



2012 Minerals Yearbook

ALGERIA

THE MINERAL INDUSTRY OF ALGERIA

By Mowafa Taib

Algeria was a significant producer of crude oil, helium, and natural gas but a minor supplier of metals and industrial minerals to the world in 2012. The country ranked first and third in Africa in natural gas and crude oil output, respectively, and third in the world in helium output after the United States and Canada. It was the world's fourth-ranked exporter of natural gas in terms of volume. Algeria accounted for 2.51% and 1.60% of the world's natural gas and crude oil output, respectively. The country held 4.5 trillion cubic meters of proven natural gas reserves, which was 2.34% of the world's total proven reserves, and 12.2 billion barrels of proven crude oil reserves, which was about 1.0% of the world's total reserves. Algeria's proven reserves of natural gas were ranked second in volume in Africa after Nigeria and fifth in the Middle East after Iran, Qatar, Saudi Arabia, and the United Arab Emirates (BP p.l.c., 2013, p. 6, 8, 20, 22; Organization of Arab Petroleum Exporting Countries, 2013, p. 12, 16, 32, 36).

Algeria produced a wide variety of mineral commodities, including barite, bentonite and other clays, cement, crushed stone, diatomite, dolomite, gold, gravel, gypsum, helium, iron ore, lime, limestone, marble, nitrogen fertilizer, phosphate rock, pozzolan, quartzite, salt, sand, silica sand, silver, and steel. The country also held other minable mineral resources that were not being produced in 2012, including diamond and other gemstones, fluorite, niobium, perlite, shale gas, rubidium, tantalum, tin, and uranium (table 1; Ministère de l'Énergie et des Mines, 2013b).

Minerals in the National Economy

Algeria's gross domestic product (GDP) increased in real terms at a rate of 2.5% in 2012 compared with a rate of 2.4% in 2011. The value of the hydrocarbon sector, which accounted for 32.9% of the GDP in 2012 compared with 36.1% of the GDP in 2011, decreased by 0.6% compared with that of 2011. The decrease in value was the result of decreased production volumes for crude oil, condensate, and liquefied petroleum gas (LPG), and to slightly lower crude oil prices, which for Algeria decreased to \$111.49 per barrel in 2012 from \$112.92 per barrel in 2011 (International Monetary Fund, 2013, p. 6; Organization of Arab Petroleum Exporting Countries, 2013, p. 110).

In 2012, the flow of foreign direct investment (FDI) into Algeria's mineral sector decreased by 27% to \$2.3 billion from \$3.1 billion in 2011. The FDI, which was used mainly to fund hydrocarbon projects, came from Europe (74%), Asia (about 15%), North America (10%), and other regions (1%). Italy, which invested \$584 million in Algeria in 2012, was the leading country in terms of investment followed by the United Kingdom, \$473 million; Norway, \$377 million; and the United States, \$208 million (Ministère de l'Énergie et des Mines, 2013a, p. 57–58).

Government Policies and Programs

In 2012, the Government continued its “golden share” policy (initiated in 2010) concerning foreign investment in the country. The policy gives the Government a majority ownership (a minimum 51% share) in the local operations of new companies operating in Algeria, as well as a seat on the company's board of directors, but not voting rights. Consequently, the maximum foreign ownership share of any new company operating in Algeria, including in the mineral industry, would be 49%.

To increase hydrocarbon production, which had been declining in recent years, the Government attempted to attract participation of international oil companies (IOCs) by introducing amendments to the hydrocarbon law. Under the revised law, taxes would be assessed on profits rather than on revenue, which was a change intended to make exploration on smaller fields more viable. The Government had been promoting economic diversity by planning major mineral industry projects, such as aluminum and steel mills and ammonia and other fertilizer plants. An important challenge for the Government was to be able to produce sufficient quantities of natural gas to maintain current export levels of natural gas while still being able to meet the increased demand for natural gas for electric power generation required for the new projects as well as for other types of domestic consumption (Niell, 2010, 2013).

Production

Notable increases in mineral commodity production in 2012 compared with that of 2011 included the increase in sulfuric acid output, by 686%; feldspar, by 78%; pozzolan, by 48%; ammonia, by 20%; iron ore, by 18%; limestone, by 11%; and helium, by 9%. Notable decreases in mineral commodity production in 2012 compared with that of 2011 included the decrease in the output of silver, by 42%; residual fuel oil, by 32%; gold, by 28%; salt, by 20%; and LPG, by 10%. Production of crude oil and condensate, methanol, natural gas plant liquids (NGL), and phosphate rock decreased slightly in 2012 compared with production in 2011 (table 1).

Structure of the Mineral Industry

The Ministère de l'Énergie et des Mines [Ministry of Energy and Mining] (MEM), is responsible for regulating the activities of the mineral industry through its numerous agencies. Agence Nationale du Patrimoine Minier [Algerian Mining Authority] (ANPM) and Agence National de la Géologie et du Contrôle Minier [National Agency of Geology and Mining Control] (ANGCM) were created by Mining law No. 01–10 of July 3, 2001 (Mining Law). ANPM is responsible for awarding mining licenses; in 2012, it awarded a total of 206 permits (new, renewal, substitution, and transfer permits), including

2 for prospection, 52 for exploration, and 152 for exploitation of mineral commodities (Agence Nationale du Patrimoine Minier, 2013; Ministère de l'Énergie et des Mines, 2013a, p. 44–45).

Office National de la Recherche Géologique et Minière [National Office of Geologic and Mining Research] (ORGM), which was created by Decree No. 92–31 of January 20, 1992, was a partner with almost all the mining companies involved in exploration, exploitation, and prospecting activities in the country. ORGM employed 2,200 people and provided geologic, geophysical, and geochemical surveys as well as chemical assays and drilling services. The workforce in the energy and mining sector in Algeria increased by 2% and added 4,598 employees in 2012. Of the 266,645 employees in the sector, 196,297 were permanent and 70,348 were temporary. In 2012, employment in the state-owned mining companies increased by 2% to 29,409 people from 28,953 in 2011. The number of the employees in private mining companies increased slightly to 20,427 from 20,406 in 2011 (Ministère de l'Énergie et des Mines, 2013a, p. 45, 54; World Investment News, 2013).

Ordinance No. 06–10 of July 29, 2006, which regulates natural gas and petroleum operations, is a supplement to law No. 05–07 of April 28, 2005. The law grants Sonatrach S.p.A. 51% ownership of all hydrocarbon projects in the country. Environmental laws applicable to the mineral industry include 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, amends and supplements the Mining Law. The Mining Law guarantees parity for all investors; allows separate surface and underground mine tenure; ensures that disputes can be appealed to international arbitrators; gives incentives for importing equipment for mining operations; and provides custom-tariff exemptions and rebates on mineral extraction royalties.

The Algerian hydrocarbon sector operations were dominated by Sonatrach and several IOCs working in Algeria under production-sharing agreements. In 2012, Sonatrach owned 80% of the country's hydrocarbon production assets and the remaining 20% was distributed among BP Algeria of the United Kingdom, Compañía Española de Petróleos, S.A.U. (Cepsa) of Spain, and Eni Algeria Production BV of Italy (3% each); Repsol of Spain, Statoil of Norway, and Total Algeria S.p.A. of France (2% each); Anadarko Petroleum Corp. of the United States (1%); and others (4%) (U.S. Energy Information Administration, 2013).

Sonatrach, which was the largest oil company in Africa in terms of the volume of hydrocarbon production, was a state-owned company that carried out diverse operations in mining and the extraction of crude oil and natural gas. Sonatrach was responsible for the exploration, production, pipeline transportation, and marketing of hydrocarbons and their byproducts. Sonatrach had 154 affiliates and subsidiaries, 105 of which were located in Algeria and 49 of which were located in such countries as Argentina, Libya, Mali, Peru, Spain, and Tunisia. The main subsidiaries in Algeria included Entreprise Nationale de Commercialisation et de Distribution des Produits Pétroliers S.p.A. (Naftal), Helios S.p.A., L'Entreprise Nationale de Canalisations S.p.A. (ENAC), Société Nationale de Pétrochimie S.p.A., and Société Nationale de Raffinage de Pétrole S.p.A. (NAFTEC) (table 2; Sonatrach S.p.A., 2012).

Société Nationale de l'Électricité et du Gaz S.p.A. [National Society for Electricity and Gas] (Sonelgaz) was the state-owned entity responsible for the construction, distribution, generation, and transportation of electricity as well as the distribution and transportation of natural gas in Algeria. The Sonelgaz Group of companies had 36 domestic subsidiaries (Sonelgaz Group, 2013).

Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles S.p.A. (ENOF) was a state-owned company that operated 18 mines and quarries and produced nonferrous metal mineral commodities through six subsidiaries. These subsidiaries were La Société des Feldspaths d'Algérie (SOFELD), Société Algérienne des Granulats S.p.A. (ALGRAN), Société des Bentonites d'Algérie S.p.A. (BENTAL), Société des Diatomites d'Algérie (DIATAL), Société des Kaolins d'Algérie S.p.A. (SOALKA), and Société des Mines de Baryte d'Algérie S.p.A. (SOMIBAR) (table 2).

SOMIBAR produced barite from the Amin Mimoun Mine in Khenchella Province, the Boucaïd Mine in Tissemsilt Province, and the Mellal Mine in Tlemcen Province. BENTAL produced bentonite from the Maghnia Mine in Tlemcen Province and the M'Zila deposit in Mostagnem Province. ALGRAN produced aggregates and limestone from nine quarries spread throughout the country. Société des Kaolins d'Algérie S.p.A. (SOALKA), was a joint venture of Federal White Cement Ltd. of Canada (63% interest) and ENOF (37% interest). SOALKA explored for and produced kaolin for the ceramic industry. It was also exploring for clay, copper, diamond, lead, limestone for cement, and zinc. Entreprise d'Exploitation des Mines d'Or S.p.A. (ENOR), which was a joint venture of GMA Resources p.l.c. of the United Kingdom (until the end of 2012) and Sonatrach S.p.A., was the sole gold producer in the country from the Amesmessia Mine in southern Algeria (GMA Resources p.l.c., 2012; Société des Kaolins d'Algérie S.p.A., 2013).

The Government-owned Entreprise Nationale de Fer et du Phosphate (Ferphos Group S.p.A.) managed Algeria's production of iron ore, 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 d'Algérie S.p.A. (SOMIFER), which was the iron ore mining company; and Société des Pouzzolanes et des Matériaux de Construction S.p.A. (SPMC), which produced pozzolan and other building materials (Agence Nationale du Patrimoine Minier, 2013).

ArcelorMittal Tebessa S.p.A., which was a joint venture of ArcelorMittal (70% interest) and Ferphos (30% interest), operated the Boukhadra and the Ouenza iron ore mines in Tebessa Province. ArcelorMittal Annaba S.p.A., which was a joint venture of ArcelorMittal (70% interest) and Groupe Industriel Sider (30% interest), operated the only integrated steel plant in Algeria. The plant was located at El-Hadjjar. Western Mediterranean Zinc S.p.A. (WMZ) was a joint venture of Terramin Australia Ltd. (65% interest), state-owned ENOF (32.5% interest), and ORGM (2.5% interest) formed to develop the Tala Hamza lead and zinc project on the Oued Amizour permit, which is located 15 kilometers (km) southwest of the Port of Bejaia in northeastern Algeria (table 2; Terramin Australia Ltd., 2013).

Mineral Trade

In 2012, the value of hydrocarbon exports, which accounted for 98% of the country's total exports, decreased to about \$70.6 billion from about \$71.7 billion in 2011. The value of crude oil exports accounted for 39.3% of Algeria's total hydrocarbon export value, followed by natural gas, 22.4%; refined petroleum products, 15.7%; liquefied natural gas (LNG), 9.2%; condensate, 6.7%; and LPG, 6.8%. The volume of hydrocarbon exports amounted to 250.4 million barrels (Mbbbl) of crude oil, 97.6 Mbbbl of refined petroleum products, 53.1 Mbbbl of condensate, 45.6 Mbbbl of LPG, 37.3 billion cubic meters of natural gas, and 24.2 million cubic meters of LNG. Other nonfuel mineral exports included ammonia (\$421 million), phosphate rock (\$153 million), helium and hydrogen (\$26 million combined), and zinc (\$15 million) (Banque d'Algérie, 2013, p. 23, 1190; United Nations Statistics Division, 2013).

Italy was Algeria's leading import partner and accounted for 16.0% of the value of total Algerian exports followed by the United States (15.0%), Spain (10.9%), France (8.5%), and the Netherlands (7.3%). The value of U.S. exports to Algeria decreased by 15% to about \$1.36 billion in 2012 from about \$1.6 billion in 2011. The value of U.S. imports from Algeria also decreased by 32% to about \$10.0 billion from \$14.6 billion in 2011. The value of U.S. crude oil imports from Algeria decreased to \$4.7 billion from \$7.3 billion in 2011; fuel oil, to about \$4.0 billion from \$4.1 billion in 2011; and liquefied petroleum gases, to \$1.2 billion from \$2.2 billion in 2011 (United Nations Statistics Division, 2013; U.S. Census Bureau, 2013).

In 2012, Algeria's total imports increased in value to \$51.6 billion from \$46.9 billion in 2011. The value of the country's import of iron and steel was \$3.4 billion (about 7% of total imports), which included 5.0 million metric tons (Mt) of semifinished and finished steel products compared with about 4.0 Mt in 2011 (Banque d'Algérie, 2013, p. 172; United Nations Statistics Division, 2013; World Steel Association, 2013, p. 55).

Commodity Review

Metals

Copper, Lead, and Zinc.—The development of the Tala Hamza lead and zinc project was stalled because of a disagreement between the Government and Terramin on technical aspects related to the proposed mining method. The project was located in the Oued Amizour exploration permit, which covers 125 square kilometers (km²) near the Port of Bejaia in northeastern Algeria. As of yearend 2012, the total resources (measured, indicated, and inferred) of the Tala Hamza deposit were 68.6 Mt of ore at grades of 1.2% lead and 4.6% zinc at a cutoff grade of 2.5% zinc. The results of the definitive feasibility study, which was completed by Terramin in 2010, indicated that a project could be developed on the Tala Hamza deposit using block cave mining and conventional processing. The project would have the capacity to produce 2 Mt/yr of ore, which would be processed to produce 100,000 metric tons per year (t/yr) of zinc in concentrate and 25,000 t/yr of lead in concentrate in the

first phase. In the second phase, production would increase to 4 Mt/yr of ore to produce 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 (Terramin Australia Ltd., 2010, 2013).

In 2012, Celamin Holdings N.L. of Australia, which had signed an agreement with Groupe Faïenceries Algériennes (FA) to develop the Oued El Kebir base-metals project in 2011, withdrew from the project. The company did not give a reason for its decision, but it appeared to be related to the new law restricting foreign investor ownership to a maximum of 49%. The Oued El Kebir deposit would have been mined for barite, copper, lead, silver, and zinc. The project's inferred resource was estimated to be 11.5 Mt of ore grading 2.6% lead, 2.1% zinc, 0.7% copper, and 95 grams per metric ton (g/t) silver (Celamin Holdings N.L., 2013).

Gold.—In 2012, Sonatrach failed to find a partner to replace GMA for the operation of the country's only gold mine—the Amesmessa-Tirek gold mine operated by ENOR—which was a joint venture of Sonatrach and GMA. In 2012, gold output was 323 kilograms (kg), which was less than one-third the peak production amount of about 1,000 kg in 2009. The decreased grade of gold being extracted from the Amesmessa-Tirek Mine and the increase in the strip ratio increased the mining costs for ENOR, and consequently, GMA could not meet its financial obligations despite the increase in the price of gold on the world market. Therefore, GMA liquidated its assets in the company and sold its share (48% interest) in ENOR to Sonatrach (Entreprise d'Exploitation des Mines d'Or S.p.A., 2012, p. 20; GMA Resources p.l.c., 2012, p. 4–5).

Cancor Mines Inc. of Canada had four exploration permits in Algeria for copper, gold, and silver; all the permitted areas were located 2,000 kilometers (km) south of Algiers in the Hoggar region. Two gold-silver permits were for the Ouzzul North and the Tirek North properties, and two copper-gold permits were for the Tan Chaffao East and the Tan Chaffao West properties. Exploration activities were suspended in the region because of recent political and military activity in neighboring Mali (Cancor Mines Inc., 2013).

Iron and Steel.—Algeria's iron ore production increased by 18% to 1.56 Mt in 2012 from 1.32 Mt in 2011, and crude steel production increased by 1% to 557,000 metric tons (t) from a revised 551,000 t. Algeria, which was the eighth-ranked net importer of steel in the world in 2012, imported 5.0 Mt of steel products, including 4.0 Mt of long products, 686,000 t of flat products, and about 296,000 t of tubular products to meet the demand for steel products in the domestic market. The country's apparent consumption of crude steel equivalent increased by about 48% to 5.9 Mt in 2012 from about 4.0 Mt in 2012 (table 1; World Steel Association, 2013, p. 2, 19, 55, 65, 70, 75, 78, 98).

Qatar International Co., which was a joint venture of Qatar Steel Co. and Qatar Mining Co., signed an agreement with the Government to build a 5-Mt/yr steel mill in the Bellara Industrial Zone of Jijel Province, which is located about 360 km east of Algiers. The mill would be built in two stages and a 2-Mt/yr-capacity direct-reduced-iron-based steel works would be added at each stage. Ownership in the new project would follow Algeria's new partnership rules, which gives

the Government a 51% share and Qatar International a 49% share. The Government's share would be equally divided between Enterprise Nationale de Sidérurgie (Group Sider) and Fonds National de l'Investissement (Arab Steel, 2011, 2013).

Industrial Minerals

Cement.—Cement production in Algeria amounted to 19 Mt of hydraulic cement and 18 Mt of clinker in 2012 according to most recent statistics from the Arab Union for Cement and Building Materials. Cement consumption, on the other hand, amounted to 21 Mt in 2012. The Government consolidated its 12 cement plants, which together produced 11.3 Mt of cement in 2011 and accounted for 64% of the country's cement sales, into one holding company. The consolidation cost \$2.4 billion and included an expansion in production capacity to 20 Mt/yr, thus increasing the holding company's share in the Algerian cement market to between 75% and 80%. Lafarge Algeria controlled 36% of the domestic cement market through its wholly owned subsidiaries, which included Algerian Cement Co. and Ciment Blanc d'Algérie S.p.A. (table 2; Arab Union for Cement and Building Materials, 2013; Lafarge S.A., 2013, p. 33).

Cement production at the Zahana plant amounted to 812,000 t in 2012. ASEC Algeria Cement Co. S.p.A, which held a 35% stake in the output, was managing the plant and expected to increase the plant's production to 1 Mt/yr by 2014. ASEC Algeria was obtaining loans from local banks to finance the building of a 3.4-Mt/yr-capacity greenfield cement plant at Djefla about 300 km south of Algiers after the Government cement holding company withdrew its decision to acquire a minority stake in the project. The project included two production lines; the first line would have the capacity to produce 1.5 Mt/yr of cement and would cost \$300 million to build. The second line would increase the capacity to 3.4 Mt/yr and would cost \$250 million to build. 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 at projected production levels (ASEC Cement, 2013, p. 4, 6–7).

Nitrogen.—Fertial S.p.A, which was a joint venture of Grupo Villar Mir of Spain (66% interest) and Asmidal Group (34% interest), was the only producer of ammonia in Algeria in 2012. The company produced 859,000 t of ammonia, 773,000 t of which was exported mainly to Spain (51%), France (20%), Portugal (12%), and Morocco (9%) (Arab Fertilizer Association, 2013; Fertial, S.p.A., 2013).

In 2012, several ammonia and urea production projects were at different stages of construction and planning in the country. Sharika El Djazairia El Omania lil Asmida S.p.A. [Algeria Oman Fertilizer Co.], which was a joint venture of Suhail Bahwan Group (Holding) L.L.C. of Oman (51% interest) and Sonatrach (49% interest), was in the final stages of building a nitrogen fertilizer plant in the Arzew Industrial Zone near the city of Oran, which is located in northwestern Algeria. The \$2.4 billion nitrogen fertilizer plant would have the capacity to produce 2.6 Mt/yr of urea. Sofert Algeria, which was a joint venture of Orascom Construction Industries of Egypt (51% interest) and Sonatrach (49% interest), was embarking on

building a fertilizer complex at the Azrew Industrial Zone that would include two plants—an 800,000 t/yr-capacity anhydrous ammonia plant and a 1.2-Mt/yr-capacity granulated urea plant. Sofert was expected to supply 1.1 Mt/yr of urea to the domestic market and 700,000 t/yr of ammonia for export (Orascom Construction Industries, 2013; Suhail Bahwan Group LLC, 2013).

Mineral Fuels

Natural Gas and Petroleum.—Algeria's production of crude oil and condensate averaged 1.65 million barrels per day (Mbbbl/d) in 2012, which was similar to the country's production in 2011. Gross natural gas output amounted to 182.6 billion cubic meters of natural gas, which included 85.7 billion cubic meters of dry (marketed) gas. The country's crude oil and NGL output had been decreasing significantly since 2008, when the country produced 2.46 Mbbbl/d. In 2012, Algeria had an installed refining capacity of 562,000 barrels per day (bbl/d) of crude oil and condensate, which was unchanged from that in 2011. The country was planning to add an additional 82,000 bbl/d of refining capacity at existing refineries as well as to build four new 100,000-bbl/d-capacity refineries at Biskra, Ghardaia, Hassi Massoud, and Tairret, respectively. Construction of the new refineries and expansion projects at existing refineries were expected to be completed by 2018 (Organization of Arab Petroleum Exporting Countries, 2013, p. 26, 34, 44, 48; U.S. Energy Information Administration, 2013).

In 2012, Algeria had 2,061 producing wells, which included 258 wells that were completed during the year. The number of hydrocarbon discoveries in Algeria was 31 compared with 20 discoveries in 2011. Eight crude oil discoveries were reported in 2012 compared with 10 discoveries in 2011. Natural gas discoveries increased to 23 from 10 discoveries in 2011. The Berkine basin was the site of 13 crude oil and natural gas discoveries by Sonatrach and 6 discoveries by IOCs. Seven discoveries were reported at the Illizi basin, including six by Sonatrach and one by IOCs. Sonatrach also reported two discoveries at the Oued Mya basin, and one discovery in each of the Ahnet, the Nord de l'Algérie, and the Reggane basins (Ministère de l'Énergie et des Mines, 2013a, p. 17; Organization of Arab Petroleum Exporting Countries, 2013, p. 20, 22).

In 2012, the Government and IOCs invested more than \$7.27 billion in hydrocarbon activities compared with about \$9.00 billion in 2011. Exploration investments, which amounted to about \$1.9 billion in 2012, represented an increase of about 10% compared with that of 2011. Sonatrach invested about \$1.5 billion in hydrocarbon exploration activities, and IOCs spent \$0.4 billion. Of the \$5.26 billion invested in the development of Algeria's hydrocarbon sector in 2012, Sonatrach contributed \$2.8 billion compared with \$2.46 billion by IOCs. In 2011, Sonatrach spent about \$3.67 billion and IOCs invested \$3.6 billion in the development of the country's hydrocarbon resources (Ministère de l'Énergie et des Mines, 2013a, p. 17).

ALNAFT signed 20 contracts with Sonatrach, of which 17 contracts were for research and exploitation and 3 were for exploration. The extent of exploration drilling decreased by 4% in 2012 compared with that of 2011. Sonatrach was responsible for 210,653 meters (m) of exploration drilling and IOCs drilled 47,493 m. Two-dimensional (2-D) seismic

activity covered 8,696 km in 2012 compared with 16,788 km in 2011 and three-dimensional (3-D) seismic activity increased to 13,180 km² in 2012 from 8,097 km² in 2011 (Ministère de l'Énergie et des Mines, 2013a, p. 9–11).

Sixty-three percent of Algeria's crude oil and natural gas output came from the Hassi Messaoud, the Hassi R'Mel, and the Rhourde Nouss fields. Sonatrach was responsible for 75% of hydrocarbon production in the country in terms of volume, including 80% of natural gas production, 76% of condensates production, 65% of LPG production, and 53% of crude oil production. The remaining hydrocarbons were produced by the IOCs working in Algeria (Sonatrach S.p.A., 2012, p. 17).

Sonatrach planned to invest \$80 billion in crude oil and natural gas projects during the next 5 years, including \$15 billion in 2013. The investment would be directed to increasing oil and gas reserves by raising exploration concessions to 79 by 2014 from 57 in 2012 and by increasing the country's oil refining capacity by installing five new oil refineries (Niell, 2013).

Outlook

The Government has been developing the country's crude oil and gas reserves on its own and in partnership with major IOCs. It plans to invest \$102 billion in oil and gas projects during the next 5 years to maintain the current level of hydrocarbon production. The Government is also looking into exploiting its shale and tight gas, and other offshore resources. The Algerian economy is heavily dependent on its hydrocarbon sector, and the Government's plan to diversify the economy would require foreign investment and technological knowledge in the country's vast nonfuel mineral resources, which could be accomplished through joint ventures with international mining companies to explore and exploit the country's mineral reserves of metals, such as gold, iron ore and zinc. The diversification plan also includes establishing an aluminum smelter, revamping fertilizer manufacturing, and expanding the iron and steel sector. These investments, however, are moving slowly because of the golden share policy, which gives the Government a majority stake in all new projects.

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TABLE 1
ALGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2008	2009	2010	2011	2012
METALS					
Gold, mine output, Au content					
Iron and steel:					
Iron ore:					
Gross weight	2,077	1,307	1,469	1,320 ^r	1,560
Fe content	1,050	700	771	693 ^r	819
Metal:					
Pig iron	690	680	696	360	350
Steel:					
Crude	619 ^r	597 ^r	662 ^r	551 ^r	557
Continuous cast	600	560	657	545	550
Silver, mine output, Ag content					
Zinc:					
Metal, smelter output	21,243	24,115	21,127	15,611	15,000 ^e
Alloys	380	612	390	686	700 ^e
INDUSTRIAL MINERALS					
Barite, crude	60 ^r	38 ^r	42 ^r	40 ^r	40 ^e
Cement, hydraulic	17,397	18,732	19,100	19,000 ^r	19,000
Calcite	254	221	339	339 ^e	339 ^e
Clays:					
Bentonite	31	32	34	29	30
Common	10,973	10,973	10,973	11,000	11,000
Fuller's earth ^e	23	23	23	23	23
Kaolin	51	88	71	71	70 ^e
Diatomite	1,677 ^r	1,896 ^r	2,104 ^r	2,132 ^r	2,100 ^e
Dolomite (industrial) ^e	2,257 ³	2,260	2,260	2,260	2,250
Feldspar	116	131	164	148 ^r	264
Gypsum	1,672	1,757	1,610	1,610 ^e	1,600 ^e
Lime, hydraulic	64	65	63	63 ^e	63 ^e
Nitrogen, N content of ammonia ^e	500	500	600	593 ^{r,3}	713 ³
Phosphate rock:					
Gross weight	1,805	1,017	1,525	1,287	1,251
P ₂ O ₅ content ^e	542	305	458	386	375
Pozzolan	491	328	237	141 ^r	209
Salt, brine and sea salt	99	109	107	238 ^r	190
Sand and gravel:					
Construction sand	3,044	3,372	3,164	4,100 ^r	3,700
Granulates:					
Aggregates, crushed stone, and gravel	12,385	13,685	13,095	41,000 ^r	39,700
Crushed sand	10,470	13,360	12,286	12,000 ^e	12,000 ^e
Silica sand	276	134	95	95 ^e	95 ^e
Stone:					
Aragonite	254	254	254	260 ^e	260 ^e
Marble:					
Blocks	11	9	9	9 ^e	9 ^e
Crushed	121	266	114	119	119 ^e
Limestone ^e	10,000	10,000	10,000	10,400	11,500
Slabs	62	58	53	55 ^e	55 ^e
Quartzite	136	136	136	140 ^e	140 ^e
Tuff	12,209	7,525	1,819	1,700 ^e	1,700 ^e
Sulfur, S content of sulfuric acid ^e	20	18	16	14	110

See footnotes at end of table.

TABLE 1—Continued
ALGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2008	2009	2010	2011	2012	
MINERAL FUELS AND RELATED MATERIALS						
Gas, natural:						
Gross	million cubic meters	201,200	196,900	192,209 ^r	190,127 ^r	182,599
Dry	do.	103,800 ^r	82,600 ^r	83,370 ^r	82,060 ^r	85,700
Helium, liquid	do.	20	20	20	75 ^r	82
Methanol		72	101	93	118	112
Natural gas plant liquids	thousand 42-gallon barrels	441,500 ^r	208,780 ^r	187,610 ^r	177,390 ^r	163,885
Petroleum:						
Crude, including condensate	do.	718,685 ^r	647,510 ^r	619,770 ^r	614,660 ^r	608,455
Refinery products:						
Liquefied petroleum gas	do.	6,205 ^r	6,388 ^r	6,862 ^r	6,059 ^r	5,439
Gasoline, normal	do.	1,119	8,465	9,128	10,710	10,000
Gasoline, super	do.	6,910	8,537	8,308	9,131	8,944
Naphtha	do.	2,622	37,908	60,988	57,017	57,000 ^e
Kerosene and jet fuel	do.	7,681	7,348	11,050	8,893	9,600
Distillate fuel oil	do.	56,823	51,175	55,618	55,654	54,714
Lubricants	do.	826	953	1,058	821	820 ^e
Residual fuel oil	do.	50,822	47,155	48,884	49,778	34,091
Bitumen	do.	1,915	1,880	1,279	1,058	1,060 ^e
Total	do.	134,923 ^r	169,809 ^r	203,175 ^r	199,121 ^r	182,000 ^e

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

¹Table includes data available through February 28, 2014.

²In addition to the commodities listed, secondary aluminum, secondary copper, and secondary lead may be produced in small quantities, and crude construction materials (for local consumption), fertilizer, perlite, and urea are produced, but available information is inadequate to make reliable estimates of output. Also, about 700 metric tons per year (t/yr) of caustic soda and 6,100 t/yr of rhyolite are estimated to have been produced.

³Reported figure.

TABLE 2
ALGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(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	660,000	
Do.	do.	Fertial plant, Annaba Province	330,000	
Barite	Société des Mines de Baryte d'Algérie S.p.A. (SOMIBAR) [Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A. (ENOF)]	Amin Mimoun Mine, Khenchela Province	35,000	
Do.	do.	Boucaid Mine, Tissemsilt Province	20,000	
Do.	do.	Mellal Mine, Tlemcen Province	NA	
Do.	Société des Baryte SARL (SOBAR)	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	17,000	
Do.	do.	Maghnia Mine, Tlemcen Province	16,000	
Cement:				
Portland	Algerian Cement Co., (ACC) (Lafarge S.A., 100%)	do.	5,000,000	
Do.	Ciment Blanc d'Algérie S.p.A. (Lafarge S.A., 100%)	Oggaz, Mascara Province	2,500,000	
Do.	Entreprise des Ciments et Dérivés d'Ech—Cheliff	Chlef	2,000,000	
Do.	Société des Ciments de la Mitidja (Entreprise des Ciments et Dérivés du Centre, 65%, and Lafarge S.A., 35%)	Meftah	800,000	
Do.	Société des Ciments de Sour El Ghoulane (Entreprise des Ciments et Dérivés du Centre, 65%, and Buzzi Unicem S.p.A., 35%)	Sour El Ghoulane	1,000,000	
Do.	Société des Ciments Zahana (Entreprise des Ciments et Dérivés de l'Ouest, 65%, and ASEC Cement, 35%)	Zahana, Djefla 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	1,000,000	
Do.	Société des Ciments Saida (Entreprise des Ciments et Dérivés de l'Ouest)	Hassasna	500,000	
Do.	Société des Ciments d'Ain-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	1,000,000	
Do.	Société des Ciments de Hamma-Bouziane (Entreprise des Ciments et Dérivés de l'Est)	Hamma-Bouziane	1,000,000	
Do.	Société des Ciments de Hadjar Soud (Entreprise des Ciments et Dérivés de l'Est)	Bekkouche	900,000	
Do.	Tabessa Cement Company S.p.A.	Tebessa	525,000	
Do.	Société des Ciments de l'Algérois (Entreprise des Ciments et Dérivés du Centre)	Rais-Hamidou	368,000	
White cement	Ciment Blanc d'Algérie 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 S.p.A. (Entreprise Nationale de Métallurgie et de Transformation des Métaux Non Ferreux, S.p.A., 100%)	Ghazaouet	30,000	
Diatomite	Société des diatomites d'Algérie (DIATAL) [Entreprise Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A (ENOF)]	Tahalait Quarry, Sig	2,000	
Dolomite	Société Algérienne des Granulats S.p.A. (ALGRAN)	Djebel Taioualet	8,000	
Feldspar	Tufeal SARL	Bouaita	83,000	
Do.	La Société des Feldspaths d'Algérie (SOFELD) (Entreprise des Nationale des Produits Miniers Non Ferreux et des Substances Utiles, S.p.A (ENOF)], 57%, and Entreprise de la Céramique Ouest, 43%]	Ain Barbar	NA	
Fertilizer, nitrogenous:				
Ammonia	Fertial S.p.A. (Asmidal Group, 34%, and Grupo Villar Mir, 66%)	Arzew	495,000	
Do.	do.	Annaba	495,000	
Phosphatic	do.	Arzew	280,000	
Do.	do.	Annaba	300,000	
Gold	kilograms	Entreprise d'Exploitation des Mines d'Or S.p.A. (ENOR) (Sonatrach S.p.A., 100%)	Amesmessia-Terik gold mine	500
Gypsum	32 private sector units and 13 public sector units	Batn, Bejaia, Biskra, Bouira, Chlef, Ghardaia, Mascara, Milla, M'silla, Medbea, O.El Bouaghi, Oran, Setif, Tiara	1,700,000	

See footnotes at end of table.

TABLE 2—Continued
ALGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Helium	million cubic meters	Helios S.p.A. (Sonatrach Valorisation Hydrocarbonés, 51%, and Helap S.p.A., 49%)	GI4Z 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 Tebessa S.p.A.	Ouenza Mine	1,200,000
Do.	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.	do.	Anini Mine, Setif Province	170,000
Do.	do.	do.	Rouina Mine, Ain Defla Province	140,000
Kaolin		Société des Kaolins d'Algérie S.p.A. (SOALKA) [Federal White Cement Ltd., 63%, and Entreprise des Non Ferreux and et des Substances Utiles S.p.A. (ENOF), 37%]	El Milia Mine, Jijel Province	50,000
Do.	do.	do.	Jebel Debbagh Mine, Guelma Province	15,000
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	45,000
Liquefied	do.	do.	GL2Z complex, Bethioua	18,000 ¹
Do.	do.	do.	GL1Z complex, Bethioua	16,000 ¹
Do.	do.	do.	GL1K complex, Skikda	6,000 ¹
Do.	do.	do.	GL4Z complex, Arzew	2,000 ¹
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 S.p.A. (NAFTEC)	RA1K refinery, Skikda	400,000
Do.	do.	do.	RHM refinery, Hassi Messaoud	30,000
Do.	do.	do.	RA1G refinery, El Harrach	60,000
Do.	do.	do.	RA1Z refinery, Arzew	60,000
Do.	do.	Société Nationale de Raffinage de Pétrole S.p.A. (NAFTEC), 70%, and China National Petroleum Corp. (CNPC), 30%	Adrar	12,000
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	1,600,000
Pozzolan		Société des Pozzolanés 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 de Fer et de Phosphate	do.	600,000
Salt, crude:				
Rock		Entreprise 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 2012

(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 Groupe Industriel Sider, 30%)	Electric arc furnace at El Hadjar, Annaba Province	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 Province	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. (DIATAL) [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, Mustaganem, 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	400,000

Do., do. Ditto. NA Not available.

¹One 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 GL2Z—10.3, GL1Z—10.2, GL1K—4, and GL4Z—1.1.