

THE MINERAL INDUSTRY OF QATAR

By Philip M. Mobbs

The State of Qatar is located north of Saudi Arabia on a peninsula in the Persian Gulf. In 2004, the 11,437 square kilometer country supported a population of 743,000. Qatar's mineral output, which was dominated by hydrocarbons, also included the production of clay, dolomite and limestone, gypsum, sand, and shale. The processed mineral sector encompassed the production of ammonia, cement, direct-reduced iron, lime, methanol, crude steel, sulfur, and urea.

According to the International Monetary Fund (2005^{§1}), the Qatari gross domestic product (GDP) at purchasing power parity was estimated to be about \$21.9 billion² in 2004 and the per capita GDP at purchasing power parity was estimated to be more than \$28,900. The GDP at constant prices increased by 9.9% compared with an 8.5% increase in 2003. In 2004, the natural gas and oil sector accounted for about 62% of the GDP (Qatar Central Bank, 2005, p. 6).

Commodity Review

Metals

Aluminum.—In 2004, United Development Co. of Qatar's joint venture with Ferrostaal AG of Germany and JGC Corp. of Japan sought a partner to replace Dubai Smelter Developments FZE, which had withdrawn from the partnership in 2003. United Development had proposed to build a 516,000- to 620,000-metric-ton-per-year (t/yr)-capacity aluminum smelter at Ras Laffan at a cost of \$2.1 billion to \$2.6 billion. In December, Norsk Hydro ASA of Norway and Qatar Petroleum proposed to develop a 570,000-t/yr-capacity aluminum smelter at Mesaieed with initial production projected to begin in 2009. The proposed Mesaieed project would include an aluminum casthouse, an aluminum plant, an anode plant, and a dedicated powerplant fueled by domestic natural gas. The facility site was large enough to allow for construction of a second potline in the future (Metal Bulletin, 2003; Middle East Economic Digest, 2004b; Peninsula, The, 2004[§]).

Industrial Minerals

Cement.—Qatar National Cement Co. awarded the contract to build a 1-million-metric-ton-per-year (Mt/yr)-capacity cement plant to FCB Ciment of France. The new plant would be built adjacent to Qatar National's two existing cement plants at Umm Bab and would raise the company's total capacity to 2.4 Mt/yr

by late 2006. Much of the new capacity would be for domestic consumption (Middle East Economic Digest, 2004a).

Gypsum.—Qatari Saudi Gypsum Industries Co., in which Qatar Industrial Manufacturing Co. held a 33.3% equity interest, was expanding the capacity of its gypsum plant to 120,000 t/yr (Dr. Hazim Al-Jadi, Director, Projects Department, Qatar Industrial Manufacturing Co., written commun., October 21, 2004).

Magnesium.—In 2004, Magnesium International Ltd. of Australia proposed to build an 88,000-t/yr-capacity magnesium smelter. The company evaluated Qatar as a potential site because of the availability of low-cost electrical energy and natural gas in the country but decided to build the smelter in Egypt (Magnesium International Ltd., 2004).

Nitrogen.—In April, Qatar Fertilizer Co. S.A.Q. commissioned the \$534-million Qafco 4 ammonia and urea production facility at Mesaieed, which boosted the company's total production capacity to 2.8 Mt/yr of urea and 2 Mt/yr of ammonia. Production from the Qafco 4 plant quickly exceeded its 3,200-metric-ton-per-day (t/d)-urea and 2,000-t/d-ammonia design capacity (Qatar Fertilizer Co. S.A.Q., 2005, p. 9).

Sand.—Qatar Sand Treatment Plant (a subsidiary of Qatar Industrial Manufacturing Co.) expanded its capacity to 3 Mt/yr. Output was used in the construction industry (Dr. Hazim Al-Jadi, Director, Projects Department, Qatar Industrial Manufacturing Co., written commun., October 21, 2004).

Mineral Fuels

Natural Gas and Petroleum.—Several gas-utilization programs that would significantly increase national natural gas production were under evaluation or underway. These included the construction of gas-to-liquids plants, additional liquefied natural gas trains, and international gas pipelines. Unlike many other countries with natural gas reserves, very little of Qatar's gas was associated with oilfield production. Qatar's unassociated natural gas was not impacted by the Organization of the Petroleum Exporting Countries (OPEC) crude oil production quotas.

In March, the Ras Laffan Liquefied Natural Gas Co. Ltd. (II) officially opened the \$1.3 billion 4.7-Mt/yr liquefied natural gas Train 3. Also in 2004, Total S.A. initiated a 20,000-barrel-per-day (bbl/d)-capacity expansion project on the Al Kahalik oilfield. The company expected production from the field to reach 50,000 bbl/d by early 2005 (Total S.A., 2004).

Reserves

Estimated to be about 25.8 trillion cubic meters, Qatar's proven natural gas reserves were the third largest in the world after Russia (47 trillion cubic meters) and Iran (26.7 trillion

¹References that include a section mark (§) are found in the Internet References Cited section.

²Where necessary, values have been converted from Qatari rials (QR) to U.S. dollars (US\$) at the average exchange rate of QR3.643=US\$1.00 for 2004 and QR3.637=US\$1.00 for 2003.

cubic meters). In 2004, crude oil reserves were estimated to be 15.2 billion barrels (BP p.l.c., 2005, p. 4, 20; U.S. Energy Information Administration, 2005§).

Outlook

As long as natural gas is a highly desired fuel and petrochemical feedstock, the economy of Qatar is expected to prosper. With proven reserves of nearly 26 trillion cubic meters, Qatar could provide natural gas to the international market for more than 500 years. The abundance of natural gas in Qatar is expected to continue to attract energy-intensive industries, such as aluminum and additional petrochemical facilities.

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Major Source of Information

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TABLE 1
QATAR: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2000	2001	2002 ^c	2003 ^c	2004 ^c
Cement, hydraulic ^e	1,210,000 ^r	1,240,000	1,340,000	1,400,000	1,400,000
Gas, natural:					
Gross million cubic meters	33,656	37,132	39,000	40,000	50,000
Dry do.	26,141	27,738	29,300	31,400 ^r	39,200
Iron and steel:					
Direct-reduced iron	620,962	733,549	750,000	780,000	830,000
Steel, crude	743,615	907,608	1,027,000 ³	1,054,000 ³	1,046,000 ³
Semimanufactures:					
Billet	728,780	891,117	300,000 ^r	300,000 ^r	300,000
Bars	579,525	713,500	715,000	700,000	800,000
Natural gas liquids thousand 42-gallon barrels	24,126	26,726	27,000	28,000	28,000
Nitrogen:					
N content of ammonia	1,097,000	1,159,118	1,166,100 ³	1,185,300 ³	1,428,000 ³
N content of urea	770,761	779,388	798,700 ³	800,000	1,000,000
Petroleum:					
Crude thousand 42-gallon barrels	231,000	237,000	230,000	274,000	287,000
Refinery products:					
Gasoline do.	4,521	4,948	4,020	14,900	15,000
Kerosene do.	2,997	3,911	2,450	7,370	7,400
Distillate fuel oil do.	4,490	3,824	4,340	7,370	7,400
Residual fuel oil do.	6,264	4,492	2,850	2,880	2,900
Other do.	736	514	2,100	9,560	9,600
Total do.	19,008	17,689	15,800	42,100	42,300
Stone, limestone ^e	900,000	900,000	900,000	950,000 ^r	1,000,000
Sulfur	190,868	220,824	221,000	221,000	250,000

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

¹Table includes data available through July 2005.

²In addition to the commodities listed, clays, dolomite, gypsum, limestone, sand and gravel, shale for construction purposes, and methanol are produced in Qatar, but available information is inadequate to make estimates of output.

³Reported figure.

TABLE 2
QATAR: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Cement		Al-Jabor Cement Industries Co.	Clinker grinding mill at Mesaieed	165
Do.		Qatar National Cement Co. (Government, 43%)	Kilns and mills at Umm Bab	1,400
Iron and steel:				
Iron, direct reduction		Qatar Steel Co. Ltd. (Industries Qatar Co., 100%)	Mesaieed	730
Steel, crude		do.	Plant at Mesaieed	1,200
Steel, rolled		do.	Rolling mill at Mesaieed	740
Lime		Qatar National Cement Co. (Government, 43%)	Kilns at Umm Bab	28
Methanol		Qatar Fuel Additives Co. Ltd. (Industries Qatar Co., 50%; Chinese Petroleum Corp., 20%; Lee Chang Yung Chemical Industry Corp., 15%; International Octane Ltd., 15%)	Mesaieed	825
Natural gas:				
Extracted	billion cubic meters	Qatar Liquefied Gas Co. Ltd. (Qatar Petroleum, 65%; Total S.A., 20%; ExxonMobil Qatargas Inc., 10%; Mitsui & Co., Ltd., 2.5%; Marubeni Corp., 2.5%)	North Field, offshore	20
Do.	do.	Ras Laffan Liquefied Natural Gas Co. Ltd. (Qatar Petroleum, 63%; ExxonMobil Rasgas, Inc., 25%; Korea Gas Corp., 5%; Itochu Corp., 4%; LNG Japan Corp., 3%)	do.	11
Do.	do.	Qatar Petroleum	do.	1
Liquefied		Qatar Liquefied Gas Co. Ltd. (Qatar Petroleum, 65%; Total S.A., 10%; ExxonMobil Qatargas Inc., 10%; Mitsui & Co., Ltd., 7.5%; Marubeni Corp., 7.5%)	Three trains at Ras Laffan	9,400
Do.		Ras Laffan Liquefied Natural Gas Co. Ltd. (Qatar Petroleum, 63%; ExxonMobil Rasgas, Inc., 25%; Korea Gas Corp., 5%; Itochu Corp., 4%; LNG Japan Corp., 3%)	Two trains at Ras Laffan	6,600
Do.		Ras Laffan Liquefied Natural Gas Co. Ltd. (II) (Qatar Petroleum, 70%; ExxonMobil Rasgas, Inc., 30%)	One train at Ras Laffan	4,780
Nitrogen:				
Ammonia		Qatar Fertilizer Co. S.A.Q. (Qatar Petroleum, 75%; Yara Nederland BV, 15%; Fertilizer Holdings AS, 10%)	QAFCO 1, Mesaieed	416
Do.		do.	QAFCO 2, Mesaieed	420
Do.		do.	QAFCO 3, Mesaieed	548
Do.		do.	QAFCO 4, Mesaieed	730
Urea		do.	QAFCO 1, Mesaieed	447
Do.		do.	QAFCO 2, Mesaieed	511
Do.		do.	QAFCO 3, Mesaieed	730
Do.		do.	QAFCO 4, Mesaieed	1,200
Petroleum:				
Crude	thousand 42 -gallon barrels	Qatar Petroleum	Dukhan Field, onshore	120,000
Do.	do.	Maersk Oil Qatar A.S. (Maersk Olie og Gas A.S.)	Al Shaheen Field, offshore	73,000
Do.	do.	Total S.A.	Al Khaleej, offshore	29,000
Do.	do.	Qatar Petroleum	Bu Hanine Field, offshore	25,000
Do.	do.	do.	Maydan Mahzam, Field, offshore	18,000
Do.	do.	Occidental Petroleum of Qatar Ltd.	Idd Al Sharqi, North Dome and South Dome	17,000
Do.	do.	Anadarko Petroleum Corp., 92.5%, and Preussag Energie GmbH, 7.5%	Al Rayyan, offshore	8,500
Do.	do.	Bunduq Co., Ltd. (BP Exploration, 33.3%; Total S.A., 33.3%; United Petroleum Development Co., 33.3%)	El Bunduq ¹	7,210
Refined	do.	Qatar Petroleum	Mesaieed	50,000
Sulfur		Ras Laffan LNG Co.	Ras Laffan	110
Do.		Qatar Petroleum	Mesaieed	95
Do.		Qatar Petrochemical Co. Ltd.	Umm Said	70
Do.		Qatar Liquefied Gas Co. Ltd.	Ras Laffan	66

¹El Bunduq Field is located on the border between Qatar and the United Arab Emirates. Royalties are shared by the Governments.