



2010 Minerals Yearbook

POLAND

THE MINERAL INDUSTRY OF POLAND

By Mark Brininstool

Poland had significant mineral reserves of several mineral commodities and also had important mineral processing facilities. In 2010, Poland was estimated to be the world's 4th ranked producer of rhenium, the 9th ranked producer of silver, and the 10th ranked producer of mined copper. Industrial minerals, such as aggregates, cement, feldspar, gypsum, lime, salt, and sulfur, were also produced in significant quantities. For mineral fuels, Poland was ranked as one of the world's top 10 producers of bituminous coal (based on 2008 production data) but was dependent on imports of oil and gas to meet domestic demand. Although Poland produced a relatively wide range of mineral commodities, bituminous coal, cement, and copper accounted for an estimated 66% of the value of mineral production (Galos, Ney, and Smakowski, 2010, p. 11; World Energy Council, 2010, p. 3; Apodaca, 2011; Brooks, 2011; Crangle, 2011; Edelstein, 2011; Kostick, 2011; Miller, 2011; Polyak, 2011; Tanner, 2011).

Minerals in the National Economy

In 2010, Poland's real gross domestic product (GDP) increased by 3.8% compared with the GDP in 2009. Mining and quarrying accounted for about 2.3% of the total GDP. In 2009 (the latest year for which data were available), the total value of mineral commodity production was estimated to be \$16.8 billion,¹ which was a 23% decrease compared with that of 2008 but only a 0.2% decrease using reported zloty values of 52.4 billion zlotys in 2009 and 52.5 billion zlotys in 2008. The mineral industry in Poland maintained its value in 2009, but the Polish zloty depreciated significantly in 2009, so examining the value of mineral commodity production in terms of foreign currencies could create the impression that there was a significant decrease in the value of production. Mineral fuels accounted for 54% of the total value of mineral commodity production (bituminous coal production accounted for 76% of the value of mineral fuels production); metals, 23% (copper production accounted for 72% of the value of metals production); and industrial minerals, 23% (cement production accounted for 37% of the value of industrial minerals production). The three most important individual minerals in terms of value in 2009 were bituminous coal, copper, and cement, which made up about 41%, 17%, and 9% respectively, of the value of Poland's mineral commodity production (Ney and Smakowski, 2009, p. xi; Galos, Ney, and Smakowski, 2010, p. 11, 13; Central Statistical Office of Poland, 2011c; Dmochowska, 2011a, p. 475).

Government Policies and Programs

Mining activities are regulated by the Polish Geological and Mining Law of February 4, 1994. The trade, distribution,

¹Where necessary, values have been converted from Polish zlotys (PLN) to U.S. dollars (US\$) at an annual average exchange rate of PLN2.41=US\$1.00 for 2008, PLN3.12=US\$1.00 for 2009, and PLN3.02=US\$1.00 for 2010.

and storage of gaseous fuels are regulated by the Act on Reserves of Crude Oil, Petroleum Products and Natural Gas dated February 16, 2007, and the Polish Energy Law of April 10, 1997. Probably the most important Government program with regard to the mineral industry was the Privatisation Programme for the Years 2008–2011. The privatization program included important mining and energy companies, which are discussed in the Structure of the Mineral Industry section below (Polskie Gornictwo Naftowe i Gazownictwo S.A., 2009, p. 41–43).

Production

Production of ferrosilicon increased by 450%; native sulfur produced using the Frasch method, by 97%; rhenium content of ammonium perrenate (APR), by 94%; manufactured gas, by 35%; pig iron, by 18%; peat, by 13%; steel and refined lead, by 12% each; and cement clinker, by 10%. Production of fire clay decreased by 29%; zinc content of concentrate, by 26%; zinc content of ores, by 24%; lead content of ores, by an estimated 21%; and cadmium, by 16%. KGHM Ecoren S.A. began production of rhenium metal in the form of pellets in 2010.

Structure of the Mineral Industry

The vast majority of companies in the mineral industry in Poland were privately owned. The Polish Government (through ownership of shares by the Polish Ministry of Treasury) also owned shares in a small number of significant producers of mineral products but was attempting to privatize many of these holdings. One of the Government's holdings was a 31.79% stake in Poland's sole copper producer, KGHM Polska Miedz S.A. (KGHM). In 2009, the Government owned a 41.79% share of KGHM, but in January 2010, the Government sold 20 million shares in the company to bring Government ownership down to 31.79%. No other shareholders owned more than 5% of the company's shares. The Government also had planned to sell 85% of its 100% holding in Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A., which was Poland's only producer of lead and zinc ore and the leading producer of refined zinc, but it does not appear as though this sale was accomplished by the end of 2010 (Ministry of Treasury of the Republic of Poland, 2009, p. 13; KGHM Polska Miedz S.A., 2011, p. 141).

In the mineral fuels sector, the Polish Government owned significant shares of Poland's coal producers and oil and gas producers Grupa LOTOS S.A. and Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG). In 2010, the Government reduced its shareholding in bituminous coal producer Lubelski Wegiel Bogdanka S.A., to 13.84% from 60.53%; in the next few years, it planned to privatize bituminous coal producers Jastrzebska Spolka Weglowa S.A. and Katowicki Holding Weglowy S.A. and brown coal and lignite mining companies KWB Adamow S.A.

and KWB Konin S.A. In 2010, the Government reduced its share of Grupa LOTOS, which owned oil and gas and refined petroleum production facilities, to 50.97% from 63.97% (Galos, 2009, p. 22; Lubelski Wegiel Bogdanka S.A., 2010, p. 107; 2011, p. 79; Grupa LOTOS S.A., 2011, p. 12).

Table 2 is a list of the major mineral industry facilities in Poland. For this year's report, four significant mineral commodity production facilities were removed from the table. Aluminium Konin-Impexmetal S.A. halted production of its primary aluminum smelter in 2009 so was removed from the list of primary aluminum producers; the Konin plant continued to produce rolled products from secondary aluminum and purchased aluminum. The petroleum refinery LOTOS Jaslo S.A. (called Podkarpackie Zaklady Rafineryjne in previous editions of the Minerals Yearbook) was removed from the list of refined petroleum producers because it discontinued oil processing in the third quarter of 2008 and made storage and trade of refined petroleum products its core business. ArcelorMittal Poland S.A.'s steelworks in Swietochlowice and Huta Zabrze S.A. were removed from the list of crude steel producers in table 2 because it is now believed that these two plants produced only steel products and not crude steel. It is not known when crude steel production was halted (Grupa LOTOS S.A., 2009, p. 65; Galos, Ney, and Smakowski, 2010, p. 49; ArcelorMittal Poland S.A., 2011).

Mineral Trade

Poland is dependent on imports of most mineral commodities for domestic consumption. In 2009, the value of the country's mineral commodity imports was \$17.0 million, and the value of its mineral commodity exports was \$4.9 million. Mineral fuels accounted for about 83% (\$14.1 million) of the value of mineral commodity imports, and metals accounted for about 75% (\$3.7 million) of the value of mineral commodity exports. In 2009, the total value of all Poland's imports was \$150 billion, and the total value of all its exports was \$160 billion (Galos, Ney, and Smakowski, 2010, p. 20; Dmochowska 2011b, p. 39).

Complete trade data for mineral commodities were not available for 2010, and the trade data that were available from the Central Statistical Office of Poland were slightly inconsistent with the values in the previous paragraph (which were converted from Polish zlotys), but trade data for some important commodities were available. In 2010, crude petroleum imports were valued at about \$12.3 billion (a 46% increase), and copper and copper alloys exports were valued at about \$2.4 billion (a 30% increase). In previous years, crude petroleum was the leading import commodity in terms of value, and refined copper was the leading export commodity (Central Statistical Office of Poland, 2010b, 2011b).

Commodity Review

Metals

Copper.—KGHM was the only copper mining and primary copper metal producing firm in Poland. It operated two copper smelters and three mines (the Lubin, the Polkowice-Sieroszowice,

and the Rudna Mines) and had reported reserves of about 1.4 billion metric tons (Gt) of ore containing about 25 million metric tons (Mt) of copper. KGHM was a significant world producer of copper and silver, representing about 3% of world output of copper mine and refined copper production and about 5% of world mine production of silver (Galos, Ney, and Smakowski, 2010, p. 161; KGHM Polska Miedz S.A., 2011, p. 108, 112).

KGHM's development strategy for 2009–18 addressed the company's main challenges of lowering production costs and increasing the company's resource base. By 2010, the cost of production of refined copper at KGHM had increased by 111% in Polish zlotys compared with the cost of production in 2000. To reduce production costs, KGHM planned to make investments in infrastructure and technology, although no specific projects were listed. The company also planned to expand its resource base and increase the production of copper in concentrate to about 700,000 metric tons per year (t/yr) compared with 425,000 metric tons (t) of copper in concentrate in 2010 by investing in further exploration and mining within Poland and internationally, acquiring other mining companies, and increasing scrap copper processing (KGHM Polska Miedz S.A., 2011, p. 106, 136–137).

Iron and Steel.—Poland had not produced iron ore since 1990 and was dependent on imported iron ore and concentrates for domestic pig iron production. In 2010, Poland imported about 6.5 Mt of iron ores and concentrates, which was a 71% increase in imports compared with those of 2009 (3.8 Mt), when production of pig iron was exceptionally low owing to lower demand for steel as a result of the world economic crisis. About 82% of these imports came from Ukraine and about 16% came from Russia. All the imported iron ore and concentrates was used for pig iron production at ArcelorMittal Poland S.A.'s iron and steel plants at Dabrowa Gornicza and Krakow (Central Statistical Office of Poland, 2010b, 2011b; Galos, Ney, and Smakowski, 2010, p. 271–273).

Crude steel production increased by 12% as economic conditions within Poland and in the rest of Europe improved and led to higher levels of steel consumption in 2010 compared with those of 2009. In the past 5 years, crude steel production followed general economic trends; production peaked in 2007 (10.6 Mt), decreased in 2008 (9.7 Mt) as the world economic crisis began, reached the lowest level of production in 2009 (7.1 Mt) during the worst year of the economic crisis, and showed signs of recovery in 2010. According to the Polish Steel Association, Poland's apparent consumption of finished steel products in 2010 was 9.82 Mt, which was about a 20% increase compared with that of 2009, and Poland's exports of steel products increased by 5% to 4.2 Mt. Employment in the steel industry decreased by 3.1% compared with that of 2009 to 25,475 persons (table 1; Polish Steel Association, 2010, p. 24–26).

Lead and Zinc.—Zaklady Gorniczo "Trzebieonka" S.A. was removed from the list of lead and zinc mining companies in table 2 because the company stopped production of lead and zinc ore in early 2009 because of the exhaustion of reserves. The shutdown of Zaklady Gorniczo "Trzebieonka" S.A. was the main reason for the significant decrease in production of lead and zinc mine output in 2010. Mining of lead and zinc ore at the

ZGH “Boleslaw” Mine at Olkusz and Pomorzany was expected to end in 2013, although mining activities could continue for an additional 20 years if new reserves are successfully developed. ZGH “Boleslaw” S.A. was in talks to take over Huta Cynku Miasteczko Slaskie S.A. (HCM) (a producer of lead and zinc metal) and planned to take over the company at the end of 2009, but it could not be confirmed whether this transaction took place (Galos, 2009, p. 25; Metal Bulletin, 2009, p. 10; Galos, Ney, and Smakowski, 2010, p. 293–294, 526).

Rhenium.—KGHM Ecoren S.A. was the only European producer of ammonium perrhenate (APR) and metallic rhenium from its own sources. In 2010, KGHM Ecoren was responsible for about 9% of total world production of rhenium contained in APR. On April 27, KGHM Ecoren began production of marketable quantities of metallic pellets containing 99.95% rhenium, which is an important additive in superalloys used in the production of jet engines and catalysts. The plant could produce up to 3.5 t/yr of rhenium pellets. In Poland, rhenium was extracted from sulfuric acid waste from copper processing; copper deposits controlled by KGHM contained on average 0.6 parts per million rhenium (Galos, Ney, and Smakowski, 2010, p. 403; KGHM Ecoren S.A., 2010).

Mineral Fuels

Coal.—As of the end of 2009, Poland had bituminous coal reserves of about 16.6 Gt and proved reserves of about 4.4 Gt and was the leading producer of bituminous coal in the European Union (EU). Reserves were not expected to be expanded owing to environmental concerns, difficult geologic conditions, and the low quality of the coal. Poland was among the world’s 10 leading producers of brown coal and lignite, and as of the end of 2009, reserves were about 14.9 Gt and proved reserves were about 1.4 Gt. Coal was Poland’s major mineral fuel, and in 2010, coal and lignite accounted for 87% of electricity production. In 2009 (the latest year for which data were available), bituminous coal and lignite made up 66% and 19%, respectively, of Poland’s energy balance (Central Statistical Office of Poland, 2010a, p. 27, 58–59; 2011a, p. 48; Galos, Ney, and Smakowski, 2010, p. 253, 303; European Association for Coal and Lignite, 2011).

Given its lack of significant petroleum and natural gas resources, the Government of Poland considered coal to be one of the most important components of the country’s energy security and sought to promote “the efficient and effective management of coal deposits” (Ministry of Economy of the Republic of Poland, 2009a, p. 9–10). The Energy Policy of Poland Until 2030 (released in 2009) emphasized the importance of coal and predicted that it would remain the most important domestically produced mineral fuel for the foreseeable future. The report forecast that, in 2010, electricity generated from bituminous coal and lignite would make up 53% and 35%, respectively, of total electricity generation, and that by 2030, electricity from these sources would make up 36% and 21%, respectively, of total electricity generation. The report also estimated that bituminous coal and lignite would make up 31% and 8%, respectively, of Poland’s primary energy demand in 2030. To ensure that the coal and lignite resources of Poland

would be used efficiently, the Government planned to increase geologic research in coal and lignite, abolish legal barriers to the development of coal and lignite deposits, include coal deposits in land development plans to ensure that access to coal and lignite deposits would not be blocked, and adopt other measures to encourage future coal and lignite production (Ministry of Economy of the Republic of Poland, 2009a, p. 9–10; 2009b, p. 15–16).

The use of coal as a cheap source of fuel to generate significant amounts of electricity in Poland through 2030 could be inhibited by EU regulations that require reductions in carbon dioxide emissions. Reducing the use of coal as a cheap source of energy would be difficult economically, and the Polish Government was considering ways to limit reductions to coal-based electricity production. In April, the European Commission (EC) approved Poland’s national allocation plan for distributing carbon dioxide emission allowances for 2008–12. In 2007, the EC rejected the original plan submitted by the Polish Government because it proposed that 285 Mt of emission allowances be distributed. The new plan that was approved allocated 208.5 Mt of allowances (EUobserver.com, 2010).

Natural Gas and Petroleum.—In 2010, Poland produced about 5.7 billion cubic meters of natural gas and 5.1 million barrels (Mbbbl) of crude oil but was dependent on imports for the majority of its supplies. About 1.4 Mbbbl of crude petroleum and about 20.7 million cubic meters of gas were produced by LOTOS Petrobaltic S.A. in the Baltic Sea Shelf; the remaining oil and gas were produced on the Polish mainland. In 2010, Poland imported about 160.8 Mbbbl of crude oil (an 11% decrease compared with the 154.5 Mbbbl imported in 2009), of which 94% was from Russia. Trade statistics for total natural gas imports were not available, but PGNiG imported about 10.07 billion cubic meters of natural gas (a 10% increase compared with that of 2009), of which 89.7% came from Russia and 10.3% came from Germany. In 2009 (the latest year for which data were available), PGNiG accounted for about 97% of all natural gas imports into Poland (Galos, Ney, and Smakowski, 2010, p. 214; Central Statistical Office of Poland, 2011b; Grupa LOTOS S.A., 2011, p. 5; Polskie Gornictwo Naftowe i Gazownictwo S.A., 2011, p. 41).

PGNiG was Poland’s leading producer of oil and gas, accounting for about 73% of crude petroleum production (3.7 Mbbbl) and 75% of natural gas production (4.24 billion cubic meters). The company also conducted exploration work in Denmark, Egypt, Libya, Norway, Pakistan, and Poland, and expected to begin production of oil and gas at the Skarv/Snadd/Idun field on the Norwegian Continental Shelf in the second half of 2011. The company planned to produce 100 million cubic meters of natural gas and about 670,000 barrels of crude oil from the Skarv/Snadd/Idun field in 2011 and then to increase production to 400 million cubic meters of natural gas and about 3 Mbbbl of crude oil in 2012. The company planned to transport natural gas to mainland Europe and to sell crude oil straight “from the wellhead” (Polskie Gornictwo Naftowe i Gazownictwo S.A., 2011, p. 36). Domestically, PGNiG planned to begin production at the Lubiatow-Miedzzychod-Grotow (LMG) field near Gorzow Wielkopolski in 2013 and expected that production at the

LMG field would double PGNiG's domestic crude petroleum output. PGNiG also planned to increase domestic natural gas production to about 4.5 billion cubic meters per year (Polskie Gornictwo Naftowe i Gazownictwo S.A., 2011, p. 30, 34–36).

In 2010, there was a large amount of interest throughout the world in unconventional natural gas deposits because of relatively recent advancements in horizontal drilling and hydraulic fracturing that made it possible to extract previously uneconomic resources economically. Poland was frequently mentioned as a potential future shale gas producer because of estimations of its significant shale gas reserves and its desire to reduce its reliance on Russian natural gas imports. A world assessment of shale gas resources commissioned by the U.S. Energy Information Administration (EIA) and conducted by Advanced Resources International, Inc. identified three basins (Baltic, Lublin, and Podlasie) in Poland as prospective shale gas plays and estimated that they contained 792 trillion cubic feet (22 trillion cubic meters) of shale gas in-place, which included 187 trillion cubic feet (5 trillion cubic meters) of technically recoverable gas. Technically recoverable gas refers to the estimate of the amount of gas in-place that could actually be recovered using current production technology but does not take into account economic factors that could affect production. Poland accounted for about 31% of Europe's total shale gas in-place and 30% of total technically recoverable shale gas. The assessment's estimated amount of technically recoverable shale gas in Poland is equivalent to about 290 years of domestic consumption at current consumption rates, and indicated that, over the long run, shale gas could have a major effect on Poland's energy security (Galos, Ney, and Smakowski, 2010, p. 215; U.S. Energy Information Administration, 2011, p. 1.5, 7, V–1).

Although Poland may have considerable shale gas production potential, it is important to recognize that there are a number of challenges that would need to be overcome if a significant amount of shale gas was to be recovered in Poland. The major challenges for the shale gas industry include economic considerations and environmental concerns. The advanced drilling techniques and the low rates of shale gas recovery seen in operating shale gas projects in other countries make shale gas an expensive alternative to conventional natural gas resources. Environmental opposition to shale gas production has also been quite strong in other parts of the world, including the United States and the EU, and in the future, the Polish shale gas industry could be faced with opposition to its operations. On the other hand, in Poland, the desire to reduce dependence on natural gas imports from Russia and current popular support for shale gas production could produce an environment that is advantageous for shale gas production. It is hard to predict the future of shale gas in Poland, and any accurate estimation of future production would depend on a number of factors and would not be possible until more exploration and test drilling is done.

PGNiG reported that the Ministry of the Environment had awarded more than 70 exploration licenses for shale gas and tight gas deposits to more than 40 entities in recent years. Some of the most significant companies that were conducting exploration activities were Lane Energy Poland Sp. z o.o. (a

subsidiary of 3 Legs Resources plc.) in partnership with BNK Petroleum Inc., Chevron Corp., ConocoPhillips Co., Exxon Mobil Corp., and Marathon Oil Corp. of the United States; Aurelian Oil and Gas plc. of the United Kingdom; San Leon Energy plc. of Ireland; Eni S.p.A. of Italy; and PGNiG (Polskie Gornictwo Naftowe i Gazownictwo S.A., 2011, p. 33).

Outlook

Continuing economic recovery from the economic crisis and an accompanying increase in domestic demand could lead to increased mineral commodity production, but much of the growth in demand for mineral products could depend on demand by Poland's trade partners, especially those in the EU. Most likely coal and copper will remain the leading mineral products in terms of production value, and dependence on imports of mineral fuels will remain one of Poland's biggest challenges. Also, Government ownership of important mineral producing companies will decline as privatization efforts continue.

References Cited

- Apodaca, L.E., 2011, Sulfur: U.S. Geological Survey Mineral Commodity Summaries 2011, p. 158–159.
- ArcelorMittal Poland S.A., 2011, Unit in Swietochlowice: ArcelorMittal Poland S.A. (Accessed November 15, 2011, at <http://www.arcelormittal.com/poland/en/who-we-are/our-history/unit-in-swietochlowice.html>.)
- Brooks, W.E., 2011, Silver: U.S. Geological Survey Mineral Commodity Summaries 2011, p. 146–147.
- Central Statistical Office of Poland, 2010a, Energy statistics 2008, 2009: Central Statistical Office of Poland, November. (Accessed November 16, 2011, at http://www.stat.gov.pl/cps/rde/xbcr/gus/PUBL_icf_energy_statistics_2008_2009.pdf.)
- Central Statistical Office of Poland, 2010b, Foreign trade turnover by main commodities January–December 2009: Central Statistical Office of Poland, August 13. (Accessed November 9, 2010, at http://www.stat.gov.pl/gus/ceny_handel_ENG_HTML.htm.)
- Central Statistical Office of Poland, 2011a, Energy statistics 2009, 2010: Central Statistical Office of Poland, 290 p. (Accessed March 1, 2012, at http://www.stat.gov.pl/cps/rde/xbcr/gus/PUBL_icf_energy_statistics_2009-2010.pdf.)
- Central Statistical Office of Poland, 2011b, Foreign trade turnover by main commodities January–December 2010: Central Statistical Office of Poland, August 13. (Accessed September 23, 2011, at http://www.stat.gov.pl/gus/ceny_handel_ENG_HTML.htm.)
- Central Statistical Office of Poland, 2011c, Gross domestic product in 2010—Preliminary estimate: Central Statistical Office of Poland. (Accessed October 31, 2011, at http://www.stat.gov.pl/gus/5840_4403_ENG_HTML.htm?action=show_archive.)
- Crangle, R.D., Jr., 2011, Gypsum: U.S. Geological Survey Mineral Commodity Summaries 2011, p. 70–71.
- Dmochowska, Halina, ed., 2011a, Concise statistical yearbook of Poland 2011: Warsaw, Poland, Central Statistical Office of Poland [Główny Urząd Statystyczny], June, 726 p.
- Dmochowska, Halina, ed., 2011b, Yearbook of foreign trade statistics of Poland: Warsaw, Poland, Central Statistical Office of Poland [Główny Urząd Statystyczny], 712 p.
- Edelstein, D.L., 2011, Copper: U.S. Geological Survey Mineral Commodity Summaries 2011, p. 48–49.
- EUobserver.com, 2010, Commission approves Polish CO2 plan after lengthy legal tussle: EUobserver.com, April 20. (Accessed February 28, 2012, at <http://euobserver.com/885/29896>.)
- European Association for Coal and Lignite, 2011, Coal in Europe—Lignite production, hard coal production, and imports in 2010, million tonnes: European Association for Coal and Lignite, October. (Accessed November 16, 2011, at <http://www.euracoal.org/pages/medien.php?idpage=802>.)
- Galos, Krzysztof, 2009, Polish coal powers Europe: London, United Kingdom, Mining Journal, October 16, p. 21–25.

- Galos, Krzysztof, Ney, Roman and Smakowski, Tadeusz, eds., 2010, Minerals yearbook of Poland 2009: Krakow, Poland, Department of Mineral Policy, Mineral and Energy Economy Research Institute, Polish Academy of Sciences, 537 p.
- Grupa LOTOS S.A., 2009, Directors report on the operations of Grupa LOTOS S.A. in 2008: LOTOS Group S.A., April, 73 p. (Accessed November 18, 2011, at http://www.lotos.pl/en/inwestorski/raporty/raporty_roczne.)
- Grupa LOTOS S.A., 2011, Annual report 2010: Gdansk, Poland, Grupa LOTOS S.A., June, 342 p.
- KGHM Ecoren S.A., 2010, KGHM Ecoren opens a metallic rhenium factory: KGHM Ecoren press release, April 4. (Accessed November 10, 2010, at <http://en.ecoren.pl/4221.xml>.)
- KGHM Polska Miedz S.A., 2011, Annual report 2010: Lubin, Poland, Kombinat Gorniczo Hutniczy Miedzi Polska Miedz S.A., March, 151 p.
- Kostick, D.S., 2011, Salt: U.S. Geological Survey Mineral Commodity Summaries 2011, p. 134–135.
- Lubelski Wegiel Bogdanka S.A., 2010, Directors report on operations of Lubelski Wegiel Bogdanka S.A. for the period from 1 January 2009 to 31 December 2009: Bogdanka, Poland, Lubelski Wegiel Bogdanka S.A., 125 p.
- Lubelski Wegiel Bogdanka S.A., 2011, Directors report on operations of Lubelski Wegiel Bogdanka S.A. for the period from 1 January 2010 to 31 December 2010: Bogdanka, Poland, Lubelski Wegiel Bogdanka S.A., 92 p.
- Metal Bulletin, 2009, HCM, ZGH Boleslaw discuss takeover details: London, United Kingdom, Metal Bulletin, June 22, p. 10.
- Miller, M.M., 2011, Lime: U.S. Geological Survey Mineral Commodity Summaries 2011, p. 92–93.
- Ministry of Economy of the Republic of Poland, 2009a, Energy policy of Poland until 2030: Ministry of Economy of the Republic of Poland, November 10, 20 p. (Accessed November 17, 2011, at http://www.mg.gov.pl/files/upload/8134/Polityka_energetyczna_ost_en.pdf.)
- Ministry of Economy of the Republic of Poland, 2009b, Projection of demand for fuels and energy until 2030—Appendix 2 to draft “Energy policy of Poland until 2030”: Ministry of Economy of the Republic of Poland, November 10, 20 p. (Accessed November 17, 2011, at <http://www.mg.gov.pl/files/upload/8134/Appendix2.pdf>.)
- Ministry of Treasury of the Republic of Poland, 2009, Polish privatization programme for the years 2009-2011: Warsaw, Poland, Ministry of Treasury of the Republic of Poland, September 8, 19 p.
- Ney, Roman and Smakowski, Tadeusz, eds., 2009, Minerals yearbook of Poland 2008: Krakow, Poland, Department of Mineral Policy, Mineral and Energy Economy Research Institute, Polish Academy of Sciences, 505 p.
- Polish Steel Association, 2010, Polish steel industry 2011: Polish Steel Association, 59 p. (Accessed November 15, 2011, at http://www.hiph.com.pl/ANALIZY_RAPORTY/pliki/HIPH_2011_mini.pdf.)
- Polskie Gornictwo Naftowe i Gazownictwo S.A., 2009, Annual report 2008: Polskie Gornictwo Naftowe i Gazownictwo S.A., July 31, 184 p. (Accessed September 23, 2009, at http://www.pgning.pl/pgnig/ri/838/10283/?s_main_language=EN.)
- Polskie Gornictwo Naftowe i Gazownictwo S.A., 2011, Annual report 2010: Warsaw, Poland, Polskie Gornictwo Naftowe i Gazownictwo S.A., July 6, 72 p.
- Polyak, D.E., 2011, Rhenium: U.S. Geological Survey Mineral Commodity Summaries 2011, p. 130–131.
- Tanner, A.O., 2011, Feldspar: U.S. Geological Survey Mineral Commodity Summaries 2011, p. 54–55.
- U.S. Energy Information Administration, 2011, World shale gas resources—An initial assessment of 14 regions outside the United States: U.S. Energy Information Administration, April, 365 p. (Accessed November 3, 2011, at <http://www.eia.gov/analysis/studies/worldshalegas/pdf/fullreport.pdf>.)
- World Energy Council, 2010, 2010 Survey of energy resources: World Energy Council, October, 608 p. (Accessed November 10, 2010, at http://www.worldenergy.org/documents/ser_2010_report.pdf.)

TABLE 1
POLAND: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²		2006	2007	2008	2009	2010
METALS						
Aluminum, metal:						
Primary	metric tons	57,620	54,468	47,543	-- ^r	--
Secondary ^{e,3}	do.	18,900	21,500	18,000	16,900	18,000
Total ^e	do.	76,500	76,000	65,500	16,900	18,000
Cadmium, metal, primary	do.	373	421	603	534	451
Copper:						
Ore:						
Gross weight		31,279	30,262	29,416	29,700	29,300
Cu content	metric tons	559,894	505,900	482,400	498,960	480,600
Concentrate:						
Gross weight		1,946	1,876	1,866	1,929	1,841
Cu content	metric tons	497,000	452,000	429,400	439,000	425,400
Metal:						
Smelter: ⁴						
Primary	do.	445,100	438,100	438,600	408,200	425,000
Secondary	do.	80,000	39,800	43,800	68,800	59,600
Total	do.	525,100	477,900	482,400	477,000	484,600
Refined, electrolytically, primary and secondary	do.	556,625	532,975	526,808	502,491	547,100
Gold:						
Mine output. Au content of Cu concentrate ^e	kilograms	500	500 ^r	500 ^r	500 ^r	500
Metal	do.	1,700	883	902	814	776
Iron and steel:						
Pig iron:						
For foundry use		21	--	--	--	-- ^e
For steel production		5,311	5,804	4,934	3,095 ^r	3,638
Total		5,332	5,804	4,934	3,095 ^r	3,638
Ferroalloys:						
Blast furnace, ferromanganese	metric tons	4,100	2,100	8,500	1,700 ^r	1,700 ^e
Electric furnace:						
Ferrochromium	do.	400	--	--	--	--
Silicomanganese	do.	3,310	15,600	25,100	-- ^r	--
Ferrosilicon	do.	13,034	58,538	56,031	9,673 ^r	53,206
Other	do.	4,500	6,200	2,900	4,200 ^r	4,000 ^e
Total ferroalloys	do.	25,344	82,438	92,531	15,573 ^r	59,000 ^e
Steel, crude:						
From oxygen converters		5,766	6,188	5,225	3,235 ^r	3,995
From electric arc furnaces		4,225	4,433	4,502	3,893	4,001
Total		9,991	10,621	9,727	7,128 ^r	7,996
Finished steel products:						
Hot rolled		7,666	8,011	7,610	6,232	6,658
Cold rolled		1,600	1,482	689	558	835
Pipe		417	401	409	347	384
Lead:						
Mine output:						
Pb content of Pb-Zn ore	metric tons	67,100	63,700	66,400	51,500 ^r	35,800
Pb content of Cu ore	do.	30,500	15,700	21,300	28,900 ^r	28,000 ^e
Total	do.	97,600	79,400	87,700	80,400 ^r	63,800 ^e
Concentrate, Pb content	do.	50,000	47,200	47,900	36,900 ^r	35,000 ^e
Metal, refined, primary and secondary:						
Primary ^e	do.	26,200	37,200	38,000 ^r	30,000 ^r	35,000
Secondary ^e	do.	56,600	67,000	70,200 ^r	70,400 ^r	77,000
Total ⁵	do.	82,800	104,200	108,200 ^r	100,400 ^r	112,000 ^e
Platinum-group metals, average content of slimes: ^{e,6}						
Palladium	kilograms	10	15	15	15	15
Platinum	do.	20	25	25	25	25

See footnotes at end of table.

TABLE 1—Continued
POLAND: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2006	2007	2008	2009	2010
METALS—Continued					
Rhenium:					
Ammonium perrhenate					
Gross weight kilograms	1,500	3,500	4,900	3,500	6,709
Re content of ammonium perrhenate do.	1,000	2,400	3,400	2,400	4,656
Rhenium metal in pellet form do.	--	--	--	--	620
Selenium metric tons	87	85	82	73 ^r	70 ^e
Silver:					
Mine output, Ag content of Cu concentrate do.	1,266	1,199	1,161	1,207 ^r	1,181
Metal do.	1,270	1,244	1,221	1,221 ^r	1,180 ^e
Zinc:					
Zn content:					
Mine output do.	144,800	136,100	136,300	116,000 ^r	88,000
Concentrate output do.	126,600	129,600	132,400	115,500 ^r	85,000 ^e
Metal, refined, including secondary do.	133,900	141,800	142,600	139,100 ^r	149,000
INDUSTRIAL MINERALS					
Barite, beneficiated metric tons	2,143	--	324	--	--
Cement:					
Clinker	11,220	13,168	12,443	10,659	11,768
Hydraulic	14,688	17,120	17,207	15,422 ^r	15,812
Clays and clay products:					
Bentonite:					
Crude metric tons	--	1,300	3,000	3,000	3,000 ^e
Processed, including imported material do.	93,880	105,943	90,412 ^r	81,354	85,981
Fire clay, crude	187	198	181	115	82
Kaolin:					
Crude	297	319	318	261 ^r	260 ^e
Beneficiated	144	153	166	143 ^r	140 ^e
Diatomite metric tons	600	600	1,000	700 ^r	700 ^e
Feldspar:					
Run of mine do.	431,300	497,900	599,100	445,500 ^r	445,000 ^e
Processed, including imported material do.	457,600	501,800	643,700 ^r	478,000 ^r	478,000 ^e
Gypsum and anhydrite:					
Natural:					
Gypsum rock	1,172	1,298	1,283	1,119 ^r	1,150 ^e
Anhydrite	181	194	198	158 ^r	150 ^e
Total	1,353	1,492	1,481	1,277 ^r	1,300 ^e
Synthetic gypsum	1,230	1,338	1,596 ^r	2,076 ^r	2,000 ^e
Grand total	2,583	2,830	3,077 ^r	3,353 ^r	3,300 ^e
Lime, hydrated and quicklime	1,936	2,143	1,952	1,704 ^r	1,799
Magnesite:					
Concentrate metric tons	62,500	65,000	60,000	47,000	50,000 ^e
Calcined do.	--	--	-- ^r	-- ^r	--
Nitrogen, N content of ammonia	2,007	1,995	1,995	1,697	1,700 ^e
Quartz, quartzite, and quartz schist:					
Quartz and quartz crystal, marketable metric tons	13,900	7,000	6,500	5,100	5,000 ^e
Quartzite, refractory, marketable do.	16,900	46,100	72,500	25,700	34,200
Quartz schist, marketable do.	10,800	9,500	7,100	3,500 ^r	3,500 ^e
Salt:					
Rock	1,130	591	618	999 ^r	1,236
Other (brine and desalination of mine waste water)	2,899	2,931	2,783	2,533 ^r	2,464
Total	4,029	3,522	3,401	3,532 ^r	3,700
Sand and gravel:					
Aggregates (construction sand and gravel), natural, mine output	116,561	139,388	149,312	140,890 ^r	140,000 ^e
Filling sand thousand cubic meters	6,197	6,595	6,401	5,928 ^r	6,000 ^e
Foundry sand	762	782	1,244	1,701 ^r	1,817
Lime-sand brick production sand thousand cubic meters	685	905	834	560 ^r	560 ^e
Silica sand (glass sand), marketable	1,525	2,268	2,398	2,127 ^r	2,458

See footnotes at end of table.

TABLE 1—Continued
POLAND: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2006	2007	2008	2009	2010	
INDUSTRIAL MINERALS—Continued						
Stone, mine output:						
Dimension stone	3,729	2,661	3,126	3,576 ^r	3,600 ^e	
Dolomite	2,013	2,232	2,206	1,834	1,821	
Limestone:						
For lime production	13,645	15,581	16,110	14,881 ^r	15,000 ^e	
For non-lime end use	26,314	30,983	30,778	28,883 ^r	30,000 ^e	
Road stone	160	141	300 ^r	260 ^r	260 ^e	
Sulfur:						
Native, Frasch	800	834	762	263	517	
Byproduct:						
From natural gas	20	23	21	25 ^r	25 ^e	
From oil refineries and coking plants	182	188	201	190 ^r	200 ^e	
From metallurgy	307	304	294	257 ^r	260 ^e	
Other	2	1 ^r	1 ^r	1 ^r	1 ^e	
Total	511	516 ^r	517 ^r	473 ^r	470 ^e	
Grand total	1,311	1,350 ^r	1,279 ^r	736 ^r	990 ^e	
MINERAL FUELS AND RELATED MATERIALS						
Carbon black	metric tons	34,100	41,100	36,300	27,800 ^r	28,000
Coal:						
Bituminous		95,220	88,313	84,345	78,064	76,728
Brown coal and lignite		60,844	57,538	59,668	57,108	56,510
Total		156,064	145,851	144,013	135,172	133,238
Coke		9,735	10,383	9,761	7,091	9,738
Gas:						
Natural	million cubic meters	5,650	5,653	5,382	5,537	5,671
Manufactured:						
Town gas	do.	10	10	4	4	4
Coke oven gas	do.	4,101	4,409	4,207	3,076 ^r	4,158
Total	do.	4,111	4,419	4,211	3,080 ^r	4,162
Peat, fuel and agricultural		577	641	632	594 ^r	672
Petroleum:						
Crude ⁷	thousand 42-gallon barrels	5,900	5,350	5,600	5,100	5,100
Refinery products ^{e,8}	do.	137,000	134,000	144,000	150,000	158,000

^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 18, 2011.

²In addition to the commodities listed, cobalt and nickel, which are associated with copper ores, are produced in quantities that so far have not warranted further recovery.

³Based on official Polish estimates.

⁴Copper smelter production is based on production at KGHM Polska Miedz S.A. Additional smelter production may have taken place at the Institute of Non-Ferrous Metals at Gliwice but this production was not marketable and was produced only for research purposes.

⁵Reported figure.

⁶Estimates based on reported platinum- and palladium-bearing final (residual) slimes and their average Pt and Pd content from electrolytic copper refining.

⁷Figures were converted to barrels from production in metric tons, which was reported as the following: 2006—795,742; 2007—720,603; 2008—754,907; 2009—686,992; and 2010—686,487.

⁸Figures were converted to barrels from production in metric tons, which was reported as the following: 2006—18,689,470; 2007—18,187,650; 2008—19,631,450; 2009—20,499,407; and 2010—21,513,663.

TABLE 2
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Aluminum, secondary	Aluminium Konin-Impexmetal S.A.	Konin	NA.
Do.	NPA Skawina Sp. z o.o	Skawina	NA.
Do.	Grupa KETY S.A.	Kety	NA.
Do.	Nicromet	Bestwinka	NA.
Do.	Alumetal S.A.	Kety	NA.
Do.	POLST Sp. z o.o.	Walbrzych	NA.
Barite ²	Przedsiębiorstwo Handlowe Usługowe R&S Spolka z o.o.	Boguszow, Stanislawow deposits near Boguszow-Gorce	3. ^e
Cadmium, refined	metric tons Huta Cynku "Miasteczko Slaskie" S.A.	Miasteczko Slaskie	500.
Cement	Gorazdze Cement S.A. (Heidelberg Cement AG, 100%)	Chorula	2,800 clinker, ^e 4,100 cement. ^e
Do.	Grupa Ozarow S.A. (CRH plc., 100%)	Plants at Ozarow and Rejowiec	2,800 clinker, ^e 3,250 cement. ^e
Do.	Cemex Polska Sp. z o.o.	Plants at Chelm and Rudniki	2,300 clinker, ^e 3,000 cement. ^e
Do.	Cementownia Warta S.A. (Polen Zement Beteiligungsgesellschaft GmbH)	Dzialoszyn	1,400 clinker, ^e 2,000 cement. ^e
Do.	Lafarge Cement S.A.	Plants at Malogoszcz and Piechcin	3,000 clinker, ^e 4,800 cement.
Do.	Dykerhoff Polska	Sitkowska-Nowiny	1,100 clinker, ^e 1,600 cement.
Do.	Cementownia "Nowa Huta" S.A.	Krakow	300 clinker, ^e 500 cement. ^e
Do.	Cementownia "Odra" S.A.	Opole	400 clinker, ^e 800 cement. ^e
Cement, aluminous	Gorka Cement Sp. z o.o.	Trzebinia	70 clinker, ^e 70 cement. ^e
Coal:			
Bituminous	Includes: 100% Government owned: Kompania Weglowa S.A. Jastrzebska Spolka Weglowa S.A. Katowicki Holding Weglowy S.A. Poludniowy Koncern Weglowy S.A. KWK Kazimierz-Juliusz Sp. z o. o. Lubelski Wegiel Bogdanka S.A. (Government, 13.84%) SILTECH Sp. z o. o.	Of which: Upper Silesia (16 mines) Upper Silesia (6 mines) Upper Silesia (5 mines) Upper Silesia (2 mines) Upper Silesia (1 mine) Bogdanka, east of Leczna, eastern Poland (1 mine) Upper Silesia (1 mine)	90,000. ^{e,3}
Brown coal and lignite	Includes: PGE KWB Belchatow S.A. [PGE Polish Energy Group Plc. (Government, 69.29%)] PGE KWB Turow S.A. (PGE Polish Energy Group Plc. (Government, 69.29%)] KWB Konin S.A. (Government) KWB Adamow S.A. (Government) KWB Sieniawa Sp. z o.o.	Of which: Belchatow, south of Lodz (2 open pit mines) Bogatynia, at the southwest corner of Poland (1 mine) Konin (4 open pit mines) Turek (3 open pit mines) Sieniawa (1 mine)	75,000. ^{e,3}
Coke	Includes: Zaklady Koksownicze Zdzeszowice (ArcelorMittal Poland S.A., 100%) Zaklady Koksownicze Przyjazn Sp. z o.o. Kombinat Koksochemiczny Zabrze S.A. ArcelorMittal Poland S.A. ISD Huta Czestochowa Sp. z o.o. Zaklady Koksownicze "Victoria" S.A. BO-CARBO Sp. z o.o.	Of which: Upper Silesia (Zdzeszowice) Upper Silesia (Dabrowa Gornicze) Upper Silesia (Cokeries at Jadwiga, Radlin, and Debiensko) Upper Silesia (Krakow) Upper Silesia (Czestochowa) Upper Silesia (Walbrzychu) Upper Silesia (Bytom)	9,700. ³

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Copper:				
Ore, gross weight (averaged 1.64% Cu)		KGHM Polska Miedz S.A. (Government, 31.79%)	Lubin Mine, Lubin-Glogow District	7,000.
Do.		do.	Polkowice-Sierszowice Mine, Lubin-Glogow District	11,000.
Do.		do.	Rudna Mine, Lubin-Glogow District	12,000.
Concentrate, gross weight (averaged 22.8% Cu)		do.	Lubin beneficiation plant, Lubin-Glogow District	500.
Do.		do.	Polkowice beneficiation plant, Lubin-Glogow District	600.
Do.		do.	Rudna beneficiation plant, Lubin-Glogow District	1,050.
Metal, refined		do.	Refineries at Glogow I, Glogow II, and Legnica	540.
Feldspar		Strzeblowskie Kopalnie Surowcow Mineralnych Sp. z o.o.	Sobotka, Lower Silesia, exploiting the Pagorki Zachodnie, Pagorki Wschodnie, and Strzeblow I deposits	500.
Do.		Pol-Skal Sp. z o.o.	Karpniki, southwestern region of Jelenia Gora	100.
Ferroalloys:				
Electric furnace (FeSiMn, FeMn, FeSi)		Huta Laziska S.A.	Upper Silesia at Laziska Gorne	120. ^e
Blast furnace (FeMn)		STALMAG Sp. z o.o.	Upper Silesia at Ruda Slaska	50. ^e
Gold, metal	kilograms	KGHM Polska Miedz S.A. (Government, 31.79%)	Refinery at Glogow	1,700. ^e
Gypsum and anhydrite		Includes: Zaklady Przemyslu Gipsowego "Dolina Nidy" S.A. Rigips Polska Stawiany Sp. z o.o. Kopalnia Gipsu i Anhydrytu "Nowy Lad" Sp. z o.o.	Of which: Southeastern Poland, Gacki Southeastern Poland, Szarbkow Lower Silesia, mines at Niwnice and Iwiny	1,400. ³
Helium	million cubic meters	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 84.75%)	Western Poland, Odolanow	3.
Kaolin, crude and washed		KSM "Surmin-Kaolin" S.A.	Lower Silesia, Nowogrodziec	90. ^e
Do.		Grudzen Las Sp. z o.o.	Grudzen Las, in Lodz Voivodeship	55. ^e
Do.		Tomaszowskie Kopalnie Surowcow Mineralnych "Biala Gora" Sp. z o.o.	Smardzewice, Tomaszowski Voivodeship	30. ^e
Lead-zinc:				
Mine output		Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A. (Government, 100%)	Mine and concentrator at Olkusz and Pomorzany, Bukowno region	30 lead, ^e 110 zinc. ^e
Metal:				
Pb, refined		Huta Cynku Miasteczko Slaskie (HCM) S.A.	Refinery at Miasteczko Slaskie	35.
Do.		"Baterpol" Sp. z o.o. (Impexmetal S.A.)	Refinery at Katowice	30.
Do.		Orzel Bialy S.A.	Refinery at Bytom	40.
Do.		KGHM Polska Miedz S.A. (Government, 31.79%)	Smelter at Legnica	35.
Zn, refined		Huta Cynku Miasteczko Slaskie (HCM) S.A.	Imperial smelter at Miasteczko Slaskie	85.
Do.		Zaklady Metalurgiczny Silesia S.A.	Refinery at Katowice	12.
Do.		Zaklady Gorniczo-Hutnicze (ZGH) "Boleslaw" S.A. (Government, 100%)	Refinery at Boleslaw	75.
Lime		Includes: Zaklady Przemyslu Wapienniczego (ZPW) Trzuskawica S.A. (CRH plc, 100%) Lhoist Group: Lhoist Opolwap S.A. Lhoist Bukowa Sp. z o.o. Zaklad Wapienniczy Wojcieszow Sp. z o.o. Zaklady Wapiennicze Lhoist Sp. z o.o.	Of which: Plants in Sitkowka-Nowiny and Bielawy Tarnow Opolski, Opole County Bukowa, 90 kilometers north of Krakow Wojcieszow Gorazdze	2,200. ^{e, 3}
Natural gas	million cubic meters	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 72.44%)	Gasfields in southeastern Poland in the Carpathians, the Carpathian Foreland, and the Polish Lowlands regions	4,300. ^e
Do.	do.	LOTOS Petrobaltic S.A. (Grupa LOTOS S.A.)	Baltic Sea Shelf	30. ^e
Do.	do.	FX Energy, Inc.	Western Poland	70. ^e

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Nitrogen:				
Ammonia (NH ₃)		Includes: Zakłady Azotowe "Pulawy" S.A. Zakłady Azotowe "Kedzierzyn" S.A. Zakłady Azotowe "Anwil Wloclawek" S.A. Zakłady Azotowe S.A. w Tarnowie Azoty-Adipol S.A. (former Chorzow plant) Zakłady Chemiczne "Police"	Of which: Pulawy in eastern Poland Kedzierzyn in Upper Silesia Wloclawek in central Poland Tarnow in southern Poland Chorzow in Upper Silesia Police in northwestern Poland	2,600. ^{e,3}
Petroleum:				
Crude	thousand 42-gallon barrels	Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 72.44%)	Oilfields in southeastern and western Poland with about 75% of production from the Barnowko-Mostno-Buszewo field near Debno	4,000. ^e
Do.	do.	LOTOS Petrobaltic S.A. (Grupa LOTOS S.A.)	Baltic Sea Shelf	1,500. ^e
Do.	do.	FX Energy, Inc.	Western Poland	70. ^e
Refined	do.	Petrochimia-Plock (PNK Orlen S.A.)	Plock in central Poland	115,000.
Do.	do.	Rafineria "Gdansk" (Grupa LOTOS Group S.A.)	Gdansk in northern Poland	50,000.
Do.	do.	Rafineria "Trzebinia" (PNK Orlen S.A.)	Trzebinia in southern Poland	3,000.
Do.	do.	Rafineria "Jedlicze" (PNK Orlen S.A.)	Jedlicze in southern Poland	1,000.
Rhenium:				
Rhenium content of ammonium perrhenate	kilograms	KGHM Ecoren S.A. [KGHM Polska Miedz S.A. (Government, 31.79%)]	Lubin	5,000.
Rhenium metal	do.	do.	do.	3,500.
Salt:				
Brine		Inowroclawskie Kopalnie Soli Solino S.A. Polskie Gornictwo Naftowe i Gazownictwo S.A. (PGNiG) (Government, 72.94%) Kopalnia Soli "Wieliczka" S.A.	Mines at Gora and Mogilno in central Poland Mine at Mogilno in central Poland Wieliczka in southern Poland, near Krakow, mining deposits at Barycz and Wieliczka	
Rock salt		Kopalnia Soli "Klodawa" S.A. KGHM Polska Miedz S.A. (Government, 31.79%)	Klodawa in central Poland Sierszowice in southwestern Poland	
Desalination of mine waste water		Zaklad Odsalania Wod Dolowych "Debiensko" Sp. z o.o.	Czerwionka-Leszczynny, west of Debiensko	
Selenium		KGHM Polska Miedz S.A. (Government, 31.79%)	Refinery at Glogow	90.
Silver, refined	metric tons	do.	Precious metals plant at the Glogow smelter (refined silver produced from anode slime resulting from electrolytic processing of copper)	1,400.
Do.	do.	Institute of Non-ferrous Metals	Gliwice	30. ^e
Steel, crude		ArcelorMittal S.A., of which: ArcelorMittal Poland S.A. do. ArcelorMittal Warszawa Sp. z o.o.	Steelworks at Dobrowa Gornicza (former Huta Katowice S.A.), producing pig iron, crude steel, hot-rolled products, and cast steel Steelworks at Krakow (former Huta Sendzimir S.A.), producing pig iron, crude steel, hot-rolled products, cold-rolled products, pipes, cast iron, tinplated sheets, and galvanized sheets Steelworks in Warsaw (former Huta "Lucchini-Warszawa" Sp. z o.o.), producing crude steel, special steel, hot-rolled products, and cold-rolled strip	8,000.
Do.		CMC Zawiercie S.A. (Commercial Metals Co.)	Steelworks at Zawiercie, producing crude steel, hot-rolled products, cast iron, and cast steel	1,900. ⁴
Do.		ISD Huta Czestochowa S.A. (Industrial Union of Donbass Corp.)	Steelworks at Czestochowa, producing crude steel, hot-rolled sheets, pipes, and cast iron	1,000.

See footnotes at end of table.

TABLE 2—Continued
POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2010¹

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Steel, crude—Continued	Celsa Huta Ostrowiec S.A. (Celsa Group)	Steelworks at Ostrowiec-Swietokrzyski, producing crude steel, rods, hot-rolled products	1,000. ⁶
Do.	Ferrostal Labedy Sp. z o.o. (Zlomrex S.A.)	Steelworks at Gliwice, producing crude steel, hot-rolled products, and bars	375.
Do.	Huta Stali Jakosciowych S.A. (Zlomrex S.A.)	Steelworks at Stalowa Wola, producing crude steel, hot-rolled products, cold-rolled sheets	261.
Do.	Huta Batory Sp. z o.o. (Alchemia S.A.)	Steelworks at Chorzow, producing crude steel, special steels, pipes, and tubes	150. ⁶
Sulfur	P.P. Kopalnie i Zaklady Chemiczne Siarki "Siarkopol"	Operations at Grzybow, mining the Osiek deposit	800.

⁶Estimated. Do., do. Ditto. NA Not available.

¹The data presented in this table were compiled, in large measure, from information provided in the Minerals Yearbook of Poland (Bilans Gospodarki Surowcami Mineralnymi w Polsce Na Tle Gospodarki Swiatowej 2009), which was prepared and published by the Department of Mineral and Energy Policy, Mineral and Energy Economy Research Centre of the Academy of Science of Poland, Ministry of Environmental Protection, Natural Resources, and Forestry.

²The production of barite at the "Boguszow" barite mine was stopped in 1997 because of large-scale area flooding; production of barite since 1997 has been through the processing of old flotation tailings.

³Annual capacity listed is total for all deposits, mines, or companies that produce the commodity.

⁴Production capacity at CMC Zawiercie S.A. was increased to 1.9 million metric tons per year (Mt/yr) from 1.3 Mt/yr. In previous years, steel rolling capacity of 1.3 Mt was mistakenly listed as the crude steel production capacity.