



# 2010 Minerals Yearbook

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**QATAR**

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# THE MINERAL INDUSTRY OF QATAR

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In 2010, Qatar was a major producer of crude oil, direct-reduced iron (DRI), helium, natural gas, and urea. Qatar was the world's fifth ranked producer of natural gas and accounted for 3.6% of the world's output. The country continued to be the world's leading exporter of liquefied natural gas (LNG). Qatar's proved natural gas reserves at the end of 2010 were estimated to be 25.3 trillion cubic meters, which were the world's third largest reserves after Russia and Iran, and accounted for 13.5% of the world's total natural gas reserves. Qatar contributed 1.7% of the world's supply of crude oil. As of yearend 2010, Qatar's crude oil reserves were estimated to be about 26 billion barrels, or 1.9% of the world's total reserves. Qatar production of ammonia accounted for about 1.4% of the world's total (Apodaca, 2011). Metal production in Qatar included aluminum, concrete-reinforcing bar (rebar), continuous cast billet, crude steel, and DRI. The industrial minerals produced in Qatar included such commodities as ammonia, cement, gypsum, lime, limestone, sulfur, urea, and washed sand. In addition to crude oil, LNG, and natural gas liquids, Qatar produced such mineral fuels and related materials as helium, methanol, and refined petroleum products (Qatar Petroleum, 2010, p. 9; BP p.l.c., 2011, p. 6, 8, 20, 22; Pacheco, 2011)

Qatar was a member of the Cooperation Council for the Arab States of the Gulf (GCC), the Gas Exporting Countries Forum, the Organization of Arab Petroleum Exporting Countries (OAPEC), and the Organization of the Petroleum Exporting Countries (OPEC). According to the World Economic Forum, Qatar's economy in 2010 ranked 1st in Middle East and 17th in the world in terms of its global competitiveness index (QNB Capital L.L.C., 2011, p. 2).

## Minerals in the National Economy

With a compound annual growth rate of 15.7% from 2006 to 2010, Qatar had the world's fastest growing economy. The nominal gross domestic product (GDP) of Qatar increased by 30% in 2010 to \$127.3 billion from \$97.8 billion in 2009. This significant increase reversed a 15% decrease in the GDP at current prices in 2009 and was comparable with the increase in the GDP during the period 2005 through 2009, which averaged 27.2%. The real GDP growth for Qatar was 16.3% in 2010 compared with 8.6% in 2009 and 25.4% in 2008.

The major drivers of Qatar's economic growth were the increases in production and exports of LNG, crude oil, petrochemicals, and related materials. The share of the hydrocarbon sector in the Qatari economy was about 52% of the GDP at current prices compared with about 45% of the GDP and 55% of the GDP in 2009 and 2008, respectively. The hydrocarbon sector activity increased in value by 50% in 2010 compared with a decrease of 31% in 2009. The activities of the nonhydrocarbon sectors, which accounted for 48% of the GDP in 2010 at current prices, increased by about 14% in 2010

compared with an increase of about 4% in 2009. Industrial sector activity, which accounted for 11% of the GDP and included production of aluminum, cement, fertilizer, iron and steel, and refined petroleum products, increased in value by 46% in 2010 compared with a decrease of 30% in 2009. The value of construction sector activity, which accounted for 5% of the GDP, decreased by 5% compared with a decrease of 6% in 2009. The value of foreign direct investment (FDI) that flowed into Qatar decreased by 32% to \$5.5 billion (4.3% of the GDP) from \$8.1 billion (8.3% of the GDP) in 2009. The value of FDI that flowed from Qatar to the rest of the world decreased by 84% to about \$1.9 billion (1.4% of the GDP) from \$11.6 billion (11.8% of the GDP) in 2009 (Arab Investment and Export Credit Guarantee Corp., 2011; Central Bank of Qatar, 2011, p. 21, 23; QNB Capital L.L.C., 2011, p. 2, 5, 43).

## Production

The production volume of some mineral commodities increased significantly in 2010 compared with that of 2009, including that of aluminum, which increased by 1,800% (owing to commissioning of production at Qatar's first aluminum smelter in 2009); sulfur, by 71%; kerosene and jet fuel, by 62%; natural gas liquids, by 35%; continuous cast billet and crude steel, by 34% each; crude oil and condensates, and gasoline, by 17% each. Mineral commodities for which the production volume decreased significantly in 2010 compared with that of 2009 included limestone and washed sand, which decreased by 25% each; lime, by 16%; and cement, by 8% (table 1).

## Structure of the Mineral Industry

Qatar Petroleum was 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 operated 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 had signed several production-sharing agreements with such international oil companies as ConocoPhillips Co., and Exxon Mobil Corp. (both of the United States), LNG Japan Corp. and Mitsui & Co. Ltd. (both of Japan), and Royal Dutch Shell plc of the United Kingdom to operate and produce LNG from the North field. Qatar Petroleum, in addition to being the sole owner of Qatar Petroleum Qatar Gas (3) Ltd. (Qatargas 3) and Qatar Petroleum Qatar Gas (4) Co. Ltd. (Qatargas 4), had a majority interest in a number of other companies. Qatar Petroleum had a 70% interest in Industries Qatar Q.S.C., Qatargas Operating Co. Ltd., Rasgas Co. Ltd., Ras Laffan Liquefied Natural Gas Co. Ltd. II (Rasgas 2), and Ras Laffan Liquefied Natural Gas Co. Ltd. 3 (Rasgas 3); a 67.5% interest in Qatar Liquefied Gas Co. Ltd. (II) Q.S.C (Qatargas 2);

a 65% interest in Qatar Liquefied Gas Co. Ltd. (Qatargas) and Qatargas Upstream Joint Venture Co.; and a 63% interest in Ras Laffan Liquefied Natural Gas Co. Ltd. (Rasgas) (Qatar Petroleum, 2010, p. 2).

Industries Qatar Q.S.C., which was one of Qatar Petroleum's majority owned companies, held a 100% interest in Qatar Steel Co. Q.S.C. (Qasco), an 80% interest in Qatar Nitrogen Co. and Qatar Petrochemical Co. (Qapco), a 75% interest in Qatar Fertilizer Co. S.A.Q (Qafco), and a 50% interest in Qatar Fuel Additives Co. Ltd. Q.S.C (Qafac) (Industries Qatar Q.S.C., 2011). Qasco was the sole owner of Qatar Steel Dubai FZE of the United Arab Emirates and a 50-50 joint-venture partner in Qatar Metal Coating Co.; it also had a 25% interest in Gulf Industrial Investment Co. and United Stainless Steel Co. (both of Bahrain) and a 20% interest in South Steel Co. of Saudi Arabia. Qatar Aluminium Ltd. (Qatalum) was a 50-50 joint venture of Qatar Petroleum and Norsk Hydro A.S.A of Norway (table 2; Qatar Petroleum, 2010, p. 2; Industries Qatar Q.S.C., 2011; Qatar Aluminium Ltd., 2011).

### Mineral Trade

The value of Qatar's exports of goods increased by 47% to \$72 billion in 2010 from \$49 billion in 2009. The value of natural gas-related exports, which included condensates, gas-to-liquids (GTL), LNG, and natural gas liquids (NGL), increased by \$14 billion to \$43 billion from \$29 billion in 2009. The volume of natural gas exports increased by 68% to about 107.0 billion cubic meters from about 63.5 billion cubic meters in 2009. Japan was the leading importer of LNG and crude oil from Qatar. It accounted for about 32% of Qatar's total exports followed by the Republic of Korea (15%), Singapore (10%), the European Union and India (8% each), China and Thailand (4% each), and other countries (19%). The spot OPEC reference basket price for Qatar Marine, which averaged \$78.18 per barrel in 2010, was 25% more than it was in 2009, when the price averaged \$62.38 per barrel. The volume of crude oil exports decreased by 9% to 586,000 barrels per day (bbl/d) from 647,000 bbl/d in 2009 (Organization of the Petroleum Exporting Countries, 2011, p. 49, 56, 82; QNB Capital L.L.C., 2011, p. 10, 18–21, 22–23).

Qatar was ranked the 47th largest market for goods from the United States and the 88th supplier of goods to the United States. The U.S. trade surplus with Qatar was about \$2.7 billion in 2010 compared with \$2.2 billion in 2009. U.S. exports increased by about 19% to about \$3.2 billion compared with \$2.7 billion in 2009 whereas U.S. imports from Qatar decreased by about 8% to \$466 million from \$506 million in 2009. The main U.S. exports of goods to Qatar included aircraft (\$1.7 billion), machinery (\$362 million), and vehicles (\$266 million). Qatar's exports to the United States included LNG (\$257 million), nitrogen fertilizer (\$135 million), aluminum (\$17 million), and scrap platinum (\$3 million) (Office of the United States Trade Representative, 2011).

## Commodity Review

### Metals

**Aluminum.**—Qatalum's smelter, which was commissioned in 2009 as a joint venture of Qatar Petroleum and Norsk Hydro, was expected to operate at full capacity beginning in April 2010 and to produce 240,000 metric tons (t) in 2010. The plant encountered a power supply problem, however, and it was shut down in August because of a power outage while it was ramping up production. Although the power outage was expected to last 6 months, production was resumed after 3 months. By yearend 2010, Qatalum was able to operate 444 cells. The new date for the Qatalum aluminum smelter to reach full capacity was June 2011. The \$5.7 billion plant was located at Mesaieed (40 kilometers south of Doha) and designed to produce 585,000 metric tons per year (t/yr) of aluminum. The plant had its own 1,370-megawatt powerplant and the option to increase capacity to 1.2 million metric tons per year (Mt/yr). Qatalum's smelter consumed 1.3 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 (Bains, 2010, p. 5, 9, 13; Qatar Aluminium Ltd., 2011; Thomas, 2011).

**Iron and Steel.**—In March, Qasco announced an expansion plan for its steelmaking facility at Mesaieed. The new project would add 1.1 million metric tons (Mt) of steel. Siemens VAI of Germany was expected to build the expansion project, which would be located next to the existing plant and was expected to be completed by 2013. The plant would include a 110-t electric arc furnace, a 110-t ladle furnace, and a 6-strand high-speed billet caster coupled with a fume extraction system (Arab Steel, 2010).

In September, Qasco exported a 60,000-t shipment of DRI to JFE Steel Corp. of Japan, thus marking the first DRI sale to Japan. Additionally, Qatar Steel exported DRI to China, Egypt, India, Iran, Kuwait, the Republic of Korea, Saudi Arabia, Spain, and the United Arab Emirates. In August, Qasco signed two long-term agreements, one with Gasal Q.S.C to supply industrial gases (argon, nitrogen, and oxygen) for 20 years and another for 6 years with Samarco Mineração S.A. of Brazil to supply iron ore pellets used in DRI production (Qatar Steel Co. Q.S.C., 2011).

### Industrial Minerals

**Helium.**—Production of helium in Qatar began in 2005 at the first helium plant, which had the capacity to produce 20 million cubic meters per year of helium. The second helium production plant, Qatar Helium 2, was expected to commence production in 2013. The Qatar Helium 2 project was a joint venture of Qatargas 2, Qatargas 3, Qatargas 4, and Rasgas. The 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 have the capacity to produce 58 million cubic meters per year, or about one-third of the world's current (2010) demand for helium. Rasgas awarded Air Liquide, S.A. of France an engineering, procurement, and construction (EPC) contract to build a helium recovery unit that would purify and

liquefy helium gas recovered from the North gasfield. Rasgas also awarded Chiyoda Almana Engineering Co. LLC an EPC management services contract to build the helium extraction unit that supplies the helium recovery unit. One-half of the helium output from both plants would be sold to Air Liquide, 30% would be sold to Linde Industrial Gases (a subsidiary of Linde AG of Germany), and 20% would be sold to Iwatani Corp. of Japan (Air Liquide, S.A., 2010; Qatargas Operating Co. Ltd., 2010).

**Nitrogen.**—Qafco, which was a joint venture of Industries Qatar (75% interest) and Yara Netherland BV of the Netherlands (25% interest), was the leading producer of nitrogen fertilizer in the Middle East. The company produced about 2.3 Mt of ammonia and 3.0 Mt of urea and had the capacity to produce 6,150 metric tons per day (t/d) of ammonia and 8,700 t/d of urea. Qafco moved forward with a plan to increase its capacity to produce ammonia by 3,500 t/d and urea by 3,500 t/d. The expansion project, Qafco-5, would increase Qafco's production capacity to 3.0 Mt/yr of ammonia and 4.3 Mt/yr of urea and would make Qafco the world's largest single-site producer of both ammonia and urea. Qafco-5 was expected to commence production in 2011, and it was expected to cost \$3.2 billion to build. Construction works for a second expansion project, Qafco-6, continued during 2010. Qafco-6 was expected to increase the company's capacity to produce ammonia to 3.8 Mt/yr, and urea, to 5.6 Mt/yr, and the expansion project was expected to be completed by 2012. Qafco exported ammonia and urea to more than 35 countries. India received 57% of Qafco's ammonia exports, followed by Jordan (23%), South Africa (14%), and Indonesia, Morocco, and the Republic of Korea (2% each). Urea exports went to Australia (19%), Thailand and the United States (14% each), Bangladesh (12%), South Africa (8%), the Philippines and the Republic of Korea (7% each), and other countries (19%) (Qatar Fertilizer Co. Q.S.C., 2011, p. 11–12).

In October, Qatar Melamine Co., which was owned by Qafco (60%) and Qatar Intermediate Industries Holding Co. Ltd. (40%), commenced melamine production at its new plant in Mesaieed Industrial City. The plant had the capacity to produce 60,000 t/yr of melamine and was built within the vicinity of Qafco plants, which supplied the melamine plant with high-quality urea (the feedstock for melamine production) (Qatar Fertilizer Co. Q.S.C., 2011, p. 5).

### **Mineral Fuels**

**Natural Gas.**—Qatar's natural gas production increased at a rate of 23% from 2006 through 2010. Production averaged 11.2 million cubic feet per day (317,000 cubic meters per day) in 2010 and was expected to increase to 15.9 million cubic feet per day (450 million cubic meters per day) in 2012, including 77 Mt/yr of LNG. Most of the natural gas was produced from the offshore North field, which was considered the world's largest nonassociated natural gasfield and which holds about 99% of the country's gas reserves (QNB Capital L.L.C., 2011, p. 13).

In February, Qatargas 4 started producing LNG from train 7, which had the capacity to produce 7.8 Mt/yr of LNG. Train 7 was the last of the 14 trains that Qatar was building equally

between Qatargas and Rasgas companies to reach its LNG production capacity target of 77 Mt/yr. In 2009, the Government inaugurated three of the world's largest LNG liquefaction trains—Qatargas train 4, Qatargas train 5, and Ras Laffan train 6—each of which had the capacity to produce 17.2 million cubic meters per year (7.8 Mt/yr) of LNG. Qatargas and Rasgas venture companies signed several sales and purchase agreements with companies in Belgium, India, Italy, Japan, the Republic of Korea, Spain, the United Kingdom, and the United States to export a total of 77 Mt (169.4 million cubic meters) of LNG by 2012 using dedicated LNG tankers owned by Qatar Gas Transport Co. (Nakilat). In 2010, Nakilat had 54 LNG carriers that together had the capacity to supply 77 Mt/yr of LNG to consumers. The company was building a 1.1-square-kilometer shipyard at Ras Laffan to ensure access to essential services. Qatar Petroleum also built, through its subsidiary Qatar Petroleum International, receiving terminals at South Hook in western Wales, United Kingdom; offshore northwestern Italy in the Adriatic Sea, and at Sabine Pass in Texas (Thomas, 2010, p. 6, 8; QNB Capital L.L.C., 2011, p. 14–15; U.S. Energy Information Administration, 2011).

In October, the Golden Pass LNG Terminal, which is located near Sabine Pass, Texas, took its first LNG delivery from Qatar. Golden Pass was a joint venture of Qatar Petroleum (70% interest), and U.S. companies ExxonMobil (17.6% interest) and ConocoPhillips (12.4% interest). The LNG terminal would receive up to 16 Mt of LNG from Rasgas 3 by LNG tankers under a 25-year agreement (Pipeline & Gas Journal, 2011).

Qatar was the world's leading producer of GTL, which was a marketable and transportable liquid fuel made from crude natural gas. Oryx GTL, which was a joint venture of Qatar Petroleum and Sasol Ltd. of South Africa, produced 24,000 bbl/d of diesel, 9,000 bbl/d of naphtha and 1,000 bbl/d of liquefied petroleum gas (LPG). Pearl GTL, which was a joint venture of Qatar Petroleum and Shell, moved forward with building its first 70,000 bbl/d GTL train in 2010. The GTL train was expected to be completed in 2011. The Pearl GTL project, which is located in Ras Laffan and would cost \$19 billion to build, would have a second 70,000 bbl/d GTL train completed in 2012 and would have the capacity to produce 120,000 bbl/d of ethane and natural gas liquids (QNB Capital L.L.C., 2011, p. 17).

**Petroleum.**—Qatar's production of crude liquid hydrocarbons, including crude oil, condensates, and natural gas liquids, averaged 1.57 million barrels per day (Mbbbl/d) in 2010 and was expected to increase to 1.90 Mbbbl/d by 2012. The Dukhan oilfield, which produced about 250,000 bbl/d of crude oil and condensates, was Qatar's only onshore oilfield. The rest of the active oilfields were located offshore and included the Al Karkara, the Al Khalij, the Al Rayyan, the Al Shaheen, the Bul Hanine, the Idd Al Shargi North Dome, the Idd Al Shargi South Dome, and the Maydan Mahzam oilfields. The number of producing oil wells in Qatar increased by 14 to 527 wells in 2010 from 513 wells in 2009, including 35 wells completed in 2010 compared with 94 wells completed in 2009 (Organization of the Petroleum Exporting Countries, 2011, p. 26–17; QNB Capital L.L.C., 2011, p. 15).

In February, Qatar Petroleum put on hold its plans to build the Al-Shaheen oil refinery at Mesaieed to process crude oil from

the Al-Shaheen oilfield. The planned refinery would have been the country's third refinery and would have had the capacity to produce 250,000 bbl/d of refined petroleum products. Qatar Petroleum was focusing on expanding the refining capacity of the Laffan condensate refinery at Ras Laffan, which commenced production in 2009 and processed natural gas from the North field to produce gas oil, jet fuel, kerosene, LPG, and naphtha. The 146,000-bbl/d-capacity refinery was operated by Rasgas and controlled by a group of investors, including Qatar Petroleum (51%); Cosmo Oil Co. of Japan, ExxonMobil, Idemitsu Kosan Co. Ltd. of Japan, and Total S.A. (10% each); and Mitsui and Co. Ltd. and Marubeni Corp. of Japan (4.5% each). Qatar Petroleum planned to increase the Ras Laffan refinery's production capacity to 292,000 bbl/d of refined petroleum products by 2016 (QNB Capital L.L.C., 2011, p. 17).

## Outlook

The Government, which is planning to invest \$225 billion during 2011 through 2016 in the country's infrastructure, intends to increase the contributions of the nonoil sectors to 80% of the country's economic activity by 2015. Thus, the mineral industry of Qatar is expected to continue to grow in the short and long terms. The Government has been investing in the country's mineral fuel sector, economic diversification projects, and infrastructure projects needed to host the Fédération Internationale de Football Association (FIFA) World Cup, which was to be held in Doha in 2022. Qatar is on track to increase its LNG production capacity to 170.9 million cubic meters per year in 2012. The country is planning to double its output of sulfur to 2.2 Mt/yr from 1.2 Mt/yr by 2015. Helium, GTL, iron and steel, and nitrogen fertilizer production is likely to increase significantly in the next 5 years because of expansion projects currently under construction.

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TABLE 1  
QATAR: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodity <sup>2</sup>	2006	2007	2008	2009	2010
<b>METALS</b>					
Aluminum	--	--	--	10,000	190,000
Iron and steel:					
Direct-reduced iron	877	1,296	1,638	2,100	2,157
Steel, crude	1,003	1,175	1,434	1,473 <sup>r</sup>	1,975
Semimanufactures:					
Billet, cast	1,013	1,147	1,405	1,448 <sup>r</sup>	1,946
Bars, rolled	730	958	1,150	1,468	1,650
<b>INDUSTRIAL MINERALS</b>					
Cement, all types	1,568	2,400	3,800	4,100	3,780
Gypsum	NA	NA	135	135	135
Lime	NA	NA	25	22	19
Nitrogen:					
N content of ammonia	1,801 <sup>r</sup>	1,817 <sup>r</sup>	1,812 <sup>r</sup>	1,828 <sup>r</sup>	1,883
N content of urea	1,338 <sup>r</sup>	1,363 <sup>r</sup>	1,378 <sup>r</sup>	1,379 <sup>r</sup>	1,384
Sand, washed	NA	NA	6,500	7,500	5,600
Stone, limestone <sup>c</sup>	1,100	1,100	1,100	2,220 <sup>r</sup>	1,674
Sulfur	500 <sup>e,r</sup>	500 <sup>e,r</sup>	600 <sup>e,r</sup>	658 <sup>r</sup>	1,124
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Gas, natural:					
Gross million cubic meters	64,200	77,200	90,887	102,800	109,335
Dry do.	50,700	63,200	77,000	89,300	96,335
Helium	4,400	7,100	12,700	20,000 <sup>r</sup>	20,000
Methanol	903	884	960	1,045	1,000
Natural gas liquids thousand 42-gallon barrels	73,000	76,650	80,300	69,662 <sup>r</sup>	93,815
Petroleum:					
Crude and condensates do.	405,150 <sup>r</sup>	426,132 <sup>r</sup>	502,970 <sup>r</sup>	490,925 <sup>r</sup>	572,685
Refinery products:					
Liquefied petroleum gas do.	40,077	43,508	47,888	70,482	70,482
Gasoline do.	14,856	17,702	17,228	13,930 <sup>r</sup>	16,291
Kerosene and jet fuel do.	9,198	10,877	9,417	10,900 <sup>r</sup>	17,678
Distillate fuel oil do.	7,957	9,088	10,877	1,582 <sup>r</sup>	1,744
Residual fuel oil do.	5,037	3,468	2,920	1,934	1,752
Other do.	7,299	9,271	8,103	14,578 <sup>r</sup>	14,760
Total do.	84,424	93,914	96,433	113,406	122,707

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>r</sup>Revised. do. Ditto. NA Not available. -- Zero.

<sup>1</sup>Table includes data available through September 30, 2011.

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

TABLE 2  
QATAR: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(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 Hydro ASA, 50%)	Smelter at Mesaieed	585
Cement:				
Portland		Qatar National Cement Co. (Government, 43%, and private Qatari investors, 57%)	Kilns and mills at Umm Bab	5,650
Do.		Al-Jabor Cement Industries Co.	Clinker grinding mill at Mesaieed	165
White		Qatari Saudi Company for Industrial Transformation	do.	165
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		Joint venture of Qatar Liquefied Gas Co. Ltd. (Qatargas), Ras Laffan Liquefied Natural Gas Co. Ltd. (Rasgas), and Ras Laffan Liquefied Natural Gas Co. (II) Ltd. (Rasgas II)	Ras Laffan	12,500
Iron and steel:				
Iron, direct reduced		Qatar Steel Co. Q.S.C. (Qasco) (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	28
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 Liquefied Gas Co. Ltd. (Qatargas) (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. (Rasgas) (Qatar Petroleum, 63%; ExxonMobil Rasgas, Inc., 25%; Korea Gas Corp., 5%; Itochu Corp., 4%; LNG Japan Corp., 3%)	do.	11
Do.	do.	Qatar Petroleum Qatar Gas (3) Ltd. (Qatargas 3)	do.	1
Liquefied		Qatar Liquefied Gas Co. Ltd. (Qatargas) (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	10,200
Do.		Qatar Liquefied Gas Co. Ltd. 2 (Qatargas 2) (Qatar Petroleum, 70%, and ExxonMobil Qatargas Inc., 30%)	Train 4 at Ras Laffan	7,800
Do.		Qatar Liquefied Gas Co. Ltd. (II) (Qatargas 2) (Qatar Petroleum, 65%; ExxonMobil, 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 Rasgas, Inc., 25%; Korea Gas Corp., 5%; Itochu Corp., 4%; LNG Japan Corp., 3%)	Train 1 and 2 at Ras Laffan	6,600
Do.		Ras Laffan Liquefied Natural Gas Co. Ltd. II (Rasgas II) (Qatar Petroleum, 70%, and ExxonMobil Rasgas 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 Rasgas, 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	420
Do.		do.	QAFCO 2, Mesaieed	445
Do.		do.	QAFCO 3, Mesaieed	650
Do.		do.	QAFCO 4, Mesaieed	740

See footnotes at end of table.

TABLE 2—Continued  
QATAR: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(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 5, Mesaieed	800 <sup>1</sup>	
Do.		do.	QAFCO 6, Mesaieed	800 <sup>1</sup>	
Urea		do.	QAFCO 1, Mesaieed	475	
Do.		do.	QAFCO 2, Mesaieed	530	
Do.		do.	QAFCO 3, Mesaieed	895	
Do.		do.	QAFCO 4, Mesaieed	1,300	
Do.		do.	QAFCO 5, Mesaieed	1,200 <sup>1</sup>	
Do.		do.	QAFCO 6, Mesaieed	1,200 <sup>1</sup>	
Petroleum:					
Crude	42-gallon barrels per day	Maersk Oil Qatar A.S., operator <sup>2</sup>	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 <sup>2</sup>	Idd Al Sharqi, North Dome and South Dome, offshore	113,000
Do.		do.	do.	Al Rayyan, offshore	8,600
Do.		do.	Bunduq Co., Ltd., operator <sup>2</sup> (BP Exploration Inc., 33.3%; Total S.A., 33.3%; United Petroleum Development Co., 33.3%)	El Bunduq <sup>3</sup>	7,300
Do.		do.	Total E&P Qatar Ltd., operator <sup>2</sup>	Al Khaleej, offshore	37,500
Do.		do.	do.	Maydan Mahzam field, offshore	36,000
Do.		do.	Qatar Petroleum Development Co. operator <sup>2</sup> (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	138,700
Do.		do.	Oryx GTL Ltd. (Qatar Petroleum, 51%, and Sasol Ltd., 49%)	do.	12,400
Sulfur		do.	Ras Laffan Liquefied Natural Gas Co. Ltd. (Rasgas)	do.	110
Do.		do.	Qatar Petroleum (Government, 100%)	Mesaieed	95
Do.		do.	Qatar Petrochemical Co. Ltd. (Qapco)	Umm Said	70
Do.		do.	Qatar Liquefied Gas Co. Ltd. (Qatargas)	Ras Laffan	66

Do., do. Ditto.

<sup>1</sup>Under construction.

<sup>2</sup>Operated under a development and production-sharing agreement with Qatar Petroleum.

<sup>3</sup>El Bunduq field is located on the border between Qatar and the United Arab Emirates. Royalties are shared by the Governments.