



2015 Minerals Yearbook

NEW ZEALAND [ADVANCE RELEASE]

THE MINERAL INDUSTRY OF NEW ZEALAND

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The economy of New Zealand continued to grow in 2015, and the real gross domestic product (GDP) increased by 3.6% to \$147 billion (NZ\$220 billion) compared with that of 2014. The New Zealand mineral industry is a small player in the international market compared with its neighboring country Australia. Gold, iron sand, and silver remained the only metallic minerals mined in the country. Mineral production also included aluminum; such industrial minerals as cement, clay, diatomite, dolomite, feldspar, lime, limestone, sand and gravel, and zeolites; and mineral fuels, including coal, crude petroleum, and natural gas. In addition to the minerals currently being produced, New Zealand has occurrences of other metallic minerals, including copper, lead, nickel, platinum, titanium, and zinc, which may, over time, become economically feasible to mine (New Zealand Petroleum and Minerals, 2015, 2016b; Statistics New Zealand, 2016a).

Minerals in the National Economy

In 2015, the mining industry accounted for about 1.7% of New Zealand's GDP. The production of gold and sand and gravel aggregate dominated the mining industry and together accounted for more than 85% of the industry's total production value. In fiscal year 2015 (April 1, 2014, to March 31, 2015), nonfuel mineral mining generated about \$5.0 million (NZ\$7.5 million)¹ in Government revenue. The petroleum industry alone generated \$186 million (NZ\$278 million) in Government revenue in fiscal year 2015, and coal mining generating about \$1.4 million (NZ\$2.1 million). As of yearend 2015, about 6,200 people were employed in New Zealand's mining sector (New Zealand Petroleum and Minerals, 2016b, c; Statistics New Zealand, 2016a, b).

The agriculture, construction, and trade sectors were the main contributors to economic growth. The continued expansion of the construction sector was supported by an increase in net immigration and low interest rates, which increased demand for homebuilding. Although New Zealand's economy continued to grow, decreasing export prices caused a slowdown in that growth. Reconstruction activities in the Canterbury region following the major earthquakes in 2010 and 2011 were expected to have peaked in 2015 (Reserve Bank of New Zealand 2015a, p. 24; 2015b, p. 3).

Government Policies and Programs

The Crown Minerals Act 1991 as amended by the Crown Minerals Amendment Act 2013 sets forth the broad legislative framework for prospecting for, exploring for, and mining of Crown-owned (meaning Government-owned) minerals within New Zealand's territorial area, which extends to

¹Where necessary, values have been converted from New Zealand dollars (NZ\$) to U.S. dollars (US\$) at an average annual exchange rate of NZ\$1.492=US\$1.00 for fiscal year 2015.

12 nautical miles off the New Zealand coast. The Ministry of Economic Development, through the Crown Minerals Group, is responsible for the overall management of all Crown-owned minerals in New Zealand. Crown-owned minerals include gold, petroleum, silver, and uranium (whether or not on or under Crown-owned land) as well as all minerals on or under Crown-owned land. The Crown Minerals Group also advises on policy and regulations and promotes investment in the mineral sector. The royalty regimes for coal, nonfuel minerals, and petroleum are defined in the Government mineral program that is reviewed every 10 years. Depending on the commodity, royalties are assessed either on a flat rate based on the quantity of production or on an "ad valorem royalty (AVR)" rate based on the value of production. Coal and gold were assigned an AVR rate of 2% of the net sales revenue that takes effect once profits reach \$5 million and \$2 million, respectively. For petroleum, the permit holder must pay the higher of either an AVR royalty of 5% of net sales revenue or a royalty of 20% on accounting profits (Parliament, The, 2013a, b; New Zealand Petroleum and Minerals, 2017).

Production

In 2015, the output of dolomite designated for other industrial uses increased by 18%; crude petroleum, 9.2%; refinery products, 5.3%; dimension stone, 3.5%; and aluminum, 1.5%. The output of clay designated for brick and tile decreased by 95%; clay (kaolin) designated for pottery, 78%; silica sand (glass sand), 62%; limestone designated for agriculture, 56%; pumice, 39%; silver, 21%; coal, 15%; sand and gravel designated for roads and ballast, 15%; natural gas (gross production), 14%; sand and gravel designated for building aggregate, 14%; and crude steel, 7.7% (table 1).

Structure of the Mineral Industry

State-owned Solid Energy New Zealand Ltd. was the leading coal mining company in New Zealand and managed eight coal mines across the country in 2015. Decreasing global coal prices and an inability to repay debts triggered the company to enter temporary voluntary administration (a legal action taken by an insolvent entity) in August 2015. New Zealand Refining Co. Ltd. owned and operated the country's sole petroleum refinery. Table 2 is a list of major mineral industry facilities in New Zealand (McClay and English, 2015).

Commodity Review

Metals

Gold and Silver.—The majority of New Zealand's gold production came from the town of Waihi in the Waikato Region on the North Island and from the Otago Region on the South Island. The Waihi gold mine operations, which included the

Martha open pit mine and the Favona and Trio underground mines, produced about 4,400 kilograms (kg) of gold in 2015. The Waihi operation was owned and operated by Newmont Waihi Gold Ltd. (a subsidiary of Newmont Mining Corp. of the United States) until its sale on October 30th, 2015, to OceanaGold Corp. of Australia. Operations at the Martha Mine were suspended in April 2015 following a failure along the north wall of the mine that cut off access to the bottom of the pit. OceanaGold reported that studies were underway to find a method to regain access to the pit and resume production. The operations remained suspended through 2015. OceanaGold reported the proven and probable mineral reserves at the Waihi operations as 800,000 metric tons (t) at grades of 2.92 grams per metric ton (g/t) gold and 29.4 g/t silver at the open pit and 1.3 million metric tons (Mt) of ore at grades of 7.17 g/t gold and 12.2 g/t silver at the underground operations. As of yearend 2015, the Waihi operation had a mine life that extended into 2019 (Newmont Mining Corp., 2016, p. 36; OceanaGold Corp., 2016, p. 9, 11, 56).

In 2015, OceanaGold also operated its Macraes operations, which included the Macraes open pit mine and the Frasers underground mine in the Otago Region, as well as its Reefion open pit mine, which is located in the West Coast Region. The Macraes and Reefion operations produced about 4,700 kg and 2,200 kg of gold, respectively, in 2015. In November, OceanaGold announced the discovery of the Coronation North deposit located at the Macraes operation and reported the deposit's indicated resources as 2.75 Mt of ore at a grade of 1.52 g/t gold. The company planned to continue exploration of the deposit in 2016, with production expected to begin in early 2017. Owing to falling global gold prices, OceanaGold ceased all mining at the Reefion operation at the end of September 2015. The company continued to process stockpiled ore at Reefion through the end of the year and planned to place the operation on care-and-maintenance status in February 2016 (OceanaGold Corp., 2015, p. 1; 2016, p. 7, 9, 19, 28).

Iron and Steel.—The majority of New Zealand's iron resources are contained in titanomagnetite iron sand placer deposits. These deposits are found in beach and dune sand along the North Island's western coast. The deposits formed from the erosion of Quaternary age andesite rocks. New Zealand Steel Ltd. (NZ Steel) (a subsidiary of BlueScope Steel Ltd. of Australia) exploited these iron sand deposits at its Taharoa and Waikato North Head operations. Ore mined at the Taharoa site was mainly exported, whereas ore mined at the Waikato North Head site was pumped through an 18-kilometer underground pipe to the company's Glenbrook steel mill south of Auckland. The rapid decline in global iron ore prices that began in mid-2014 and continued through 2015 negativity affected the profitability of the NZ Steel iron sand operations. After reviewing the NZ Steel operations for cost-saving measures, BlueScope announced that it would cut 100 jobs from NZ Steel by the end of the year (Christie and Brathwaite, 2007, p. 6–7; Henson, 2015a, b; New Zealand Steel Ltd., 2016a, b).

Mineral Fuels

Coal.—New Zealand's coal resources were estimated to be 15 billion metric tons, of which one-half were potentially recoverable. Of the nearly 3.4 Mt of coal produced in 2015, 1.4 Mt was exported. The West Coast Region was the leading producer of coal (produced 1.6 Mt of coal in 2015), followed by the Waikato Region (1.0 Mt) and the Southland region (700,000 t). A total of 18 coal mines were operating in New Zealand throughout 2015, of which 6 were operated by the state-owned mining company Solid Energy. Solid Energy's Rotowaro and Stockton Mines were the leading producers of coal in the country and accounted for 58% of New Zealand's total production in 2015. Production at Solid Energy's Spring Creek and Strongman Mines in Greymouth, West Coast Region, was suspended during 2015 (Ministry of Business, Innovation and Employment, 2016, p. 18, 21; New Zealand Petroleum and Minerals, 2016a).

In August 2015, Solid Energy announced that it was entering temporary voluntary administration following the continued decline in global coal prices and the company's inability to repay its current debt. In September, Solid Energy's creditors agreed to adopt a deed of company arrangement, which placed the responsibility of selling the company's assets on the company's directors (McClay, 2015; McClay and English, 2015).

Outlook

The continued decline in the global prices of coal and iron ore is expected to negatively affect New Zealand's production of these minerals as well as its production of steel. The selling of Solid Energy's coal assets may also disrupt the country's coal production in 2016. A decrease in gold production owing to the suspension of mining at the Martha Mine will likely be offset by OceanaGold's expansion projects at its Macraes and Waihi operations.

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TABLE 1
NEW ZEALAND: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²	2011	2012	2013	2014	2015
METALS					
Aluminum metal, smelter, primary	354,029	326,963	324,835	328,269	333,292
Gold, mine output, Au content kilograms	11,761	10,164	12,468	11,989	12,687
Iron and steel:					
Iron sand, titaniferous magnetite, gross weight thousand metric tons	2,357	2,395	3,157	3,245	3,194
Iron sand, iron content ^e do.	1,340	1,360	1,800	1,850	1,820
Pig iron ^e do.	659	670 ^r	682 ^r	680 ^r	678
Steel, crude ^e do.	844	912	900	859 ^r	793
Silver, mine output, Ag content kilograms	14,324	5,629	11,223	15,811	12,498
INDUSTRIAL MINERALS					
Cement, hydraulic ^e thousand metric tons	1,200	1,200	1,200	1,200	1,200
Clay:					
Bentonite	--	2,263	762	--	--
For brick and tile	10,911	71,487	62,288	125,508	6,513
Kaolin, pottery	21,545	11,578	13,066	61,382	13,659
Diatomaceous earth	--	--	4	43,624	--
Lime ^e	175,000	175,000	175,000	180,000 ^r	180,000
Nitrogen, N content of ammonia ^e	120,000	125,000	125,000	125,000	125,000
Perlite	--	3,598	--	--	--
Pumice	229,268	72,414	93,865	68,835	42,037
Salt ^e	95,000	95,000	100,000	100,000	100,000
Sand and gravel:					
Silica sand, glass sand	109,346	73,064	101,702	113,602	43,135
Other industrial sand thousand metric tons	1,203	1,517	1,283	1,412	1,457
For roads and ballast do.	15,258	15,439	19,947	21,497	18,237
For building aggregate do.	6,183	6,561	8,044	11,654	9,976
Stone:					
Dimension	140	8,614	17,769	13,061	13,516
Dolomite:					
For agriculture	98,601	33,999	99,068	--	173,819
For other industrial uses	59,782	86,040	5,542	22,925	27,092
Limestone and marl:					
For agriculture thousand metric tons	1,387	1,020	1,419	2,219	976
For cement do.	1,705	1,797	1,884	1,949	1,995
For other industrial uses do.	185	364	388	466	867
Serpentine	41,201	36,731	52,353	--	--
Zeolites	3,523	--	155	--	--
MINERAL FUELS AND RELATED MATERIALS					
Coal, all grades thousand metric tons	4,944	4,926	4,625	3,992	3,390
Natural gas, gross production million cubic meters	4,678	5,188	5,583	6,253	5,391
Petroleum:					
Crude thousand 42-gallon barrels	16,591	14,149	12,325	13,804	15,074
Refinery products ^e do.	33,000	39,000	37,000	38,000	40,000

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. do. Ditto. -- Zero.

¹Table includes data available through October 10, 2016.

²In addition to the commodities listed, New Zealand produced a number of other mineral commodities, including lead (refinery output, secondary), marble, and liquefied petroleum gas, but available information was inadequate to make reliable estimates of output.

TABLE 2
NEW ZEALAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2015

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners		Location of main facilities	Annual capacity ^e
Aluminum	New Zealand Aluminium Smelters Ltd. (NZAS) (Pacific Aluminium, 79.36%, and Sumitomo Chemical Co., 20.64%)		Tiwai Point smelter Southland, Invercargill	350
Cement	Golden Bay Cement (Fletcher Building Group.)		Whangarei plant	900
Do.	Holcim New Zealand Ltd. (LafargeHolcim Ltd.)		Cape Foulwind, Westport	500
Clay, kaolin	Imerys Tableware New Zealand Ltd.		80 kilometers northwest of Whangarei	25
Coal	Solid Energy New Zealand Ltd. (Government, 100%)		Stockton Mine, Buller, Westport	2,500
Do.	do.		Strongman Mine, Greymouth	200 ¹
Do.	do.		Spring Creek Mine, Greymouth	1,000 ¹
Do.	do.		Rotowaro Mine, Huntly	1,500
Do.	do.		Huntly East Mine, Huntly	500
Do.	do.		New Vale Mine, Invercargill	300
Do.	do.		Ohai Mine, Ohai	200
Do.	do.		Reddale Valley Mine, Reefton	45
Gold	kilograms	OceanaGold Corp.	Waihi operation (Martha Mine, Favona Mine, and Trio Mine), Waikato	4,800 ¹
Do.	do.	do.	Macraes operation (Macraes Mine and Frasers Mine), Otago	5,400
Do.	do.	do.	Reefton Mine, West Coast	2,200 ²
Iron and steel:				
Iron ore		New Zealand Steel Ltd. (BlueScope Steel Ltd.)	Taharoa, 150 kilometers south of Auckland	1,400
Do.		do.	Waikato North Head, 30 kilometers south of Auckland	1,400
Steel		do.	Glenbrook	650
Do.		Pacific Steel Group (Fletcher Building Ltd.)	Otahuhu Mill, Auckland	300
Petroleum, refinery	barrels per day	New Zealand Refining Co. Ltd.	Marsden Point oil refinery, Marsden Point	95,000
Salt		Dominion Salt Ltd.	South of Blenheim	70
Silver	metric tons	OceanaGold Corp.	Waihi	30
Do.	do.	do.	Otago	1

^eEstimated. Do., do. Ditto.

¹Production suspended during 2015

²Mining operations were suspended at the Reefton Mine in September 2015.