Center West Interconnection Project gas pipeline; and the construction of the Gran Mariscal de Ayacucho industrial complex and the Mariscal Sucre LNG plant (*Petróleos de Venezuela, S.A.*, 2011; U.S. Energy Information Administration, 2011).

According to Chevron, total daily production in 2010 from all Chevron's producing areas in Venezuela averaged 134,000 barrels (bbl) of synthetic oil and 3.3 million cubic meters of natural gas. That production came from three areas. The first was Boscan Field in the State of Zulia in western Venezuela and was operated by Petroboscan (an affiliate of PDVSA in which Chevron held a 39.2% interest). In 2010, Petroboscan's total daily production averaged 96,000 bbl of liquids and 0.4 million cubic meters of natural gas. In 2010, 15 development wells and two water injection wells were drilled. The second was the LL-652 Field in Lake Maracaibo. This field was operated by Chevron's affiliate Petroindependiente, in which Chevron was a 25.2% owner. In 2010, Petroindependiente's total daily production averaged 5,000 bbl of liquids and 1.5 million cubic meters of natural gas. The third was the Hamaca project, which was operated by Petropiar (a company in which Chevron owned 30% interest). The project was located in Venezuela's Orinoco Belt and had a total design capacity to process and upgrade 190,000 bbl/d of extra-heavy crude oil into 180,000 bbl/d of lighter value synthetic crude oil. In 2010, total daily production averaged 134,000 bbl of liquids and 1.4 million cubic meters

of natural gas. In February 2010, a Chevron led-consortium was selected to participate in a heavy oil project composed of three blocks in the Orinoco Belt. A joint operating company, Petroindependencia, was formed in May 2010. Chevron held a 40% interest in the project, and PDVSA held the remaining 60% interest (Chevron Corp., 2011a, b).

The consortium of Chevron, INPEX Corp., Mitsubishi Corp., and Suelopetrol (40%) in joint venture with the PDVSA (60%) was scheduled to be supplied with gas from the PDVSA's Blocks 2 and 3, which are located in the offshore Plataforma Deltana region in eastern Venezuela. Chevron also operated the offshore Cardon III Block north of Lake Maracaibo in the Gulf of Venezuela, where Chevron started drilling an exploration well in the first half of 2010 (Chevron Corp., 2011a).

Petroleum.—In 2010, Venezuela's crude oil production amounted to about 986 million 42-gallon barrels, and its gross natural gas production amounted to 28 billion cubic meters. Venezuela consumed about 279 million barrels of petroleum in 2010. PDVSA controlled the country's petroleum sector through its wholly owned subsidiary CVP. According to BP and the U.S. Energy Information Administration, Venezuela has proven reserves of about 211 billion barrels (Gbbbl) of crude oil (the largest in the Western Hemisphere). To increase crude oil refinery capacity in Venezuela, PDVSA planned to build new refineries by investing \$18 billion to construct the Cabruta refinery, which would have a capacity to produce 400,000 bbl/d of extra-heavy crude; the Batalla de Santa Ines refinery (50,000 bbl/d of petroleum); and the Caripito refinery (50,000 bbl/d of asphalt). With these three new refineries online and improvements made to the country's existing refineries, PDVSA's processing capacity in Venezuela would be increased to 700,000 bbl/d by 2012. In February 2010, the Venezuelan Government announced the results of a bid process related to facility expansions. A consortium led by Repsol YPF S.A. of Spain had secured the Carabobo 1 project, and a consortium led by Chevron had secured the Carabobo 3 project. The second project, Carabobo 2, went unawarded (BP p.l.c., 2011b, p. 9; Petróleos de Venezuela S.A., 2011; U.S. Energy Information Administration, 2011).

In December 2010, PDVSA signed direct bilateral agreements for the development of several oil blocks in the Orinoco Belt, including an agreement with China National Offshore Oil Corp. (CNOOC), which was a leading Chinese Government-owned oil company and an offshore oil and gas producer in China. PDVSA announced a memorandum of understanding with CNOOC to develop the Boyaca Block 3. Other bilateral agreements for the joint exploration of the Orinoco heavy-oil belt included agreements with National Oil and Gas Corporation of Vietnam (Petrovietnam) for the Junin-2 Block; China National Petroleum Corp. (CNPC) for the Junin-4 Block; Italy's Eni for the Junin-5 Block; and a consortium of Russia companies for the Junin-6 Block (Institute of the Americas, 2011; Petróleos de Venezuela S.A., 2011; Woodrow Wilson International Center for Scholars, 2011, p. 6-8).

The Ministerio del Poder Popular para la Energía y Petróleo indicated that Venezuela had 1.28 Mbbbl/d of crude oil refining capacity in 2010, all operated by PDVSA. The major facilities included the Paraguana refining center (940,000 bbl/d), the

Puerto de la Cruz refinery (195,000 bbl/d), and El Palito refinery (127,000 bbl/d). Venezuela's CITGO Petroleum Corp., through PDVSA, also controlled significant refining capacity outside of the country (Petróleos de Venezuela S.A., 2011; U.S. Energy Information Administration, 2011).

According to BP, and in line with the Venezuelan Government's initiative, all exploration and production projects that were operated by privately owned companies under service agreements were incorporated into joint ventures. PDVSA's CVP held the majority share in each joint venture. BP Venezuela subsequently became a shareholder in two of these joint ventures (Petroperijá and Petróleos de Boquerón). BP also became a partner in the 110,000-bbl/d Petromonagas joint-venture project, which had gross reserves estimated to be 1.2 Gbbl of equivalent oil (BP p.l.c., 2011a; 2011b, p. 2-3).

Uranium.—Venezuela planned to produce uranium eventually from deposits located in the States of Amazonas and Bolivar, which supposedly contain about 50,000 t of uranium reserves. Russia and Venezuela signed cooperation agreements in the fields of crude oil exploration and nuclear energy and were planning to sign a 25-year intergovernmental cooperation agreement for crude oil and natural gas production and nuclear power generation (RIA Novosti, 2011).

Outlook

Venezuela is expected to remain a leading supplier of crude oil and refined derivatives to the United States. Natural gas will be incorporated into the country's energy supply, owing to future offshore gas developments in the Deltana Platform off the coast of eastern Venezuela and in the Paraguana Peninsula in the northwestern part of the country (Petróleos de Venezuela, S.A., 2011).

Changes in the Chinese economy, the growth of its manufacturing sector, and that country's need for raw materials, energy, and food, have sparked an unprecedented expansion of China's commercial and political relations with other countries of the developing world, including in (but not limited to) Latin America. The Venezuelan Government and the Industrial and Commercial Bank of China signed an agreement for the financing of projects and financial services in Venezuela. China had already invested \$20 billion in the country, and in 2011 PDVSA was exporting 400,000 bbl/d to China, which was expected to increase by up to 1 Mbbbl/d in the foreseeable future (Mendez, 2011; Wiggin, 2011; Woodrow Wilson International Center for Scholars, 2011, p. 35).

Although the country's nationalizations and uncertain macroeconomic environment could lead to further reduced levels of private investment, Venezuela has the largest reserves of crude petroleum in the Americas, which is more likely to encourage new investments from China, Iran, Italy, and Russia. Investment could include the construction of infrastructure to deliver crude oil and natural gas throughout the world, and could give Venezuela a significant advantage in marketing its petroleum and natural gas on a long-term basis. PDVSA's exploration and production plans are expected to encourage additional development of hydrocarbon resources in the Orinoco Belt and to increase the country's production of petroleum to 5.8 Mbbbl/d by 2012, subject to the OPEC production

constraints. PDVSA's plans to build new crude oil refineries at Cabruta and Llanos de Barinas (Batalla de Santa Inés) and to build an asphalt plant at Caripito are also likely to encourage the continuation of Venezuela's strategic alliances with other nations with strong economies, such as Canada, China, Italy, Russia, and other friendly countries, particularly in the crude oil, natural gas, and precious metals sectors. Development of Las Cristinas, which is one of the leading gold deposits in Latin America, could provide a welcome source of new revenue to Venezuela (Organization of the Petroleum Exporting Countries, 2010; Petróleos de Venezuela, S.A., 2011; U.S. Energy Information Administration, 2011).

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TABLE 1
VENEZUELA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2006	2007	2008	2009	2010 ^e	
METALS						
Aluminum:						
Alumina	1,892	1,900 ^e	1,900	1,900	1,900	
Bauxite	5,928	5,500	5,500	5,500	5,500	
Metal, primary, unalloyed	metric tons	610,000 ^e	610,000 ^e	610,000	578,000 ^f	355,000
Gold, mine output, Au content	kilograms	11,600	10,092	10,100	11,880 ^f	12,000
Iron and steel:						
Iron ore and concentrate: ^e						
Gross weight	22,100	20,700	20,650	14,900	14,900	
Metal content	15,200	15,200	15,200	15,200	15,200	
Metal, direct-reduced iron	8,400 ^e	8,400 ^e	8,400	8,500	8,500	
Ferroalloys: ^e						
Ferromanganese	15,000	15,000	15,000	15,000	15,000	
Ferronickel	57,000	57,000	57,000	57,000	57,000	
Ferrosilicon ²	92,000	92,000	92,000	92,000	92,000	
Silicomanganese	35,000	35,000	35,000	35,000	35,000	
Total	199,000	199,000	199,000	199,000	199,000	
Steel, crude	4,900	5,000	5,000	5,000	5,000	
Semimanufactures, hot-rolled	3,500 ^e	3,500 ^e	3,500	3,500	3,500	
Lead, secondary, refined ^e	metric tons	30,000	30,000	30,000	30,000	30,000
Nickel:						
Mine output, Ni content ^e	do.	20,000	20,000	20,000	20,000	20,000
Ferronickel, Ni content	do.	16,600	16,600 ^e	16,600	16,600	16,600
INDUSTRIAL MINERALS						
Cement, hydraulic ^e	11,000	11,000	11,000	11,000	11,000	
Clays, common	250 ^e	250 ^e	250	250	250	
Diamond:^e						
Gem						
Industrial	carats	45,000	45,000	45,000	45,000	45,000
Total	do.	70,000	70,000	70,000	70,000	70,000
Feldspar	do.	115,000	115,000	115,000	115,000	115,000
Gypsum	200	200 ^e	200	200	200	
Lime ^e	7	7 ^e	7	7	7	
Nitrogen, N content of ammonia	400	400	400	400	400	
Phosphate rock:	1,160 ^e	1,160 ^e	1,160	1,160	1,160	
Gross weight						
P ₂ O ₅ content ^e	400 ^e	400 ^e	400	400	400	
Pyrophyllite ^e	115	115	115	115	115	
Salt, evaporated ^e	30	30	30	30	30	
Serpentinite, crushed ^e	metric tons	350,000	350,000	350,000	350,000	350,000
Stone, sand and gravel:	550	550	550	550	550	
Stone:						
Granite ^e	750	750	750	750	750	
Limestone ³	18,000 ^e	18,000 ^e	18,000	18,000	18,000	
Sand and gravel	600 ^e	600 ^e	600	600	600	
Silica sand ³	500 ^e	500 ^e	500	500	500	
Sulfur, petroleum byproduct ^e	800	800	800	800	800	
MINERAL FUELS AND RELATED MATERIALS						
Carbon black ^e	60	60	60	60	60	
Coal, bituminous	7,459	7,457	7,457	7,500	7,500	
Gas, natural:						
Gross ⁴	million cubic meters	35,100	32,100	29,200 ^f	27,900 ^f	28,000
Marketed ^e	do.	28,500	28,500	26,000 ^f	24,800	24,900
Natural gas liquids:						
Natural gasoline	thousand 42-gallon barrels	13,572	13,600 ^e	13,600	13,600	13,600
Liquid petroleum gas	do.	64,903	64,900 ^e	64,900	64,900	64,900
Total	do.	78,475	78,500 ^e	78,500	78,500	78,500

See footnotes at end of table.

TABLE 1—Continued
 VENEZUELA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity	2006	2007	2008	2009	2010 ²	
MINERAL FUELS AND RELATED MATERIALS—Continued						
Petroleum: ⁵						
Crude ⁴	thousand 42-gallon barrels	1,024,920	953,745	933,670	889,505	985,500
Refinery products: ³						
Liquefied petroleum gas	do.	7,000	7,000	7,000	7,000	7,000
Gasoline, motor	do.	85,000	85,000	85,000	85,000	85,000
Naphtha and other gasolines	do.	60,000	60,000	60,000	60,000	60,000
Jet fuel	do.	32,000	32,000	32,000	32,000	32,000
Kerosene	do.	120	120	120	120	120
Distillate fuel oil	do.	109,000	109,000	109,000	109,000	109,000
Lubricants	do.	1,200	1,200	1,200	1,200	1,200
Residual fuel oil	do.	90,000	90,000	90,000	90,000	90,000
Asphalt	do.	6,000	6,000	6,000	6,000	6,000
Petroleum coke	do.	10,000	10,000	10,000	10,000	10,000
Paraffins	do.	250	250	250	250	250
For internal consumption	do.	30,000	30,000	30,000	30,000	30,000
Unspecified	do.	1,000	1,000	1,000	1,000	1,000
Gains and losses	do.	2,000	2,000	2,000	2,000	2,000
Total ⁶	do.	434,000	434,000	434,000	434,000	434,000

²Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ¹Revised. do. Ditto.

¹Table includes data available through March 3, 2011.

²Production of 75% silicon-content ferrosilicon.

³Excludes production under contract with the Government.

⁴According to the BP Statistical Review of World Energy, June 2010.

⁵Includes condensate and bitumen for the production of Orimulsión.

⁶Excludes byproduct sulfur, which is reported in the industrial minerals portion of this table, but includes losses.

TABLE 2
VENEZUELA: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners ¹	Location of main facilities	Annual capacity
Alumina	C.V.G. Bauxilum C.A. (Corporación Venezolana de Guayana)	Ciudad Guayana, Bolivar State	1,800
Aluminum	C.V.G. Aluminio del Caroní, S.A. (Corporación Venezolana de Guayana and others)	do.	210
Do.	C.V.G. Venezolana de Aluminio C.A. (Corporación Venezolana de Guayana, 80%, and Showa Denko K.K., Kobe Steel Ltd., Sumitomo Chemical Co. Ltd., Mitsubishi Materials Corp., Mitsubishi Aluminum Co., and Marubeni Corp., 20%)	do.	430
Do.	Compañía Nacional de Industrias Básicas (Corporación Venezolana de Guayana, 100%)	do.	210
Bauxite	C.V.G. Bauxilum C.A. (Corporación Venezolana de Guayana, 100%)	Los Pijiguaos, Bolivar State	6,000
Cement	CEMEX Venezuela, S.A. C.A. (Cementos Mexicanos S.A. de C.V., 100%)	Barquisimeto, Lara State; Maracaibo, Zulia State; Pertigalete, Anzoategui State; San Cristobal, Tachira State	4,600
Do.	LaFarge Venezuela (Lafarge Group, 56.2%)	La Vega, Miranda State, and San Cristobal, Tachira State	1,750
Do.	Holcim (Venezuela) S.A. (Holcim Ltd., 85%)	Carupano, Sucre State, and San Sebastian de los Reyes, Aragua State	2,200
Do.	C.A. Fábrica Nacional de Cementos (Lafarge Group, 46.13%)	Palmira and Ocumare del Tuy, Miranda State	1,330
Do.	Cementos Catatumbo (Lafarge Group, 23.32%)	Montellano, Zulia State	650
Do.	Cemento Andino	Curcas, Trujillo State	560
Coal	Carbones del Guasare, S.A. (Carbozulia S.A., 49%; Peabody Energy Corp., 25.5%; Anglo Coal, 25.5%)	Paso Diablo, Zulia State, Guasare coal basin	8,000
Do.	Carbones de la Guajira, S.A. (InterAmerican Coal Holdings NV, 64%, and Carbozulia S.A., 36%)	Mina Norte and Cachiri, Zulia State, Guasare coal basin	1,500
Ferronickel	Loma de Níquel C.A. (Anglo American plc, 91.4%)	Loma de Níquel, Aragua and Miranda States	18
Ferrosilicon	Ferroatlántica de Venezuela, S.A. (Ferroatlántica S.L., 80%, and Corporación Venezolana de Guayana, 20%)	Ciudad Guayana, Bolivar State	80
Gold	kilograms C.V.G. Compañía General de Minería C.A. (Rusoro Mining Ltd., 50%, and Corporación Venezolana de Guayana, 50%)	Isidora Mine, El Callao, Bolivar State	1,000
Do.	do. C.V.G. Compañía General de Minería C.A. (C.V.G. Ferrominera Orinoco C.A., 66.77%, and Corporación Venezolana de Guayana, 33.23%)	Colombia and Union Mines. Caratal and El Peru plants, El Callao, Bolivar State	4,600
Do.	do. Promotora Minera de Venezuela (Rusoro Mining Ltd., 95%, and Ferrominera Orinoco C.A., 5%)	Choco Mine, El Callao, Bolivar State	4,000
Do.	do. C.V.G. Compañía General de Minería C.A.	Tomi Mine, El Callao, Bolivar State	1,500
Do.	do. Revemin (C.V.G. Compañía General de Minería C.A., 51%, and Corporación Venezolana de Guayana, 49%)	Remevin mill, El Callao, Bolivar State	1,500
Do.	do. El Callao Mining Corp. (Crystallex de Venezuela C.A., 80%)	La Victoria (Lo Increible), El Callao, Bolivar	200
Iron and steel:			
Iron:			
Direct-reduced	Siderúrgica del Orinoco C.A. (Cosorcio Siderúrgico Amazonia Ltd., 70%, and Corporación Venezolana de Guayana, 30%)	Ciudad Guayana, Bolivar State	4,600
Hot-briquetted	Complejo Siderúrgico de Guayana C.A. (Kobe Steel, 36.7%; C.V.G. Ferrominera, 17.4%; Tubos de Acero de México, S.A., 6.9%; Mitsui and Co. Ltd., Nissho Iwai Corp., Tomen Corp. and Shinsho Corp., 30.3%; International Finance Corp., 8.7%)	do.	1,000
Do.	Orinoco Iron (International Briquettes Holding, 100%)	Puerto Ordaz, Bolivar State	2,200
Do.	Venezolana de Prereducidos de Caroní (International Briquettes Holding, 100%)	do.	815
Iron ore	C.V.G. Ferrominera Orinoco C.A. (Corporación Venezolana de Guayana, 100%)	Cerro San Isidro, Los Barrancos, and Las Pailas, Bolivar State	13,000
Do.	Compañía Nacional de Industrias Básicas (Corporación Venezolana de Guayana, 100%)	Cerro San Isidro, Los Barrancos, and Las Pailas, Bolivar State	12,000

See footnotes at end of table.

TABLE 2—Continued
 VENEZUELA: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners ¹	Location of main facilities	Annual capacity
Iron and steel—Continued:				
Iron—Continued:				
Iron ore pellets		Compañía Nacional de Industrias Básicas (Corporación Venezolana de Guayana, 100%)	Ciudad Guayana, Bolivar State	3,600
Do.		Siderúrgica del Orinoco C.A. (Cosorcio Siderúrgico Amazonia Ltd., 70%, and Corporación Venezolana de Guayana, 30%)	do.	7,000
Steel		do.	do.	4,000
Natural gas	million cubic meters	Petróleos de Venezuela S.A. (Government, 100%)	Processing plants in Anzoategui, Monagas, and Zulia States	35,000
Do.	do.	Petróleos de Venezuela S.A. (Government, 60.8%, and Chevron Corp., 39.2%)	Boscan Field in Zulia State	310
Do.	do.	Petróleos de Venezuela S.A. (Government, 74.8%, and Chevron Corp., 25.2%)	LL-652 Field in Lake Maracaibo	520
Do.	do.	Petróleos de Venezuela S.A. (Government, 70%, and Chevron Corp., 30%)	Hamaca Project in Orinoco Belt	410
Do.	do.	Petróleos de Venezuela S.A. (Government, 60%, and Chevron Corp.; INPEX Corp.; Mitsubishi Corp.; Suelopetrol S.A., 40%)	Plataforma Deltana in Lake Maracaibo	500
Nickel, Ni content of mine output		Loma de Níquel C.A. (Anglo American plc, 91.4%)	Loma de Níquel, Aragua and Miranda States	22
Nitrogen content of ammonia		Fertilizantes Nitrogenados de Oriente S.A. (Pequiven, 35%; Koch Industries, 35%; Snamprogetti International S.A., 20%; Empresas Polar, 10%)	Jose Industrial Complex, Anzoategui State	1,070
Do.		Pequiven (Petróleos de Venezuela S.A., 100%)	Petrochemical complexes in Zulia and Carabobo States	670
Petroleum:				
Crude ²	million 42-gallon barrels	Petróleos de Venezuela S.A. (Government, 100%)	Fields in Anzoategui, Apure, Falcon, Guarico, Monagas, and Zulia States	750
Do.	do.	Petróleos de Venezuela S.A. (Government, 60.8%, and Chevron Corp., 39.2%)	Boscan Field in Zulia State	750
Do.	do.	Petróleos de Venezuela S.A. (Government, 74.8%, and Chevron Corp., 25.2%)	LL-652 Field in Lake Maracaibo	2,200
Do.	do.	Petróleos de Venezuela S.A. (Government, 70%, and Chevron Corp., 30%)	Hamaca Project in Orinoco Belt	800
Do.	do.	Joint ventures with Corporación Venezolana de Petróleos ³ (Petróleos de Venezuela S.A., 100%)	Various locations	150
Refinery products	do.	Petróleos de Venezuela S.A. (Government, 100%)	Refineries in Amuay and Cardon, Falcon State; Bajo Grande, Zulia State; El Palito, Carabobo State; Puerto La Cruz and San Roque, Anzoategui State	475

Do., do. Ditto.

¹Reflects 2005 Government holding company structure and does not include the reorganization that took place after the formation of Compañía Nacional de Industrias Básicas.

²Does not include extra-heavy crude processing (synthetic crude).

³Includes crude petroleum production undertakings that formerly produced crude petroleum under operating service, risk-sharing, or profit-sharing agreements.