



2012 Minerals Yearbook

QATAR

THE MINERAL INDUSTRY OF QATAR

By Mowafa Taib

Qatar was a major world producer of, in order of percentage of world production, natural gas and crude oil; helium, ammonia, urea, and sulfur; primary aluminum, and direct-reduced iron (DRI) in 2012. The country had been the world's leading exporter of liquefied natural gas (LNG) since 2006. Qatar was the world's fourth-ranked producer of natural gas after the United States, Russia, and Iran and accounted for 4.7% of the world's output. Qatar's proved natural gas reserves, which were estimated to be 25.1 trillion cubic meters at the end of 2012, accounted for 13.4% of the world's total natural gas reserves and were the world's third largest reserves after those of Russia and Iran. Qatar contributed 2.0% of the world's supply of crude oil (and condensate), and its crude oil reserves were estimated to be about 23.9 billion barrels, or 1.4% of the world's total reserves at the end of 2012. Other mineral commodities produced in Qatar included calcium carbonate, cement, gypsum, lime, limestone, and washed sand (table 1; Apodaca, 2013; BP p.l.c., 2013, p. 6, 8, 20, 22; Hamak, 2013).

Minerals in the National Economy

In 2012, the Qatari economy grew at a rate of 6.6% in real terms compared with 13.0% in 2011. The main drivers of Qatar's economic growth continued to be high oil prices and increases in the production and exports of crude oil, fertilizer, LNG, metals, and refined petroleum products. The share of the hydrocarbon sector in the Qatari economy was 57.8% of the gross domestic product (GDP) at current prices compared with 59.3% of the GDP in 2011. The value of hydrocarbon sector activity increased in real terms by 3.5% in 2012 compared with an increase of 15.7% in 2011. The share of the natural gas sector in the Qatari economy in terms of value was 42.2% of the GDP, followed by the petroleum sector, 15.6%; and the non-oil industrial sector, 14.6%. The activities of the non-oil industrial sector, which included industry and services, accounted for 42.2% of the GDP at current prices, which was an increase of 9% compared with an increase of about 10.8% in 2011. Manufacturing sector activity, which included cement, fertilizer, metals, and petrochemicals production, increased in value by 11.8% in 2012 compared with an increase of 17% in 2011 and accounted for 9.8% of the GDP. Construction sector activity, which accounted for 4.4% of the GDP, increased in value by 10.6% compared with an increase of 6.5% in 2011. Electricity and other utilities activities accounted for 0.4% of the GDP (QNB Capital L.L.C., 2013, p. 3).

Government Policies and Programs

The Ministry of Industry and Energy controls the country's crude oil and natural gas policy with the consent of the Emir of Qatar. The Ministry maintained a moratorium on the development of new hydrocarbon projects until 2015. Qatar completed a long-term investment plan to develop its

hydrocarbon sector in 2011. Qatar's National Development Strategy 2011–2016 calls for focusing on economic diversification and growth of the nonhydrocarbon sector through targeted investments in infrastructure. These investments were expected to keep the country's economy strong for the medium term and cause a robust growth in the nonhydrocarbon sector (International Monetary Fund, 2013; 0. 4; Qatar National Bank S.A.Q., 2013, p. 16).

Production

The most notable increases in Qatar's mineral production in 2012 compared with that of 2011 were for production of urea, which increased by 42%; ammonia, by 39%; aluminum, by 34%; distilled fuel oil, by 17%; cement, lime, and limestone, by 10% each; DRI, by 9%; dry natural gas, by 8%; and crude oil and condensates, by 7% (table 1).

Structure of the Mineral Industry

The Natural Resources Law No. 3 of 2007 grants the state ownership of and exploitation rights to the country's natural resources. Qatar Petroleum (QP) is the Government-owned company responsible for managing all aspects of natural gas and crude oil development, exploration, production, and transportation in the country through its subsidiaries and joint ventures. The company operates onshore sites at Doha, Dukhan, Mesaieed Industrial City, and Ras Laffan Industrial City, and offshore sites at Halul Island and the North gasfield (Qatar Petroleum, 2013, p. 16–17; U.S. Energy Information Administration, 2013).

QP had signed several exploration, development, and production-sharing agreements on behalf of the Government of Qatar with such international oil companies as ConocoPhillips Co., Exxon Mobil Qatar Inc. and Occidental Petroleum of Qatar Ltd. (all of the United States); LNG Japan Corp. and Mitsui & Co. Ltd. (both of Japan); Royal Dutch Shell p.l.c. of the United Kingdom; and Total E&P Qatar Ltd. of France to operate and produce LNG from the North Field (Qatar Petroleum, 2013, p. 16–17; U.S. Energy Information Administration, 2013).

QP had eight subsidiary companies. Of these companies, it had a 100% ownership interest in seven [Al Shaheen Holding Q.S.C., Gulf International Service Q.S.C., Qatar Holding Intermediate Industries Co. Ltd., Qatar Petroleum International Ltd., Qatar Petroleum Qatar Gas (3) Ltd., Qatar Petroleum Qatar Gas (4) Co. Ltd., and Qatar Petroleum RasGas (3) Ltd.] and a 51% interest in one [Industries Qatar Q.S.C. (IQ)]. QP also had a majority interest in a number of joint ventures, including Barzan Gas Co. Ltd. (93%); Qatargas Operating Co. Ltd. and Rasgas Co. Ltd. (70% each); Qatar Liquefied Gas Co. Ltd. 2 Q.S.C. (Qatargas 2) (67.05%); Ras Laffan Liquefied Natural Gas Co. Ltd. 2 (Rasgas 2) (67.1%); Qatar Liquefied Gas Co. Ltd. Q.S.C. and Qatar Upstream Joint Venture (unincorporated) (65% each);

Ras Laffan Liquefied Natural Gas Co. Ltd. (Rasgas) (63%); Ras Laffan Refinery Co. Ltd., Oryx GTL Ltd., Qatar Chemical Co. Ltd. Q.S.C., Qatar Chemical Co. Ltd. Q.S.C. II, Qatex Ltd. (51% each); and Qatar Aluminium Ltd. (Qatalum) (50%) (Qatar Petroleum, 2013, p. 16).

Some of QP's joint ventures and subsidiaries created their own joint ventures and subsidiaries. These included Qatar Fertilizer Co. S.A.Q. Ltd. (Qafco), Qatar Liquefied Gas Co. Ltd. 3 (Qatargas 3), Qatar Petroleum Qatar Gas (4) Co. Ltd. (Qatargas 4), Qatar Petrochemical Co. Ltd. (Qapco), Qatar Steel Q.S.C. (Qatar Steel), and Ras Laffan Liquefied Natural Gas Co. Ltd. 3 (Rasgas 3) (Qatar Petroleum, 2013, p. 17).

In 2012, QP divested some of its stake in IQ, to 51% from 70%, or by 19%, and increased the cumulative stake of the General Retirement and Social Security Authority of Qatar by the same percentage. IQ thought that the share transfer would strengthen the company's relations with the Government of Qatar and enhance the participation of Qatari citizens in the country's wealth. IQ held a 100% interest in Qatar Steel, an 80% interest in each of Qatar Nitrogen Co. and Qapco, a 75% interest in Qafco, and a 50% interest in Qatar Fuel Additives Co. Ltd. Q.S.C. (Qafac). Qatar Qatalum was a 50-50 joint venture of QP and Norsk Hydro A.S.A of Norway (table 2; Industries Qatar Q.S.C., 2013, p. 44).

Mineral Trade

In 2012, the value of Qatar's exports of goods and services increased by about 5.4% to \$126.0 billion from \$119.6 billion in 2011. Of the total exports of goods and services in 2012, LNG and related exports were valued at \$71.8 billion compared with \$70.3 billion in 2011 and crude oil and refined petroleum products exports amounted to about \$38.2 billion compared with \$35.1 billion in 2011. The quantity of LNG exports was 77.2 Mt in 2012; they were shipped to the Asia and the Pacific region (63%), Europe and Eurasia (30%), and other destinations (7%). Japan was the leading importer of LNG from Qatar (15.7 Mt), followed by India (11.8 Mt), and the Republic of Korea (10.8 Mt). The United Kingdom increased its LNG imports from Qatar owing to the United Kingdom's declining production from the North Sea. Qatari LNG exports were also received by such South American countries as Argentina, Brazil, and Chile as well as by neighboring Middle Eastern countries, such as the United Arab Emirates (UAE) and Kuwait. The spot Organization of Petroleum Exporting Countries (OPEC) reference basket price for Qatar Dukhan crude averaged \$110.34 per barrel in 2012 compared with an average of \$108.86 per barrel in 2011. The volume of crude oil exports, which was 588,000 barrels per day (bbl/d) in 2012, was similar to that of 2011 (Organization of the Petroleum Exporting Countries, 2013, p. 49, 56, 82; QNB Capital L.L.C., 2013, p. 14, 18, 63).

The United States had a trade surplus with Qatar of about \$2.6 billion in 2012. U.S. exports to Qatar increased by 28% to about \$3.6 billion from about \$2.8 billion in 2011 whereas U.S. imports from Qatar decreased by about 17% to \$1.0 billion from \$1.2 billion in 2011. The main Qatari imports from the United States included transportation equipment (valued at about \$2.4 billion), machinery (\$342 million), computers and electronic products (\$168 million), fabricated metal

products (\$107 million), and others (\$608 million). Qatar's exports to the United States included petroleum products (valued at \$366 million), primary metals (\$293 million), chemicals (\$212 million), crude oil and natural gas (\$100 million), and others (\$57 million) (U.S. International Trade Administration, 2013).

In 2012, Qatar exported 683,000 metric tons (t) of ammonia, 61% of which went to India; 21%, to South Africa; 13%, to Jordan; and the remaining 5%, to Madagascar, the Republic of Korea, Taiwan, and Thailand. Qatar exported more than 4.2 Mt of urea to more than 25 countries around the world, including Australia (15.6%), Thailand and the United States (12.8% each), Brazil (11.5%), Pakistan (7.1%), South Africa (7.0%), Bangladesh (6.4%), the Republic of Korea (5.2%), the Philippines (4.7%), India (4.2%), New Zealand (2.6%), Sudan (2.5%), and other countries (8.1%) (Arab Fertilizer Association, 2013, p. 26, 31).

Commodity Review

Metals

Aluminum.—Primary aluminum production by Qatalum exceeded the smelter's capacity of 585,000 metric tons per year (t/yr) of primary aluminum in 2012. The company produced 604,000 t in 2012 compared with 450,000 t in 2011. The smelter, which is located at Mesaieed, had its own 1,370-megawatt powerplant and the option to increase the smelter's output capacity to 1.2 million metric tons per year (Mt/yr). Qatalum planned to increase production to 609,000 t/yr by 2013 and later to 1.2 Mt/yr. Qatalum's smelter consumed about 1.8 Mt/yr of alumina, which was shipped in 42,000-t shipments from alumina refineries in Australia and Brazil that were partially owned by Norsk Hydro (Qatar Aluminium Ltd., 2012).

Qatar Aluminum Extrusion Co. commenced production in June. The company, which was owned by Qatar Industrial Manufacturing Co. (QIMC) (40% interest) and other Qatari investors, had the capacity to produce 8,000 t/yr of aluminum logs and profiles (Qatar Industrial Manufacturing Co. Q.S.C., 2013, p. 22).

Iron and Steel.—Production of DRI by Qatar Steel increased to 2.4 Mt in 2012 compared with 2.2 Mt in 2011. Crude steel output increased to 2.1 Mt from 2.0 Mt in 2011. In 2012, Qatar Steel, which imported iron ore from Brazil, was looking for investments through acquisitions and joint ventures in iron ore- and steel-related production facilities to secure raw materials for production and to take hold of market opportunities for downstream products. The Government increased its share in major mining companies and regional steel companies in Algeria, Bahrain, Saudi Arabia, and the UAE (table 1; Qatar Steel Co. Q.S.C., 2013, p. 10).

Qatar Steel moved forward with the construction of a steelmaking facility at Mesaieed next to its existing steel plant. The new plant would add 1.1 Mt/yr of steelmaking capacity and was expected to be completed by 2013. Siemens VAI of Germany was building the expansion project. The new plant at Mesaieed would include a 110-t electric arc furnace, a 110-t ladle furnace, and 6-strand high-speed billet caster

coupled with a fume extraction system (QNB Capital, L.L.C., 2013, p. 22).

Qatar Metals Coating Co. was a 50–50 joint venture of Qatar Steel and QIMC that produced epoxy steel bars for use in the construction of buildings. The company had the capacity to produce 1 Mt/yr of coated steel bar and was located in the Mesaieed Industrial Area (Qatar Industrial Manufacturing Co. Q.S.C., 2013, p. 22).

Industrial Minerals

Cement, Lime, and Limestone.—According to the latest statistics from the Arab Union for Cement and Building Materials, Qatar’s production capacity totaled 6.4 Mt/yr of clinker and about 6.8 Mt/yr of cement in 2012. Qatar National Cement Co. S.A.Q (QNCC), which was the country’s leading producer of cement, reported an output of 3.6 Mt of cement in 2012 compared with 3.5 Mt in 2011, which included ordinary portland cement, portland pulverized fuel ash cement, and sulfate resistant cement. The company, which was owned by the Government (43% interest) and other investors, also produced 4.1 Mt of washed sand compared with a revised 3.6 Mt in 2011. QNCC commenced calcium carbonate production at its 250-metric-ton-per-day-(t/d)-capacity facility at Umm Bab, which was located 82 kilometers (km) west of Doha. The calcium carbonate was used mainly for water desalination plants by Qatar Electricity and Water Co. (QEWC). QNCC agreed to supply QEWC with calcium carbonate for 25 years from its 75,000-t/yr-capacity plant at Umm Bab. QNCC planned to add a fifth cement line that would increase the company’s total capacity to 5.36 Mt/yr of cement to meet the increased demand for cement caused by the construction activity related to Qatar’s planned hosting of the FIFA World Cup™ (Arab Union for Cement and Building Materials, 2013; Mirza, 2013, p. 20; Qatar National Cement Co. S.A.Q., 2013).

QNCC stopped producing calcined and hydrated lime, which amounted to 14,400 t/yr in previous years, because of Qatar Steel’s decision to discontinue purchasing lime from QNCC in 2011. Qatar Steel had commissioned production of its own calcined lime plant in December 2011. The 200,000-t/yr-capacity plant was built and operated by FMW Group of Austria and Cimprogetti S.p.A. of Italy (FMW Industrieanlagenbau GmbH, 2013).

Al-Jabor Cement Industries Co., which was a joint venture of Al Jabor Holdings (75% interest) and Holcim Group of Switzerland (25% interest) produced cement, aggregates, and other construction materials at its grinding station in Mesaieed. The grinding station had two grinding mills that had the capacity (combined) to produce 900,000 t/yr of cement (table 2; Holcim Group, 2013).

Nitrogen.—Qafco was a major producer of nitrogen fertilizer in the Middle East in 2012. The company produced about 3.2 Mt of ammonia at its five ammonia plants (Ammonia 1 through Ammonia 5) and about 4.6 Mt of urea at its five urea plants (Urea 1 through Urea 5). Qafco completed a \$3.2 billion expansion project in 2011, Qafco–5, which increased the company’s production capacity to 3.0 Mt/yr of ammonia and 4.3 Mt/yr of urea. Qafco–5 was a joint venture of

Industries Qatar (the parent company for Qafco) (75% interest) and Yara Holding Netherlands B.V., which was a subsidiary of Yara International A.S.A. of Norway (25% interest). Construction work for a second expansion project, Qafco–6, was completed in December. As of yearend 2012, Qafco’s total capacity was 3.8 Mt/yr of ammonia and 5.6 Mt/yr of urea, which made Qafco the world’s largest single-site producer of both ammonia and urea (Industries Qatar Q.S.C., 2013, p. 16; Qatar Fertilizer Co. Q.S.C., 2013).

Mineral Fuels and Related Materials

Helium.—Construction of the second helium production plant in Qatar, Qatar Helium 2, moved forward during 2012 and was expected to be completed in the second half of 2013. The Qatar Helium 2 project was a joint venture of Qatargas 2, Qatargas 3, Qatargas 4, and Rasgas. The \$500 million project, which was managed by Rasgas, would have the capacity to produce 38 million cubic meters per year at Ras Laffan. Once completed, Qatar would increase its helium production capacity to 58 million cubic meters per year, which would be sufficient to supply about one-third of the world’s demand for helium. Fifty percent of the helium output from both helium plants would be sold to Air Liquide S.A. of France, 30% would be sold to Linde Industrial Gases (a subsidiary of Linde Group of Germany), and 20% would be sold to Iwatani Corp. of Japan (Qatargas Operating Co. Ltd., 2010; Air Liquide. S.A., 2013; Linde Group, 2013).

Natural Gas.—Natural gas production increased by 18.3% annually between 2008 and 2012 and was expected to increase each year by 5.5% through 2016. Ninety-nine percent of Qatar gas reserves are contained in the North Field, which was the world’s largest nonassociated natural gas field. The reserves are expected to last for more than 160 years at the current (2012) level of production. In 2012, 66.4% of Qatar’s gas production went to LNG exports, 16.5% was used by the domestic market, 13.9% was exported by way of the Dolphin gas pipeline to the United Arab Emirates, and 3.2% was used for gas-to-liquids (GTL) production. QP owned 68.1% of overall LNG projects, followed by Exxon Mobil Corp. of the United States, which had a 19.9% share. Other partners included ConocoPhillips of the United States; Itochu Corp., Marubeni Corp., and Mitsui & Co. (all of Japan); Korea Gas Corp. of the Republic of Korea; Royal Dutch Shell of the Netherlands and the United Kingdom; Total E&P of France; and others, which owned the remaining 12% of the LNG projects. ExxonMobil and QP were joint-venture partners in developing Barzan gas project. The joint venture, Barzan Gas Co. Ltd., was expected to supply 39.7 million cubic meters per day of natural gas mainly to power utilities and industrial plants in Qatar (Qatar National Bank S.A.Q., 2013, p. 9–10; Qatar Petroleum, 2013).

QP signed an exploration and production-sharing agreement with JX Nippon Oil and Gas Exploration (Qatar) Ltd. of Japan for Offshore Block A, which covers an area of 6,173 square kilometers and is located northeast of Ras Laffan Industrial City. JX Nippon would be the contractor and operator of the project. In May, QP signed an agreement with CNOOC Middle East (Qatar) Ltd. of China and Total Group, under which Total would

acquire a 25% interest in Qatar's Block BC exploration license and CNOOC Middle East would continue to be the operator of the block and hold a 75% interest in it (Qatar Petroleum, 2013).

Petroleum.—Qatar's production of crude oil averaged 737,500 bbl/d in 2012; production was expected to remain at the same level through 2014 and to increase to 800,000 bbl/d by 2016. QP was responsible for 39% of crude oil production in Qatar, and the remaining 61% was produced by international oil companies operating in Qatar. The Al Shaheen, which was an offshore oilfield operated by Maersk Oil Qatar, was the leading producing oilfield in the country with an average production of 300,000 bbl/d. The Dukhan oilfield, which was Qatar's only onshore oilfield, was operated by QP and produced about 225,000 bbl/d of crude oil. The rest of the active offshore oilfields included the Al Karkara, which was operated by Qatar Petroleum Development Co. and produced 7,000 bbl/d; the Al Khalij (Total E&P, 19,000 bbl/d), the Al Rayyan (Occidental, 8,000 bbl/d), the Bul Hanine (QP, 45,000 bbl/d), the Idd Al Shargi North and South (Occidental Qatar Energy Co., 105,000 bbl/d), the Maydan Mahzam (QP, 22,000 bbl/d), and El-Bunduq (United Petroleum Development Co. Ltd., 6,500 bbl/d). The number of producing oil wells in Qatar remained at 517 wells in 2012, including 87 wells completed in 2012 compared with 29 wells completed in 2011 (table 2; Organization of the Petroleum Exporting Countries, 2013, p. 26–27; QNB Capital L.L.C., 2013, p. 18).

Crude oil development activity under production-sharing agreements and exploration and production-sharing agreements continued in 2012 by consortia and oil companies, including CNOOC Consortium (Block BC), GDF SUEZ Consortium (Block 4), JX Nippon (Block A), Shell Consortium (Block BC), and Wintershall Consortium (Block 4 and Block 4 North) (Qatar Petroleum, 2013, p.43).

Refined Petroleum Products.—Qatar was the world's leading producer of GTL, which a marketable and transportable liquid fuel made from crude natural gas. Oryx GTL, which was a joint venture of QP (51% interest) and Sasol Ltd. of South Africa (49% interest), produced 34,000 bbl/d of diesel, 10,000 bbl/d of naphtha, and 1,000 bbl/d of liquefied petroleum gas (LPG). In 2011, Pearl GTL, which was a joint venture of QP and Shell, commenced production at the world's largest capacity GTL plant, Pearl GTL, at Ras Laffan Industrial City; the plant had the capacity to produce 140,000 bbl/d of GTL products and 120,000 bbl/d of natural gas liquids. In 2012, the first shipment of Pearl GTL products was carried out by Shell, which was the operator of the project. Pearl GTL produced 28.6 million barrels (Mbbbl) of GTL products and 15.3 Mbbbl of condensate (Qatar Petroleum, 2013, p. 63–64).

In 2012, expansion works continued to increase the refining capacity of the Laffan refinery to 292,000 bbl/d of refined petroleum products by 2016 from the current (2012) 145,000 bbl/d. The refinery was operated by Rasgas and controlled by a group of investors, including QP (51%); Cosmo Oil Co. of Japan, ExxonMobil, Idemitsu Kosan Co. Ltd. of Japan, and Total (10% each); and Mitsui and Co. Ltd. and Marubeni Corp. of Japan (4.5% each) (QNB Capital L.L.C., 2013, p. 20).

Outlook

The mineral industry of Qatar will likely continue to be dominated by hydrocarbon sector activity in general and LNG production in particular for the near future. The Government is determined to implement its economic diversification policy in part of the country's National Development Strategy 2011–2016. Having completed major LNG production capacity and nitrogen fertilizer expansion projects, Qatar will likely focus on investing in aluminum, iron and steel projects, and infrastructure projects, including Barzan Gas Development, Education City, Laffan Condensate Refinery, Qatar Integrated Railways, and other transport sector projects.

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TABLE 1
QATAR: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2008	2009	2010	2011	2012
METALS					
Aluminum	--	10	126 ^r	450	604
Iron and steel:					
Direct-reduced iron	1,638	2,096	2,157	2,230	2,420
Semimanufactures:					
Billet, cast	1,405	1,448	1,946	2,005	2,105
Bars, rolled	1,150	1,468	1,650	1,819	1,910
Steel, crude	1,146	1,566	1,705	2,000	2,100
INDUSTRIAL MINERALS					
Calcium carbonate	--	--	--	--	75 ^e
Cement, all types	3,800	4,100	4,000	5,000 ^r	5,500
Gypsum ^e	135	135	135	135	145
Lime	40 ^r	55 ^r	95 ^r	100 ^r	110
Nitrogen fertilizer:					
N content of ammonia	1,812	1,828	1,883	1,919	2,665
N content of urea	1,378	1,380	1,384	1,480	2,095
Sand, washed	6,500	7,500	7,600	6,000	5,800
Stone, limestone ^e	1,100	2,220	1,674	2,000 ^r	2,200
Sulfur	600	658	850 ^r	850 ^r	820
Sulfuric acid ^e	10	10	10	10	10
MINERAL FUELS AND RELATED MATERIALS					
Gas, natural:					
Gross million cubic meters	90,887	102,800	136,251 ^r	150,016 ^r	163,025
Dry do.	77,000	89,300	131,165 ^r	145,271 ^r	157,050
Helium ^e do.	13	20	20	20	20
Methanol	997	1,042	879	1,022	983
Natural gas liquids thousand 42-gallon barrels	73,000	80,300	80,300	85,000	81,375
Petroleum:					
Crude and condensates do.	502,970	490,925	572,685	670,140 ^r	717,590
Refinery products:					
Liquefied petroleum gas do.	47,888	70,482	112,092	118,552	118,552
Gasoline do.	17,228	13,930	16,291	15,878	15,500
Kerosene and jet fuel do.	9,417	10,900	8,979	8,405	8,405
Distillate fuel oil do.	10,877	11,607	10,038	10,000	11,660
Residual fuel oil do.	1,424	1,533	1,752	1,350	1,378
Other do.	39,366	17,848	11,534	10,585	7,811
Total do.	126,200	126,300	160,686	164,770	163,306

^eEstimated; 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 November 15, 2013.

²In addition to the commodities listed, clays, dolomite, sand and gravel, and shale are produced, but available information is inadequate to make reliable estimates of output.

TABLE 2
QATAR: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum		Qatar Aluminium Ltd. (Qatalum) (Qatar Petroleum, 50%, and Norsk Hydro ASA, 50%)	Smelter at Mesaieed	585
Cement:				
Portland		Qatar National Cement Co. (Government, 43%, and private Qatari investors, 57%)	4 kilns and 4 mills at Umm Bab	4,400
Do.		Al-Jabor Cement Industries Co. (Al Jabor Holdings, 75%, and Holcim Group, 25%)	2 clinker grinding mills at Mesaieed	900
White		Qatari Saudi Company for Industrial Transformation	do.	165
Calcium carbonate		Qatar National Cement Co. (Government, 43%, and private Qatari investors, 57%)	Umm Bab, 82 kilometers west of Doha	75
Gypsum		Qatari Saudi Company for Gypsum (Qatar Industrial Manufacturing Co., 33.375%; Qatar National Cement Co., 33.250%; National Gypsum Co., 33.375%)	Salwa Industrial Area	135
Helium	million cubic meters	Joint venture of Qatar Liquefied Gas Co. Ltd. I (Qatargas 1), Ras Laffan Liquefied Natural Gas Co. Ltd. (Rasgas), and Ras Laffan Liquefied Natural Gas Co. Ltd. (II) (Rasgas II)	Ras Laffan	20
Iron and steel:				
Iron, direct reduced		Qatar Steel Co. Q.S.C. (Industries Qatar Q.S.C., 100%)	Mesaieed	2,400
Steel, crude		do.	Plant at Mesaieed	1,470
Steel, rolled		do.	Rolling mill at Mesaieed	1,440
Lime		Qatar National Cement Co. (Government, 43%, and private Qatari investors, 57%)	Kilns at Umm Bab	15,000
Do.		Qatar Steel Co. Q.S.C. (Industries Qatar Q.S.C., 100%)	Mesaieed	200
Limestone		do.	Umm Bab	75
Methanol		Qatar Fuel Additives Co. Ltd. Q.S.C. (Qafac) (Industries Qatar Q.S.C., 50%; OPIC Netherlands Antilles N.V., 20%; Lee Chang Yung Chemical Industry Corp., 15%; International Octane Ltd., 15%)	Mesaieed	913
Natural gas:				
Extracted	billion cubic meters	Qatar Petroleum (Government, 100%)	Al Khaleej field	8
Do.	do.	do.	North field	20
Do.	do.	do.	North field Alpha	10
Liquefied		Qatar Liquefied Gas Co. Ltd. 1 (Qatargas 1) (Qatar Petroleum, 65%; Total S.A., 10%; ExxonMobil Qatar Inc., 10%; Mitsui & Co., Ltd., 7.5%; Marubeni Corp., 7.5%)	Three trains at Ras Laffan	10,200
Do.		Qatar Liquefied Gas Co. Ltd. 2 (Qatargas 2) (Qatar Petroleum, 70%, and ExxonMobil Qatar Inc., 30%)	Train 4 at Ras Laffan	7,800
Do.		Qatar Liquefied Gas Co. Ltd. 2 (Qatargas 2) (Qatar Petroleum, 65%; ExxonMobil Qatar Inc., 18.3%; Total S.A., 16.7%)	Train 5 at Ras Laffan	7,800
Do.		Qatar Liquefied Gas Co. Ltd. 3 (Qatargas 3) (Qatar Petroleum, 68.5%; ConocoPhillips Co., 30%; Mitsui & Co. Ltd., 1.5%)	Train 6 at Ras Laffan	7,800
Do.		Qatar Petroleum Qatar Gas (4) Co. Ltd. (Qatargas 4) (Qatar Petroleum, 70%, and Royal Dutch Shell plc, 30%)	Train 7 at Ras Laffan	7,800
Do.		Ras Laffan Liquefied Natural Gas Co. Ltd. (Rasgas) (Qatar Petroleum, 63%; ExxonMobil Qatar Inc., 25%; Korea Gas Corp., 5%; Itochu Corp., 4%; LNG Japan Corp., 3%)	Trains 1 and 2 at Ras Laffan	6,600
Do.		Ras Laffan Liquefied Natural Gas Co. Ltd. 2 (Rasgas 2) (Qatar Petroleum, 70%, and ExxonMobil Qatar Inc., 30%)	Trains 3, 4, and 5 at Ras Laffan	14,300
Do.		Ras Laffan Liquefied Natural Gas Co. Ltd. 3 (Rasgas 3) (Qatar Petroleum, 70%, and ExxonMobil Qatar Inc., 30%)	Trains 6 and 7 at Ras Laffan	15,600
Nitrogen:				
Ammonia		Qatar Fertilizer Co. S.A.Q. (Qafco) (Industries Qatar Q.S.C., 75%, and Yara Netherland BV, 25%)	QAFCO 1, Mesaieed	900
Do.		do.	QAFCO 2, Mesaieed	900
Do.		do.	QAFCO 3, Mesaieed	1,500

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Nitrogen—Continued:				
Ammonia—Continued	Qatar Fertilizer Co. S.A.Q. (Qafco) (Industries Qatar Q.S.C., 75%, and Yara Netherland BV, 25%)		QAFCO 4, Mesaieed	2,000
Do.	do.		QAFCO 5, Mesaieed	2,000
Do.	do.		QAFCO 6, Mesaieed	2,000
Urea	do.		QAFCO 1, Mesaieed	1,000
Do.	do.		QAFCO 2, Mesaieed	1,000
Do.	do.		QAFCO 3, Mesaieed	2,000
Do.	do.		QAFCO 4, Mesaieed	3,200
Do.	do.		QAFCO 5, Mesaieed	3,850
Do.	do.		QAFCO 6, Mesaieed	3,850
Petroleum:				
Crude	42-gallon barrels per day	Maersk Oil Qatar A.S., operator ¹	Al Shaheen field, offshore	330,000
Do.	do.	Qatar Petroleum (Government, 100%)	Dukhan field, onshore	256,000
Do.	do.	do.	Bul Hanine field, offshore	37,000
Do.	do.	Occidental Petroleum Corp., operator ¹	Idd Al Sharqi, North Dome and South Dome, offshore	113,000
Do.	do.	do.	Al Rayyan, offshore	8,600
Do.	do.	United Petroleum Development Co. Ltd. (Bunduq Oil Production Co. Ltd, 97%, and BP p.l.c., 3%)	El Bunduq ²	7,300
Do.	do.	Total E&P Qatar Ltd., operator ¹	Al Khaleej, offshore	37,500
Do.	do.	do.	Maydan Mahzam field, offshore	36,000
Do.	do.	Qatar Petroleum Development Co. operator ¹ (Cosmo Oil Co., Nissho Iwai Corp., United Petroleum Development Co.)	Al Karkara and A Structure	6,200
Refined	do.	Qatar Petroleum Refinery (Qatar Petroleum, 100%)	Umm Said	200,000
Do.	do.	The Laffan Refinery Co. Ltd. (Qatar Petroleum, 51%; Cosmo Oil Co., 10%; Exxon Mobil Corp., 10%; Idemitsu Kosan Co. Ltd., 10%; Mitsui and Co., 4.5%; Marubeni Corp. 4.5%)	Ras Laffan	146,000
Do.	do.	Oryx GTL Ltd. (Qatar Petroleum, 51%, and Sasol Ltd., 49%)	do.	12,400
Sand, washed		Qatar National Cement Co. (Government, 43%, and private Qatari investors, 57%)	Umm Bab, 82 kilometers west of Doha	10,000
Do.		Qatar Sand Treatment Plant (Qatar Industrial Manufacturing Co. (Q.S.C.))	Umm Bab, 82 kilometers west of Doha	1,000
Sulfur:				
Elemental		Ras Laffan Liquefied Natural Gas Co. Ltd. (Rasgas)	do.	400
Do.		Qatar Petroleum (Government, 100%)	Mesaieed	100
Do.		Qatar Petrochemical Co. (Qapco)	Umm Said	100
Do.		Qatar Liquefied Gas Co. Ltd. Q.S.C. (Qatargas)	Ras Laffan	300
Sulfuric acid		Qatar Industrial Manufacturing Co. (Q.S.C.)	Mesaieed	11

Do., do. Ditto.

¹Operated under a development and production-sharing agreement with Qatar Petroleum.

²El Bunduq field is located on the border between Qatar and the United Arab Emirates. Royalties are shared by the Governments.