Estonia, which is one of the Baltic States of northern Europe, was ranked eighth in the world in peat production in 2015, accounting for 3.4% of the world’s total. The country produced mostly industrial minerals, including cement, clay, crushed stone, dolomite, gravel, lime, limestone, nitrogen (ammonia), and silica sand. Mineral fuels produced included coke, fuel oil, and oil shale. Oil shale was important to the country’s economy because much of it was used in powerplants to generate 77% of the country’s electricity (Statistics Estonia, 2016d, p. 318; Apodaca, 2017).

Estonia’s real gross domestic product (GDP) increased by 1.1% in 2015 compared with 2.9% in 2014, and the nominal GDP was $22.7 billion.¹ The slow growth was owing mainly to weak economies in neighboring countries, which reduced demand for Estonian exports, and market uncertainties. In 2015, industrial production decreased by 2.2% compared with that of 2014. Energy production decreased by 13.4%, and mining production decreased by 4.7%. In 2015, mining and quarrying accounted for about 1.2% of the GDP (Eesti Pank, 2016, p. 4, 16, 19; Estonia.eu, 2016; Eurostat, 2016; International Monetary Fund, 2016; Statistics Estonia, 2016a; 2016c, p. 182; 2016d, p. 190, 211–212; 2016e).

According to the Government, the country’s foreign trade had been declining since 2013. In 2015, the value of exported goods decreased by 4% to $12.9 billion compared with that of 2014. The decrease in exports in 2015 was owing largely to decreased exports of mineral products, electrical equipment, and agricultural products. Mineral products made up 9.4% of total exports in 2015 and were valued at $1.6 billion—a decrease of about 18%, by value, from that of 2014. In 2015, about 75% of Estonia’s exports went to European Union (EU) countries. Estonia’s principal export partners during the year were the Commonwealth of Independent States (CIS) countries, Finland, Germany, Latvia, Lithuania, and Sweden (Statistics Estonia, 2016b).

The value of imported goods decreased by 5% to $14.5 billion compared with that of 2014 and resulted in a trade deficit of $1.6 billion. The decrease was owing largely to decreased imports of agricultural products, electrical equipment, and mineral products. Mineral products made up about 11% of total imports in 2015 and were valued at $1.6 billion—a decrease in value of 20% compared with that of 2014. About 83% of Estonia’s imports in 2015 originated from EU countries, and mineral products were imported mostly from Finland and Lithuania. During the year, Estonia’s main import partners were Finland, Germany, Latvia, Lithuania, the Netherlands, Poland, Russia, and Sweden (Statistics Estonia, 2016b).

¹Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US$) at an average annual exchange rate of EUR0.9012=US$1.00 for 2015.

Production

In 2015, the production of lime increased by 68% compared with that of 2014; electrode coke, by 51%; gravel, pebbles, shingle, and flint, by 42%; and nitrogen (N content of ammonia), by 17%. Several mineral commodities showed decreases in production in 2015 compared with that of 2014. The production of peat for fuel and peat briquets decreased by 77% and 76% respectively; limestone, by 53%; clinker production, by 51%; clays and kilts used in construction, by 46%; dolomite, by 32%; crushed limestone, by 19%; and portland and other cement, by 13% (table 1).

Structure of the Mineral Industry

In 2015, 150 companies were operating in the mining and quarrying sector of Estonia, of which 130 were privately owned domestic companies, 19 were foreign owned, and 1 was owned by the Government. The mining and quarrying sector employed 3,100 people in 2015. Table 2 is a list of the major mineral industry facilities in the country (Statistics Estonia, 2016d, p. 163, 235).

Commodity Review

Industrial Minerals

Cement.—In May, AS Kunda Nordic T cement announced a reduction in its output owing to reduced clinker exports to Russia. The reduced exports likely accounted for the decline in production of clinker and cement in 2015, by 51% and 13%, respectively, compared with that of 2014. AS Kunda Nordic T cement, which was a subsidiary of HeidelbergCement Sweden AB of Sweden (75%) and CRH Europe Holding BV of the Netherlands (25%), operated the country’s only cement plant; the plant was located at Kunda in northeastern Estonia. The plant had production capacities of 750,000 metric tons per year (t/yr) of cement and 650,000 t/yr of clinker. The company also operated five ready-mix concrete plants and owned an oil shale deposit, which provided fuel for the cement kilns. In addition, AS Kunda Nordic T cement operated the largest limestone quarry in the country; the quarry produced crushed limestone and other aggregates (CemNet.com, 2014; Global Cement News, 2015; International Cement Review, 2015, p. 127; AS Kunda Nordic T cement, 2016).

Nitrogen (Ammonia).—Nitrofert JSC, which was wholly owned by Group DF of Ukraine, was Estonia’s only producer of mineral fertilizers and specialized in the production of synthetic ammonia and urea. The Nitrofert fertilizer plant was located in the Kohtla-Jarve region and employed 426 people. The plant had a production capacity of 220,000 t/yr of urea, 180,000 t/yr of liquid ammonia, and 30,000 t/yr of aqueous ammonia. The company exported almost 90% of its urea production and 100% of its ammonia production to Western Europe. The company had
been mostly idle since 2009 owing to decreases in the global market prices, and operated for only a few months in 2012 and 2013. In July 2015, the company announced that it would lay off all its employees by the end of the year; however, the company would not be shut down but its assets would be frozen (GDF Group DF, 2014; Hobemagi, 2015; Laats, 2015b; Eurofound, 2016; OSTCHEM, 2016).

**Rare Earths.**—On June 9, a major fire took place at one of Molycorp Silmet AS’s buildings in the town of Sillamae. The fire destroyed a production line for rare-earth metals but, according to the company, the production line would be rebuilt. Molycorp Silmet, which was a wholly owned subsidiary of Molycorp Minerals LLC of the United States, was located in northeastern Estonia about 200 kilometers from Tallinn. Molycorp Silmet was one of the largest rare-earth metal producers in Europe and employed more than 550 people. Molycorp Silmet exported its products to Asia and Europe (including countries of the former Soviet Union), and to North America and South America (Molycorp Inc., 2014a; 2014b, p. 9, 46; Gerden, 2015).

**Mineral Fuels and Other Sources of Energy**

**Oil Shale.**—In late 2015, the Government approved a 15-year plan for the development of oil shale. The plan would keep mining quotas at the current level of 20 million metric tons per year (Mt/yr). The purpose of the plan was to decrease the environmental impact of mining the oil shale through research into new production technologies and by reducing oil shale’s contribution to the country’s production of electricity to 50%, and heat, to 80% (Laats, 2015a).

In November, Viru Keemia Grupp AS (VKG), which was the leading producer of shale oil in Estonia, opened its third oil-shale-processing plant based on Petrotro technology. The Petrotro I and II plants, which were completed in 2009 and 2014, respectively, and the Petrotro III plant were all located in Kohtla-Jarve in northeastern Estonia. Construction of the new Petrotro III plant started in October 2013 and was completed in September 2015. The cost of the project was about 84 million euros ($93 million). The plant was expected to process about 1 Mt/yr of oil shale, which would produce about 135,000 t/yr of oil products, as well as byproduct electrical and heat energy. The three Petrotro processing plants provided 300 direct and 100 indirect jobs (Kearns and Tuohy, 2015, p. 16; Viru Keemia Grupp, 2015a).

In 2015, VKG produced about 506,000 metric tons (t) of oil shale, which was 56% of the country’s production. Most of the oil shale processed by VKG was supplied by the company’s underground Ojamaa Mine, which contained 60 million metric tons (Mt) of oil shale. The mine opened at the end of January 2013 and reached full capacity in the second half of that year. VKG had invested 120 million euros ($133 million) in the mine, and the mine was expected to provide VKG with raw materials for the next 16 years. The mine employed more than 400 people (Viru Keemia Grupp, 2015b).

The greater part of oil shale production was consumed in powerplants and as raw material for shale oil. In 2015, the consumption of oil shale by powerplants decreased by 20% owing to increased use of renewable energy resources, primarily biomass and wind energy, for electricity production. The share of oil shale in electricity production had decreased to about 77% in 2015 from more than 85% in 2010. In contrast, the amount of produced shale oil increased by about 20% owing to strong foreign demand, and more than 90% of the shale oil production was exported (Kearns and Tuohy, 2015, p. 2; Statistics Estonia, 2016d, p. 318).

The Government-owned energy company Eesti Energia AS was one of the leading energy companies and one of the largest employers in Estonia. In 2015, the company employed 6,300 people and produced 336,500 t of shale oil—an increase of 27% compared with that of 2014. The company’s new Enefit280 shale oil plant produced 137,100 t of shale oil. The Enefit 280 plant was designed to consume 2.26 Mt/yr of oil shale. The plant’s capacity was about 1.9 Mt/yr of shale oil; 75 million cubic meters per year of hydrogen-rich retort gas; and 280 gigawatthours per year of electricity from waste heat (Eesti Energia AS, 2016, p. 4, 6, 22–23; Enefit, 2016).

**Peat.**—Peatlands cover about 10,000 square kilometers, or about 22% of Estonia’s territory, ranking the country third in peat resources in Europe after Finland and Sweden. Total peat resources were 2.37 billion metric tons, and proved reserves were 780 Mt. AS Tootsi Turvas, headquartered in Parnu, was the leading peat producer in Estonia. The company was wholly owned by the Vapo OY Group of Finland and produced milled peat for fuel and horticultural use. During the period from May 2014 to April 2015, the company employed 35 people, on average (Orru and Orru, 2008, p. 87–88; AS Tootsi Turvas, 2016; Orru, undated).

**References Cited**


TABLE 1
ESTONIA: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

<table>
<thead>
<tr>
<th>Commodity ²</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>METALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead, metal, secondary</td>
<td>7,840</td>
<td>8,046</td>
<td>7,581</td>
<td>8,588</td>
<td>8,329</td>
</tr>
<tr>
<td><strong>INDUSTRIAL MINERALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cement:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinker thousand metric tons</td>
<td>719</td>
<td>715</td>
<td>691</td>
<td>721</td>
<td>356</td>
</tr>
<tr>
<td>Portland and other do.</td>
<td>451</td>
<td>482</td>
<td>457</td>
<td>447</td>
<td>390</td>
</tr>
<tr>
<td>Clay and kilns used in construction</td>
<td>120,000</td>
<td>98,600</td>
<td>99,000</td>
<td>107,000</td>
<td>58,000</td>
</tr>
<tr>
<td>Lime</td>
<td>27,862</td>
<td>26,000</td>
<td>31,391</td>
<td>47,200</td>
<td>79,200</td>
</tr>
<tr>
<td>Nitrogen, N content of ammonia thousand metric tons</td>
<td>--</td>
<td>14</td>
<td>99</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Silica sand (industrial)</td>
<td>14,000</td>
<td>21,000</td>
<td>20,000</td>
<td>23,000</td>
<td>22,000</td>
</tr>
<tr>
<td>Stone:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crushed stone used for concrete aggregates, for roadstone, and for other construction use</td>
<td>6,196,300</td>
<td>6,170,200</td>
<td>6,463,100</td>
<td>5,805,200</td>
<td>5,342,000</td>
</tr>
<tr>
<td>Dolomite cubic meters</td>
<td>35</td>
<td>25</td>
<td>25</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>Gravel, pebbles, shingle and flint do.</td>
<td>1,251,680</td>
<td>946,500</td>
<td>1,207,300</td>
<td>1,562,300</td>
<td>2,213,200</td>
</tr>
<tr>
<td>Limestone</td>
<td>1,026,350</td>
<td>1,017,415</td>
<td>1,013,176</td>
<td>1,031,133</td>
<td>486,649</td>
</tr>
<tr>
<td>Limestone, crushed</td>
<td>525,000</td>
<td>679,600</td>
<td>360,784</td>
<td>626,000</td>
<td>510,000</td>
</tr>
<tr>
<td><strong>MINERAL FUELS AND RELATED MATERIALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coke, electrode</td>
<td>24,400</td>
<td>26,300</td>
<td>22,000</td>
<td>24,500</td>
<td>37,000</td>
</tr>
<tr>
<td>Fuel oil</td>
<td>559,900</td>
<td>598,900</td>
<td>629,600</td>
<td>770,000</td>
<td>770,000</td>
</tr>
<tr>
<td>Oil shale thousand metric tons</td>
<td>18,734</td>
<td>18,796</td>
<td>20,511</td>
<td>20,995</td>
<td>19,217</td>
</tr>
<tr>
<td>Peat, all uses</td>
<td>926,700</td>
<td>670,800</td>
<td>1,061,100</td>
<td>854,600</td>
<td>779,400</td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For fuel</td>
<td>322,600</td>
<td>166,000</td>
<td>260,200</td>
<td>261,000</td>
<td>59,500</td>
</tr>
<tr>
<td>Peat briquets</td>
<td>74,800</td>
<td>52,100</td>
<td>56,000</td>
<td>62,000</td>
<td>14,800</td>
</tr>
</tbody>
</table>

¹Estimated; estimated data are rounded to no more than three significant digits. ²Revised. do. Ditto. -- Zero.

¹Table includes data available through August 31, 2016.

²In addition to the commodities listed, Estonia produced sulfur and rare-earth metals, but available information was inadequate to make reliable estimates of output.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Major operating companies and major equity owners</th>
<th>Location of main facility</th>
<th>Annual capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>AS Kunda Nordic Tsement (HeidelbergCement Sweden AB 75%, and CRH Europe Holding BV, 25%)</td>
<td>Kunda plant</td>
<td>750 cement; 650 clinker.</td>
</tr>
<tr>
<td>Lead, secondary</td>
<td>Ecometal AS</td>
<td>Sillamae</td>
<td>20.</td>
</tr>
<tr>
<td>Lime</td>
<td>Nordkalk AS (Rettig Group, 100%)</td>
<td>Rakke lime plant</td>
<td>NA.</td>
</tr>
<tr>
<td>Do.</td>
<td>VKG Energia OÜ (Viru Keemia Grupp AS, 100%)</td>
<td>Lime plant</td>
<td>24.</td>
</tr>
<tr>
<td>Nitrogen (ammonia)</td>
<td>Nitrofert JSC (Group DF, 100%)</td>
<td>Kohtla-Jarve plant, Ida-Viru Region of Kohtla-Jarve</td>
<td>220 urea; 180 liquid ammonia; 30 aqueous ammonia.</td>
</tr>
<tr>
<td>Oil shale</td>
<td>VKG Oil AS (Viru Keemia Grupp AS, 100%)</td>
<td>Ojamaa Mine, about 10 kilometers south of Kohtla-Jarve</td>
<td>2,800.</td>
</tr>
<tr>
<td>Do.</td>
<td>Eesti Energia AS Group (Government, 100%)</td>
<td>Narva Mine</td>
<td>6,000.</td>
</tr>
<tr>
<td>Peat</td>
<td>AS Tootsi Turvas (Vapo OY Group, 100%)</td>
<td>Ellamaa, Lavassaare, Peningi, Puhatu, and Uilda deposits</td>
<td>NA.</td>
</tr>
<tr>
<td>Rare earths</td>
<td>metric tons</td>
<td>Factories in Sillamae</td>
<td>700 rare-earth metal.</td>
</tr>
<tr>
<td>Shale oil</td>
<td>Eesti Energia AS Group (Government, 100%)</td>
<td>3 plants in Narva, of which:</td>
<td></td>
</tr>
<tr>
<td>Do.</td>
<td>42-gallon barrels per year</td>
<td>2 x Enefit 140</td>
<td>1,500,000.(^4)</td>
</tr>
<tr>
<td>Do.</td>
<td>do.</td>
<td>1 x Enefit 280</td>
<td>1,900,000.(^5)</td>
</tr>
<tr>
<td>Do.</td>
<td>do.</td>
<td>7 processing plants in Kohtla-Jarve of which:</td>
<td></td>
</tr>
<tr>
<td>Do.</td>
<td>do.</td>
<td>Petroter I and II</td>
<td>1,500,000.(^5)</td>
</tr>
<tr>
<td>Do.</td>
<td>do.</td>
<td>Petroter III</td>
<td>1,000,000.(^2)</td>
</tr>
<tr>
<td>Do.</td>
<td>do.</td>
<td>4 x Kiviter</td>
<td>NA.</td>
</tr>
<tr>
<td>Do.</td>
<td>do.</td>
<td>Kiviõli Keemiatööstuse OÜ (Alexela Energia, 100%)</td>
<td>Kiviõli oil shale plant</td>
</tr>
<tr>
<td>Stone:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dolomite</td>
<td>Nordkalk AS (Rettig Group, 100%)</td>
<td>Kurevere dolostone quarry</td>
<td>NA.</td>
</tr>
<tr>
<td>Limestone</td>
<td>VKG Energia OÜ (Viru Keemia Grupp AS, 100%)</td>
<td>Vasalemma limestone quarry</td>
<td>NA.</td>
</tr>
<tr>
<td>Limestone, aggregates</td>
<td>AS Kunda Nordic Tsement (HeidelbergCement Sweden AB 75%, and CRH Europe Holding BV, 25%)</td>
<td>Jaama 2, Kunda</td>
<td>NA.</td>
</tr>
</tbody>
</table>

\(^1\) Estimated. Do., do. Ditto. NA Not available.