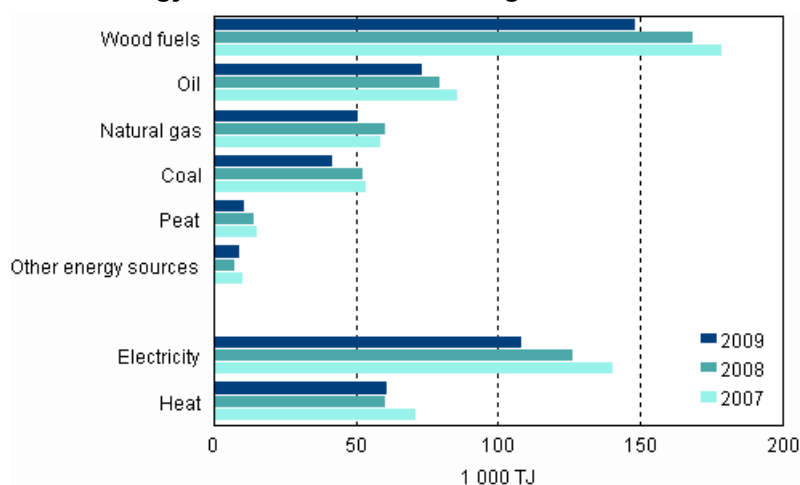


# Energy use in manufacturing 2009

## Energy use in manufacturing diminished by 13 per cent in 2009

According to Statistics Finland data, energy use in manufacturing totalled 508 petajoule (PJ) in 2009. Compared with the previous year, energy use in manufacturing diminished by 13 per cent. The economic downturn reduced the consumption of electricity in manufacturing. In 2009 the volume of industrial output contracted by over 20 per cent, which also contributed to the reduction in the consumption of energy.

### Use of energy sources in manufacturing



As in the previous year, the most used fuels in manufacturing were wood, oil and natural gas. The use volume of nearly each energy source diminished. The total use of electricity in manufacturing dropped by over 20 per cent from 2008. The use of net electricity also declined compared with the previous year, while the use of net heat remained almost on level with the previous year.

The regions of North Ostrobothnia, Itä-Uusimaa and South Karelia each used some 12 per cent of the energy used in all manufacturing. The least energy was used by manufacturing enterprises in the regions of Etelä-Savo, Kainuu and Åland, under one per cent of all energy used in manufacturing. Of the industries, the most energy was used in the forest and chemical industries. Energy use increased slightly from the previous year only in machinery and metal manufacturing and in the food industry.

In 2009, the forest industry accounted for around 51 per cent of the total use of electricity in manufacturing. The least electricity was used in the manufacture of textiles and wearing apparel. Of the regions, the manufacturing establishments of Central Finland and Satakunta used the most electricity. Each of these two regions accounted for over 10 per cent of the total electricity used in manufacturing.

### Total consumption of electricity in manufacturing

Industries	GWh	Change %	95% confidence interval, ± %
Forest industry	19 053,5	-32,7	1,49
Chemical industry	6 263,6	-7,7	4,6
Manufacture of basic metals	4 547,5	-20,3	4,2
Machinery and metal manufacturing	2 179,8	-18,4	12,5
Food industry	2 109,7	26,3	16,6
Other manufacturing	1 579,8	-10,8	22,4
Manufacture of electrical and optical equipment	830	1,4	24,6
Mining and quarrying	477,1	-11,8	27,6
Manufacture of textiles and wearing apparel	231,8	-16,2	24,8
<b>Total</b>	<b>37 272,9</b>	<b>-20,9</b>	<b>2,0</b>

These statistics are based on an inquiry about energy use in manufacturing. The data were collected with the annual inquiry from establishments in the industry categories of Mining and quarrying (B) and Manufacturing (C) of the standard industrial classification TOL2008, as well as from the power plants closely connected with the activities of these establishments. The inquiry does not extend to category D, Electricity, gas and steam supply, of the classification. The data for 2008 were collected from a sample consisting of some 2,200 establishments. The data are published by energy source, industry and region.

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## Appendix tables

**Appendix table 1. Energy use in manufacturing by energy source 2009**

Source of energy	TJ	GWh	Confidence interval, ± %
Refinery gas	28 587,4	7 940,9	0,0
LPG (Liquefied petroleum gas)	9 607,1	2 668,6	5,9
Other petroleum products	3 605,5	1 001,5	0,0
Light fuel oil and Gasoil	6 586,6	1 829,6	13,7
Heavy fuel oils	20 555,0	5 709,7	2,0
Petroleum coke	4 759,5	1 322,1	0,0
Recycled and waste oils	360,6	100,2	0,0
Hard coal, bituminous	4 099,7	1 138,8	0,0
Other coal	268,7	74,6	0,0
Coke <sup>1)</sup>	20 543,4	5 706,5	0,0
Blast furnace gas and Coke oven gas	17 649,4	4 902,6	0,0
Natural gas	51 506,9	14 307,5	1,6
Milled peat	11 048,6	3 069,1	0,0
Sod peat and Peat pellets and briquettes	199,7	55,5	0,0
Forest chippings and other firewood	5 844,4	1 623,5	2,7
Bark	24 089,7	6 691,6	8,6
Sawdust, cutter shavings etc.	2 597,9	721,6	46,7
Other industrial wood residue	3 702,7	1 028,5	2,6
Black liquor and other concentrated liquors	110 157,3	30 599,3	0,0
Other by-products from wood processing industry	1 984,4	551,2	0,0
Wood pellets and briquettes	76,7	21,3	0,0
Other biofuels	1 613,7	448,2	0,0
Biogas	60,2	16,7	0,0
Recovered fuels	2 760,5	766,8	0,0
Waste and other non-specified energy sources	953,4	264,8	0,0
Exothermic heat from industry	3 285,1	912,5	0,0
Hydrogen	1 175,8	326,6	0,0
Electricity	108 809,5	30 224,9	2,4
District heat	12 987,6	3 607,7	14,6
Heat used in production processes	48 280,4	13 411,2	6,1
Total	507 759,1	141 044,2	0,9

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 2009**

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	284,7	52,2	996,0	44,0	52,0	29,9	1 332,7	29,9
08 Other mining and quarrying	1 483,6	45,3	721,7	25,0	178,5	14,7	2 383,7	27,1
09 Mining support service activities	.	.	.	.	.	.	.	.
10 Manufacture of food products	4 961,6	14,4	6 448,4	17,1	6 643,9	19,9	18 054,0	8,7
11 Manufacture of beverages	675,8	9,2	902,4	49,2	1 859,0	34,0	3 437,2	22,1
12 Manufacture of tobacco products	.	.	.	.	.	.	.	.
13 Manufacture of textiles	530,0	83,6	650,5	31,5	347,2	12,5	1 527,7	30,3
14 Manufacture of wearing apparel	79,3	38,9	124,2	42,0	103,7	53,5	307,2	24,9
15 Manufacture of leather and related products	9,0	56,6	59,6	72,2	22,0	64,2	90,7	46,2
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	9 214,4	25,6	5 799,0	15,0	10 031,6	23,6	25 045,1	12,1
17 Manufacture of paper and paper products	185 546,0	0,0	40 072,2	0,9	18 127,0	3,5	243 745,2	0,3
18 Printing and reproduction of recorded media	226,4	41,7	1 504,8	60,4	880,1	85,0	2 611,3	42,7
19 Manufacture of coke and refined petroleum products	46 662,8	0,0	4 709,3	0,6	1 256,2	3,7	52 628,3	0,1
20 Manufacture of chemicals and chemical products	17 585,4	0,7	14 394,1	4,7	11 259,5	13,4	43 239,0	3,5
21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	69,0	19,4	264,8	17,0	304,2	15,6	638,0	10,2
22 Manufacture of rubber and plastic products	926,3	35,0	2 937,8	26,3	1 524,8	30,5	5 388,9	14,9
23 Manufacture of other non-metallic mineral products	9 279,1	3,6	3 321,6	26,1	362,7	26,6	12 963,4	6,6
24 Manufacture of basic metals	51 179,3	0,1	14 465,2	4,8	2 444,9	7,6	68 089,4	1,1
25 Manufacture of fabricated metal products, except machinery and equipment	3 169,5	8,1	3 646,8	23,8	1 311,7	32,7	8 128,0	10,9
26 Manufacture of computer, electronic and optical products	13,4	88,4	1 692,2	27,3	724,2	29,2	2 429,8	20,2

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, ± %
27 Manufacture of electrical equipment	128,4	86,1	1 294,9	47,1	600,2	38,9	2 023,6	31,5
28 Manufacture of machinery and equipment n.e.c.	4 106,3	6,7	2 365,9	17,8	1 821,7	31,9	8 293,9	8,4
29 Manufacture of motor vehicles, trailers and semi-trailers	360,7	33,7	475,4	27,0	203,3	41,9	1 039,4	14,5
30 Manufacture of other transport equipment	284,8	41,7	680,1	16,9	523,9	17,9	1 488,9	11,4
31 Manufacture of furniture	346,8	56,8	547,9	31,0	159,0	34,1	10 53,7	22,2
32 Other manufacturing	99,0	61,4	300,4	51,8	186,5	83,9	585,9	36,2
33 Repair and installation of machinery and equipment	460,2	23,6	434,3	23,7	339,8	28,0	1 234,3	12,4
Total	337 681,6	0,8	108 809,5	2,4	61 268,0	5,6	507 759,1	0,9

\* 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 2009**

Industries	GWh	confidence interval, ± %
05 Mining of coal and lignite	.	.
06 Extraction of crude petroleum and natural gas	.	.
07 Mining of metal ores	276,7	44,0
08 Other mining and quarrying	200,5	25,0
09 Mining support service activities	.	.
10 Manufacture of food products	1 858,8	18,2
11 Manufacture of beverages	250,8	49,3
12 Manufacture of tobacco products	.	.
13 Manufacture of textiles	180,7	31,5
14 Manufacture of wearing apparel	34,5	42,0
15 Manufacture of leather and related products	16,6	72,2
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1 627,8	14,8
17 Manufacture of paper and paper products	17 425,7	0,6
18 Printing and reproduction of recorded media	418,0	60,4
19 Manufacture of coke and refined petroleum products	1 308,1	0,6
20 Manufacture of chemicals and chemical products	4 064,4	4,7
21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	73,5	17,0
22 Manufacture of rubber and plastic products	817,6	26,3
23 Manufacture of other non-metallic mineral products	926,2	26,0
24 Manufacture of basic metals	4 547,5	4,2
25 Manufacture of fabricated metal products, except machinery and equipment	1 023,1	23,6
26 Manufacture of computer, electronic and optical products	470,1	27,3
27 Manufacture of electrical equipment	360,0	47,1
28 Manufacture of machinery and equipment n.e.c.	712,6	16,4
29 Manufacture of motor vehicles, trailers and semi-trailers	132,1	27,0
30 Manufacture of other transport equipment	188,9	16,9
31 Manufacture of furniture	152,2	31,0
32 Other manufacturing	83,4	51,8
33 Repair and installation of machinery and equipment	123,2	23,4
Total	37 272,9	2,0

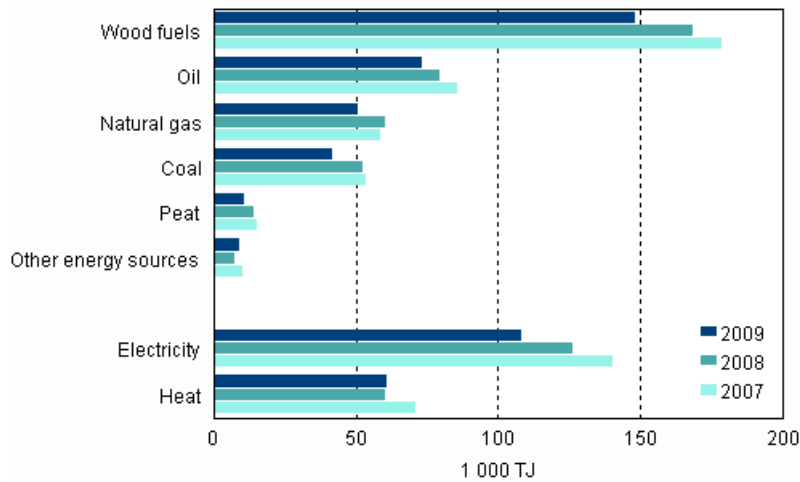
\* Data in table cell are unreliable, as the variation coefficient exceeds the value 40.

. No data available (the sample contained no establishments)

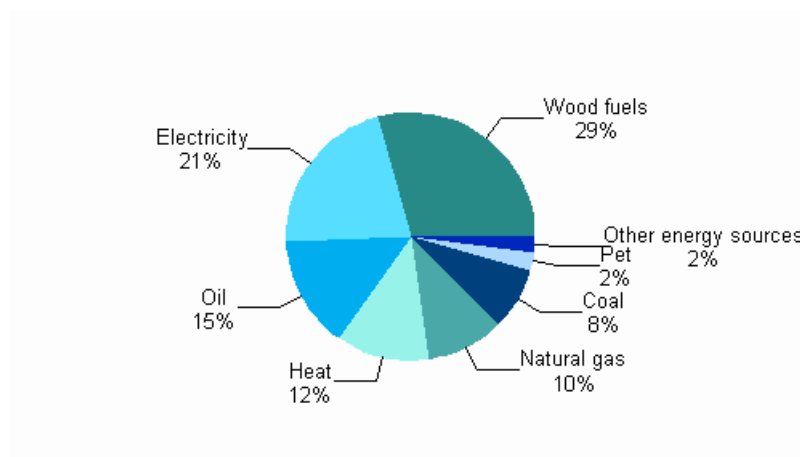
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# Appendix figures

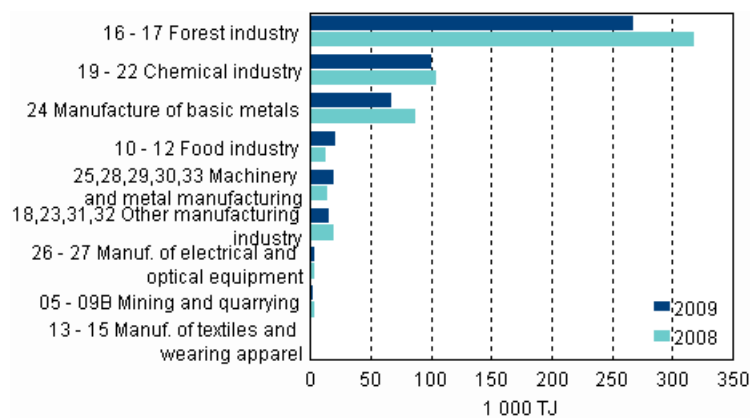
**Appendix figure 1. Use of energy sources in manufacturing**



**Appendix figure 2. Energy use in manufacturing by energy source 2009**

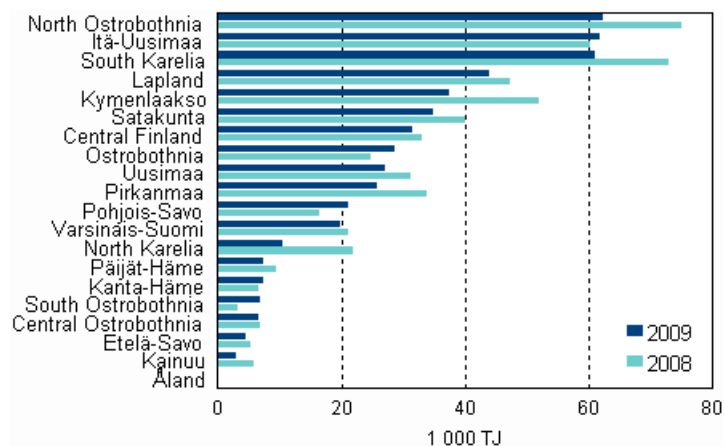


**Appendix figure 3. Energy use in manufacturing by industry**

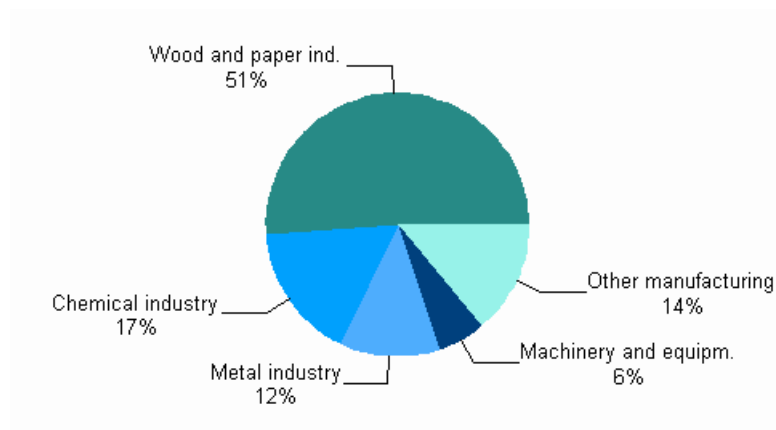




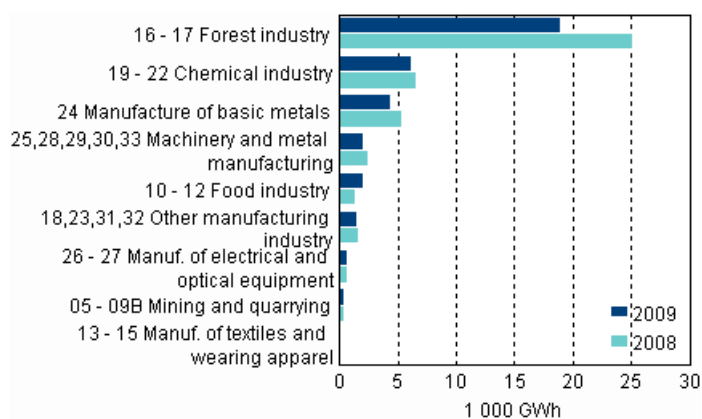
**Appendix figure 4. Energy use in manufacturing by region**



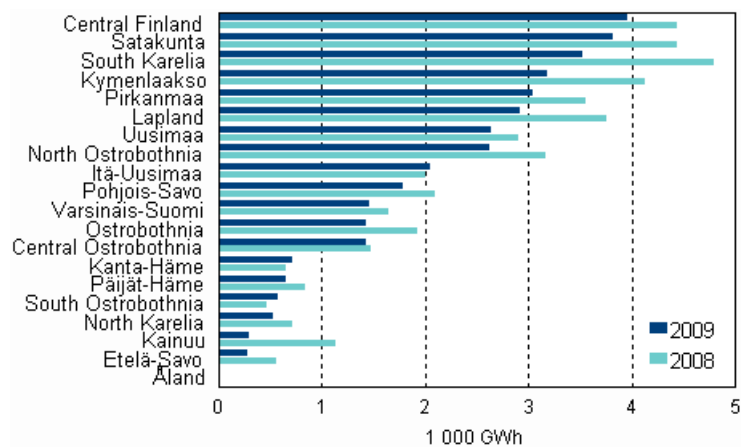
**Appendix figure 5. Total electricity consumption in manufacturing 2009**



**Appendix figure 6. Total electricity consumption by manufacturing branch 2008 and 2009**



**Appendix figure 7. Total electricity consumption in manufacturing by region**



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Energy 2010

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