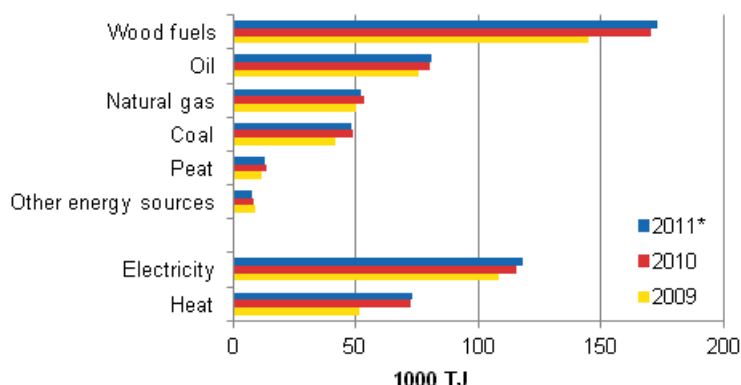


# Energy use in manufacturing 2011

## Energy consumption in manufacturing on level with the previous year in 2011

According to Statistics Finland, the consumption of energy in manufacturing went up by around half-a-per-cent in 2011. Energy use in manufacturing totalled 565 petajoule (PJ), which according to preliminary data, is nearly one half of total final energy consumption in Finland. The consumption of electricity in manufacturing was at the same level as one year previously.

### Use of energy sources in manufacturing



The total use of electricity in manufacturing was 41.4 terawatt hours (TWh) in 2011. Over 51 per cent of the electricity used in manufacturing was consumed in the forest industry. The chemical industry accounted for 17 per cent and the manufacture of basic metals for 13 per cent of the total use of electricity. The total use of electricity grew most in the chemical industry. In contrast, the use of electricity decreased most in the forest industry. Of the regions, the highest amounts of electricity were used in manufacturing establishments in Uusimaa, South Karelia and Satakunta, all of which accounted for over ten per cent of all electricity used in manufacturing.

Of fuels the most used in manufacturing were wood fuels, the use of which made up 46 per cent of the volume of fuels used. Wood fuels were used especially in the wood processing industry for the production of electricity and heat. Other significant energy sources for manufacturing were oil and natural gas.

According to the preliminary data of the Volume Index of Industrial Output, output in manufacturing grew most in the metal industry and the chemical industry in 2011. The biggest energy consumer in manufacturing was the forest industry, which expended 55 per cent of all energy used in manufacturing. Other major energy users were the chemical industry and the manufacture of basic metals. Energy consumption went down most in the electronics and electrical industry.

The use volume of heat purchased from outside grew by nearly one per cent from the previous year. More than one half of purchased heat was used in the forest industry. Other big users of heat were the chemical industry and the food industry.

Data for the year 2011 are released as preliminary figures. The data will become revised in connection with the next release.

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## Appendix tables

**Appendix table 1. Energy use in manufacturing by energy source 2011**

Source of energy	TJ	GWh	Confidence interval, ± %
Refinery gas	28 960,8	8 044,7	0,0
LPG (Liquefied petroleum gas)	10 609,8	2 947,2	7,2
Other petroleum products	4 924,1	1 367,8	0,0
Light fuel oil and Gasoil	7 228,9	2 008,0	25,5
Heavy fuel oils	22 438,7	6 233,0	4,0
Petroleum coke	6 142,5	1 706,3	0,0
Recycled and waste oils	575,1	159,8	0,0
Hard coal, bituminous	4 487,8	1 246,6	0,0
Other coal	.	.	.
Coke <sup>1)</sup>	22 852,5	6 347,9	0,0
Blast furnace gas and Coke oven gas	20 613,3	5 725,9	0,0
Natural gas	51 802,3	14 389,5	1,4
Milled peat	12 626,7	3 507,4	0,0
Sod peat and Peat pellets and briquettes	345,9	96,1	0,0
Forest chippings and other firewood	5 658,2	1 571,7	0,2
Bark	18 514,9	5 143,0	5,2
Sawdust, cutter shavings etc.	4 141,7	1 150,5	26,4
Other industrial wood residue	4 861,2	1 350,3	4,0
Black liquor and other concentrated liquors	135 108,8	37 530,2	0,0
Other by-products from wood processing industry	4 812,2	1 336,7	0,0
Wood pellets and briquettes	109,6	30,5	0,0
Other biofuels	810,7	225,2	0,0
Biogas	92,6	25,7	7,7
Recovered fuels	2 958,2	821,7	0,0
Waste and other non-specified energy sources	340,7	94,6	0,3
Exothermic heat from industry	2 227,5	618,8	0,0
Hydrogen	1 155,8	321,0	0,0
Electricity	117 894,6	32 748,5	2,6
District heat	10 427,6	2 896,6	20,6
Heat used in production processes	62 344,4	17 317,9	6,9
Total	565 084,9	156 968,0	1,0

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 2011**

Industries	Fuels TJ	confidence interval, ± %	Electricity (nett) TJ <sup>1)</sup>	confidence interval, ± %	Heat (nett) TJ <sup>1)</sup>	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	725,7	1,7	2 326,5	2,8	38,3	8,6	3 090,5	2,0
08–09 Other mining and quarrying and mining support service activities	2 125,5	81,7	1 508,4	10,0	155,4	4,0	3 789,3	45,6
10 Manufacture of food products	4 542,5	12,4	5 395,9	9,6	4 967,8	19,5	14 906,1	6,7
11 Manufacture of beverages	986,9	66,6	934,3	64,9	1 355,3	32,1	3 276,5	30,0
12 Manufacture of tobacco products	.	.	.	.	.	.	.	.
13 Manufacture of textiles	667,1	41,7	402,8	21,7	234,5	26,0	1 304,4	20,5
14 Manufacture of wearing apparel	130,8	117,2	152,1	74,1	96,3	42,9	379,2	45,4
15 Manufacture of leather and related products	30,2	30,5	116,7	63,2	58,3	69,0	205,2	27,4
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	11 084,1	12,7	6 088,2	16,0	12 888,1	30,9	30 060,4	12,8
17 Manufacture of paper and paper products	211 339,9	0,0	41 789,2	0,9	25 881,7	2,7	279 010,8	0,3
18 Printing and reproduction of recorded media	461,7	63,9	1 189,3	30,9	309,1	33,0	1 960,1	20,9
19 Manufacture of coke and refined petroleum products	49 779,6	0,0	4 577,9	0,1	3 402,6	0,0	57 760,0	0,0
20 Manufacture of chemicals and chemical products	17 059,3	1,4	16 703,9	11,1	12 002,8	15,8	45 766,0	5,5
21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	67,8	10,9	334,7	26,1	346,6	13,9	749,1	11,8
22 Manufacture of rubber and plastic products	1 025,2	38,7	3 327,4	35,7	1 591,6	46,0	5 944,2	21,4
23 Manufacture of other non-metallic mineral products	11 164,0	5,5	3 037,9	19,3	522,9	60,2	14 724,8	5,4
24 Manufacture of basic metals	59 491,8	0,1	17 597,2	1,2	3 002,5	4,1	80 091,6	0,2
25 Manufacture of fabricated metal products, except machinery and equipment	1 629,1	35,8	4 970,5	25,3	1 696,7	41,7	8 296,3	15,9
26 Manufacture of computer, electronic and optical products	43,8	71,9	1 257,2	13,2	464,6	22,8	1 765,6	11,0
27 Manufacture of electrical equipment	139,3	41,3	1 125,8	33,3	466,9	31,0	1 732,0	21,7

Industries	Fuels TJ	confidence interval, ± %	Electricity (nett) TJ <sup>1)</sup>	confidence interval, ± %	Heat (nett) TJ <sup>1)</sup>	confidence interval, ± %	Total TJ	confidence interval, ± %
28 Manufacture of machinery and equipment n.e.c.	971,2	18,0	2 479,0	16,0	1 371,5	18,6	4 821,8	8,1
29 Manufacture of motor vehicles, trailers and semi-trailers	127,6	39,1	462,0	30,9	362,4	36,3	952,0	17,6
30 Manufacture of other transport equipment	289,6	33,6	619,6	29,3	578,5	41,7	1 487,8	18,8
31 Manufacture of furniture	377,0	40,6	724,7	45,6	230,9	90,2	1 332,6	26,2
32 Other manufacturing	34,8	46,8	284,6	51,7	237,9	72,9	557,3	37,4
33 Repair and installation of machinery and equipment	123,7	51,5	488,7	36,4	508,8	33,7	1 121,2	16,0
Total	374 418,2	0,7	117 894,6	2,6	72 772,0	6,5	565 084,9	1,0

\* 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.

1) Net purchases

**Appendix table 3. Total electricity consumption in manufacturing 2011**

Industries	GWh	confidence interval, ± %
05 Mining of coal and lignite	.	.
06 Extraction of crude petroleum and natural gas	.	.
07 Mining of metal ores	645,8	2,8
08–09 Other mining and quarrying and Mining support service activities	483,4	8,7
10 Manufacture of food products	1 522,1	9,5
11 Manufacture of beverages	259,5	64,9
12 Manufacture of tobacco products	.	.
13 Manufacture of textiles	112,2	21,7
14 Manufacture of wearing apparel	42,3	74,1
15 Manufacture of leather and related products	32,4	63,2
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1 704,3	15,9
17 Manufacture of paper and paper products	19 528,9	0,5
18 Printing and reproduction of recorded media	330,4	30,9
19 Manufacture of coke and refined petroleum products	1 271,6	0,1
20 Manufacture of chemicals and chemical products	4 758,2	10,9
21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	93,0	26,1
22 Manufacture of rubber and plastic products	924,3	35,7
23 Manufacture of other non-metallic mineral products	843,8	19,3
24 Manufacture of basic metals	5 421,3	1,1
25 Manufacture of fabricated metal products, except machinery and equipment	1 335,8	25,5
26 Manufacture of computer, electronic and optical products	349,3	13,2
27 Manufacture of electrical equipment	312,7	33,3
28 Manufacture of machinery and equipment n.e.c.	700,5	15,7
29 Manufacture of motor vehicles, trailers and semi-trailers	128,3	30,9
30 Manufacture of other transport equipment	172,1	29,3
31 Manufacture of furniture	201,3	45,6
32 Other manufacturing	79,1	51,7
33 Repair and installation of machinery and equipment	135,8	36,5
Total	41 388,6	2,0

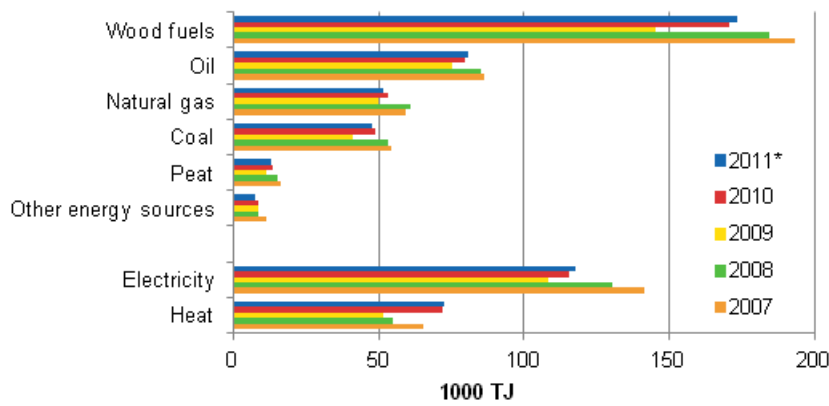
\* Data in table cell are unreliable, as the variation coefficient exceeds the value 40.

. No data available (the sample contained no establishments)

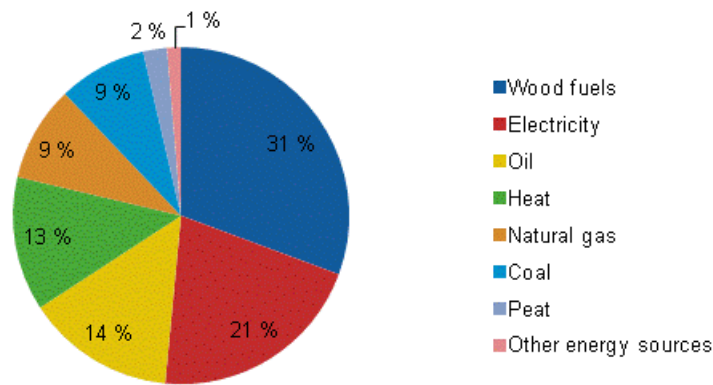
Includes industries (TOL 2008) B Mining and quarrying and C Manufacturing (including autoproducer plants). Does not include the energy use of industry D Electricity, gas and steam supply. Includes the fuel consumption of industrial establishments (including autoproducer establishments) as well as the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

# Appendix figures

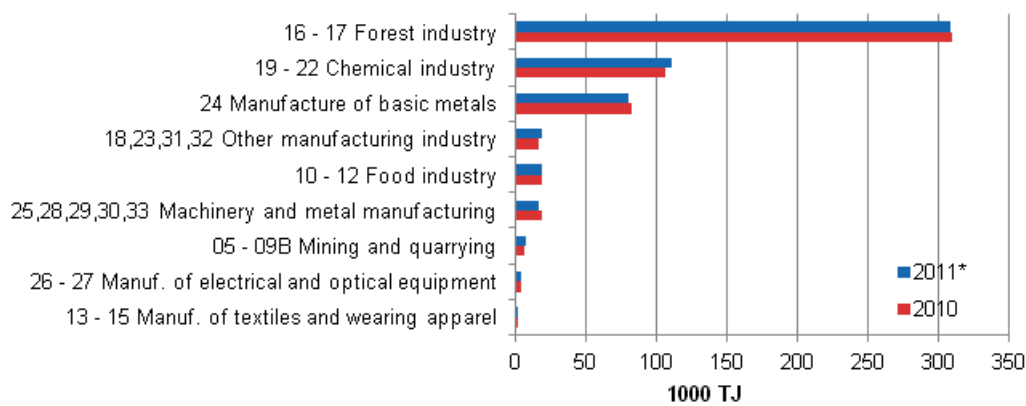
**Appendix figure 1. Use of energy sources in manufacturing**



**Appendix figure 2. Energy use in manufacturing by energy source 2011**

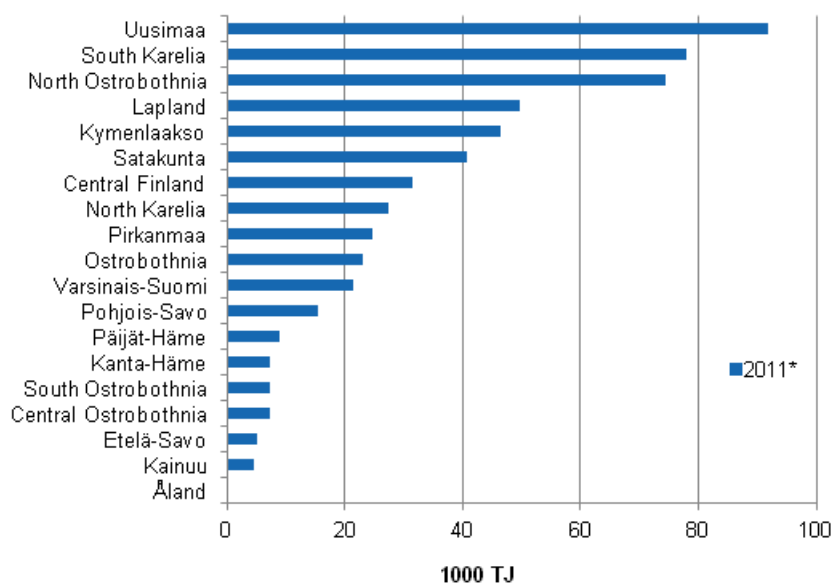


**Appendix figure 3. Energy use in manufacturing by industry**

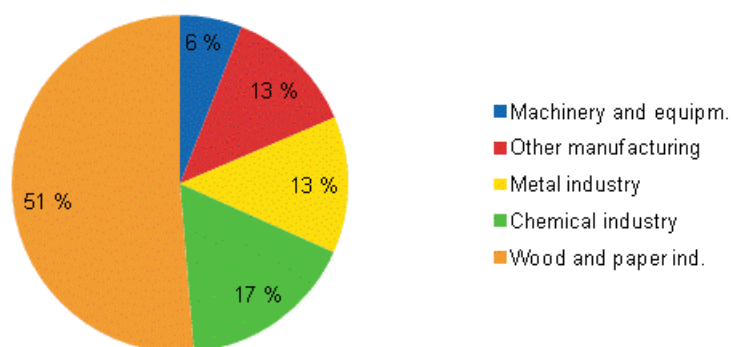




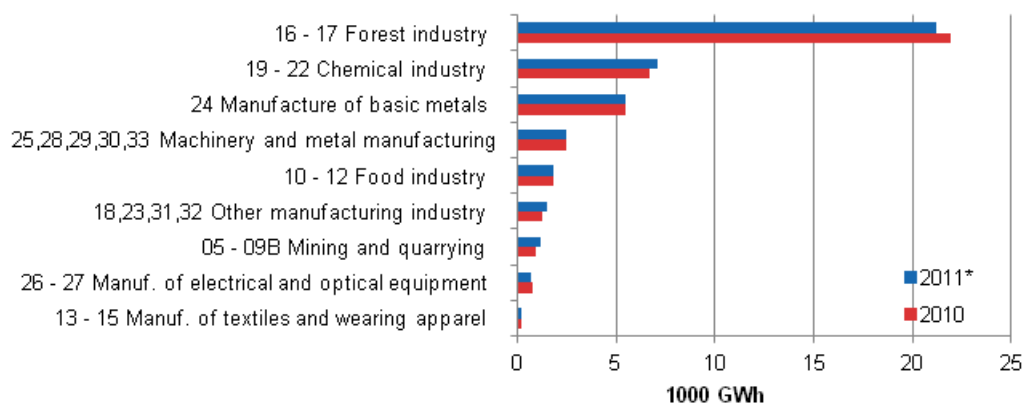
**Appendix figure 4. Energy use in manufacturing by region**



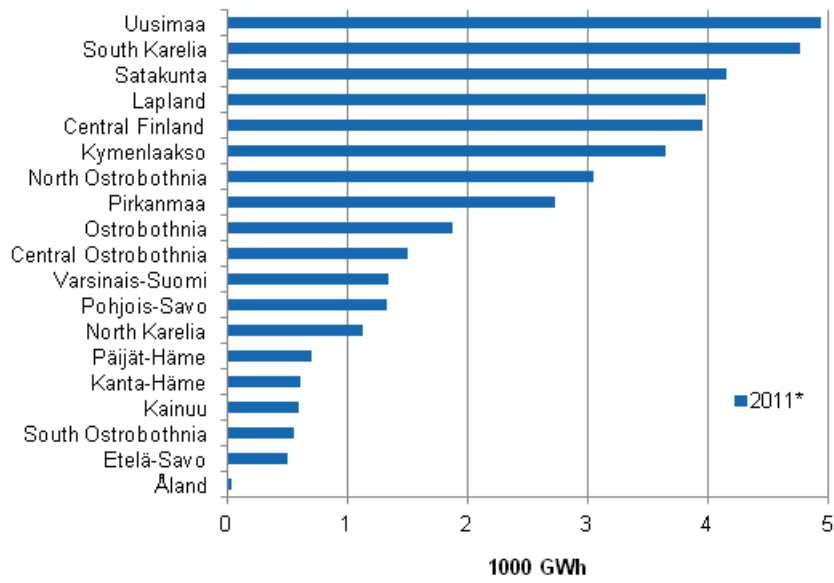
**Appendix figure 5. Total electricity consumption in manufacturing 2011**



**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