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2016 Minerals Yearbook

DENMARK, THE FAROE ISLANDS, AND GREELAND

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

November 2021

The Mineral Industries of Denmark, the Faroe Islands, and Greenland

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DENMARK

Denmark's metallic mineral resources are limited; however, the country does have industrial minerals, such as clay, gravel and sand, and stone and, in addition, natural gas and offshore petroleum. In 2016, Denmark's gross domestic product (GDP) was valued at $305 billion,[1] measured at 2010 prices, which represented a real GDP growth rate of 1.6% for the year (Statistics Denmark, 2017).

Production

In 2016, production of industrial minerals in Denmark included chalk, clay, granite gravel, lime, salt, sand, and stone. Denmark was the world's only commercial producer of moler, which is a clay-rich diatomite (silica-rich rock) capable of absorbing liquid. In 2016, moler production decreased by 10% to 183,000 cubic meters (tables 1, 2; Imerys S.A., 2017).

Structure of the Mineral Industry

The Danish Ministry of Energy, Utilities and Climate (DME) is the Government agency that supports the sustainable production, distribution, and use of energy and raw materials in Denmark. The DME includes the Geological Survey of Denmark and Greenland, which is an independent Danish research and advisory institution. Private ownership, exploration, development, and production of minerals are allowed under Danish law. In 2016, the mineral industry in Denmark was mostly privately owned except for Nordsøfonden, which is the Danish state-owned oil and gas company (Danish Energy Agency, 2017a, b; Nordsøfonden, 2017).

Commodity Review

Industrial Minerals

Cement.—Cementir Group of Italy, through its subsidiary Aalborg Portland Group (Aalborg), was the only cement manufacturer in Denmark. In 2016, Aalborg had the capacity to produce 2.1 million metric tons per year of gray cement and 850,000 metric tons per year of white cement from 3 quarries, 1 cement plant, and 37 ready-mixed concrete plants (Cementir Holdings S.p.A., 2017, p. 5).

Mineral Fuels

Crude Petroleum and Natural Gas.—Denmark's natural gas and petroleum fields were all located in the Danish area of the North Sea. In 2016, Nordsøenheden reported an average crude petroleum production of 22,900 barrels per day (bbl/d) compared with 26,000 bbl/d in 2015. The Tyra field was Denmark's largest gasfield and consisted of two main centers—Tyra East and Tyra West—that were linked to five unmanned satellites. Production from the gasfield started in 1984 and, throughout the years, the seafloor had subsided, causing the drilling platforms to sink more than 5 meters; as a result, the project was to be redeveloped to restore the site's functionality. Tyra East and Tyra West were to be replaced by a new processing and accommodation center. It was expected that production from Tyra would cease temporarily in December 2019 and that the redevelopment would be completed by 2022 (Maersk Group, 2017; Nordsøfonden, 2017, p. 7).

Outlook

Denmark's economy is expected to continue to have moderate growth, projected at 1.5% in 2017 and 1.7% in 2018. A reduction in oil production is expected in the following years owing to the renovations of the Tyra field (Danish Energy Agency, 2017c).

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FAROE ISLANDS

The Faroe Islands are a self-governing overseas administrative division of the Kingdom of Denmark. The Government of the Faroe Islands has autonomous authority over most social and

[1]Where necessary, values have been converted from Danish kroner (DDK) to U.S. dollars (US$) at an annual average exchange rate of about DKK 6.741=US$1.00 for 2016. All values are nominal, at current prices, unless otherwise stated.

economic matters, such as fishing, trade, and industry, and issues regarding territorial security and foreign relations have also either been ceded to the Government of the Faroe Islands or are joint responsibilities shared with the Government of Denmark. The fisheries sector accounted for about one-half of the Faroe Islands' GDP and represented 97% of its exports. The islands had no significant identified mineral resources; however, numerous exploration drillings had taken place on the Faroese continental shelf since 2001. As of 2016, nine wells had been drilled and an active hydrocarbon system had been confirmed. No commercially viable petroleum discoveries had yet been made. In 2016, the Government of the Faroe Islands announced that, beginning in May 2017, oil companies would be able to apply for offshore exploration licenses. If a prospecting license is granted, the licensee would have the right to perform various geologic surveys, which might lead to the production of oil and natural gas; however, a prospecting license does not give the licensee production rights (Faroe Islands Government, 2017; Faroese Geological Survey, 2017; Statistics Denmark, 2017).

Outlook

No economically viable petroleum discoveries have been made on the Faroe Islands shelf. With the commencement of the licensing round, however, petroleum companies could become interested in restarting petroleum and natural gas exploration in the Faroe Islands. The government is expecting that petroleum and natural gas would be found within the next decade in quantities large enough to exploit (The Local Europe AB, 2017; Thomson Reuters, 2017).

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GREENLAND

Greenland, officially known as Kalaallit Nunaat, is a self-governing part of the Kingdom of Denmark. In 2016, Greenland's economy grew by 4.6% compared with a growth rate of 1.1% in 2015 and was dependent mostly on fishing. According to the Geological Survey of Denmark and Greenland (GEUS), Greenland potentially has many different mineral resources, such as coal, copper, gold, lead, precious stones, rare-earth elements, uranium, and zinc (Geological Survey of Denmark and Greenland, 2017; Statistics Denmark, 2017).

Greenland Minerals and Energy (GMEL) manages the Kvanefjeld (Kuannersuit) project, which is considered one of the world's largest undeveloped deposit of both rare-earth elements and uranium. In 2012, the Joint Ore Reserves Committee (JORC)-compliant resource estimate for the deposit was 1.01 billion metric tons containing 269,000 metric tons of triuranium oxide (U_3O_8) and 11.13 million metric tons (Mt) of rare-earth oxides. In March 2016, GMEL updated the feasibility study for the Kvanefjeld (Kuannersuit) project, and later in the year announced that it had entered into a subscription agreement with Shenghe Resources Holding Ltd. of China with the objective of establishing a leading international rare-earth-element business (Ministry of Mineral Resources, 2016, p. 1).

The Pituffik titanium project (Pituffik), which was managed by FinnAust Mining PLC (FinnAust) of the United Kingdom, is an ilmenite ($FeTiO_3$)-rich deposit with an inferred JORC-compliant resource estimate of 23.6 Mt grading 8.8% ilmenite, including a high-grade zone of 7.9 Mt grading 14.2% ilmenite. Pituffik comprises five main target areas along more than 80 kilometers of coastline proven to contain large and high-grade accumulations of primary ilmenite. FinnAust was focused on advancing Pituffik into production in 2018. In October 2016, the Government approved a bid by LNS Greenland A/S to take over the Aappaluttoq ruby and pink sapphire deposit project (Aappaluttoq), which had previously been managed by True North Gems Greenland A/S (True North). True North was granted a mining license in 2014; however, the company filed for bankruptcy in September 2016. Production was expected to start in 2017 (Ministry of Mineral Resources, 2016, p. 2, 4; BlueJay Mining PLC, 2017).

Outlook

In 2016, the Greenland Government continued to be active in exploration to promote the country's potential for mineral development. A project to mine the Aappaluttoq ruby and pink sapphire deposit located in southwest Greenland was scheduled to start production in 2017 (Ministry of Mineral Resources, 2016, p. 2, 6).

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TABLE 1

DENMARK AND GREENLAND: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
METALS						
Gold, mine production, Au content	kilograms	307	100	--	--	--
INDUSTRIAL MINERALS						
Cement, hydraulic		1,798,000 r	1,830,000	1,876,000	1,900,000	1,900,000 e
Clay and shale:						
Bentonite		30,330	56,355	66,388	66,000 e, r	67,500 e
Moler, extracted	thousand cubic meters	177	205	190	190 r	183
Diatomite e		407,000	472,000	437,000	440,000	440,000
Lime e		112,000	114,000	115,000	116,000	116,000
Stone, sand, and gravel:						
Sand and gravel, construction, unspecified	thousand metric tons	18,981	17,762	28,306	19,966	20,500 e
Stone, crushed, unspecified	do.	500	512	525	542	560 e
Sulfur, S content, natural gas and petroleum, byproduct, recovered		3,925 r	3,599	4,435 r	4,400 e, r	4,400 e
MINERAL FUELS AND RELATED MATERIALS						
Petroleum:						
Crude	thousand 42-gallon barrels	73,730	63,875	60,225	80,655 r	76,000 e
Refinery production:						
Distillate fuel oil	do.	25,331	31,025	21,280	21,300 e	21,300 e
Gasoline	do.	17,046	18,980	15,768	15,800 e	15,800 e
Jet fuel	do.	1,752	1,168	2,154	2,200 e	2,200 e
Liquefied petroleum gas	do.	1,862	1,278	1,533	1,500 e	1,500 e
Total		46,000	52,500	40,700	40,800	40,800

eEstimated. rRevised. do. Ditto. -- Zero.

[1]Table includes data available through December 27, 2017. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]In addition to the commodities listed, kaolin, naphtha, and peat may have been produced in Denmark, but available information was inadequate to make reliable estimates of output.

TABLE 2
DENMARK AND GREENLAND: STRUCTURE OF THE MINERAL INDUSTRIES IN 2016

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement:				
Gray		Aalborg Portland A/S (Cementir Holding S.p.A.)	Plant at Rordal	2,100
White		do.	do.	850
Chalk (calcium carbona	thousand cubic meters	Faxe Kalkbrud A/S (Lhuist Group S.A.)	Quarries at Stevns and Sigerslev	280
Diatomite (moler)	do.	Damolin A/S	Quarries on Mors and Fur Islands	250
Gold	kilograms	Angel Mining plc[1]	Nalunaq Mine at Nanortalik, Greenland	1,100
Lime		Faxe Kalkbrud A/S (Lhuist Group S.A.)	Plant at Stubberup, near Fakse, on Zealand Island	200
Natural gas	million cubic meters	Maersk Olie og Gas A/S	Roar and Tyra Gasfields, Danish North Sea	5,000
Petroleum:				
Crude	barrels per day	Dansk Undergrunds Consortium (DUC)[2] (A.P. Møller- Mærsk, 31.2%; Royal Dutch Shell plc., 36.8%; Nordsøfonden, 20.0%; and Chevron Corp., 12.0%)	16 fields in Danish North Sea	173,000
Do.	do.	DONG Energy AS	5 fields in Danish North Sea	NA
Do.	do.	Hess Corp., 65.1%; DONG Energy A/S, 36.8%; Danoil A/S 1.7%	1 field (South Arne) in the Danish North Sea	NA
Refined	do.	Statoil A/S	Kalundborg	110,400
Do.	do.	Dansk Shell A/S (Royal Dutch Shell plc. 100%)	Fredericia	63,000
Salt		Akzo Nobel A/S	Mine (brine) at Hvornum, plant at Mariager	1,000
Steel, semimanufactures		NLMK DanSteel A/S (NLMK International BV, 100%)	Plant at Frederiksvaerk	250

Do., do. Ditto. NA Not available.

[1]Mine was placed under administration and operations were suspended in 2013.

[2]Mærsk Olie og Gas A/S is operator for all Dansk Undergrunds Consortium (DUC) activities.