

2016 Minerals Yearbook

ICELAND

THE MINERAL INDUSTRY OF ICELAND

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Iceland is an island country located in the North Atlantic Ocean. The country has abundant natural and geothermal energy resources but no proven nonfuel mineral reserves. In 2016, Iceland accounted for about 1.5% and 1.0% of the global production of primary aluminum and silicon (Si content of ferrosilicon), respectively (Organisation for Economic Co-operation and Development, 2015; Bray, 2018; Schnebele, 2018).

Minerals in the National Economy

In 2016, the growth rate of Iceland's gross domestic product (GDP) was 7.2% compared with 4.1% in 2015. The growth was driven by tourism, exports, private consumption, and investment. More than 70% of Iceland's goods exports were aluminum, marine products, and silicon. In 2016, the mining and quarrying industry accounted for approximately 16.1% of the gross domestic income (which was a decrease from the 18.3% share in 2015), whereas the construction sector accounted for 6.8% (an increase from the 5.1% share in 2015) (Statistics Iceland, 2016, p. 19; 2017b, p. 19; International Monetary Fund, 2017, p. ii, 10).

Production

As of 2016, aluminum and ferrosilicon were Iceland's leading mineral commodities. Although Iceland produced such industrial minerals as crushed stone, gravel, pumice, salt, sand, and scoria, reliable production data were not available. Data on mineral production are in table 1.

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities in Iceland.

Commodity Review

Metals

Aluminum.—As of 2016, there were three aluminum smelters in Iceland: the 344,000-metric-ton-per-year (t/yr)-capacity Fjaröaál smelter located in eastern Iceland in Reyðarfjörður, which was owned by Alcoa Corp. of the United States; the 312,000-t/yr-capacity Grundartangi smelter in western Iceland, which was owned by Century Aluminum Co. of the United States; and the 205,000-t/yr-capacity ISAL smelter in southwestern Iceland, which was owned by Rio Tinto Alcan Inc. of Canada. The aluminum smelters in Iceland were powered with hydrothermal and geothermal energy rather than by fossil fuels. The abundance of geothermal energy in Iceland has been attractive to energy-intensive industries, such as aluminum smelters (table 2; Alcoa Corp., 2017, p. 16).

Silicon.—United Silicon HF (USi) of Iceland finished construction of a silicon smelter in July 2016. The plant was

operated by a 32-megawatt furnace and had a production capacity of 23,000 t/yr of silicon. In a December 2016 statement, USi reported that the smelter produced more than 300 metric tons of silicon, all of which was exported to the Netherlands. It was expected that about one-half of the silicon produced by USi would be used in the production of polysilicon, which is used exclusively in the manufacture of solar batteries (United Silicon HF, 2016).

In 2015, PCC Group of Germany began construction of a silicon metal plant in Husavík in northern Iceland. The plant was expected to have a capacity of 32,000 t/yr of silicon metal and was scheduled to start production in 2018. The plant's electricity was planned to be supplied exclusively from geothermal energy. As of 2016, construction work was still underway (PCC SE, 2018).

Mineral Fuels and Other Sources of Energy

Renewable Energy.—Iceland's location across the Mid-Atlantic Ridge provides the country with a potent source of geothermal energy. Glaciers, rivers, and lakes cover 13% of Iceland's land, resulting in abundant freshwater supplies that provide a major source and reservoir of water power for generating electricity. In Iceland, 66% of the renewable energy comes from geothermal sources. About 70% of the geothermal energy in Iceland is used for space heating. The remainder of this type of energy is used for swimming pools, greenhouses, aquaculture, and other industrial uses (Organisation for Economic Co-operation and Development, 2014, p. 5).

Outlook

Iceland's GDP is expected to grow by 4.3% in 2017 driven primarily by growth in tourism. Aluminum production is expected to be steady in the coming years and to continue to dominate the mineral resource sector of Iceland. New silicon projects, such as those by USi and the PCC Group, are expected to increase metal production in the future. Iceland is also at the forefront in renewable energy resources, which is expected to remain an important economic asset for the country (Statistics Iceland, 2017a).

References Cited

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TABLE 1
ICELAND: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons, gross weight, unless otherwise specified)

Commodity ²	2012	2013	2014	2015	2016
METALS					
Aluminum metal, primary	802,827	836,429 ^r	830,000 ^{r,e}	845,000 ^{r,e}	855,000 ^e
Silicon, ferrosilicon	131,818	125,204	110,000 ^e	121,556 ^r	128,000 ^e
INDUSTRIAL MINERALS					
Cement, hydraulic	146,000	--	--	--	--

^eEstimated. ^rRevised. -- Zero.

¹Table includes data available through December 11, 2017. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits; may not add to totals shown.

²In addition to the commodities listed, pumice, salt, sand and gravel, scoria, and crushed stone may have been produced in Iceland, but available information was inadequate to make reliable estimates of output.

TABLE 2
ICELAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum	Alcoa Corp.	Fjaroaal smelter at Reydarfjörður	344
Do.	Reykjavik [ISAL] (Rio Tinto Alcan Inc., 100%)	Straumsvík	205
Do.	Century Aluminum Co.	Grundartangi	312
Ferrosilicon	Elkem Iceland (Elkem A/S)	do.	120
Silicon	United Silicon HF (Usi)	Reykjanesbaer	23
Pumice	Jarðefnaíðnadir ehf	Mount Hekla	210
Do.	BM Valla Ltd.	do.	32

Do., do. Ditto.