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The Mineral Industry of Algeria

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In 2009, the North African country of Algeria was a significant producer and exporter of mineral fuels. Algeria was the sixth ranked producer of natural gas in the world and accounted for 2.7% of the world's natural gas output and 2.0% of the world's crude oil output. The country held 4.5 trillion cubic meters of natural gas reserves, which was 2.4% of the world's total reserves, and 12.2 billion barrels of crude oil reserves, which accounted for 0.9% of the world's total reserves. Algeria was the second ranked crude oil producer in Africa after Nigeria and the 15th in the world in terms of the volume of its crude oil production. Algeria produced iron and steel; precious metals, such as gold and silver; and industrial minerals, including barite, bentonite and other clays, cement, crushed stone, gravel, gypsum, helium, limestone, marble, nitrogen fertilizer, phosphate rock, pozzolan, quartz, salt, and sand. Furthermore, the country has large deposits of unexploited minerals, including celestine, diamond, manganese, quartz crystal, rare-earth minerals, tungsten, and uranium (Mining Journal, 2009, p. 3; BP p.l.c., 2010, p. 8, 22, 24).

Minerals in the National Economy

The Algerian economy grew, in real terms, at a rate of 2.4% in 2009, which was the same growth rate achieved in 2008, despite the adverse effects of the global financial crisis and the subsequent decrease in value and volume of the country's hydrocarbon trade. Except for the hydrocarbon sector, which contracted by 6% in 2009 compared with a 2.3% contraction in 2008, nonhydrocarbon economic sectors grew by 9.3% in 2009 compared with 6.1% in 2008. The value of hydrocarbon production, which composed 31.7% of Algeria's gross domestic product (GDP), decreased by 36% in 2009 compared with an increase of 30% in 2008. The decrease was attributable to lower world crude oil and gas prices. Crude oil prices for Algeria averaged $61.50 per barrel in 2009 compared with an average of $99.00 per barrel in 2008. The metal and industrial minerals industries grew in value by 3.4% in 2009 compared with 9.8% in 2008 and 8.0% in 2007. The chemical industry grew by 2.0% in 2009 compared with 2.5% in 2008. The construction sector contracted by 1.0% in 2009 compared with a similar contraction of 1.6% in 2008. The flow of foreign direct investment to Algeria increased by 8.4% to $2,847 million from $2,626 million in 2008 and Algerian investments abroad decreased by 2.8% to $309 million in 2009 from $318 million in 2008 (Banque d'Algérie, 2010, p. 203, 207).

Government Policies and Programs

The Ministère de l'Energie et des Mines (MEM) [Ministry of Energy and Mining] was responsible for regulating the activities of the mining industry through its numerous agencies. Agence Nationale du Patrimoine Minier (ANPM) [Algerian Mining Authority] and Agence National de la Geologie et du Controle Minier (ANGCM) [National Agency of Geology and Mining Control] were created by Mining law No. 01-10 of July 3, 2001. ANPM was responsible for awarding mining licenses. In 2009, ANPM awarded 115 permits, including 105 exploration permits and 10 exploitation permits, which was a decrease of 31% compared with the 166 permits granted in 2008. A total of 1,093 mining permits were awarded in the period 2000-09 and generated more than $95 million of revenue for the treasury. ANPM maintained a database for all mining companies in the country and began issuing a new periodical newsletter, La Lettre de L'ANPM, in 2009, which provided information on Algeria's mineral resources and on ANPM's activities. ANGCM conducted geologic surveys and monitored the country's mining operations (Energie & Mines, 2010b; Ministère de l'Énergie et des Mines, 2010, p. 43).

Ordinance No. 06-10 of July 29, 2006, regulated natural gas and petroleum operations, and modified and supplemented law No. 05- 07 of April 28, 2005, in terms of its relation to hydrocarbons. The law granted Sonatrach 51% ownership of hydrocarbon projects in the country. Environmental laws applicable to the mineral industry included law No. 03-10 of July 19, 2003, and associated decrees, and law No. 05-12 of September 4, 2005. Ordinance No. 07-02 of March 1, 2007, amended and supplemented mining law No. 01-10 of July 3, 2001. The new mining law affirmed parity for all investors, allowed separate surface and underground mine tenure, ensured that disputes could be appealed to international arbitrators, gave incentives for importing equipment for mining operations, and provided custom-tax exemption and rebates on extraction royalties of minerals.

Agence Nationale pour la Valorisation des Ressources en Hydrocarbures [National Agency for Hydrocarbon Resources Valuation] (Alnaft) was established in 2008 to administer natural gas and oil bidding rounds. Alnaft launched a round of bids for hydrocarbon exploration in September 2009 for 10 permits but only 3 were awarded. Alnaft planned to launch a new oil and gas bid round in 2010. Executive Decree No. 09-304 created Provincial departments of energy and mines at the Wilaya (Province) level. Executive Decree No. 09-313 of October 6, 2009, created the Algerian Institute of Mining (Alexander's Gas & Oil Connections, 2010).

Production

In 2009, Algeria's crude oil (including condensates) production decreased by 9.1% and dry natural gas output decreased modestly by 5.1% compared with 2008 output levels. In 2009, there were notable increases in the production of silver, by 75%; kaolin, by 73%; gold, by 54%; salt, by 34%; feldspar, by 13%; diatomite, by 11%; and cement, by 8%. Noted decreases in mineral commodities output included a decrease in silica sand production by 51%; phosphate rock, by 44%; tuff, by 38%; barite and iron ore, by 37% each; pozzolan, by 33%; crude steel and pig iron, by about 29% each; and calcite, by 13% (table 1).

Structure of the Mineral Industry

Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A. (ENOF) was a state-owned company that produced nonferrous metal mineral commodities. ENOF had three subsidiaries: Société Algérienne des Granulats S.p.A. (ALGRAN), Société des Mines de Baryte d'Algérie S.p.A. (SOMIBAR), and Société des Bentonites d'Algérie S.p.A. (BENTAL). SOMIBAR produced barite from three barite mines located at the Boucaid Mine in Tissemsilt Provence, the Amin Mimoun Mine in Khenchela Province, and the Mellal Mine in Tlemcen Province. BENTAL produced bentonite from the Mahgnia Mine in Tlemcen Province and the M'Sila deposit in Mostaganem Province. ALGRAN produced aggregates and limestone from nine quarries spread throughout the country (Mining Journal, 2009, p. 5).

Office National de la Recherché Géologique et Minière (ORGM) [The National Office of Geological and Mining Research] was a partner with almost all the mining companies involved in exploitation, exploration, and prospecting activities in the country. The Government-owned Entreprise Nationale du Fer et du Phosphate (Ferphos Group S.p.A.) managed Algeria's production of iron ore, foundry, phosphate rock, pozzolan, and other building materials. Its subsidiaries included Société des Mines de Phosphates S.p.A. (Somiphos), which was the state's phosphate mining company; Société des Mines de Fer Algérie (Somifer), which was the iron ore mining company; and Société de Pouzzolane et des Matériaux de Construction S.p.A. (SPMC), which produced pozzolan and other building materials (Agence Nationale du Patrimoine Minier, 2009; Mining Journal, 2009, p. 4-5, 7).

Sonatrach S.p.A., was Algeria's state-owned national oil and gas company. It was responsible for oil and gas exploration, production, pipeline transportation, and marketing of hydrocarbons and byproducts. Sonatrach had 25 subsidiaries, including Entreprise Nationale de Commercialisation et de Distribution des Produits Pétroliers S.p.A. (Naftal), L'Entreprise Nationale de Canalisations S.p.A (ENAC), Helios S.p.A, Société Nationale de Raffinage de Pétrole S.p.A. (NAFTEC), and Société Nationale de Pétrochimie S.p.A. The state-owned Socièté Nationale de l'Electricité et du Gaz (Sonelgaz) managed electricity and natural gas retail distribution (table 2; Sonatrach S.p.A., 2010; U.S. Energy Information Administration, 2010).

Mineral Trade

In 2009, the value of Algerian exports of goods decreased by about 43% to $45.2 billion from $78.6 billion in 2008. The value of hydrocarbon exports, which accounted for 98% of the country's total exports in 2009, was $44.4 billion compared with $77.2 billion in 2008, which was a decrease of about 42.5% in value and 2% in volume. The value of nonfuel exports decreased to $770 million in 2009 from $1.4 billion in 2008. Industrial minerals exports (mainly ammonia and phosphate rock) accounted for 92% of nonfuel mineral exports, and precious metals exports accounted for 8% of the value of nonfuel mineral exports. The value of iron and steel products exports decreased to $83 million in 2009 from $193 million in 2008 and the value of flat-rolled iron products decreased to about $8 million in 2009 from $55 million in 2008. In 2009, the value of crude oil exports accounted for 38% of Algeria's total hydrocarbon export value, followed by natural gas, 18%; condensates, 12%; liquefied natural gas (LNG), 13%; refined petroleum products, 12%; and liquefied petroleum gas (LPG), 7% (Banque d'Algérie, 2010, p. 217, 220).

Algeria exported 52.7 billion cubic meters of natural gas in 2009, which was 10% less than the 58.8 billion cubic meters exported in 2008. Sixty-three percent of natural gas exports were transported by pipelines to Italy, Portugal, Spain, and Tunisia, whereas the remaining 37% was shipped by tankers to France, Greece, India, Italy, Japan, the Republic of Korea, Spain, Turkey, and the United Kingdom (Organization of Arab Petroleum Exporting Countries, 2009, p. 62). The value of Algeria's mineral exports decreased by 46% in 2009 to about $110 million from $204 million in 2008. Algeria exported $84.6 million worth of industrial minerals, including phosphate rock ($68.1 million), cement ($13.6 million), salt ($1.3 million), slabs and tiles ($1.1 million), and bentonite ($24,000) (Ministère de l'Énergie et des Mines, 2010, p. 81-82).

The value of Algerian imports totaled $37.4 billion in 2009, which was a decrease of 1.6% compared with about $38.0 billion in 2008. Algeria's imports had been growing by an annual rate of about 18% in the period 2005-09. Mining products imports, which included iron and steel products, decreased by about 30% in 2009 compared with that of 2008. The value of Algeria's mineral imports decreased by about 37% in 2009 to $241 million from about $381 million in 2008 and industrial minerals accounted for 70% of the minerals imports followed by fuel minerals (24%) and base-metals (about 5%) (Banque d'Algérie, 2010, p. 219; Ministère de l'Énergie et des Mines, 2010, p. 80-81).

U.S. imports from Algeria decreased by about 45% to $10,718 in 2009 from $19,355 million in 2008. U.S. exports to Algeria also decreased by about 11% to $1,108 in 2009 from $1,243 in 2008. The United States was the leading importer of Algerian oil exports and accounted for 27% of the total exports, or 488,000 barrels per day (bbl/d). Other top importers were Canada, France, Italy, the Netherlands, and Spain (United Nations Statistics Division, 2010; U.S. Energy Information Administration, 2010).

Commodity Review

Metals

Gold.—MEM estimated gold reserves at the Hoggar region to be 121 metric tons (t) of metal. Production of gold from the Amesmessa Gold Mine by Entreprise d'Exploitation des Mines d'Or S.p.A. (ENOR), which was a joint venture of GMA Resources Plc of the United Kingdom (52%) and Sonatrach S.p.A. (48%), increased by 54% in 2009 to 999 kilograms (kg) from 647 kg in 2008. Gold mining at Amesmessa began in 2008 as a heap-leach process with a 44% average gold recovery. ENOR produced 507,100 t of ore grading 4.41 grams per metric ton (g/t) gold in 2009 compared with 424,300 t of ore grading 3.13 g/t gold. The company was searching for ways to improve gold recovery from heap leaching and assessing the potential of the Amesmessa-Terik concession. Earthscan of Australia conducted a review at the request of GMA Resources and identified 75 alteration zones on the shear zone of the concession (GMA Resources Plc, 2010, p. 3-7).

Cancor Mines Inc. of Canada had four exploration permits in Algeria located at the Ouzzal North (gold-silver), the Tan Chaffao East (copper-gold), the Tan Chaffao West (copper-gold), and the Terik North (gold-silver) properties (Cancor Mines Inc., 2010).

Other companies that were exploring for gold in Algeria included Gold Houria Rapheal S.p.A., Gold Industrial Minerals (GOLDIM) S.p.A., Groupe Socvom de travaux de construction de l'exploitation géologique et minière du Hebei, as well as CGC Overseas Construction Co. Ltd., North China Geological Exploration Bureau, Poly Science and Technology Co. Ltd., and Shaolin Mines (all of China).

Iron and Steel.—MEM estimated the iron ore reserves at the Gara Djebilet and the Mechri Abdelaziz deposits to be 3.5 billion metric tons (Gt), in addition to 189 million metric tons (Mt) of iron ore reserves at Ain Temouchent, Boumaiza, Djebel Anini, Ouenza-Boukhadra, and Sidi Maarouf. The development of iron ore reserves at Gara Djebilet, which were estimated to be 1 Gt of magnetic ore grading 57% iron (Fe), required an investment of $15 billion, according to Sonatrach. Sonatrach was the project's promoter and was looking for international partners for the Gara Djebilet iron and steel project. Sonatrach planned to produce between 20 and 40 million metric tons per year (Mt/yr) of iron ore that could output 5 to 10 Mt/yr of steel (Mining Journal, 2009, p. 6).

ArcelorMittal Annaba S.p.A. (a subsidiary of ArcelorMittal of Luxembourg) was responsible for most of Algeria's iron ore production at the Boukhadra and the Ouenza Mines. The other producer was Somifer at the Djebel Anini Mine in Setif Province, the Khanguet Mine in Tebessa Province, and the Rouina Mine in Ain Defla Province (Ministère de l'Énergie et des Mines, 2009, p. 22).

In June, ArcelorMittal and Somifer announced a plan to invest $110 million to develop iron ore and zinc production at the Ouenza Mine in the Tebessa Province. ArcelorMittal planned to increase the steel production capacity of its mills in Algeria to 2.8 Mt/yr and to boost iron ore production at the Boukhadra and the Ouenza Mines to 3 Mt/yr within 3 years. Crude steel and pig iron production at the El Hadjar Co., which was majority owned by ArcelorMittal (70% interest), declined by 50% and 42%, respectively, because of a 4-month stoppage in blast furnace and rolling mill production in 2008. Algeria's iron ore production decreased by 37% to 1.3 Mt in 2009 from about 2.1 Mt in 2008 (table 1; Thomson Reuters, 2009b).

Lead and Zinc.—In 2009, the MEM's estimate of Algeria's reserves of copper, lead, and zinc was 115 Mt of contained metal. Western Mediterranean Zinc S.p.A. (WMZ) moved forward on developing the Tala Hamza zinc project at Oued Amizour near the city of Bejaia, which is located in northeastern Algeria. WMZ was a joint venture of Terramin Australia Ltd. (65% interest), state-owned ENOF (32.5% interest), and ORGM (2.5% interest). WMZ completed a prefeasibility study for the project in the first quarter of 2009, and a feasibility study commenced in May. The company announced a new resource model in November and used it as a base for the design of the lead-zinc mine at Oued Amizour. As of yearend 2009, the total resources (measured, indicated, and inferred) of the Tala Hamza Mine, based on analyses of data from 88 diamond holes, were 68.6 Mt at grades of 1.1% lead and 4.6% zinc. The company designed the Oued Amizour zinc project to include initially a 2-Mt/yr processing plant that would produce 100,000 metric tons per year (t/yr) of zinc in concentrate and 25,000 t/yr of lead in concentrate. Production would increase to 200,000 t/yr of zinc in concentrate grading 53% zinc at a 90% recovery rate and 40,000 t/yr of lead in concentrate grading 60% lead at a 72% recovery rate. The project's design also included an expansion plan that would treat 4 Mt/yr of ore to achieve annual zinc output of about 400,000 t. The mining method would be block caving with twin production and ventilation declines that could be upgraded to a conveyer system (Terramin Australia Ltd., 2010).

Abed Maaden S.p.A, which was a joint venture of Cecomines of China (90% interest) and Sonatrach (10% interest), moved forward with its plan to reopen the El Abed lead-zinc mine in Tlemcen Province, which was closed in 2002. Another joint venture of Shaolin Mines of the Henan Provincial Bureau of Geo Exploration and Mineral Development in China (51% interest), Sonatrach (35% interest), and Goldim (14% interest) was awarded a lead-zinc exploration license for the Ain Sedjra and the Boukhdema deposits in Setif Province, which together hold estimated reserves of 12 Mt of mixed ore materials (Mining Journal, 2009, p. 3; Ministère de l'Énergie et des Mines, 2009; p. 73-76).

Cecomines of China was exploring for lead at Ain Bougda in Batna Province and for zinc at Al Ouasta in Souk Ahras Province, Boudjabeur in Tebessa Province, and Hammam Nbails in Guelma Province. ENOF carried out zinc exploration activity at Chaabet El Hamra in Setif Province (the site of previous zinc production) and lead exploration activity at Ain Kahla and Kherzet Youcef in Setif Province, Boudoukha in Skikda, and Gurerouma and Sakamody in Bouira Province. Groupe Faienceries Algeriennes had a permit to explore for zinc at Oued El Kebir in Jijel Province. Goldim conducted lead mining activity at Ain Sedjra, Boukhedima, and Kef Semmah. Saba Bouzghaia explored for zinc at Achab Tiri in Jijel Province (Agence Nationale du Patrimoine Minier, 2010).

Industrial Minerals

Cement.—The Government announced a plan to consolidate its twelve cement plants, which produced 11.5 Mt/yr and accounted for 65% of the country's cement sales, into one holding company. Ministère de l'Industrie et la Promotion de l'Investissement [Ministry of Industry and Investment Promotion] planned to invest $2.4 billion in the new cement holding during the next 3 years to bring its production to 20 Mt/yr, thus increasing its share in the Algerian cement market to between 75% and 80%. The Government, which was not pleased with Lafarge's takeover of Orascom Construction Industries S.A. of Egypt's cement assets in Algeria in 2008, intended to compete with Lafarge Algeria. Lafarge controlled

35% of the domestic cement market through its wholly owned Algerian Cement Co., and Ciment Blanc d'Algérie S.p.A. Algerian Cement Co. operated the Burdj Bouredj plant in M'Sila Province, which was located 240 kilometers (km) southeast of Algiers. Lafarge Algeria had a production capacity of 8.6 Mt of cement in 2009, including 0.5 Mt/yr of white cement (Global Cement Magazine, 2010; Lafarge S.A., 2010, p. 31; Nield, 2010, p. 15).

ASEC Cement of the Citadel Group of Egypt was a majority shareholder in ASEC Algeria Cement Co. S.p.A. ASEC Algeria was building a 3.2-Mt/yr-capacity greenfield cement plant at Zahana in Djelfa Province, which is located 300 km south of Algiers. In June, the International Finance Corp. of the World Bank Group approved a $24 million investment in the project. The project included two production lines; the first line would have a cement production capacity of 1.5-Mt/yr and would be completed in 2011 at a cost of $300 million. The second production line would increase the capacity to 3.2 Mt/yr at a cost of $250 million and would start 1 to 2 years after the first production line was completed. The limestone for the cement plant would come from the Djellal El Gharbi deposit, which is located about 1 km from the plant and had resources sufficient to supply the plant for 80 years (International Finance Corp., 2009; ASEC Cement, 2010, p. 12; World Cement Magazine, 2010, p. 19).

Sonatrach announced a plan to build a 1-Mt/yr-capacity cement plant at El Kalaa in Relizane Province, which is located 35 km south of Algiers. The company, which intended to maintain majority interest (51%) in the plant, was evaluating tenders from foreign companies to form a joint venture to operate the plant (Energie & Mines, 2010e, p. 61).

Clay and Shale.—Société des Kaolins d'Algérie S.p.A (SOALKA) [Algerian Kaolin Co.] was a joint venture of Federal White Cement Ltd. of Canada (63% interest) and ENOF (37% interest) that produced kaolin in Algeria. SOALKA operated the El Milia Mine in Jijel Province that had a 50,000-t/yr-capacity kaolin treatment complex and more than 15 Mt of kaolin reserves. The company operated a sorting unit at the Jebel Debbagh deposit in Guelma Province, which held an estimated 200,000 t of ore reserves. SOALKA was also exploring for kaolin at the Tabelballa site in Bechar Province, which has estimated reserves of 1 Mt of kaolin ore. The company expanded its exploration activities in 2008 to include other minerals and was awarded permits to explore for copper, diamond, gold, and limestone (Société des Kaolins d'Algérie S.p.A, 2010).

Nitrogen.—In 2008, Sonatrach and Suhail Bahwan Group (Holding) L.L.C. (SBGH) of Oman established a joint venture, Asharika El Djazairia El Omania lil Asmida S.p.A. [Algeria Oman Fertilizer Co. S.p.A.] (AOA), in 2008 to build a nitrogen fertilizer plant in Algeria. AOA, which was owned by SBGH (51% interest) and Sonatrach (49% interest), said it would invest $2.4 billion for the construction of a plant that would have a capacity of 4,000 metric tons per day (t/d) of ammonia, of which almost all would be converted to produce 7,000 t/d of urea. The project included constructing associated utilities and offsite facilities, including seawater intake and outfall, captive power generation, and urea and ammonia storage. The project is located on the Mediterranean coast in the Arzew Industrial Zone, which is located near Oran in western Algeria. Sonatrach committed to supply natural gas for the project under a long-term arrangement. Construction of the project commenced under an engineering, procurement, and construction contract with a consortium of Mitsubishi Heavy Industries Ltd. of Japan and Daewoo Engineering & Construction Co. of the Republic of Korea. The plants would adopt process technologies from Haldor Topsøe A/S of Denmark, Snamprogetti S.p.A. of Italy, and Uhde Fertilizer Technology B.V. of the Netherlands. The plant was expected to adhere to strict environmental norms and the entire production was destined for export (Suhail Bahwan Group L.L.C., 2010).

Phosphate Rock.—Ferphos estimated the mass of Algeria's phosphate rock reserves (all categories) at the Djebel Onk Mine, which is located in southeastern Tebessa Province, to be 2.2 Gt. The deposits were concentrated at Bled El Hadba (800 Mt), Djemidjema (618 Mt), Keff Essenoun (517 Mt), Betit (175 Mt), Djebel Onk North (92 Mt), and Tarfaya (14 Mt). Production of phosphate rock at Djebel Onk by Société des Mines de Phosphate (Somiphos), an affiliate of Ferphos, was decreased by about 44% to 1.0 Mt in 2009 from 1.8 Mt in 2008. The significant decrease was attributed to the reduced demand for phosphate rock by the world market (Mining Journal, 2009, p. 7).

A project to build a phosphate rock processing hub and a phosphate fertilizer plant at Bouchegouf in Guelma Povince was proposed in 2009 as a joint venture of Engro Corp. Ltd. (49% interest) of Pakistan, Ferphos (26%), and Sonatrach (25%). The plant would have the capacity to produce 4,500 t/d of sulfuric acid, 3,000 t/d of diammonium phosphate, and 1,500 t/d of phosphoric acid. In 2010, Engro renewed its plan to invest $1 billion in a north African fertilizer plant. Another joint venture of Getax Australia Pty Ltd. (49% interest), Ferphos Group (29%), and Sonatrach (22%) was formed for the proposed fertilizer-manufacturing project at Babel-Assa in Tlemcen Province. The plant would produce 300,000 t/yr of single superphosphate and compound fertilizers (Mining Journal, 2009, p. 7; Feytis, 2010, p. 60).

Mineral Fuels and Other Sources of Energy

Natural Gas.—Sonatrach had an objective to increase its natural gas exports to 85 billion cubic meters per year by 2013 and to 100 billion cubic meters by 2015. The current level of natural gas exports was about 62 billion cubic meters per year. Thus, the Government planned to invest $63 billion in the natural gas sector by year 2013. Algeria moved forward with developing and boosting its export capacity of natural gas by way of pipeline to Europe. The current natural gas liquefying capacity was 44.2 million cubic meters per year of LNG (equal to about 24 Mt/yr). Algeria was developing the capacity of its LNG carrier fleet, which included 10 tankers in 2009, with a capacity that ranged from 36,000 to 145,000 cubic meters, and ordered two other tankers with a capacity of 150,000 cubic meters each, which were expected to be received in 2012-13 (Alexander's Gas & Oil Connections, 2009).

In 2009, Sonatrach signed an agreement with SNC Lavalin of Canada worth more than $1 billion to build a natural gas treatment and processing plant at the Rhourde Enouss-Quartizites de Hamra gasfield. The new gas collection and treatment plant would add an additional 3.5 billion cubic meters of natural gas when completed at yearend 2012. Natural gas production from the plant would be used by the Azrew LNG plant, which was being built (Energie & Mines, 2010d, p. 86).

Construction work for the Algerian-European pipeline Medgaz continued throughout 2009. The project aimed to transport natural gas from the Hassi R'Mel field, which was Algeria's largest gasfield, to the reception terminal at Almeria's El Perdigal beach in Spain by way of the Saharan Atlas Mountains through Beni Saf and under the Mediterranean Sea. The 60-centimeter (cm)-diameter, 210-km pipeline would have an initial capacity to transport 8 billion cubic meters per year of natural gas. The first gas to arrive at Almeria, Spain, was delayed until June 2010. The project's shareholders included Sonatrach (36%), Compania Espanola de Petroleos S.A. and Iberdrola S.A. (20% each), and Endesa S.A. and GDF Suez (12% each) (Medgaz S.A., 2009).

The Governments of Algeria, Niger, and Nigeria agreed to build the Trans-Sahara Gas Pipeline (TSGP) that would transport 20 to 30 billion cubic meters per year of natural gas from Nigeria to Europe passing through Niger and Algeria. The cost of the 2,400-km-long pipeline was estimated to be $10 billion and the completion date was set for 2015 (Energie & Mines, 2010a, p. 96).

In June, Sonatrach signed two contracts with the JGC Algeria S.p.A (a subsidiary of JGC Corp. of Japan) and a consortium of ABB S.p.A. of Italy and Sarpi S.p.A. The first contract was an engineering, procurement, and construction (EPC) contract to build gas treatment facilities in the Gassi Touil field, which is located about 280 km south of Hassi Massaoud in eastern Algeria. The project would take 3.5 years to complete at a cost of more than $1 billion. The project included establishing the necessary facilities to collect and process natural gas from 54 wells out of 7 gasfields, constructing lines for discharging the products, and infrastructure support. The second contract was for the flared gas recovery project and rehabilitation of associated gas production center in the Haoud Berkaoui oilfield. It would take 32 months and about $228 million for the two projects to be completed (Sonatrach S.p.A., 2009b).

In June, Sonatrach signed a contract with Petrojet of Egypt and Saipem S.p.A. of Italy to build a new natural gas pipeline named GK3. The 1.2-meter-diameter GK3 would extend for 784 km and connect with Hassi R'Mel in El-Kala. The gas pipeline consisted of three segments. The first one, a 270-km-long segment from Hassi R'Mel in West Laghouat to Chaib in West Biskra, was awarded to Petrojet. The second, a 163-km-long segment between Chaib and Mechtatine in West Batna, was also awarded to Petrojet. The third segment of pipeline, which was 351 km long (Mechtatine-Tamlouk-Skikda-Tarif), was awarded to Saipem. The project would take 2 years to complete and was expected to increase the total capacity to transport gas volumes up to 9 billion cubic meters per year. The natural gas produced from the project would supply natural gas to powerplants at Koudiet Draouch (El Tarf Province) and F'kirina (Oum el Bouaghi Province), the future LNG train in Skikda, and the proposed Galsi gas pipeline to link Algeria with Italy by way of Sardinia from El Kalaa Terminal (Sonatrach S.p.A., 2009c).

In August, BP Algeria announced a plan to invest about $2 billion within the next 5 years to cover the cost of drilling three exploration wells in some prospected gasfields, to capture and store carbon dioxide produced by some gas production operations, and to maintain the production levels at the In Saleh and the In Amnas gasfields. Of these investments, about $800 million was allocated to the In Saleh compression project to maintain a production rate of 9 billion cubic meters per year, and to a similar project in the In Amnas field (Thomson Reuters, 2009c).

Sonatrach and GDF Suez of France jointly started the development of the Touat gasfield, which is located near Adrar City in southwestern Algeria. The project, which included developing 10 fields in an area of 3,000 square kilometers and drilling 49 new wells, was expected to produce about 4.5 billion cubic meters of natural gas annually in 2013. GDF would invest $1.5 billion and own 65% of the license (Maitre, 2009).

In March, Alnaft approved the development plan for the fields of Eastern Takuazet, Western Takuazet, and Northern Tesselit, which are located at Gara Tesselit area (Block 245 South) in the Illizy oil and gas basin east of Algeria, by an alliance of Rosneft-Stroytransgaz Ltd. of Russia and Sonatrach. The alliance was formed in 2001 by Sonatrach (40%) and a joint venture of Rosneft and Stroytransgaz Ltd., both of Russia (60%). Crude oil and gas production from the fields would begin between 2009 and 2012 (Rosneft, 2009).

Petroleum.—Sonatrach was the operator of the Hassi Messaoud oilfield, which produced 350,000 bbl/d in 2009 and accounted for 26% of the country's total crude oil production. Anadarko Petroleum Corp. of the United States and Sontarch jointly operated the Hassi Berkine oilfield, which produced 250,000 bbl/d in 2009 and accounted for about 20% of Algeria's total crude oil production. The Government planned to expand its petroleum refining capacity to 50 Mt/yr by 2014 from the current (2009) 32 Mt/yr. A fourth refinery at Tairet, which is located 300 km southwest of Algiers, which would have a production capacity of 300,000 bbl/d, was expected to commence production in 2014. Naftec S.p.A. (a subsidiary of Sonatrach) announced that it allocated $4 billion to upgrade Algeria's existing oil refineries at Arzew, Hassi Messaoud, and Skikda. Sonatrach and Samsung Engineering and Construction Co. of the Republic of Korea signed a contract to upgrade the Skikda oil refinery. The project would increase the refinery's capacity to 335,000 bbl/d from 300,000 bbl/d at a cost of $2.6 billion and would be expected to be completed in 2012. Sonatrach also awarded a similar contract to Technip for upgrading the 50,000-bbl/d Arzew refinery to raise its capacity to about 22,000 bbl/d (Energie & Mines, 2010c, p. 17; Organization of Arab Petroleum Exporting Countries, 2010, p. 154, 162; U.S. Energy Information Administration, 2010).

In March, Anadarko Petroleum Corp. of the United States, which produced 52,000 bbl/d of oil in Algeria in 2009, and Sonatrach signed an EPC contract—the El Merk project. The engineering works included building a central processing facility for hydrocarbons, an offsite fluid-gathering and gas/water injection system, and other auxiliary structures for shipping crude oil to the Haoud El Hamra by way of the PK0 pipeline and shipping LPG and condensate to Gassi Touil by way of the NH2 and LR1 pipelines. Anadarko acted on behalf of the El Merk field project participants, which included ConocoPhillips Co. of the United States, Eni S.p.A. of Italy, Maersk A/S of Denmark, and Talisman Energy Inc. of Canada. The El Merk project was established to design and construct the surface facilities required for the exploitation of hydrocarbon liquid reserves of six reservoirs in Blocks 208, 405a, and 212 in Algeria. The project would also accommodate the processing of additional fluids from the Sonatrach/Anadarko/Sonatrach/Eni Association existing facilities (Block 403a/404a), which are located about 80 km north of the proposed El Merk development. The first oil from the El Merk oilfield project, which is located 300 km southeast of Hassi Messaoud in the Algerian Sahara, was expected in late 2011. Production capacities from the El Merk oilfields were expected to be 135,000 bbl/d of crude oil, 55,000 bbl/d of condensate, and 30,000 bbl/d of LPG (Anadarko Petroleum Corp., 2009; Sonatrach S.p.A., 2009a).

Gazprom Netherlands B.V. (a 100%-owned subsidiary of OAO Gazprom of Russia), which won the tender to explore for oil and gas in the El Assel areas in December 2008, signed an agreement in January 2009 with Sonatrach to obtain the rights for hydrocarbon exploration and production in the El Assel onshore area, which is located in the Berkine Basin in eastern Algeria and has an estimated 30 Mt of oil reserves (about 180 million barrels). Gazprom's share in the project was 49%, and the remaining 51% share was held by Sonatrach (OAO Gazprom, 2009).

Solar Energy.—The Government had an objective to fulfill 5% of Algeria's electricity consumption from renewable energy sources by 2015. Sonelgaz announced a plan to invest $100 million to build the country's first photovoltaic modules plant as part of an integrated solar-combined-cycle power station at Hassi R'Mel. The powerplant would combine a 25-megawatt (MW) concentrating solar powerplant, covering an area of 180,000 square meters, with a 130-MW combined-cycle gas turbine plant. Sonelgaz contracted the state-owned China Electric Equipment Group (CEEG) to conduct engineering studies for this project. Algeria was a stakeholder of the Desertic Industrial Initiative, which was proposed by the Desertic Foundation and supported by a consortium of 12 companies to generate solar power in North Africa and export it to Europe (Thomson Reuters, 2009a; Energie & Mines, 2010f, p. 39).

Outlook

The Government has been developing the country's crude oil and gas reserves on its own and in partnership with major international oil companies. In the aftermath of the global financial crisis, the Government began to impose some restrictions on the level of ownership that foreign companies could have in Algerian economic and financial enterprises. In addition to sustaining hydrocarbon production, the Government has been trying to diversify the economy by tapping into Algeria's vast nonfuel mineral resources through joint ventures with international mining companies to explore and exploit the country's mineral reserves of metals, such as gold, iron ore, phosphate rock, and zinc. The Government plans to invest more than $150 billion by 2013 to create three million jobs and build one million housing units. Therefore, production of construction and industrial materials, such as cement and steel, is expected to grow considerably to satisfy the increased demand for such commodities (Arab Steel, 2010; U.S. Department of State, 2010).

References Cited

Agence Nationale du Patrimoine Minier, 2009, La lettre de L'ANPM: Agence Nationale du Patrimoine Minier. (Accessed December 6, 2010, at http://www.anpm.gov.dz/Newsletters/index.php?lien=1&lang=_ang.)

Agence Nationale du Patrimoine Minier, 2010, Directory of mining operators: Agence Nationale du Patrimoine Minier. (Accessed December 14, 2010, at http://www.anpm.gov.dz/investisseurs/index.php?lien=6&lang=_ang.)

Alexander's Gas & Oil Connections, 2009, Algeria's Sonatrach plans to boost gas exports by 40%: Alexander's Gas & Oil Connections, August 7. (Accessed October 10, 2009, at http://www.gasandoil.com/goc/company/cna93126.htm.)

Alexander's Gas & Oil Connections, 2010, Algeria to hold new oil and gas bid round this year: Alexander's Gas & Oil Connections, March 9. (Accessed June 3, 2010, at http://www.gasandoil.com/goc/news/nta102052.htm.)

Anadarko Petroleum Corp., 2009, Anadarko to resume exploration in Algeria: Anadarko Petroleum Corp. press release, March 26. (Accessed December 7, 2010, at http://www.anadarko.com/Investor/Pages/NewsReleases/NewsReleases.aspx?release-id=161319.)

Arab Steel, 2010, Algeria—3.5 Mt of new LP capacities by 2014: Arab Steel, June 2. (Accessed April 3, 2009, at http://www.arabsteel.info/total/Long_News_Total_e.asp?ID=688.)

ASEC Cement, 2010, Annual report 2009: ASEC Cement, 33 p. (Accessed December 14, 2010, at http://www.asecement.com/Admin/Attachment/ASEC CEMENT Annual Report 2009.pdf.)

Banque d'Algérie, 2010, Rapport annuel de la Banque d'Algérie 2009: Algiers, Algeria, Banque d'Algérie, 221 p.

BP p.l.c., 2010, BP Statistical review of world energy June 2010: London, United Kingdom, BP p.l.c., 45 p.

Cancor Mines Inc., 2010, Corporate presentation: Cancor Mines Inc., July, 43 p. (Accessed December 5, 2010, at http://www.cancor.ca/pdfs/Cancor_Algeria_June_2010.pdf.)

Energie & Mines, 2010a, Algeria, Nigeria and Niger sign an intergovernmental agreement for the construction of the TSGP: Algiers, Algeria, Ministry of Energy and Mining, January, no. 11, p. 96.

Energie & Mines, 2010b, Almost a thousand miming permits granted: Algiers, Algeria, Ministry of Energy and Mining, January, no. 11, p. 61.

Energie & Mines, 2010c, Signature of a contract between Sonatrach and Samsung: Algiers, Algeria, Ministry of Energy and Mining, January, no. 11, p. 17.

Energie & Mines, 2010d, Sonatrach and Canadian SNC Lavalin sign a contract for over a billion dollars: Algiers, Algeria, Ministry of Energy and Mining, January, no. 11, p. 86.

Energie & Mines, 2010e, Sonatrach is planning a cement works in the commune of El Kalaa: Algiers, Algeria, Ministry of Energy and Mining, January, no. 11, p. 61.

Energie & Mines, 2010f, Sonelgaz invests 100 million dollars in photovoltaic energy: Algiers, Algeria, Ministry of Energy and Mining, January, no. 11, p. 31.

Feytis, Alexandra, 2010, North Africa builds its minerals' future: Industrial Minerals, no. 510, March, p. 54.

Global Cement Magazine, 2010, Algeria takes control of itself: PRo Publications International Ltd., February, p. 48.

GMA Resources Plc, 2010, Annual report and financial statements for the year ended 31 December 2009: London, United Kingdom, GMA Resources Plc, 50 p.

International Finance Corp., 2009, IFC invests $24 million in Algeria cement plant—Plant expected to create 600 direct, 800 indirect jobs: International Finance Corp. press release, July 6, 2 p. (Accessed December 14, 2010, at http://www.ifc.org/ifcext/media.nsf/content/SelectedPressRelease?OpenDocument&UNID=D1A773FF173ED2F9852575EB004C7430.)

Lafarge S.A., 2010, 2009 Annual report: Paris, France, Lafarge S.A., 263 p.

Maitre, Marie, 2009, Algeria, GDF Suez to develop Touat gas: Thomson Reuters, U.S. edition, June 10. (Accessed December 14, 2010, at http://www.reuters.com/article/idUSL760286620090707.)

Medgaz S.A., 2009, Medgaz announces completion of construction of deepwater pipeline: Madrid, Spain, Medgaz S.A. press release, December 23, p. 1.
Mining Journal, 2009, Algeria: London, United Kingdom, Mining Journal Special Publication, October 1, 12 p.
Ministère de l'Énergie et des Mines, 2009, Bilan activités minier année 2008: Ministère de l'Énergie et des Mines, p. 116. (Accessed October 12, 2010, at http://www.mem-algeria.org/fr/statistiques/Bilan_Activites_Minieres_2008_edition_2009.pdf.)
Ministère de l'Énergie et des Mines, 2010, Bilan activités minier 2009: Ministère de l'Énergie et des Mines, p. 104. (Accessed March 12, 2011, at http://www.mem-algeria.org/fr/statistiques/Bilan_Activites_Minieres_2009_edition_2010.pdf.)
Ministère de l'Énergie et des Mines, 2010, Bilan des Réalisations du Secteur de l'Energie et des Mines 2009: Ministère de l'Énergie et des Mines, 82 p. (Accessed Janury 31, 2011, at http://www.mem-algeria.org/fr/statistiques/Bilan_realisations_E&M_2009_edition_2010.pdf.)
Nield, Richard, 2010, Closing out international business: MEED, November 19, v. 54, no. 47.
OAO Gazprom, 2009, Gazprom obtains rights for hydrocarbon exploration and production in Algerian El Assel area: Gazprom, January 20. (Accessed December 13, 2010, at http://www.gazprom.com/press/news/2009/january/article67742/.)
Organization of Arab Petroleum Exporting Countries, 2009: Annual statistical report 2009: Safat, Kuwait, Organization of Arab Petroleum Exporting Countries, 279 p.
Organization of Arab Petroleum Exporting Countries, 2010, The secretary general 36th annual report: Safat, Kuwait, Organization of Arab Petroleum Exporting Countries, 279 p.
Rosneft, 2009, Plans for development 245-South Block in Algeria are approved: Rosneft, March 11. (Accessed December 7, 2010, at http://www.rosneft.com/news/pressrelease/11032009.html.)
Société des Kaolins d'Algérie S.p.A, 2010, Production units: Société des Kaolins d'Algérie S.p.A. (Accessed December 14, 2010, at http://www.soalka.com/web/en/production-units.)
Sonatrach S.p.A., 2009a, Sonatrach and Anadarko sign El-Merk project EPC contract: Sonatrach S.p.A. press release, March 11. (Accessed December 6, 2010, at http://www.sonatrach-dz.com/NEW/V_English/com-press-18.html.)
Sonatrach S.p.A., 2009b, Sonatrach-JGC Corporation/JGC Algeria et ABB S.p.A/Sarpi S.p.A: Sonatrach S.p.A. press release, June 6. (Accessed December 6, 2010, at http://www.sonatrach-dz.com/NEW/com-press-25.html.)
Sonatrach S.p.A., 2009c, Sonatrach-Petrojet/Saïpem Spa: Sonatrach S.p.A. press release, June 11, 1 p. (Accessed December 6, 2010, at http://www.sonatrach-dz.com/NEW/com-press-26.html.)
Sonatrach S.p.A., 2010, Sonatrach Group: Sonatrach S.p.A. (Accessed December 6, 2010, at http://www.sonatrach-dz.com/NEW/V_English/le-groupe.html.)
Suhail Bahwan Group LLC, 2010, Algeria Fertilize JV: Suhail Bahwan Group, undated. (Accessed December 7, 2010, at http://www.suhailbahwangroup.com/index.php?option=com_content&view=category&layout=blog&id=47&Itemid=49&lang=en.)
Terramin Australia Ltd., 2010, Oued Amizour fast facts: Adelaide, Australia, Terramin Australia Ltd. (Accessed November 7, 2010, at http://www.terramin.com.au/projects/oued/default.aspx.)
Thomson Reuters, 2009a, Algeria says to open solar panel factory: Thomson Reuters, U.S. edition, June 10. (Accessed Dcecmber 14, 2010, at http://www.reuters.com/article/idUSTRE5AM1MO20091123.)
Thomson Reuters, 2009b, ArcelorMittal, Algerian firm to invest $110 mln: Thomson Reuters, U.S. edition, June 10. (Accessed Dcecmber 14, 2010, at http://www.reuters.com/article/idUSAHM04001320090610.)
Thomson Reuters, 2009c, BP to invest $2 billion in Algeria over 5 years: Thomson Reuters, U.S. edition, August 3. Accessed December 13, 2010, at http://www.reuters.com/article/idUSTRE5722GJ20090803.)
United Nations Statistics Division, 2010, Algeria: United Nations Comtrade Database. (Accessed December 4, 2010, at http://comtrade.un.org/pb/CountryPagesNew.aspx?y=2009.)
U.S. Department of State, 2011, Algeria: U.S. Department of State background note, February 17. (Accessed February 23, 2011, at http://www.state.gov/r/pa/ei/bgn/8005.htm.)
U.S. Energy Information Administration, 2010, Algeria: U.S. Energy Information Administration country analysis brief, June. (Accessed December 5, 2010, at http://www.eia.doe.gov/cabs/Algeria/Background.html.)
World Cement, 2010, Lessons learned in Zahana: World Cement, v. 41, no. 2, February 10.

TABLE 1

ALGERIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons unless otherwise specified)

Commodity[2, 3]		2005	2006	2007	2008	2009
METALS						
Gold metal	kilograms	637	377	236	647 r	998
Iron and steel:						
Iron ore, gross weight		1,579	2,340	1,982	2,077	1,307
Metal:						
Pig iron		952	1,093	1,193	690	493
Steel, crude		1,007	1,158	1,278	646	458
Lead, Metal, refined[e]		5	5	--	--	--
Mercury	kilograms	276	--	--	--	--
Silver metal	do.	110	63	46	114	200
Zinc:						
Concentrate, Zn content	metric tons	4,463	572	--	--	--
Metal, smelter output[e]		30	30	30	30	30
INDUSTRIAL MINERALS						
Barite, crude		53	65	63	60	38
Cement, hydraulic		12,800	14,702	15,886	17,397	18,732
Calcite		193	191	206	254	221
Clays:						
Bentonite		53	27	33	31	32
Common		7,383	7,308	9,529	10,973	10,973
Dolomite (Industrial)		5	8	1	2	2
Fuller's earth		1	20	30	23	23
Kaolin		34	33	107	51	88
Diatomite	metric tons	1,814	1,800	1,902	1,668	1,847
Feldspar		34	66	83	116	131
Gypsum[4]		635	1,033	1,198	1,672	1,757
Lime, hydraulic		32 r	28 r	46 r	64	65
Nitrogen, N content of ammonia		550	470	500	500	500
Phosphate rock:						
Gross weight		878	1,510	1,800	1,805	1,017
P_2O_5 content[e]		260	450	536	542	305
Pozzolan		494	433	570	491	328
Salt, brine and sea salt		197	260	183	202	269
Sand and gravel:						
Construction sand	thousand cubic meters	1,599	2,143	2,553	3,044	3,372
Silica sand		203	48	519	276 r	134
Granulates:						
Aggregates, crushed stone, and gravel	thousand cubic meters	19,050	21,220	27,230	41,604	55,294
Crushed sand	cubic meters	2,210 r	3,380	5,590	10,470	13,360
Stone:						
Aragonite	do.	1,400	NA	206	254	254
Quartzite		13	6	35	136	136
Marble:						
Blocks	thousand cubic meters	22	16	11	11	9
Crushed		154	148	170	126	148
Slabs					63	58
Miscellaneous types of dressed stone	thousand cubic meters	5	4	12	10	10
Rhyolite	cubic meters	2,960	3,200	3,430	6,100	6,100
Tuff	thousand cubic meters	755	951	1,729	12,209	7,525
Sulfur, S content of sulfuric acid[e]		22	22	22	22	22
MINERAL FUELS AND RELATED MATERIALS						
Coke		398	423	419	315	315
Gas, natural:						
Gross	million cubic meters	193,100	194,800	198,200	201,200	196,900
Dry[5]	do.	88,200	84,500	84,800	85,800 r	81,400
Helium, liquid	do.	17	15	20	20	20
Methanol	do.	94	130	118	130	130
Natural gas plant liquids	thousand 42-gallon barrels	416,000	409,000	423,000	442,000	442,000

See footnotes at end of table.

TABLE 1—Continued

ALGERIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Thousand metric tons unless otherwise specified)

Commodity[2, 3]		2005	2006	2007	2008	2009
MINERAL FUELS AND RELATED MATERIALS—Continued						
Petroleum:[e]						
Crude, including condensate	thousand 42-gallon barrels	735,000 r	731,000 r	736,000 r	727,000 r	661,000
Refinery products:						
Liquefied petroleum gas	do.	6,000	6,000	6,000	6,000	6,000
Gasoline	do.	17,000	19,000	17,000	22,000	22,000
Naphtha	do.	26,000	26,000	28,000	28,000	39,000
Kerosene and jet fuel	do.	8,000	8,000	8,000	8,000	8,000
Distillate fuel oil	do.	47,000 r	50,000 r	52,000 r	55,000 r	54,000
Lubricants	do.	1,000	1,000	1,000	1,000	1,000
Residual fuel oil	do.	34,000	36,000	37,000	39,000	36,000
Other	do.	7,000 r	5,000 r	4,000 r	1,000 r	5,000
Total	do.	146,000 r	151,000 r	153,000 r	160,000 r	171,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto. NA Not available. -- Zero.

[1]Table includes data available through December 31, 2010.

[2]In addition to the commodities listed, secondary aluminum, secondary lead, and secondary copper may be produced in small quantities; crude construction materials for local consumption, and fertilizer, perlite, and urea are produced, but available information is inadequate to make estimates of output.

[3]In addition to the commodities listed, about 700 metric tons per year (t/yr) of caustic soda is estimated to have been produced.

[4]Includes about 50,000 t/yr of plaster.

[5]Excludes gas used in flaring, reinjection, transmission losses, and venting.

TABLE 2
ALGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Ammonia		Le Groupe Asmidal	Alzofert plant, Arzew, Oran Province	660,000
Do.		do.	Fertial plant, Annaba Province	330,000
Barite		Société des Mines de Baryte d'Algérie (SOMIBAR) S.p.A. [Entreprise Nationale es Produits Miniers Non Ferreux et des Substances Utiles, S.p.A (ENOF)]	Mizab Mine. Khenchela Province	35,000
Do.		do.	Boucaid Mine, Tissemsilt Provence	20,000
Do.		do.	Amin Mimoun Mine, Khenchella Province	NA
Do.		Société des Barytes (SOBAR SARL)	Chaabet Abou Fares, Tipaza Province	7,000
Bentonite		Société des Bentonites d'Algérie S.p.A. (BENTAL), [a subsidiary of Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A. (ENOF)]	Hammam Boughrara, Tlemcen Province	18,000
Do.		do.	M’zila, Mostaganem Province	15,000
Do.		do.	Mahgnia Mine, Tlemcen Province	NA
Cement:				
Portland		Algerian Cement Co., (ACC) (Lafarge S.A., 100%)	M'Sila Province	5,000,000
Do.		Ciment Blanc d'Algerie S.p.A. (Lafarge S.A., 100%)	Oggaz, Mascara Province	2,500,000
Do.		Entreprise des Ciments et Dérivés d'Ech—Cheliff	Chlef Province	2,000,000
Do.		Société des Ciments de la Mitidja (Entreprise des Ciments et Dérivés du Centre, 65%, and Lafarge S.A, 35%)	Meftah, Blida Province	800,000
Do.		Société des Ciments de Sour El Ghozlane (Entreprise des Ciments et Dérivés du Centre, 65%, and Buzzi Unicem S.p.A., 35%)	Sour El Ghozlane, Bouira Province	1,000,000
Do.		Société des Ciments Zahana (Entreprise des Ciments et Dérivés de l'Ouest, 65%, and ASEC Cement, 35%)	Zahana, Oran Province	1,200,000
Do.		Société des Ciments Beni Saf (Entreprise des Ciments et Dérivés de l'Ouest, 90%, and Pharoan Group, 10%)	Beni Saf, Tlemcen Province	1,000,000
Do.		Société des Ciments Saïda (Entreprise des Ciments et Dérivés de l'Ouest)	Hassasna, Ain Temouchent Province	500,000
Do.		Société des Ciments d'Aïn-Touta (Entreprise des Ciments et Dérivés de l'Est)	Ain Touta	1,000,000
Do.		Société des Ciments d'Aïn-Kébira (Entreprise des Ciments et Dérivés de l'Est)	Ain-Kebira, Setif Province	1,000,000
Do.		Société des Ciments de Hamma-Bouziane (Entreprise des Ciments et Dérivés de l'Est)	Hamma-Bouziane, Constantine Province	1,000,000
Do.		Société des Ciments de Hadjar Soud (Entreprise des Ciments et Dérivés de l'Est)	Bekkouche, Skikda Province	900,000
Do.		Tabessa Cement Company S.p.A.	Tebessa Province	525,000
Do.		Société des Ciments de l'Algérois (Entreprise des Ciments et Dérivés du Centre)	Rais-Hamidou, Algiers Province	368,000
White cement		Ciment Blanc d'Algerie S.p.A. (Lafarge S.A., 100%)	Oggaz, Mascara Province	550,000
Coke		ArcelorMittal Annaba S.p.A. (ArcelorMittal, 70%, and Groupe Industriel Sider, 30%)	El Hadjar, Annaba Province	1,200,000
Copper, cathode		Société Algérienne du Zinc (Entreprise Nationale de Métallurgie et de Transformation des Métaux Non Ferreux, S.p.A., 100%)	Ghazaouet, Tlemcen Province	30,000
Diatomite		Diatoms Company of Algeria S.p.A. [Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A. (ENOF)]	Tahalait Quarry, Mascara Province	2,000
Dolomite		Algerian Agreggates S.p.A. (ALGRAN)	Djebel Taioualet, Oum El Bouaghi Province	8,000
Feldspar		Tufeal SARL	Bouaita	83,000
Fertilizers:				
Nitrogenous, ammonium nitrate		Le Groupe Asmidal	Alzofert plant, Arzew	495,000
Do.		do.	Fertial plant, Annaba	330,000
Do.		do.	do.	240,000
Do.		Fertalge Industries S.p.A.	Arzew, Oran Province	360,000
Phosphatic[1]		do.	Fertial plant, Annaba Province	800,000
Gold	kilograms	Entreprise d'Exploitation des Mines d'Or S.p.A. (ENOR) (GMA Resources Plc, 52%, and Sonatrach S.p.A., 48%)	Amesmessa Gold Mine, Tamanrasset Province	1,000

See footnotes at end of table.

TABLE 2—Continued
ALGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Gypsum		32 private sector units and 13 public sectors units	Oran, O. El Bouaghi, Chlef, Ghardaia Biskra, Mascara, Bouira, M'silla, Medbea, Batn, Setif, Bejaia, Milla, Tiaret	1,700,000
Helium	million cubic meters	Helios S.p.A. (Sonatrach Valorisation Hydrocarbonés, 51%, and Helap S.p.A., 49%)	GI2Z complex, Arzew	17
Do.	do.	Helison Production S.p.A. (Linde AG, 50%, and Sonatrach S.p.A., 50%)	GL1K complex. Skikda	17
Iron ore		ArcelorMittal Annaba S.p.A.	Ouenza Mine	1,200,000
Do.		do.	Boukhadra Mine	525,000
Do.		Société des Mines de Fer d'Algérie S.p.A. (SOMIFER)	Khanguet Mine, Tabessa Province	50,000
Do.		do.	Anini Mine, Setif Province	170,000
Do.		do.	Rouina Mine, Ain Defla Province	140,000
Kaolin		Société des Kaolins d'Algérie (SOALKA) S.p.A. [Federal White Cement, 63%, and Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A. (ENOF), 37%]	Tamazert Mine, El Milia Province	20,000
Do.		SARL Faïenceries Algériennes	Adjarda, Chekfa	95,000
Lime		SODEPAC (ERCO Group)	Hassasna	93,000
Do.		Société de Chaux de l'Ouest	Oran	65,000
Do.		Unité Chaux de Chettaba (Société des Produits Dérivés de l'Est, 100%)	Chettaba	11,000
Limestone		Mittal Steel Annaba SPA	Oued N'hal	250,000
Marble:				
Blocks	cubic meters	Entreprise Nationale du Marbre S.p.A.	Oran and Skikda Province	10,460
Do.	do.	SMS Bouhouita SARL	Skikda Province	160
Crushed		Commercialisation du Marbre et de Dérivés de Marbre S.p.A. and Entreprise Nationale du Marbre S.p.A.	Chlef, Oran, Skikda, Tizi Ouzou, and Tlemcen Provinces	17,000
Methanol		Société Nationale de Pétrochimie S.p.A. (Sonatrach S.p.A 100% owned subsidiary, through Holding Raffinage et Chimie des Hydrocarbures)	Methanol plant, Arzew	113,000
Natural gas:				
Crude	million cubic meters	Sonatrach S.p.A.	Numerous gasfields, including Adrar, Hamra, Hassi R'Mel, and Sbaa	12,000
Do.	do.	do.	Numerous gasfields	33,000
Liquefied	do.	do.	GL2Z complex, Bethioua	18,000 [2]
Do.	do.	do.	GL1Z complex, Bethioua	16,000 [2]
Do.	do.	do.	GL1K complex, Skikda	6,000 [2]
Do.	do.	do.	GL4Z complex, Arzew	2,000 [2]
Petroleum:				
Crude	42-gallon barrels per day	do.	About 50 oilfields, including Acheb West, Amassak/Tin-Yaguene, Draa Tamra, Edjeleh, El Borma, El Gassi, Gassi-Touil East, Guellala, Hassi Messaoud North and South, Ohanet North, Rhourde El Baguel, Tin-Fouye, and Zarzaitine	1,700,000
Refined	do.	Société Nationale de Raffinage de Pétrole-NAFTEC S.p.A.	RA1K refinery, Skikda	352,700
Do.	do.	do.	RHM refinery, Hassi Messaoud	163,500
Do.	do.	do.	RA1G refinery, El Harrach	63,400
Do.	do.	do.	RA1Z refinery, Arzew	58,500
Do.	do.	do.	Adrar	14,400
Phosphate rock		Société des Mines de Phosphates S.p.A. (SOMIPHOS) (a subsidiary of FERPHOS Group S.p.A)	Djebel Onk (Djemidjema and Kef Essenoun), Tebessa Province	2,000,000
Pozzolan		Société des Pouzzolanes et des Matériaux de Construction S.p.A. (SPMC)	Rockbet El Hassi	452,000
Do.		Société des Ciments Béni Saf (ERCO group)	Beni Saf	11,000
Do.		Entreprise Nationale du Fer et du Phosphate	do.	600,000
Salt, crude:				
Rock		Enterprise Nationale d'Exploitation des Carrières de Sels Industriels et Domestiques et Commercialisation des Sels (ENASEL) S.p.A.	El Outaya, Biskra Province	100,000
Solar		Several private companies	Bethioua, Oran; El Meghaier, El Oued, Guergour Lamri, Setif Ouled Zouai, Oum el Bouaghi, and Sidi Bouziane, Relizane	100,000

See footnotes at end of table.

TABLE 2—Continued
ALGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2009

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Steel:				
Crude		ArcelorMittal Annaba S.p.A. (ArcelorMittal, 70%, and and Groupe Industriel Sider, 30%)	Blast furnaces at El Hadjar, Annaba	2,100,000
Do.		ArcelorMittal Annaba S.p.A. (ArcelorMittal, 70%, and and Groupe Industriel Sider, 30%)	Electric arc furnace at El Hadjar, Annaba	400,000
Do.		do.	Hot-strip mill at El Hadjar, Annaba Province	1,800,000
Processed		do.	Cold-rolling mill at El Hadjar, Annaba Province	1,050,000
Do.		do.	Bar and wire rod mills at El Hadjar, Annaba	850,000
Do.		do.	Seamless tube mill at El Hadjar, Annaba Province	700,000
Do.		Entreprise Nationale de Tubes et de Transformation de Produits Plats (Groupe Industriel Sider, 100%)	Welded tube plant at Ghardaia	128,000
Do.		Société Algérienne de Fabrication Tubes en Spirale (Groupe Industriel Sider, 100%)	Welded tube plant at El Hadjar, Annaba Province	70,000
Stone		Société Algérienne des Granulats S.p.A. (ALGRAN) [Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A. (ENOF)]	Aggregate quarries at Adrad Oufarnou, Arzew, Ghedir, Gustar, Keddara, Oued Fodda, Teioueit, and Timezrit	3,000,000
Do.		Société des Diatomites d'Algérie S.p.A. [Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A. (ENOF)]	Oggaz limestone quarry, near Sig	12,500
Do.		Société des Bentonites d'Algérie S.p.A. (BENTAL) [Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A. (ENOF)]	Limestone quarries near Beni Saf and M'Said	12,000
Sulfuric acid		Société Algérienne du Zinc (Enterprise Nationale de Métallurgie et de Transformation des Métaux Non Ferreux, 100%)	Ghazaouet	70,000
Tuff	cubic meters	CTIC-CRCC Group (China)	Annaba, Boumerdes, Sidi Bel Abbes Mustganem, Mascara, Oran, Relizane	10,300,000
Do.		6 public sector units and 59 private units	Ain Temouhent, Tipaza, Tiaret	2,000,000
Urea		Fertalge Industries S.p.A.	Arzew, Oran Province	400,000

Do., do. Ditto. NA Not available.

[1]Capacity includes 500,000 to 600,000 metric tons per year (t/yr) of compound fertilizer [nitrogen, phosphorus, and potassium (NPK), or phosphorus and potassium (PK)], or triple superphosphate (TSP), and 240,000 t/yr of single superphosphate (SSP).

[2]One cubic meter of liquefied natural gas is equivalent to 584 cubic meters of natural gas. Natural-gas-equivalent capacities (in billions of cubic meters) were GL2—10.3, GL1Z—10.2, GL1K—4, and GL3Z—1.1.