



# 2010 Minerals Yearbook

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EUROPE AND CENTRAL EURASIA [ADVANCE RELEASE]

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# THE MINERAL INDUSTRIES OF EUROPE AND CENTRAL EURASIA

By Alberto Alexander Perez, Mark Brininstool, Elena Safirova, Steven T. Anderson,  
Harold R. Newman, Glenn J. Wallace, and David R. Wilburn

Europe and Central Eurasia as defined in this volume encompasses territory that extends from the Atlantic coast of Europe to the Pacific coast of the Russian Federation and includes the British Isles, Iceland, and Greenland (a self-governing part of the Kingdom of Denmark).

The European Union (EU) is a supranational entity that at yearend 2010 comprised the following 27 countries: Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom. The euro (€) operates as a single currency for countries within the EU that have fulfilled the stated requirements of the European Central Bank (located in Frankfurt, Germany) for inclusion in the euro area. As of January 1, 2011, the EU countries that were part of the euro area were Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

Croatia signed an accession treaty with the EU in December 2011 and was to become part of the EU, pending ratification of the treaty, on July 1, 2013. Other countries that were candidates to join the EU were Iceland, Macedonia, Montenegro, Serbia, and Turkey (although no date was given for expected accession, as they were still in the negotiation stage). Albania, Bosnia and Herzegovina, and Kosovo (under UN Security Council Resolution 1244) were considered potential candidate countries and were expected to continue negotiations for EU candidate country status (European Commission, 2007a; 2007c, p. 2–8; 2011; European Union, undated).

The Commonwealth of Independent States (CIS) was founded in 1991 by several Republics of the former Soviet Union and later was extended to include all the former Soviet Republics except the Baltic States of Estonia, Latvia, and Lithuania. The countries that made up the CIS in 2010 were Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, and Uzbekistan. Georgia withdrew from the CIS in 2008, and Ukraine was not officially a member, although it continued to cooperate and participate in CIS-related agreements. The CIS does not have supranational powers, and all member countries have equal standing under international law. Although the member countries had pledged to work on economic integration, few actual measures have been taken to make the CIS a functioning integrated economic bloc similar to that of the EU.

An agreement was signed by the CIS countries in 2001 that allowed the signatories to settle disputes regarding mineral development in border areas, to implement environmental measures to protect the population of the neighboring states

when developing mineral resources, and to specify conditions for cooperation between neighboring CIS states in mineral development. One of the basic documents regulating these matters was the Model Law Code, which was signed by the Inter-Parliamentary Assembly of the CIS countries in 2002. The Model Law Code deals with a wide range of issues regarding minerals and mineral development. The CIS's Inter-Governmental Council coordinates more than 10 joint programs and projects relating to scientific and technical cooperation, harmonizes laws about the use of resources, and engages in information exchange.

A customs union agreement between Belarus, Kazakhstan, and Russia went into effect on January 1, 2010. According to the agreement, the countries form a joint customs territory on which no customs duties or other economic restrictions on the movement of goods apply. Each of the members of the customs union applies the same customs rates and trade regulations for goods from the other two countries in the union. The members of the customs union were projected to save more than \$400 billion by 2015 owing to reduced shipping times. Kyrgyzstan and Tajikistan expressed their interest in joining the customs union in the future.

The European Free Trade Association (EFTA), which is an alternative entity to the EU in Western Europe, comprised Iceland, Liechtenstein, Norway, and Switzerland. The Agreement on the European Economic Area (EEA), which had been in force since January 1, 1994, brings all the 27 EU members and 3 of the EFTA members (Iceland, Liechtenstein, and Norway) into a single internal market. The EEA provides for the free movement of goods, services, persons, and capital among the 30 EEA states. Switzerland was not part of the EEA but had a bilateral agreement with the EU that addresses the same issues covered by the EEA (European Free Trade Area, 2010).

The EU population in 2010 was roughly 502 million people, which was about 60% more than that of the United States. The EU's total gross domestic product (GDP) based on purchasing power parity was approximately equal to that of the United States (tables 1, 2).

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## General Economic Conditions

In 2010, the global mineral industry underwent a significant recovery, both in demand and prices. Growing demand, primarily in China, was a significant factor for this continued recovery. World trade continued to increase; however, by the second half of 2010, this economic upswing seemed to slow down. The general market recovery was uneven, and was driven mostly by the increases in the exports of goods from Brazil,

China, and India as well as other Asian economies, which had reached or surpassed pre-world-recession levels. By the third quarter of 2010, the exports of developed economies were on average still 8% less than pre-recession levels, in terms of value (United Nations, 2011, p. 20). Although the economy of the region as a whole had average growth of 1.8%, the economies of such countries as Belarus (7.6%), Moldova (6.9%), Ukraine (4.2%), and Russia (4%) grew at a much faster rate in 2010 (International Monetary Fund, 2011, p. xii).

The EU countries were substantial participants in the world mineral economy and occupied an important role mostly as processors and consumers of most major mineral commodities. In Central Eurasia, however, the mining of several mineral commodities remained important. The region of Europe and Central Eurasia accounted for 53.5% of total world production of lignite coal, 47.4% of uranium production (measured in U<sub>3</sub>O<sub>8</sub> content), and 44.9% each of platinum and potash (in K<sub>2</sub>O equivalent) production. The region's output of palladium accounted for 42.7% of world production; titanium, 42.4%; and nickel, 35.4%. The region also produced 21.7% of the world's output of primary aluminum, 20.1% of the world's output of copper, and 19.8% of the world's output of crude steel. The EU was practically self-sufficient in the production of construction materials and remained among the world's leading producers of natural gas. Russia accounted for 25.9% of total natural diamond (gemstone and industrial) production in the world. The region was a large crude oil producer and had significant coal reserves (table 4).

In 2010, Central Eurasia remained a major world supplier of mined and processed minerals, and the consumption of these commodities in the region had increased in the past few years. The countries that made up Central and Eastern Europe (CEE) and the CIS produced mineral commodities mainly for export, and the output of mineral commodities in these countries was significantly influenced by economic conditions in the rest of the world. China and the EU were especially significant markets for mineral products from CEE and the CIS. As economies began to show signs of recovering from the global economic crisis that began in 2008, consumption of mineral commodities increased and drove the recovery of production in CEE and the CIS.

In the CIS, Russia and Kazakhstan were the two leading producers of mineral commodities. In Russia, the value of mining and quarrying output increased by 32% as the value of exports of mineral products increased by 34.1%. Exports of metals, precious stones, and articles thereof increased by 33.1%. Russia's exports of mineral products made up 68.8% of the country's total exports, and exports of metals, precious stones, and articles thereof made up another 13% (Federal State Statistics Service of the Russian Federation, 2011a, b).

Russia, which occupied about 77% of the territory of the CIS, was by far the largest country in the CIS in terms of both population and territory and had the leading mineral producing sector. Many other CIS countries also were significant producers and processors of minerals. In 2010, Russia ranked among the leading world producers or was a significant producer of such mineral commodities as aluminum, arsenic, asbestos, bauxite, boron, cadmium, cement, coal, cobalt, copper, diamond, fluor spar, gold, iron ore, lime, lithium, magnesium compounds

and metals, mica (scrap sheet and flake), natural gas, nickel, nitrogen, oil shale, palladium, peat, petroleum, phosphate rock, pig iron, platinum, potash, rhenium, silicon, steel, sulfur, tin, titanium sponge, tungsten, uranium, and vanadium.

In Kazakhstan, the value of mining and quarrying output increased by 31% as the value of exports of mineral products increased by 40%. The value of base-metal exports increased by 48%. Mineral product exports made up 75% of the value of Kazakhstan's total exports, and base metals and articles thereof made up another 14% (Agency of Statistics of the Republic of Kazakhstan, 2011, p. 92, 137).

Kazakhstan was a significant producer of such mineral products as arsenic, barite, beryllium metal, bismuth, cadmium, chromite, copper, ferroalloys, lead, petroleum, rhenium, titanium sponge, uranium, and zinc. Ukraine was a significant producer of such mineral products as ferroalloys, iron ore, manganese ore, pig iron, steel, and titanium raw materials. Other CIS countries were significant world or regional producers of one or more mineral commodities, including Armenia (molybdenum), Azerbaijan (petroleum), Belarus (potash), Kyrgyzstan (antimony metal, gold, and mercury ore and metal), Tajikistan (aluminum and antimony ore), Turkmenistan (natural gas), and Uzbekistan (gold and uranium), and all the CIS countries produced a range of other mineral commodities.

The EU was mostly dependent on imported mineral raw materials for metals, industrial minerals, and fuel minerals. The import dependence for many metal ores was 100% [antimony, cobalt, ilmenite, molybdenum, niobium, platinum-group metals (PGMs), rare-earth metals, rutilite, tantalum, and vanadium] and the EU was from 70% to 90% import dependent for most other metallic ores. The EU's dependence on imports of metallic mineral raw materials (such as concentrates, ores, and scrap) and obtaining sources of energy for its metal refining and processing industries were key concerns for the EU's mineral industry (Bundesanstalt für Geowissenschaften und Rohstoffe, 2008, p. 19, 22; European Commission, 2008b).

As a major world mineral processing and consuming area, the EU remained a significant determinant of world demand for nearly all mineral commodities. Its mineral processing and manufacturing industries accounted for a significant share of the world production of semimanufactured and fabricated ferrous and nonferrous metals. In 2010, Germany was still the EU's dominant smelter and refiner of most metals. With a high per capita income and standard of living, the EU was one of the world's major consumers of mineral fuels and of mineral products in consumer goods.

## Legislation

On December 2, 2010, the new regulation concerning measures to safeguard the supply of gas into the EU [Regulation (EU) 994/210] went into effect and essentially repealed the previous Council Directive 2004/67/EC. The purpose of this new regulation is to ensure that member states of the EU and gas market participants have enough notice to take action to prevent and mitigate the potential effects of disruptions to gas supplies. This regulation was the result of negotiations principally between the EU and Russia in response to the events

of January 2009, when gas supplies to the EU were severely disrupted because of a disagreement between Russia and Ukraine on gas deliveries and payment (European Commission, 2006; 2007b, d; 2008a, p. 4, 16; 2009, p. 2–4; 2012).

On November 4, 2008, the European Commission (EC) adopted a new raw materials initiative that included measures to secure and improve access to minerals for the EU. This initiative was expected to result in the adoption of a new raw materials (minerals) strategy for the EU, which would be based upon the following three main objectives:

- Ensure EU access to raw materials from international markets under the same conditions as other industrial competitors;
- Set the right framework conditions within the EU to foster a sustainable supply of raw materials from European sources; and
- Boost overall resource efficiency and promote recycling to reduce the EU's consumption of primary raw materials and decrease the EU's relative import dependence.

The EC expected to finalize a raw materials strategy for the EU in 2011. In May 2009, the EC formed a working group to better define the critical minerals for the EU and another to exchange information on best practices for land use planning, permitting, and geologic knowledge sharing between EU members. At the end of June 2010, the final reports of these two working groups were presented at the European Minerals Conference 2010 (Commission of the European Communities, 2008).

In March 2007, the EU Heads of State and Government set a series of climate and energy targets to be met by 2020, including the following three:

- A reduction in EU greenhouse gas emissions of at least 20% below 1990 levels;
- A minimum 20% of EU energy consumption coming from renewable resources; and
- A 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency.

On June 25, 2009, Directive 2009/29/EC of the European Parliament and of the Council (of April 23, 2009) entered into force to amend Directive 2003/87/EC [which established the greenhouse gas emission allowance trading scheme (ETS) for the EU], with the main goals of improving the ETS and extending it beyond 2012 (European Parliament and Council, 2009, p. 63–68, 71–74; European Commission, 2010).

## Exploration

Several countries of Europe and Central Eurasia continued to explore for nonfuel minerals and uranium in 2010. According to the Metals Economic Group (MEG) of Canada, the exploration budget for nonfuel mineral exploration in Russia amounted to about \$430 million and accounted for about 4% of the worldwide planned exploration budget in 2010 (Metals Economics Group, 2010a, b). In terms of the number of exploration sites, the greatest amount of exploration in Europe and Central Eurasia took place in Kazakhstan, Russia, and Scandinavia (particularly Finland and Sweden). Russia accounted for about 19% of the exploration sites in this region, Sweden accounted for 9%, Finland accounted for about 6%, and

Kazakhstan accounted for 5%. Exploration activity in the CIS was focused primarily on gold (37%), copper (18%), uranium (15%), PGM (9%), nickel (8%), silver (7%), and antimony, iron ore, molybdenum, and zinc (6% combined). European mineral exploration was focused primarily on gold (41%), base metals (32%), iron ore (13%), uranium (7%), and PGM (4%) (Wilburn, Vasil, and Nolting, 2011, p. 58–75).

The Kazakhstan Government announced plans for its President to sign off on revised subsoil usage laws to end the moratorium on issuing new exploration licenses. The moratorium had been in effect for the past 2 years (Engineering and Mining Journal, 2010).

## Commodity Overview

This report includes commodity outlook tables. Estimates for production of major mineral commodities for 2010 and beyond have been based upon supply-side assumptions, such as announced plans for increased production/new capacity construction and bankable feasibility studies. The outlook tables in this summary chapter show historic and projected production trends; therefore, no indication is made about whether the data are estimated or reported and revisions are not identified. Data on individual mineral commodities in tables in the individual country chapters are labeled to indicate estimates and revisions. The outlook segments of the mineral commodity tables are based on projected trends that could affect current producing facilities and on planned new facilities that operating companies, consortia, or Governments have projected to come online within indicated timeframes. Forward-looking information, which includes estimates of future production, exploration and mine development, cost of capital projects, and timing of the start of operations, are subject to a variety of risks and uncertainties that could cause actual events or results to differ significantly from expected outcomes. Projects listed in the following section are presented as an indication of industry plans and are not a USGS prediction of what will take place.

## Metals

**Bauxite and Alumina and Aluminum.**—In 2010, Russia and Kazakhstan accounted for the majority of bauxite production in the region with production of 5.48 million metric tons (Mt) and 5.31 Mt, respectively. It was expected that bauxite production would increase gradually in Russia to a projected output of 5.6 Mt by 2017 whereas bauxite production in Kazakhstan was projected to increase to 5.5 Mt by 2017. Russia was the leading individual producer of primary aluminum in Europe and Central Eurasia, producing 3.9 Mt in 2010. The next ranked producers in the region were Italy, 1.4 Mt; Norway 1.1 Mt; Germany, 1.04 Mt; and Iceland, 815,000 metric tons (t). The projected output of primary and secondary aluminum in Russia was 4.4 Mt by 2017. Production was also expected to increase in Italy to 1.5 Mt by 2017; Norway, 1.2 Mt; and Germany, 1 Mt (tables 4, 5, 6).

In Ireland, United Company RUSAL (RUSAL) restored operations at its alumina refinery, which was operated by Aughinish Alumina plc and was located on Aughinish Island on the south side of the Shannon estuary near Limerick City.

Aughinish Alumina produced about 1.86 Mt of alumina in 2010, which was an increase of 50% compared with production in 2009. The output was obtained by treating bauxite ore using the Bayer process (United Company RUSAL, 2011, p. 7).

Italy stopped producing alumina in 2010. RUSAL continued with the suspension of operations at its Eurallumina facility in Italy owing to the high cost of running the facility. No production from the plant was reported in 2010 (United Company RUSAL, 2011, p. 34). In Italy, primary aluminum production decreased by 1.5% and secondary production increased to 1,200 t. Alcoa Inc. of the United States had idled its smelting operations in Italy at Fusina and Portovesme after a ruling by the EC in 2009, which stated that a portion of the benefit received by Alcoa from the Italian Government based on an electricity tariff must be refunded as it did not comply with EU state aid rules. Alcoa appealed the decision; however, the high cost of production was causing Alcoa to consider closing the Portovesme plant permanently (Alcoa Inc., 2009). These events had a major effect on Italian production, as the country's chief producers of alumina and primary aluminum were Rio Tinto-Alcoa Italia S.p.A. and Eurallumina S.p.A.

Romania's two alumina plants were the plant in Tulcea that was owned by Alum S.A. (part of the Vitmetco Group NV of the Netherlands) and the plant in Oradea that was owned by Cemtrade [a company owned by the Central European Aluminum Co. Group (CEAC), which was a managing agent for the En+ Group of Russia]. In late 2009, alumina production was restarted at the Alum plant, which had been closed for modernization in 2007. The plant produced an estimated 450,000 t in 2010. The Cemtrade alumina plant at Oradea was still shut down in 2010 (it originally stopped production in late 2006), and CEAC announced that the plant was in the process of being divested from the group (Central European Aluminum Co., 2011; Vitmetco N.V., 2011).

Many of the secondary aluminum producers in Austria had close ties with automobile manufacturers (including some in Germany), and it was estimated that a significant share of secondary aluminum production in the country relied on the automobile sector for both scrap aluminum feedstock and for sales of aluminum (Constantia Packaging AG, 2010, p. 33–37; Pawlek, 2010; AMAG Holding GmbH, 2011, p. 7, 36–37, 53; Norsk Hydro ASA, 2011, p. 4, 41–43).

France's output of primary aluminum increased by 3.1% in 2010, and secondary aluminum production in France increased by 33%. Rio Tinto Ltd. (Rio Tinto) was the country's sole producer of primary aluminum. Rio Tinto also operated facilities for the production of alumina and aluminum semimanufactures. In 2010, production of specialty alumina continued at the Gardanne specialty alumina plant, even though at the end of 2008 Rio Tinto had closed the smelter-grade alumina operation in the same location (Rio Tinto Ltd., 2011).

**Copper.**—In 2010, Central Eurasia was the region's main producer of copper ore and the EU was the leading producer of refined copper, and production of both mined and refined copper was projected to increase slowly in the region. Russia's mine production of copper was projected to be 760,000 t by 2017, and its production of refined copper was projected to be 920,000 t

by 2017. Kazakhstan's mine production of copper was projected to be 520,000 t by 2017, and production of refined copper was projected to be 530,000 t (tables 7, 8).

Russia and Kazakhstan (in order of the volume produced) accounted for the majority of copper ore production in 2010 (703,000 t and 380,000 t, respectively). The 703,000 t of mined copper that Russia produced was a 4% increase compared with the level of production in 2009. The two main copper producers in Russia were OAO Ural GMK and OAO GMK Norilsk Nickel, which together produced about 80% of the country's copper ore. About 60% of all copper was produced from deposits in the Norilsk ore province (located in the Taimyr municipality of Krasnoyarskiy Kray). Other places where copper deposits occur are the Murmansk region in the north and the Middle and Southern Urals. Russia was a significant producer of primary and secondary refined copper, producing 20.1% of the total world output. Russia produced 874,000 t in 2010, which was a 1.4% increase from that of 2009. Internal copper consumption in Russia reached 3.12 kilograms per capita. The cable industry was a major copper consumer in Russia and accounted for 55% to 60% of the copper market (tables 7, 8).

Kazakhmys plc was the dominant producer of copper ore and metals in Kazakhstan, and in 2010, the company operated 17 mines, 10 concentrating plants, and 2 smelting and refinery plants. The company produced 335,000 t of copper contained in concentrate and 306,000 t of refined copper cathodes, which accounted for about 88% of the copper in concentrate and 95% of the refined copper produced in Kazakhstan in 2010. The average copper grade of crude ore produced by Kazakhmys decreased to 1.09% from 1.18% in 2009, resulting in a 6% decrease in the copper content of ore production despite a 2% increase in crude ore production. Ore grades were expected to continue to decrease, but Kazakhmys planned to partially offset this decrease by increasing crude ore production volumes. Kazakhstan was a significant producer of primary and secondary refined copper, producing 25.9% of the total world output (tables 7, 8; Kazakhmys plc, 2011, p. 20).

In Bulgaria in December 2010, Dundee Precious Metals Inc. of Canada (Dundee) and Unicredit Bulbank announced a long-term \$66.75 million loan agreement with the European Bank for Reconstruction and Development. The proceeds of the loan would be used mostly to finance the company's \$150 million Chelopech Mine and mill expansion. The expansion was expected to double the production of both the mine and the mill to approximately 2 million metric tons per year (Mt/yr) at a grade of .5% to .7%. The construction project was scheduled to be finished at the end of 2011 (Dundee Precious Metals Inc., 2010).

KGHM Polska Miedz S.A. was the only copper mining and primary copper metal producing firm in Poland and was a significant world producer of copper and silver. The company accounted for about 3% of world copper mine and refined copper production (combined) and about 4% of world mine production of silver. The company planned to expand its resource base and increase the production of copper in concentrate to about 700,000 metric tons per year (t/yr) from the 481,000 t of copper in concentrate produced in 2010.

The increased production capacity would come mainly from imported ores and further investments planned for exploration and mining within Poland to maintain current levels of production (Galos, Ney, and Smakowski, 2010, p. 161; KGHM Polska Miedz S.A., 2011, p. 106, 108, 112, 136–137).

Uzbekistan produced 90,000 t of mined and refined copper in 2010. The main copper producer in Uzbekistan was Almalyk GMK, which was located in the Tashkent region. The company had mining, beneficiation, and metallurgical facilities. Copper ore was mined from the Kalmakyr and the Sary-Cheku deposits; a new deposit, Dalnee, that is similar in ore structure to Kalmakyr was to serve as a replacement as the first two deposits become depleted. In 2010, Almalyk completed construction of a new beneficiation plant for copper, lead, and zinc ores.

**Gold.**—In 2010, Europe and Central Eurasia accounted for about 16% of world gold production; the majority of gold production in the region came from Central Eurasia. The principal producers, by volume, were Russia, which produced about 189,000 kilograms (kg), followed by Uzbekistan (90,000 kg) and Kazakhstan (30,272 kg).

In June, Euromax Resources Ltd. of Canada announced that drilling at its project in Breznik, Bulgaria, had extended the strike of the high-grade gold-silver deposit by 120%, from nearly 1,000 meters (m) to 2,200 m. The company also reported that drilling reports identified a parallel gold-silver deposit and a gold-copper deposit that had not previously been identified (Euromax Resources Ltd., 2010).

Kazakhstan was not a leading world producer of gold, but in 2010, the President of Kazakhstan announced that Kazakhstan planned to more than double gold production to about 70 t/yr by 2017 (Thomson Reuters, 2010). In 2010, Kazakhstan reported 30,272 kg of gold mine output. The likelihood of Kazakhstan reaching that production target was unknown, but a number of development projects were underway, and production could significantly increase.

The leading producers of gold in Kazakhstan were Kazzinc JSC and Kazakhmys, which accounted for 33% and 18%, respectively, of Kazakhstan's total gold production in 2010. The companies' development outlooks for gold production were not known, but gold production at Kazakhmys was likely to decrease by about 1,300 kg because the Mizek Mine stopped production in 2010 and the Mukur Mine was expected to do the same in 2012. Kazakhmys' substantial Bozshakol copper development project was reported to contain gold and could be an important new source of production.

JSC Altyntau Resources planned to reach full production capacity of 22,000 kilograms per year (kg/yr) in April 2011 (Novosti-Kazakhstan, 2011). KazakhGold Group Ltd.'s base-case development plan for 2010–20 called for capital investments of \$512 million and production of about 16,000 kg/yr of gold by 2016 (KazakhGold Group Ltd., 2010). In 2010, Nord Gold N.V. made investments at its Suzdal Mine that were expected to enable the mine to increase its annual production levels to about 3,100 kg from the 2,300 kg it produced in 2010 (Nord Gold N.V., 2011, p. 28).

Hambledon Mining plc's Sekisovskoye underground mine could increase production to about 850,000 t/yr of mined ore when its underground mine is fully operational in

either 2013 or 2014. Based on 2010 production, this would allow Hambledon to produce about 1,000 kg/yr of gold (Hambledon Mining plc, 2011, p. 3–5). Central Asia Resources Ltd. expected to begin production at the Dalabai deposit in 2011 and planned to develop the Altyntas deposit in 2012. The Dalabai project was expected to produce about 620 kg/yr of gold (Central Asia Resources Ltd., 2011, p. 4, 12).

In December 2010, Gabriel Resources Ltd. of Canada won a court challenge in the Romanian courts that validated its right to develop the Rosia Montana gold project in northwestern Romania; the company's permits had been challenged by groups opposing the development. Development of the project was put on hold when the technical review of the company's environmental impact assessment (EIA) by the Ministry of Environment was suspended in September 2007; development was restarted in late 2010. Gabriel Resources reported proved reserves of 5.9 million troy ounces (184 t) of gold and 32.6 million troy ounces (1,014 t) of silver, and probable reserves of 4.2 million troy ounces (131 t) of gold and 15 million troy ounces (467 t) of silver. The company estimated that the project could produce an average of 15,894 kg/yr of gold during a 16-year mine life and could make Romania a significant European gold producer (Corser and others, 2009, p. 3; Gabriel Resources Ltd., 2010, 2011).

In 2010, Russia produced 189 t of primary gold and 12.6 t of secondary gold. Overall production of gold decreased by 2% compared with the level in 2009. The leading gold-producing regions in 2010 were Krasnoyarskiy Krai (36 t), Chukotka (24.9 t), Amurskaya Oblast' (19.9 t), and Yakutia (18.6 t). The leading producers in 2010 were OAO Polyus Zoloto (40.0 t), ZAO Chukotskaya GGK (19.9 t), ZAO GK Petropavlovsk (13.9 t), and OAO Polymetall (11.1 t). Gold prices had increased markedly in the past decade from an average of \$271 per troy ounce in 2001 to an average of \$1,224 per troy ounce in 2010. Given this price increase, the Union of Gold Producers of Russia put forward a proposed list of laws and regulations to prevent further increases in gold production and a set of measures to be taken. The proposed changes included simplifying the procedure for obtaining gold exploration licenses, allowing regions to issue licenses for exploration and mining from deposits under 10 t, eliminating taxes on gold mining from alluvial and technological deposits, and adopting the Federal program for development of the gold mining industry. The union said that a realistic goal would be an increase in gold production to 300 t/yr (Braiko and Ivanov, 2011; Rough and Polished, 2011; Zolotonews.ru, 2012).

In 2010, Uzbekistan produced an estimated 90 t of gold. The main gold producer in Uzbekistan was Navoi GMK, which was responsible for more than 80% of Uzbekistan's gold production. The resource base of Navoi GMK included 13 deposits that comprise about 85% of all explored gold reserves of Uzbekistan. The largest deposit, Muruntau (located in the central Kuzulkum region), contained gold quartz ores and was mined by open pit method. The Zamitan gold extraction complex within the Navoi GMK mined the Charmitan, the Gughumsai, the Karakutan, the Marjanbulak, and the Promeshutochnoe deposits of the Samarkand gold ore region. Navoi GMK was one of the few mining complexes in the world that had a complete cycle of

gold production, from exploration to jewelry production and sale. Navoi GMK included four metallurgical plants in Navoi, Uchkuduk, Zarafzhan, and Zarmitan; a mechanical engineering plant, a jewelry-making plant, and several research laboratories. Other gold producers in Uzbekistan included the Almalyk Mining and Metallurgical Complex and the Amantaytau Goldfields, which was a joint venture with Oxus Gold PLC.

The number of licenses for exploration and development of gold mines in the United Kingdom decreased from 32 to 24 in 2009 (the latest year for which information was available) because eight licenses were relinquished in Northern Ireland, although the number of leases remained constant at four. Exploration continued at Cononish in Scotland, and in Omagh and Armagh in Northern Ireland. In Scotland, Scotgold Resources plc had licenses from Mines Royal for the areas around Glen Lyon, Glen Orchy, and Inverliever and owned the gold and silver assets of the Cononish deposit near Tyndrum.

In Northern Ireland, the Omagh (formerly Cavanacaw) deposit, which is located 10 kilometers (km) southwest of Omagh, was owned by Omagh Minerals Ltd., which was a wholly owned subsidiary of Galantas Gold Corp. The main deposit had an indicated reserve of 350,000 t grading 6.74 grams per metric ton gold. Galantas had been granted exploration licenses to the west and north of its existing license and now held licenses for an area totaling 460 square kilometers.

Conroy Diamonds and Gold plc was exploring in the Clontibret district. The district is located on the border of Northern Ireland and the Republic of Ireland near Monahan (British Geological Survey, 2011, p. 49–50).

Russia's production of gold is projected to increase to 210,000 kg by 2017, and that of Kazakhstan is projected to increase to 70,000 kg by 2017. Russia and Kazakhstan are the principal producers of gold in the Europe and Central Eurasia region, and they are projected to remain so for the foreseeable future (table 17).

**Iron and Steel.**—Europe and Central Eurasia produced about 19.8% of the world's crude steel output and 16.2% of the pig iron and direct-reduced iron output in 2010. Russia was the leading individual producer of steel, with 66.3 Mt, followed by Germany (43.8 Mt), Ukraine (33.6 Mt), and Italy (25.8 Mt).

Voestalpine AG was by far the leading producer of crude steel in Austria and the 10th ranked in Europe and Central Eurasia. In April, the company considered increasing the percentage of domestically produced iron ore in the volume of raw material used to manufacture crude steel in the country from about 25% to about 30% because the average price of iron ore purchased by Voestalpine reportedly increased by about 70% during the month of April. In 2010, Austria's production of iron ore increased by about 3% compared with that of 2009, the country's imports of iron ore and concentrates increased by about 53% (by 3.2 Mt), and its exports of iron ore and concentrates were a negligible percentage of production (amounting to only 22 t in 2009 and 9 t in 2010). Austria's production of crude steel increased by about 27% during this same timeframe. During 2010, Voestalpine considered construction of a pellet plant to increase the output of marketable iron ore at the company's Erzberg Mine, but it decided in November that the project was not feasible primarily owing to the expected high costs of the emissions permits

that would be necessary to operate the new plant. Sales to the automotive sector accounted for the leading share (about 28%) of total revenues for Voestalpine, including about 31% of the revenues of the company's steel division (Schneeweiss, 2010; Bundesministerium für Wirtschaft, Familie und Jugend, 2011, p. 31–32, 68; Voestalpine AG, 2011, p. 3, 24–27, 39, 52–58).

In Bulgaria, Stomana Industry S.A., which was a subsidiary of Sidenor S.A. of Greece, announced in November a proposed investment of more than \$35 million by the International Finance Corp. of the World Bank Group. This investment would help fund part of a new capital investment project that would include the construction of a new electric arc furnace (EAF). This investment and the development of the refinancing project were intended to revitalize the company and provide environmental and financial benefits in the long term (Stomana Industry S.A., 2010).

France's output of pig iron increased by 25% to 10.1 Mt, which reversed a trend of decreased production. Crude steel production increased by 20% to 15.4 Mt, also reversing a similar trend of decreased production. Crude steel consumption increased by 25.6% to slightly more than 3.16 Mt (World Steel Association, 2011, p. 88).

In 2010, Italy's pig iron production increased by about 50.3% compared with output in 2009 to 8.56 Mt, and the production of crude steel increased by about 29.7% to 25.8 Mt, which was a contrast to Italy's highest ever production levels of 32 Mt achieved in 2007. Italy's apparent consumption of crude steel increased to 26.6 Mt and ranked the country second in the EU after Germany (World Steel Association, 2011, p. 88).

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 were 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 resulted in higher levels of steel consumption in 2010 compared with those of 2009. In the past 5 years, crude steel production in Poland followed general economic trends, with peak production in 2007 (10.6 Mt), a reduction in 2008 (9.7 Mt) as the world economic crisis began, and the lowest amount of production in 2009 (7.1 Mt) during the worst year of the economic crisis followed by signs of recovery in 2010. According to the Polish Steel Association, Polish apparent consumption of finished steel products in 2010 was 9.82 Mt, which was about a 20% increase compared with that of 2009, and Polish 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 people (Polish Steel Association, 2010, p. 24–26).

According to the World Steel Association, Ukraine was the world's eighth ranked producer of steel and the fourth ranked

exporter, following Japan, the EU, and Russia. In 2010, Ukraine exported about 24 Mt of steel, which was about 72% of the country's total steel production. Metinvest was the leading producer of crude steel in Ukraine and accounted for 41% of production (including total 2010 production at OJSC Ilyich Iron and Steel Works, which was acquired by Metinvest in November 2010). The iron and steel industry in Ukraine had the advantage of large domestic sources of iron ore but was dependent on export markets for product sales and it operated inefficiently owing to a need for technical investment (Metall Ukrainy, 2011, p. 6; Metinvest B.V., 2011, p. 17; World Steel Association, 2011, p. 9, 25).

In 2010, Ukraine produced 69% of its steel in oxygen converter furnaces, 26% in open hearth furnaces, and 5% in EAFs. Production of steel using open hearth furnaces is energy inefficient compared with oxygen converter or EAF production and takes place only in a few other countries, including Russia and India, which produced only 9.8% and 1.7%, respectively, of their steel in open hearth furnaces in 2010. In Ukraine, only 54% of steel in 2010 was produced through continuous casting, which was the lowest percentage of any country in the world (World Steel Association, 2011, p. 10–11).

Steel production in Europe and Central Eurasia was expected to increase by an estimated 13% by 2017. The largest increases in production were expected from Ukraine, 43%; the United Kingdom, 34%; Poland, 25%; Italy, 17%; and France, 17%. The expected increase in production capacity in Ukraine and the reemployment of existing capacity in the other countries as a response to increased demand are seen as the main reasons for the projected increase in production (table 10).

**Iron Ore.**—Europe and Central Eurasia produced 10.6% of the world's iron ore in 2010. Central Eurasia was the dominant producer of iron ore in the region. Kazakhstan, Russia, Sweden, and Ukraine were the region's leading iron ore producers in the region, accounting for a combined production of 132 Mt in 2010. Kazakhstan's production is expected to increase by 23% by 2017 and that of Ukraine by 16% (table 9).

**Lead and Zinc.**—Europe and Central Eurasia produced about 12% of the world's production of mine output of zinc and about 20.4% of world zinc metal output in 2010. Kazakhstan and Ireland were the leading producers of zinc ore and produced 404,500 t and 342,500 t, respectively. Spain, Belgium, Kazakhstan, and Finland were the principal producers of refined zinc in Europe and Central Eurasia.

In Ireland, Galmoy Mines Ltd. (a subsidiary of Lundin Mining Corp.) recommenced operations at the Galmoy Mine in early 2010. The mine had stopped operations in June 2009 owing to the collapse in base-metal prices in the preceding years (Exploration and Mining Division, 2011, p. 1).

Boliden Tara Mine Ltd.'s Navan operation in Co. Meath, Ireland continued to be the leading zinc mine in Europe. In 2010, it milled about 2.6 Mt of ore to produce 167,334 t of zinc. The mine's Joint Ore Reserves Committee (JORC)-classified ore reserves (proven and probable) were 16 Mt grading 7.1% zinc and 1.8% lead (Exploration and Mining Division, 2011, p. 1).

In Poland, the shutdown of Zakłady Gorniczo "Trzebieonka" S.A. was the main reason for the significant decrease in 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. began discussions about a merger with Huta Cynku Miasteczko Slaskie (HCM) S.A. (a producer of lead and zinc metal) and planned to take over HCM S.A. (Galos, 2009, p. 25; Metal Bulletin, 2009, p. 10; Galos, Ney, and Smakowski, 2010, p. 293–294, 526).

Russia possesses 17% of the world’s zinc reserves (about 45 Mt) and has two large zinc deposits (the Kholodninskoe and the Ozornoe), which are located in the Republic of Buryatiya. In Russia, more than 60% of the zinc produced was used for the production of galvanized steel, mainly for the automobile and construction industries.

**Nickel.**—Production of the region’s mine output of nickel was almost entirely the result of Russian mining activity, and refined nickel production took place mainly in Russia and Western Europe. Russia accounted for about 84.6% of nickel mine output and 56.6% of nickel refinery production in the region in 2010.

Finland’s Talvivaara nickel deposit was the largest nickel deposit in Western Europe; it was composed of two polymetallic deposits—the Kolmisoppi and the Kuusilampi—which are located about 30 km from Sotkamo. Based on estimated proven reserves, the deposit was considered to have resources to produce about 2.5% of the world’s nickel during its scheduled 24-year operating life. Talvivaara’s bioheap-leach project was planned to produce nickel from an open pit operation and cobalt, copper, and zinc as byproducts. The planned nickel production of 50,000 t/yr was anticipated to be reached in 2012 (Mining Technology, 2008). The Kevitsa nickel deposit, which is located in northern Finland, was one of the world’s major undeveloped nickel sulfide deposits.

Alba Mineral Resources plc relinquished its four exploration licenses in the Aberfeldy area in the United Kingdom. This area covers Arthraeth, Kilmelford, and part of the Ochil Hills (British Geological Survey, 2011, p. 73).

**Platinum-Group Metals.**—Within the region of Europe and Central Eurasia, almost all mining for platinum-group metals (PGMs) took place in Russia, although small amounts of PGM were also mined in Finland, Poland, and Serbia. Russia and South Africa were the world’s leading PGM ore producers; Russia was the world’s leading producer of palladium, producing an estimated 84,700 kg, which accounted for 42.6% of the world’s production. It also produced an estimated 25,000 kg of platinum.

PGMs have important applications in the industrial sector. Palladium and platinum and, to a lesser extent, rhodium are critical components of catalytic converters, which control automobile emissions, and platinum is the critical catalytic element in the proton exchange membrane (PEM) fuel cell under development to power automobiles. PGMs are expected to be in much greater demand as the world’s automobile fleet increases and is equipped with catalytic converters. As legislation calling for stricter automobile emissions controls is enacted, greater loadings of PGM in catalytic converters will likely be required. Also, the need for alternative sources of energy to petroleum could result in the development of

a hydrogen-based economy powered by fuel cells that use platinum as a catalyst. Russia’s production of PGMs is expected to remain stable from 2010 to 2017 (tables 11, 12).

### *Industrial Minerals*

**Diamond.**—Russia was the world’s leading diamond producer and the only significant diamond mining country in Europe and Central Eurasia. Almost all Russia’s output of diamond was mined by the Russian company Joint Stock Company ALROSA (ALROSA) which had its main operation in the Sakha (Yakutiya) Republic in East Siberia. ALROSA was one of the world’s leading companies in the field of diamond exploration, diamond mining, sales of rough diamond, and diamond processing, and the company accounted for 97% of Russia’s diamond production. Russia’s share of global natural, gemstone and industrial diamond production was 25.9% in 2010. Russia’s production of diamond is expected to be stable from 2010 to 2017 (tables 4, 13).

**Rare Earths.**—In Estonia, Silmet AS began production of rare-earth metals in 1970. The company had a production capacity of up to 3,000 t/yr of rare-earth products and 700 t/yr of rare-metal products. All rare-earth raw materials were imported. The company produced cerium, lanthanum, neodymium, praseodymium, and samarium-europium-gadolinium products as well as niobium and tantalum chips, hydrides, metal ingots, and metallic powders. In April 2011, Molycorp Minerals LLC (a subsidiary of Molycorp Inc.) purchased a 90.023% share of Silmet for about \$89 million (Molycorp, Inc., 2011; Silmet AS, 2012a–d).

No rare-earth metals were produced in Kazakhstan in 2010, but the Government of Kazakhstan supported the development of rare-earth projects through joint ventures with foreign companies. In 2010, Kazatomprom signed agreements to establish joint ventures focusing on the production of rare metals and rare-earth metals with two Japanese companies. An agreement with Sumitomo Corp. was signed in March to establish Summit Atom Rare Earth Co. (SARECO), and in June, an agreement was signed with Toshiba Corp. to establish a joint venture. These projects were in the very early stages of development, and at the end of 2010, no information was available about when production could potentially begin (Kazatomprom JSC, 2010a, b).

The only deposit in Russia that was currently producing rare-earth metals was the Lovozero loparite deposit in the Murmansk region. The ores of the Lovozero deposit contain predominantly rare-earth metals from the cerium group (about 1.12% average rare-earth content). The beneficiation of ores and the production of complex concentrates (titanium-tantalum-niobium) was conducted by OOO Lovozerskiy Mining and Beneficiation Complex in close proximity to the extraction site. Although official data were not available, the 2010 annual production is estimated to have been about 3,600 t of rare-earth oxides. Russia had the second largest amount of rare-earth resources after China and had 115 discovered deposits of rare-earth ores. Among them was the Tomtor deposit, which is located on the northeast of Sakha (Yakutiya) Republic. It contains between 8% and 12% rare-earth oxides, with a 0.5%

concentration of yttrium trioxide. In 2010, the deposit had not been developed because of the area's severe climate and insufficient infrastructure.

### ***Mineral Fuels and Related Materials***

**Coal.**—In 2010, Europe and Central Eurasia accounted for 53.5% of the world's lignite production, 9.6% of the world's bituminous coal production, and 4.2% of the world's anthracite production. In Central Eurasia, Kazakhstan, Russia, and Ukraine were the leading coal producers, and within the EU, Germany and Poland were the leading coal producers. A number of other countries throughout the region also mined coal (tables 4, 14).

Russia ranked fifth in the world in the total volume of coal mined following China, the United States, India, and Australia. In every year since 1999, the country had experienced growth in coal output. During that time, domestic coal consumption remained at about the same level from year to year, and consumption of coal for energy generation decreased, in part because of warmer winters in Russia and larger volumes of water in rivers and reservoirs, which increased hydroelectric output.

Ukraine was among the world's leading coal mining countries. Ukraine's energy strategy, which was approved by the Government in 2006, called for increasing coal output to 130.3 Mt by 2030. The country's economic (balansovye) reserves as of January 1, 2005 (calculated according to the reserve classification system used during the Soviet period and later by many of its successor states) were reportedly about 8.7 billion metric tons (Gt), of which 6.5 Gt was classified as industrial reserves. Metallurgical coal made up 54% of total industrial reserves, and steam coal reserves accounted for 46%. Production was more than 20% below domestic consumption. Explored reserves in Ukraine were reportedly 117 Gt.

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 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." 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 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 EC approved Poland's national allocation plan for distributing carbon dioxide emission allowances for 2008 through 2012. In 2007, the EC rejected the original plan submitted by the Polish Government because it proposed 285 Mt of emission allowances be distributed. The new plan that was approved allocated 208.5 Mt of allowances (EUobserver.com, 2010).

Coal production in the United Kingdom increased slightly in 2010, making it 3 years in a row that an increase in production had been achieved against the long-term trend of production decreases. In 2009 (the latest year for which data were available), Coal Authority licenses for opencast sites in production totaled 35 and included 19 in Scotland, 9 in England, and 7 in Wales. Scottish Coal Co. Ltd. was the leading open cast coal mining company in the United Kingdom and the second ranked net coal producer (British Geological Survey, 2011, p. 33). The generation of electricity accounted for the majority of the country's total coal consumption. About one-third of all electricity generated in the United Kingdom was supplied by coal (British Geological Survey, 2011, p. 33).

Between 2010 and 2017, coal production is expected to increase in Kazakhstan and in Ukraine by almost 20%. Coal production in Russia is expected to increase by 4%.

**Natural Gas and Petroleum.**—Oil production in the area of Central Eurasia was of major significance to the world's oil supply. Russia was a significant oil producer and a top exporting nation. Azerbaijan was engaged in major oil development projects offshore in the Caspian Sea, and Kazakhstan was engaged in major projects both onshore and offshore. Denmark-Greenland, Norway, and the United Kingdom were significant regional oil producers; however, the North Sea holds Europe's largest natural gas and petroleum reserves.

Russia was the world's second ranked natural gas producer and leading exporter; it had the world's largest natural gas reserves, with 44.8 trillion cubic meters of reserves, which was about 24% of total world natural gas reserves and about 1.5 times larger than the size of the reserves of Iran, which had the second largest reserves. A large number of countries in the

region of Europe and Central Eurasia produced natural gas, but generally not in large amounts. Norway, the United Kingdom, and the Netherlands, in order of volume, were significant regional producers of natural gas in Europe, and Turkmenistan and Uzbekistan were notable regional natural gas producers in the CIS (BP p.l.c., 2011 p. 22).

According to industry journals, estimates of Azerbaijan's proven crude oil reserves range between 7 and 13 billion barrels (Gbbbl) (about 950 Mt to 1.77 Gt). The State Oil Company of the Azerbaijan Republic (SOCAR) estimated the country's proven oil reserves to be 925 Mt. Azerbaijan had signed more than 20 major agreements to develop oilfields with about 30 companies from 15 countries. Plans for 2008 to 2015 called for engaging in 110,000 m of exploratory drilling. Implementation of SOCAR's program for full-scale development of AGC deposits, along with the possibility of developing new oil and gas condensate deposits in the offshore part of the Azerbaijan sector of the Caspian Sea, provided the basis for SOCAR to project that between 2010 and 2015, oil production could be from 66 to 67 Mt/yr.

Kazakhstan reportedly had the largest recoverable crude oil reserves in the Caspian Sea region and produced about one-half of the crude oil produced in this region. The country's oil reserves were estimated to be about 40 Gbbbl (almost 2,000 Gt) (BP p.l.c., 2011, p. 6).

Oil production in Kazakhstan was expected to increase in the next decade primarily from the Tengiz field, where production was expected to double, and from the Kashagan offshore field, which could produce an additional 1 million barrels per day (Mbbbl/d) after 2011. The Tengiz field, which had been developed since 1993 by the Tengizchevroil joint venture, was the country's leading oil producer; the field had recoverable crude oil reserves estimated by Chevron Corp. of the United States to be between 6 and 9 Gbbbl (800 Mt and 1.2 Gt). The Kashagan field, which is located off the northern shore of the Caspian Sea near the Kazakh city of Atyrau, was the largest oilfield outside the Middle East and the fifth largest in the world (in terms of reserves). The field's recoverable reserves were estimated to be 13 Gbbbl (1.77 Gt) of oil equivalent, with total reserves-in-place of about 38 Gbbbl (5.2 Gt). The field could produce about 300,000 barrels per day (bbl/d) by late 2011 with full-scale commercial production expected to commence in 2013. Expected peak production from Kashagan was estimated to be about 1.3 Mbbbl/d. The Kashagan field had presented particular challenges for its developers as it contains a high proportion of natural gas under very high pressure and also contains large quantities of sulfur. Offshore platforms must also withstand extreme weather fluctuations in the northern Caspian Sea. Additional oil production could originate from the Karachaganak oil and gas condensate field onshore in northern Kazakhstan near the border with Russia's Orenburg field. Karachaganak's oil reserves were estimated to be between 8 and 9 Gbbbl (1.1 and 1.2 Gt) of oil and gas condensate (U.S. Energy Information Administration, 2010a, b).

The Government of the Netherlands planned to spend up to 1.8 billion euros (\$2.3 billion) on new gas-network capacity over the next few years. Domestic natural gas production was declining, and expanding the transport network would enable

the country's pipeline manager, Nederlandse Gasunie, to import more natural gas and export any surplus gas. It was expected that the proposed infrastructure would enable new suppliers to enter the market and create access to the LNG market. The LNG supply was expected to surge when N.V. Nederlandse Gasunie's Gate import terminal, which is located near The Hague and which was capable of converting between 8 billion and 12 billion cubic meters per year of liquefied natural gas (LNG) back into gas, began operating in 2010.

Norway had estimated proven reserves of 2.3 trillion cubic meters of natural gas as of January 2009. Norway's natural gas production had been increasing every year since 1994. The annual increases had been sustained by incorporating new fields in the Barents Sea and the Norwegian Sea. Norway's single largest natural gas field was the Troll-Oseberg field, which accounted for about one-third of Norway's natural gas production (U.S. Energy Information Administration, 2009a).

Norway, which has the largest petroleum reserves in Western Europe, was reported to have 6.7 Gbbbl of estimated proven reserves as of January 2009. All the reserves are located offshore on the Norwegian Continental Shelf (NCS), which is divided into three sections: the Barents Sea, the North Sea, and the Norwegian Sea. The bulk of production took place in the North Sea, with smaller amounts in the Norwegian Sea. Norway produced about 2.13 Mbbbl/d of petroleum in 2010 (table 4; U.S. Energy Information Administration, 2009b).

Eni Norge AS's Goliat field, which was to be the first petroleum discovery to be developed in the Barents Sea, was estimated to contain 174 Mbbbl of petroleum. Eni Norge planned to bring the field online in 2013 and expected the field to produce for at least 15 years. The operation would include a floating production and storage facility. Eni Norge considered the Barents Sea to be a more long-term project for development than the other areas on the NCS, and Goliat would be the first field that Eni Norge would operate on the NCS. The Barents Sea North was not open for exploration (Norwegian Petroleum Directorate, 2009).

In 2010, there was a large amount of interest throughout the world in unconventional natural gas deposits because of relatively recent advancements in mining technology, such as horizontal drilling and hydraulic fracturing that made it possible to economically extract previously uneconomic resources. 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 areas 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 did 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)

Polskie Gornictwo Naftowe i Gazownictwo S.A. (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 companies conducting exploration activities included Lane Energy Poland Sp. z o.o. (a subsidiary of 3 Legs Resources plc.) in partnership with ConocoPhillips Co., BNK Petroleum Inc., Eni S.p.A. of Italy, Chevron Corp., Marathon Oil Corp., Exxon Mobil Corp., Aurelian Oil and Gas plc., and San Leon Energy plc., and PGNiG (Polskie Gornictwo Naftowe i Gazownictwo S.A., 2011, p. 33).

For the coming decade, Russian oil production was projected to grow at an annual rate of about 1.5% to 2.5%, owing in part to increased output from oil development on Sakhalin Island. This would be coupled with a slowdown in growth from the major mature oilfields in West Siberia, a number of which had passed peak production. New fields that were under development would produce almost all Russia's increase in annual oil output in the next 5 years and would probably produce more than one-half of the country's oil in 2020.

Almost 90% of Russia's natural gas was produced in the Ndym-Pur-Taz (NPT) region in northern West Siberia (the region's name was derived from the names of three rivers that border it). The NPT region hosts three massive Russian gasfields (the Medvezh'ye, the Urengoy, and the Yamburg), which had been the country's main producers and had supplied about 70% of the country's gas production. These three fields were in decline, however, as reserves were being depleted. To keep with the growth in the Russian economy and the country's long-term export commitments to Europe to increase gas output, Russia was expected to have to incur greater costs to develop fields further north and to the east in an even more difficult physical environment than in the NPT region. A main target for future development would be the Yamal Peninsula, where large reserves were discovered in several fields. The newly developed Zapolyarnoye field on the Yamal Peninsula was a major contributor to replacing decreasing production from large older fields where reserves were more than 50% depleted.

OAO Gazprom, which was Russia's leading gas producer, projected that between 2008 and 2030, it would increase natural gas output. Most of the increases in natural gas output were projected to come from independent gas companies, such as Itera, Northgaz, and Novatek, which although blocked from the export market, had found a niche supplying the domestic market.

In September 2010, in the United Kingdom, Egdon Resources Plc. received approval to redevelop the gasfield situated onshore in Kirkleathan, North Yorkshire (British Geological Survey, 2011, p. 75). Maersk Oil UK Ltd. began production in January at its Lochranza oilfield. The field had been developed by Maersk as the Dumbarton field in the United Kingdom's sector in the North Sea about 255 km northeast of Aberdeen, Scotland (British Geological Survey, 2011, p. 75).

The Buzzard oilfield in the outer Moray Firth was again the most prolific oilfield on the United Kingdom Continental Shelf (UKCS). At the end of 2009, the United Kingdom's estimated proven crude oil reserves totaled 3.6 Gbbl, which was the largest within the EU; the reserves were located mostly offshore on the UKCS. Most of the country's production had come from basins east of Scotland in the central North Sea. The northern North Sea, east of the Shetland Islands, also contains considerable reserves, and smaller deposits are located in the North Atlantic Ocean. Besides these offshore assets, the country had the Wytch Farm field, which was the largest onshore oilfield in Europe (U.S. Energy Information Administration, 2010c; British Geological Survey, 2011, p. 75).

**Uranium.**—In 2010, Central Eurasia accounted for more than 47.4% of the world's uranium production. Kazakhstan produced 20,995 t; Russia 4,200 t, and Uzbekistan 2,830 t. Uranium mining took place in several other countries in the region (the Czech Republic, Germany, and Ukraine), but in smaller quantities.

In 2010, Kazakhstan remained the leading producer of mined uranium; in 2009 Kazakhstan's production surpassed that of Canada, and Kazakhstan became the world's leading producer of uranium. Kazakhstan had no nuclear powerplants, and all uranium production was exported. Within the past 6 years Kazakhstan rapidly increased investment in its uranium industry, and the country's production of uranium increased from 3,300 t in 2003 to 17,803 t in 2010. Fixed capital investment in uranium and thorium mining increased from about \$35 million in 2004 to about \$309 million in 2009 (the latest year for which data were available). Foreign direct investment made up about 66% of uranium mining investment in 2009 (the latest year for which data were available) and was attracted through the establishment of joint ventures with the state-owned company Kazatomprom JSC. As of 2009, Kazakhstan had 651,000 t of known recoverable resources of uranium, giving it the second largest supply of uranium resources after Australia (Agency of Statistics of the Republic of Kazakhstan, 2009, p. 208; 2010, p. 102, 205; World Nuclear Association, 2010; 2011b).

On December 27, Uranium One Inc. of Canada acquired a 50% share of Akbastau JV and a 49.67% share of JV Zarechnoye JSC and received a cash payment of \$610 million from the Russian holding company JSC Atomredmetzoloto (ARMZ) in exchange for Uranium One shares. After the completion of the transaction, ARMZ (a subsidiary of the State Atomic Energy Corporation Rosatom) owned 51.4% of Uranium One shares (Uranium One Inc., 2011, p. 15).

In 2010, Russia produced 4,200 t of uranium ( $U_3O_8$  content). ARMZ was the major uranium producer in Russia, and its total uranium reserves were 726,500 t as of January 1, 2011. In 2008, most of the Russian mines engaged in uranium extraction as well as some enterprises located in CIS countries were consolidated by ARMZ. Altogether, ARMZ's enterprises employed more than 10,000 workers. ARMZ was 79.49% owned by Atomredmetzoloto OAO Atomenergoprom.

In Russia, the three main uranium producers were OAO Priargunsky Mining and Chemical Association (Zabaykalskiy Kray), ZAO Dalur (Kurganskaya Oblast'), and OAO Khiagda

located in Buryatiya; all three were subsidiaries of ARMZ. Another large mine was under construction in Elkonsky Mining and Metallurgical Complex in western Sakha (Yakutiya) Republic. The expected annual capacity of the mine was 5,000 t/yr. The cost of uranium extraction at the Elkonsky Mine was predicted to be only about \$80 per kilogram.

Ukraine's uranium reserves were estimated to be between 130,000 and 200,000 t, and the country was the ninth ranked producer of uranium in 2010. Nuclear powerplants in Ukraine accounted for 48% of all the electricity produced in the country, and domestic uranium production accounted for about 30% of all uranium used in Ukraine's nuclear powerplants. The remaining nuclear fuel required for Ukraine's nuclear powerplants was purchased from JSC TVEL (TVEL) of Russia, but Ukraine was examining ways to reduce its dependence on TVEL and was considering Westinghouse Electric Co. as a possible alternative source of nuclear fuel. In September, TVEL was awarded a contract for the construction of a nuclear fuel assembly plant in Ukraine; production was planned to begin in 2014 (Garvish, 2010; JSC TVEL, 2010; World Nuclear Association, 2011a, c).

Ukraine's state-owned uranium miner (Vostochny GOK) expected total production of uranium in Ukraine to be about 1,000 t in 2011; slightly less in 2012–13 owing to reduced production from the Ingul'skaya and Smolinskaya Mines; 2,100 t in 2014 owing to increased production at the Novokonstantinovskoye deposit, and from 2017 onward, about 3,500 t/yr. The level of production planned for 2017 would allow Ukraine to supply 100% of the uranium needs for domestic nuclear powerplants (RBK-Ukraine, 2010).

In Uzbekistan, the Navoi Mining and Metallurgical Complex held monopoly rights for the extraction and production of uranium. In 2010, Uzbekistan produced 2,830 t of uranium ( $U_3O_8$  content). Several new mines were under construction at the Kukhnur and the Northern Kanimekh deposits. According to Uzbekistan's State Geology and Mineral Resources Committee (Goskomgeo), uranium extraction was expected to increase in the next few years as new mines start production. In 2009, Goskomgeo and the Chinese company CGNPC Uranium Resources Co. created a joint venture, Uz-China Uran, to explore for and develop uranium deposits in the Bostaus area. According to Goskomgeo, forecasted uranium resources in the area were in the order of 5,500 t.

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TABLE 1  
EUROPE AND CENTRAL EURASIA: AREA AND POPULATION IN 2010

Country	Area <sup>1</sup> (square kilometers)	Estimated population <sup>2</sup> (thousands)
Albania	28,748	3,204
Armenia	29,743	3,092
Austria	83,871	8,384
Azerbaijan	86,600	9,048
Belarus	207,600	9,491
Belgium	30,528	10,879
Bosnia and Herzegovina	51,197	3,760
Bulgaria	110,879	7,543
Croatia	56,594	4,424
Cyprus	9,251	1,104
Czech Republic	78,867	10,525
Denmark, including Greenland	2,209,180	5,601
Estonia	45,228	1,340
Finland	338,145	5,364
France	551,500	64,877
Georgia	69,700	4,453
Germany	357,022	81,702
Greece	131,957	11,319
Hungary	93,028	10,009
Iceland	103,000	317
Ireland	70,273	4,481
Italy	301,340	60,484
Kazakhstan	2,724,900	16,316
Kosovo	10,887	1,815 <sup>1</sup>
Kyrgyzstan	199,951	5,365
Latvia	64,589	2,243
Lithuania	65,300	3,321
Luxembourg	2,586	506
Macedonia	25,713	2,061
Malta	316	413
Moldova	33,851	3,562
Montenegro	13,812	631
Netherlands	41,543	16,612
Norway	323,802	4,885
Poland	312,685	38,187
Portugal	92,090	10,643
Romania	238,391	21,442
Russia	17,098,242	141,750
Serbia	77,474	7,293 <sup>1</sup>
Slovakia	49,035	5,433
Slovenia	20,273	2,053
Spain	505,370	46,082
Sweden	450,295	9,379
Switzerland	41,277	7,825
Tajikistan	143,100	6,879
Turkmenistan	488,100	5,042
Ukraine	603,550	45,871
United Kingdom	243,610	62,219
Uzbekistan	447,400	28,160
Regional total	29,362,393	817,389
World total	148,940,000	6,840,507

<sup>1</sup>Source: U.S. Central Intelligence Agency, The World Factbook 2011.

<sup>2</sup>Source: The World Bank, 2011 World Development Indicators Database.



TABLE 2  
EUROPE AND CENTRAL EURASIA: GROSS DOMESTIC PRODUCT<sup>1,2</sup>

Country	Gross domestic product based on purchasing power parity		Real gross domestic product growth rate (percentage)		
	Gross value (million dollars)	Per capita (dollars)	2008	2009	2010
	Albania	23,912	7,468	7.5	3.3
Armenia	16,826	5,100	6.9	-14.2	2.1
Austria	333,537	39,761	2.2	-3.9	2.1
Azerbaijan	91,060	10,063	10.8	9.3	5.0
Belarus	131,535	13,874	10.2	0.2	7.6
Belgium	396,035	36,274	0.8	-2.7	2.1
Bosnia and Herzegovina	30,460	7,816	5.7	-2.9	0.7
Bulgaria	97,066	12,934	6.2	-5.5	0.2
Croatia	78,687	17,819	2.2	-6.0	-1.2
Cyprus	23,259	28,960	3.6	-1.7	1.0
Czech Republic	262,144	24,950	2.5	-4.1	2.3
Denmark, including Greenland	201,702	36,443	-1.1	-5.2	1.7
Estonia	24,762	18,527	-5.1	-13.9	3.1
Finland	187,696	34,918	1.0	-8.2	3.6
France	2,134,940	33,910	-0.2	-2.6	1.4
Georgia	22,510	5,074	2.4	-3.8	6.4
Germany	2,944,350	36,081	0.8	-5.1	3.6
Greece	318,670	28,496	1.0	-2.3	-4.4
Hungary	188,677	18,841	0.8	-6.7	1.2
Iceland	11,853	36,730	1.4	-6.9	-3.5
Ireland	176,555	39,492	-3.0	-7.0	-0.4
Italy	1,778,830	29,480	-1.3	-5.2	1.3
Kazakhstan	197,447	12,015	3.2	1.2	7.3
Kosovo	12,008	6,400 <sup>3</sup>	6.9	2.9	4.0
Kyrgyzstan	12,051	2,200	7.6	2.9	-1.4
Latvia	32,609	14,504	-4.2	-18.0	-0.3
Lithuania	56,750	17,235	2.9	-14.7	1.3
Luxembourg	41,271	81,466	1.4	-3.6	3.5
Macedonia	20,284	9,868	5.0	-0.9	1.8
Malta	10,423	24,833	5.4	-3.3	3.1
Moldova	11,019	3,092	7.8	-6.0	6.9
Montenegro	6,745	10,775	6.9	-5.7	1.1
Netherlands	680,772	40,973	1.8	-3.5	1.6
Norway	255,022	51,959	0.7	-1.7	0.3
Poland	723,032	18,981	5.1	1.6	3.8
Portugal	247,458	23,262	0.0	-2.5	1.3
Romania	254,918	11,895	7.3	-7.1	-1.3
Russia	2,230,950	15,612	5.2	-7.8	4.0
Serbia	75,828	10,252	3.8	-3.5	1.0
Slovakia	120,524	22,195	5.8	-4.8	4.0
Slovenia	56,663	28,073	3.7	-8.1	1.2
Spain	1,372,720	29,830	0.9	-3.7	-0.1
Sweden	356,321	38,204	-0.6	-5.3	5.7
Switzerland	326,741	41,950	2.1	-1.9	2.7
Tajikistan	14,788	1,924	7.9	3.9	6.5
Turkmenistan	37,012	6,805	14.7	6.1	9.2
Ukraine	306,638	6,698	1.9	-14.5	4.2
United Kingdom	2,181,460	35,059	-0.1	-4.9	1.4
Uzbekistan	86,103	3,048	9.0	8.1	8.5
Regional total	19,202,623	XX	XX	XX	XX

See footnotes at end of table.

TABLE 2—Continued  
 EUROPE AND CENTRAL EURASIA: GROSS DOMESTIC PRODUCT<sup>1,2</sup>

Country	Gross domestic product based on purchasing power parity in 2010		Real gross domestic product growth rate (percentage)		
	Gross value	Per capita	2008	2009	2010
	(million dollars)	(dollars)			
World total	74,384,980	XX	2.8	-0.7	5.1

XX Not applicable.

<sup>1</sup>Source: International Monetary Fund, World Economic Outlook Database, September 2011.

<sup>2</sup>Gross domestic product listed may differ from that reported in individual country chapters owing to differences in source or date of reporting.

<sup>3</sup>Per capita GDP from the U.S. Central Intelligence Agency, The World Factbook 2011.

TABLE 3  
SELECTED EUROPE AND CENTRAL EURASIA EXPLORATION ACTIVITY IN 2010

Country	Site	Commodity <sup>1</sup>	Company	Phase <sup>2</sup>
Finland	Keivitsa	Ni, Cu, Au, Pt, Pd	First Quantum Minerals Ltd.	Feasibility.
Do.	Kittila (Suurikuusikko)	Au	Agnico-Eagle Mines Ltd.	Producer.
Do.	Kuusamo	Au	Dragon Mining Ltd.	Exploration.
Russia	Dvoynoye	Au	Kinross Gold Corp.	Producer.
Do.	Kupol	Au, Ag	do.	do.
Sweden	Tapuli (Kaunissaara)	Iron ore	Northland Resources SA	Exploration.

Do., do. Ditto.

<sup>1</sup> Abbreviations used in this table for commodities are as follows: Ag, silver; Au, gold; Cu, copper; Ni, nickel; Pd, palladium; Pt, platinum.

<sup>2</sup> Phase of exploration activity has been separated into the following stages: Exploration, exploration prior to full feasibility study; Feasibility, feasibility study ongoing or completed; Producer, exploration at producing site.

TABLE 4  
EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>  
(Thousand metric tons unless otherwise specified)

Region and (or) country	Metals									
	Aluminum			Antimony,		Chromite, mine output, gross weight	Mine output, metal content	Copper		Secondary
	Alumina	Bauxite	Metal Primary <sup>2</sup>	Secondary	mine output, metal content (metric tons)			mine output, gross weight	Primary <sup>2</sup>	
Europe and Central Eurasia:										
Albania <sup>e</sup>	--	--	--	--	--	290 <sup>3</sup>	3	--	--	--
Armenia	--	--	--	--	--	--	31	--	--	--
Austria	--	--	--	250 <sup>e</sup>	--	--	--	--	--	114 <sup>P</sup>
Azerbaijan	--	--	30 <sup>e</sup>	--	--	--	--	--	--	--
Belarus	--	--	--	--	--	--	--	--	--	--
Belgium <sup>e</sup>	--	--	--	(4)	--	--	--	370	--	--
Bosnia and Herzegovina	269	828	118	--	--	--	--	--	--	--
Bulgaria	--	--	--	12	--	--	105	215	--	--
Croatia	--	--	--	--	--	--	--	--	--	--
Cyprus	--	--	--	--	--	--	--	3	--	--
Czech Republic	--	--	--	45 <sup>e</sup>	--	--	--	--	--	--
Denmark-Greenland <sup>e</sup>	--	--	--	25	--	--	--	--	--	--
Estonia	--	--	--	--	--	--	--	--	--	--
Finland <sup>e</sup>	--	--	--	18	--	210	15	122 <sup>3</sup>	--	--
France	481 <sup>e</sup>	--	356	184	--	--	--	6 <sup>e</sup>	--	--
Georgia <sup>e</sup>	--	--	--	--	--	--	--	--	--	--
Germany	1,000 <sup>e</sup>	--	402	611	--	--	--	402 <sup>P</sup>	--	302 <sup>P</sup>
Greece <sup>e</sup>	725	2,000	130	3	--	1	--	--	--	--
Hungary	214	365	--	50 <sup>e</sup>	--	--	--	--	--	--
Iceland	--	--	813	--	--	--	--	--	--	--
Ireland	1,864	--	--	--	--	--	--	--	--	--
Italy	--	--	168	1,246	--	--	--	25 <sup>e</sup>	--	--
Kazakhstan	1,639	5,310	226	--	--	3,760 <sup>e</sup>	380	323	--	--
Kosovo	--	--	--	--	--	--	--	--	--	--
Kyrgyzstan <sup>e</sup>	--	--	--	--	10	--	--	--	--	--
Latvia	--	--	--	--	--	--	--	--	--	--
Lithuania	--	--	--	--	--	--	--	--	--	--
Luxembourg	--	--	--	--	--	--	--	--	--	--
Macedonia	--	--	--	--	--	--	--	--	--	--
Malta	--	--	--	--	--	--	--	8 <sup>e</sup>	--	--
Moldova	--	--	--	--	--	--	--	--	--	--
Montenegro	--	61	82	--	--	--	--	--	--	--
Netherlands <sup>e</sup>	--	--	300	--	--	--	--	--	--	--

See footnotes at end of table.

TABLE 4—Continued  
 EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>  
 (Thousand metric tons unless otherwise specified)

Region and (or) country	Metals									
	Aluminum			Antimony,		Chromite, mine output, gross weight	Mine output, metal content	Copper		Secondary
	Alumina	Bauxite	Metal Primary <sup>2</sup>	Secondary	mine output, metal content (metric tons)			Mine output, metal content	Primary <sup>2</sup>	
Europe and Central Eurasia—										
Continued:										
Norway <sup>e</sup>	--	--	800	300	--	--	--	32	--	--
Poland	--	--	--	18 <sup>e</sup>	--	--	425	547	--	--
Portugal <sup>p</sup>	--	--	--	18 <sup>e</sup>	--	--	74	--	--	--
Romania	450 <sup>e</sup>	--	240 <sup>e</sup>	14	--	--	5 <sup>e</sup>	3	1 <sup>e</sup>	--
Russia	2,857	5,475	3,947	--	3,000 <sup>e</sup>	400	703 <sup>e</sup>	656	218	218
Serbia <sup>e</sup>	--	--	--	2	--	--	19	34	1	1
Slovakia <sup>e</sup>	--	--	163	--	--	--	--	--	--	--
Slovenia <sup>e</sup>	--	--	40 <sup>3</sup>	17	--	--	--	--	--	--
Spain <sup>e</sup>	1,500	--	408	243	--	--	5 <sup>3</sup>	255	35	35
Sweden <sup>e</sup>	--	--	93	25	--	--	77	210	25	25
Switzerland <sup>f</sup>	--	--	--	(4)	--	--	--	--	--	--
Tajikistan	--	--	349	--	2,000 <sup>e</sup>	--	--	--	--	--
Turkmenistan <sup>e</sup>	--	--	--	--	--	--	--	--	--	--
Ukraine <sup>e</sup>	1,534 <sup>3</sup>	--	25 <sup>3</sup>	130	--	--	--	--	20	20
United Kingdom	--	--	186	312	--	--	--	--	--	--
Uzbekistan <sup>e</sup>	--	--	--	3	--	--	90 <sup>3</sup>	90	--	--
Total, Europe and Central Eurasia	12,500	14,000	8,880	3,530	5,010 <sup>e</sup>	4,660	1,950	3,290	716	716
Share of world total	14.8%	6.5%	21.7%	39.7%	3.0%	19.4%	12.3%	20.1%	25.9%	25.9%
United States	3,910	NA	1,730	--	--	--	1,110	1,060	38	38
Share of world total	4.6%	NA	4.2%	--	--	--	7.0%	6.5%	1.4%	1.4%
World total	84,600	216,000	40,900	8,880	166,000	24,000	15,800	16,400	2,770	2,770

See footnotes at end of table.

TABLE 4—Continued  
EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>  
(Thousand metric tons unless otherwise specified)

Region and (or) country	Metals—Continued									
	Gold,		Iron and steel		Manganese ore,		Mercury,		Lead	
	mine output (kilograms)	iron ore, mine output, metal content	Pig iron and direct-reduced iron	Steel, crude	Mine output, metal content	Mine output, metal content	Mine output, metal content	Mine output, metal content	Primary <sup>2</sup>	Secondary
Europe and Central Eurasia:										
Albania <sup>e</sup>	--	--	--	440	--	--	--	--	--	--
Armenia	2,000	--	--	--	--	--	--	--	--	--
Austria	--	662 <sup>e</sup>	5,621	7,206	--	--	--	25	--	--
Azerbaijan	--	33 <sup>e</sup>	--	129	--	--	--	--	--	--
Belarus	--	--	--	2,672	--	--	--	--	--	--
Belgium <sup>e</sup>	--	--	4,725 <sup>3</sup>	8,088 <sup>3</sup>	--	--	--	105	--	--
Bosnia and Herzegovina	--	588 <sup>e</sup>	621	593	3 <sup>e</sup>	--	--	(4) <sup>e</sup>	--	--
Bulgaria	4,400	--	--	740	13	81	--	--	11 <sup>e</sup>	--
Croatia	--	--	--	103	--	--	--	--	--	--
Cyprus	--	--	--	--	--	--	--	--	--	--
Czech Republic	--	--	3,987	5,180	--	--	--	30	--	--
Denmark-Greenland <sup>e</sup>	1,600	--	--	--	--	--	--	--	--	--
Estonia	--	--	--	--	--	--	--	11	--	--
Finland <sup>e</sup>	1,800	--	2	4,023 <sup>3</sup>	--	--	--	--	--	6
France	1,500 <sup>e</sup>	--	10,137	15,414	--	--	--	82 <sup>e</sup>	--	--
Georgia <sup>e</sup>	2,000	--	--	--	(4)	--	--	--	116	--
Germany	--	41	29,010	43,830	--	125 <sup>p</sup>	280 <sup>p</sup>	--	--	--
Greece <sup>e</sup>	--	560	--	1,839 <sup>3</sup>	18	--	10	(4)	--	--
Hungary	--	--	1,325	1,678	--	--	--	--	5 <sup>e</sup>	--
Iceland	--	--	--	--	--	--	--	--	--	--
Ireland	--	--	--	--	39	--	--	--	19 <sup>e</sup>	--
Italy	--	--	8,555	25,750	1 <sup>e</sup>	15 <sup>e</sup>	134 <sup>e</sup>	--	--	--
Kazakhstan	30,272	13,800 <sup>e</sup>	2,984	4,256	36	103	--	640 <sup>e</sup>	--	--
Kosovo	--	--	--	--	5	4 <sup>e</sup>	--	--	--	--
Kyrgyzstan <sup>e</sup>	18,300	--	--	--	--	--	--	--	--	250
Latvia	--	--	--	550 <sup>e</sup>	--	--	--	--	--	--
Lithuania	--	--	--	--	--	--	--	--	--	--
Luxembourg	--	--	--	2,563	--	--	--	--	--	--
Macedonia	--	--	--	292	46	--	--	--	--	--
Malta	--	--	--	--	--	--	--	--	--	--
Moldova	--	--	--	242	--	--	--	--	--	--
Montenegro	--	--	--	95 <sup>e</sup>	--	--	--	--	--	--
Netherlands <sup>e</sup>	--	--	5,799 <sup>3</sup>	6,651 <sup>3</sup>	--	--	--	17	--	--

See footnotes at end of table.

TABLE 4—Continued  
EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>  
(Thousand metric tons unless otherwise specified)

Region and (or) country Europe and Central Eurasia— Continued:	Metals—Continued										
	Gold, mine output (kilograms)	Iron and steel		Steel, crude	Mine output, metal content	Lead		Secondary	Manganese ore, mine output, metal content	Mercury, mine output, metal content (metric tons)	
		Iron ore, mine output, metal content	Pig iron and direct-reduced iron			Primary <sup>2</sup>	Metal, refined				
Norway <sup>e</sup>	--	3,105 <sup>3</sup>	100	514 <sup>3</sup>	--	--	--	--	--	--	
Poland	500 <sup>e</sup>	--	3,638	7,996	35 <sup>e</sup>	35 <sup>e</sup>	77 <sup>e</sup>	--	--	--	
Portugal <sup>p</sup>	--	10 <sup>e</sup>	100 <sup>e</sup>	1,400 <sup>e</sup>	--	--	3 <sup>e</sup>	--	--	--	
Romania	400 <sup>e</sup>	--	1,726	3,721	--	11	3 <sup>e</sup>	--	--	--	
Russia	189,000	58,500	52,900	66,300	97 <sup>e</sup>	89 <sup>e</sup>	--	--	9 <sup>e</sup>	50 <sup>e</sup>	
Serbia <sup>e</sup>	356	--	1,265 <sup>3</sup>	1,254 <sup>3</sup>	2	--	1	--	--	--	
Slovakia <sup>e</sup>	534	130	3,649 <sup>3</sup>	4,580	--	--	--	--	--	--	
Slovenia <sup>e</sup>	--	--	--	606 <sup>3</sup>	--	--	14	--	--	--	
Spain <sup>e</sup>	3,400	--	4,200	16,311 <sup>3</sup>	--	--	125	--	--	--	
Sweden <sup>e</sup>	6,300	16,750 <sup>3</sup>	3,800	4,844 <sup>3</sup>	68 <sup>3</sup>	56	40	--	--	--	
Switzerland <sup>e</sup>	--	--	--	1,330 <sup>3</sup>	--	--	5	--	--	--	
Tajikistan	2,049	--	--	--	1 <sup>e</sup>	--	--	--	--	(4) <sup>e</sup>	
Turkmenistan <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	
Ukraine <sup>e</sup>	--	43,000	27,361 <sup>3</sup>	33,559 <sup>3</sup>	--	--	7	540	--	--	
United Kingdom	--	--	7,233	9,709	(4) <sup>e</sup>	150 <sup>e</sup>	144 <sup>e</sup>	--	--	--	
Uzbekistan <sup>e</sup>	90,000	--	--	745	--	--	--	--	--	--	
Total, Europe and Central Eurasia	354,000	137,000	179,000	285,000	363	669	1,130	1,320	306		
Share of world total	13.9%	10.6%	16.2%	19.9%	8.7%	14.7%	24.2%	9.1%	15.8%		
United States	231,000	31,300	26,800	80,500	369	115	1,140	--	NA		
Share of world total	9.0%	2.4%	2.4%	5.6%	8.8%	2.5%	24.3%	--	NA		
World total	2,560,000	1,290,000	1,100,000	1,440,000	4,170	4,560	4,680	14,600	1,930		

See footnotes at end of table.

TABLE 4—Continued  
EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>  
(Thousand metric tons unless otherwise specified)

Region and (or) country	Metals—Continued										
	Nickel		Platinum-group metals, refined, primary and secondary (kilograms)			Silver,		Tin (metric tons)		Titanium (metric tons)	
	Mine output, metal content	Refinery products, metal content	Palladium	Platinum	mine output, metal content (metric tons)	Mine output, metal content	Metal, primary <sup>2</sup>	Ilmenite, TiO <sub>2</sub> content	Metal sponge, metal content		
Europe and Central Eurasia:											
Albania <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--
Armenia	--	--	--	--	68	--	--	--	--	--	--
Austria	--	1 <sup>e</sup>	--	--	--	--	--	--	--	--	--
Azerbaijan	--	--	--	--	--	--	--	--	--	--	--
Belarus	--	--	--	--	--	--	--	--	--	--	--
Belgium <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--
Bosnia and Herzegovina	--	--	--	--	55 <sup>e</sup>	--	--	--	--	--	--
Bulgaria	--	--	--	--	--	--	--	--	--	--	--
Croatia	--	--	--	--	--	--	--	--	--	--	--
Cyprus	--	--	--	--	--	--	--	--	--	--	--
Czech Republic	--	--	--	--	--	--	--	--	--	--	--
Denmark-Greenland <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--
Estonia	--	--	--	--	--	--	--	--	--	--	--
Finland <sup>e</sup>	19	41	--	275	60	--	--	--	--	--	--
France	--	14 <sup>e</sup>	--	--	--	--	--	--	--	--	--
Georgia <sup>e</sup>	--	--	--	--	1	--	--	--	--	--	--
Germany	--	--	--	110,000 <sup>e</sup>	--	--	--	--	--	--	--
Greece <sup>e</sup>	14 <sup>3</sup>	19	--	--	32	--	--	--	--	--	--
Hungary	--	--	--	--	--	--	--	--	--	--	--
Iceland	--	--	--	--	--	--	--	--	--	--	--
Ireland	--	--	--	--	4	--	--	--	--	--	--
Italy	--	--	--	--	--	--	--	--	--	--	--
Kazakhstan	1 <sup>e</sup>	--	--	--	552	--	--	--	15,000 <sup>e</sup>	14,500	--
Kosovo	9	7 <sup>e</sup>	--	--	--	--	--	--	--	--	--
Kyrgyzstan <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--
Latvia	--	--	--	--	--	--	--	--	--	--	--
Lithuania	--	--	--	--	--	--	--	--	--	--	--
Luxembourg	--	--	--	--	--	--	--	--	--	--	--
Macedonia	--	14 <sup>e</sup>	--	--	--	--	--	--	--	--	--
Malta	--	--	--	--	--	--	--	--	--	--	--
Moldova	--	--	--	--	--	--	--	--	--	--	--
Montenegro	--	--	--	--	--	--	--	--	--	--	--
Netherlands <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--

See footnotes at end of table.



TABLE 4—Continued  
EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>  
(Thousand metric tons unless otherwise specified)

Region and (or) country	Metals—Continued											
	Nickel		Platinum-group metals, refined, primary and secondary (kilograms)			Silver, mine output, metal content (metric tons)		Tin (metric tons)		Titanium (metric tons)		Metal sponge, metal content
	Mine output, metal content	Refinery products, metal content	Palladium	Platinum	mine output, metal content (metric tons)	Mine output, metal content	primary <sup>2</sup>	Ilmenite, TiO <sub>2</sub> content	primary <sup>2</sup>	metal content		
Europe and Central Eurasia—												
Continued:												
Norway <sup>e</sup>	(4)	88	--	--	--	--	--	--	--	--	--	--
Poland	--	--	15 <sup>e</sup>	25 <sup>e</sup>	1,181	--	--	--	--	--	371,000	--
Portugal <sup>p</sup>	--	--	--	--	24	--	22	--	--	--	--	--
Romania	--	--	--	--	-- <sup>e</sup>	--	--	--	--	--	--	--
Russia	269	278	84,700 <sup>e</sup>	25,000 <sup>e</sup>	1,356	160 <sup>e</sup>	100 <sup>e</sup>	--	--	--	18,621	--
Serbia <sup>e</sup>	--	--	22	--	5 <sup>3</sup>	--	--	--	--	--	--	--
Slovakia <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--	--
Slovenia <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--	--
Spain <sup>e</sup>	6 <sup>3</sup>	--	--	--	3	--	--	--	--	--	--	--
Sweden <sup>e</sup>	--	(4)	--	--	302 <sup>3</sup>	--	--	--	--	--	--	--
Switzerland <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--	--
Tajikistan	--	--	--	--	3 <sup>e</sup>	--	--	--	--	--	--	--
Turkmenistan <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--	--
Ukraine <sup>e</sup>	--	12	--	--	--	--	--	--	--	--	7,400	--
United Kingdom	--	18 <sup>e</sup>	--	--	--	--	--	--	--	--	--	--
Uzbekistan <sup>e</sup>	--	--	--	--	59 <sup>3</sup>	--	--	--	--	--	--	--
Total, Europe and Central Eurasia	318	491	84,700	135,000	3,710	182	100	681,000	40,500	42.4%		
Share of world total	17.7%	35.4%	42.7%	44.9%	12.0%	0.1%	--	12.4%	219,000	4.0%		
United States	--	--	11,600	3,450	1,280	--	--	219,000	40,500	42.4%		
Share of world total	--	--	5.9%	1.1%	4.1%	--	--	4.0%	219,000	4.0%		
World total	1,790	1,390	199,000	301,000	30,900	251,000	320,000	5,480,000	95,500			

See footnotes at end of table.

TABLE 4—Continued  
EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>  
(Thousand metric tons unless otherwise specified)

Region and (or) country	Metals—Continued				Industrial minerals						
	Tungsten, mine output, metal content (metric tons)	Zinc (metric tons)		Metal, primary and secondary	Ammonia, N content	Cement, hydraulic	Diamond, natural, gemstones and industrial (thousand carats)	Phosphate rock, P <sub>2</sub> O <sub>5</sub> content	Potash, K <sub>2</sub> O equivalent	Salt	
		Mine output, metal content	secondary								
Europe and Central Eurasia:	--	--	--	--	--	--	--	--	--	--	
Albania <sup>e</sup>	--	--	--	--	1,300	--	--	--	--	25	
Armenia	--	4,298	--	--	488	--	--	--	--	40 <sup>e</sup>	
Austria	1,140 <sup>e</sup>	--	--	400 <sup>e</sup>	4,254	--	--	--	--	1,072	
Azerbaijan	--	--	--	--	1,279	--	--	--	--	4	
Belarus	--	--	--	836	4,531	--	--	5,223	--	1,700 <sup>e</sup>	
Belgium <sup>e</sup>	--	--	320,000	830	8,300	--	--	--	--	--	
Bosnia and Herzegovina	--	5,500 <sup>e</sup>	--	--	949	--	--	--	--	663	
Bulgaria	--	10,700 <sup>e</sup>	88,000	320 <sup>e</sup>	3,000 <sup>e</sup>	--	--	--	--	1,300	
Croatia	--	--	--	300 <sup>e</sup>	2,664	--	--	--	--	30 <sup>e</sup>	
Cyprus	--	--	--	--	1,674	--	--	--	--	--	
Czech Republic	--	--	--	200 <sup>e</sup>	3,500 <sup>e</sup>	--	--	--	--	--	
Denmark-Greenland <sup>e</sup>	--	--	--	2	16,000	--	--	--	--	600	
Estonia	--	--	--	50 <sup>e</sup>	375	--	--	--	--	--	
Finland <sup>e</sup>	--	55,562 <sup>3</sup>	300,000	70	1,200	--	265	--	--	--	
France	--	--	118 <sup>e</sup>	3,517	17,998	--	--	--	--	5,867	
Georgia <sup>e</sup>	--	300	--	150	857 <sup>3</sup>	--	--	--	--	30	
Germany	--	--	165,000 <sup>e</sup>	2,677	29,894	--	--	3,024	--	19,676	
Greece <sup>e</sup>	--	19,967 <sup>3</sup>	--	130	9,000	--	--	--	--	200	
Hungary	--	--	--	300 <sup>e</sup>	2,560 <sup>e</sup>	--	--	--	--	--	
Iceland	--	--	--	--	140 <sup>e</sup>	--	--	--	--	5 <sup>e</sup>	
Ireland	--	342,500	--	--	2,290 <sup>e</sup>	--	--	--	--	--	
Italy	--	--	10,000	2,954	34,408	--	--	--	--	4,006	
Kazakhstan	--	404,500	318,858	--	6,686	--	350 <sup>e</sup>	--	--	229	
Kosovo	--	4,382	5,500 <sup>e</sup>	--	600 <sup>e</sup>	--	--	--	--	--	
Kyrgyzstan <sup>e</sup>	--	--	--	--	600	--	--	--	--	1	
Latvia	--	--	--	--	1,100 <sup>e</sup>	--	--	--	--	--	
Lithuania	--	--	--	--	843	--	--	--	--	--	
Luxembourg	--	--	--	--	1,078	--	--	--	--	--	
Macedonia	--	35,000	--	--	900 <sup>e</sup>	--	--	--	--	--	
Malta	--	--	--	--	--	--	--	--	--	6 <sup>e</sup>	
Moldova	--	--	--	--	900 <sup>e</sup>	--	--	--	--	--	
Montenegro	--	--	--	--	--	--	--	--	--	11	
Netherlands <sup>e</sup>	--	--	220,000	1,800	2,700	--	--	--	--	6,000	

See footnotes at end of table.

TABLE 4—Continued  
 EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>  
 (Thousand metric tons unless otherwise specified)

Region and (or) country	Metals—Continued				Industrial minerals					
	Tungsten, mine output, metal content (metric tons)	Zinc (metric tons)		Metal, primary and secondary	Ammonia, N content	Cement, hydraulic	Diamond, natural, gemstones and industrial (thousand carats)	Phosphate rock, P <sub>2</sub> O <sub>5</sub> content	Potash, K <sub>2</sub> O equivalent	Salt
		Mine output, metal content	Metal, primary and secondary							
Europe and Central Eurasia— Continued:										
Norway <sup>e</sup>	--	--	147,775 <sup>3</sup>	300	1,700	--	--	--	--	--
Poland	--	85,000 <sup>e</sup>	149,000	1,700 <sup>e</sup>	15,812	--	--	--	--	3,700
Portugal <sup>p</sup>	799	6,421	--	244 <sup>e</sup>	7,200	--	--	--	--	619
Romania	--	--	200	80 <sup>e</sup>	7,000	--	--	--	--	2,500
Russia	2,800 <sup>e</sup>	269,000 <sup>e</sup>	260,000 <sup>e</sup>	10,400 <sup>e</sup>	50,400	32,800 <sup>e</sup>	4,000 <sup>e</sup>	6,283	2,200 <sup>e</sup>	2,200 <sup>e</sup>
Serbia <sup>e</sup>	--	1,000	--	55	2,130 <sup>3</sup>	--	--	--	31 <sup>3</sup>	100
Slovakia <sup>e</sup>	--	--	--	260	2,888 <sup>3</sup>	--	--	--	--	2
Slovenia <sup>e</sup>	--	--	--	--	1,000	--	--	--	--	4,600
Spain <sup>e</sup>	--	--	505,000	400	50,000	--	--	400	--	--
Sweden <sup>e</sup>	--	198,687 <sup>3</sup>	--	--	2,600	--	--	--	--	--
Switzerland <sup>e</sup>	--	--	--	30	4,000	--	--	--	--	500
Tajikistan	--	--	--	NA	288	--	--	--	--	52 <sup>e</sup>
Turkmenistan <sup>e</sup>	--	--	--	270	1,140	--	--	--	--	215
Ukraine <sup>e</sup>	--	--	--	3,400	9,457 <sup>3</sup>	--	--	--	--	4,908 <sup>3</sup>
United Kingdom	--	--	--	1,100 <sup>e</sup>	10,000 <sup>e</sup>	--	--	366 <sup>e</sup>	5,800 <sup>e</sup>	--
Uzbekistan <sup>e</sup>	--	--	40,000	1,000	6,872 <sup>3</sup>	--	200	--	--	--
Total, Europe and Central Eurasia	4,740	1,440,000	2,530,000	33,800	335,000	32,800	4,820	15,300	66,700	
Share of world total	7.1%	12.0%	20.4%	25.2%	10.0%	25.9%	8.6%	44.9%	24.3%	
United States	--	748,000	249,000	8,290	67,200	--	7,400	930	43,300	
Share of world total	--	6.2%	2.0%	6.2%	2.0%	--	13.2%	2.7%	15.8%	
World total	67,200	12,100,000	12,400,000	134,000	3,360,000	127,000	55,900	34,100	274,000	

See footnotes at end of table.

TABLE 4—Continued  
EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Region and (or) country	Mineral fuels and related materials							Uranium, U <sub>3</sub> O <sub>8</sub> content (metric tons)
	Coal		Lignite	Natural gas, dry (million cubic meters)	Petroleum, crude (thousand 42- gallon barrels)	Uranium, U <sub>3</sub> O <sub>8</sub> content (metric tons)		
	Anthracite	Bituminous						
Europe and Central Eurasia:								
Albania <sup>e</sup>	--	--	4 <sup>3</sup>	8	5,000	--	--	--
Armenia	--	--	--	3,000 <sup>e</sup>	--	--	--	--
Austria	--	--	--	1,713	6,167	--	--	--
Azerbaijan	--	--	--	16,673	352,000 <sup>e</sup>	--	--	--
Belarus	--	--	--	213	12,478 <sup>e</sup>	--	--	--
Belgium <sup>e</sup>	--	--	--	--	--	--	--	--
Bosnia and Herzegovina	--	--	10,976	--	--	--	--	--
Bulgaria	--	25	27,200	12	180	--	--	--
Croatia	--	--	--	2,727	5,340 <sup>e</sup>	--	--	--
Cyprus	--	--	--	--	--	--	--	--
Czech Republic	--	11,193	43,931	201	1,173	305 <sup>e</sup>	--	--
Denmark-Greenland <sup>e</sup>	--	--	--	8,438 <sup>3</sup>	90,338 <sup>3</sup>	--	--	--
Estonia	--	--	--	--	--	--	--	--
Finland <sup>e</sup>	--	--	--	--	--	--	--	--
France	--	--	--	1,245	6,606	--	--	--
Georgia <sup>e</sup>	--	241 <sup>3</sup>	--	8 <sup>3</sup>	371	--	--	--
Germany	1,803	11,097	169,403	12,571	18,400	9	--	--
Greece <sup>e</sup>	--	--	64,000	11	600	--	--	--
Hungary	--	--	9,114	3,100	5,284	--	--	--
Iceland	--	--	--	--	--	--	--	--
Ireland	--	--	--	402 <sup>e</sup>	--	--	--	--
Italy	--	--	--	8,296	35,040	--	--	--
Kazakhstan	--	99,285	7,283	37,406	578,000	20,995	--	--
Kosovo	--	--	7,958	--	--	--	--	--
Kyrgyzstan <sup>e</sup>	--	70	550	14	618	NA	--	--
Latvia	--	--	--	--	--	--	--	--
Lithuania	--	--	--	--	840 <sup>e</sup>	--	--	--
Luxembourg	--	--	--	--	--	--	--	--
Macedonia	--	--	7,450 <sup>e</sup>	--	--	--	--	--
Malta	--	--	--	--	--	--	--	--
Moldova	--	--	--	-- <sup>e</sup>	--	--	--	--
Montenegro	--	--	1,938	--	--	--	--	--
Netherlands <sup>e</sup>	--	--	--	68,000	9,000	--	--	--

See footnotes at end of table.

TABLE 4—Continued  
EUROPE AND CENTRAL EURASIA: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Region and (or) country	Mineral fuels and related materials						Uranium, U <sub>3</sub> O <sub>8</sub> content (metric tons)
	Coal		Lignite	Natural gas, dry (million cubic meters)	Petroleum, crude (thousand 42- gallon barrels)		
	Anthracite	Bituminous					
Europe and Central Eurasia—Continued:							
Norway <sup>e</sup>	--	1,685 <sup>3</sup>	--	105,280 <sup>3</sup>	777,450 <sup>3</sup>	--	--
Poland	--	76,728	56,510	5,671	5,100 <sup>e</sup>	--	--
Portugal <sup>p</sup>	--	--	--	--	1,723	--	--
Romania	--	--	30,000 <sup>e</sup>	10,800 <sup>e</sup>	33,000 <sup>e</sup>	88 <sup>e</sup>	88 <sup>e</sup>
Russia	8,700	240,750	76,600	651,000	3,530,000 <sup>e</sup>	4,200 <sup>e</sup>	4,200 <sup>e</sup>
Serbia <sup>e</sup>	--	108 <sup>3</sup>	38,490 <sup>3</sup>	427 <sup>3</sup>	6,420	--	--
Slovakia <sup>e</sup>	--	--	2,378 <sup>3</sup>	110	140	--	--
Slovenia <sup>e</sup>	--	--	4,430	7 <sup>3</sup>	1	--	--
Spain <sup>e</sup>	7,200	2,900	--	330	337 <sup>3</sup>	--	--
Sweden <sup>e</sup>	--	--	--	--	--	--	--
Switzerland <sup>e</sup>	--	--	--	--	--	--	--
Tajikistan	--	200	(5)	23	79	--	--
Turkmenistan <sup>e</sup>	--	--	--	44,270 <sup>3</sup>	66,100	--	--
Ukraine <sup>e</sup>	14,000	61,000	200	20,458 <sup>3</sup>	25,400	1,000	1,000
United Kingdom	1,454	16,705	--	59,000 <sup>e</sup>	430,791	--	--
Uzbekistan <sup>e</sup>	--	198 <sup>3</sup>	3,102 <sup>3</sup>	59,439 <sup>3</sup>	13,600	2,830 <sup>3</sup>	2,830 <sup>3</sup>
Total, Europe and Central Eurasia	33,200	522,000	562,000	1,120,000	6,020,000	29,400	29,400
Share of world total	4.2%	9.6%	53.5%	36.0%	22.0%	47.4%	47.4%
United States	1,760	916,000	66,400	611,000	2,000,000	1,960	1,960
Share of world total	0.2%	16.9%	6.3%	19.6%	7.3%	3.2%	3.2%
World total	794,000	5,440,000	1,050,000	3,120,000	27,400,000	62,100	62,100

<sup>e</sup>Estimated; estimated data, U.S. data, and world totals are rounded to no more than three significant digits; may not add to totals shown. <sup>p</sup>Preliminary. NA Not available.

-- Zero or zero percent.

<sup>1</sup>Totals may not add due to independent rounding. Table includes data available as of February 3, 2012.

<sup>2</sup>Primary production also includes undifferentiated (primary and secondary) production for some countries listed.

<sup>3</sup>Reported figure.

<sup>4</sup>Less than ½ unit.

<sup>5</sup>Available information is not sufficient to make a reliable estimate of output.

TABLE 5  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED BAUXITE MINE PRODUCTION, 2000–2017<sup>1</sup>

(Thousand metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Albania	5	--	--	--	--	--
Bosnia and Herzegovina	255	1,032	828	1,000	1,000	1,000
Greece	1,966	2,441	2,000	2,100	2,100	2,100
Hungary	1,046	535	365	400	400	400
Italy	300	300	--	--	--	--
Kazakhstan	3,729	4,800	5,310	5,500	5,500	5,500
Montenegro <sup>2</sup>	630	672	61	200	300	400
Romania	--	--	--	--	--	--
Russia	5,274	6,400	5,475	5,500	5,550	5,600
Total	13,200	16,200	14,000	15,000	15,000	15,000

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Prior to 2005, figures are for a combined Serbia and Montenegro.

TABLE 6  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED PRIMARY AND SECONDARY  
ALUMINUM PRODUCTION, 2000–2017<sup>1</sup>

(Thousand metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Austria	158	150	250	250	250	250
Azerbaijan	--	32	30	31	32	33
Belgium	1	--	(2)	(2)	(2)	(2)
Bosnia and Herzegovina	95	131	118	130	130	130
Bulgaria	8	5	12	12	12	12
Croatia	--	--	--	--	--	--
Czech Republic	40	30	45	45	45	45
Denmark-Greenland	16	20	25	25	25	25
Finland	45	34	18	18	18	18
France	701	664	540	550	550	550
Germany	1,216	1,366	1,014	1,000	1,000	1,000
Greece	171	163	133	150	150	150
Hungary	89	81	50	50	50	50
Iceland	224	273	813	815	815	815
Italy	848	1,314	1,414	1,500	1,500	1,500
Kazakhstan	--	--	226	250	250	250
Macedonia	5	4	--	--	--	--
Montenegro <sup>3</sup>	88	117	82	100	100	100
Netherlands	421	391	300	300	300	300
Norway	1,280	1,376	1,100	1,200	1,200	1,200
Poland	52	66	18	18	18	18
Portugal	18	18	18	18	18	18
Romania	181	246	254	260	260	260
Russia	3,245	3,647	3,947	4,000	4,200	4,400
Serbia	NA	(2)	2	2	2	2
Slovakia	137	162	163	160	160	160
Slovenia	84	139	57	80	90	100
Spain	606	637	651	655	655	655
Sweden	127	133	118	120	120	120
Switzerland	224	238	(2)	(2)	(2)	(2)
Tajikistan	269	380	349	351	353	355
Ukraine	233	244	155	130	130	130
United Kingdom	590	574	498	520	550	550
Uzbekistan	2	3	3	3	3	3
Total	11,200	12,600	12,400	13,000	13,000	13,000

<sup>e</sup>Estimated. NA Not available. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Less than 1/2 unit.

<sup>3</sup>Prior to 2005, figures are for a combined Serbia and Montenegro.

TABLE 7  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED COBALT MINE PRODUCTION, 2000–2017<sup>1</sup>

(Co content in metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Kazakhstan	300	--	--	--	--	--
Russia	4,000	6,300	6,200	6,200	6,200	6,200
Total	4,300	6,300	6,200	6,200	6,200	6,200

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

TABLE 8  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED COPPER MINE PRODUCTION, 2000–2017<sup>1</sup>

(Cu content in thousand metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Albania	--	2	3	3	3	3
Armenia	12	16	31	35	40	45
Bulgaria	92	112	110	110	110	110
Finland	14	16	15	12	12	12
France	(2)	--	--	--	--	--
Georgia	8	10	6	8	10	12
Kazakhstan	430	402	380	400	480	520
Macedonia	6	22	8	8	8	8
Norway	--	--	--	--	--	--
Poland	509	575	481	500	500	500
Portugal	76	90	74	85	90	90
Romania	16	15	5	7	7	7
Russia	570	640	703	720	740	760
Serbia <sup>3</sup>	56	27	19	20	20	20
Slovakia	(2)	(2)	--	--	--	--
Spain	23	5	5	7	9	9
Sweden	78	98	77	60	45	45
Uzbekistan	70	104	90	93	96	98
Total	1,960	2,130	2,010	2,100	2,200	2,200

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Less than 1/2 unit.

<sup>3</sup>Prior to 2005, figures are for a combined Serbia and Montenegro.

TABLE 9  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED PRIMARY AND SECONDARY  
REFINED COPPER PRODUCTION, 2000–2017<sup>1</sup>

(Thousand metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Austria	79	72	114	110	110	110
Belgium	423	382	370	500	500	500
Bulgaria	32	61	215	225	225	225
Cyprus	5	--	3	3	3	3
Czech Republic	20	14	14	14	14	14
Finland	114	125	122	125	125	125
France	2	--	--	--	--	--
Germany	710	638	704	700	700	700
Hungary	12	10	--	--	--	--
Italy	73	32	25	25	25	25
Kazakhstan	395	388	323	420	500	520
Norway	27	39	32	30	30	30
Poland	486	560	547	600	600	600
Romania	19	21	4	4	4	4
Russia	840	933	874	890	906	920
Serbia <sup>2</sup>	46	27	35	35	35	35
Slovakia	--	--	--	--	--	--
Spain	316	302	290	310	320	330
Sweden	130	222	235	225	220	220
Ukraine	--	20	20	20	20	20
United Kingdom	3	--	--	--	--	--
Uzbekistan	85	104	90	93	96	99
Total	3,820	3,950	4,020	4,300	4,400	4,500

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Prior to 2005, figures are for a combined Serbia and Montenegro.



TABLE 10  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED GOLD MINE PRODUCTION, 2000–2017<sup>1</sup>

(Kilograms)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Armenia	600	1,400	2,000	2,000	2,000	2,000
Bulgaria	2,347	3,868	4,400	5,000	5,000	5,000
Denmark-Greenland	--	1,000	1,600	1,600	1,600	1,600
Finland	4,951	3,747	1,785	1,800	1,800	1,800
France	2,632	1,500	1,500	--	--	--
Georgia	2,924	2,000	2,000	2,000	2,000	2,000
Italy	791	--	--	--	--	--
Kazakhstan	28,171	18,062	30,272	40,000	50,000	70,000
Kyrgyzstan	22,000	16,700	18,300	18,600	18,800	19,000
Macedonia	750	400	--	--	--	--
Poland	367	510	500	500	500	500
Romania	500	400	400	400	400	400
Russia	142,738	163,186	189,000	200,000	205,000	210,000
Serbia <sup>2</sup>	1,121	335	356	400	400	400
Slovakia	306	109	534	540	540	540
Spain	4,310	3,971	3,400	3,400	3,400	3,400
Sweden	3,570	6,600	6,300	6,500	6,500	6,500
Tajikistan	2,700	3,000	2,049	2,150	2,200	2,250
Ukraine	--	--	--	--	--	--
Uzbekistan	85,000	84,210	90,000	91,000	92,000	93,000
Total	306,000	311,000	354,000	380,000	390,000	420,000

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Prior to 2005, figures are for a combined Serbia and Montenegro.

TABLE 11  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED IRON ORE MINE PRODUCTION, 2000–2017<sup>1</sup>

(Fe content in thousand metric tons)

Country	Average iron						
	content	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Austria	32%	586	665	662	650	650	650
Azerbaijan	57%	--	4	33	150	170	185
Bosnia and Herzegovina	42%	182	702	588	850	850	850
Bulgaria	50%	178	--	--	--	--	--
Czech Republic	29%	6	--	--	--	--	--
France	28%	--	--	--	--	--	--
Germany <sup>2</sup>	11%	65	38	41	40	40	40
Greece	38%	575	575	560	500	500	500
Kazakhstan	57%	9,200	11,100	13,800	15,000	17,000	17,000
Macedonia	40%	9	--	--	--	--	--
Norway	62%	369	420	3,105	3,200	3,200	3,200
Portugal	36%	12	10	10	10	10	10
Romania	52%	55	69	--	--	--	--
Russia	58%	50,000	56,100	58,500	59,000	59,500	60,000
Serbia <sup>3</sup>	45%	1	--	--	--	--	--
Slovakia	34%	255	180	130	130	130	130
Spain	38%	--	--	--	--	--	--
Sweden	65%	13,556	15,300	16,750	16,000	16,000	15,000
Ukraine	55%	30,600	37,700	43,000	45,000	48,000	50,000
United Kingdom	54%	1	(4)	--	--	--	--
Total	XX	106,000	123,000	137,000	140,000	145,000	150,000

<sup>e</sup>Estimated. XX Not applicable. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Iron ore is used domestically as an additive in cement and other construction materials but is of too low a grade to use in the steel industry.

<sup>3</sup>Prior to 2005, figures are for a combined Serbia and Montenegro.

<sup>4</sup>Less than 1/2 unit.

TABLE 12  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED CRUDE STEEL PRODUCTION, 2000–2017<sup>1</sup>

(Thousand metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Albania	65	87	440	450	450	450
Austria	5,725	7,031	7,206	7,000	7,000	7,000
Azerbaijan	--	286	129	150	160	170
Belarus	1,623	2,076	2,672	2,800	2,900	3,000
Belgium	11,635	10,420	8,088	9,000	9,000	9,000
Bosnia and Herzegovina	134	283	593	650	650	650
Bulgaria	2,023	1,969	740	1,000	1,000	1,000
Croatia	71	74	103	400	400	400
Czech Republic	6,216	6,189	5,180	6,000	6,500	6,500
Denmark-Greenland	803	--	--	--	--	--
Finland	4,096	4,738	4,023	4,000	4,000	4,000
France	21,002	19,481	15,414	17,000	18,000	18,000
Georgia	(2)	--	--	--	--	--
Germany	46,376	44,524	43,830	45,000	45,000	45,000
Greece	1,088	2,266	1,839	2,000	2,000	2,000
Hungary	1,969	2,005	1,678	2,000	2,000	2,000
Ireland	342	--	--	--	--	--
Italy	26,544	29,061	25,750	28,000	30,000	30,000
Kazakhstan	4,770	4,452	4,256	7,000	7,000	7,000
Latvia	500	550	550	550	550	550
Luxembourg	2,571	2,194	2,563	2,500	2,500	2,500
Macedonia	161	326	292	300	300	300
Moldova	909	1,000	242	850	900	950
Montenegro	NA	104	95	50	100	100
Netherlands	5,667	6,919	6,651	7,000	7,000	7,000
Norway	620	701	514	600	600	600
Poland	10,508	8,336	7,996	9,000	10,000	10,000
Portugal	1,097	1,400	1,400	1,400	1,400	1,400
Romania	4,672	6,280	3,721	5,000	5,000	5,000
Russia	59,097	66,186	66,300	66,400	66,500	66,600
Serbia <sup>3</sup>	682	1,286	1,254	1,200	1,200	1,200
Slovakia	3,733	4,242	4,580	5,000	5,000	5,000
Slovenia	519	583	606	600	600	600
Spain	15,844	17,800	16,311	16,500	17,000	17,000
Sweden	5,227	5,692	4,844	5,000	5,000	5,000
Switzerland	1,020	1,158	1,330	1,400	1,400	1,400
Ukraine	31,780	38,636	33,599	40,000	43,000	48,000
United Kingdom	15,306	13,210	9,709	13,000	13,000	13,000
Uzbekistan	420	607	745	770	800	820
Total	295,000	312,000	285,000	310,000	320,000	320,000

<sup>e</sup>Estimated. NA Not available. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Less than 1/2 unit.

<sup>3</sup>Prior to 2005, figures are for a combined Serbia and Montenegro.

TABLE 13  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED PALLADIUM MINE PRODUCTION, 2000–2017<sup>1</sup>

(Kilograms)

Country <sup>2</sup>	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Poland	12	10	15	15	15	15
Russia	95,000	97,400	84,700	85,000	85,000	85,000
Serbia <sup>3</sup>	21	19	22	20	20	20
Total	95,000	97,400	84,700	85,000	85,000	85,000

<sup>e</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Palladium production for Finland and Norway has not been estimated.

<sup>3</sup>Prior to 2005, data are for a combined Serbia and Montenegro.

TABLE 14  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED PLATINUM MINE PRODUCTION, 2000–2017<sup>1</sup>

(Kilograms)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Finland	441	678	275	200	200	200
Norway <sup>2</sup>	1,000	--	--	--	--	--
Poland	21	20	25	25	25	25
Russia	27,000	29,000	25,000	26,000	26,000	26,000
Serbia <sup>3</sup>	3	3	--	--	--	--
Total	28,500	29,700	25,300	26,000	26,000	26,000

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Data prior to 2005 represent exports.

<sup>3</sup>Prior to 2005, data are for a combined Serbia and Montenegro.

TABLE 15  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED TIN MINE PRODUCTION, 2000–2017<sup>1</sup>

(Sn content in metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Kyrgyzstan	300	--	--	--	--	--
Portugal	218	243	22	22	22	22
Russia	2,500	3,000	160	100	100	100
Spain	233	--	--	--	--	--
Total	3,250	3,240	182	120	120	120

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

TABLE 16  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED PRIMARY AND SECONDARY  
TIN METAL PRODUCTION, 2000–2017<sup>1</sup>

(Metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
France	1,500	1,500	--	--	--	--
Russia	5,300	5,500	400	400	400	400
Total	6,800	7,000	400	400	400	400

<sup>e</sup>Estimated. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

TABLE 17  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED DIAMOND MINE PRODUCTION, 2000–2017<sup>1</sup>

(Thousand carats)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Russia:						
Gem grade	17,500	23,000	17,800	18,000	18,000	18,000
Industrial grade	11,700	15,000	15,000	15,000	15,000	15,000
Total	29,200	38,000	32,800	33,000	33,000	33,000

<sup>e</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

TABLE 18  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED LITHIUM PRODUCTION, 2000–2017<sup>1</sup>

(Li content in metric tons)

Country	2000	2005	2010	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Portugal	NA	26,185	40,609	41,000	42,000	44,000

<sup>e</sup>Estimated. NA Not available.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

TABLE 19  
EUROPE AND CENTRAL EURASIA: HISTORIC AND PROJECTED SALABLE COAL PRODUCTION, 2000–2017<sup>1,2</sup>

(Thousand metric tons)

Country	2000	2005	2010	2013 <sup>c</sup>	2015 <sup>e</sup>	2017 <sup>e</sup>
Albania	21	13	4	5	5	5
Austria	1,255	14	--	--	--	--
Bosnia and Herzegovina	7,441	9,144	10,976	13,000	15,000	15,000
Bulgaria	27,094	24,909	27,225	28,000	28,000	28,000
Czech Republic	68,091	61,903	55,124	56,000	56,000	56,000
France	4,102	--	--	--	--	--
Georgia	7	5	241	300	350	400
Germany	201,975	202,815	182,303	177,000	175,000	172,000
Greece	64,026	73,585	64,000	65,000	65,000	65,000
Hungary	14,276	9,580	9,114	9,500	9,500	9,500
Italy	19	--	--	--	--	--
Kazakhstan	74,872	86,385	106,568	110,000	120,000	130,000
Kosovo	NA	6,391	7,958	8,000	8,000	8,000
Kyrgyzstan	425	340	620	630	640	650
Macedonia	7,516	6,949	7,450	7,450	7,450	7,450
Montenegro	NA	1,297	1,938	1,900	1,900	1,900
Norway	330	300	1,685	1,800	1,800	1,800
Poland	162,815	159,039	133,238	135,000	135,000	135,000
Romania	29,294	34,201	30,000	30,000	30,000	30,000
Russia	273,578	298,300	326,050	330,000	335,000	340,000
Serbia <sup>3</sup>	32,275	34,993	38,598	38,000	38,000	38,000
Slovakia	3,589	2,511	2,378	2,500	2,500	2,500
Slovenia	4,480	4,539	4,430	4,400	4,400	4,400
Spain	23,470	19,354	10,100	10,600	11,000	11,000
Tajikistan	21	99	200	200	200	200
Ukraine	81,907	74,559	75,200	80,000	85,000	90,000
United Kingdom	31,972	20,498	18,159	18,000	18,000	18,000
Uzbekistan	2,556	3,000	3,300	3,350	3,400	3,450
Total	1,120,000	1,130,000	1,120,000	1,130,000	1,150,000	1,170,000

<sup>c</sup>Estimated. NA Not available. -- Zero.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits.

<sup>2</sup>Includes anthracite, bituminous, and run-of-mine lignite.

<sup>3</sup>Prior to 2005, figures are for a combined Serbia (including Kosovo) and Montenegro.