



2011 Minerals Yearbook

ALGERIA

THE MINERAL INDUSTRY OF ALGERIA

By Mowafa Taib

In 2011, Algeria ranked first and third in Africa in natural gas production and crude oil output, respectively. Algeria ranked fourth in the world in terms of the volume of natural gas exports and accounted for 2.4% and 1.9% of the world's natural gas and crude oil output, respectively. The country held 4.5 trillion cubic meters of proved natural gas reserves, which was 2.2% of the world's total proven reserves, and 12.2 billion barrels of proven crude oil reserves, which was 0.7% of the world's total reserves (BP p.l.c., 2012, p. 6, 8, 20, 22).

In addition to hydrocarbons, Algeria produced barite, bentonite and other clays, cement, crushed stone, diatomite, dolomite, gold, gravel, gypsum, helium, iron ore, lime, marble, nitrogen fertilizer, phosphate rock, pozzolan, quartz, salt, sand, silver, and steel. The country also held other minable mineral resources, which were not being produced in 2011; these included diamond and other gemstones, fluorite, niobium, perlite, shale gas, rubidium, tantalum, tight natural gas, tin, and uranium (table 1; Ministère de l'Énergie et des Mines, 2012).

Minerals in the National Economy

Algeria's gross domestic product (GDP) increased in real terms at a rate of 2.4% in 2011 compared with a rate of 3.4% in 2010. The value of hydrocarbon sector activity, which composed 36.7% of Algeria's gross domestic product (GDP) in 2011 compared with 34.7% in 2010, increased by 26.3% compared with that of 2010. The increase was mainly owing to the higher prices for crude oil exports, which increased to \$112.94 per barrel in 2011 from \$80.20 per barrel in 2010 (Banque d'Algérie, 2012, p. 157–158, 173).

Government Policies and Programs

The Ministère de l'Énergie et des Mines (MEM) [Ministry of Energy and Mining] is responsible for regulating the activities of the mineral industry through its numerous agencies. The Agence Nationale du Patrimoine Minier (ANPM) [Algerian Mining Authority] and Agence Nationale de la Géologie et du Contrôle Minier (ANGCM) [National Agency of Geology and Mining Control] were created by Mining law No. 01–10 of July 3, 2001 (Mining Law). ANPM is responsible for awarding mining licenses. ANPM awarded 2,946 mining permits in the period 2000 through 2010, including 2,199 permits for small- and (or) medium-scale mining, 596 for exploration, 81 for artisanal exploration, 38 for prospecting, and 32 for mining concessions. The mining permits generated more than \$135 million in revenue for the national treasury. Office National de la Recherche Géologique et Minière (ORGM) [National Office of Geologic and Mining Research] was a partner with almost all the mining companies involved in exploration, exploitation, and prospecting activities in the country (Ministère de l'Énergie et des Mines, 2011, p. 62–63; Agence Nationale du Patrimoine Minier, 2012).

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.

In 2011, the Government maintained its “golden share” policy, which started in 2010, on foreign investment in the country. The policy gives the state a minimum of 51% equity in the local operations of new companies operating in Algeria, as well as a chair on the company's board of directors, but not voting rights. Subsequently, the maximum percentage of ownership share of any new foreign company operating in Algeria, including in the mineral industry, is 49% (Nield, 2010).

Production

Data on mineral production are listed in table 1.

Structure of the Mineral Industry

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. In 2010, the company went through several investigations and probes on corruption charges that resulted in a court ruling against a number of company executives in 2011 and the replacement of the entire management team of the company as well as the country's Minister of Energy and Mining. Sonatrach was responsible for the exploration, production, pipeline transportation, and marketing of hydrocarbons and their byproducts. Sonatrach had 25 subsidiaries, including 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., 2011).

Société Nationale de l'Électricité et du Gaz S.p.A. (Sonelgaz) [National Society for Electricity and Gas] 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 subsidiaries (Ministry of Energy and Mining, 2011, p. 33).

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 Boucaid 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. SOALKA was a joint venture of Federal White Cement Ltd. of Canada (63% interest) and ENOF (37% interest). The company produced kaolin and explored for copper, diamond, lead, limestone for cement, and zinc (Société des Kaolins d'Algérie S.p.A., 2012). 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 (52%) and Sonatrach (48%), was the sole gold producer in the country (GMA Resources p.l.c., 2012).

The Government-owned Enterprise 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, 2012).

ArcelorMittal Tebessa S.p.A., which was a joint venture of ArcelorMittal (70% interest) and Ferphos (30% interest), operated the Ouenza Mine and the Boukhadra Mine 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-Hadjar. Western Mediterranean Zinc S.p.A. (WMZ), which was a joint venture of Terramin Australia Ltd. (65% interest), state-owned ENOF (32.5% interest), and ORGM (2.5% interest), was developing the Tala Hamza lead and zinc project at Oued Amizour, which is located 15 kilometers (km) southwest of the Port of Bejaia in northeastern Algeria. Sharika El Djazairia El Omania lil Asmida S.p.A. [Algeria Oman Fertilizer Co.] (AOA), which was a joint venture of Suhail Bahwan Group (Holding) L.L.C. (SBGH) of Oman (51% interest) and Sonatrach (49% interest), was engaged in constructing a nitrogen fertilizer plant in the Arzew Industrial Zone near the city of Oran, which is located in western Algeria. 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 that would have the capacity to produce 800,000 metric tons per year (t/yr) of anhydrous ammonia and 1.2 million metric tons

per year (Mt/yr) of granulated urea at the Azrew Industrial Zone (Orascom Construction Industries, 2012; Suhail Bahwan Group LLC, 2012; Terramin Australia Ltd., 2012)

Mineral Trade

In 2011, the value of hydrocarbon exports, which accounted for 98% of the country's total exports, increased by 28% to about \$71.6 billion from \$56.1 billion in 2010. The increase was attributable to an increase of 40.9% in crude oil prices in 2011, which averaged \$112.94 per barrel from an average of \$81.15 per barrel in 2010, and to an increase of 20.6% in natural gas prices, which increased to \$10.13 per million British thermal units (BTUs) from \$8.4 per million BTUs in 2010. The value of crude oil exports accounted for 40.1% of Algeria's total hydrocarbon export value, followed by natural gas, 18.9%; refined petroleum products, 16.7%; liquefied natural gas (LNG), 9.3%; condensate, 7.7%; and liquefied petroleum gas (LPG), 7.3%. The volume of hydrocarbon exports amounted to 254.6 million barrels (Mbbbl) of crude oil, 106.7 Mbbbl of refined petroleum products, 53.1 Mbbbl of condensate, 65.4 Mbbbl of LPG, 35.7 billion cubic meters of natural gas, and 27.3 million cubic meters of LNG. Other nonfuel mineral exports included ammonia (\$375 million), phosphate rock (\$128 million), helium and hydrogen (\$40 million combined), and zinc (\$36 million) (Banque d'Algérie, 2012, p. 23, 177; United Nations Statistics Division, 2012).

In 2011, the value of U.S. exports to Algeria increased by 33% to about \$1.6 billion from about \$1.2 billion in 2010. The value of U.S. imports from Algeria increased slightly to \$14.6 billion from \$14.5 billion in 2010 but remained less than the peak of \$19.4 billion in 2008. The value of crude oil imports was \$9.5 billion (about 59% of total imports from Algeria); fuel oil, about \$3.0 billion (about 21%); liquefied petroleum gases, \$1.7 billion (about 12%); and other petroleum products, \$0.3 million (2%). The United States was the leading importer of Algerian oil and accounted for 20% of the total exports, followed by Italy (about 14%); Spain (10%); France (9%); the Netherlands (7%); Canada (6%); Brazil, the United Kingdom, and Turkey (4% each); and India (3%) (United Nations Statistics Division, 2012; U.S. Census Bureau, 2012).

In 2011, Algeria's total imports were valued at \$46.4 billion, which was an increase of 13% compared with that of 2010. The country imported 4.1 million metric tons (Mt) of iron and steel compared with 3.2 Mt in 2010. The value of iron and steel imports in 2011 amounted to \$700 million (Banque d'Algérie, 2012, p. 172; United Nations Statistics Division, 2012; World Steel Association, 2012, p. 25).

Commodity Review

Metals

Aluminum.—No new developments were reported in 2011 on the status of the proposed plan by Rio Tinto Alcan Inc. of Canada to build a new 460,000-t/yr-capacity aluminum smelter in Algeria. Similarly, no changes were reported with the respect of the status of the proposed plan by Emirates Aluminum Co. Ltd. of the United Arab Emirates to construct an aluminum

smelter at Beni Saf in northwestern Algeria, which was put on hold in 2010 (Baxter, 2010).

Copper, Lead, and Zinc.—WMZ moved forward with development of the Tala Hamza lead and zinc project at Oued Amizour, which is located 15 km southwest of the Port of Bejaia in northeastern Algeria. The results of the definitive feasibility study, which was completed by WMZ in 2010, indicated that a project could be developed on the Tala Hamza deposit using block cave mining and conventional processing. As of yearend 2011, the total resources (measured, indicated, and inferred) of the Tala Hamza Mine were 68.6 Mt of ore 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-capacity processing plant that would produce 100,000 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 process 4 Mt/yr of ore to achieve annual zinc output of about 400,000 t at a cost of \$579 million (Terramin Australia Ltd., 2012).

In April, Celamin Holdings N.L. of Australia signed an agreement with Groupe Faïenceries Algériennes (FA) to develop the Oued El Kebir base-metals project. Celamin expected to have a 49% stake in the project, which was the maximum share allowed for a foreign investor in Algeria. The Oued El Kebir deposit would be 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., 2012).

In 2011, SOALKA conducted a feasibility study for the copper-lead-zinc project at the Kef Oum T Boul deposit, which is located 15 km from El Kala city in eastern Algeria close to the border with Tunisia. The company explored for copper and gold in the northwestern coast of Algeria in the Tifrouine area (Société des Kaolins d'Algérie S.p.A., 2012).

Gold.—Production at the only operating gold mine in Algeria, the Amesmessa-Tirek gold mine, which was a joint venture of Sonatrach and GMA, decreased from its peak of about 1,000 kilograms (kg) in 2009 to 728 kg in 2010 and 340 kg in 2011. The falling grade of gold produced at Amesmessa-Tirek and the increase in the strip ratio resulted in increased mining costs for ENOR, and, consequently, GMA could not meet its financial obligations even with the increase of gold price in the world market. Therefore, GMA liquidated its assets in ENOR and sold its share (48% interest) in the company to Sonatrach, which, in turn, began looking for a partner to replace GMA (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 two exploration permits for gold and silver at the 6,528-hectare (ha) Ouzzal North property, and for copper and gold at the 20,000-ha Tan Chaffao East property. The company had one more exploration permit for copper and gold at the 44,580-ha Tan Chaffao West property and one for gold and silver at the 98,990-ha Tirek North property. All four properties were located in the Hoggar region in southern Algeria about 2,000 km south of Algiers. The company suspended its exploration activity in 2011 because of security

concerns that spilled over from military operations in northern Mali (Cancor Mines Inc., 2012).

Iron and Steel.—According to the most recently published industry statistics by the Office National des Statistiques (National Office of Statistics, ONS), iron ore production in Government-owned SOMIFER's Djebel Anini, Khanguet, and Rouina Mines had been declining significantly since its peak of 1.6 Mt in 2005. In 2011, production was reported by the ONS to be 287,000 t compared with an average of 348,400 t/yr during 2006 through 2010.

Production from the Boukhadra Mine and the Ouenza Mine, which were operated by ArcelorMittal Tebessa, had also been declining in recent years after the peak in 2006 because of frequent worker strikes that resulted in production interruptions. The company was expected to invest about \$686 million to upgrade the El Hadjar steelworks to restart the plant's coke batteries, which stopped working at the end of 2009, as well as increase the productivity of Blast Furnace 2 and construct a direct-reduced iron plant. The coke plant had a nominal capacity of 600,000 t/yr and employed more than 300 workers (Arab Steel, 2011b).

Qatar International Co., which was a joint venture of Qatar Steel Co. and Qatar Mining Co., was conducting negotiations 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 each stage would add 2.5-Mt/yr of capacity to produce long products. Ownership in the new project would follow Algeria's new partnership rules, which would give the Government a 51% share and Qatar International a 49% share. The Government's share would be equally divided by Enterprise Nationale de Sidérurgie (Group Sider) and Fonds National de l'Investissement (Arab Steel, 2011a).

Industrial Minerals

Cement.—The Government moved forward with consolidating 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 would cost \$2.4 billion and would include 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%. The Government intended to compete with Lafarge Algeria, which controlled 36% of the domestic cement market through its wholly owned subsidiaries Algerian Cement Co. and Ciment Blanc d'Algérie S.p.A. (table 2; Lafarge S.A., 2012, p. 33).

In 2011, the Government agreed to hold 49% interest in ASEC Algeria Cement Co. S.p.A and to allow ASEC Cement of the Citadel Group of Egypt to hold a 51% interest in the project. ASEC Algeria was building a 3.4-Mt/yr greenfield-capacity cement plant about 300 km south of Algiers at Zahana in Djefla Province. Construction work on the project was expected to be resumed in 2012. 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 3.2 Mt/yr and would cost

\$250 million to build; the second line would be constructed 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 has resources sufficient to supply the plant for 80 years at projected production levels (ASEC Cement, 2012, p. 26).

Clay and Shale.—SOALKA produced kaolin at two locations in Algeria. SOALKA operated the El Milia Mine in Jijel Province, which had a 50,000-t/yr-capacity kaolin treatment complex and more than 15 Mt of kaolin reserves, and the Jebel Debbagh Mine in Guelma Province, which held an estimated 200,000 t of reserves. SOALKA explored for kaolin at the Tabelballa site in Bechar Province, which had estimated reserves of 1 Mt of kaolin ore (Société des Kaolins d'Algérie S.p.A., 2012).

Nitrogen.—AOA made progress in constructing a \$2.4 billion nitrogen fertilizer plant that would have the capacity to produce 2.6 Mt/yr of urea. The plant was expected to be completed in 2012. Sonatrach committed to supply natural gas for the project under a long-term agreement (Suhail Bahwan Group LLC, 2012). Sofert Algeria was building a fertilizer complex that would have the capacity to produce 800,000 t/yr of anhydrous ammonia and 1.2 Mt/yr of granulated urea at the Azrew Industrial Zone. The plant was expected to begin production in 2012 and to supply 1.1 Mt/yr of urea to the domestic market and 700,000 t/yr of ammonia for export (Orascom Construction Industries, 2012).

Mineral Fuels and Other Sources of Energy

Natural Gas and Petroleum.—In 2011, Algeria's production of crude oil and condensate averaged 1.65 million barrels per day (Mbbbl/d) compared with 1.70 Mbbbl/d in 2010. The country's crude oil and condensate output had been declining significantly during 2007 through 2011. In 2011, gross natural gas output amounted to 140 billion cubic meters of natural gas, including 82.8 billion cubic meters of dry (marketed) gas. The output slightly decreased compared with that of 2010. Algeria's installed refining capacity increased by 15% to 582,900 barrels per day (bbl/d) in 2011 from 464,000 bbl/d in 2007 (Organization of Arab Petroleum Exporting Countries, 2012, p. 26, 34, 44, 48).

Three-fourths of the country's hydrocarbon output came from the Hassi Messaoud and the Hassi R'Mel fields. Sonatrach was responsible for 72% of hydrocarbon production in Algeria in terms of volume, including 82% of the natural gas, 80% of the condensates, and 71% of the LPG. The remaining hydrocarbons were produced by international companies working in Algeria under production-sharing agreements, such as Anadarko Petroleum Corp. and ConocoPhillips Co. of the United States; BP Algeria of the United Kingdom; Eni Algeria Production BV of Italy; GDF Suez and Total Algeria S.p.A. of France; Maersk A/S of Denmark; and Talisman Energy Inc. of Canada (Sonatrach S.p.A., 2011, p. 18).

In 2011, Algeria had 2,010 producing wells, including 249 wells that were completed during the year. Ten crude oil discoveries were reported in Algeria in 2011 compared with 14 discoveries in 2010, and 10 discoveries were reported in the

natural gas subsector compared with 15 discoveries in 2010 (Sonatrach S.p.A., 2011, p. 17; Organization of Arab Petroleum Exporting Countries, 2012, p. 20, 22).

Renewable Energy.—The Government published guidelines for the development of Algeria's national renewable energy program, which included building 60 powerplants that use solar and wind energy sources to generate electricity by 2020. In July, Sonelgaz commenced power production at the country's first integrated solar-combined cycle power station at Hassi R'Mel. The \$100 million complex would combine a 25-megawatt (MW) parabolic concentrating solar power array, which covered an area of 180,000 square meters, with a 130-MW gas turbine plant. The plant was built by the Chinese Government-owned China Electric Equipment Group (CEEG) (Niield, 2011). In December, Dii GmbH of Germany signed a memorandum of understanding with Sonelgaz to develop renewable energy projects in Algeria in cooperation with the European Union and to identify projects that would have a total capacity of 1 gigawatt, of which 900 MW would be designated for producing electricity for export and 100 MW would be for domestic consumption (Dii GmbH, 2011; Ministry of Energy and Mining, 2011, p. 5).

Outlook

The Government, which has been developing the country's crude oil and gas reserves on its own and in partnership with major international oil companies, planned to invest \$80 billion in oil and gas projects in the next 5 years to maintain the current level of hydrocarbon production. The Government is also studying the best ways to exploit its abundant shale gas, tight gas, and offshore resources. The Algerian economy is heavily dependent on its hydrocarbon sector, and the Government is seeking to diversify the economy by encouraging investment in the country'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, and zinc, as well as phosphate rock. New capacities in the aluminum, cement, fertilizer, solar energy, and steel subsectors are expected come online in the next 5 years (Niield, 2012).

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TABLE 1
ALGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2007	2008	2009	2010	2011
METALS					
Gold metal kilograms	236	647	999	723	340
Iron and steel:					
Iron ore, gross weight	1,982	2,077	1,307	1,469	1,400
Metal:					
Pig iron	1,193	690	680	696	360
Steel, crude	1,278	646	543	688	440
Silver metal kilograms	46	114	200	147	147
Zinc:					
Concentrate, Zn content metric tons	--	--	--	--	--
Metal, smelter output do.	17,113 ^r	21,243 ^r	24,115 ^r	21,127 ^r	15,611
Alloys do.	374	380	612	390	686
INDUSTRIAL MINERALS					
Barite, crude	59 ^r	56 ^r	36 ^r	40 ^r	30
Cement, hydraulic	15,886	17,397	18,732	19,100	20,000
Calcite	206	254	221	339	339
Clays:					
Bentonite	33	31	32	34	29
Common	9,529	10,973	10,973	10,973	11,000
Fuller's earth	30	23	23	23	23
Kaolin	107	51	88	71	71
Diatomite	3	2	2	2	2
Dolomite (industrial)	1 ^r	2 ^r	2 ^r	2 ^r	2
Feldspar	83	116	131	164	164
Gypsum ³	1,198	1,672	1,757	1,610	1,610
Lime, hydraulic	46	64	65	63	63
Nitrogen, N content of ammonia	500	500	500	600 ^r	600
Phosphate rock:					
Gross weight	1,800	1,805	1,017	1,525	1,287
P ₂ O ₅ content ^c	536	542	305	458	386
Pozzolan	570	491	328	237	237
Salt, brine and sea salt	124 ^r	99 ^r	109 ^r	107 ^r	170
Sand and gravel:					
Construction sand thousand cubic meters	2,553	3,044	3,372	3,164	3,200
Silica sand	519	276	134	95	95
Granulates:					
Aggregates, crushed stone, and gravel thousand cubic meters	10,250 ^r	12,385 ^r	13,685 ^r	13,095 ^r	11,468
Crushed sand do.	5,590	10,470	13,360	12,286	12,000
Stone:					
Aragonite do.	206	254	254	254	260
Quartzite	35	136	136	136	140
Marble:					
Blocks thousand square meters	58 ^r	62 ^r	53 ^r	53 ^r	55
Crushed	145 ^r	121 ^r	266 ^r	114 ^r	119
Slabs	58	62 ^r	53 ^r	53 ^r	55
Miscellaneous types of dressed stone thousand cubic meters	12	10	10	10	10
Rhyolite do.	3	6	6	6	6
Tuff do.	1,729	12,209	7,525	1,819	1,700
Sulfur, S content of sulfuric acid ^e	18 ^r	20 ^r	18 ^r	16 ^r	14
MINERAL FUELS AND RELATED MATERIALS					
Coke	419	315	315	315	315
Gas, natural:					
Gross million cubic meters	198,200	201,200	196,900	194,000	194,000
Dry ⁴ do.	152,822 ^r	154,338 ^r	150,852 ^r	144,431 ^r	139,870
Helium, liquid do.	20	20	20	20	20
Methanol do.	93 ^r	72 ^r	101 ^r	93 ^r	118
Natural gas plant liquids thousand 42-gallon barrels	40,939 ^r	34,892 ^r	35,240 ^r	31,068	27,527

See footnotes at end of table.

TABLE 1—Continued
ALGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2007	2008	2009	2010	2011	
MINERAL FUELS AND RELATED MATERIALS—Continued						
Petroleum: ⁶						
Crude, including condensate	thousand 42-gallon barrels	615,395 ^r	601,418 ^r	549,263 ^r	528,414 ^r	510,918
Refinery products:						
Liquefied petroleum gas	do.	106,569 ^r	107,404 ^r	93,995 ^r	82,511 ^r	91,652
Gasoline, normal	do.	9,870 ^r	1,119 ^r	8,465 ^r	9,128 ^r	10,710
Gasoline, super	do.	6,480 ^r	6,910 ^r	8,537 ^r	8,308 ^r	9,131
Naphtha	do.	28,071 ^r	2,622 ^r	37,908 ^r	60,988 ^r	57,017
Kerosene and jet fuel	do.	8,073 ^r	7,681 ^r	7,348 ^r	11,050 ^r	8,893
Distillate fuel oil	do.	47,192 ^r	56,823 ^r	51,175 ^r	55,618 ^r	55,654
Lubricants	do.	1,001 ^r	826 ^r	953 ^r	1,058 ^r	821
Residual fuel oil	do.	36,743 ^r	50,822 ^r	47,155 ^r	48,884 ^r	49,778
Bitumen	do.	2,006 ^r	1,915 ^r	1,880 ^r	1,279 ^r	1,058
Total	do.	246,005 ^r	236,122 ^r	257,416 ^r	278,824 ^r	284,714

⁶Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through December 31, 2012.

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, and 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 is estimated to have been produced.

³Includes about 50,000 t/yr of plaster.

⁴Excludes gas used in flaring, reinjection, transmission losses, and venting.

TABLE 2
ALGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(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'Algerie 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 Ghozlane (Entreprise des Ciments et Dérivés du Centre, 65%, and Buzzi Unicem S.p.A., 35%)	Sour El Ghozlane	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 Saïda (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'Ain-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'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 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 Non Ferreux et des Substances Utiles S.p.A. (ENOF), 57%, and Entreprise de la Céramique Ouest, 43%)	Ain Barbar	NA	
Fertilizer, 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	360,000	
Phosphatic ¹	do.	Fertial plant, Annaba	800,000	
Gold	kilograms	Entreprise d'Exploitation des Mines d'Or S.p.A. (ENOR) (Sonatrach S.p.A., 100%)	Tirek Mine	3,000
Do.	do.	Amesmessia gold mine	3	

See footnotes at end of table.

TABLE 2—Continued
ALGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(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 sector 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%)	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.	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 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.	do.	SARL Faïenceries Algériennes	Adjarda, Chekfa,	95,000
Lime		SODEPAC (ERCO Group)	Hassasna	93,000
Do.	do.	Société de Chaux de l'Ouest	Oran	65,000
Do.	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:				
Blocs	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 S.p.A. (NAFTEC)	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 Pozzolanés et des Matériaux de Construction S.p.A. (SPMC)	Rockbet El Hassi	452,000
Do.	do.	Société des Ciments Béni Saf (ERCO group)	Beni Saf	11,000
Do.	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

See footnotes at end of table.

TABLE 2—Continued
ALGERIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011

(Metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
<u>Salt, crude—Continued:</u>			
Solar	Several private companies	Bethioua, Oran; El Meghaier, El Oued, Guergour Lamri, Setif Ouled Zouai, Oum el Bouaghi, and Sidi Bouziane, Relizane	100,000
<u>Steel:</u>			
Crude	ArcelorMittal Annaba S.p.A. (ArcelorMittal, 70%, and Groupe Industriel Sider, 30%)	Blast furnaces at El Hadjar, Annaba	2,100,000
Do.	do.	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 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 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	400,000

Do., do. Ditto. NA Not available.

¹Capacity 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).

²One 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.