



2013 Minerals Yearbook

TURKEY

THE MINERAL INDUSTRY OF TURKEY

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Turkey is a fast growing emerging market economy country that is strategically located between the Balkan Peninsula and the Middle East. The country's gross domestic product (GDP) tripled in the past decade by growing an average of 5% annually to make Turkey's economy the 18th largest in the world in 2013. Turkey's mineral sector also has increased its output and exports significantly since 2002 and has attracted higher levels of foreign direct investment (FDI). Many of Turkey's identified mineral resources remain undeveloped, particularly those containing such metals as copper, gold, lead, nickel, silver, and zinc. Owing to its unique geographic location, which straddles the continents of Europe and Asia, Turkey has become a key energy transit corridor for multiple operational and planned hydrocarbon pipelines between the energy-producing countries of the Caspian Basin, Central Asia, and the Middle East, and the energy-consuming industrialized countries of Europe (Sakar and Clark, 2013; Smith, 2013; U.S. Department of Commerce, 2014; U.S. Department of State, 2014; U.S. Energy Information Administration, 2014; World Bank Group, 2014a).

Turkey has a diverse mineral industry that produces at least 53 mineral commodities from about 4,500 mineral deposits. In recent years, exploration for copper, gold, lead, nickel, uranium, and zinc in the country has increased. In 2013, Turkey was the world's leading producer of boron minerals, feldspar, marble, perlite, and pumice. It was also Europe's top producer of cement and gold, and its second-ranked producer of steel. The country was also the leading exporter of boron, marble, and travertine in the world. Turkey accounted for about 50% of the world's boron production; 34%, pumice; 25%, marble; 24%, feldspar; 20%, perlite; 11%, chromium; 9%, bentonite; 4%, magnesium compounds; and 3%, barite. The country was also a significant source of value-added metals and industrial mineral commodities, such as cement and steel, accounting for 2% of world production of both commodities. The volume of hydrocarbons produced in Turkey was small by regional standards (table 1; Smith, 2013; Çelik İhracatçıları Birliği, 2014; Enerji Piyasası Düzenleme Kurumu, 2014a, p. 12; Eti Maden İşletmeleri Genel Müdürlüğü, 2014, p. 15; T.C. Ekonomi Bakanlığı, 2014a, b; U.S. Energy Information Administration, 2014; World Steel Association, 2014; Yöndem, Uzel, and Incesulu, 2014; Bennett, 2015; Bray, 2015; Crangle, 2015a, b; McRae, 2015; Papp, 2015; Tanner, 2015; van Oss, 2015; Virta, 2015).

Turkey is endowed with a variety of minerals owing to its complex geologic structure. The Anatolian Peninsula, which makes up the bulk of the country's territory, is an important segment of the seismically active Alpine-Himalayan orogenic belt. The following four main divisions are distinguishable in the country's geologic structure: Anatolides in central Anatolia; Pontides in northern Anatolia; the Southeastern Anatolian Thrust Belt, where the Anatolian and Arabian plates collide; and Torides in southern and eastern Anatolia. Although the tectonic structure of Turkey makes mineral exploration and extraction relatively

difficult owing to the need to drill deeply for ores, it has yielded an estimated 77 of the 90 minerals that are traded globally. The territory of Turkey is estimated contain 3,066 million metric tons (Mt) of boron reserves; 5,690 Mt, perlite reserves; 5,161 million cubic meters, marble reserves; 380,000 metric tons (t), thorium reserves; 251 Mt, bentonite reserves; 240 Mt, feldspar reserves; and 35 Mt, barite reserves. Turkey's largest mineral reserve was in dolomite, which totaled an estimated 15.8 billion metric tons (Gt) in 2013 (Maden Tetkik ve Arama Genel Müdürlüğü, 2002, 2011, 2014b; Sakar and Clark, 2013; T.C. Ekonomi Bakanlığı, 2014a, b; Yöndem, Uzel, and Incesulu, 2014, p. 188).

Minerals in the National Economy

In 2013, Turkey's real GDP increased by 4.1% compared with a 2.1% rate of growth in 2012. The higher economic growth rate was owing mainly to increased domestic consumption. The nominal GDP in 2013 was \$822.1 billion compared with \$788.9 billion (revised) in 2012 (International Monetary Fund, 2014, p. 4; World Bank Group, 2014a; 2014b, p. 2).

The mining and quarrying sector accounted for about 1.4% of the nominal GDP in 2013, which was a slight decrease compared with its 1.5% share in 2012. The gross value of all mineral-sector-related activity was estimated to constitute at least 3.3% of the GDP because the mining and quarrying figures include only raw material extraction and not production of value-added processed mineral commodities such as aluminum, boron chemicals, cement, copper, glass works, steel, and coal-based power generation. The gross value of the mining and quarrying sector at constant prices decreased by 3.4% in 2013. The manufacturing sector as a whole accounted for 24.0% of Turkey's GDP at constant prices and increased by 3.7% in 2013 (Engineering and Mining Journal, 2014, p. 86; Maden İşleri Genel Müdürlüğü, 2014c; Türkiye İstatistik Kurumu, 2014a, b).

The mining and quarrying sector received FDI inflows of \$242 million in 2013, which was an increase of 14% from the \$213 million the sector received in 2012, although it was well below the \$336 million inflow in 2007, which was the highest year on record. Inflows to the mining and quarrying sector in 2013 accounted for 1.9% of the \$12.5 billion of total FDI inflows for the year compared with \$13.3 billion in 2012. The manufacturing sector received \$2.2 billion in FDI inflows, accounting for 17.7% of total FDI received by Turkey in 2013 compared with \$4.3 billion in 2012. Within the manufacturing sector, the manufacture of coke, refined petroleum products, and nuclear fuel registered FDI inflows of \$236 million in 2013 compared with \$179 million in 2012; the manufacture of basic metals and fabricated metal products, \$100 million compared with \$101 million in 2012; and the manufacture of other nonmetallic mineral products, \$29 million in 2013 compared with \$10 million in 2012. In 2012 (the latest year for which comprehensive data were available), 4 projects were

started in mining and quarrying by companies with foreign capital, 5 in metal ore mining, 3 in the metal industry, 9 in the metal goods industry, and a total of 171 in the manufacturing sector (T.C. Ekonomi Bakanlığı, 2013, p. 12–13, 39; Investment Support and Promotion Agency, 2014).

Government Policies and Programs

Mineral exploration and extraction activities in Turkey are regulated by the Mining Law No. 3213 of June 15, 1985, as amended by law No. 5177 of 2004 and law No. 5995 of 2010, the Mining Law Implementation Regulation dated November 6, 2010 (the Mining Regulation), the Mining Activities Permitting Regulation of 2005, and the Regulation Concerning the Implementation of the Mining Law dated June 21, 2005. Article 168 of the Constitution establishes that natural resources, such as minerals, belong to the state. As such, mineral deposits are not considered to be the property of the landowner where they are found, with the exception of sand and gravel. The Government issues licenses to Turkish individuals or legal entities to explore for minerals or to operate mines for a specific period of time; the time period varies, based on the mineral. Pursuant to Article 6 of the Mining Law, only Turkish citizens and Turkish legal entities are granted mining rights. The Foreign Direct Investment Law of June 2003 (law No. 4875), however, authorizes foreign investors to establish companies in Turkey that may hold mining rights under the Mining Law and are therefore subject to equal treatment (Erdoğan, 2013, p. 5; Mansouri, 2013; DLA Piper Global Law Firm, 2014, p. 83).

The Mining Law defines all natural resources in the earth and springs that have commercial value as minable minerals, with the exception of geothermal, natural gas, and petroleum, which are subject to different regulations. The law divides underground resources into six groups, which are subject to different licensing procedures. Group I covers (a) sand and gravel used in construction and roadworks and (b) brick and roofing tile clay, cement clay, marl, pozzolanic rocks, rocks used in the cement and ceramic industries. Group II covers rocks used in crushed form, which are derived from aggregate or stone chips, andesite, basalt, calcite, dolomite, granite, limestone, and (b) andesite, basalt, granite, marble, stones used for decorative purposes, and travertine. Group III covers carbon dioxide, hydrogen sulfide, and salt. Group IV covers (a) minerals used as raw materials for industry, including boron, calcium, lithium, and sodium, (b) minerals that are energy sources, including anthracite and lignite, and (c) precious metals, including copper, gold, iron, and silver. Group V covers precious metals and gem stones, including diamond and sapphire, and Group VI covers radioactive minerals, such as uranium (Sakar and Clark, 2013; Yöndem, Uzel, and Incesulu, 2014, p. 188).

Two types of licenses may be granted to entities for mineral-related activities. The exploration license grants the right to explore for minerals on a determined plot of land. Exploration activities for Groups II(b), III, IV, and VI may be conducted with an exploration license, whereas Group V mining requires an exploration certificate. Groups I(a), I(b), and II(a) do not require an exploration license, but an operating license must be granted for mining activities. The operating license grants the right to operate a mine. It is given only to holders of an exploration

license and must be obtained before the exploration license expires. The terms of the operating license are 5 years for Group I(a) mines and 10 years for all other groups. Group V mines also require an operating certificate (DLA Piper Global Law Firm, 2014, p. 84; Yöndem, Uzel, and Incesulu, 2014, p. 189).

The 2010 amendment of the Mining Law made significant changes to the legal framework that governs environmental permits and exploration licenses. The new regulations simplify the process for obtaining necessary environmental permits. It also places certain restrictions on areas available to mining in order to protect forests and wildlife habitats and to control unlicensed mining activities. Specific conditions are imposed on license holders, including investment of funds to demonstrate their financial commitment to their projects and the requirement that they make steady progress within a specified timeframe on exploration of deposits within their licensed areas. As such, licenses are revoked if exploration license holders do not demonstrate that they have invested in their projects as specified in their license (Mansouri, 2013; Smith, 2013).

The Maden İşleri Genel Müdürlüğü (MIGEM) [General Directorate of Mining Affairs] of the T.C. Enerji ve Tabii Kaynaklar Bakanlığı (ETKB) [Ministry of Energy and Natural Resources] is the primary mineral regulatory agency. MIGEM issues exploration and operating certificates and licenses. Through the 2010 amendments, it is also authorized to prohibit mining activities on commercially or environmentally sensitive plots of land. The T.C. Çevre ve Orman Bakanlığı [Ministry of Environment and Forestry] enforces the Environmental Law of 1983 (law No. 2872) and the Regulation on Environmental Impact Assessment dated July 17, 2008. Investors must undertake an environmental impact assessment (EIA) and file an EIA report before conducting mining activities that fall within the scope of the environmental law and regulation (Mansouri, 2013; Yöndem, Uzel, and Incesulu, 2014, p. 189).

All transactions involving state-owned lands, including those for mining and quarrying, require a decree by the Prime Minister under Circular 2012/15, which was issued in June 2012. Applications for exploration and operating licenses and permits as well as requests for license transfers are submitted by MIGEM to the Office of the Prime Minister for final approval (Mining Turkey, 2014, p. 36; U.S. Department of Commerce, 2014, p. 84).

Three Government institutions attached to the ETKB are involved in data collection and geologic surveying in the mineral sector. Maden Tetkik ve Arama Genel Müdürlüğü (MTA) [General Directorate of Mineral Research and Exploration] conducts basic geologic and geophysical surveys and mining research and produces deposit and reserve estimates and maps of Turkey. Petrol İşleri Genel Müdürlüğü (PIGM) [General Directorate of Petroleum Affairs] collects information about petroleum exploration and production activity in the country. Türkiye Atom Enerjisi Kurumu (TAEK) [Turkish Atomic Energy Authority] is responsible for nuclear energy policy development and the coordination and supervision of scientific and technical activities in the nuclear sector (Türkiye Atom Enerjisi Kurumu, 2013; Maden Tetkik ve Arama Genel Müdürlüğü, 2014a; Petrol İşleri Genel Müdürlüğü, 2014).

The upstream petroleum sector is regulated by the PIGM under the Turkish Petroleum Law of 2013 (law No. 6491), which in June replaced the 60-year-old Petroleum Law of 1954 (law No. 6326). Downstream petroleum activities are regulated by the independent Enerji Piyasası Düzenleme Kurumu [Energy Market Regulatory Authority]. The new Turkish Petroleum Law of 2013 removed the restriction on petroleum activities by foreign entities and on the number of licenses a company could obtain for a single petroleum district. The state-owned Türkiye Petrolleri Anonim Ortaklığı (TPAO) no longer has a statutory right to obtain exploration licenses. Petroleum right holders are now allowed to market and to export their output (Uslas, 2013; AKIN Law Office, 2014; Demirkan, Ildiri, and Eryiğit, 2014, p. 433; Türkiye Petrolleri Anonim Ortaklığı, 2014, p. 33).

The distribution, export, import, and transmission of natural gas is regulated by the Natural Gas Market Law of 2001 (law No. 4646), as amended by law No. 5367 of 2005. The marketing of domestic and imported liquefied petroleum gases is regulated by the Liquefied Petroleum Gases (LPG) Market Law of 2005 (law No. 5307). In the fourth quarter of 2013, the Parliament began considering a new bill to reform the gas sector. The proposed bill would allow the state-owned monopoly Boru Hatları ile Petrol Taşıma A.Ş. (BOTAŞ) to separate into three new legal entities—a gas transmission system operator, a liquefied natural gas (LNG) trading group, and a storage facility operator. Gas import and export rights would be transferred to private entities (Gürkaynak and Karaduman, 2013; Uslas, 2013; Demirkan, Ildiri, and Eryiğit, 2014, p. 426; U.S. Energy Information Administration, 2014, p. 8).

Production

There were substantial increases in reported production for obsidian (163%), sepiolite and palygorskite (91%), iron ore (gross weight) (73%), manganese (67%), granite (58%), peat (44%), lead ore (gross weight) (39%), sulfur (byproduct of petroleum) (37%), zinc ore (gross weight) (29%), basalt (21%), perlite (21%), mica (other) (20%), gypsum (19%), kaolin (18%), onyx (17%), gold (16%), quartz and quartzite (15%), pumice (13%), cement (12%), and silica sand (12%). There were substantial increases in estimated production for iron ore (iron content), zinc ore (zinc content), lead ore (lead content), copper smelter output, and copper ore (copper content). There were substantial decreases in reported production for zircon (100%), talc (92%), nepheline syenite (90%), barite (56%), bauxite and olivine (48% each), zeolites (45%), bentonite (40%), antimony (gross weight and content by 37% each), sodium sulfate (27%), fluor spar (25%), emery (20%), lignite (19%), natural gas (15%), hard coal (14%), pyrites (13%), travertine (11%), and soda ash (10%). There were substantial decreases in estimated production for alumina, chromium, ferrochromium, and nickel. Aluminum sulfate, illite, and phosphate rock production were reported again in 2013 after no production was reported in 2012 (table 1).

Structure of the Mineral Industry

The country's industrial minerals and metals were produced mainly by private sector companies, which also produced

some coal and hydrocarbons. The Government's involvement in the mineral industry was focused on the boron, coal, and petroleum sectors (table 2). About 85% of mineral-producing facilities were estimated to be privately owned, while state-owned enterprises (SOEs) accounted for the remaining 15%. This was a significant reversal from a decade ago when most mining operations were undertaken by SOEs. The increase in private-sector participation in production was attributable to the Government's ongoing program of privatization in every major sector of the economy since 2002, which was aimed at achieving greater operational efficiency and raising public revenue through the sale of SOEs. In 2013, three thermal powerplants and 12 hydroelectric powerplants were privatized in Turkey. Most precious metal exploration activity in the country was undertaken by companies jointly owned by foreign and Turkish investors (Smith, 2013; Demirkan, Ildiri, and Eryiğit, 2014, p. 425).

Six Government-owned enterprises were engaged in mineral-related activities, as follows: BOTAŞ, which imported, transported, and sold natural gas, and also transported petroleum; Elektrik Üretim A.Ş. (EÜAŞ) [Electricity Generation Corp.], which produced electricity; Eti Maden İşletmeleri Genel Müdürlüğü [General Directorate of Eti Mining Enterprises], which had exclusive rights to explore for and to develop boron deposits according to law No. 2840 of 1983; Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü (TKİ) [General Directorate of Turkish Coal Enterprises], which mined lignite and subbituminous coal; TPAO, which explored for, produced, marketed, and refined crude oil; and Türkiye Taşkömürü Kurumu (TTK) [Turkish Hard Coal Enterprises], which mined anthracite and bituminous coal (Boru Hatları ile Petrol Taşıma A.Ş., 2014; Elektrik Üretim A.Ş., 2014; Eti Maden İşletmeleri Genel Müdürlüğü, 2014b; Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü, 2014b; Türkiye Petrolleri Anonim Ortaklığı, 2014; Türkiye Taşkömürü Kurumu, 2014a).

As of yearend 2013, 23,366 mineral licenses were in effect in Turkey, of which 9,984 were exploration licenses and 13,382 were operating licenses. Of the total mineral licenses, 3,035 had been issued for Group IV minerals, 2,705 for Group II(a) minerals, 2,499 for Group II(b) minerals, 592 for Group I(b) minerals, 53 for Group I(a) minerals, 46 for Group III minerals, 5 for Group V minerals, and 1 for Group VI minerals. There were 8,936 sites that had received operating permits, of which 5,341 were active in 2012 (the last year for which data were available) compared with 5,305 in 2011. Among those active operations in 2012, 1,877 were for Group IV minerals (35% of the total), 1,720 for Group II(a) minerals (32%), 1,352 for Group II(b) minerals (25%), 357 for Group I(b) minerals (7%), and 35 for Group III minerals (0.7%). There were no producing operations for Groups I(a), V, or VI minerals (Maden İşleri Genel Müdürlüğü, 2014f).

In 2013, 5,577 new applications for mining licenses were filed, compared with 5,069 applications in 2012. Of those filed, only 84 were granted in 2013 compared with 1,407 in 2012. The significant decrease in the number of new licenses granted during the application year was attributed to delays in the licensing process caused by the additional layer of approval that was mandated by Circular 2012/15 of June 2012.

In 2013, MIGEM issued a total of 1,767 new licenses. Of these, 1,139 were operating licenses and 628 were exploration licenses; 35 operating licenses were issued for Group I(b) minerals, 339 for II(a), 440 for II(b), 4 for III, 318 for IV, 1 for V, and 2 for VI (Maden İşleri Genel Müdürlüğü, 2014a, h; Mining Turkey, 2014, p. 86).

Mineral Trade

In 2013, total Turkish exports of goods were valued at \$151.8 billion compared with \$152.5 billion in 2012. Total Turkish imports of goods were valued at about \$251.7 billion compared with \$236.6 billion in 2012. As a result, the Turkish trade deficit reached \$99.9 billion in 2013, and the proportion of exports to imports decreased to 60.3% from 64.5% in 2012 (Türkiye İstatistik Kurumu, 2014g).

Among mineral commodities, Turkey's exports of iron and steel were valued at about \$11.6 billion in 2013 compared with \$13.1 billion in 2012. Exports of petroleum and petroleum products in 2013 were valued at about \$6.2 billion compared with \$7.0 billion in 2012; manufactures of metals, about \$6.2 billion compared with \$5.8 billion in 2012; industrial mineral products, such as cement, ceramics, glass, lime, and stone, about \$3.9 billion compared with \$3.8 billion in 2012; and nonferrous metals, about \$2.6 billion compared with \$2.7 billion in 2012 (T.C. Kalkınma Bakanlığı, 2014a).

Turkey's imports of petroleum and petroleum products were valued at about \$16.1 billion in 2013 compared with \$16.2 billion in 2012. Imports of iron and steel were valued at \$12.2 billion compared with \$11.1 billion in 2012; nonferrous metals, about \$7.72 billion compared with \$7.68 billion in 2012; manufactures of metals, about \$3.8 billion compared with \$3.4 billion in 2012; natural gas, about \$2.7 billion compared with \$2.9 billion in 2012; and industrial minerals, about \$1.8 billion compared with \$1.6 billion in 2012 (T.C. Kalkınma Bakanlığı, 2014b).

Turkey's total iron and steel exports, which included articles of steel and steel pipes, totaled 19.0 Mt in 2013 compared with 20.2 Mt in 2012. Long steel products accounted for 60% of the country's total steel exports; flat steel, 12%; tube & pipe products, 10%; and semifinished steel products, 8%. Exports of long steel totaled 11.3 Mt compared with 11.7 Mt in 2012; flat steel, 2.36 Mt compared with 1.86 Mt in 2012; and billet, 1.56 Mt compared with 2.94 Mt in 2012. Turkey's total iron and steel imports increased substantially in 2013 owing to a decrease in domestic production, while consumption continued to increase. Steel imports were 14.86 Mt in 2013 compared with 11.85 Mt; flat steel, 7.1 Mt compared with 6.4 Mt in 2013; semifinished steel, 5.4 Mt compared with 3.4 Mt in 2012; and slab, 2.3 Mt compared with about 1.0 Mt in 2012 (Türkiye Çelik Üreticileri Derneği, 2014).

In 2013, Turkey's raw mineral exports totaled 22.3 Mt and were valued at \$5.04 billion compared with 20.4 Mt valued at \$4.18 billion in 2012. Mineral exports accounted for 3.3% of Turkey's exports by value in 2013 compared with 2.75% in 2012. The leading mineral exports in 2013 were natural stone (of which marble was the largest component) valued at \$2.2 billion compared with \$1.9 billion in 2012, which accounted for 44% of Turkey's mineral exports; copper ore valued at \$509 million (10%), chromite ore, \$450 million (9%); borate and concentrate,

\$236 million (5%); zinc ore, \$202 million (4%); feldspar, \$143 million (3%); ferrochromium, \$135 million (3%); magnesite, \$103 million (2%); gypsum, \$81 million (1%); quartz, \$53 million (1%); and bentonite, \$47 million (1%). China continued to be the largest market for Turkey's mineral exports, followed by the United States, Iraq, Belgium and Italy. Significant increases were reported for mineral exports to Azerbaijan, Bulgaria, Libya, the Netherlands, and the Republic of Korea in 2013 (İstanbul Maden ve Metaller İhracatçıları Birlikleri, 2014; Maden İşleri Genel Müdürlüğü, 2014b, d, e, g; Türkiye İhracatçılar Meclisi, 2014, p. 228).

European countries, and in particular the 28 member states of the European Union (EU), continued to be Turkey's main trading partners, in large part owing to the customs union in place with the EU since 1995. All European countries combined, including Russia, accounted for 50.9% of Turkey's exports and 53.2% of its imports in 2013; the EU-28 accounted for 41.5% of exports and 36.7% of imports. In terms of exports, Germany was the largest market with a 9.0% share, followed by Iraq (7.9%), the United Kingdom (5.8%), Russia (4.6%), Italy (4.4%), France (4.2%), the United States (3.7%), and the United Arab Emirates (3.3%). Russia was Turkey's leading market in terms of imports, supplying 10.0% of Turkey's imports, followed by China (9.8%), Germany (9.6%), Italy (5.1%), the United States (5.0%), Iran (4.1%), Switzerland (3.8%), and France (3.2%). In recent years, the share of Turkey's exports going to Middle Eastern countries had increased, reaching 23.4% in 2013 compared with 14.1% in 2007, whereas the share of European countries—although still the leading recipients—had decreased to 50.9% from 66.4% in 2007 (T.C. Ekonomi Bakanlığı, 2014c; Türkiye İstatistik Kurumu, 2014c–f).

The value of Turkey's exports of goods to the United States was about \$6.7 billion in 2013 compared with \$6.3 billion in 2012. Exports of mineral-related material accounted for only a minor amount of the total exports of goods to the United States. Exports of semifinished iron and steel products, such as bars and rods, ingots, and rolled steel, were valued at \$476 million. Exports of material categorized under the label stone, sand, cement, and lime were valued at \$323 million. Exports of iron and steel products, such as pipes and wire, were valued at \$98 million. Exports of metals were also relatively small, with exports of bauxite and aluminum valued at \$7.5 million; nonmonetary gold, \$3 million; and nickel, \$1.3 million (U.S. Census Bureau, 2014b).

The value of Turkey's imports of goods from the United States was about \$12.1 billion in 2013 compared with \$12.5 billion in 2012. More than 30% of goods exported to Turkey from the United States were related to the mineral industry. Imports of steelmaking materials, which consisted mostly of steel scrap, were valued at \$1.9 billion. Imports of fuel oil were valued at about \$1.3 billion; metallurgical-grade coal, about \$509 million; other petroleum products, \$170 million; other coal, \$94 million; nonmonetary gold, \$41 million, aluminum and alumina, \$33 million; and iron and steel mill products, \$23 million (U.S. Census Bureau, 2014a).

Commodity Review

Metals

Aluminum.—Eti Alüminyum A.Ş., which was a subsidiary of Cengiz Holding A.Ş., continued the multiyear, \$250 million modernization of the Seydisehir aluminum smelter in the Konya Province in central Anatolia. The fully integrated smelter was Turkey's only producer of aluminum oxide and was estimated to meet 15% of the country's annual aluminum demand. Eti Alüminyum expected to complete the construction of a new coal-powered steam boiler plant and the installation of a new smelter in 2014. The ongoing modernization of the Seydisehir plant was projected to increase capacity to 75,000 metric tons per year (t/yr) by early 2014 from 60,000 t/yr, and to 95,000 t/yr by 2016 (Anatolia News Agency, 2011; Daynes, 2013).

In 2013, Eti Alüminyum signed a \$30 million loan agreement with the European Bank for Reconstruction and Development to be used in the Seydisehir modernization project. By converting the existing electrolysis technology to prebaked anode technology, operations would become more efficient by reducing energy, material, and water use in the facility and cleaner by reducing its greenhouse gas (GHG) emissions (European Bank for Reconstruction and Development, 2014, p. 6).

Antimony.—Eti Bakır A.Ş., which was a subsidiary of Cengiz Holding A.Ş., was the only antimony producer in Turkey. The company's Halikoy ore enrichment (flotation) plant produced 3.5 metric tons per day of antimony concentrate. Eti Bakır operated an underground mine in the village of Emirli that produced 90 tons per day of antimony ore (Cengiz Holding A.Ş., 2014; Eti Bakır A.Ş., 2014b).

Üç Yıldız Antimon Madencilik İthalat ve İhracat Sanayi ve Ticaret A.Ş., which was a subsidiary of Tri-Star Resources plc of the United Kingdom, held an environmental permit to build a proposed 14,400-t/yr processing plant to produce antimony concentrates at the Goynuk antimony prospect in Bolu Province in the Black Sea region. The company, however, decided not to process mine dumps in Goynuk in 2013, as it had originally planned at the beginning of the year, following its evaluation of funding options for the facility. It subsequently decided to invest in an antimony project in Oman instead. The Goynuk stibnite ore had been processed in the past at the nearby Metsan facility, which had a flotation mill and smelter, but the facility was shut down for environmental reasons. According to a technical report commissioned by Tri-Star Resources in 2012, the average grade of the estimated 80,000 t of rock in the Goynuk Mine dumps was estimated to be between 2.13% and 2.36% antimony (Juhas, 2013, p. 15, 73; Tri-Star Resources plc, 2014a, p. 9; 2014b).

Cobalt and Nickel.—Meta Nikel Kobalt A.Ş. (META), which was jointly owned by Meta Mining Co. and Zorlu Group, continued the construction of Turkey's first hydrometallurgy processing plant at Gordes in Manisa Province in the Aegean region. In the first phase of the project, which was expected to be completed in 2014, 1.5 million metric tons per year (Mt/yr) of lateritic ore would be processed to obtain a nickel and cobalt mixed hydroxide product. The product would reportedly be equivalent to 10,000 t/yr nickel and 750 t/yr cobalt. In the second phase of the project, the production capacity of the nickel-cobalt

refinery would be doubled to 3 Mt/yr of lateritic ore (Mining Turkey, 2014, p. 21; Zorlu Group, 2014).

In July, Çaldağ Nikel Madencilik San. ve Tic. A.Ş. submitted an environmental impact assessment (EIA) for its nickel and cobalt project at Caldag Mine in Manisa Province. The company planned to process 29.7 Mt of ore in total at three open facilities for up to 15 years and to produce 16,000 t/yr of nickel and 900 t/yr of cobalt. The ore body at Caldag was estimated to contain 1.16% nickel and 0.07% cobalt, as well as 21.6% iron. If approved by the Ministry of Environment and Urban Planning, construction work was expected to begin on the Caldag nickel-cobalt-iron mining complex in 2014 (T.C. Çevre ve Şehircilik Bakanlığı, 2013, p. 4–5; Çaldağ Nikel Madencilik San. ve Tic. A.Ş., 2014).

Copper and Zinc.—Eti Bakır A.Ş. was the leading copper-ore-producing company in Turkey, and it had major operations in the Black Sea region. Other notable copper ore producers included Çayeli Bakır İşletmeleri A.Ş., which was a subsidiary of First Quantum Minerals Ltd. of Canada, and Park Elektrik Üretim Madencilik San. ve Tic. A.Ş., which was jointly owned by Park Holding A.Ş. and Turgay Ciner (Çayeli Bakır İşletmeleri A.Ş., 2014; Eti Bakır A.Ş., 2014a; Park Elektrik Üretim Madencilik San. ve Tic. A.Ş., 2014b, c).

In 2013, Eti Bakır reported the discovery of a 25-Mt copper deposit in the Kure district of Kastamonu Province in the northwestern Black Sea region. Reserves in Eti Bakır's three open pit mines and one underground mine in Kure had been decreasing since 2009. The company was engaged in the expansion of its Bakibaba Mine. When preparatory work is completed in 2015, Eti Bakır expected to increase production of copper concentrate (18% metal content) to 140,000 t/yr from 100,000 t/yr. The company also produced 120,000 t/yr of copper concentrate at 22% concentration from 3.5 Mt of crude ore at its Murgul facility located in the Artvin Province in the northeastern Black Sea region (O'Hanlon, 2013; Mining Turkey, 2014, p. 21).

Park Elektrik operated the Siirt Madenkoy copper mine in Siirt Province in southwestern Anatolia, which was the largest open pit mine in Turkey; the mine had a resource of 41.5 Mt. The company had a lease on the mine until 2037. In 2013, Park Elektrik transitioned its operations at Madenkoy from underground mining to open pit excavation. Ore production from the open pit mine began in April and became the only form of production in the second half of the year. The pit was expected to reach a perimeter of 5 kilometers (km) by 2024. In 2013, 1.46 Mt of copper ore was mined at Madenkoy and copper concentrate production increased by 8% to 96,038 t (Park Elektrik Üretim Madencilik San. ve Tic. A.Ş., 2014a, p. 2, 26–27).

In February, Nuinsco Resources Ltd. of Canada reported that 17 holes drilled since 2012 indicated a copper-mineralized area of 8 square kilometers at its Berta porphyry copper project located in the eastern Black Sea region. The sixth hole of the 2012 drilling program returned intercepts grading 1.59% copper across 12.65 meters (m), 0.42% copper across 36.4 m, and up to 22.7% copper across 0.6 m (Nuinsco Resources Ltd., 2013).

In April, Inmet Mining Corp. of Canada, which owned Çayeli Bakır İşletmeleri A.Ş., was acquired by First Quantum.

First Quantum reported that its Cayeli copper mine, which was located in Rize Province in the Black Sea region, produced 31,510 t of copper and 43,097 t of zinc in 2013 (First Quantum Minerals Ltd., 2014).

In September, Columbus Copper Corp. (formerly Empire Mining Corp.) published updated results from its 2013 diamond drilling program at the Karapinar copper-molybdenum project in Kayseri Province. The company reported intersecting 31.2 m of 0.45% copper and 0.08 gram per metric ton (g/t) gold at 269 m depth, 9 m of 0.48% copper and 0.06 g/t gold at 312.5 m depth, and 68 m of 0.36% copper and 0.08 g/t gold at 379 m depth (Columbus Copper Corp., 2013).

In December, Pasinex Resources Ltd. of Canada announced that its ground magnetics survey of its Golcuk property in Sivas Province in central Anatolia, which had been conducted since November, showed copper mineralization along the entire width of the 7.6-km-wide Golcuk license area. The company planned to proceed with mapping the subsurface locations of the magnetic patterns of the volcanic and volcanoclastic rocks of all nine centers of copper mineralization identified at Golcuk (Pasinex Resources Ltd., 2013).

Gold.—Production by Turkey's gold sector increased significantly in recent years, making Turkey Europe's leading producer. In 2013, there were three major gold producers in Turkey: Alacer Gold Corp. of the United States, Eldorado Gold Corp. of Canada, and Koza Altın İşletmeleri A.Ş. A larger number of companies had advanced gold projects in the country; the most prominent among them were Alamos Gold Inc. of Canada, Aldridge Minerals Inc. of Canada, Ariana Resources plc. of the United Kingdom, and Stratex International plc. of the United Kingdom. Twenty-six other gold exploration companies were also active in Turkey (Smith, 2013).

The Kisladağ open pit heap-leach gold porphyry mine in Uşak Province in the Aegean region was the largest gold mine in Turkey in terms of output. In 2013, Eldorado reported that total gold production at its Turkish subsidiary Tüprağ Metal Madencilik Sanayi ve Ticaret A.Ş.'s Kisladağ and Efemcukuru Mines was 11,255 kilograms (kg), which amounted to one-third of the country's total production. At Kisladağ, production increased by 6% to 8,680 kg, whereas at Efemcukuru, it increased by 26% to 2,575 kg. In 2013, Eldorado deferred its planned phase 4 expansion of the process circuit, which would have increased the capacity to 25 Mt/yr of crushed ore plus an additional capacity of 8 Mt/yr run-of-mine ore at Kisladağ. The company also received approval of its supplementary EIA for the expansion of the Efemcukuru Mine to 600,000 t/yr of ore from 250,000 t/yr of ore (Smith, 2013; Eldorado Gold Corp., 2014a, b; Mining Turkey, 2014, p. 23).

Koza Altın İşletmeleri A.Ş. was the only 100% Turkish-owned gold production company in Turkey. The company owned and operated six mines in 2013, including the Ovacık underground mine, which was acquired and brought into full production in 2005; the Mastra Mine, which had both underground and open pit operations (2008); the Cukuralan Mine, which had both underground and open pit operations (2010); and the Kaymaz underground mine (2011). In 2013, total annual gold production at Koza Altın's mines increased by 4% to about 9,922 kg. In the first quarter of the year, Koza Altın began open pit production

at the Coraklıktepe Mine. In November, the company began test production at the Himmetdede Mine following completion of the phase 1 leach pad and adsorption-desorption-recovery (ADR) plant. In December, the company's operations at its Cukuralan facility were halted by the İzmir Special Provincial Administration owing to the absence of a required environmental permit and license certification. In response, Koza Altın stated that it held a temporary activity license that was valid until February 2014. Mining operations in Cukuralan resumed in January 2014 (Gündüz and Gökçen, 2014, Koza Altın İşletmeleri A.Ş., 2014, p. 4, 7; Mining Turkey, 2014, p. 12–13).

In January, Centerra Gold Inc. of Canada acquired the remaining 30% interest in the Oksut gold project in Kayseri Province from Stratex International Plc. of Canada, becoming the sole owner of the project. In April, Frontline Gold Corp. of Canada completed the acquisition of a 100% interest in the Menderes gold property in İzmir Province. In June, Aldridge Minerals Inc. of Canada announced that it had become the sole owner of the polymetallic Yenipazar project in Yozgat Province through an earn-in by delivering the required feasibility study to Alacer Gold of the United States, which retained a 6% net profit interest in the property. In August, Aldridge Minerals filed its EIA for the Yenipazar project (Frontline Gold Corp., 2013; Mining Turkey, 2014, p. 22–23).

In August, Chesser Resources Ltd. of Australia announced an update on its Kestanelik project in Canakkale Province. The project's indicated and inferred mineral resources reportedly increased by 52% to 19,930 kg of gold contained in 10.2 Mt of ore grading 2.15 g/t gold and 1.9 g/t silver. In November, Chesser Resources began a two-phased drilling program at Kestanelik. In September, Ariana Resources plc. reported the discovery of four highly mineralized gold-silver zones in the Kiziltepe sector of its Red Rabbit gold project in Balıkesir Province. In December, Ariana Resources reported that its final EIA for the Kiziltepe sector was approved by the Ministry of Environment and Urban Planning. The company estimated that the new phase of its Red Rabbit exploration could potentially double the current minable resources to 12,700 kg of gold equivalent. In September, Pilot Gold Inc. of Canada reached an agreement with Chesser Resources to acquire a 40% interest in the Karaayi (TV Tower) project in Canakkale Province through Orta Truva, which was a joint-venture company partially owned by Teck Madencilik Sanayi Ticaret A.Ş. In November, Pilot Gold reported that its first drill test at Karaayi intersected high-grade gold and results indicated 0.60 g/t gold across 81 m (Ariana Resources plc., 2013a, b; Pilot Gold, 2013a, b; Mining Turkey, 2014, p. 22–23).

Iron Ore and Iron and Steel.—In 2013, the Erdemir Group, which continued to be Turkey's leading iron and steel producer, produced 2.65 Mt of beneficiated iron ore and pelleted iron ore, which was a decrease from the 2.83 Mt produced in 2012. The company accounted for 24% of all crude steel produced in Turkey and produced 6.4 Mt of flat finished steel products. Of total flat finished steel products, Erdemir Madencilik Sanayi ve Ticaret A.Ş. (Erdemir), which was a subsidiary of the Erdemir Group located in Eregli, Zonguldak Province, provided about 46% of the group's hot-rolled flat steel and 100% of its cold-rolled flat steel. İskenderun Demir ve Çelik A.Ş. (İsdemir), which was the

Erdemir Group's other subsidiary located in Iskenderun, Hatay Province, provided 54% of the group's hot-rolled flat steel. Erdemir's level of production increased by 8%, whereas that of Isdemir was unchanged (Ereğli Demir ve Çelik Fabrikaları T.A.Ş., 2014a, p. 29–30).

Erdemir produced 3.76 Mt of crude steel at the Ereğli plant in 2013, which was an increase from 3.24 Mt in 2012, and Erdemir's rolling mills produced 1.81 Mt of hot-rolled coil in 2013 (1.79 Mt in 2012), and about 1.28 Mt of cold-rolled coil in 2013 (1.06 Mt in 2012). Isdemir produced 4.51 Mt of crude steel at the Iskenderun plant in 2013 (4.63 Mt in 2012), of which 3.1 Mt was slab and 1.54 Mt was billet. Isdemir also produced about 2.52 Mt of hot-rolled coil in 2013 (compared with 2.35 Mt in 2012), 4.19 Mt of hot metal (4.24 Mt in 2012), and 4.58 Mt of liquid steel (4.71 Mt in 2012) (Ereğli Demir ve Çelik Fabrikaları T.A.Ş., 2014a, p. 29–30; b).

Hekimhan Madencilik İthalat İhracat Sanayi ve Ticaret Ltd. Şti. operated the Deveci iron mine in Malatya Province, which was the largest manganese iron ore deposit in Turkey with more than 50 Mt of iron ore reserves. The company extracted siderite ore from Deveci through open pit mining. Hekimhan Madencilik planned to complete the building of a calcination plant and to operate the mine at its full capacity of 2 Mt/yr beginning in 2015 (Hekimhan Madencilik İthalat İhracat Sanayi ve Ticaret Ltd. Şti, 2014).

In 2013, finished steel production was higher in Turkey than crude steel production for the first time, which was in large part owing to the 61.4% increase in semifinished steel products. Total crude steel production decreased by 3.4% to 34.65 Mt, whereas finished steel production increased by 6.2% to 36.4 Mt. Billet output was 26.3 Mt, which was a decrease of 2.8%; slab, 8.36 Mt (a decrease of 5.3%); long steel, 26.54 Mt (an increase of 5.1%); and flat steel, 9.9 Mt (an increase of 9.2%). A significant portion of Turkey's steel was produced from steel scrap in electric arc furnaces. Much of the steel scrap was imported, which made Turkey the leading importer of scrap in the world. The country's imports of scrap decreased by 20% in value to \$7.5 billion and 12% in weight to 19.7 Mt in 2013 owing to decreased domestic steel production (Ereğli Demir ve Çelik Fabrikaları T.A.Ş., 2014a, p. 33; Scrap Register, 2014; Türkiye Çelik Üreticileri Derneği, 2014).

Industrial Minerals

Boron.—Eti Maden İşletmeleri Genel Müdürlüğü (a state-owned company) continued to be the leading producer and exporter of boron in the world with a 47% global share in 2013. The company mined colemanite, kernite, tincal, and ulexite and produced 16 types of boron chemicals and products. About 97% of its production was exported to 84 countries; domestic sales accounted for the remaining 3%. Eti Maden's main boron product exports were borax decahydrate, borax pentahydrate, boric acid, boron oxide, calcined tincal, concentrated colemanite, and micronutrient. In 2013, boron chemicals provided 95% of the company's sales, and boron concentrate accounted for only 5%, which was in line with the Eti Maden's policy of focusing on the manufacture and sale of higher value-added chemical products. The company's exports

were valued at \$799 million, which was a slight increase from \$797 million in exports in 2012 but still below the \$831 million in 2011 (Eti Mine Works, 2013, p. 11; Eti Maden İşletmeleri Genel Müdürlüğü, 2014a, p. 15–17; Mining Turkey, 2014, p. 20).

Eti Maden's total boron chemical plant capacity increased to 2.131 Mt/yr in 2013 with the opening of the 6,000-t/yr-capacity Camsi boron oxide facility within the company's Bandırma plant complex by the company's subsidiary Bandırma Bor ve Asit Fabrikaları İşletme Müdürlüğü. Eti Maden planned to expand its total boron capacity to eventually reach 5.5 Mt/yr. In 2013, Emet Bor İşletme Müdürlüğü, another subsidiary of Eti Maden, completed the construction of a 50,000-t/yr-capacity boric acid plant at its Emet complex in Kutahya Province. The company planned to begin operations at the plant in 2014. In 2013, Kırka Bor İşletme Müdürlüğü, another subsidiary of Eti Maden, increased the capacity of its borax pentahydrate facility at Kırka in Eskisehir Province to 5,000 t/yr. The company planned to construct a second borax pentahydrate plant in Kırka with a 20,000 t/yr capacity. The Kırka project also included the construction of a calcined tincal facility that would replace the 30-year-old concentrator facility (2 Eylül, 2014; Eti Maden İşletmeleri Genel Müdürlüğü, 2014, p. 12–14).

Cement.—Multiple cement plant capacity expansion projects were underway and one new plant was constructed in 2013. In September, Limak Kurtalan Çimento Sanayii ve Ticaret A.Ş. (a subsidiary of Limak Şirketler Grubu) ordered a new 1.3-Mt/yr-capacity clinker production line from KHD Humboldt Wedag A.G. of Germany for its Trakya cement plant. The new kiln would be erected near an existing 0.7-Mt/yr-capacity production line, which would also be upgraded, and be commissioned in the autumn of 2014. In October, Küpeliler A.Ş. began the construction of an integrated cement plant in Eskisehir with a cement production capacity of 2 Mt/yr and a clinker production capacity of 1.5 Mt/yr. Production was expected to start at the new plant in August 2015. Also in October, Batisöke Söke Çimento Sanayi T.A.Ş., which was a subsidiary of the Batı Anadolu Group, contracted KHD Humboldt Wedag for a new grinding system at its Aydın cement plant. When commissioned at the end of 2014, the capacity of cement grinding unit no. 5 would increase from 59 t/hr to 195 t/hr and save more than 12 kilowatthours (kWh) per metric ton of energy. In November, Göltaş Çimento A.Ş. received a vertical roller mill for cement grinding for its plant in Isparta from Loesche GmbH of Germany. The mill would produce various types of composite cements as well as standard Portland cement at a production rate of up to 230 t/hr. In December, Bolu Çimento Sanayii A.Ş., which was a subsidiary of the Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, ordered three vertical roller mills from Gebr Pfeiffer SE of Germany for a new production line at its Kazan clinker plant in Ankara. The installation of the mills, which would be used for grinding cement raw material, pet-coke, and lignite, would increase the total number of Pfeiffer mills installed at Oyak Group cement plants to eight and turn the Kazan plant into an integrated cement plant. The mills were scheduled to be delivered to Bolu Çimento in mid-2014 (Global Cement, 2013a–e).

Perlite.—Turkey's production of perlite increased by an average of 19.8% per year during the past 4 years.

In 2013, Bergama Mining Construction Machinery Perlite Industry & Trade Inc. (one of the leading producers of perlite in the country), opened a new plant in Konya that specialized in expanded unmilled perlite and expanded milled perlite. This was Bergama's second plant; the other was its crushed and screened perlite ore plant in Bergama in the Province of Izmir. The company held mining licenses for 10 quarries within a licensed area of 5,752 hectares in the Provinces of Ankara, Canakkale, Izmir, and Manisa (Bergama Mining Construction Machinery Perlite Industry & Trade Inc., 2014).

Soda Ash.—In January, Ciner Group, which was the majority owner of Eti Soda A.Ş. (Turkey's leading soda ash producer), signed an engineering and procurement contract with the Chian Tianchen Engineering Corp. of China for the construction of a soda ash production complex in Kazan in Ankara Province with its own 800-megawatt (MW)-capacity powerplant. When completed in 2017, the Kazan facility would have the capacity to produce 2.7 Mt/yr and boost Ciner Group's combined soda ash capacity to 4.4 Mt/yr (Ersoy, 2014; Mining Turkey, 2014, p. 21).

Mineral Fuels, Related Materials, and Other Sources of Energy

In 2013, Turkey's total primary energy supply was provided by coal (32.9%), natural gas (31.2%), petroleum (26.0%), renewable sources (5.8%), and hydropower (4.2%). Domestic energy production came primarily from coal (53.3%) followed by hydropower (15.7%), wood and biomass (11.0%), petroleum (7.5%), and natural gas (1.6%). Turkey's net energy imports accounted for approximately 71% of its total primary energy needs. The country imported about 99% of the natural gas, 93% of the hard coal, and 90% of the petroleum it consumed (T.C. Enerji ve Tabii Kaynaklar Bakanlığı, 2014a; b, p. 18–19, 29; Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü, 2014a, p. 17–18).

Coal.—Coal, in particular lignite, constituted the bulk of Turkey's indigenous energy resources. The country had 13.9 Gt of lignite and 1.3 Gt of hard coal reserves and resources, of which 13.4 Gt and 0.5 Gt, respectively, were proven reserves. Lignite constituted 95% of indigenous coal production, whereas hard coal accounted for only 5%. Until recently, the two state-owned enterprises—TKI and TTK—extracted more than 90% of coal, but the private sector's share had risen in recent years owing to privatization. TTK's share of total hard coal production increased to 71% in 2013 from 64% in 2012, although its coal output decreased by 6% (European Association for Coal and Lignite, 2013, p. 52, 53; Türkiye Kömür İşletmeleri Kurumu Genel Müdürlüğü, 2014a, p. 21–22; Türkiye Taşkömürü Kurumu, 2014b, p. 22–23).

In January, the Government signed an agreement with the Government of the United Arab Emirates for the construction and operation of a coal-based powerplant in the Afsin-Elbistan region with a capacity of 8,000 MW. At a cost of \$12 billion, this would reportedly be the largest foreign investment in Turkey. EÜAŞ and Abu Dhabi National Energy Co. PdSC (TAQA) of the United Arab Emirates signed a memorandum of understanding to establish a project company in which TAQA would be the majority shareholder. Although initially slated to be initiated in mid-2013, the implementation of the project was

postponed in August by TAQA until 2014 (Demirkan, Ildiri, and Eryiğit, 2014, p. 425–426).

In June, Hattat Holding signed a contract with China Coal Construction to extract coal for the Amasra thermal powerplant that it owned in Bartın Province in the Black Sea region. Hattat planned to supply the plant with anthracite coal from the mine located in the same area and to increase its electricity-generating capacity to 2,640 MW (Mining Turkey, 2014, p. 21).

Natural Gas and Petroleum.—In 2013, Turkey's hydrocarbon production did not change significantly and supplied only a small portion of domestic consumption. Domestic petroleum production in Adiyaman and Batman Provinces in southeastern Anatolia met 9.6% of domestic demand, and domestic natural gas production met about 1.5% of domestic demand (Türkiye Petrolleri Anonim Ortaklığı, 2014a, p. 27–28; U.S. Energy Information Administration, 2014).

Turkey's production of refined petroleum products came mainly from four refineries located in Batman, Izmir, Izmit, and Kirikkale Provinces. In 2013, the average capacity utilization rate in these refineries decreased to 75.1% from 78.7% in 2012. Their output consisted of diesel (33%), gasoline (19%), jet fuel (15%), bitumen (13%), maritime oil (8%), and LPG (3%). Diesel production decreased by 2%; gasoline, by 1%; and fuel oil, by 26%. About 11% of crude petroleum supplies that were refined were produced locally, while the remaining 89% was imported. Turkey's leading import partners were Iraq, which supplied about 32% of total crude petroleum imports in 2013 (19% in 2012); Iran, 28% (39% in 2012); Saudi Arabia, 15%, (unchanged); Russia, 8% (11% in 2012); and Kazakhstan, 8% (7% in 2012) (Enerji Piyasası Düzenleme Kurumu, 2014a, p. 10–15).

In 2013, TPAO conducted offshore petroleum exploration in partnership with Exxon Mobil Corp. and Petrobras S.A. in Turkey's territorial waters in the Black Sea, which were estimated to hold 7 billion to 10 billion barrels of oil. The three companies planned to begin commercial production in 2016. TPAO continued its offshore petroleum exploration in Turkey's waters in the Mediterranean Sea offshore Antalya in partnership with Royal Dutch Shell plc. of the Netherlands and the United Kingdom. TPAO, in partnership with BP p.l.c. of the United Kingdom and Shell, operated the Akcakoca, Akkaya, and Ayazli natural gas fields in the Black Sea, which were reported to provide about one-fifth of Turkey's annual domestic natural gas production. The Akcakoca platform, which was the largest by production volume, produced between 250,000 and 300,000 cubic meters per day of natural gas in 2013. TPAO planned to drill three new wells—the Istranca-2, Istranca-3, and Istranca-4—in the Black Sea in 2014 (Hürriyet, 2013; Türkiye Petrolleri Anonim Ortaklığı, 2014a, p. 36; U.S. Energy Information Administration, 2014).

In 2013, the Government took steps to make Turkey a key energy transportation hub and to enhance energy security through construction of international natural gas and petroleum pipelines. In March, the Parliament ratified the intergovernmental agreement reached with the Government of Azerbaijan in 2012 for the construction and operation of the Trans-Anatolian Natural Gas Pipeline (TANAP), which would have an annual capacity of 30 billion cubic meters. The TANAP project would transport natural gas from the Shah Deniz II gasfield in the Caspian Sea to European markets

through Turkey. In November, Turkey signed an agreement with Egypt, the EU, Iraq, Jordan, and Lebanon on the Mashreq-EU Natural Gas Pipeline, which would transport natural gas from the Middle East to Europe by connecting the Arab Gas Pipeline to Iraq and Turkey. In November, Turkey also signed a cooperation agreement with the Kurdistan Regional Government of northern Iraq on the northern Iraq-Turkey Natural Gas Pipeline, which would provide Turkey with an annual flow of 10 billion cubic meters of natural gas from Iraq. In late November, the two parties also began negotiations on the supply of petroleum from northern Iraq to Turkey (Demirkan, Ildiri, and Eryiğit, 2014, p. 426, 433–434).

Nuclear Energy and Uranium.—In 2013, Turkey did not produce any nuclear energy or uranium. The country had identified uranium resources at at least five sites. Uranium exploration activity was undertaken actively by private companies as well as by the MTA. In May, Anatolia Energy Ltd. of Australia announced that it had acquired 100% of the Temrezli Uranium Project by merging its wholly owned subsidiary Anatolia Uranium Ltd. and its joint-venture partner Vetter Uranium Ltd. In October, Adur Madencilik Ltd. Şti., which was a subsidiary of Anatolia Energy, was granted an operating license for the Temrezli deposit in Yozgat Province in central Anatolia. This was the first time that a uranium mine had received an operating license in Turkey. The license enabled the company to build the in-situ leach well field and processing plant. Anatolia Energy announced that an operating permit was required before the work could begin and that it would apply for a permit once it had submitted an EIA (Anatolia Energy Ltd., 2013; World Nuclear News, 2013; Organisation for Economic Co-operation and Development Nuclear Energy Agency and the International Atomic Energy Agency, 2014, p. 416–418).

As of yearend 2013, plans were underway for the construction of two nuclear powerplants in Akkuyu and Sinop. The Akkuyu nuclear powerplant was to be built in Mersin Province in the central Mediterranean region and would be majority owned by Rosatom State Nuclear Energy Co. of Russia. The four-unit powerplant was planned to have an electricity generation capacity of 4,000 MW and a life cycle of 60 years. In July, the EIA was submitted to the ETKB for approval by the ministry. The first unit was scheduled to be in operation in 2020. The Government signed an agreement with the Government of Japan for the construction and operation of the Sinop plant in the central Black Sea region in early 2013. The construction would be undertaken by a consortium led by Mitsubishi Heavy Industries of Japan and Areva Group of France. At the end of 2013, the consortium and the ETKB were engaged in negotiations over project terms. The Sinop plant was expected to be in operation in 2023 (Demirkan, Ildiri, and Eryiğit, 2014, p. 426, 433; Organisation for Economic Co-operation and Development Nuclear Energy Agency and the International Atomic Energy Agency, 2014, p. 420).

Renewable Energy.—Turkey was estimated to have an average annual geothermal direct-use potential of 31,500 MW. The installed capacity for geothermal direct use was 4,813 MW as of yearend 2012, which was an increase of 46% in the past 7 years, and the overall heat-generation capacity was 7,000 MW, which was an increase of 130%. About 90% of the country's

geothermal energy potential for power generation remained untapped. In September, the Kizildere 2 geothermal powerplant was inaugurated in Denizli Province in the Aegean region. The new plant became the second largest geothermal powerplant in Turkey with a capacity of 68.5 MW after the Kizildere powerplant (Çetinkaya, 2013; Demirkan, Ildiri, and Eryiğit, 2014, p. 426).

Turkey's wind power generation has recently grown at an increasing rate, but only 5% of the country's projected wind potential was used in 2012. In September, the construction of a wind powerplant with 50 MW of capacity began in Tekirdag Province in the Marmara region. Borusan EnBW Energy, which was the owner of the project, expected to begin wind power generation by the end of 2014 (Demirkan, Ildiri, and Eryiğit, 2014, p. 426; World Bank Group, 2013).

Shale Gas.—Hydraulic fracturing operations to extract shale gas from wells began in the Thrace and the southeastern Anatolian regions, which held an estimated 4.6 trillion cubic meters of reserves. In October, TPAO and Shell began drilling Turkey's first wells for shale gas exploration in Diyarbakir according to their joint-venture agreement of November 2011 for shale gas exploration in southeastern Anatolia. Preliminary work on drilling began in Diyarbakir at the Saribugday I field in August 2012 (O'Byrne, 2012; Demirkan, Ildiri, and Eryiğit, 2014, p. 427; U.S. Energy Information Administration, 2014).

Outlook

Turkey's mineral industry is projected to continue to increase its output and exports significantly. Although its gross value added decreased slightly in 2013, the mineral industry is expected to account for a greater share of the country's GDP in coming years. Multiple exploration and extraction projects in base metals and fossil fuels and numerous capacity expansion projects in industrial minerals are expected to increase total production and capacity. Higher amounts of FDI are likely to materialize owing to the ongoing liberalization and privatization of the sector. As a result, Turkey is expected to become a substantial producer of gold in the next decade and to enhance its role as a leading supplier of boron, cement, feldspar, marble, and steel in the world (Smith, 2013; Engineering and Mining Journal, 2014; Mining Turkey, 2014).

Coal, mineral fuels, and renewable energy production and consumption are expected to increase owing to the Petroleum Law of 2013 and the 2023 Energy Strategy, which are aimed at reducing dependence on mineral fuel imports. Coal output and, in particular, lignite output from newly excavated mines is likely to increase substantially. New geothermal and wind powerplants are being developed with the assistance of The World Bank. The exploration of offshore petroleum and natural gas reserves in the Black Sea and shale gas reserves in Thrace and southeastern Anatolia may increase Turkey's hydrocarbon output in the medium term. The Mashreq, Nabucco, South Stream, Trans-Adriatic and Trans-Anatolian pipelines are projected to turn Turkey into a regional energy hub in coming years (Demirkan, Ildiri, and Eryiğit, 2014; T.C. Enerji ve Tabii Kaynaklar Bakanlığı, 2014c; U.S. Energy Information Administration, 2014).

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TABLE 1
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2009	2010	2011	2012	2013
METALS					
Aluminum ^c	35,000	60,000	60,000	60,000	65,000
Antimony:					
Ore, mine output:					
Gross weight	24,917	25,974	43,340 ^r	131,839 ^r	83,553
Sb content ^e	1,400	1,400	2,400	7,300	4,600
Concentrates: ^e					
Gross weight	5,000	5,400	8,600	26,200 ^r	16,600
Sb content	1,200	1,300	2,100	6,400 ^r	4,100
Bauxite and alumina:					
Bauxite	1,473,181	1,311,064	1,024,915	1,521,150 ^r	795,562
Alumina, gross weight ^e	80,000	160,000	160,000	200,000	105,000
Chromium, gross weight (34% to 43% chromic oxide) ²	1,573,993	1,904,461	2,901,027	3,600,000 ^r	3,200,000
Copper:					
Mine output, exclusive of pyrite: ³					
Gross weight	5,173,773 ^r	5,469,844 ^r	5,687,058 ^{r,4}	7,684,052 ^{r,4}	7,983,438 ⁴
Cu content of ore ^e	84,000 ^r	88,000 ^r	80,000	104,000 ^r	120,000
Metal: ^e					
Smelter output, primary and secondary	25,000	25,000	25,000	25,000	31,500
Refined	33,000	47,000	42,000 ^r	42,000 ^r	42,000
Gold ⁵	14,469	16,890	24,400	29,390 ^r	33,980
Iron and steel:					
Iron ore:					
Gross weight	3,855 ^r	5,814 ^r	6,450 ^r	4,970 ^r	8,589
Fe content ^e	2,000 ^r	3,000 ^r	3,400 ^r	2,600 ^r	4,500
Metal:					
Pig iron and ferroalloys:					
Pig iron	6,913,325	7,676,592	8,173,000 ^r	8,613,000 ^r	9,180,000
Ferrochromium	41,028	50,000 ^e	40,000 ^e	40,000 ^e	35,000 ^e
Ferrosilicon ^e	--	1,000	2,000	2,000	2,000
Steel, crude, including castings	25,304	29,030	34,000 ^e	35,900 ^r	34,700
Lead:					
Mine output, Pb and Pb-Zn ores:					
Gross weight	599,705	526,277	1,044,222	1,076,088	1,491,669
Pb content ^e	26,000	23,000	40,000	46,000	64,000
Concentrates: ^e					
Gross weight	45,000	40,000	78,000	80,000	111,000
Pb content	23,000	21,000	39,000	41,000	57,000
Manganese ore, gross weight ⁶	141,206	134,336	172,248	192,756 ^r	321,785
Molybdenum, gross weight	--	--	2,848	-- ^r	1,240
Nickel, mine output, Ni content ^e	800	1,700 ^r	600 ^r	2,500 ^r	700
Silver, mine output, Ag content ⁷	351,600	363,520	246,500	193,890 ^r	189,600
Zinc, mine output, Zn and Cu-Zn ore:					
Gross weight	362 ^r	238 ^r	793 ^r	1,183 ^r	1,521
Zn content ^e	70 ^r	52 ^r	161 ^r	210 ^r	301
INDUSTRIAL MINERALS					
Aluminum sulfate, alunite	2,068	433,310 ^r	--	--	13,568
Barite, crude	213,187	172,618	250,786 ^r	1,677,221 ^r	736,316
Boron minerals:					
Run of mine	3,923,494	5,823,836 ^r	6,348,487 ^r	4,220,291 ^r	4,065,655
Concentrates	1,740,000 ^r	2,220,000 ^r	2,130,000 ^r	1,632,000 ^r	1,572,000
Refined borates ^e	1,000,000	1,400,000	1,780,000 ^r	1,090,000	1,050,000
Calcite	6,291,822	6,629,005	10,084,119	9,248,471	9,727,092

See footnotes at end of table.

TABLE 1—Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2009	2010	2011	2012	2013
INDUSTRIAL MINERALS—Continued					
Cement, hydraulic thousand metric tons	53,973	62,737	63,405	63,879	71,337
Chalcedony	2,162	1,814	896	2,287	2,249
Clays:					
Bentonite	932,487	798,397	471,528 ^r	1,033,568 ^r	622,872
Kaolin	727,649	787,287 ^r	1,229,352 ^r	988,081 ^r	1,168,441
Other	2,412,609	4,030,961	3,747,503 ^r	4,119,513	3,411,915
Total	4,072,745	5,616,645 ^r	5,448,383 ^r	6,141,162 ^r	5,203,228
Diatomite	27,634	18,448	45,187	86,403 ^r	84,571
Emery	28,198	67,989	113,602	54,848	43,776
Feldspar, run of mine	4,212,547	6,281,597	4,355,003 ^r	4,524,943 ^r	4,545,197
Fluorspar	3,756	25,189	4,524 ^r	5,197 ^r	3,874
Glass, crude ^e thousand metric tons	1,800	2,000	2,000	2,000	2,000
Graphite, run of mine	2,400	--	5,250 ^r	31,500 ^r	28,740
Gypsum, other than that for cement	4,369,589	6,321,891	5,723,439	8,248,446 ^r	9,790,097
Leonardite	--	--	--	--	5,737
Lime ^{e,8} thousand metric tons	3,800 ²	4,300	4,300	4,500	4,500
Magnesium, magnesite, run of mine	861,180	2,316,763	2,588,276	2,475,828 ^r	2,597,465
Mica:					
Illite	36,509	35,622	17,265 ^r	-- ^r	800
Other	4,172	387	277	1,253 ^r	1,504
Nepheline syenite	759	1,308	1,500	4,000	404
Nitrogen, N content of ammonia ^e	100,000	200,000	200,000	280,000	280,000
Obsidian	19	106	300	1,230 ^r	3,240
Olivine	168,567	192,394	221,079	244,353	126,990
Peat	65,315	214,620	148,012	108,610 ^r	156,357
Perlite, run of mine	522,832	545,585	702,673 ^r	887,600 ^r	1,075,949
Phosphate rock	1,000	--	--	-- ^r	510,080
Pumice	4,322,543	4,198,751 ^r	5,822,501 ^r	4,556,632 ^r	5,159,047
Pyrite, cupreous, gross weight	124,130	131,315	135,190	124,000	107,792
Quartz and quartzite	1,944,057 ^r	2,542,372 ^r	4,367,678 ^r	3,430,404 ^r	3,957,836
Sepiolite (meerschaum) and palygorskite (attapulgit)	3,448	16,342	30,716 ^r	31,180	59,426
Silica (quartz) sand, gross weight	4,499,154	4,022,433	7,020,622	7,085,380 ^r	7,969,392
Sodium compounds:					
Salt, NaCl, all types thousand metric tons	3,766 ^r	4,044	6,546	5,255 ^r	5,565
Soda ash, trona do.	1,581 ^r	1,623	1,749	1,853	1,665
Sodium sulfate, concentrates	807,314 ^r	1,600,603	2,491,441 ^r	1,366,179 ^r	1,000,150
Stone:					
Basalt	1,908,544	20,320,391	18,656,135	19,300,297 ^r	23,422,845
Dolomite	11,152,094	15,224,546	20,340,135 ^r	16,950,670 ^r	17,291,454
Granite	324,718	239,819	245,911 ^r	566,650 ^r	896,348
Limestone, for cement thousand metric tons	243,184	270,441	345,014	365,348 ^r	392,352
Marble cubic meters	2,715,601	3,352,070	4,086,222	4,488,947	4,255,545
Onyx do.	2,322	2,113	7,678	13,335 ^r	15,665
Travertine do.	1,002,866	879,319	1,685,049	797,915 ^r	713,697
Sulfur: ^e					
Byproduct of petroleum	5,230 ^r	427 ^r	3,820 ^{r,4}	5,889 ^{r,4}	8,069 ⁴
S content of pyrites	32,000	34,000	35,000	32,000	28,000
Total	37,200 ^r	34,400 ^r	38,800 ^r	37,900 ^r	36,000
Talc	6,887	1,826	9,959	14,537	1,132
Titanium minerals, rutile, gross weight	4,000	1,000	--	5,000	5,000
Zeolites	141,728	33,813	214,179	60,258	33,197
Zircon	10,000	--	500	200	--

See footnotes at end of table.

TABLE 1—Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity	2009	2010	2011	2012	2013
MINERAL FUELS AND RELATED MATERIALS					
Asphalt, natural	362,435	285,362	572,089	649,830	648,953
Carbon black ^e	30,000	30,000	30,000	30,000	30,000
Coal:					
Hard coal, run of mine	2,833 ^r	2,727 ^r	2,619 ^r	3,235 ^r	2,789
Lignite, run of mine	86,870 ^r	81,957 ^r	82,375 ^r	78,014 ^r	63,324
Coke and semicoke ^e	4,000	3,900	4,000	4,000	4,000
Gas, natural, marketed	660	626	680	632 ^r	537
Petroleum: ^e					
Crude	17,000	17,800	16,400	17,000 ^r	17,350
Refinery products:					
Liquefied petroleum gas	7,200	7,900	8,800	9,000 ^r	8,500
Gasoline	30,000	33,000	35,000	37,000 ^r	37,000
Naphtha	3,700	4,000	4,000	3,500	3,500
Jet fuel and kerosene	15,900	21,000	25,000	26,000 ^r	28,000
Distillate fuel oil ⁹	35,200	36,600	40,000	41,000	34,300
Lubricants	1,700	2,200	2,800	1,800 ^r	1,100
Residual fuel oil	13,800	16,000	19,000	13,500 ^r	11,500
Asphalt	12,200	16,900	18,000	18,700 ^r	19,500
Unspecified ¹⁰	2,600	5,300	3,200	3,700 ^r	3,500
Total	122,000	143,000	156,000	154,000 ^r	147,000

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through January 23, 2015. In addition to the commodities listed, large quantities of construction materials (sand and gravel) are quarried. Also mined are diabase, sandstone, serpentine, and slate for building stone; limestone and gypsum for cement manufacture; cobalt, garnet, iron oxide pigment, and tungsten. Cast iron and refined lead also are produced, but available information is inadequate to make reliable estimates of output.

²Approximately 70% of gross production is salable product.

³Copper mines produce a copper concentrate (of about 22% Cu) and a cupreous pyrite concentrate (of about 0.7% Cu). Copper is not recovered from the cupreous pyrite concentrate.

⁴Reported figure.

⁵Data include estimated content of Turkish copper refinery tank house slimes.

⁶Does not include manganiferous iron ore from the Deveci Mine, production of which amounts to several hundred thousand metric tons per year and has a manganese content of 3% to 5%.

⁷Includes estimated content of base-metals-refinery tank house slimes.

⁸Estimated sales only.

⁹Diesel fuel (gasoil) and special heating oil.

¹⁰Includes refinery fuel and losses.

TABLE 2
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum, metal	Eti Alüminyum A.Ş. (Cengiz Holding A.Ş., 100%)	Smelter at Seydisehir, Konya Province	70
Antimony ore, Sb content	Eti Bakır A.Ş. (Cengiz Holding A.Ş., 100%)	Halikoy, Izmir Province	100
Do.	Özdemir Antimuan Maden Limited Şti. (Koza-İpek Holding A.Ş.)	Turhal, Tokat Province	NA
Bauxite and alumina:			
Alumina	do.	Refinery at Seydisehir, Konya Province	270
Bauxite	do.	Mines near Madenli, about 25 kilometers south of Seydisehir, Konya Province	500
Do.	Demireller Tarım Madencilik Petrol Sanayi ve Ticaret Limited Şti.	Mines near Arslankoy, Mersin Province	500
Do.	Albuck Madencilik San. ve Tic. A.Ş.	Mine near Cirpi, Mugla Province	NA
Do.	do.	Mine near Mihaliccik, Eskisehir Province	NA
Boron:			
Concentrate and ground ore	Bigadiç Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Four open pit mines at Bigadic, Balikesir Province	650
Do.	Emet Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Espey Mine, Emet, Kutahya Province	500
Do.	do.	Hisarcik Mine, Emet, Kutahya Province	500
Do.	Kestelek Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Kestelek Mine, Bursa Province	100
Do.	Kırka Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Mine at Kırka, Eskisehir Province	800
Refined borates	Bandırma Bor ve Asit Fabrikaları İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Plant at Bandırma, Balikesir Province	100
Do.	Emet Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Boric acid plant, Emet, Kutahya Province	100
Do.	Kırka Bor İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Plant at Kırka, Eskisehir Province	600
Calcite	Hisar Madencilik (Kombassan Holding, 100%)	2 plants in Aksaray and Aydin	120
Cement:			
Gray portland	Adana Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 57%]	Adana, Adana Province	3,400
Do.	do.	Iskenderun grinding plant, Iskenderun, Hatay Province	1,000
Do.	Afyon Çimento Sanayii Ticaret A.Ş. (Ciments Français S.A., 77%)	Afyon, Afyonkarahisar Province	550
Do.	Akçansa Çimento Sanayi ve Ticaret A.Ş. (HeidelbergCement AG, 40%, and Sabancı Holding A.Ş., 40%)	Buyukcekmece plant, Buyukcekmece, Istanbul Province	2,800
Do.	do.	Canakkale plant, about 11 kilometers northwest of Ezine, Canakkale Province	3,500
Do.	do.	Ladik plant, Ladik, Samsun Province	1,050
Do.	Aslan Çimento A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 97%]	Darica plant, Gebze, Kocaeli Province	2,880
Do.	AS Çimento Sanayi ve Ticaret A.Ş.	Bucak, Burdur Province	6,500
Do.	Aşkale Çimento Sanayi ve Ticaret A.Ş.	Trabzon plant, Degirmendere, Trabzon Province	800
Do.	do.	Askale, Erzurum Province	720
Do.	Bakırçay Çimento Sanayii ve Ticaret A.Ş. (Kars Çimento San. ve Tic. A.Ş., 98%)	Poyracik, near Kinik, Izmir Province	12
Do.	Bartın Çimento Sanayii ve Ticaret A.Ş. (Sanko Holding A.Ş.)	Bartın plant, Bartın Province	400
Do.	Baştaş Çimento Sanayii A.Ş. (Vicat Group, 85%)	Elmadag, Ankara Province	1,500
Do.	Batiçim Batı Anadolu Çimento Sanayii A.Ş. (Orascom Construction Industries, 23%)	Bornova, Izmir Province	1,600
Do.	Batsöke Söke Çimento Sanayii ve Ticaret A.Ş. (Batiçim Batı Anadolu Çimento Sanayii A.Ş., 75%)	Soke, Aydin Province	1,300
Do.	Bolu Çimento Sanayii A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 52%]	About 14 kilometers east of Bolu, Bolu Province	2,200
Do.	do.	Ankara grinding plant, Kazan, Ankara Province	800
Do.	Bursa Çimento Sanayii ve Ticaret A.Ş. (Bursa Çimento Fabrikası A.Ş., 98%)	Kestel, Bursa Province	2,850

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement—Continued:			
Gray portland—Continued	Çimentaş İzmir Çimento Fabrikası Türk A.Ş. (Interce SA, 67%, and Cementir Holding SpA, 29%)	Isikkent, Izmir Province	2,600
Do.	do.	Trakya plant, Lalapasa, Edirne Province	1,300
Do.	Çimko Adıyaman Çimento ve Beton Sanayii ve Ticaret A.Ş. (Çimko Çimento ve Beton Sanayii Ticaret A.Ş.)	About 18 kilometers southwest of Adıyaman, Adıyaman Province	1,350
Do.	Çimko Çimento Kahramanmaraş Narlı Fabrikası (Çimko Çimento ve Beton Sanayii Ticaret A.Ş.)	Narlı plant, Narlı, Kahramanmaraş Province	3,300
Do.	Cimpor Yibitaş Çimento Sanayii ve Ticaret A.Ş. (Cimpor Internacional, SGPS, S.A., 99%)	Corum plant, Corum, Corum Province	950
Do.	do.	Hasanoglan grinding plant, Hasanoglan, Ankara Province	725
Do.	do.	Nevşehir grinding plant, Kalaba, Nevşehir Province	300 ^c
Do.	do.	Samsun grinding plant, about 6 kilometers west of Samsun, Samsun Province	300 ^c
Do.	do.	Sivas plant, Sivas, Sivas Province	615
Do.	do.	Yozgat plant, Saraykoy, Yozgat Province	800
Do.	Çimsa Çimento Sanayii ve Ticaret A.Ş. (Sabancı Holding A.Ş., 47%)	Ankara grinding plant, Lalahan, Ankara Province	230
Do.	do.	About 20 kilometers northwest of Eskisehir, Eskisehir Province	1,800
Do.	do.	Near Aginas, Kayseri Province	1,000
Do.	do.	Mersin plant, Yenitaskent, Mersin Province	2,300
Do.	do.	Nigde plant, Nigde, Nigde Province	1,200
Do.	Denizli Çimento Sanayi ve Ticaret A.Ş. (CRH plc, 50%, and Eren Holding A.S., 50%)	About 5 kilometers northwest of Kaklik, Denizli Province	2,500
Do.	Elazığ Çimento A.Ş. (Kars Çimento Sanayii ve Ticaret A.Ş., 93.55%; Cimentas A.Ş., 6.17%; Bakırçay Çimento Sanayii ve Ticaret A.Ş., 0.27%)	Elazig, Elazig Province	900
Do.	Ereğli Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 50%]	Karadeniz Ereğli plant, Kemer, Zonguldak Province	300
Do.	Göлтаş Çimento A.Ş. (Sadecib S.A., 34%, and Göl Yatırım Holding A.Ş., 28%)	About 15 kilometers north-northwest of Isparta, Isparta Province	2,900
Do.	Kars Çimento Sanayii ve Ticaret A.Ş. (Cimentas A.Ş., 58%, and Alfacem Srl, 40%)	Bozkale, Kars Province	600
Do.	Konya Çimento Sanayii A.Ş. (Vicat Group, 81%)	Konya, Konya Province	1,600
Do.	Lafarge Van Çimento A.Ş. (Lafarge S.A., 99.99%)	Edremit, Van Province	600
Do.	Limak Kurtalan Çimento Sanayii ve Ticaret A.Ş. (Limak Şirketler Grubu)	Ambarlı grinding plant, Buyukcekmece, Istanbul Province	1,200
Do.	do.	Ankara plant, Ankara, Ankara Province	1,300
Do.	do.	Balikesir, Balikesir Province	500
Do.	do.	Gaziantep plant, Gaziantep (Sehit Kamil), Gaziantep Province	1,400
Do.	do.	Kurtalan plant, Kurtalan, Siirt Province	1,140
Do.	do.	Sanliurfa plant, about 14 kilometers north-northwest of Sanliurfa, Sanliurfa Province	1,400
Do.	do.	Trakya plant, Pinarhisar, Kırklareli Province	800
Do.	Limak Madencilik Yapı Çimento Sanayii ve Ticaret A.Ş. (Limak Şirketler Grubu)	Ergani plant, Ergani, Diyarbakir Province	1,400
Do.	Limak-İstaç İnşaat Sanayi ve Ticaret A.Ş.	Bitlis plant, Bitlis Province	525
Do.	Mardin Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 56%]	About 6 kilometers northeast of Mardin, Mardin Province	2,000
Do.	Nuh Çimento Sanayi A.Ş. (Nuh Ticaret ve Sanayi A.Ş., 43%)	Hereke, Kocaeli Province	5,817

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement—Continued:			
Gray portland—Continued	Traçim Çimento Sanayii ve Ticaret A.Ş. (Soyak Holding A.Ş. and TBS Taşıma Beton A.Ş.).	Evrencik, Vize, Kırklareli Province	2,000
Do.	Ünye Çimento Sanayi ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 51%, and Nuh Çimento Sanayi A.Ş., 39%]	Unye, Ordu Province	2,600
Slag	Karçimsa Çimento Sanayii ve Ticaret A.Ş. (Akçansa Çimento Sanayi ve Ticaret A.Ş.)	Karabuk, Karabuk Province	200
White	Adana Çimento Sanayii ve Ticaret A.Ş. [Ordu Yardımlaşma Kurumu (OYAK) Çimento Grubu, 57%]	Adana, Adana Province	325
Do.	Çimsa Çimento Sanayii ve Ticaret A.Ş. (Sabancı Holding A.Ş., 47%)	Mersin plant, Yenitaskent, Mersin Province	1,000 ^e
Coal:			
Anthracite	Amasra Taskömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (T.T.K.)] (Government)	Amasra Mine, Amasra, Bartın Province	5,000
Do.	Armutçuk Taskömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (T.T.K.)] (Government)	Armutçuk Mine, Kandilli, Zonguldak Province	400
Do.	Karadon Taskömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (T.T.K.)] (Government)	Karadon Mine, Kilimli, Zonguldak Province	450
Do.	Kozllu Taskömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (T.T.K.)] (Government)	Kozlu Mine, Kozlu, Zonguldak Province	600
Do.	Üzülmez Taskömürü İşletme Müessesesi [Türkiye Taşkömürü Kurumu (T.T.K.)] (Government)	Uzulmez Mine, Asma, Zonguldak Province	500
Lignite ¹	Bursa Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Genel Müdürlüğü (TKİ)] (Government)	Bursa lignite facility, Orhaneli, Bursa Province	1,000
Do.	Çan Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Genel Müdürlüğü (TKİ)] (Government)	Can lignite facility, Can, Canakkale Province	1,800
Do.	Ege Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Genel Müdürlüğü (TKİ)] (Government)	Soma Mine, Soma, Manisa Province	10,500
Do.	Garp Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Genel Müdürlüğü (TKİ)] (Government)	Tuncbilek mining center, Tavşanlı, Kutahya Province	7,000
Do.	Güney Ege Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Genel Müdürlüğü (TKİ)] (Government)	South Aegean lignite facility, Yatagan, Muğla Province	4,900
Do.	Ilgın Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Genel Müdürlüğü (TKİ)] (Government)	Ilgin lignite facility, Ilgin, Konya Province	300
Do.	Seyitömer Linyitleri İşletmesi Müessesesi Müdürlüğü [Türkiye Kömür İşletmeleri Genel Müdürlüğü (TKİ)] (Government)	Seyitömer lignite facility, Seyitömer, Kutahya Province	8,000
Do.	Yeniköy Linyitleri İşletmesi Müdürlüğü [Türkiye Kömür İşletmeleri Genel Müdürlüğü (TKİ)] (Government)	Yeniköy lignite facility, Oren (Milas), Muğla Province	8,500
Copper:			
Concentrate, Cu content	Çayeli Bakır İşletmeleri A.Ş. (First Quantum Minerals Ltd., 100%)	Cayeli Mine, near Cayeli, Rize Province	37
Do.	Demir Export A.Ş. (Koç Holding A.Ş.)	Lahanos Mine, Giresun Province	4
Do.	Eti Bakır A.Ş. (Cengiz Holding A.Ş., 100%)	Kastamonu Kure facility (three open pit mines and one underground mine), 50 kilometers north of Kastamonu, Kastamonu Province	100
Do.	Eti Bakır A.Ş. (Cengiz Holding A.Ş., 100%)	Murgul facility (three open pit mines, including the Anayatak and the Cakmakaya Mines), Murgul, Artvin Province	120
Do.	Kuzey Ege Bakır İşletmeleri A.Ş. (Özdoğu İnşaat Tic. Ltd. Şti, 100%)	Tepeoba, Balıkesir Province	55
Do.	Nesko Maden (Yıldızlar SSS Holding, 100%)	Ivrindi facility, Balıkesir Province	NA
Do.	do.	Kocayayla Mine, Canakkale Province	NA
Do.	do.	Yenice Mine, Canakkale Province	NA
Do.	Park Elektrik Üretim Madencilik San. ve Tic. A.Ş. (Park Holding A.Ş., 61.24%, Turgay Ciner, 6.76%, others, 32%)	Siirt Madenkoy	20
Anode (blister)	Eti Bakır A.Ş. (Cengiz Holding A.Ş.)	Smelter, Tekkekoy, Samsun Province	38
Cathode	Er-Bakır Elektrolitik Bakır Mamulleri A.Ş.	Denizli, Denizli Province	200
Do.	Sarkuysan Elektrolitik Bakır San. ve Tic. A.Ş.	Darica, Kocaeli Province	200

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of main facilities	Annual capacity
Ferrocromium, high-carbon	Eti Krom A.Ş. (Yildirim Holding A.Ş.)		About 55 kilometers east of Elazig, Elazig Province	150
Do.	Eti Elektrometalurji A.Ş. (Özdoğu İnşaat Tic. Ltd. Şti, 100%)		12 mines in Mugla, Fethiye, and Gocek	100
Fertilizer:				
Ammonium nitrate	Kütahya Gübre Sanayii A.Ş. (Yıldız Yatırım Holding A.Ş.)		Kutahya, Kutahya Province	344
Diammonium phosphate	Samsun Gübre Fabrikası [Türkiye Gübre Sanayii A.Ş. (TÜGSAŞ)]		Tekkekoy, Samsun Province	227
Do.	Ege Gübre Sanayii A.Ş.		Aliaga, Izmir Province	165
Do.	İstanbul Gübre Sanayi A.Ş. (IGSAŞ) (Yıldız Yatırım Holding A.Ş.)		Korfez, Kocaeli Province	240
Monoammonium phosphate	Ege Gübre Sanayii A.Ş.		Aliaga, Izmir Province	130
Gold:				
Ore, Au content	kilograms	Koza Altın İşletmeleri A.Ş. (ATP İnşaat ve Ticaret A.Ş., 60%, and Koza İpek Holding A.Ş., 40%)	Ovacik Mine, Ovacik, Mugla Province	2,000
Do.	do.	do.	Mastra Mine, near Demirkaynak, Gumushane Province	5,000
Do.	do.	do.	Cukuralan Mine, Dikili, Izmir Province ²	3,800
Do.	do.	do.	Corakliktepe Mine, Ovacik, Mugla Province	500
Do.	do.	do.	Hitmetdede Mine, Kayseri Province	NA
Do.	do.	do.	Kaymaz Mine, Sivrihisar, Eskisehir Province	3,300
Do.	do.	Anagold Madencilik Sanayi ve Ticaret A.Ş. (Alacer Gold Corp., 80%, and Lidya Madencilik Sanayi ve Ticaret A.Ş., 20%)	Copler Mine	6,000
Do.	do.	Pomzaexport Madencilik Sanayi ve Ticaret A.Ş.	Sart placer mine, Manisa Province	NA
Do.	do.	Tüprağ Metal Madencilik Sanayi ve Ticaret A.Ş. (Eldorado Gold Corp., 100%)	Kisladag Mine, Katranci, Usak Province	10,000
Do.	do.	do.	Efemcukuru Mine, Izmir Province	4,000
Metal	metric tons	Atasay Kuyumculuk Sanayi ve Ticaret A.S.	Refinery at Istanbul	15
Do.	do.	İstanbul Altın Rafinerisi A.Ş.	do.	120
Do.	do.	Nadir Metal Rafineri A.Ş.	do.	140
Iron and steel:				
Iron ore		Erdemir Madencilik Sanayi ve Ticaret A.Ş. (Ereğli Demir ve Çelik Fabrikaları T.A.Ş.) (Erdemir)	Fourteen mines in the Divrigi area, Sivas Province	2,900
Do.		Hekimhan Madencilik İthalat İhracat Sanayi ve Ticaret Ltd. Şti. (Kolin İnşaat Turizm Sanayi ve Ticaret A.Ş.)	Deveci Mine, Malatya Province	2,000
Steel:				
Crude		Asil Çelik A.Ş.	Plant south of Orhangazi, Bursa Province	485
Do.		Bilecik Demir Çelik Sanayi ve Ticaret A.Ş. (Global Yatırım Holding A.Ş., 40%)	Bilecik, Bilecik Province	240
Do.		Çebitaş Demir Çelik Endüstrisi A.Ş.	Aliaga, Izmir Province	750
Do.		Çelik Makina Sanayi ve Ticaret A.Ş. (ÇEMTAŞ)	Bursa, Bursa Province	174
Do.		CER Çelik Endüstrisi A.Ş.	Plant at Bornova, Izmir Province	850
Do.		Çolakoğlu Metalurji A.Ş.	Dilovasi, Kocaeli Province	3,200
Do.		Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.	do.	1,500
Do.		Ege Çelik Endüstrisi Sanayi ve Ticaret A.Ş.	Aliaga, Izmir Province	2,000
Do.		Ekinciler Holding A.Ş.	About 10 kilometers north of Iskenderun, Hatay Province	1,000
Do.		Erege Metal Demir Çelik Sanayi ve Ticaret A.Ş.	Aliaga, Izmir Province	720
Do.		Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir) (Ataer Holding A.Ş., 49.29%, and ArcelorMittal, 24.99%)	Karadeniz Ereğli, Zonguldak Province	3,800
Do.		Habaş Sınai ve Tibbi Gazlar İstihsal Endüstrisi A.S. (Habaş Topluluğu)	Aliaga, Izmir Province	3,000
Do.		İçdaş Demir Çelik Enerji Tersane ve Ulaşım Sanayi A.Ş.	Istanbul (Gunesli), Istanbul Province	1,000
Do.		do.	About 25 kilometers north of Biga, Canakkale Province	1,500
Do.		İlhan Metalurji A.Ş.	Toprakkale, Osmaniye Province	220
Do.		İskenderun Demir ve Çelik A.Ş. (Isdemir) [Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir), 92%]	Iskenderun, Hatay Province	4,700
Do.		İzmir Demir Çelik Sanayi A.Ş. (IDÇ)	Aliaga, Izmir Province	1,320
Do.		Kaptan Demir Çelik Endüstrisi ve Ticaret A.Ş.	Marmara Ereğlisi, Tekirdag Province	1,400
Do.		Karabük Demir Çelik Sanayi ve Ticaret A.Ş. (Kardemir) (Kardemir retirement group, 68%, and Kardemir employees, 21%)	Karabuk, Karabuk Province	1,500

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Iron and steel—Continued:			
Steel—Continued:			
Crude—Continued	Kroman Çelik Sanayii A.Ş.	Cayırova, Kocaeli Province	1,250
Do.	Makina ve Kimya Endüstrisi Kurumu Genel Müdürlüğü (MKEK)	Kirikkale, Kirikkale Province	60
Do.	Mega Demir Mamulleri Sanayi ve Ticaret Ltd. ŞTI	North of Iskenderun, Hatay Province	220
Do.	Nursan Metalurji A.Ş.	Payas, Hatay Province	1,100
Do.	Sivas Demir Çelik İşletmeleri A.Ş. (Sidemir)	About 20 kilometers south of Sivas, Sivas Province	350
Do.	Tosyalı Demir Çelik Sanayi A.Ş. (Tosyalı Holding A.Ş.)	Iskenderun, Hatay Province	NA
Do.	Yazıcı Demir Çelik Endüstrisi ve Ticaret A.Ş. (Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.)	Karabuk, Karabuk Province	900
Do.	Yeşilyurt Demir Çelik A.Ş.	Tekkekoy, Samsun Province	1,300
Rolled products	Asil Çelik A.Ş.	Rolling mill south of Orhangazi, Bursa Province	200
Do.	Borçelik Çelik Sanayii ve Ticaret A.Ş. (ArcelorMittal and Borusan Holding A.Ş.)	Near Gemlik, Bursa Province	1,600
Do.	Çebitaş Demir Çelik Endüstrisi A.Ş.	Aliaga, Izmir Province	600
Do.	Çelik Makina Sanayi ve Ticaret A.Ş. (ÇEMTAŞ)	Bursa, Bursa Province	230
Do.	CER Çelik Endüstrisi A.Ş.	Rolling mill at Bornova, Izmir Province	300
Do.	Çolakoğlu Metalurji A.Ş.	Dilovasi, Kocaeli Province	750
Do.	Demirsan Haddecilik Sanayi ve Ticaret A.Ş.	do.	NA
Do.	Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.	do.	800
Do.	Ege Çelik Endüstrisi Sanayi ve Ticaret A.Ş.	Aliaga, Izmir Province	1,200
Do.	Ekinciler Holding A.Ş.	About 10 kilometers north of Iskenderun, Hatay Province	1,100
Do.	Erege Metal Demir Çelik Sanayi ve Ticaret A.Ş.	Aliaga, Izmir Province	400
Do.	Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir) (Ataer Holding A.Ş., 49.29%, and ArcelorMittal, 24.99%)	Karadeniz Ereğli, Zonguldak Province	8,800
Do.	Habaş Sınai ve Tibbi Gazlar İstihsal Endüstrisi A.S. (Habaş Topluluğu)	Aliaga, Izmir Province	NA
Do.	İçdaş Demir Çelik Enerji Tersane ve Ulaşım Sanayi A.Ş.	Istanbul (Gunesli), Istanbul Province	1,500
Do.	do.	About 25 kilometers north of Biga, Canakkale Province	1,500
Do.	Intermet A.Ş.	Two rolling mills, Istanbul, Istanbul Province	600
Do.	İskenderun Demir ve Çelik A.Ş. (Isdemir) [Ereğli Demir ve Çelik Fabrikaları T.A.Ş. (Erdemir), 92%]	Iskenderun, Hatay Province	3,500
Do.	İzmir Demir Çelik Sanayi A.Ş. (İDÇ)	Aliaga, Izmir Province	900
Do.	Kaptan Demir Çelik Endüstrisi ve Ticaret A.Ş.	Marmara Ereğlisi, Tekirdag Province	700
Do.	do.	Corlu, Tekirdag Province	200
Do.	do.	Karabuk, Karabuk Province	100
Do.	Karabük Demir Çelik Sanayi ve Ticaret A.Ş. (Kardemir) (Kardemir retirement group, 68%, and Kardemir employees, 21%)	do.	700
Do.	Kar-demir Haddecilik Sanayi ve Ticaret Ltd. ŞTI	Aliaga, Izmir Province	700
Do.	Kocaeli Haddecilik Sanayi ve Ticaret Ltd. ŞTI. (Kocaeli Grubu)	do.	600
Do.	do.	Denizli, Denizli Province	100
Do.	Kroman Çelik Sanayii A.Ş.	Bar and profile mill at Cayirova, Kocaeli Province	200
Do.	Kürüm Demir Sanayi Dış Ticaret A.Ş.	Gebze, Kocaeli Province	445
Do.	Nursan Haddecilik A.Ş.	Payas, Hatay Province	500
Do.	Özefe Demir Sanayi ve Tic A.Ş. (Efesan Demir Sanayi ve Ticaret A.Ş.)	Bar mills at Alibeykoy, Istanbul Province	250
Do.	Özkan Demir Sanayi A.Ş.	Aliaga, Izmir Province	500
Do.	Sivas Demir Çelik İşletmeleri A.Ş. (Sidemir)	About 20 kilometers south of Sivas, Sivas Province	450
Do.	Sözer Demir Çelik A.Ş.	Aliaga, Izmir Province	220
Do.	Yazıcı Demir Çelik Endüstrisi ve Ticaret A.Ş. (Diler Demir Çelik Endüstrisi ve Ticaret A.Ş.)	Karabuk, Karabuk Province	1,024
Do.	Yeşilyurt Demir Çelik A.Ş.	Tekkekoy, Samsun Province	720

See footnotes at end of table.

TABLE 2—Continued
TURKEY: STRUCTURE OF THE MINERAL INDUSTRY IN 2013

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Liquefied natural gas million cubic meters	Boru Hatları İle Petrol Taşıma A.Ş. (Botaş) (Government)	Botas Marmara Ereğlisi regasification terminal, Sultanköy, Tekirdağ Province	6,500
Do.	EgeGas LNG (Çolakoğlu Group, 100%)	Aliaga regasification terminal, Aliaga, İzmir Province	6,000
Magnesite, dead-burned	Kümaş Kutahya Manyezit İşletmeleri A.Ş. (Zeytinoğlu Holding A.Ş.)	Kutahya, Kutahya Province	185
Molybdenum metric tons	Kuzey Ege Bakır İşletmeleri AŞ (Özdoğu İnşaat Tic. Ltd. Şti, 100%)	Tepeoba, Balıkesir Province	2,500
Nickel, ore, metal content	Meta Nikel Kobalt A.Ş. (Meta Mining Co., 50%, and Zorlu Group, 50%)	Gordes Mine, Manisa Province	NA
Do.	do.	Yunussemre Mine, Eskisehir Province	NA
Do.	Çaldağ Nikel Madencilik San. ve Tic. A.Ş.	Caldag Mine, ³ about 25 kilometers north of Turgutlu, Manisa Province	NA
Nitrogen, N content of ammonia	Istanbul Gübre Sanayii A.Ş. (IGSAŞ) (Yıldız Yatırım Holding A.Ş.)	Korfez, Kocaeli Province	326
Do.	Gemlik Gübre Sanayii A.Ş. [Türkiye Gübre Sanayii A.Ş. (TÜGSAŞ)]	Gemlik, Bursa Province	270
Perlite	Bergama Mining Construction Machinery Perlite Industry & Trade Inc. (Cullas Group)	Bergama plant, İzmir Province	120
Do.	do.	Konya plant, Konya Province	20
Petroleum, refined products thousand 42-gallon barrels per day	Türkiye Petrol Rafinerileri A. Ş. (Tüpras) (Enerji Yatırımları A.S., 51%)	Izmir refinery, Aliaga, İzmir Province	78,650
Do.	do.	Izmit refinery, Izmit, Kocaeli Province	78,650
Do.	do.	Kirikkale refinery, Kirikkale, Kirikkale Province	55,000
Do.	do.	Batman refinery, Batman, Batman Province	12,100
Do.	Ersan Petrol Sanayii A.Ş (Sayer Group, 100%)	Narli refinery, ³ Narli, Kahramanmaraş Province	1,330
Phosphate rock	Eti Bakır A.Ş. (Cengiz Holding, 100%)	Mazıdağı	750
Silver			
Ore metric tons	Eti Gümüş A.Ş. (Yıldızlar SSS Holding)	Gumusköy, Kutahya Province	12,000
Metal do.	Atasay Kuyumculuk Sanayi ve Ticaret A.S.	Refinery at Istanbul	NA
Do.	Istanbul Altın Rafinerisi A.Ş.	do.	NA
Do.	Nadir Metal Rafineri A.Ş.	do.	150
Soda ash	Alkim Alkali Kimya	Cayirhan Mine, Ankara Province	150
Do.	Eti Soda A.Ş. [Ciner Group, 74%, and Eti Maden İşletmeleri Genel Müdürlüğü (Government), 26%]	Beypazari trona mine and soda ash plant, Beypazari, Ankara Province	1,000
Do.	Soda Sanayii A.Ş [Türkiye Şişe ve Cam Fabrikaları A.Ş. (ŞİŞECAM)]	Kazanlı, Mersin Province	1,150
Sulfur	Türkiye Petrol Rafinerileri A. Ş. (Tüpras) (Enerji Yatırımları A.S., 51%)	Izmir refinery, Aliaga, İzmir Province	NA
Do.	do.	Izmit refinery, Izmit, Kocaeli Province	NA
Do.	do.	Kirikkale refinery, Kirikkale, Kirikkale Province	NA
Sulfuric acid	Bandırma Bor ve Asit Fabrikaları İşletme Müdürlüğü (Eti Maden İşletmeleri Genel Müdürlüğü) (Government)	Plant at Bandırma, Balıkesir Province	240
Zinc concentrate, Zn content	Çanakkale Madencilik Limited Şti.	Koru Mine, Çanakkale Province	5
Do.	Çayeli Bakır İşletmeleri A.Ş. (First Quantum Minerals Ltd., 100%)	Çayeli Mine, near Çayeli, Rize Province	52
Do.	Dedeman Madencilik Tic. ve San. A.Ş.	Delikkaya and Yesil Hisar Cadirkaya Mines, Kayseri Province	10
Do.	Eczacıbaşı Esan	Balya Mine, Balıkesir Province	120
Do.	Elkin Maden Tic. ve San. A.Ş.	Mines in Hakkari Province	NA
Do.	Meskan Ölmez Madencilik Harfiyat İnşaat yol Yapım Petrol Ürünleri İthalat İhracat Nakliye Taahüt San. ve Tic.	do.	20
Do.	RCR ve Seyitoğlu Madencilik İthalat İhracat Tic. ve San. A.Ş. (Red Crescent Resources Ltd. and the Seyitoğlu family)	Hakkari Mine	NA
Do.	Seyitoğlu Madencilik A.Ş.	Mines in Hakkari Province	NA
Do.	Silvermet Inc.	İskenderun, Hatay Province	12

^eEstimated. Do., do. Ditto. NA Not available.

¹Includes subbituminous coal.

²Suspended operations in 2013.

³Inactive.