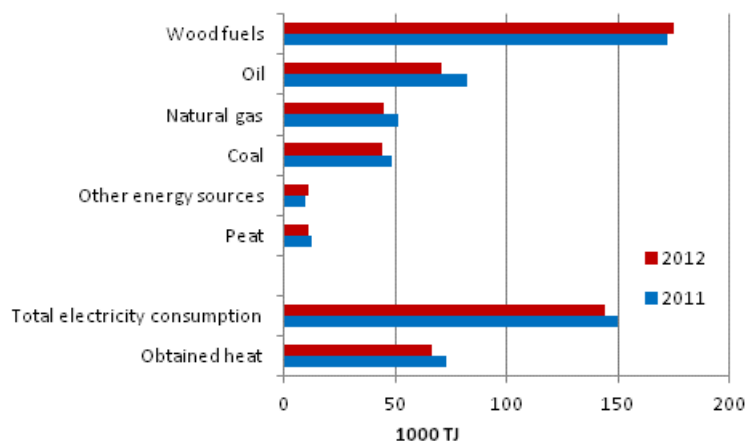


Energy use in manufacturing 2012

Energy consumption in manufacturing fell in 2012

According to Statistics Finland, the consumption of energy in manufacturing went down by around five per cent in 2012. Energy use in manufacturing totalled 541 petajoule (PJ). The use of purchased energy in manufacturing went down by four per cent from the previous year.

Use of energy in manufacturing



Includes total amounts of fuels used in manufacturing and total use of electricity and the amount of heat obtained from outside

According to the preliminary data of the Volume Index of Industrial Output, output in manufacturing went down by good two per cent during 2012. This was also visible in the energy consumption in manufacturing. The biggest energy consumer was still the forest industry, which expended 55 per cent of all energy used in manufacturing. Energy use in the forest industry diminished by three per cent from 2011. The chemical industry and the manufacture of basic metals are also major energy users in Finland. In these main industries, energy consumption also fell from the year before, in the chemical industry by around six per cent and in the manufacture of basic metals by around eight per cent. The only industries where energy use grew compared with the previous year were mining and quarrying and textile industry. According to preliminary data, manufacturing accounted for around 46 per cent of final energy consumption, which has also gone down from the year before.

In 2012, wood fuels were the used most energy sources in manufacturing. Their use was around one-third of consumed energy. Wood fuels were used particularly in the forest industry. The amount of wood fuels

used grew from the previous year. In turn, the use of oil, natural gas, coal and peat as an energy source went down. The amount of oil used by manufacturing diminished by 14 per cent from the year before.

The total use of electricity in manufacturing was 40 terawatt hours (TWh) in 2012. Fifty-two per cent of the electricity used in manufacturing was consumed in the forest industry. The chemical industry accounted for 16 per cent and the manufacture of basic metals for 14 per cent of the total use of electricity. The total use of electricity grew in the textile and clothing industry, in the manufacture of basic metals and in mining and quarrying. The use of electricity decreased in all other main industries.

The use volume of heat obtained from outside went down from 2011. Almost one-half of obtained heat was used in the forest industry. Other major users of heat obtained from outside were the chemical industry, the manufacture of basic metals and the food industry. Heat produced by manufacturing for own use is included in the fuels consumed in manufacturing.

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Appendix tables

Appendix table 1. Energy use in manufacturing by energy source 2012

Source of energy	TJ	GWh	Confidence interval, ± %
Refinery gas	26 657	7 405	0,0
LPG (Liquefied petroleum gas)	9 831	2 731	2,7
Other petroleum products	4 851	1 348	0,0
Light fuel oil and Gasoil	6 842	1 901	11,9
Heavy fuel oils	16 226	4 507	1,4
Petroleum coke	5 795	1 610	0,0
Recycled and waste oils	618	172	0,0
Hard coal, bituminous	4 349	1 208	0,0
Other coal	.	.	.
Coke ¹⁾	21 470	5 964	0,0
Blast furnace gas and Coke oven gas	18 364	5 101	0,0
Natural gas	44 823	12 451	1,0
Milled peat	10 411	2 892	0,0
Sod peat and Peat pellets and briquettes	213	59	0,0
Forest chippings and other firewood	6 412	1 781	0,2
Bark	21 239	5 900	0,2
Sawdust, cutter shavings etc.	3 688	1 024	11,3
Other industrial wood residue	2548	708	2,0
Black liquor and other concentrated liquors	135 768	37 713	0,0
Wood pellets and briquettes	231	64	0,0
Other biofuels	898	249	0,3
Biogas	174	48	2,0
Recovered fuels	3 093	859	0,0
Waste and other non-specified energy sources	754	209	0,0
Exothermic heat from industry	5 449	1 514	0,0
Hydrogen	293	81	0,0
Electricity	117 091	32 525	0,8
District heat	14 423	4 006	3,2
Heat used in production processes	51 830	14 397	0,8
Total	540 972	150 270	0,3

Includes industries (TOL 2008) B Mining and quarrying and C Manufacturing (including autoproducer plants). Does not include the energy use of industry D Electricity, gas and steam supply. Includes the fuel consumption of industrial establishments (including autoproducer establishments) as well as the external net purchases of electricity and heat. Summing these together gives the total energy use in the industry.

1) Includes coke intake into blast furnace and other coke consumption in industry. Energy content of coke has been subtracted by the energy content of the produced blast furnace gas.

Appendix table 2. Energy use in manufacturing by industry 2012

Industries	Fuels TJ	confidence interval, ± %	Electricity (nett) TJ ¹⁾	confidence interval, ± %	Heat (nett) TJ ¹⁾	confidence interval, ± %	Total TJ	confidence interval, ± %
05 Mining of coal and lignite	.	.	.	.	.	.	.	.
06 Extraction of crude petroleum and natural gas	.	.	.	.	.	.	.	.
07 Mining of metal ores	687	0,2	3 338	0,9	83	2,8	4 108	0,7
08–09 Other mining and quarrying and mining support service activities	1 940	39,1	1 354	2,1	272	1,3	3 566	21,3
10 Manufacture of food products	4 313	8,4	5 307	6,3	4 512	5,0	14 131	2,8
11 Manufacture of beverages	678	9,4	651	25,9	892	3,2	2 221	8,2
12 Manufacture of tobacco products	.	.	.	.	.	.	.	.
13 Manufacture of textiles	573	54,4	618	27,6	238	17,5	1 428	23,2
14 Manufacture of wearing apparel	132	59,3	217	34,0	113	44,2	462	22,7
15 Manufacture of leather and related products	34	18,5	62	19,6	39	38,1	135	9,3
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	8 984	4,8	7 277	1,9	10 589	2,5	26 851	1,8
17 Manufacture of paper and paper products	208 236	0,0	43 804	0,1	21 158	0,2	273 198	0,0
18 Printing and reproduction of recorded media	337	30,82	818	15,2	203	15,40	1 3587	10,6
19 Manufacture of coke and refined petroleum products	46 824	0,0	4 498	0,1	3 015	0,0	54 337	0,0
20 Manufacture of chemicals and chemical products	17 394	0,3	15 579	3,5	11 914	2,6	44 887	1,2
21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	71	6,0	317	10,3	343	6,3	731	4,9
22 Manufacture of rubber and plastic products	902	19,7	2 678	15,2	1 275	14,2	4 855	8,4
23 Manufacture of other non-metallic mineral products	10 259	2,1	2 804	5,0	671	11,5	13 734	1,5
24 Manufacture of basic metals	52 057	0,1	16 921	0,4	5 133	0,3	75 375	0,1
25 Manufacture of fabricated metal products, except machinery and equipment	1 112	14,2	3 920	8,7	1 576	18,7	6 609	5,2
26 Manufacture of computer, electronic and optical products	25	47,4	1 297	10,1	665	13,7	1 986	7,6
27 Manufacture of electrical equipment	91	22,3	872	16,9	439	15,8	1 402	10,9
28 Manufacture of machinery and equipment n.e.c.	806	9,8	2 209	7,8	1 379	7,6	4 393	3,6
29 Manufacture of motor vehicles, trailers and semi-trailers	159	31,3	365	12,7	295	16,5	819	8,2

Industries	Fuels TJ	confidence interval, ± %	Electricity (nett) TJ ¹⁾	confidence interval, ± %	Heat (nett) TJ ¹⁾	confidence interval, ± %	Total TJ	confidence interval, ± %
30 Manufacture of other transport equipment	201	8,6	662	16,5	580	6,8	1 444	7,7
31 Manufacture of furniture	331	21,3	522	22,5	250	42,5	1 103	12,8
32 Other manufacturing	44	26,0	253	29,7	53	31,9	349	21,4
33 Repair and installation of machinery and equipment	175	24,7	747	28,3	567	15,4	1 490	14,0
Total	356 364	0,3	117 091	0,8	66 253	0,9	540 972	0,3

* Data in table cell are unreliable, as the variation coefficient exceeds the value 40.

. No data available (the sample contained no establishments)

Includes industries (TOL 2008) B Mining and quarrying and C Manufacturing (including autoproducer plants). Does not include the energy use of industry D Electricity, gas and steam supply. Includes the fuel consumption of industrial establishments (including autoproducer establishments) as well as the external net purchases of electricity and heat. Summing these together gives the total energy use in the industry.

1) Net purchases

Appendix table 3. Total electricity consumption in manufacturing 2012

Industries	GWh	confidence interval, ± %
05 Mining of coal and lignite	.	.
06 Extraction of crude petroleum and natural gas	.	.
07 Mining of metal ores	927	0,9
08–09 Other mining and quarrying and Mining support service activities	450	1,7
10 Manufacture of food products	1 498	6,2
11 Manufacture of beverages	181	25,9
12 Manufacture of tobacco products	.	.
13 Manufacture of textiles	172	27,6
14 Manufacture of wearing apparel	60	34,0
15 Manufacture of leather and related products	17	19,6
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	2 025	1,9
17 Manufacture of paper and paper products	18 641	0,1
18 Printing and reproduction of recorded media	227	15,2
19 Manufacture of coke and refined petroleum products	1 249	0,1
20 Manufacture of chemicals and chemical products	4 482	3,4
21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	88	10,3
22 Manufacture of rubber and plastic products	745	15,2
23 Manufacture of other non-metallic mineral products	779	5,0
24 Manufacture of basic metals	5 468	0,4
25 Manufacture of fabricated metal products, except machinery and equipment	1 089	8,7
26 Manufacture of computer, electronic and optical products	360	10,1
27 Manufacture of electrical equipment	242	16,9
28 Manufacture of machinery and equipment n.e.c.	634	7,5
29 Manufacture of motor vehicles, trailers and semi-trailers	102	12,7
30 Manufacture of other transport equipment	184	16,5
31 Manufacture of furniture	145	22,5
32 Other manufacturing	70	29,7
33 Repair and installation of machinery and equipment	208	28,3
Total	40 044	2,0

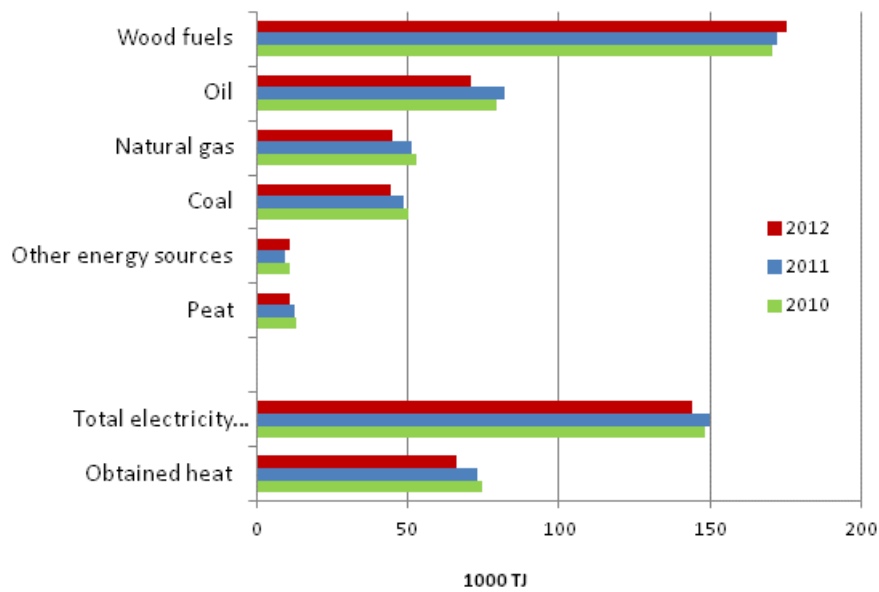
* Data in table cell are unreliable, as the variation coefficient exceeds the value 40.

. No data available (the sample contained no establishments)

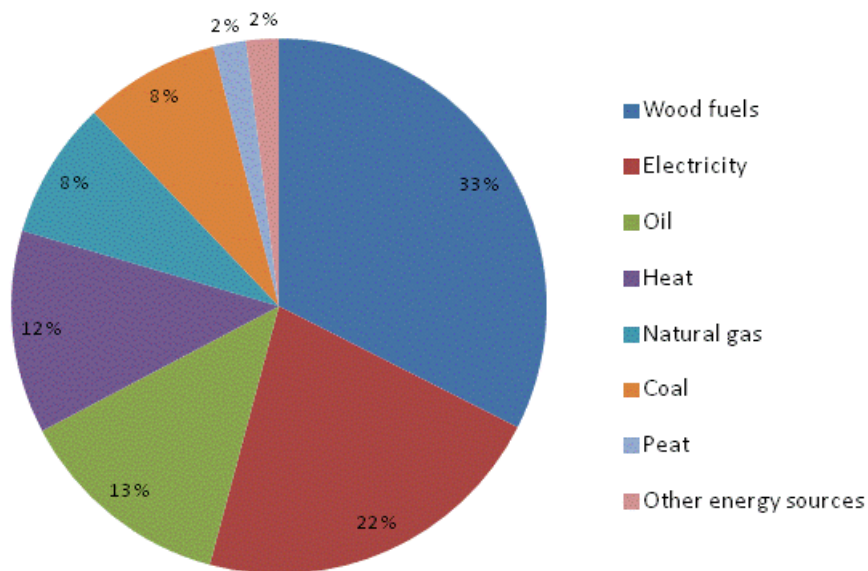
Includes industries (TOL 2008) B Mining and quarrying and C Manufacturing (including autoproducer plants). Does not include the energy use of industry D Electricity, gas and steam supply. Includes the fuel consumption of industrial establishments (including autoproducer establishments) as well as the external net purchases of electricity and heat. Summing these together gives the total energy use in the industry.

Appendix figures

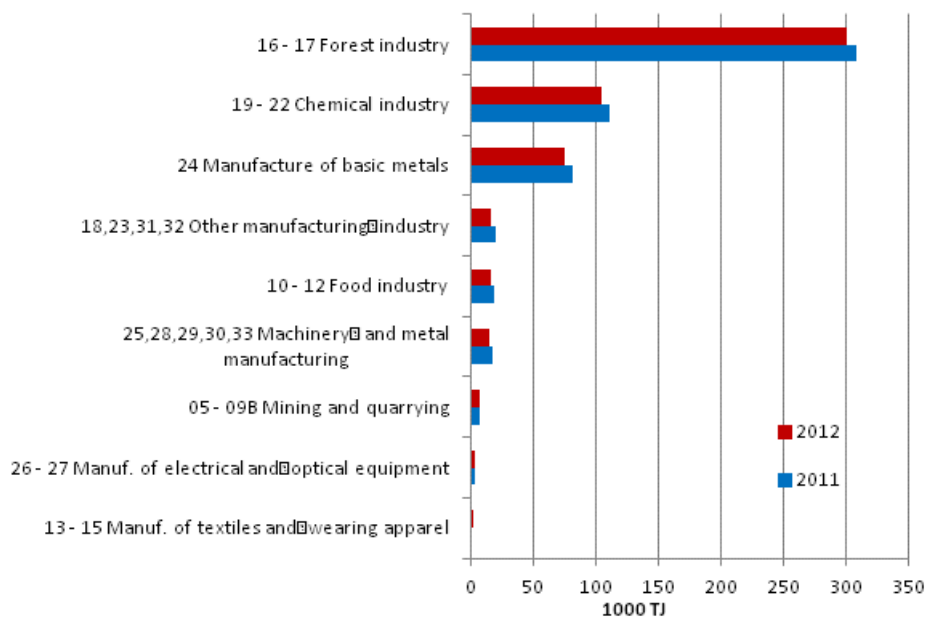
Appendix figure 1. Use of energy in manufacturing



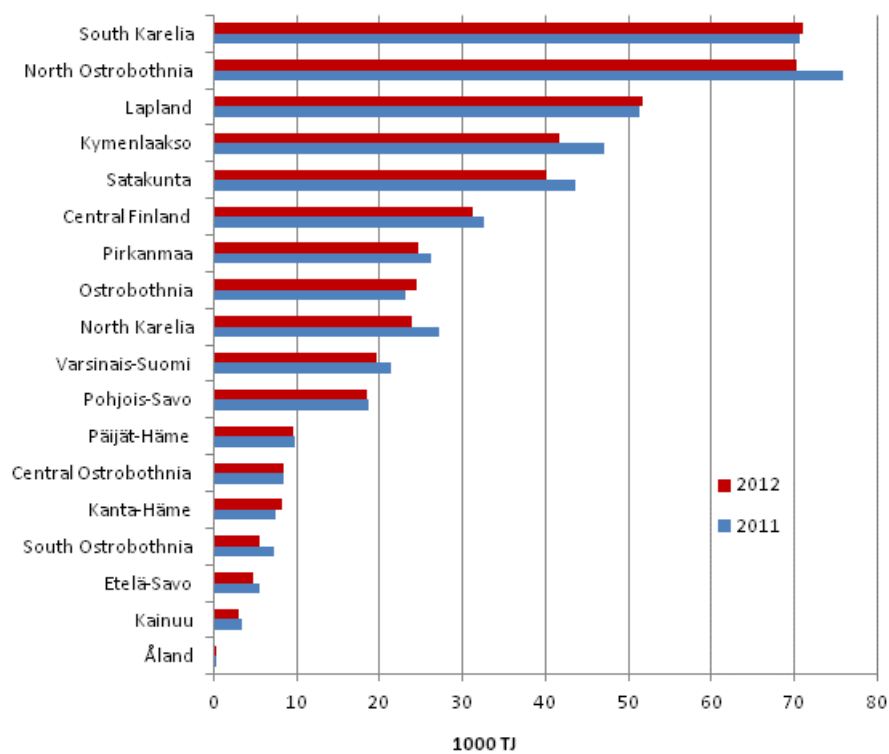
Appendix figure 2. Energy use in manufacturing by energy source 2012



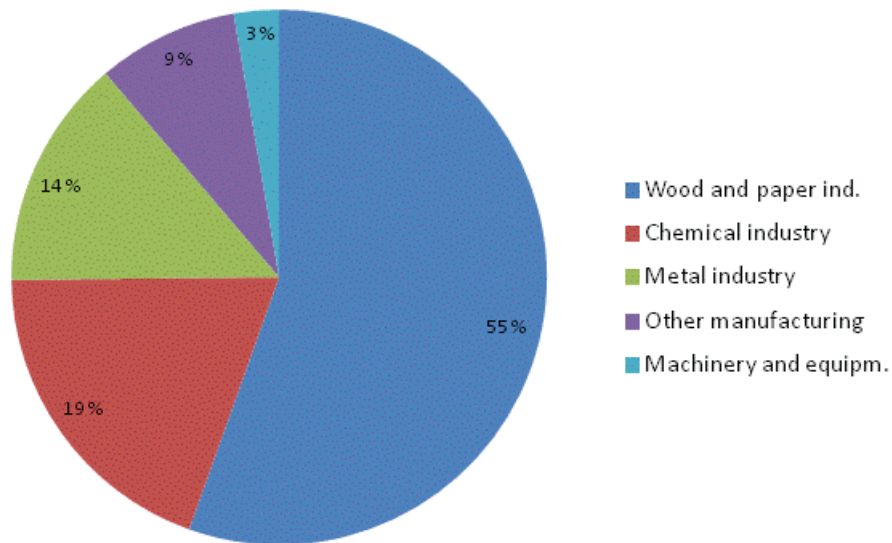
Appendix figure 3. Energy use in manufacturing by industry



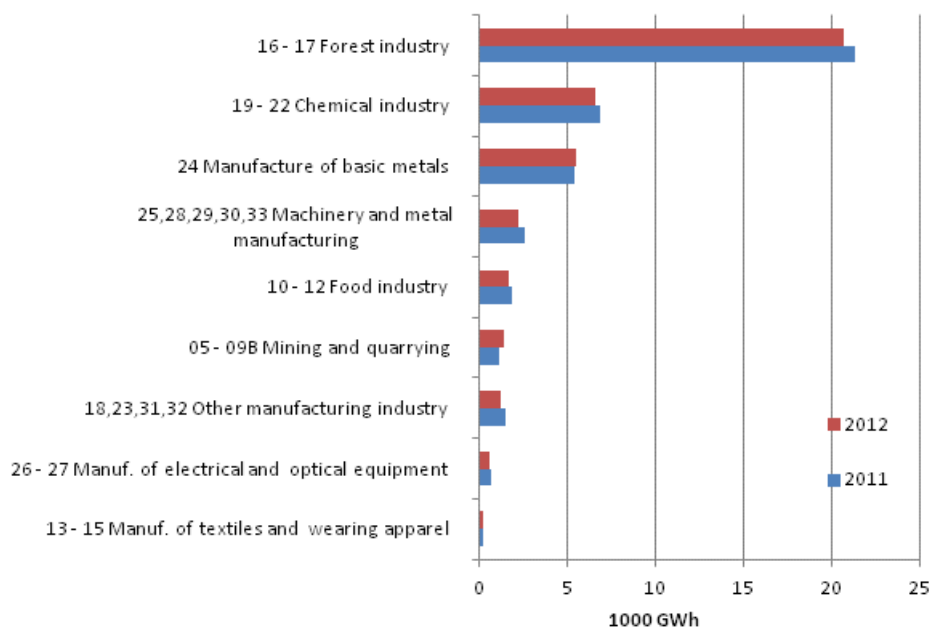
Appendix figure 4. Energy use in manufacturing by region



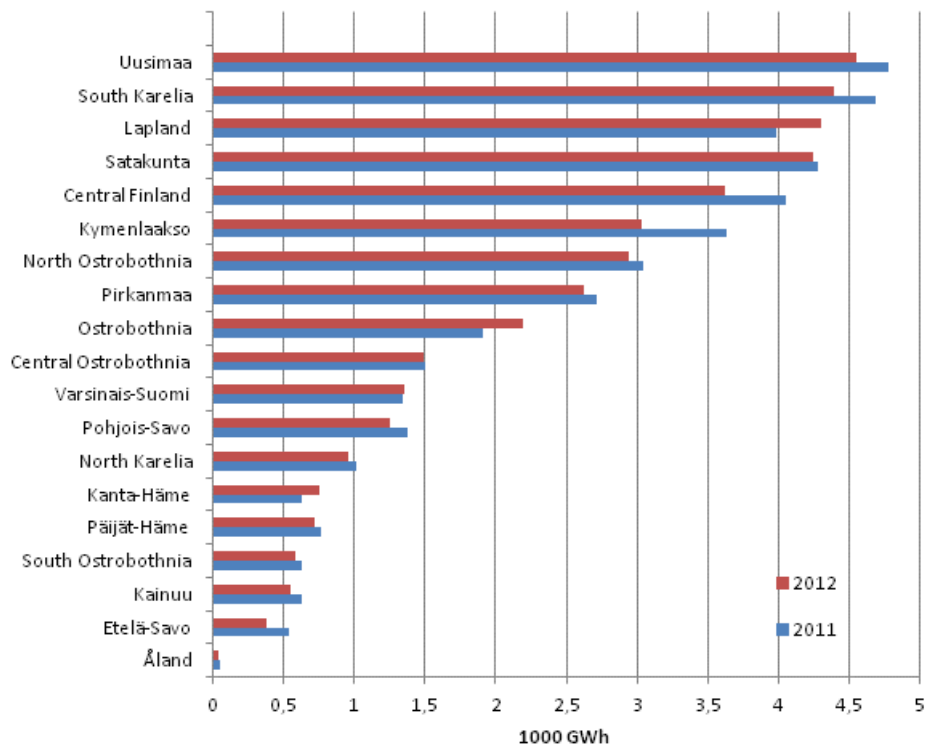
Appendix figure 5. Total electricity consumption in manufacturing 2012



Appendix figure 6. Total electricity consumption by manufacturing branch



Appendix figure 7. Total electricity consumption in manufacturing by region



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Source: Energy use in manufacturing, Statistics Finland