THE MINERAL INDUSTRY OF

NORWAY

By Harold R. Newman

Since the discovery of North Sea petroleum in the late 1960's, petroleum production has become the most important mineral industry activity in Norway. It has been the largest mineral contributor to the gross national product (GNP) accounting for 15.5% GNP and representing about 38% of total export earnings. (*See table 1.)*

The Norwegian economy remained dependent on foreign trade from which more than one-half of the GNP was derived. About 75% of the minerals consumed were imported. Petroleum was the most significant mineral commodity export, followed by metals and industrial minerals, mainly dimension stone (Royal Ministry of Petroleum and Energy, 1997).

Table 2 shows the impact of selected classes of mineral commodities on Norway's balance of payments position in relation to the European Union (EU) and the world. The figures, in thousands of dollars, are for 1995, the latest year for which data were available. (*See table 2.)*

On the basis of the results of a country-wide referendum, the Government rejected membership in the EU. Despite this, the Government was reviewing its tax and mining laws with the intent of becoming more competitive and conforming to the laws of EU member countries. A committee of the Norwegian Ministry of Industry and Energy put forward a proposal for a new mineral act to replace the Mining Act of 1972; a draft was published for a public hearing. The Ministry will consider the report and the responses of interested parties and, on the basis of this, was expected to suggest a new minerals act to the Norwegian Parliament sometime in 1998. The major changes from the existing Act is that metallic and nonmetallic minerals will be treated in a single act and given more equal treatment. The Minister of Mines will issue prospecting permits (Norwegian Official Committee Report, 1996:11).

Production of metallic ores has fallen gradually for many years, as existing mines were being depleted and no major new mines were replacing those being exhausted. This decline of metallic mineral output has been partially offset by increased production of industrial minerals.

The Norwegian Government's involvement in the mineral industry remained substantial, especially in offshore hydrocarbon production. Through State-owned Den Norske Stats Oljeselskap A/S (Statoil), the Government continued to control all hydrocarbon production and refining. The rest of the mineral industry was dominated by Elkem A/S and Norsk Hydro A/S. *(See table 3.)*

The Government of Norway and Norsk Hydro signed a 50-year agreement that allows the company to make use of the water, considered to be state property, in four of its hydropower plants, in return for about $200 million. These four plants produce about 3 billion kilowatt hours per year of electricity. If approved by the Norwegian Parliament, it will provide some predictability for long- term power costs and will facilitate Norsk Hydro's expansion plan to increase Norsh Hydro's Årdal aluminum smelter's capacity by 50,000 metric tons per year (t/yr) to more than 240,000 t/yr.

The first phase of the expansion, expected to take a year and cost an estimated $42 million, would involve installing 26 new reduction cells and a new gas cleaning system, and raising rectifier capacity in the existing potroom. The second phase, expected to take from 2 to 3 years and to cost an estimated $146 million, would replace the older Søderberg technology with prebaked anode cell technology in a second potroom (Norsk Hydro Quarterly Report, accessed August 11, 1997 on the World Wide Web at URL http://www.hydro.com/konsem/finance/quarterly/1997/eng/lm/html).

Elkem Aluminum ANS operated two primary aluminum smelters in Farsund and Mosjoen, with a combined capacity of about 250,000 t/yr. Elkem has begun a project to reduce air and water pollution at an estimated cost of $36 million at its Farsund plant. This undertaking was scheduled to be completed by 1998.

Two gold exploration projects were begun. Viking Gold Corp. was exploring the Bindal Gold project which includes three properties, Kolsvik, Reppen, and Royskattendalen. The deposit occurs in early Silurian-age rocks of the Caledonides and is located 300 kilometers (km) north of Trondheim. The project comprises 185 claims covering 4,630 hectares. To date 9 exploration adits and 49 diamond drill holes, for a total of 4,048 meters (m), have been completed. Viking reported that resources indicated by drilling were Kolsvik, 2 million metric tons (Mt) grading 8 grams per ton (g/t); and Reppen, 800,000 metric tons (t) grading 6 g/t. Royskattdalen is considered to be an exploration target in a similar host environment (Viking Gold Corp., unpublished news release accessed August 1997 on the World Wide Web at URL http://www.infomine.com/vikinggold/bindal.html).

The Kells Creek gold prospect of Consolidated Logan Mines Ltd. consists of 12 claims covering about 3.5 square kilometers near Oppdal, within Precambrian gneisses of the Highlands of Central Norway. There was interest in the area after several blocks of mineralized gneiss containing chalcopyrite and copper stains, which proved to carry gold values, were located in 1992.

The geologic history of the area has been interpreted as providing a setting for precious and base metal mineralization. An extensive hydrothermal metamorphic system deposited

copper, followed by gold, in faults, leach cavities, and veins. A major tectonic event, the Caledonian Orogeny, produced lower pressure-temperature metamorphism and deformation, likely creating open-space fractures. Remobilization and introduction of gold into brecciated rock may have taken place. The source of the mineralized blocks could possibly lie on the periphery of the altered areas.

Logan has completed diamond drilling of 14 geophysical anomalies that were outlined by the Norwegian Geological Survey (NGU). The company reported the discovery of minor gold values. The next stage of exploration will focus on four drift-covered zones through a program of overburden drilling, hand trenching, and soil surveying (Consolidated Logan Mines Ltd., unpubl. news release accessed August 14, 1997, on the World Wide Web at URL http://www.infomines.com/logan/kells html).

A/S Sydvaranger was a major producer of iron ore, with most of the production exported to Germany and the United Kingdom. Owing to economical difficulties, the mine was expected to close in 1998. The Rana Gruber Mine was preparing for low-cost underground mining as mining from the open pits was expected to be exhausted in 2 years. Iron ore production would then be down to about 400,000 t/yr.

NGU has analyzed a 2-millimeter, 0.07-carat diamond that was found in stream sediments in Finnmark County in northern Norway. This was the first verified diamond discovery in Norway, and confirms geologic theories that diamonds could exist in the Finnmark County area.

In some areas of Finland that are geologically similar to Finnmark County, Norway, diamond deposits have been proven to exist. The same is true of northwestern Russia, on the Kola Peninsula and in Karelia. The exploration company Mallmikaivos Oy, which is searching for diamonds in Finland, is a subsidiary of the Australian company Ashton Mining Ltd., which has exploration rights in Finnmark County (Norwegian Geological Survey, accessed August 14, 1997, on the World Wide Web at URL http://www.ngu.no/NGU/eng/presseng/diamt.htm).

Titania A/S was reportedly one of two hardrock ilmenite producers in the world. The mine in Tellnes averaged about 2.5 Mt of crude ore from which 700,000 to 850,000 t of concentrate was produced with a 44.7% titanium oxide content and small amounts of magnetite and pyrite concentrate. After years of dispute with environmental groups, Titania was ordered by the Government to deposit the tailings from mineral processing on land instead of in the sea. About 20% of the concentrate was used as raw material for titanium dioxide pigment production by the sulfate process at Kronos Titan A/S in Fredrikstad (Olerud, 1996).

Some of the world's largest resources of high quality olivine are in the Sunnmøre-Nordfjord area on the southwestern coast of Norway. With plants at Åheim and Stranda, A/S Olivin was the world's leading producer of olivine products. The 2 million-metric-tons-per year capacity open-pit mine was 4 km from the plant and the port. The olivine ore was transported in a tunnel by conveyor belt to the processing plant.

Production of dimension stone has been steadily increasing as the industry, comprised of many small firms, has been expanding. The most sought after stone was larvikite, a syenite with a feldspar lamellar structure that gives it a special luster. Also, banded dolomite from the Fauske area was highly regarded.

Offshore hydrocarbon production was expected to remain the principal economic activity for the next several decades. Norway produced an average of about 3.02 million barrels per day of crude oil and was ranked seventh in world production. The country maintained its position as the world's second largest oil exporting country. Thirty exploration wells, including 22 wildcats and 8 appraisal wells, were completed or temporarily abandoned on the Norwegian continental shelf in 1996. Of these, 23 were in the North Sea and 7 in the Norwegian Sea (Royal Ministry of Petroleum and Energy, 1997).

The Government approved the development of the Bader, the Visund, the Varg, the Oseberg East, the Aasgard, the Gullfaks satellites, the Gullfaks South, the Rimfaks, and the Guilveig oilfields and the Oseberg (new wellhead development platform) gasfield. The NorFra gas transport system to France was also approved (Royal Ministry of Petroleum and Energy, 1997).

To counter an anticipated decline in production over the next decade, the government has been encouraging the discovery of new resources. Exploration has been focused on finding resources near existing infrastructures. In coming years, greater emphasis will be placed on areas that are currently unexplored. Readily available hydroelectric power and ice-free ports facilitated the growth of energy-intensive industries, namely production of aluminum, ferroalloys, magnesium, and silicon metal.

References Cited

Norwegian Official Committee Reports, 1996:11, Suggestion of a Mineral Act, 1.1.2. Summary, p. 13.

Royal Ministry of Petroleum and Energy, 1997, Norwegian Petroleum Activity 97: p. 9-10.

Olerud, Svein, 1996, Norway's industrial minerals: Industrial Minerals, December 1996, p. 30.

Major Sources of Information

Norwegian Geological Survey
P.O. Box 3006 Lade
7002 Tronheim, Norway

Royal Ministry of Petroleum and Energy
P.O. Box 8148 Dep
0033 Oslo, Norway

TABLE 1
NORWAY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity		1992	1993	1994	1995	1996 e/
METALS						
Aluminum:						
Primary		838,133 r/	887,461	856,967 r/	846,794 r/	862,345 2/
Secondary		57,043	51,987	47,994	55,685 r/	46,978 2/
Cadmium, smelter		247	213	288	317 r/	274 2/
Cobalt		2,293	2,414	2,823	2,804	3,098 2/
Copper:						
Mine output:						
Concentrate		49,645	36,002	31,116	28,561 r/	29,000
Cu content		12,668	8,696	7,412	6,799 r/	7,000
Metal, primary and secondary:						
Smelter		39,259	37,205	39,516	31,146 r/	35,300
Refined		39,300	37,200	39,400	34,322 r/	28,526 2/
Gold e/	kilograms	1,200	800	200	--	--
Iron and steel:						
Iron ore and concentrate:						
Gross weight	thousand tons	2,152	2,162	2,364	2,012 r/	2,000
Fe content	do.	1,527	1,532	1,650	1,348 r/	1,340
Metal:						
Pig iron	do.	70	73	70 e/	70 e/	70
Ferroalloys:						
Ferrochromium	do.	102	80	120	137 r/	110 2/
Ferromanganese	do.	203	226	249	213 r/	215 2/
Ferrosilicomanganese	do.	213	219	197	200 e/	200
Ferrosilicon (75% basis)	do.	367	400	456	474 r/	462 2/
Silicon metal	do.	73 r/	81 r/	92 r/	101 r/	110 2/
Other e/	do.	14	14	14	15	15
Total	do.	972 r/	1,020 r/	1,128 r/	1,140 r/	1,112
Steel, crude	do.	446	505	456 r/	503 r/	511 2/
Semimanufactures, rolled e/	do.	300	290	300	300	300
Lead, mine output:						
Concentrate		7,083	3,224	5,953	2,505 r/	2,600
Pb content		3,767	1,698	3,096	1,452 r/	1,500
Magnesium, primary		30,404	27,300	27,635	28,000 e/	28,000
Nickel:						
Mine output:						
Concentrate		31,306	31,719	26,470	24,927 r/	25,000
Ni content		3,398	3,462	2,938	2,992 r/	3,000
Metal, primary		55,686	56,817	67,955	53,237	61,582 2/
Platinum group metals e/ 3/	kilograms	1,500	1,500	1,500	1,500	1,200
Titanium:						
Ilmenite concentrate	thousand tons	708	713	826	833 r/	750
TiO2 content	do.	318	315	320	325 e/	390 2/
Zinc:						
Mine output:						
Concentrate		41,055	27,469	30,117	18,995 r/	19,000
Zn content		21,658	14,327	15,869	9,877 r/	9,880
Metal, primary		125,564	129,192	131,921	121,576 r/	125,617 2/
INDUSTRIAL MINERALS						
Cement, hydraulic	thousand tons	1,242 r/	1,664 r/	1,444	1,613 r/	1,600
Feldspar		100,000 e/	75,000 e/	62,905	75,397 r/	76,000
Graphite e/		7,000	6,500	5,566	2,588 r/	2,600
Lime, hydrated, and quicklime e/	thousand tons	100	100	100	100	100
Mica, flake e/		3,000	3,000	3,000	3,000	2,500
Nepheline syenite	thousand tons	334	350 e/	279	294 r/	300
Nitrogen, N content of ammonia	do.	343	315	271	275	275
Olivine sand	do.	2,789	2,955	3,109	3,517 r/	3,600
Pyrite	do.	247	92	1	5 r/	6
Stone, crushed:						
Dolomite	do.	650	650	743	797 r/	800
Limestone	do.	3,500	3,500 e/	4,357	4,675 r/	4,600
Quartz and quartzite	do.	900	900	891	963	960
Sulfur: e/						
Pyrite, S content	thousand tons	125	44 r/	1 r/	-- r/	--

See footnotes at end of table.

TABLE 1--Continued
NORWAY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity		1992	1993	1994	1995	1996 e/
INDUSTRIAL MINERALS--Continued						
Sulfur--Continued: e/						
Byproduct of:						
Metallurgy	do.	75	75	75	80 r/	80
Petroleum	do.	15	15	15	20 r/	20
Total sulfur	do.	90	134 r/	90 r/	100 r/	100
Talc, soapstone, steatite e/	do.	60	50	28	30	30
MINERAL FUELS AND RELATED MATERIALS						
Coal, all grades	thousand tons	359 r/	266 r/	301	343 r/	261 2/
Gas, natural:						
Gross	million cubic meters	29,419 r/	28,867 r/	30,833	47,200 r/	59,400
Marketed 4/	do.	27,700	28,500	26,800	27,800 r/	37,400
Peat: e/						
For agricultural use	do.	30	30	30	30	30
For fuel use	do.	1	1	10	10	10
Petroleum:						
Crude 5/	thousand 42-gallon barrels	793,553	855,643	956,369 r/	979,104 r/	1,104,096 2/
Natural gas liquids	do.	17,200	25,342	24,500	40,560 r/	41,600 2/
Refinery products:						
Naphtha e/	do.	4,200	4,000	20,000 r/	22,100 r/	26,350 2/
Gasoline	do.	28,087	28,680	27,149	24,470 r/	25,000
Kerosene	do.	8,134	8,499	9,068	8,378 r/	9,000
Distillate fuel oil	do.	47,274	48,515	50,832 r/	45,140 r/	45,000
Residual fuel oil	do.	11,200	10,700	11,255	12,361 r/	12,000
Other e/	do.	4,000	4,000	4,000	4,000	4,000
Refinery fuel and losses e/	do.	4,000	4,000	4,000	4,000	4,000
Total e/	do.	106,895	108,394	126,304 r/	120,449 r/	125,350

e/ Estimated. r/ Revised.
1/ Table includes data available through May 1997.
2/ Reported figure.
3/ Data represent exports.
4/ Reported as total methane sales.
5/ Excluding natural gas liquids.

TABLE 2
NORWAY: 1995 BALANCE OF PAYMENTS, SELECTED MINERAL COMMODITIES 1/

(Thousand dollars)

Mineral commodity	Exports to EU	Imports from EU	Net gain or (loss)	Exports to the world	Imports from the world	Net gain or (loss)
Crude industrial minerals:						
Feldspar	$23,642	$271	$23,371	$30,096	$271	$29,825
Magnesite	--	837	(837)	--	998	(998)
Slate	4,946	447	4,499	5,349	449	4,900
Other	163,553	149,447	14,106	193,633	201,133	(7,500)
Total	192,141	151,002	41,139	229,078	202,851	26,227
Metalliferous ores:						
Copper	14,436	354	14,082	14,436	354	14,082
Tin	8,836	--	8,836	8,836	--	8,836
Zinc	--	29,482	(29,482)	--	57,429	(57,429)
Other (including waste and scrap)	111,633	251,814	(140,181)	128,642	1,255,530	(1,126,888)
Total	134,905	281,650	(146,745)	151,914	1,313,313	(1,161,399)
Nonmetallic mineral manufactures	12,446	37,394	(24,948)	14,027	46,329	(32,302)
Metals:						
Iron and steel	667,318	1,145,788	(478,470)	883,856	1,432,242	(548,386)
Magnesium: Metal including alloys:						
Scrap	2	1,235	(1,233)	2	1,502	(1,500)
Unwrought	--	4,385	(4,385)	--	28,842	(28,842)
Semimanufactures	1,847	252	1,595	1,853	322	1,531
Total	1,849	5,872	(4,023)	1,855	30,666	(28,811)
Mercury	--	5	(5)	--	24	(24)
Other nonferrous metals	2,705,586	335,032	2,370,554	3,260,132	673,233	2,586,899
Total, metals	3,374,753	1,486,697	1,888,056	4,145,843	2,136,165	2,009,678
Mineral fuels	16,658,948	84,918	16,574,030	19,734,914	946,828	18,788,086

1/ Table prepared by Glenn J. Wallace, International Data Unit.

TABLE 3
NORWAY: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum	Hydro Aluminium A/S (Norsk Hydro A/S 70%)	Smelters at Ardal, Hoyanger, Karmoy, and Sunndalsora	600
Do.	Elkem Aluminium (Elkem A/S 50% and Alcoa 50%)	Smelters at Farsund and Mosjoen	250
Do.	Sor-Norge Aluminium A/S (Alusuisse 50% and Hydro Aluminium 49%)	Smelter at Odda	50
Cadmium	Norzink AS (Boliden AB 50% and Rio Tinto Minerals Development Ltd.)	Smelter at Eitrheimsneset	0.3
Cement	Norcem A/S	Plants at Brevik and Kjopsvik	2,150
Coal	Store Norske Spitsbergen Kulkompani A/S	Mines at Longyearbyen and Svea	450
Cobalt	Nikkelverk A/S (Falconbridge Nickel Mines Ltd. 100%)	Smelter at Kristiansand	3
Copper:			
Ore, Cu content	Grong Guber A/S (Norsulfid A/S 100%)	Mines at Royrvik and Gjersvik	8
Do.	Nikkel og Olivin AS (Norsulfid A/S 100%)	Mine at Narvik	1
Metal	Nikkelverk A/S (Falconbridge Nickel Ltd 100%)	Smelter at Kristiansand	40
Dolomite	Franzefoss Bruk A/S	Mine at Ballagen	350
Do.	Norwegian Holding A/S	Mines at Hammerfall, Logavlen, and Kvitblikk	500
Feldspar	Franzefoss Bruk A/S	Mine at Lillesand	100
Ferroalloys	Elkem Rana (Elkem A/S 100%)	Ferrochromium plant at Mo i Rana	140
Do .	Elkem Sauda (Elkem A/S 51% and BHP 49%)	Ferromanganese plant at Sauda	250
Do.	Elkem PEA (Elkem A/S 51% and BHP 49%)	Ferromanganese plant at Porsgrunn	200
Do.	Elkem Salten (Elkem A/S 100%)	Ferrosilicon plant at Straumen	85
Do.	Elkem Bjolvefossen (Elkem A/S 100%)	Ferrosilicon plant at Alvik	60
Do.	Elkem Thamshavn (Elkem A/S 100%)	Ferrosilicon plant at Orkanger	60
Do .	Finnfjord Smelterverk, Rana Metal (Fesil 100%)	Ferrosilicon plant at Mo i Rana	140
Do.	A/S Hafslung Metal (Fesil 100%)	Ferrosilicon plant at Sarpsborg	75
Do.	Ila og Lilleby Smelterverk (Fesil 100%)	Ferrosilicon plant at Finnsnes	60
Do.	Oye Smelterverk (Tinfos Jernverk A/S 100%)	Silicomanganese plant at Kvinesdal	235
Iron, metal	Ulstein Jernstoperi A/S	Hordvikneset	10
Iron ore	Rana Gruber A/S (Norsk Jernverk Holding A/S 100%)	Mine at Mo i Rana	2,000
Do.	A/S Sydvaranger (Government 87.45%)	Bjornevatn Mine at Kirkenes	1,500
Lead ore, Pb content	A/S Bleikvassli Gruber (A/S Sydvaranger 100%)	Mine at Bleikvassli	2
Lime	Hylla Kalkverk (Nikolai Bruch A/S 100%)	Verdal/Trondheim Mine and plant	80
Do.	A/S Norsk Jernverk	Plant at Mo i Rana	48
Do.	Ardal og Sunndal Verk A/S	More og Romsdal Mine at Surnadal	20
Do.	Breivik Kalkverk A/S	Alesund Mine at Larsnes	20
Do.	Mjoendalen Kalkfabrik	Plant at Asen/Drammen	7
Limestone	Norcem A/S	Dalen, Bjorntvedt, and Kjopsvik Mines	1,600
Do.	Vardelskalk A/S (Franzefoss Burk A/S 100%)	Sandvika Mine	800
Do.	Breivik Klakverk A/S	Visnes and Glaerum Mines	500
Magnesium	Norsk Hydro A/S (Government 51%)	Plant at Porsgrunn	35
Natural gas million cubic meters	Den Norske Stats Oljeselskap A/S	Gama, Gullfaks, Sleipner Ost, and Statfjord Fields	12,270
Do.	Phillips Petroleum Company Norway	Ekofisk Field	9,900
Do.	Elf Petroleum Norge A/S	Frigg, Heimdal, and Ost-Frigg Fields	5,750
Do.	Norsk Hydro Produksjon A/S	Troll-Oseberg Field	2,600
Do.	BP Petroleum Development of Norway	Gyda and Ula Fields	1,040
Do.	Esso Norge as	Odin Field	1,000
Do.	Amoco Norway A/S	Hod and Valhall Fields	910
Nepheline syenite	North Cape Mineral A/S (Unimin Corp. 84%)	Mine at Stjernoy	350
Nickel:			
Ore, Ni content	Nikkel og Olivin A/S (Norsulfid A/S 100%)	Mine at Narvik	3
Do.	Titania A/S (Kronos Norge A/S 100%)	Mine at Tellnes	0.5
Metal	Nikkelverk A/S (Falconbridge Nickel Mines Ltd. 100%)	Smelter at Kristiansand	60
Olivine	A/S Olivin	Aheim Mine at Sunnmore	2,500
Do.	Franzefoss Bruk A/S	Lefdal Mine at Bryggja	500
Do.	Idustrimineraler A/S	Stranda Mine at Nordfjord	300
Petroleum barrels per day	Den Norske Stats Oljeselskap A/S	Gullfaks, Statfjord, Tommeliten, and Veslefrikk Fields	1,069,300
Do.	Norsk Hydro Produksjon A/S	Brage, Mime, and Oseberg Fields	566,200
Do.	Phillips Petroleum Company Norway	Ekofisk Field	237,500
Do.	Saga Petroleum A/S	Snorre Field	170,000
Do.	BP Petroleum Development of Norway	Gyda and Ula Fields	155,000
Do.	A/S Norske Shell	Draugen Field	90,000

TABLE 3--Continued
NORWAY: STRUCTURE OF THE MINERAL INDUSTRY FOR 1996

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Pyrite	Folldal Verk A/S (Norsulfid A/S 100%)	Mine at Hjerkinn	10
Quartzite	Elkem Tana (Elkem A/S 100%)	Mine at Tana	540
Do.	Elkem Marnes (Elkem A/S 100%)	Mine at Sandhornoy	200
Do.	Vatnet Kvarts A/S	Mine at Nordland	150
Do.	Snekkevik Kvartsbrudd	Mine at Kragero	110
Steel	Fundia AB (Norsk Jenverk 50% and Rataruukki 50%)	Plants at Christiania, Spigerverk, Mandal Stal, and Moi Rana	600
Talc	A/S Norwegian Talc (Pluess-Staufer AG 51%)	Mine/plant at Altermark/Knarrevik and Framfjord	90
Do.	Kvam Minerals A/S	Mine/plant at Kvam	6
Titanium, concentrate	Titania A/S (Kronos Norge A/S 100%)	Mine at Tellnes	800
Zinc:			
Ore, Zn content	Grong Guber A/S (Norsulfid A/S 100%)	Mines at Royrvik and Gjersvik	10
Do.	A/S Bleikvassli Gruber (A/S Sydvaranger 100%)	Mine at Bleikvassli	10
Metal	Norzik A/S (Boliden Mineral AB 50%)	Smelter at Eitrheimsneset	137