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The Mineral Industry of Bulgaria

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Bulgaria's mineral industry included mine output of metal ores, mineral fuels (mainly coal), and a variety of industrial minerals. Industrial minerals produced in the country included fluorspar, gypsum, salt, and sand and gravel. Additionally, the metallurgical sector smelted and refined copper, lead, silver, steel, and zinc.

Minerals in the National Economy

In 2012, Bulgaria's real gross domestic product (GDP) increased by 0.8% compared with that of 2011. Bulgaria's industrial sector accounted for about 30.4% of the GDP. In 2011 (the latest year for which data were available), the gross value added of mining and quarrying activities was about $1.0 billion[1] (reported as BGN1.5 billion) and accounted for about 8% of the value added of industry and for 2% of the GDP. In 2012, about 24,600 people were employed in the mining and quarrying industry. In 2011 (the latest year for which data were available), 407 mining and quarrying enterprises were registered in Bulgaria. Of these 407 enterprises, 276 had no more than 9 employees, 86 had 10 to 49 employees, 28 had 50 to 249 employees, and 17 had more than 250 employees (International Monetary Fund, 2013, p. 48; National Statistical Institute of the Republic of Bulgaria, 2013a–e, p. 151; U.S. Central Intelligence Agency, 2013).

Mineral Trade

In 2012, the total value of Bulgaria's exports was about $26.7 billion (reported as BGN40.6 billion) compared with about $28.3 billion in 2011 (reported as BGN39.6 billion). The total value of Bulgaria's imports was about $32.7 billion (reported as BGN49.8 billion) compared with $32.7 billion (reported as BGN45.8 billion) in 2011. The country's major export trade partners were, in order of value, Germany (which received 10.2% of Bulgaria's exports), Italy (8.5%), Romania (8.1%), Greece (7.2%), Belgium (3.7%) and Spain (2.6%). Its major import trade partners were, in order of value, Germany (which supplied 11.1% of Bulgaria's imports), Italy (6.6%), Romania (6.5%), Greece (6.1%), and Spain (4.4%). Mineral fuel, lubricant, and related materials accounted for 17% of the total value of exports and 25% of the total value of imports (National Statistical Institute of the Republic of Bulgaria, 2013b).

Bulgaria's exports to the United States were valued at about $509 million in 2012 compared with about $416 million in 2011. Of this amount, petroleum products accounted about $62 million, and cement, lime, sand, and stone accounted for about $1 million. Imports from the United States were valued at about $248 million in 2012 compared with about $258 million in 2011; these included nearly $20 million in petroleum products, $2 million in excavating machinery, and $1 million in iron and steel mill products (U.S. Census Bureau, 2013a, b).

Production

In 2012, bentonite production increased by 44% to 78,000 metric tons (t) from 54,000 t (revised) in 2011; estimated vermiculite production, by 24% to 18,600 t from 15,000 t; estimated silver production, by 22% to 55,000 kilograms (kg) from 45,000 kg (revised); estimated gold production, by 18% to 5,200 kg from 4,400 kg (revised); zinc mine output, by 10% to 12,116 t from 10,977 t (revised); and the estimated output of petroleum refinery products, by 10% to 49.4 million barrels (Mbbl) from an estimated 45 Mbbl. Manganese production (in terms of content and gross weight) decreased by 75% to 10,600 t from 41,800 t (revised) and to 37,900 t from 149,400 t (revised), respectively; crude steel production decreased by 24% to 632,000 t from 834,000 t; zinc metal production, by 18% to 72,000 t from 88,000 t (revised); and natural gas production, by 11% to 396 million cubic meters from 443 million cubic meters (revised). Data on mineral production are in table 1.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Copper.—Aurubis AG of Germany, through its subsidiary Aurubis Bulgaria AD, owned the country's only copper smelting and refining facility. Aurubis Bulgaria, which is located in the town of Pirdop, produced about 226,000 t of refined copper and about 1.1 million metric tons (Mt) of sulfuric acid in 2012. The company investment project Aurubis Bulgaria 2014 was underway and was expected to be implemented by 2014. The project would include the installation of environmental protection equipment, such as equipment to reduce fugitive air emissions and facilities to treat wastewater (Aurubis AG, 2012, p. 30).

Copper production from the Chelopech underground mine increased by 29% to about 21,600 t (reported as 47.7 million pounds) from about 16,800 t (reported as 37 million pounds) in 2011. Dundee Precious Metals Inc. of Canada owned and operated the mine through its 100%-owned subsidiary Chelopech Mining EAD. The copper concentrate produced at the Chelopech Mine, which was located about 70 kilometers (km) east of the capital city of Sofia, was exported to be processed at Dundee's smelter in Tsumeb, Namibia. The Chelopech Mine was expected to produce between 19,500 and 20,900 t in 2013 (reported as between 43 and 46 million pounds) (Dundee Precious Metals Inc., 2012; 2013b, p. 4, 6, 15).

Gold.—In 2012, gold production from the Chelopech Mine increased by 28% to 3,752 kg (reported as 120,631 troy ounces)

[1]Where necessary, values have been converted from Bulgarian levs (BGN) to U.S. dollars (US$) at an annual average exchange rate of BGN1.40=US$1.00 for 2011 and BGN1.52=US$1.00 for 2012.

from 2,920 kg (reported as 93,881 troy ounces) in 2011. The increase was attributed to the completion of the mine and mill expansion that would allow Dundee to mine and process up to 2 million metric tons per year (Mt/yr) of ore. The gold concentrate produced at Chelopech was also exported to be processed at the Tsumeb smelter in Namibia. As of December 31, measured and indicated mineral resources at Chelopech were estimated to be 29.1 Mt at average grades of 4.0 grams per metric ton (g/t) gold, 9.4 g/t silver, and 1.3% copper, and inferred resources were estimated to be 9.3 Mt at average grades of 2.9 g/t gold, 10.6 g/t silver, and 0.9% copper. Gold production for 2013 was expected to be between 3,900 and 4,400 kg (reported as between 125,000 and 143,000 troy ounces]. The company also expected silver production from Chelopech to be between 5,660 and 6,070 kg (reported as between 182,000 and 195,000 troy ounces) (Dundee Precious Metals Inc., 2013a; 2013b, p. 6, 15; 2013c).

Dundee continued with its plan to develop the Chelopech pyrite recovery project, which would have the potential to recover about 40% to 50% of the contained gold in the mined Chelopech ore that was not being recovered in the current circuit. A preliminary economic assessment completed in the second quarter of 2012 reported that the project had the potential to produce about 400,000 metric tons per year (t/yr) of pyrite concentrate containing between about 2,300 and 2,800 kg of gold (reported as between 75,000 and 90,000 troy ounces); about 4,000 and 5,900 kg of silver (reported as between 130,000 and 190,000 troy ounces); and 2,000 and 2,700 t of copper (reported as between 4.5 million and 6.0 million pounds). At yearend 2012, Dundee signed an agreement with Xiangguang Copper Co. of China for the sale of 200,000 t/yr of pyrite concentrate between 2014 and 2016. Xiangguang Copper also agreed to purchase 3,000 metric tons per month (t/mo) of copper concentrate between March and July 2013 and 2,000 t/mo from July to December 2013. Production of pyrite concentrate was expected to begin by the fourth quarter of 2013 (Dundee Precious Metals Inc., 2013b, p. 6, 15; 2013c).

Dundee also continued with its plan to develop the Krumovgrad gold project in which it owned a 100% interest. The project was located about 3 km south of the town of Krumovgrad in southeastern Bulgaria. In January, a definitive feasibility study was completed by Balkan Mineral and Mining EAD, which was a subsidiary of Dundee. Measured and indicated mineral resources were estimated to be 7.99 Mt at average grades of 3.50 g/t gold and 2.00 g/t silver and inferred resources were estimated to be 0.40 Mt at average grades of 1.20 g/t gold and 1.00 g/t silver. The study reported that Krumovgrad had the potential to be developed as an open pit and to produce an average estimate of about 2,300 kilograms per year of gold (reported as 74,000 troy ounces per year). The company expected to begin production by 2015 (Balkan Mineral and Mining EAD, 2012, p. 10, 15–17; Dundee Precious Metals Inc., 2013b, p. 10; 2013d).

Lead and Zinc.—In March, the operations of the companies Gorubso AD and Lead and Zinc Complex Plc. (LZC), which were owned by Intertrust Holdings AD, were suspended owing to Intertrust Holding's financial debts and labor disputes over unpaid wages. In April, Intertrust Holdings listed both companies for sale, and Varba-Batanitsi AD acquired a more than 90% interest in Gorubso. In mid-April, Gorubso Madan Mine restarted operations, citing that all required safety measures had been taken care of and that production could be restarted. In December, Varba-Batanitsi, which was owned by KCM 2000 Group and Minstroy Holding AD, announced its plans to invest about $3 million in Gorubso Madan by 2013 (Energy Ecology Economy, 2012; Novinite.com, 2012b, c; International Lead and Zinc Study Group, 2013, p. 15; KCM 2000 Group, 2013a, p. 15; 2013b).

In August, after the LZC failed to make payment on its loans from the Bulgarian First Investment Bank (FIB), which was one of the three leading lenders to the LZC, the FIB obtained a court order and requested a tender process for the sale of a portion of the LZC to an outside investor. In September, Sofia-based Harmony 2012 Ltd. acquired a 50% interest in LZC, at a cost of about $6 million. No details as to when the complex would resume operations were available (Novinite.com, 2012a, d).

Industrial Minerals

Cement.—In Bulgaria cement was produced by four companies—Devnya Cement AD, Holcim Bulgaria AD, Vulcan Cement S.A., and Zlatna Panega Cement AD. These companies had a combined cement production capacity of 5.7 Mt/yr. The Devnya cement plant, which was owned by Italcementi Group of Italy, had an annual production capacity of about 2 Mt of cement. In March, Italcementi announced that the company had awarded the contract for the construction of the new cement line in Varna West Port to CBMI Construction Co. Ltd. of China [a subsidiary of China National Material Group Corp. Ltd. (Sinoma)]. The new production line was expected to be completed by 2015 and to produce 1.5 Mt/yr of cement. Construction of the new project began in April (Italcementi Group, 2012, 2013).

Mineral Fuels

Coal.—State-owned Bulgarian Energy Holding EAD, through its subsidiary Mini Maritsa Iztok Mines EAD, held 100% interest in the Troyanovo-1, the Troyanovo-3, and the Troyanovo-North Mines. In 2011 (the latest year for which data were available), Bulgarian Energy Holding's Maritsa Iztok Mines produced 33.0 Mt of lignite coal, about 90% which was used for thermal power generation in Bulgaria. The company had an annual capacity of about 35 Mt of coal and its property covered an area of about 240 square kilometers. As of January, proved and probable reserves at Maritsa were estimated to be about 968 Mt and 600 Mt, respectively. Other producers of lignite coal included the Beli Breg, the Chukurovo, and the Stanyantsi Mines (Mini Maritsa Iztok Mines EAD, 2011, p. 3, 9–10; 2013; Bulgaria Ministry of Economy, Energy, and Tourism, 2012, p. 7).

Natural Gas.—In October, Petroceltic International Plc of Ireland announced the completion of the merger with Melrose Resources plc of United Kingdom, which included the acquisition of the Kaliakra and the Kavarna gasfields located in the Galata exploration block in the western Black Sea. Natural gas production from the Kaliakra and the Kavarna fields was

396 million cubic meters (reported as 14 billion cubic feet) in 2012. The decrease in production was attributed to a decrease in production from the Kaliakra field in the second quarter of 2012. In 2011, proved and probable reserves at the Kaliakra and Kavarna fields were estimated by Melrose to be 934 million cubic meters (reported as 33 billion cubic feet) and 765 million cubic meters (reported as 27 billion cubic feet), respectively. In November, Petroceltic announced its plans to complete the Kaliakra-1 well, which had been temporarily suspended, by mid-2013. Petroceltic also announced its plans to drill the Kamchia-1 exploration well, which had targeted prospective resources of 765 million cubic meters (reported 27 billion cubic feet), by the first quarter of 2013. By yearend, the Government awarded Petroceltic an extension of its Galata exploration permit until July 2013 (Melrose Resources Plc., 2012, p. 12; Petroceltic International Plc, 2012; 2013, p. 23–25).

Petroleum.—LUKOIL Oil Co. of Russia, through its subsidiary LUKOIL Neftochim Bourgas AD, owned and operated the Burgas refinery, which had an annual capacity of about 215,000 barrels per day. In January, LUKOIL announced its plans to construct a heavy residue hydrocracking complex at Burgas. The first stage of the project included the construction of the 2.5-Mt/yr vacuum residue hydrocracker plant at a cost of about $1.5 billion. The company awarded the contract for the construction of the new plant to Technip Co. of Italy. Under the terms of the contract, Technip was to provide the engineering, procurement (of equipment and material), and construction services. The company expected to increase production of Euro-5 diesel by 1.2 Mt and to cease production of high-sulfur oil. The first stage of the project was expected to be completed by January 2015 (LUKOIL Neftochim Bourgas AD, 2012; Technip Co., 2012; Lukoil Oil Co., 2013, p. 8).

Outlook

Bulgaria forecasted a GDP growth rate of 1.2% for 2013 (International Monetary Fund, 2013, p. 48). Increased demand for and production of Bulgaria's mineral commodities are likely to depend mainly on the domestic and European economic outlook and are likely to remain modest in terms of world production. The construction plans at the Burgas refinery and the Devnya Cement plant, the expansion plans at Gorubso, and plans to develop Chelopech's pyrite recovery project are expected to strengthen the industry in the short run.

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TABLE 1
BULGARIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2008	2009	2010	2011	2012
METALS						
Aluminum, metal, secondary		12,607	4,137	12,076	-- r	--
Bismuth, metal[e, 3]	metric tons	6	--	3	--	1
Cadmium, metal, smelter[e]		460	420	420	420	420
Copper:						
Ore, gross weight	thousand metric tons	27,191 r	26,936	27,581 r	28,214 r	28,300 e
Concentrate, Cu content[e]	do.	105	105	105	105	108
Metal, primary and secondary:						
Smelter		281,200 r	300,800 r	268,700 r	338,300 r	310,500
Refined, electrolytically		126,700	196,900	215,100	226,100 r	226,100
Gold, in concentrate[e]	kilograms	4,160 4	4,482 4	3,300 r	4,400 r	5,200
Iron and steel, metal:						
Pig iron for steelmaking	thousand metric tons	441	--	--	--	--
Ferroalloys[e]	do.	6 4	3 4	--	--	--
Steel, crude	do.	1,330	726	744 r	834	632
Semimanufactures[e]	do.	1,287 4	709 4	900 r	1,100 r	1,100
Lead:[e]						
Mine output, Pb content		15,000	15,000 r	12,000	12,000	12,000
Metal, refined, primary and secondary		91,000 r	83,000 r	81,000	71,000	68,000
Manganese ore:[5]						
Gross weight		64,600	28,500	131,600	149,400 r	37,900
Mn content		18,100	8,000	36,900	41,800 r	10,600
Silver, metal[e]	kilograms	50,000 r	43,000 r	42,000 r	45,000 r	55,000
Zinc:						
Mine output, Zn content		10,600 r	9,339 r	9,904 r	10,977 r	12,116
Metal, refined, primary and secondary		102,000 r	92,000 r	88,000 r	88,000 r	72,000

See footnotes at end of table.

TABLE 1—Continued
BULGARIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2008	2009	2010	2011	2012
INDUSTRIAL MINERALS						
Barite ore, run-of-mine[e]		40,000	14,300	350	120	--
Cement, hydraulic	thousand metric tons	4,903	2,662	1,966	1,882 r	1,900 e
Clays:						
Bentonite	do.	178	108	100 e	54 r	78
Kaolin, raw[e]	do.	1,530 4	939 4	900	900	900
Feldspar[e]	do.	90	80	80	80	80
Fluorspar[e]		--	--	--	31,800 r	32,000
Gypsum and anhydrite, crude	thousand metric tons	210	128	110 r	115 r	114
Lime, industrial	do.	1,422	950	1,309	1,495 r	1,500 e
Limestone[e]	do.	6,000 r	3,000 r	5,000 r	5,000 r	5,000
Nitrogen, N content of ammonia[e]	do.	350	320	320	320	320
Perlite	do.	7	15	-- r	-- r	4
Salt, all types	do.	2,100	1,300	1,900 r	2,200 r	2,100
Sand and gravel	do.	12,032 r	7,817 r	7,653 r	6,776 r	7,000 e
Silica, quartz sand[e]	do.	734 4	657 4	660	660	660
Sulfuric acid[e]		1,010,000	1,000,000	1,000,000	1,000,000	1,100,000
Vermiculite[e]		--	--	3,000	15,000	18,600
MINERAL FUELS AND RELATED MATERIALS						
Coal, marketable:[e]						
Bituminous	thousand metric tons	19 4	23 4	26	14 r	14
Brown	do.	2,643 4	2,244 4	2,200	2,300 r	2,300
Lignite	do.	26,008 4	25,015 4	27,500 r	34,500 r	32,000
Total	do.	28,670 4	27,282 4	29,700 r	36,800 r	34,300
Coke	do.	337	--	--	--	--
Natural gas, marketed	million cubic meters	218	17	74	443 r	396
Petroleum:[6]						
Crude	thousand 42-gallon barrels	170	175	170	160 r	170
Refinery products	do.	54,500	50,000	43,000 r	45,000	49,400

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised. do. Ditto. -- Zero.

[1]Table includes data available through December 16, 2013.

[2]In addition to the mineral commodities listed, a variety of metals and industrial minerals, including calcinate sodium carbonate, refractory clays, sulfur, tin, and zeolites may have been produced, but available information is inadequate to make reliable estimates of output.

[3]Bismuth production was estimated based on net exports. Bismuth was produced as a byproduct of lead production.

[4]Reported figure.

[5]Reported by the International Manganese Institute.

[6]Figures were converted to barrels from production reported in thousand metric tons, as follows: crude production: 2008—23; 2009—24; 2010—23; 2011—22 (revised); and 2012—23. Refinery products: 2008—6,812; 2009—6,255; 2010—5,417; 2011—5,615; and 2012—6,171.

TABLE 2
BULGARIA: 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
Bentonite, mine output	Bentonite AD (S&B Industrial Minerals AD)	Kardjali	NA.
Cadmium	KCM A.D. (KCM 2000 Group)	Plovdiv	NA.
Do.	Lead and Zinc Complex Plc. (LZC) (Harmony 2012 Ltd., 50%)	Kardzhali	NA.[1]
Cement	Devnya Cement AD (Italcementi Group)	Devnya	2,000.
Do.	Vulkan Cement S.A. (Italcementi Group)	Dimitrovgrad	500.
Do.	Holcim Bulgaria AD (Holcim Ltd., 100%)	Beli Izvor	1,700.
Do.	Zlatna Panega Cement AD (Titan Group)	Zlatna Panega	1,500.
Coal:			
Bituminous	Balkan 2000 Mines EAD	Southeast of Tvarditsa, Sliven District	NA.
Brown	Otkrit Vagledobiv Mines EAD	Pernik coal basin, southwest of Sofia	NA.
Do.	Vagledobiv Bobov Dol EOOD	Bobov Dol coalfield	NA.
Do.	Other small producers	Cherno More Mine in the Black Sea coalfield and Vitren Mine in Katrishte deposit	NA.
Lignite	Mini Maritsa Iztok Mines EAD (state-owned Bulgarian Energy Holding EAD)	East Maritsa coal basin near Radnevo	3,500.
Do.	Other small producers	Beli Breg, Chukurovo, and Stanyantsi Mines	2,000.[e]
Copper:			
Concentrate, Cu content	Assarel-Medet JSC	Panagurishte, Pazardzhik District	50.
Do.	Ellatzite-Med AD (Geotechmin Co.)	Mine 8 kilometers south of Etropole, and concentrator near Mirkovo village	45.
Do.	Chelopech Mining EAD (Dundee Precious Metals Inc., 100%)	Chelopech	20.
Do.	Bradtze	Malko Turnovo	2.
Do.	Burgaskii Mines Ltd.	Zidorovo Mine at Burgas, near the Black Sea	1.
Metal:			
Smelter	Aurubis Bulgaria AD (Aurubis AG, 99.8%)	Pirdop	275.
Refinery	do.	do.	230.[e]
Fluorspar	Chiprovtzi Mine (Solvay S.A.)	Chiprovtzi, Montana Province	50,000.
Gold, in concentrate kilograms	Chelopech Mining EAD (Dundee Precious Metals Inc., 100%)	Chelopech	4,000.
Do. do.	Ellatzite-Med AD (Geotechmin Co.)	Mine 8 kilometers south of Etropole and concentrator near Mirkovo village	NA.
Do. do.	KCM A.D. (KCM 2000 Group)	Plovdiv	NA.
Kaolin, mine output	do.	Senovo, Rousse District	NA.
Lead-zinc:			
Concentrate, Pb-Zn content	Gorubso AD (KCM 2000 Group and and Ministroy Holding A.D.)	Kardjali	59 lead, 47 zinc.
Do.	Rudmetal JSC	Dimov Dol Mine, near Rudozem	3 lead, 2 zinc.
Metal:			
Pb, refined	KCM A.D. (KCM 2000 Group)	Plovdiv	65.
Do.	Lead and Zinc Complex Plc. (LZC) (Harmony 2012 Ltd., 50%)	Kardjhali	33.[1]
Zn, smelter	KCM A.D. (KCM 2000 Group)	Plovdiv	80.
Do.	Lead and Zinc Complex Plc. (LZC) (Harmony 2012 Ltd., 50%)	Kardjhali	28.[1]
Manganese ore	Obrochishte Mine (Euromangan AD)	Tsarkva village, 10 kilometers west of Balchik	NA.

See footnotes at end of table.

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

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Natural gas	million cubic meters	Melrose Resources Bulgaria EOOD (Petroceltic International Plc)	Kaliakra and Kavarna fields, in the Black Sea off the coast of Varna	400.
Do.	do.	Oil and Gas Exploration and Production Plc.	Bhutan, Bulgarevo, Dolni Dubnik, Durankulak, Marionov Geran, Selanovtzi, Staroseltzi fields	NA.
Perlite, mine output		S&B Industrial Minerals AD	Kardjali	NA.
Petroleum:				
Crude		Oil and Gas Exploration and Production Plc.	Bardarski Geran, Dolni Dubnik, Dolni Lukovit, Gorni Dubnik, Tjulenovo, Selanovtzi, Staroseltzi and other oilfields	NA.
Refined	42-gallon barrels per day	LUKOIL Neftochim Bourgas AD (LUKOIL Oil Co.)	Refinery at Burgas	215,000.
Silver:				
In concentrate	kilograms	Chelopech Mining EAD (Dundee Precious Metals Inc., 100%)	Chelopech	NA.
Metal	do.	KCM A.D. (KCM 2000 Group)	Plovdiv	100,000.[e]
Steel, crude		Stomana Industry S.A. (Sidenor S.A., 100%)	Pernik	1,400.
Vermiculite, crude		Wolff and Muller Minerals Bulgaria OOD	Near Sofia	20.
Zeolite, mine output		S&B Industrial Minerals AD	Kardjali	NA.

[e]Estimated. Do., do. Ditto. NA Not available.
[1]Suspended.