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2016 Minerals Yearbook

RUSSIA

U.S. Department of the Interior
U.S. Geological Survey

November 2021

The Mineral Industry of Russia

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The Russian Federation was one of world's leading producers of mineral commodities and produced a diverse range of metals, industrial minerals, and mineral fuels. In 2016, Russia was the world's leading producer of asbestos (54% of world output) and palladium (38%); the 2d-ranked producer of aluminum (6.0%), cobalt (5.0%), diamond (29%), germanium (4.8%), magnesium metal[1] (5.8%), nitrogen (8.7%), platinum (12%), potash (16.4%), silicon (9.9%), and vanadium (20%); the 3d-ranked producer of antimony (5.4%), gold (8.1%); magnesium compounds (4.7%), nickel (10.6%), rare earths (2.2%), sulfur (8.4%), tellurium (8.5%), titanium sponge (22%), and tungsten (3.5%); the 4th-ranked producer of arsenic (4.1%), pig iron (4.5%), lime (3.1%), phosphate rock (4.9%), and silver (6.1%); the 5th-ranked producer of alumina (2.2%), graphite (1.7 %), iron ore (4.1%), lead (5.3%), raw steel (4.4%), and vermiculite (5.0%); the 6th-ranked producer of barite (5.9%), cadmium (5.4%), and selenium (4.4%); the 7th-ranked producer of bauxite (2.0%), boron (0.8%), indium (0.7%), and peat (3.8%); the 8th-ranked producer of molybdenum (1.1%); the 10th-ranked producer of cement (1.4%) and diatomite (2.4%); and the 11th-ranked producer of gypsum (1.7%). It also was a significant world producer of bismuth, gallium, scandium, and tin (Anderson, 2018a–d; Apodaca, 2018a–c; Bedinger, 2018; Bennett, 2018; Bray, 2018a–d; Corathers, 2018; Crangle, 2018a–c; Fenton, 2018; Flanagan, 2018; Gambogi, 2018a, b; George, 2018a, b; Jasinski, 2018a, b; Jaskula, 2018; Klochko, 2018a–c ; Loferski, 2018; McRae, 2018a, b; Olson, 2018a, b; Polyak, 2018a, b; Schnebele, 2018; Shedd, 2018a, b; Tanner, 2018; Thomas, 2018; Tolcin, 2018; Tuck, 2018; van Oss, 2018).

Minerals in the National Economy

In 2016, the real gross domestic product (GDP) of Russia decreased by 0.2% compared with a 2.8% decrease (revised) in 2015; the nominal GDP increased to 86.0 trillion rubles ($1.23 trillion[2]). In 2016, the total value of output from mining and quarrying in current prices was 11.73 trillion rubles ($168 billion), which was a 4.1% increase compared with the value in 2015. Mining and quarrying of energy-producing materials accounted for 10.17 trillion rubles ($146 billion). The total value of coke and petroleum production was 6.84 trillion rubles ($98 billion), which was a 3.1% decrease compared with the value in 2015, and the output in metallurgy and finished metals production was valued at 5.63 trillion rubles ($81 billion), which was a 1.7% decrease compared with that of 2015. The total value of output of chemical products was 2.77 trillion rubles ($40 billion), which was a 0.1% increase compared with that of 2015, and the total value of other nonmetallic mineral products was 1.30 trillion rubles ($18.7 billion), which was a 7.1% decrease compared with that of 2015 (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2017, p. 331–355).

In 2016, a total of 270 billion rubles (about $3.88 billion) was spent on geologic exploration, of which 83.7% was financed from company funds, 7.6% represented domestic and foreign investment, and 7.1% was funded from the Federal budget. By category of expenditure, 75.4% of the total funds spent on exploration was directed to exploration for oil, gas, and condensate; 8.0%, to exploration for precious metals; 1.8%, for nonferrous and rare metals; 1.8%, for diamond; 1.7%, for coal; 0.9%, for other nonmetallic minerals; and 0.5%, for ferrous metals (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2017, p. 80).

Government Policies and Programs

The Ministry of Natural Resources and Environment (Minprirody) announced that, in cooperation with the Ministry of Energy (MinEnergo), it would develop a new program for issuing licenses for coal deposits. According to the new program, licenses for the development of new coal deposits would include additional requirements for license holders that would mostly encompass their obligations related to the environmental impact of the mine, limitations on harmful emissions, and requirements on handling of waste material and tailings. The new program would also specify simplified procedures for changing licensing agreements and for project documentation during the license terms. The program would also continue to include coal mine safety. According to MinEnergo, during the past several years, MinEnergo had issued more than 60 regulations concerning mine safety (MinerJob.ru, 2016v).

Production

In 2016, Russia's production of mineral commodities was largely stable. Production of zeolites increased by 147%; refined cobalt, by 52%; other PGMs, by 51%; vermiculite, by 50%; kaolin, by 35%; boron, by 25%; refined tellurium, by 23%; graphite, by 22%; barite, by 20%; feldspar, by 19%; bentonite, by 18%; sulfuric acid, by 13%; and selenium, by an estimated 11%. Production of iodine decreased by 79%; fluorspar, by an estimated 50%; diatomite, by 29%; ferrochromium silicon, by an estimated 26%; ferrochromium, by 26%; mica, by 23%; ferromanganese, by 20%; ferroniobium and germanium, by an estimated 17% each; native sulfur, by 14%; cement, ferrosilicon, and nickel metal, by 12% each; titanium sponge, by an estimated 12%; and magnesite, by 10%. Production data for these and other mineral commodities are in table 1.

[1]For boron, cadmium, magnesium compounds, magnesium metal, selenium, and tellurium, the world rank and percentage of world output do not include U.S. production, which has been withheld to avoid disclosing company proprietary data.

[2]Where necessary, values have been converted from Russian rubles (RUB) to U.S. dollars (US$) at an annual average exchange rate of RUB69.685=US$1.00 for 2016 and RUB63.659=US$1.00 for 2015. All values are nominal, at current prices, unless otherwise stated.

Structure of the Mineral Industry

At the end of 2016, Russia had 18,200 enterprises engaged in mining and quarrying, which was a 1.6% decrease compared with the number of enterprises active in mining and quarrying in 2015. Of these enterprises, 6,400 were engaged in extracting fuel minerals and the rest were engaged in mining nonfuel minerals. Of all mining and quarrying enterprises, about 100 were owned by the central and municipal governments, 16,400 were owned by Russian citizens, and about 200 were either owned by foreign companies or jointly owned by domestic and foreign entities. The ownership of the other 1,500 enterprises was not reported. In addition, Russia had 46,800 enterprises engaged in metal processing, 45,100 of which were owned by Russian citizens. Table 2 provides information on the structure of Russia's mineral industry (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2017, p. 312–317).

Mineral Trade

In 2016, the total value of Russia's exports of goods was $281.9 billion, which was a 17.5% decrease compared with the revised value of exports in 2015. The value of Russia's imports decreased in 2016 to $191.6 billion, or by 0.7%. In 2016, Russia had a positive trade balance of $90.3 billion (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2017, p. 566–590).

The main export categories for Russia were chemicals, manufactured goods, metals, natural gas, petroleum and petroleum products, and wood and wood products. Mineral products made up 59.2% of the total value of Russia's exports, and crude petroleum alone contributed 26.2% to the total value of exports. Petroleum refinery products accounted for 16.3%; natural gas, 11.1%; and ferrous metals, 5.0%. Among ferrous metals and products made of them, the leading categories were semifinished products made from carbon steel (31.6%) and flat-rolled iron and steel (27.3%). Other products that contributed to Russia's export revenue included bituminous coal (3.2%), aluminum (1.7%), complex mineral fertilizers (0.93%), copper (0.85%), nitrogen fertilizers (0.77%), potassium fertilizers (0.66%), and nickel (0.60%). The major export partners of Russia in 2016 were the Netherlands (which received 10.2% of Russia's exports), China (9.8%), Germany (7.4%), Belarus (5.0%), Turkey (4.8%), Italy (4.2%), Kazakhstan and Japan (3.3% each), Poland and the United States (3.2% each), the United Kingdom (2.4%), Finland (2.3%), and Ukraine (2.2%) (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2017, p. 566–590).

In 2016, Russia imported $4.2 billion worth of products made of ferrous metals (which constituted 2.1% of total imports) and $3.0 billion worth of ferrous metals (1.6%). The major import partners of Russia were China (which supplied 20.9% of Russia's imports), Germany (10.7%), the United States (5.9%), Belarus (5.3%), France (4.7%), Italy (4.3%), Japan (3.7%), Poland (2.2%), Ukraine (2.1%), and Kazakhstan (2.0%) (Federal'naya Sluzhba Gosudarstvennoy Statistiki, 2017, p. 566–590).

Commodity Review

Metals

Gold.—In 2016, Russia was the third-ranked producer of mined gold after China and Australia. Russia produced 253,150 kilograms (kg) of mined gold, which was a 0.8% increase compared with that of 2015, and 35,400 kg of secondary gold metal, which was a decrease of 7.5% compared with that of 2015. Mined gold production increased steadily during the past 5 years, to 253,150 kg in 2016 from 217,800 kg in 2012. The top gold-producing region in Russia was Krasnoyarskiy Kray, which produced about 55,100 kg (a 10% increase compared with that of 2015). It was followed by Chukotskiy Avtonomnyy Okrug, 28,800 kg (6% decrease); Magadanskaya Oblast', 27,300 kg (16% increase); the Sakha Republic (Yakutiya), 23,500 kg (7% decrease); Amurskaya Oblast', 22,900 kg (12% decrease); Irkutskaya Oblast', 22,500 kg (2% increase); Khabarovskiy Kray, 19,800 kg (9% increase); Zabaykal'skiy Kray, 12,100 kg (8% increase); Chelyabinskaya Oblast', 7,100 kg (6% increase); Kamchatskiy Kray, 6,700 kg (85% increase); Sverdlovskaya Oblast', 6,400 kg (no change); and the Buryatiya Republic, 6,000 kg (9% decrease) (MinerJob.ru, 2016q; Zolteh.ru, 2017).

Although the total number of companies in Russia engaged in gold production exceeded 400, 36 leading companies produced 79% of all gold in 2016. The leading gold producer in Russia was PAO Polyus Gold, which produced 59,800 kg (a 9% increase compared with that of 2015). It was followed by Polymetal International, 24,800 kg (0.5% increase); Kinross Gold Corp. of Canada, 20,700 kg (5% decrease); AO Yuzhuralzoloto, 14,600 kg (12% increase); Petropavlovsk plc of the United Kingdom, 13,000 kg (17% decrease); Nordgold N.V., 8,300 kg (22% decrease); Highland Gold Mining, 6,900 (5% increase); OAO Zoloto Kamchatki, 5,500 kg (135% increase); PAO Vysochayshiy, 5,100 kg (10% decrease); OAO Susumanzoloto, 4,500 kg (7% increase); PAO Seligdar, 4,300 kg (24% increase); and IK Arlan (Pavlik ZRK), 3,700 kg (242% increase) (Zolteh.ru, 2017).

Several new and expansion gold mining projects were in progress. PAO Polyus Gold planned to complete construction of the Natalkinskiy GOK in Magadanskaya Oblast' in 2017 and to reach full production capacity [of between 13,000 and 14,600 kilograms per year (kg/yr)] at the GOK by May 2019. Earlier, in 2016, it was announced that the Natalkinskiy GOK had received almost 10 billion rubles (about $157 million) in financial support from the Federal Government and was able to finalize the plan for construction of the mine. In addition to construction of the mine, the plan of work included creation of power infrastructure for the project and connection of the power infrastructure with the power network of the Magadanskaya Oblast'. When complete, the Natlkinskiy GOK would employ 1,900 people (MinerJob.ru, 2016e, r).

IK Arlan was mining the Pavlik deposit in Magadanskaya Oblast'. In 2016, the company expected to mine 7,500 kg of gold but was able to produce only 3,700 kg. The Pavlik GOK was commissioned in August 2015, and the complex produced 1,080 kg of gold during the last 4 months of 2015. The mine was still ramping up production and expected to reach a

production level of about 8,000 kg/yr. Total investment in Pavlik amounted to about $550 million. The first development stage of the mine would entail processing about 3 million metric tons per year (Mt/yr) of ore, with a gradual increase to 4 Mt/yr of ore. The mine's total reserves and total resources of gold were estimated to be about 154 metric tons (t) and 240 t, respectively (MinerJob.ru, 2016n).

At the beginning of 2016, Nordgold N.V. began construction of a new mine at the Gross deposit in southwestern Yakutiya. The Gross deposit is located within 4 kilometers (km) of the Nerungri Mine, which had been mined by Nordgold for 16 years. As of December 2015, the reserves of the deposit were estimated to be 137 t of gold, and the total resources, 264 t. The company planned to invest a total of $250 million in construction of the mine and to begin production in the first quarter of 2018. Once at full capacity, the mine would produce 7,200 kg/yr of gold, which would make it the leading gold-producing mine in Russia. The Gross Mine was expected to operate for 17 years. The mine would create about 300 temporary jobs during the construction stage and about 800 permanent jobs during mine operations (MinerJob.ru, 2016k, l, w).

The Kekura gold deposit in Chukotkiy Avtonomnyy Okrug was being developed by Highland Gold Mining Ltd. Construction was expected to begin in 2017 and the mine would be commissioned in 2019. The Kekura deposit is located in a remote part of Chukotka, about 670 km from the city of Anadyr', and it largely lacked infrastructure but had high gold content. Total reserves of the deposit were estimated to have a grade of 7.5 grams per metric ton (g/t) gold and to contain 80 t of gold. The company planned to mine the deposit by open pit and underground methods simultaneously. The Kekura deposit was first discovered during the late 1980s. The Kekura ore field contains more than 50 gold ore lodes (MinerJob.ru, 2016h; Tass.ru, 2016).

In November 2016, Minprirody announced an auction for development of the largest gold deposit in Russia. The Sukhoy Log deposit in Irkutskaya Oblast' had resources of gold estimated to be about 1,950 t and reserves of silver estimated to be about 1,500 t. The Government expected that the winner of the auction would be able to produce between 80 and 90 metric tons per year (t/yr) of gold and between 20 and 25 t/yr of silver. The interested parties were expected to apply by December 28, 2016, and the auction would take place on January 26, 2017. The participants were expected to have minimum Government ownership—at least 25% of the investors should have at least 50% Government ownership; the initial payment was set at 8.55 billion rubles (about $123 million). Earlier, during the early 1990s, the Sukhoy Log deposit was being developed by Lenzoloto Co. (not a part of Polyus Gold), but the development license was revoked by Irkutskaya Oblast' because Lenzoloto failed to meet the development schedule. Polyus Gold and Alrosa were considered to be the leading contenders for the 2017 auction (MinerJob.ru, 2016b, i, p).

Nickel.—In 2016, Russia mined an estimated 261,000 t of nickel in concentrates, which was a 3.1% decrease from the amount mined in 2015. OJSC MMC Nornickel was the country's leading nickel producer and the world's leading nickel-mining company in terms of ouput. The other significant nickel producer in Russia was OAO Ufaleynickel. (OAO Yuzhuralnickel had stopped operations in 2012.) Nornickel's operations in Russia were located on the Kola Peninsula in northwestern Russia and in the Norilsk region on the Taymyr Peninsula in eastern Siberia. In addition to nickel, Nornickel was a significant world producer of copper and platinum, and the leading producer of palladium (Mineral-Info, 2016).

In 2016, Nornickel continued its focus on "first-class assets" and to dispose of noncore, foreign, and inherited assets and to adopt a disciplined approach to investment. The primary goal for the company was to develop and mine the resources of the Talnakh ore node, whose value was estimated to be $900 billion and which contained about 59% of Russia's reserves of nickel, or about 4.3 Mt of nickel. In December 2016, Nornickel commissioned the second stage of the modernized Talnakh beneficiation plant; the first stage was commissioned in December 2015. The Talnakh plant was first commissioned in 1961 and at that time had a design capacity of 1.25 Mt/yr of ore. In 2001, the design capacity was increased to 7 Mt/yr of ore. In 2013, the company decided to modernize the plant, which had a design capacity of 7.6 Mt/yr. The modernization was completed in 2016 and the plant's capacity increased to 10 Mt/yr of ore. Additionally, the new plant equipment would reduce unit production costs, increase output quality, and reduce sulfur emissions. The total investment in modernization was about 46 million rubles (about $660,000) (MinerJob.ru, 2015c, 2016j).

In 2016, ZAO Kun-Manye, which was a subsidiary of Amur Minerals of the United Kingdom, continued exploration of the Kun-Manye deposit in Amurskaya Oblast' and expected to increase the deposit's reserves to 860,000 t of nickel. The company planned to continue exploration through 2018 and then to finalize its total resources. Earlier, in 2015, the company obtained a license for the Kun-Manye deposit for exploration and production of cobalt, copper, gold, nickel, palladium, platinum, silver, and sulfur. The license for an area of 36 square kilometers would be valid until 2034. AO Kun-Manye intended to invest 60 million rubles (about $1 million) in development of the deposit. The Joint Ore Reserves Committee (JORC)-compliant resources of the deposit as of April 2015 were 120.6 million metric tons (Mt) containing an average of 0.54% nickel, 0.15% copper, 0.1 g/t platinum, and 0.1 g/t palladium. ZAO Kun-Manye expected to mine about 6 Mt/yr of ore for 15 years. The company planned to use an open pit mining method at the Kubuk section, to process the ore using a flotation method, and to produce 350,000 t/yr of marketable nickel-copper concentrate. The concentrate would be shipped 320 km on the Baykalo-Amurskaya Magistral' (BAM) railway to Tynda for further processing. The energy capacity requirement for the operations was estimated to be 40 megawatts and was planned to be supplied by diesel installations. Later, the company would use both open pit and underground mining at the deposit. Previously, between 2004 and 2014, ZAO Kun-Manye held an exploration license for the deposit and explored four sections of the deposit—the Shlyapa, the Small Kurumkan, the Sobolevskaya, and the Triangle (Mineral.ru, 2015a, d, g; MinerJob.ru, 2016a).

Industrial Minerals

Lithium.—Russia did not produce lithium in 2016. In June, Stans Energy of Canada announced that it was considering investing $70 million in the production of lithium carbonate in Russia. The central part of the project would be the Zavitinskiy lithium field, which is located 250 km from the city of Chita in Zabaykak'skiy Kray, close to the Trans-Siberian railway that links Russia with China and other Asian countries. The overall resources of the field were estimated to be 19 Mt of lithium oxide. The company expected annual production to amount to 9,000 t/yr of lithium carbonate and for the mine life to be about 30 years. Production was expected to begin in 2017. According to Stans Energy's estimates, the company would be able to produce lithium carbonate at a unit cost of $3,400 per metric ton, which would likely be profitable at the world price of about $7,000 per metric ton of lithium. The payback period for the project was estimated to be about 6 years (Equities.com, 2016; Investorinte.com, 2016).

Originally, the lithium mine at the Zavitinskiy field was developed in the period between 1949 and 1990. During the active mining period, the mine produced a total of more than 100,000 t of lithium concentrate that was supplied primarily to the Soviet Union's defense industry. After 1991, operations at the mine were suspended. The mine also had a stockpile of tailings containing approximately 19 Mt of mineralized material (spodumene pegmatite) grading at or below 0.3% lithium oxide; Stans Energy would test and confirm these resources at a future date. If confirmed, the resources contained in the tailings were likely to provide raw materials for about 13 years of mining operations. It was expected that, at least initially, the output would be sold on the domestic market in Russia. In 2016, OAO Zabaikal'skiy GOK was liquidated. The Pervomayskiy GOK company purchased the beneficiation plant that earlier was part of the OAO Zabaikal'skiy GOK and began looking for financial partners to invest in the projects. Stans Energy agreed that, after receiving all needed information and exercising due diligence, it had a right to acquire 5% of the OAO Zabaikal'skiy GOK, which had a mill that until recently continued to process antimony, fluorite, and gold (Equities.com, 2016; MinerJob.ru, 2016f).

Potash.—As of 2016, OAO Uralkali was the only potash producer in Russia. In 2016, Uralkali produced about 6.59 Mt of potash in K_2O equivalent, which was a 5.3% decrease compared with its production in 2015. In 2016, the company was working on reconstruction of its Solikamsk-2 Mine that flooded in 2014. In 2016, the mine was operating at about 50% of its capacity. The company expected that, after reconstruction at the mine was complete, Uralkali would be able to continue mining Solikamsk-2 for another 6 to 7 years. It also built a new mine in the same area that was likely to start operating at full capacity of 2.3 Mt/yr of potassium chloride by 2022. The company also continued construction at its Solikamsk-3 Mine and was planning to expand production at its Berezhniki-3 and Berezniki-4 Mines (MinerJob.ru, 2016m, t, u).

In 2016, Uralkali continued preparation for construction of a two-shaft mine at the Ust-Yayviskoye potash deposit. Also, in 2016, power infrastructure and on-the-ground parts of the mining complex were being constructed. The construction of the shafts started in 2012, and the company planned to begin mining in 2020; the total cost of construction was estimated to be $1.2 billion. The ore mined at the Ust-Yayvinskoyewould be transported using a 6.3-km-long conveyor to the processing plant at Berezniki-3. The new mine would be able to replace 2 Mt/yr of material from Berezniki-2, which was being depleted, and increase the Berezniki-3 capacity by 0.5 Mt/yr. In 2015, the company started to construct energy infrastructure for the project at a total cost of 1.9 billion rubles (about $30 million). The energy system was planned to be completed in 2017 (Mineral.ru, 2015f; Vedomosti.ru, 2017).

EuroChem Group AG, one of the leading fertilizer producers in Russia, was in the process of constructing two potash mines. The first project was the Volgakali Mine at the Gremyachinskoye potash deposit in Volgogradskaya Oblast'; the second was the Usol'skiy Potash Complex (UPC) at the Verhnekamskoye magnesium and potassium salt deposit in Permskiy Kray. The design capacity of the Volgakali Mine would be 4.6 Mt/yr of potassium chloride, and the design capacity of the Usol'skiy Complex, 3.7 My/yr of potassium chloride. The company planned to reach these design capacities by 2022 or 2023 (Mineral.ru, 2015a, b; MinerJob.ru, 2015a, b).

EuroChem Group had no prior experience in potash mining. The company obtained the right to develop the Gremyachinskoye deposit in 2005. In 2016, EuroChem continued to build the mine at the Gremyachinskoye deposit (Volgakali) and reached the first production horizon of sylvanite in the mine shaft; the depth of the production layer was between 1,000 and 1,300 meters (m). The underground mining complex would be located at a depth of 1,150 m. First production at the Gremyachinskoye Mine was scheduled for 2018 (MinerJob.ru, 2016c, o).

The history of the second potash project started in 2008 when the Kovdorskiy GOK, which was a subsidiary of EuroChem, won an auction for development of the Balakhontsevskiy and the Palasherskiy sections of the Verhnekamskoye deposit. In 2011, EuroChem formed the holding company Usol'skiy Potash Complex (UPC). The total resources of the two sections were reported to be 1.58 billion metric tons (Gt) of sylvanite and 499 Mt of carnallite (Mineral.ru, 2015a, b; MinerJob.ru, 2015b; 2016d, g).

Since the inception of these potash projects, EuroChem had invested about $6 billion (about $3 billion for each project) and expected to spend about $2 billion more until both plants were commissioned. The first production at Volgakali was planned to begin in 2018, when production was expected to be between 400,000 and 600,000 t of sylvanite. The company expected to increase production to 1 Mt/yr in 2019 and then gradually to increase the mine's capacity to 4 Mt/yr (Mineral.ru, 2015a, b; MinerJob.ru, 2015b; 2016d, g).

In 2016, ZAO Verhnekamskaya Potash Company (VKK), which was part of the Akron Group, was developing a mine at the Talitskiy sector of the Verhnekamskoye deposit. As of 2016, total investment in the project reached $1 billion, and the company planned to invest another $1.5 billion. The design capacity of the mine would be 7.45 Mt/yr of sylvanite ore, which would correspond to 2.0 Mt/yr of potassium chloride. The project design allowed for expansion of the mine to 10 Mt/yr of sylvanite, or 2.6 Mt/yr of potassium chloride.

The Talitskiy GOK was expected to be commissioned in 2021 and to reach full capacity in 2023 (Mineral.ru, 2015c, e; MinerJob.ru, 2016s).

Mineral Fuels and Related Materials

Coal.—In 2016, Russia's total coal production increased by 4.1% to 386.5 Mt, of which 73% was produced by open pit method. In 2016, the Kuznetskiy coal basin continued to be the leader in coal production in Russia, accounting for 59% of the country's total production. In 2016, the mines, located in the Kuznetskiy coal basin, increased production by 5.7%, but other leading coal basins reduced production—the Pechorskiy, the Donetskiy, and the Kansko-Achinskiy coal basins reduced production by 26.7%, 17.3%, and 2.3%, respectively. In 2015 (the latest year for which information was available), Russia was the sixth-ranked producer of coal in the world, accounting for 4.5% of the total (Analiticheskiy Tsentr, 2017, p. 41–48).

According to BP p.l.c., as of January 1, 2015 (the latest date for which the data were available), Russia's was ranked second by coal resources, after the United States, which accounted for 26.6% of world coal resources; Russia, 18%; China, 12.8%; Australia, 8.6%; and India, 6.8%. Russia had 22 coal basins and 129 stand-alone coal deposits. The distribution of resources across the country, however, was uneven, with more than two-thirds of proven resources being located in just two basins—the Kansko-Achinskiy brown coal basin in Krasnoyarskiy Kray and Kemerovskaya Oblast' and the Kuznetskiy bituminous coal basin in Kemerovskaya Oblast'. The Kansko-Achinskiy basin had total resources of 79.2 Gt (40.7% of the country's total); Kuznetskiy basin, 53.7 Gt (27.4%); Irkutskiy basin, 7.6 Gt (3.9%); Pechorskiy basin, 7.0 Gt (3.7%); Donetskiy basin, 6.5 Gt (3.3%); Yuzhno-Yakutskiy, 5.1 Gt (2.6%); and Minusinskiy, 4.5 Gt (2.3%). Other basins and independent deposits accounted for 31.8 Gt, or 16.2% of the total resources (Analiticheskiy Tsentr, 2017, p. 41–48).

In 2016, coal production in Russia was taking place in 181 coal mines that had a total (combined) capacity of 412.4 Mt/yr. Geographically, Kemerovskaya Oblast' accounted for 59% of coal production; Krasnoyarskiy Kray, 10%; Zabaykal'skiy Kray, 6%; Yakutiya, 4%; and Komi Republic, 3%. Most of the metallurgical coal in Russia was subject to beneficiation. The share of thermal coal subjected to beneficiation also continued to increase. Overall, in 2016, 184.8 Mt of coal was beneficiated, which was 9.2% more than in 2015. In 2016, coal production in Russia was dominated by large coal-producing and metallurgical holdings. The top five companies produced 58% of the national output. The leading producer was OAO SUEK, whose output was 105.4 Mt in 2016, or 27% of the total. Other top producers were OAO UK Kuzbassrazrezugol', 44.3 Mt; AO KhK SDS-Ugol', 28.6 Mt; OAO Mechel-Mining, 22.7 Mt; Evraz Holding, 22.3 Mt; OAO Russkiy Ugol', 14 Mt; and OOO Kompaniya Vostsibugol', 13.2 Mt. As of 2015, Russia was the fifth-ranked consumer of coal with a 2.8% share of world consumption, after China, India, the United States, and Germany (Analiticheskiy Tsentr, 2017, p. 41–48).

According to Russia's customs data, Russia's physical coal exports (163.5 Mt) increased by 9.8%, but the revenue from exports decreased by 5.6% to $9.1 billion. Three major recipients of Russia's coal exports—China, Japan, and the Republic of Korea—combined accounted for 44% of all coal exports. Other significant export partners were Germany, the Netherlands, Taiwan, Turkey, Ukraine, and the United Kingdom. As of 2015, Russia was the third-ranked coal exporter, after Australia and Indonesia, and was followed by Colombia, South Africa, and the United States (Analiticheskiy Tsentr, 2017, p. 41–48).

Crude Petroleum and Petroleum Refinery Products.—In 2016, Russia's production of crude petroleum and gas condensate increased by 13.5 Mt (or by 2.4%). The country's production of liquid hydrocarbon had been increasing for 8 years, with an average annual increase of 1.5%. According to the International Energy Agency (IEA), in 2016 Russia was the third-ranked producer of hydrocarbon liquids in the world, after the United States and Saudi Arabia, accounting for about 11.5% of world output. In 2016, the leading producer of hydrocarbon liquids in Russia was OAO NK Rosneft', which produced 189.7 Mt, or 34.6% of all hydrocarbon liquids in Russia. It was followed by OAO Lukoil (83.0 Mt, or 15.2%), OAO Surgutneftegaz (61.8 Mt, or 11.2%), Gazprom Neft' (37.8 Mt, or 6.9%), Tatneft' (28.7 Mt, or 5.2%), and Bashneft' (21.4 Mt, or 3.9%). Among these companies, all but Lukoil increased crude petroleum production in 2016. Lukoil's 2.7 Mt decrease in production was related to production decreases in western Siberia, which were partially offset by production increases from the Caspian shelf (Analiticheskiy Tsentr, 2017, p. 13–27).

In 2016, Russia's share of world refining capacity was 6.6%. Compared with 2015, petroleum refining in Russia decreased to 277.0 Mt from 287.2 Mt, or by 3.6%. The reasons for the reduction were changes in tax laws and Government regulations requiring refining facilities to increase refining effectiveness. In 2016, the rate of refining effectiveness (also known as the depth of refining) was 79.2%, which was 4.9 percent higher than in 2015. In 2016, the structure of refined petroleum products continued to change. Production of fuel oil decreased by 20.3%, whereas production of automotive gasolines and jet fuel increased by 2.0%, and that of diesel fuel, by 0.3%. Gradually increasing export tariffs on fuel oil contributed to the reduction in exports of fuel oil; by 2017, the export tariff rates on fuel oil were expected to be equal to the export tariffs on crude petroleum. In 2016, the share of gasolines compliant with the Euro-5 environmental standards reached 93%, and that for diesel fuel, 85%. Starting in 2016, sales of automotive fuels compliant with Euro-4 standards and lower but not compliant with Euro-5 standards were banned in Russia (Analiticheskiy Tsentr, 2017, p. 13–27).

In 2016, Russia exported 254.8 Mt of crude petroleum, which was 4.2% more than in 2015. The overall exports of petroleum products decreased by 9.2%, primarily because of the decrease in exports of fuel oil. Most crude petroleum exports (92.7%) and most refinery product exports (94.9%) were shipped to countries outside the Commonwealth of Independent States (Analiticheskiy Tsentr, 2017, p. 13-27).

In 2016, overall investment in petroleum production remained practically unchanged compared with that of 2015. Investment in production of crude petroleum increased by 99.6 billion rubles (about $1.43 billion) and investment in pipelines and infrastructure increased by 18.9 billion rubles

(about $271 million) while investment in refining decreased by 116.7 billion rubles (about $1.67 billion). The reason for these changes was ruble devaluation—the costs of production within Russia and paid for in rubles decreased whereas the costs of purchasing refinery equipment in other countries and paid for in dollars increased (Analiticheskiy Tsentr, 2017, p. 13–27).

Natural Gas.—In 2016, Russia's production of natural gas increased by 1.1% to about 640.7 billion cubic meters. According to BP, in 2016, Russia was the second-ranked producer of natural gas in the world after the United States and it was followed by Iran, Qatar, and Canada. Russia's share of world production of natural gas had been decreasing from almost 21% in 2005 to about 16% in 2016, primarily because of significant increases in natural gas production in the United States. According to BP, in 2016, world natural gas consumption increased by 1.8%, which was less than the average annual increase of 2.1% during the period between 2005 and 2016. Countries with significant increases in natural gas consumption were China, members of the European Union, and countries of the Middle East. In Russia, natural gas consumption was largely stable during the past decade and fluctuated around 400 billion cubic meters. As a share of world total, Russia's natural gas consumption decreased to about 11% in 2016 from 14.5% in 2006 (Analiticheskiy Tsentr, 2017, p. 29–39; BP p.l.c., 2017).

In 2016, Russia continued to be the world leader in natural gas exports. According to the IEA, the country exported 204.2 billion cubic meters, followed by Qatar (119.2 billion cubic meters), Norway (105.3 billion cubic meters), and Canada (74.4 billion cubic meters). In 2013 and 2014, Russia's share of world exports decreased to below 20%, but its share increased to 31% in 2015. In terms of the geographical structure of exports of Russia's natural gas, four countries accounted for more than 50% of the total—Germany (23%), Turkey (12%), Italy (9%), and Belarus (9%). About 7% of exported natural gas was shipped in the form of liquefied natural gas (LNG) to Japan and other countries in Asia (Analiticheskiy Tsentr, 2017, p. 29–39).

According to Minprirody, as of January 1, 2015, total natural gas resources in Russia were 50.2 trillion cubic meters, which accounted for 24% of world resources. In recent years, the major increase in resources was owing to the deposits located on the Yamal Peninsula in western Siberia (the Bovanenkovskoye, the Kharasaveyskoye, the Kruzenshternskoye, and the Yuzhno-Tmbeyskoye); in eastern Siberia (the Kovyktinskoye); in Russia's Far East (the Chayandinskoye); and on the Arctic shelf (the Shtokmanovskoye). In the European part of Russia, the largest resources are concentrated in the Astrakhanskoye and the Orenburgskoye deposits. As of 2015, the largest natural gas deposits in Russia were the Urengoyskoye (5.3 trillion cubic meters), the Bovanenkovskoye (4.3 trillion cubic meters), the Shtokmanovskoye (3.9 trillion cubic meters), the Astrakhanskoye and the Yamburgskoye (3.1 trillion cubic meters each), the Zapolyarnoye (2.4 trillion cubic meters), the Kovyktinskoye (1.6 trillion cubic meters), the Kharasaveyskoye (1.4 trillion cubic meters), the Kruzenshternskoye (1.3 trillion cubic meters), and the Yuzhno-Tambeyskoye (1.0 trillion cubic meters) (Analiticheskiy Tsentr, 2017, p. 29–39).

About 80% of natural gas production in Russia occurred in the Nazym-Pur-Taz region of the Yamalo-Nenetskiy Avtonomnyy Okrug. As of 2014, three deposits—the Zapolyarnoye, the Urengoyskoye, and the Yamburgskoye—produced about 40% of the country's natural gas; production at these deposits, however, had been decreasing. The largest increase in production was provided by the Bovanenkovskoye deposit located on the Yamal Peninsula. The deposit was commissioned in 2012 and produced 4.9 billion cubic meters in that year. Production increased to 42.8 billion cubic meters in 2014 and 67.4 billion cubic meters in 2016, and was expected to reach 140 billion cubic meters per year at peak production. As of 2014, the leading deposits by production were the Zapolyarnoye (97.9 billion cubic meters), the Urengoyskoye (85.5 billion cubic meters), the Yamburgskoye (62.8 billion cubic meters), the Bovanenkovskoye (42.8 billion cubic meters), the Yurkharovskoye (39.0 billion cubic meters), and the Yuzhno-Russkoye (25.0 billion cubic meters) (Analiticheskiy Tsentr, 2017, p. 29–39).

As of yearend 2016, Russia had 268 enterprises engaged in natural gas and associated petroleum gas production. The leading natural gas producer was PAO Gazprom, which accounted for 63.3% of total production; its share, however, decreased by 0.8 percent compared with that of 2015 and by 4.2 percent compared with that of 2014. In 2016, PAO Gazprom produced 405 billion cubic meters of natural gas. Among other producers in 2016, OAO Novatek produced 50.1 billion cubic meters; OAO NK Rosneft', 46.7 billion cubic meters; Arktikgaz (a joint venture of Gazprom Neft' and Novatek), 25.8 billion cubic meters; OAO Lukoil, 18.4 billion cubic meters; Gazprom Neft', 13.5 billion cubic meters; and OAO Surgutneftegaz, 9.8 billion cubic meters (Analiticheskiy Tsentr, 2017, p. 29–39).

In 2016, LNG was produced at the country's only plant, located on Sakhalin Island. The original nameplate capacity of the plant when it was opened in 2009 was 9.6 Mt/yr; however, in recent years, the capacity was increased to 10.8 Mt/yr (or 14.7 billion cubic meters per year). The entire output was being exported to, in order of decreasing exports, Japan, the Republic of Korea, Taiwan, and China. Several other construction projects for new LNG facilities were in progress. The Yamal LNG plant would have a nameplate capacity of 16.5 Mt/yr; the commissioning of the first production line was scheduled for the end of 2017. Also, the Baltiyskiy LNG plant in Leningradskaya Oblast' was being built by PAO Gazprom (Analiticheskiy Tsentr, 2017, p. 29–39).

According to MinEnergo, in 2016, Russia consumed 540 million cubic meters of compressed natural gas, which was a 10% increase compared with that of 2015. Overall, Russia's share of world consumption of compressed natural gas was only about 2%. In 2016, investment in compressed natural gas automotive infrastructure amounted to 5.9 billion rubles ($84.7 million), which was 40% higher than in 2015 (Analiticheskiy Tsentr, 2017, p. 29–39).

Outlook

Russia has large reserves of a variety of mineral commodities and most likely will continue to be one of the world's leading mineral producers. While the country's emphasis historically has been on fuel minerals, Russia has leading positions globally in the

production of many metals and industrial minerals and significant resources to potentially increase production in the future.

In the short to medium term, Russia is likely to deal with the effects of reduced petroleum prices, decreased value of the ruble against other currencies, and economic sanctions. It is likely that some of the most ambitious mineral industry projects will be either canceled or delayed until better economic conditions prevail in the country, and other projects that have emphasis on national security, such as lithium and rare earths, will become more prominent. It remains to be seen, however, how this new economic reality will affect the structure and resilience of Russia's mineral industry.

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TABLE 1
RUSSIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
METALS						
Aluminum:						
Bauxite	thousand metric tons	5,700 r	6,028 r	6,293 r	5,900	5,431
Nepheline ores	do.	40,910	33,930	28,990	31,407 r	31,000 e
Alumina	do.	2,719	2,659	2,572	2,593	2,680
Metal, primary	do.	4,024	3,601	3,300	3,529	3,561
Antimony, mine production, recoverable, Sb content		7,300 e	8,700 e	8,000 e	6,300 r	5,780
Arsenic, primary, arsenic trioxide, white, oxide content[e]		1,500	1,500	1,500	1,500	NA
Bismuth:						
Mine production, Bi content[e]		40	40	40	NA	NA
Refinery production[e]		4	4	4	4	4
Cadmium, refinery production, primary, metal[e]		1,500 r	1,200 r	1,200	1,200 r	1,300
Chromite, mine production:						
Ores and concentrates		459,000 r	327,000 r	476,000 r	471,000 r	450,000 e
Ores and concentrates, marketable		552,000	360,000	380,000	503,000	460,000 e
Cobalt, Co content:						
Mine production, recoverable[e]		6,300	6,300	6,300	6,200	6,200
Refinery production		2,186	2,368	2,300 e	2,040 e	3,100
Copper:						
Mine production, Cu content:						
Ore		841,800	870,100	878,100	887,000 r	890,000 e
Concentrate		580,900	654,000	690,000	710,000 r	712,000 e
Leaching, electrowon[e]		2,000	2,000	2,000	2,000	2,000
Refinery production:						
Primary		653,900 r	658,500 r	669,900 r	660,600 r	663,800
Secondary		233,500 r	215,100 r	219,400 r	213,700 r	201,500
Smelter production, blister:						
Primary		621,000 e	625,000 e	643,000 r	641,000 r	665,000
Secondary		254,000 e	255,000 e	227,000 r	226,000 r	229,000
Ferroalloys:						
Ferrochromium		546,360	487,810	439,600	363,286 r	268,439
Ferrochromium silicon		57,450	58,130	67,160	102,000 r	75,000 e
Ferromanganese		160,800	181,400	178,600	155,700 r	124,200
Ferronickel:						
High nickel:		9,782	--	--	--	--
Other:		3,110	--	--	--	--
Ferroniobium:[e]						
Gross weight		700	600 r	600 r	600 r	500
Nb content		439	400	360	360	300
Ferrophosphorus[e]		3,600	3,500	3,500	3,500	3,500
Ferrosilicon		1,036,930	1,012,740	1,026,190	1,057,909 r	935,912
Ferrotitanium		7,500	7,500 r, e	7,500 r, e	9,961	10,741
Ferrovanadium		8,280	10,510	11,380	12,277 r	12,392
Silicomanganese		164,350	169,190	179,910 r	192,600 r	180,000 e
Other, unspecified, electric furnace[e]		9,000 r	8,500	6,000 r	6,500 r	6,000
Gallium		10	6	1	1	1 e
Germanium, Ge content[e]		5	5	6 r	6 r	5
Gold:						
Mine production, Au content	kilograms	217,800	231,700	251,100	251,210	253,150
Refinery production, secondary, metal recovery	do.	8,500	17,764	38,900	38,260	35,400

See footnotes at end of table.

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

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
METALS—Continued						
Indium, refinery production, primary, In content[e]	kilograms	9,000	9,500	4,000	5,000	5,000
Iron and steel:						
Direct-reduced iron		5,240,000	5,330,000	5,350,000	5,440,000	5,700,000
Pig iron[3]		50,459,000	49,945,000	51,460,000	52,411,000 r	51,873,000
Raw steel	thousand metric tons	70,392	68,861	70,548	69,422 r	69,807
Products:						
Finished, rolled	do.	60,036	59,161	65,200	60,420	60,477
Pipe	do.	9,723	10,082	11,300	11,402 r	10,420
Iron ore, mine production, concentrate:						
Gross weight		104,010,000	102,156,500	102,018,500	101,049,000 r	101,097,000
Fe content, 55% to 63% Fe		61,400,000	60,300,000	60,200,000	59,619,000 r	59,647,000
Lead:						
Mine production, recoverable, Pb content		195,600	223,300	239,000	171,200 r	170,000 e
Refinery production, primary and secondary		110,000	106,000	96,500	106,000 r	97,100
Magnesium metal, primary[4]		65,000	66,000 e	62,000 e	60,000 e	58,000
Manganese, mine production, concentrate, marketable:						
Gross weight[e]		22,000 r	66,000	--	9,000 r	--
Mn content[e]		2,000	5,000	--	1,000	--
Molybdenum, mine production, concentrate, Mo content		4,939	4,753	3,114	3,254 r	3,100 e
Nickel, Ni content:						
Mine production:						
Laterite ore, marketable		26,620	10,400 e	11,200 e	--	--
Sulfide, concentrate, marketable		270,030	270,700	271,950	269,310	261,000 e
Intermediate production, matte		1 e	--	--	--	--
Chemicals[e]		2,700	2,700	2,700	2,900	2,900
Metal		255,000	241,800	231,000 e	223,000 e	197,000
Platinum-group metals, mine production, primary:						
Palladium, Pd content	kilograms	81,700 r, e	80,200 r, e	82,700 r, e	81,000 r, e	79,400
Platinum, Pt content	do.	26,500 e	25,200 r, e	24,300 r, e	23,800 r, e	23,000
Other, elemental content	do.	8,200 r	8,300 r	8,200 r, e	7,600	11,500
Selenium, Se content	do.	114,620	114,160	130,810	135,000	150,000 e
Silicon, silicon metal		52,500	55,000	60,000 e	60,000 e	59,300
Silver:						
Mine production	kilograms	2,255,000	2,175,600	2,357,000	2,297,000 r	2,200,000 e
Refinery production:						
Primary	do.	1,360,000	1,050,000	1,047,000 r	1,039,000 r	1,050,000 e
Secondary recovery	do.	40,000	150,000	249,280	207,520 r	210,000 e
Tellurium, refinery production, Te content	do.	30,390 r	31,030	32,540	35,000	42,900
Tin:						
Mine production, recoverable, Sn content		249 r	156 r	321	578 r	627
Smelter production:						
Primary[e]		575 r	--	--	--	--
Secondary[e]		225 r	--	--	--	--
Titanium:						
Ilmenite and leucoxene		125,095	150,458	178,426	193,236	200,000 e
Sponge		45,000	46,000	42,000	41,000	36,000 e
Tungsten, mine production, concentrate, W content		4,281 r	4,191 r	3,775 r	3,262 r	3,200 e
Vanadium, metallurgical, V content		14,856	14,403	15,125	16,000 e	16,000 e

See footnotes at end of table.

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

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
METALS—Continued						
Zinc:						
Mine production, Zn content of ore		348,100 r	384,400 r	352,500 r	388,800 r	390,000 e
Smelter production, primary and secondary		250,000	216,260	223,311	229,602	247,303
Zirconium mineral concentrates, baddeleyite concentrate, averaging 98% ZrO_2		7,969	8,504	7,903 r	8,180 r	7,704
INDUSTRIAL MINERALS						
Asbestos, primary		1,035,975	810,352	733,067	650,375 r	691,712
Barite		180,000 e	180,000 e	220,000 e	361,000 r	434,000
Boron		250,000 r, e	76,199 r	81,234 r	37,700 r	47,100
Cement, hydraulic		61,700,000	66,503,000	69,139,000 r	62,103,500	54,934,800
Clay and shale:						
Bentonite		550,000	550,000	560,000 e	497,900 r	589,000
Kaolin, including kaolinitic clays		284,000	674,000	787,000	786,600 r	1,064,800
Diamond:[e]						
Gem	thousand carats	19,900 r	20,000 r	19,200 r	20,200 r	19,800
Industrial	do.	15,000 r	16,000 r	17,100 r	18,100 r	17,700
Diatomite		70,000 e	70,000 e	72,000 e	66,200 r	47,300
Feldspar, mine production		400,000 e	390,000 e	400,000 e	232,995 r	278,142
Fluorspar, unspecified, 55% to 96.4% CaF_2		129,000	56,200	8,200	2,000 r	1,000 e
Graphite		14,000	15,000 r	17,640	15,900 r	19,400
Gypsum[5]	thousand metric tons	4,179	4,223	4,419	4,223	3,996
Iodine		200	--	--	14	3
Lime, industrial and construction		10,946,000 r	10,902,000	11,583,000 r	11,221,000 r	11,018,000
Magnesite	thousand metric tons	1,300 e	1,300 r, e	1,300 r, e	1,493	1,342
Mica		100,000 e	50,000 e	10,000 e	4,823 r	3,701
Nitrogen, ammonia, N content	thousand metric tons	11,401	11,879	12,030	11,819 r	12,621
Phosphate rock:						
Gross weight		10,275,000 r	10,725,000 r	10,777,000 r	11,615,000	12,400,000
P_2O_5 content[e]		3,960,000 r	4,130,000 r	4,150,000 r	4,480,000	4,500,000
Potash, marketable, K_2O content	thousand metric tons	5,563	6,100	7,439	6,954	6,588
Rare earths, mineral concentrate, rare-earth oxide equivalent		2,200 r	2,500	2,600	2,800	2,800
Salt, all types	thousand metric tons	5,400 r, e	5,500 r	5,600 r	5,600 r	5,800
Soda ash, synthetic	do.	2,807	2,477	3,052	3,078	3,234
Sodium compounds, caustic soda	do.	1,093	1,056	1,076	1,115	1,151
Stone, crushed, limestone		50,000,000	56,700,000	58,707,400	40,572,800 r	39,689,500
Sulfur compounds, sulfuric acid	thousand metric tons	11,036	10,298	10,176	10,381	11,739
Sulfur, S content:						
Byproduct:						
Metallurgy[e]		300,000	300,000	200,000	200,000	200,000
Natural gas		6,416,000	5,977,000	5,859,000	5,961,000	6,097,000
Petroleum[e]		700,000	700,000	500,000	500,000	500,000
Native		68,900	123,000	119,000	110,155 r	94,418
Pyrites, S content[e]		200,000	200,000	180,000	180,000	180,000
Vermiculite		21,800	20,931	21,000 e	8,242 r	12,363
Zeolites		NA	NA	NA	15,000	37,000
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite	thousand metric tons	11,400	12,800	13,500	13,497 r	13,384
Bituminous	do.	194,900	191,800	198,200	201,600	215,800
Lignite	do.	78,100	73,700	68,900	73,361 r	73,490
Metallurgical	do.	72,700	74,400	76,300	82,900	83,800
Coke, metallurgical	do.	26,900	25,900	26,500	26,027 r	26,326

See footnotes at end of table.

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

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
MINERAL FUELS AND RELATED MATERIALS—Continued						
Natural gas, marketable	million cubic meters	655,000	668,000	643,000	633,551 r	640,739
Peat, horticultural and fuel uses		1,200,000 e	1,500,000 e	1,100,000 r, e	899,700 r	959,700
Petroleum:						
Crude[6]	thousand 42-gallon barrels	3,615,000	3,636,000	3,668,000	3,720,000	3,811,000
Refinery production[7]	do.	2,186,000	2,258,000	2,371,000	2,308,000	2,226,000
Uranium, mine production, U content		2,862	3,135	2,991	3,055	3,004

eEstimated. rRevised. do. Ditto. NA Not available. -- Zero.

[1]Table includes data available through March 8, 2018. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]In addition to the commodities listed, oil shale, scandium, tantalum, and vanadium ore may have been produced in Russia, but available information was inadequate to make reliable estimates of output.

[3]Includes spiegeleisen.

[4]Includes metal used in titanium sponge production.

[5]Excludes gypsum used in cement production.

[6]Production has been reported in thousand metric tons as follows: 2012—519,000; 2013—522,000; 2014—526,600; 2015—534,081; 2016—547,499; includes gas condensate.

[7]Production has been reported in thousand metric tons as follows: 2012—272,000; 2013—281,000; 2014—295,000; 2015—287,200; 2016—277,000.

TABLE 2
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
Alumina	Achinsk (United Company RUSAL)	Achinsk in East Siberia	900,000
Do.	Bogoslovsk (United Company RUSAL)	Krasnotur'insk	1,050,000
Do.	Boksitogorsk (United Company RUSAL)	Leningradskaya Oblast'	200,000
Do.	Pikalyovo (United Company RUSAL)	Pikalyovo	300,000
Do.	Uralsk (United Company RUSAL)	Kamensk-Uralskiy	700,000
Aluminum, primary smelters	Bogoslovskiy AZ (United Company RUSAL)	Krasnotur'insk	175,000
Do.	Bratskiy AZ (United Company RUSAL)	Bratsk	1,000,000
Do.	Irkutskiy AZ (United Company RUSAL)	Irkutskaya Oblast'	420,000
Do.	Kandalakskiy AZ (United Company RUSAL)	Kola Peninsula	75,000
Do.	Khakasskiy AZ (United Company RUSAL)	Khakasiya	300,000
Do.	Krasnoyarskiy AZ (United Company RUSAL)	Krasnoyarskiy Kray	1,000,000
Do.	Nadvoitskiy AZ (United Company RUSAL)	Nadvoitsy, Kareliya Republic	75,000
Do.	Novokuznetskiy AZ (United Company RUSAL)	Novokuznetsk	300,000
Do.	Sayanogorskiy AZ (United Company RUSAL)	Sayanogorsk	550,000
Do.	Uralskiy AZ (United Company RUSAL)	Kamensk-Uralskiy	150,000
Do.	Volgogradskiy AZ (United Company RUSAL)	Volgogradskaya Oblast'	175,000
Do.	Volkhovskiy AZ (United Company RUSAL)	Volkhov, east of St. Petersburg	20,000
Amber	Kaliningrad Amber enterprise (Kaliningrad regional authorities and Alrosa Co. Ltd.)	Kaliningrad Oblast'	250
Antimony:			
Sb content of concentrate	GeoProMining, Ltd. (GPM)	Sarylakh deposit, Ust'-Nera region, Sakha Republic (Yakutiya)	8,000 [2]
Do.	do.	Sentachan deposit, Northeastern Sakha Republic (Yakutiya)	NA
Do.	Zabaykal'skiy GOK (ZabGOK) (OOO NefteChimMash)	Zabaykal'skiy Kray	360,000
Compounds and metals	Ryazsvetmet plant	Ryazanskaya Oblast'	NA
Apatite, concentrate	Khibiny apatite association (OAO Apatit)	Kola Peninsula	15,000,000
Do.	Kovdor iron ore mining association	do.	700,000
Asbestos	Bazenovskoye chrysotile deposit	Sverdlovskaya Oblast'	NA
Do.	Molodeznoye deposit	Zabaykal'skiy Kray	NA
Do.	"Orenburg Minerals" Co., Kiembaevskoye chrysotile deposit	Orenburgskaya Oblast'	500,000
Do.	"Tuvaasbest" plant, Ak-Dovurakskoye chrysotile deposit	Tyva Republic	250,000
Do.	"Uralasbest" mining and clarification plant	Central Urals	1,100,000
Barite	Salarinskiy mining and beneficiation complex	Kvartsitovaya Sopka deposit	100,000
Bauxite	OAO Sevuralboksitruda (United Company RUSAL)	Severoural'sk region	NA
Do.	South-Urals mining company (United Company RUSAL)	South Urals	NA
Do.	Severnaya Onega Mine (United Company RUSAL)	Northwest region	800,000
Do.	Komi Aluminum (United Company RUSAL)	Sredne-Timanskiy	3,000,000
Boron, boric acid	Bor Association	Primorskiy Kray	140,000
Do.	Amur River complex	Russian Far East	8,000
Do.	Alga River chemical complex	do.	12,000
Chromite	Saranov complex	Saranovskiy	200,000
Coal: thousand metric tons	OAO SUEK	Siberia and Russian Far East	106,000
Do. do.	OAO UK Kuzbassrazrezugol'	Kuznetskiy Basin	45,000
Do. do.	AO KhKSDS-Ugol'	Kemerovskaya Oblast'	29,000
Do. do.	OAO Mechel-Mining	Kuznetskiy Basin and Yakutiya	22,700
Do. do.	Evraz Holding	Kuznetskiy Basin	22,300
Do. do.	OAO Russkiy Ugol'	Russian Far East	14,000
Do. do.	Kompaniya Vostsibugol'	Eastern Siberia	13,200
Cobalt	OJSC MMC Norilsk Nickel (Nornickel)	Norilsk, Kola Peninsula	4,000
Do.	Rezh and Yuzhuralnikel enterprises	South Urals	2,100
Do.	Ufaleynikel Co.	Chelyabinskaya Oblast', Urals	4,000
Do.	Khovu-Aksynskoe (nickel-cobalt) deposit	Khovu-Aksy, Tyva Republic	NA

See footnotes at end of table.

TABLE 2—Continued
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Metric tons unless otherwise specified)

Commodity		Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
Copper:				
Cu in concentrate		OJSC MMC Norilsk Nickel (Nornickel)	Norilsk region, Kola Peninsula	500,000
Do.		ZAO Russkaya Mednaya Kompaniya (RMK)	Urals	70,000
Do.		Metalloinvest Holding	Udokan, Zabaykal'skiy Kray	NA
Do.		OAO Ural'skaya Gorno-Metallurgicheskaya Kompaniya (UGMK)	do.	230,000
Metal, refinery		OJSC MMC Norilsk Nickel (Nornickel)	Norilsk region, Kola Peninsula	450,000
Do.		ZAO Russkaya Mednaya Kompaniya (RMK)	Urals	170,000
Do.		OAO Ural'skaya Gorno-Metallurgicheskaya Kompaniya (UGMK)	do.	360,000
Diamond, gem and industrial	thousand carats	Almazy Rossii-Sakha Joint Stock Co. (Alrosa Co. Ltd.) enterprises:	Sakha Republic (Yakutiya) mines:	
		Udachnyy mining and beneficiation complex	Zarnitsa and Udachnyy	NA
Do.	do.	Mirny mining and beneficiation complex	Mir and International	NA
Do.	do.	Aikhal mining and beneficiation complex	Aikhal and Komsomol'skiy	NA
Do.	do.	Anabaraskiy mining and beneficiation complex	Alluvial mines	NA
Do.	do.	Nyurbinskiy mining and beneficiation complex	Nyurbinskiy and Botuobinskiy	NA
Do.	do.	Lomonosov	Arkhangel'skaya Oblast'	NA
Feldspar		Kheto-Lanbino and Lupikko deposits	Kareliya Republic	NA
Ferroalloys		ChEMK Industrial Group enterprises:	Locations:	
		Chelyabinsk electrometallurgical plant	Chelyabinskaya Oblast'	450,000
Do.		Kuznetsk ferroalloys plant	Novokuznetsk	400,000
Do.		Chusovoy iron and steel plant	Permskiy Kray	NA
Do.		Klyuchevsk ferroalloy plant	Dvurechensk	160,000
Do.		Kosaya Gora iron works	Kosaya, Gora	200,000
Do.		Lipetsk iron and steel works	Lipetskaya Oblast'	NA
Do.		Serov ferroalloy plant [a subsidiary of Eurasian Natural Resources PLC (ENRC)]	Sverdlovskaya Oblast'	NA
Ferrovanadium		Vanadii-Tulachermet (Evraz Group)	Tula, North Caucasus	NA
Fluorspar		Abagaytuy deposit	Transbaikal	NA
Do.		Usugli Mine	do.	NA
Do.		Kyakhtinsky deposit	do.	NA
Do.		Kalanguy mining complex	Zabaykal'skiy Kray	NA
Do.		Yaroslavsky mining and beneficiation complex	Pogranichnoye and Vosnesenskoye deposits, Primorskiy Kray	NA
Gallium		Achinsk (United Company RUSAL)	Achinsk in eastern Siberia	15
Do.		OOO Galliy	NA	NA
Do.		Novosibirsk tin complex	Novosibirsk	NA
Do.		Pikalevo (United Company RUSAL)	Pikalevo	NA
Germanium, metal and products		Federal State Unitary Enterprise Germanium	Kranoyarsk	7
Gold, mine output, Au content	kilograms	ZAO Amur a/s	Khabarovskiy Kray	5,500
Do.	do.	IK Arlan (Pavlik ZRK)	Magadanskaya Oblast'	3,700
Do.	do.	OAO Buryatzoloto	Buryatiya Republic	5,000
Do.	do.	ZAO Chukotskaya Mining and Geological Co. (Chukotskaya GGK)	Chukotskiy Avtonomnyy Okrug	15,000
Do.	do.	OOO Mining and Geological Co. (GRK) Aldanzoloto	Sakha Republic (Yakutiya)	4,000
Do.	do.	Highland Gold Mining Ltd. (HGM)	Khabarovskiy and Zabaykal'skiy Kray	6,900
Do.	do.	Kinross Gold Corp.	Chukotskiy Avtonomnyy Okrug	20,700
Do.	do.	LT-Resurs, ZAO	Irkutskaya Oblast'	2,700
Do.	do.	OOO Neryungri-Metallik	Sakha Republic (Yakutiya)	1,500
Do.	do.	OOO Nirungan	Sakha Republic (Yakutiya)	1,100
Do.	do.	OAO Omchak	Magadanskaya Oblast'	3,000
Do.	do.	OAO Omolonskaya ZRK	do.	5,000
Do.	do.	ZAO Omsukchanskaya GGK	do.	3,000

See footnotes at end of table.

TABLE 2—Continued
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Metric tons unless otherwise specified)

Commodity		Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
Gold, mine output, Au content—Continued	kilograms	Oyna, a/s	Tyva Republic	1,500
Do.	do.	Petropavlovsk plc	Petropavlovsk	23,000
Do.	do.	OAO Pokrovskiy Mine	Amurskaya Oblast'	6,000
Do.	do.	OAO Polimetal	Magadanskaya and Sverdlovskaya Oblast's, Khabarovskiy Kray	7,500
Do.	do.	Polyarnaya, a/s	Chukotskiy Avtonomnyy Okrug	1,000
Do.	do.	PAO Polyus Gold	Krasnoyarskiy Kray	60,000
Do.	do.	OOO Priisk Drazhnyy	do.	1,200
Do.	do.	OAO Priisk Solov'yevskiy	Amurskaya Oblast'	1,500
Do.	do.	OOO Ros-DV	Khabarovskiy Kray	1,100
Do.	do.	OOO Russdragmet	Khabarovskiy Kray, Zabaykal'skiy Kray	6,000
Do.	do.	PAO Seligdar	Sakha Republic (Yakutiya)	4,300
Do.	do.	Nordgold N.V.	Russia, Kazakhstan, and West Africa	10,200
Do.	do.	OOO Sovrudnik	Krasnoyarskiy Kray	3,900
Do.	do.	OAO Susumanzoloto	Magadanskaya Oblast'	4,500
Do.	do.	OAO Uralelktomed'	Sverdlovskaya Oblast'	1,400
Do.	do.	OAO Zoloto Kamchatki	Kamchatka Penninsula	5,500
Do.	do.	Vitim, a/s	Irkutskaya Oblast'	2,900
Do.	do.	Vostok, a/s	Khabarovskiy Kray	1,100
Do.	do.	PAO Vysochayshiy (GV Gold)	Irkutskaya Oblast' and Sakha Republic (Yakutiya)	5,500
Do.	do.	OOO Yuzhuralzoloto	Chelyabinskaya Oblast'	6,500
Do.	do.	Zapadnaya, a/s	Krasnoyarskiy Kray	1,900
Do.	do.	ZAO Zolotaya, ZDK	Khakasiya Republic	1,200
Indium:				
Primary		Chelyabinsk zinc plant	Chelyabinskaya Oblast'	6
Secondary		Elektrozink plant	Vladikavkaz, North Caucasus	6
Iron ore		Kursk Magnetic Anomaly (KMA) region, which contains the following enterprises:	Locations:	50,000,000 [2]
		Lebedi and Stoilo	Gubkin	
		Mikhaylovka	Zheleznogorsk	
Do.		Northwest region, which contains the following enterprises:	Locations:	22,000,000 [2]
		Kostomuksha	Kostomuksha	
		Kovdor	Kola Peninsula	
		Olenegorsk	Olenegorsk	
Do.		Siberia region, which contains the following enterprises:	Locations:	18,000,000 [2]
		East:		
		Korshunovo	Zheleznogorsk	
		Rudnogorsk	Rudnogorsk	
		West:		
		Abakan	Abaza	
		Sheregesh	Sheregesh	
		Tashtagol	Tashtagol	
		Teya	Vershina Tei	
Do		Urals region, which contains the following enterprises:	Locations:	22,000,000 [2]
		Akkermanovka	Novotroitsk	
		Bakal	Bakal	
		Goroblagodat	Kushva	
		Kachkanar	Kachkanar	
		Magnitogorsk	Magnitogorsk	
		Peshchanka	Rudnichnyy	

See footnotes at end of table.

TABLE 2—Continued
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
Lead, metal	Dalpolymetal lead smelter	Rudnaya in Primorskiy Kray	20,000
Do.	Elektrozink lead smelter [Ural Mining and Metallurgical Co. (UMMC)]	Vladikavkaz, North Caucasus	40,000
Lead-zinc, recoverable content of ore:			
Lead, recoverable Pb content of ore	Altay mining-beneficiation complex	Altay Kray, southern Siberia	2,000
Do.	Dalpolymetal mining-beneficiation complex	Primorskiy Kray	20,000
Do.	Nerchinsk polymetallic complex	Zabaykal'skiy Kray	7,000
Do.	Sadon lead-zinc complex	North Ossetia	5,000
Do.	Salair mining-beneficiation complex	Kemerovskaya Oblast'	2,000
Zinc, recoverable Zn content of ore	Altay mining-beneficiation complex	Altay Kray, Southern Siberia	1,000
Do.	Dalpolymetal mining-beneficiation complex	Primorskiy Kray	25,000
Do.	Nerchinsk polymetallic complex	Zabaykal'skiy Kray	12,500
Do.	Sadon lead-zinc complex	Severnaya Osetiya	14,000
Do.	Salair mining-beneficiation complex	Kemerovskaya Oblast'	10,500
Limestone	Mazulsky Mine (United Company Rusal)	Goryachegorsk massif, Eastern Siberia	NA
Lithium and its compounds	JSC Novosibirsk Chemical Plant (TVEL Corp.)	Novosibirsk	NA
Do.	JSC Chemical-Metallurgical Plant (TVEL Corp.)	Kransnoyarsk	NA
Magnesite	Karagayskiy open pit (Magnezit Group) and Magnezitovaya underground mine (Magnezit Group)	Sakha group of deposits (Chelyabinskaya Oblast')	3,800,000
Magnesium, metal	Avisma plant	Berezniki	35,000
Do.	Solikamsk plant (Uralkali)	Permskiy Kray	30,000
Mica	Emel'dzhak deposit, Aldan Shield	Sakha Republic (Yakutiya)	NA
Do.	Lopatova Guba mica pit, Northern Kareliya	Kareliya Republic	NA
Do.	Kovdor phlogopite Mine (Mica Mine; Slyuda Mine; Kovdorslyuda Shaft)	Kola Peninsula, Murmanskaya Oblast'	NA
Do.	Irkutsk complex (JSC "Vostoksluda")	Mam deposit, Irkutskaya Oblast'	NA
Molybdenum, mined	Dzhida tungsten-molybdenum mine	West Transbaikal	NA
Do.	Sorsk molybdenum mining enterprise	Khakasiya Republic	NA
Do.	Tyrnyauz tungsten-molybdenum mine [OAO Kabardino-Balkarskaya Tungsten-Molybdenum Co. (Government of Kabardino-Balkarskaya Republic)]	Republic of Kabardino-Balkariya, North Caucasus	NA
Do.	Shakhtaminskoye molybdenum mining enterprise	Zabaykal'skiy Kray	NA
Natural gas million cubic meters	PAO Gazprom	Deposits throughout Russia	405,000
Do. do.	OAO Novatek	Yamalo-Nenetskiy Avtonomnyy Okrug	50,100
Do. do.	OAO NK Rosneft'	Deposits throughout Russia	46,700
Do. do.	Arktikgaz	Yamalo-Nenetskiy Avtonomnyy Okrug	25,800
Do. do.	OAO Lukoil	West Siberia, Volga Region	18,400
Do. do.	Gazpromneft'	Deposits throughout Russia	13,500
Do. do.	OAO Surgutneftegaz	Eastern Siberia and western Siberia	9,800
Nepheline syenite	Apatite complex	Kola Peninsula	1,500,000
Do.	Kiya-Shaltyr Mine (United Company RUSAL)	Goryachegorsk massif, Eastern Siberia	NA
Nickel:			
Nickel in ore	OJSC MMC Nornickel	Kola Peninsula and Norilsk region	300,000
Do.	OAO Ufaleynickel [Koks Company of Industrial Metallurgical Holding]	Chelyabinskaya Oblast', Urals	17,000
Do.	OAO Yuzhuralnickel [OAO Mechel]	South Urals	3,000 [2]
Metal:			
Smelting	OJSC MMC Nornickel	Norilsk region, Kola Peninsula	160,000
Do.	do.	Pechenga	50,000
Do.	do.	Monchegorsk	50,000
Refining	do.	do.	140,000
Do.	do.	Norilsk region, Kola Peninsula	100,000

See footnotes at end of table.

TABLE 2—Continued
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
Nickel:—Continued			
Ni products and Ni in FeNi	Enterprise:	Location:	65,000 [3]
	ZAO Rezhnickel [Ural Mining and Metallurgical Co. (UMMC)]	South Urals	
	OAO Ufaleynickel [Koks Industrial Metallurgical Holding Co.]	do.	
	Yuzhuralnickel [Mechel OAO]	do.	
Niobium (columbium)	Karnarsurt mining enterprise (AO Sevredmet)	Lovozerskoye deposit, Kola Peninsula	12,000
Oil shale	Leningradslanets Association	Slantsy, Leningradskaya Oblast'	5,000,000
Petroleum, crude	Bashneft'	Bashkortostan Republic	12,000,000
Do.	Gazprom Neft'	Deposits throughout Russia	50,000,000
Do.	OAO Lukoil	West Siberian deposits:	100,000,000 [3]
		Kechimovskoye	
		Nivagalskoye	
		Urals deposits	
		Volga Region	
		Timen Pechora deposit:	
		Yuzhnaya Khylchuya	
		Komi Republic deposits:	
		Kyrtayelskoye	
		Pashshorskoye	
		Perevoznoye	
Do.	OAO Novatek	Western Siberia	5,000,000
Do.	OAO NK Rosneft'	Deposits throughout Russia	120,000,000
Do.	Russneft'	Central and western Siberia, Urals and Volga regions	15,000,000
Do.	Slavneft'	Western Siberia and Krasnoyarskiy Kray	20,000,000
Do.	OAO Surgutneftegas	Khanty-Mansiyskiy Avtonomnyy Okrug (HMAO)	60,000,000
Do.	Tatneft'	Deposits:	30,000,000 [3]
		Romashkinskoye	
		Novo-Elkkhovskoye	
		Bavlinskoye	
		Bondyuzskoye	
		Pervomayskoye	
		Sabandchinskoye	
Do.	OAO TNK–BP Holding	Deposits:	80,000,000 [3]
		Kamennoye	
		Kovyatka	
		Russkoye	
		Suzunskoye	
		Tagulskoye	
		Uvat	
		Verkhnechonsk	
Phosphate rock	Kingisepp complex (OAO Fosforit)	Leningradskaya Oblast'	3,500,000
Do.	Lopatino and Yegorevsk deposits	Moscow Oblast'	NA
Do.	Polpinskoye deposit	Bryanskaya Oblast'	NA
Do.	Verkhnekamsk deposit	Urals	NA
Phosphate rock, apatite concentrate	OAO Apatit (Phosagro)	Kola Peninsula	12,000,000
Do.	Kovdorskiy GOK	do.	700,000

See footnotes at end of table.

TABLE 2—Continued
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
Platinum-group metals:			
Ore, PGM content	OJSC MMC Norilsk Nickel	Norilsk region, Kola Peninsula	150
Do.	AO Koryakgeoldobycha, Amur Prospectors	Placer deposits (mostly platinum), Urals; Siberia; Russian Far East	10
Do.	Lopatino and Yegorevsk deposits	Moscow Oblast'	NA
Do.	Polpinskoye deposit	Bryanskaya Oblast'	NA
Do.	Verkhnekamsk deposit	Ural'skiye Gory	NA
Do.	OAO AS Amur (Russian Platinum Co.)	Placer deposits (mostly platinum), Urals; Siberia; Russian Far East	10
Metals	Krasnoyarsk Nonferrous Metals Plant (Krastsvetmet)	Krasnoyarskiy Kray	NA
Do.	Ekaterinburgskiy plant (EZOTsM)	Sverdlovskaya Oblast'	NA
Do.	Priobsk plant (OJSC Gazprom Neft)	Khanty-Mansiyskiy Avtonomnyy Okrug (HMAO)	NA
Potash, K_2O equivalent	OAO Uralkali	Verkhnekamskoye deposit	8,000,000
Do.	OAO Akron	Novgorod	NA
Rare earths	OAO Apatit	Lovozerskoye deposit, Kola Peninsula	NA
Salt	AO Bassol'	Lake Baskunchak in Astrakhanskaya Oblast'	2,500,000
Do.	Dus-Dagskoe deposit	Dus-Dag Mountains	25,000
Silver, mine output, Ag content	Dukat Mine	Magadanskaya Oblast'	1,000
Do.	Kinross Gold Corp.	Chukotskiy Avtonomnyy Okrug	NA
Soda ash	Achinsk plant	Eastern Siberia	595
Do.	Berezniki plant	Ural'skiye Gory	1,080
Do.	Pikalyovo plant	Leningradskaya Oblast'	200
Do.	Sterlitamak plant	Bashkortostan Republic	2,135
Do.	Volkhov plant	Leningradskaya Oblast'	20
Steel, raw	OAO Amurmetal	Komsomol'sk-na-Amure	1,600,000
Do.	JSC Asha Metallurgical Plant	Chelyabinskaya Oblast'	450,000
Do.	Beloretsk Iron and Steel Works	Bashkirskoye	380,000
Do.	Chusovskoy Iron and Steel Works	Permskiy Kray	570,000
Do.	JSC Electrostal Metallurgical Plant	Moscow	314,000
Do.	Gorkovskoy Metallurgichesky Zavod	Nizhegorodskaya Oblast'	78,000
Do.	Gur'yevsk Steel Works	Kemerovskaya Oblast'	160,000
Do.	Karaganda	Karagandinskaya Oblast'	6,300,000
Do.	Kuznetsk Steel Works	Kemerovskaya Oblast'	4,700,000
Do.	Lys'va Metallurgical Plant	Permskiy Kray	350,000
Do.	OAO Magnitogorsk mining and metallurgical complex (MMK)	Chelyabinskaya Oblast'	16,200,000
Do.	OAO Mechel (Mechel)	do.	7,000,000
Do.	Nizhniy Sergi Steel Works	Sverdlovskaya Oblast'	300,000
Do.	Nizhniy Tagil mining and metallurgical complex (NTMK) (Evraz Group)	do.	8,000,000
Do.	Nosta JSC (JSC Orsk-Kahlilovo Iron and Steel Works)	Novotroitsk, Orenburgskaya Oblast'	4,600,000
Do.	Novolipetskiy mining and metallurgical complex (NLMK)	Lipetskaya Oblast'	9,900,000
Do.	Novosibirsk Steel Works (Novosibprokat)	Novosibirskaya Oblast'	1,100,000
Do.	CJSC Omutninsk Metallurgical Plant	Kirovskaya Oblast'	210,000
Do.	Oskol Electric Steel Works (OEMK)	Staryi Oskol	2,500,000
Do.	Petrovsk-Zabaykal'skiy Steel Works	Petrovsk-Zabaykal'skiy	426,000
Do.	Revdinskiy Steel and Wire Production Works	Sverdlovskaya Oblast'	281,000
Do.	Salda Steel Works	do.	1,900
Do.	Serov Steel Works	do.	1,000,000
Do.	Serp i Molot (Moscow Metallurgical Works)	Moskovskaya Oblast'	70,000
Do.	Severskiy Tube Works	Polevskoy, Sverdlovskaya Oblast'	825,000

See footnotes at end of table.

TABLE 2—Continued
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
Steel, raw—Continued	OAO Severstal	Vologodskaya Oblast'	14,000,000
Do.	Sibelektrostal Metallurgical Works	Krasnoyarskiy Kray	110,000
Do.	Sulinskiy Steel Works (Staks)	Rostovskaya Oblast'	280,000
Do.	Taganrog Iron and Steel Works (Tagmet)	do.	925,000
Do.	OAO Tulachermet	Tul'skaya Oblast'	18,400
Do.	Viz-Stal (Verkh-Isetsk Steel Works)	Sverdlovskaya Oblast'	132,000
Do.	Volgograd Steel Works (Red October)	Volgogradskaya Oblast'	2,000,000
Do.	Vyksa Steel Works	Nizhegorodskaya Oblast'	540,000
Do.	Zapadno-Sibirskiy mining and metallurgical complex (ZSMK) (Evraz Group)	Kemerovskaya Oblast'	6,900,000
Do.	Zlatoust Iron and Steel Works	Zlatoust, Chelyabinskaya Oblast'	1,200,000
Talc	Onotsk deposit	Irkutskaya Oblast'	NA
Do.	Kirgiteysk deposit	Krasnoyarskiy Kray	NA
Do.	Miass deposit	Chelyabinskaya Oblast'	NA
Do.	Shabrovsk deposit	Sverdlovskaya Oblast'	NA
Tantalum, ore	Facilities: Zabaykalskiy mining and beneficiation complex NA	Deposits: Etykinskoye deposit Lovozerskoye deposit, Kola Peninsula	10 [2]
Tellurium	OJSC MMC Norilsk Nickel	NA	5
Do.	Ural Mining and Metallurgical Co. (UMMC)	Urals	35
Tin:	Novosibirsk mining and beneficiation complexes:	Locations:	
Ore, Sn content	Khinganskoye olovo (Jewish Autonomous District)	Khabarovskiy Kray	11 [4]
Do.	Tin Ore Co.	Solnechnyi deposit, Khabarovskiy Kray	NA
Do.	Pravourmiyskoye	Khabarovskiy Kray	NA
Do.	Deputatskiy (Sakhaolovo)	Sakha Republic (Yakutiya)	NA [4]
Do.	Vostokolovo	Russian Far East	NA [4]
Do.	Iultin mining and beneficiation complex	Magadanskaya Oblast'	NA [4]
Do.	Khrustalnyy mining and beneficiation complex	Primorskiy Kray	NA [4]
Do.	Pevek mining and beneficiation complex	Magadanskaya Oblast'	NA [4]
Metal	Novosibirsk Processing Plant Ltd.	Novosibirskaya Oblast'	NA [4]
Titanium:			
Ore	OOO Lovozerskiy GOK	Murmanskaya Oblast	NA
Do.	OAO Apatit	Kykisvumchorrskoye and Yuksporskoye deposits	NA
Do.	OAO TGOK Ilmenit	Tyuganskoye deposit	NA
Do.	OOO Olekminskiy Rudnik	Kuranakhskoye deposit	NA
Metal	Moscow plant	Moscow	NA
Do.	Podol'sk plant	Podol'sk	NA
Do.	OAO Corp. VSMPO-Avisma	Bereznikovskiy Complex, Permskiy Kray	NA
Sponge	do.	do.	40,000
Do.	Solikamskiy Magnium Plant (SMZ)	Solikamsk, Permskiy Kray	NA
Tungsten:			
Concentrate, W content	AS Quartz	Bom-Gorkhom deposit, West Transbaikal, Zabaykal'skiy Kray	NA
Do.	ZAO Novoorlovskiy GOK	Spokoyninskoye deposit, Zabaykal'skiy Kray	NA
Do.	KGUP Primteploenergo	Lermontovskoye deposit, Primorskiy Kray	NA
Do.	OAO Primorskiy GOK	Vostok-2 deposit	NA
Do.	ZAO Zakamensk	Ruchey Inkur deposit, Barun-Narynskoye deposit	NA
Do.	Tyrnyauz tungsten-molybdenum mine [OAO Kabardino-Balkarskaya Tungsten-Molybdenum Co. (Government of Kabardino-Balkarskaya Republic)]	Republic of Kabardino-Balkariya, North Caucasus	NA

See footnotes at end of table.

TABLE 2—Continued
RUSSIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2016[1]

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit names	Annual capacity[e]
Tungsten:—Continued			
Metal	Gidrometallurg plant	Republic of Kabardino-Balkariya, North Caucasus	NA
Uranium, U content of ore	Uranium Holding OAO Atomredmetzoloto (ARMZ):	Locations:	3,500
	ZAO Dalur mining enterprise	Kurganskaya Oblast'	
	OAO Khiagda mining enterprise	Buryatiya Republic	
	Priargunskoye mining and chemical enterprise	Krasnokamensk, Zabaykal'skiy Kray	
Vanadium:			
Ore	Kachkanar iron mining complex	Ural'skiye Gory	NA
Metal	Chusovoy and Nizhniy Tagil plants	do.	17,000
Pentoxide	Vanadii-Tulachermet	Tul'skaya Oblast', North Caucasus	NA
Zinc:			
Zn content of copper-zinc ore	Bashkir copper-zinc complex	Sibai, Southern Urals	5,000
Do.	Buribai copper-zinc mining complex	Buribai, Southern Urals	1,500
Do.	Gai copper-zinc mining and beneficiation complex	Gai, Southern Urals	25,000
Do.	Kirovgrad copper enterprise	Kirovgrad, Central Urals	1,200
Do.	Sredneuralsk copper complex	Revda, Central Urals	5,000
Do.	Uchali copper-zinc mining and beneficiation complex	Uchalinskiy Rayon, Southern Urals	90,000
Metal	Chelyabinsk electrolytic zinc plant	Chelyabinskaya Oblast'	200,000
Do.	Elektrozink plant [Ural Mining and Metallurgical Co. (UMMC)]	Vladikavkaz, North Caucasus	90,000
Do.	Uralelektromed plant [Ural Mining and Metallurgical Co. (UMMC)]	Verkhnaya Pyshma	17,000
Zirconium:			
Baddeleyite concentrate	Kovdor iron ore mining and beneficiation complex	Kola Peninsula	3,500
Metal	Chepetsky metallurgical plant (TVEL Corp.)	Glazov, Udmurtiya Republic	NA

[e]Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.
[1]Many location names have changed since the breakup of the Soviet Union. Many enterprises, however, are still named or commonly referred to based on the former location name, which accounts for discrepancies in the names of enterprises and that of locations.
[2]Stopped operations in 2012; not in operation as of 2016.
[3]Capacity estimates are totals for all enterprises that produce that commodity.
[4]Not in operation as of 2016.