

THE MINERAL INDUSTRY OF ALGERIA

By Philip M. Mobbs

In 2004, hydrocarbons remained the leading component of Algeria's mineral industry and national economy. The mineral industry also produced modest amounts of diverse metals, industrial minerals, and mineral-based commodities, such as ammonia, clay, cement, helium, iron ore, mercury, methanol, phosphate rock, salt, and steel. The Algerian gross domestic product (GDP) based on purchasing power parity was \$217.2 billion¹ in 2004 and the GDP per capita based on purchasing power parity was \$6,722 (International Monetary Fund, 2005²).

Trade

Most Algerian exports were shipped through the country's eight main seaports or by pipeline. The border with Morocco remained closed. The Société Nationale des Transports Ferroviaires moved about 25% of the imported cement inland from coastal ports. Hydrocarbon shipments transited primarily through the Ports of Arzew-Béthioua, Béjaïa, and Skikda. In 2004, total exports of goods and services from Algeria were valued at more than \$34 billion and imports were valued at \$21.8 billion. Exports of hydrocarbons were valued at more than \$31.54 billion compared with about \$24 billion in 2003. Exports of crude oil and condensate (petroleum liquids at surface pressure and temperature that were recovered as a coproduct of natural gas production) were valued at about \$17.43 billion in 2004 compared with about \$11.3 billion in 2003. Other Algerian hydrocarbon exports in 2004 included natural gas (by pipeline), with a value of about \$4.74 billion; liquefied natural gas, (LNG), \$3.74 billion; refined petroleum products, \$3.04 billion; and liquefied petroleum gas, \$2.59 billion (Banque d'Algeria, 2005³; Ministère de l'Énergie et des Mines, 2005³).

Structure of the Mineral Industry

Nonfuel mineral operations fell under Mining law No. 01-10 of July 3, 2001, and Decree No. 02-65 of June 2, 2002. A proposed new hydrocarbon law that would alter the relationship between Government-owned oil and gas company Société Nationale pour la Recherche, la Production, le Transport, la Transformation, et la Commercialisation des Hydrocarbures s.p.a. (Sonatrach) and the oil industry was reintroduced in late 2004; the original bill had been withdrawn in 2003 pending Government elections in early 2004. The original version would have eliminated Sonatrach's monopoly on pipeline and refining operations, removed the requirement that Sonatrach acquire 50% interest in oilfield projects, and transferred exploration

and production licensing to a yet-to-be-formed Government organization (Nield, 2005).

Subsidiary companies of the Ministère de l'Énergie et des Mines were involved in most mineral production. In the nonfuel mineral sector, private companies and local government enterprises ran cement, clay, gold, gypsum, helium, iron ore, marble, salt, sand, steel, and stone operations. International oil companies operated primarily under contract to Sonatrach.

Commodity Review

Metals

Gold.—Enterprise d'Exploitation des Mines d'Or s.p.a. (ENOR) mined ore at Tirek and at Amesmessa, which is located about 60 kilometers (km) south of Tirek. In 2004, GMA Resources Plc of the United Kingdom, which held 52% interest in ENOR, proposed to build a 300,000-metric-ton-per-year (t/yr) processing plant at Amesmessa. Completion of the feasibility study for the proposed plant was expected in August 2005. GMA reported that a drill program at Amesmessa was completed. Based on the drilling results, the Amesmessa prospect was reevaluated as an open pit operation. ENOR originally planned to develop the deposit as an underground mine (GMA Resources Plc, 2005).

Lead, Silver, and Zinc.—By early 2004, ore production from the El Abed lead-zinc and the Kherzet Youcef zinc mines had ended. The Enterprise Nationale des Produits Miniers Non-Ferreux et des Substances Utiles, s.p.a. (ENOF) proposed to develop additional zinc resources at the Kherzet Youcef Mine and to renew efforts to develop the zinc resources at Oued Amizour. In 2003, the Ministère de l'Énergie et des Mines proposed to convert the underground El Abed lead-zinc mine and surface facilities into a mining school.

Mercury.—ENOF suspended mercury production in June. Rehabilitation of the facilities at Ismail and M'Rasma continued at yearend (Mining Journal, 2004).

Industrial Minerals

Cement.—In January, Algerian Cement Co. awarded the contract for a second 2.2-million-metric-ton-per-year (Mt/yr)-capacity cement line at the M'Sila facility to FL Smidth of Denmark and ORASCOM Construction Industries Algeria. Algerian Cement started its first 2.2-Mt/yr cement kiln in March (Middle East Economic Digest, 2004).

Nitrogen, Phosphate, and Sulfur.—Ammonia production dipped in 2004 when the Alzofert plant of the ASMIDAL Group was closed for a months-long maintenance program. Also in 2004, the Enterprise Nationale du Fer et du Phosphate s.p.a. (FERPHOS) requested bids on a feasibility study for a proposed fertilizer facility at Jijel. Plants planned for the FERPHOS facility included a 9,600-metric-ton-per-day (t/d)-capacity

¹Where necessary, currency values have been converted from Algerian dinars (DA) to U.S. dollars (US\$) at the average rate of DA74.15=US\$1.00 for 2004.

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

sulfuric acid plant, a 6,000-t/d ammonia plant, a 3,000-t/d diammonium phosphate plant, and a 1,000-t/d phosphoric acid plant (Enterprise Nationale du Fer et du Phosphate s.p.a., 2003, 2004§).

Mineral Fuels

Natural Gas.—On January 19, 2004, an explosion destroyed three LNG trains at the Sonatrach facility at Skikda and damaged the remaining trains. One of the damaged 1-billion-cubic-meter-per-year-capacity trains resumed production in May. A second train was ready to resume production at yearend. The third was expected to resume operations in mid-2005. Sonatrach proposed to replace the destroyed LNG trains at Skikda with a single more-than-4-billion-cubic-meter-per-year-capacity LNG train. Sonatrach initiated plans to build a 4-billion-cubic-meter-per-year-capacity LNG train at Arzew as part of the Gassi Touil Integrated Gas Project (Africa Energy Intelligence, 2005; Middle East Economic Digest, 2005).

The joint venture of BP p.l.c., Sonatrach, and Statoil ASA began production of natural gas from the In Salah project in June. Initial delivery of gas through a 460-km pipeline to the Sonatrach gas-gathering center at Hassi R'Mel began in July and reached a flow rate of about 9 billion cubic meters per year by yearend (Rigzone.com, 2004§).

The Ministère de l'Énergie et des Mines proposed to eliminate flaring of natural gas associated with oil production by 2010. In 2003, the last year for which data were available, about 11% of the associated gas in Algeria was flared (Energie & Mines, 2004).

Algeria's natural gas reserves were about 4.55 trillion cubic meters, which ranked the country eighth in the world (BP p.l.c., 2005, p. 20).

Outlook

Owing to its location close to Europe (which was the major market for its minerals) and its hydrocarbon resources and associated infrastructure, Algeria's hydrocarbon sector is expected to continue to be a magnet for foreign direct investment, although with the recent lifting of economic sanctions, neighboring Libya is expected to siphon off some oilfield investment interest. Additional natural gas production projects that are under development in Algeria include the In Amenas project (production expected in 2005) and the Gassi Touil project (2007) (Medjelled, 2004).

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Major Sources of Information

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TABLE 1
ALGERIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ^{2,3}	2000	2001	2002	2003	2004 ^P		
METALS							
Cadmium, refined ^c	10	10	8 ^r	5 ^r	--		
Gold		kilograms	--	300	369	365	597
Iron and steel:							
Iron ore, gross weight		thousand metric tons	1,645	1,291	1,202	1,378	1,414
Metal:							
Pig iron ^c		do.	1,100	1,250	1,300	1,300	1,300
Steel, crude		do.	842	850 ^e	1,091	1,051	1,014
Lead:							
Concentrate, Pb content			818	891	1,105	-- ^r	--
Metal, refined ^c			6,100	6,000	6,000	6,100	5,000
Mercury		kilograms	215,625	320,091	307,119	175,600 ^r	90,000
Silver ^c		do.	1,400	1,700	1,400 ^r	500 ^r	100
Zinc:							
Concentrate, Zn content			10,452	10,693	8,576	2,796 ^r	231
Metal, smelter output ^c			34,000	34,000	26,136 ⁴	32,200	25,000
INDUSTRIAL MINERALS							
Barite, crude			51,925	43,020	51,773	45,649	47,945
Cement, hydraulic ^{e,5}		thousand metric tons	8,300	8,300	9,000	9,000	9,000
Clays:							
Bentonite			22,708	21,286	27,178	25,346	30,319
Fuller's earth			3,431	3,254	3,521	2,573	2,284
Kaolin			11,616	13,356	9,505	16,591	24,299
Diatomite			2,500 ^e	2,863	3,185	2,595	2,665
Feldspar			707	--	--	--	--
Gypsum ⁶		thousand metric tons	1,341	281	322	350	300
Lime, hydraulic ^c			96,000	100,000	100,000	100,000	100,000
Marble							
Blocks		thousand cubic meters	25	33	23	24	22
Crushed stone			81,907	109,872	108,682	105,249	120,666
Slabs		thousand square meters	250	224	215	180	99
Nitrogen, N content of ammonia ⁷			457,900	482,000 ^r	563,100	578,200	542,800
Phosphate rock:							
Gross weight		thousand metric tons	877	939	740	905	805
P ₂ O ₅ content ^c		do.	265	280	230	280	240
Pozzolan ^c			360,000	421,238 ^{r,4}	451,000	500,000	436,000
Salt, brine and sea salt			182,000	184,682	205,321	191,017	183,000
Sand		thousand cubic meters	200	209	392	495	585
Sulfur, S content of sulfuric acid ^c			11,800	7,200	19,300	20,000	20,000
MINERAL FUELS AND RELATED MATERIALS							
Coke		thousand metric tons	409	441	450 ^e	450 ^e	400
Gas, natural:							
Gross		million cubic meters	139,499	140,740	139,998	137,634	144,281
Dry ⁸		do.	100,092	102,332	101,557	98,754	98,111
Helium, liquid ^c		do.	10	16	17	19	15
Methanol			NA	94,030	91,470	115,690	107,360
Natural gas plant liquids		thousand 42-gallon barrels	95,619	99,800	100,850	98,100	98,500
Petroleum:							
Crude, including condensate		do.	476,288	464,600	499,890	580,000	604,000
Refinery products:							
Liquefied petroleum gas		do.	6,322	6,600	6,870	7,050	6,650
Gasoline		do.	17,964	17,390	16,540	16,150	16,420
Naphtha		do.	32,124	34,370	33,690	34,230	25,450
Kerosene and jet fuel		do.	12,458	11,510	10,770	10,170	7,820
Distillate fuel oil		do.	44,820	49,790	45,100	46,150	43,000
Lubricants		do.	770	790	875	980	1,130
Residual fuel oil		do.	36,803	42,930	38,850	41,150	37,130
Other		do.	3,044	2,850	2,690	2,120	2,350
Total		do.	154,305	166,230	155,385	158,000	139,950

See footnotes at end of table.

TABLE 1--Continued
ALGERIA: PRODUCTION OF MINERAL COMMODITIES¹

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

^fRevised. NA Not available. -- Zero.

¹Table includes data available through September 6, 2005.

²In 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 copper, fertilizer, marble slabs, methanol, perlite, urea, and volcanic tuff are produced, but available information is inadequate to make estimates of production levels.

³In addition to the commodities listed, about 700 metric tons per year of caustic soda is estimated to have been produced.

⁴Reported figure.

⁵Erroneous cement units (metric tons instead of thousand tons) were used in previous Algeria production tables published during the period 1997 to 2000.

⁶Includes about 50,000 metric tons per year of plaster.

⁷Additional nitrogen was produced by Helios s.p.a., which is a helium liquids production company.

⁸Excludes gas used in flaring, reinjection, transmission losses, and venting.