

Energy supply and consumption

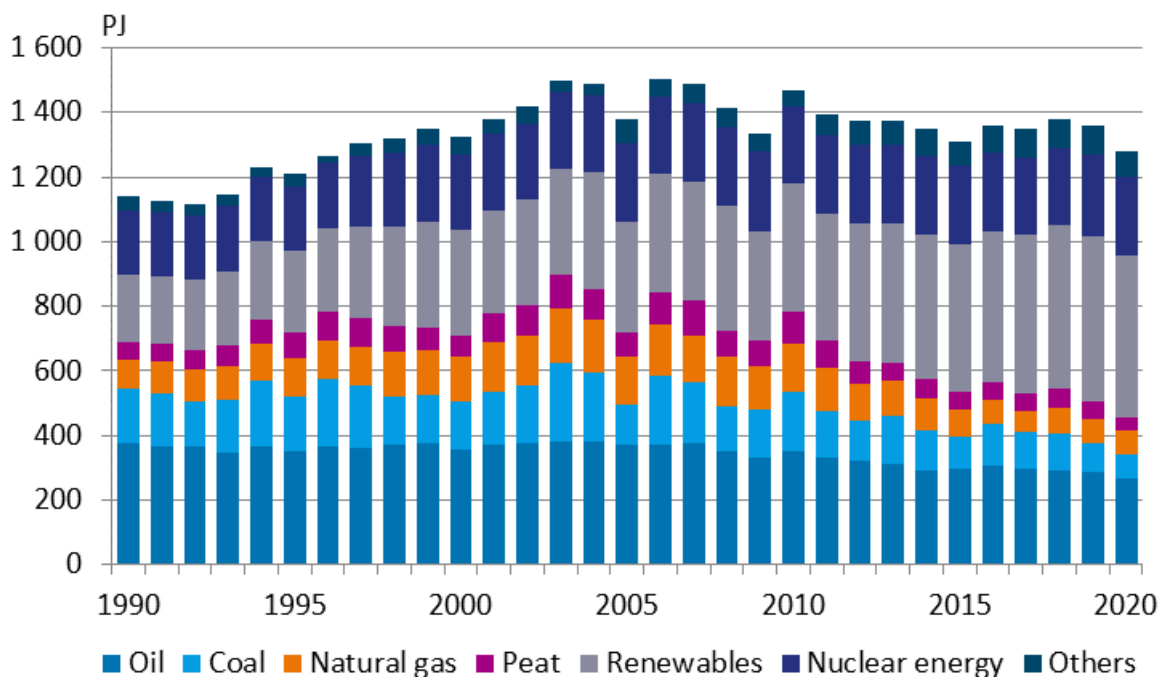
2020

Finland exceeded its target for 2020 – share of renewable energy in final consumption rose to 44.6 per cent

Corrected on 16 December 2021. The volume of net imports of electricity in 2020 and year-on-year change in the table.

According to Statistics Finland, total consumption of energy in Finland amounted to 1.28 terajoules (TJ) in 2020. The consumption fell by six per cent from the previous year due to both the corona pandemic and exceptionally warm weather. The consumption of electricity went down by five per cent to 81.6 terawatt hours (TWh). The consumption of fossil fuels and peat dropped in total by 10 per cent. The share of renewable energy continued to grow, being 44.6 per cent of total final energy consumption. Carbon dioxide emissions from the use of fuels diminished by 11 per cent.

Total energy consumption in 1990 to 2020



The use of renewable energy fell by two per cent in 2020 from the year before. The warm weather and the contracted production of energy-intensive industries were particularly visible in the consumption of wood fuels, which decreased by six per cent. Wood fuels are still clearly the most significant energy source in Finland with a 28 per cent share of total energy consumption. The production of hydro power increased due to the improved water situation. Compared with the previous year, 28 per cent more hydro power was produced. In terms of wind power production, the year 2020 was also more favourable than the previous year, as its production increased by 32 per cent, which was also affected by the implementation of new wind power plants. The use of solar energy grew even more than those mentioned above, by 43 per cent. Despite the brisk growth of recent years, solar energy accounted for around one per mil of total energy consumption. Thirty-nine per cent of total energy consumption was covered with renewable energy sources.

Finland clearly exceeded the target set in the EU's Renewable Energy Directive for increasing the use of renewable energy. Finland's national binding target is to achieve a share of at least 38 per cent of the total final consumption of renewable energy by 2020. Calculated in this way, the share of renewable energy sources in Finland rose to 44.6 per cent in 2020. In the Renewable Energy Directive, the attainment of the targets of different Member States and, at the same time, the attainment of the common EU objective has been facilitated by the possibility of statistical transfers, which allow Member States to use the renewable energy surpluses achieved in another Member State for their own target. In fact, Finland has sold part of its statistical surplus of renewable energy to Belgium. After the transfer, Finland's share of renewable energy in final consumption is still high, 43.9 per cent.

The use of fossil fuels and peat decreased by 10 per cent from the previous year and their share of total energy consumption fell by two percentage points to 37 per cent. The consumption of hard coal went down by 34 per cent and that of peat by 24 per cent. The total consumption of coal, which includes, in addition to hard coal, coke, and blast furnace and coke oven gas used by manufacturing, decreased by 23 per cent. The consumption of fossil oil diminished by six per cent. Oil is clearly the largest fossil energy source and accounts for 21 per cent of total consumption. The use of natural gas increased by two per cent. [Greenhouse gas emissions from combustion in the energy sector declined by 11 per cent from the year before.](#)

Nuclear energy covered 19 per cent of total energy consumption and net imports of electricity four per cent.

Total energy consumption in 2019 to 2020, terajoule

Corrected on 16 December 2021. The corrected numbers are indicated in red.			
	2019	2020	Change %
Wood fuels	380 002	355 404	-6
Oil (fossil)	285 626	268 085	-6
Oil (bio)	18 096	16 756	-7
Nuclear energy	249 981	243 864	-2
Coal	91 117	70 363	-23
Natural gas	73 220	74 586	2
Peat	56 652	43 116	-24
Net imports of electricity	72 151	53 917	-25
Hydro power	44 087	56 410	28
Wind power	21 689	28 577	32
Others (fossil)	12 387	11 440	-8
Others (bio)	47 129	45 329	-4
Others	8 227	9 391	14
Total	1 360 365	1 277 238	-6

In 2020, the volume of electricity used in Finland amounted to 81.6 TWh. Compared to the year before, the use diminished by five per cent. At the same time, 66.6 TWh of electricity was produced, which is 0.5 TWh more than in 2019. For this reason, the share of net imports of electricity of total electricity consumption decreased by five percentage points to 18.4 per cent. Nearly all electricity was imported from Sweden, from where imports grew by 17 per cent and were bigger than ever before. By contrast, the volume of electricity imported from Russia fell by 63 per cent. Exports of electricity to Estonia also reached a record high level, growing by as much as 87 per cent from the previous year.

Combined heat and power production covered 22 per cent of electricity consumption and condensing power three per cent. The production of hydro power accounted for 19 per cent of electricity consumption, wind power for 10 per cent and solar power for 0.3 per cent. The biggest share was generated by nuclear power, whose production covered 27 per cent of total electricity consumption.

Final energy consumption fell by 6.5 per cent from the previous year. The final consumption of both manufacturing and transport decreased by seven per cent each. The consumption of energy for space heating decreased by one-half of a percentage point more than those mentioned above. The volume of other final consumption diminished by 1.8 per cent in all. Most energy was consumed in manufacturing, whose share in final energy consumption was 46 per cent.

The year 2020 was record warm. Energy consumption in households fell by nearly four TWh from the previous year and the share of indoor space heating in energy consumption in households was exceptionally low, 64 per cent. The use of electricity for household appliances increased slightly. The energy consumed in households amounted to close on 61 TWh in 2020. The development was similar in the consumption of heating energy for other than residential buildings. The figures are currently uncertain due to the calculation model.

As a result of the fallen transport performance, the use of energy in transport decreased by seven per cent in 2020. The share of domestic transport was 16 per cent of final energy consumption. The consumption of both petrol and diesel fell by six per cent. The total volumes of transport fuels include the shares of liquid biofuels. The share of alternative propulsion of vehicles in the energy of domestic road transport in Finland was around 12 per cent in 2020. The majority of this was liquid biofuels. The use of other alternative propulsion of vehicles grew strongly but its share is still small. The share of electricity was 0.3 per cent, that of biogas 0.3 per cent and that of natural gas 0.2 per cent.

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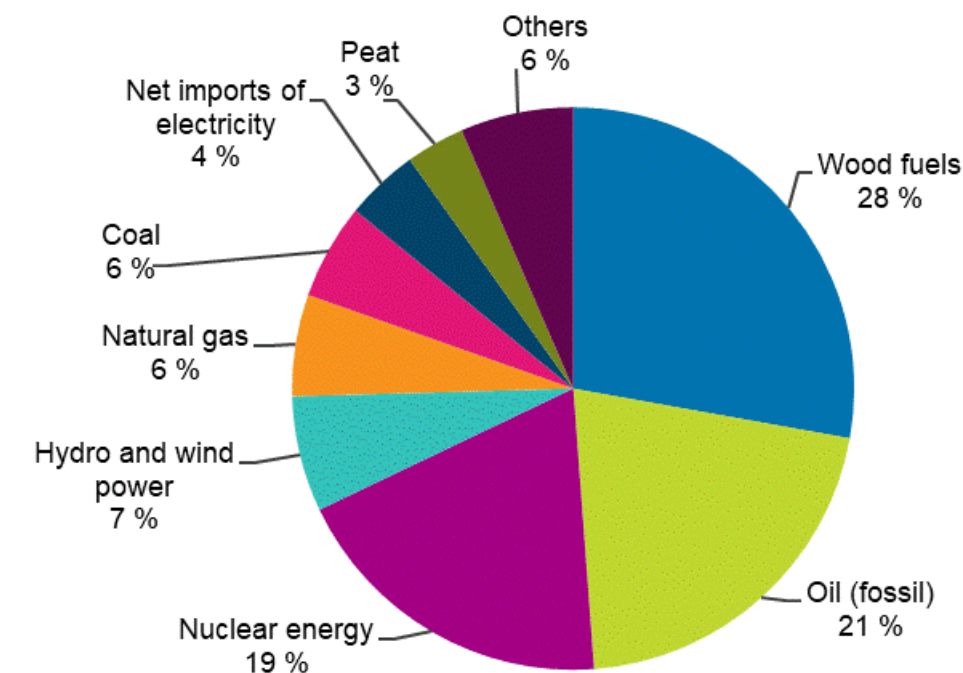
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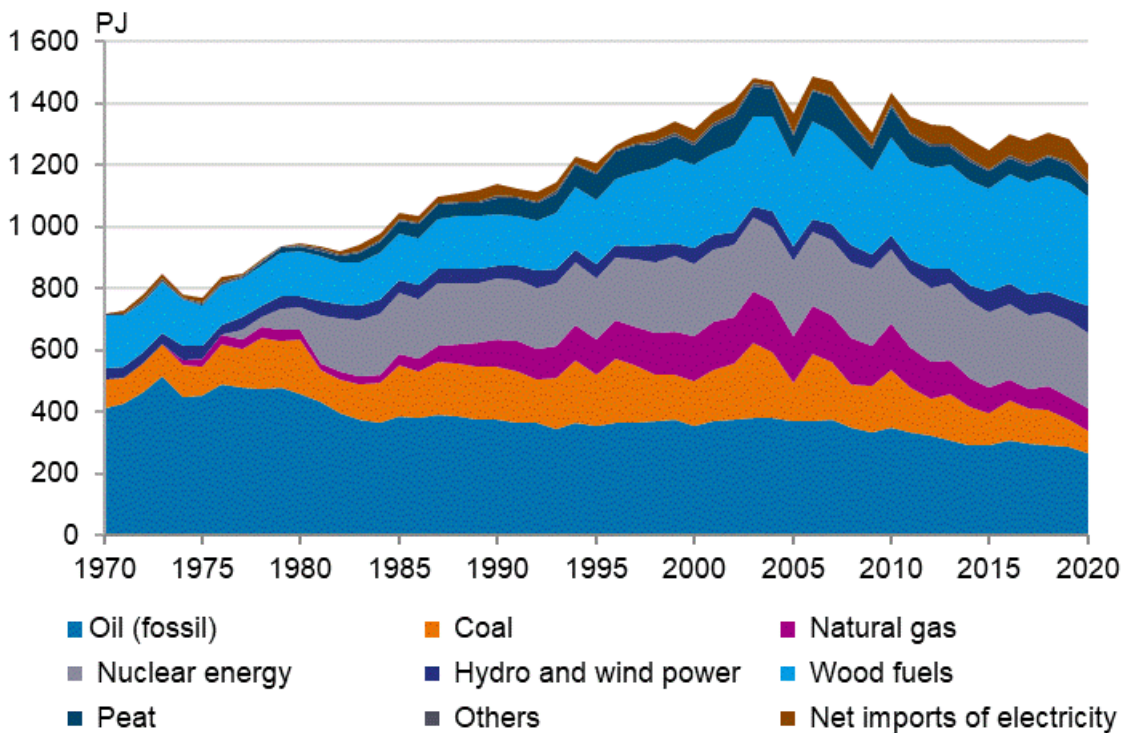
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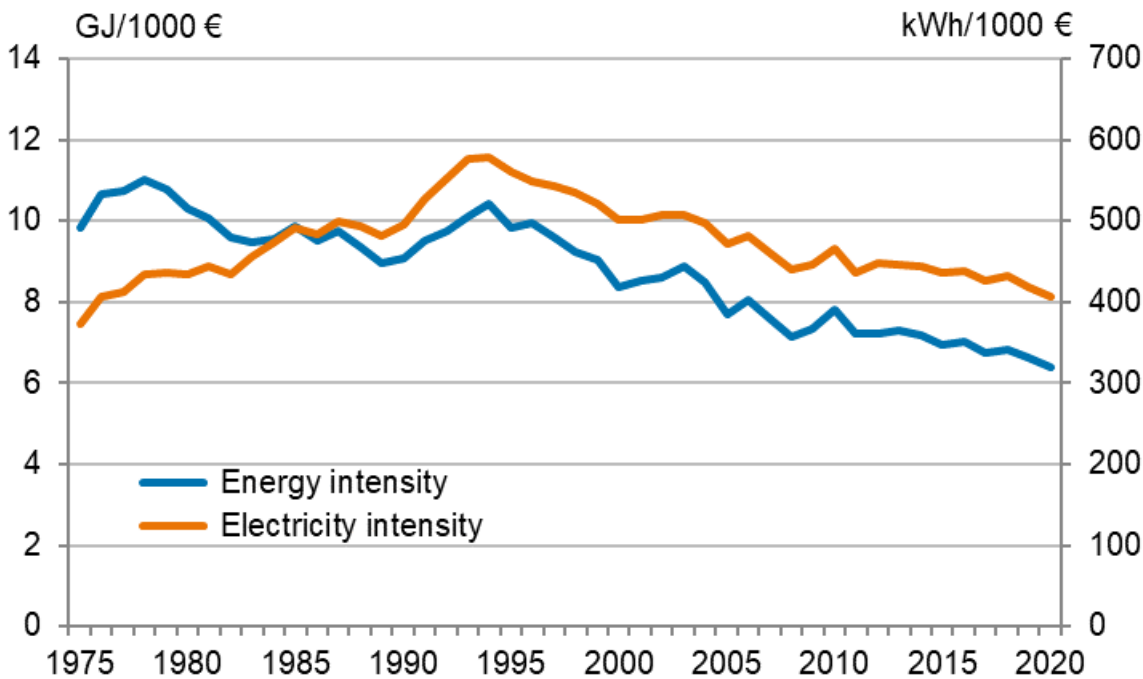
Appendix figure 1. Total energy consumption 2020



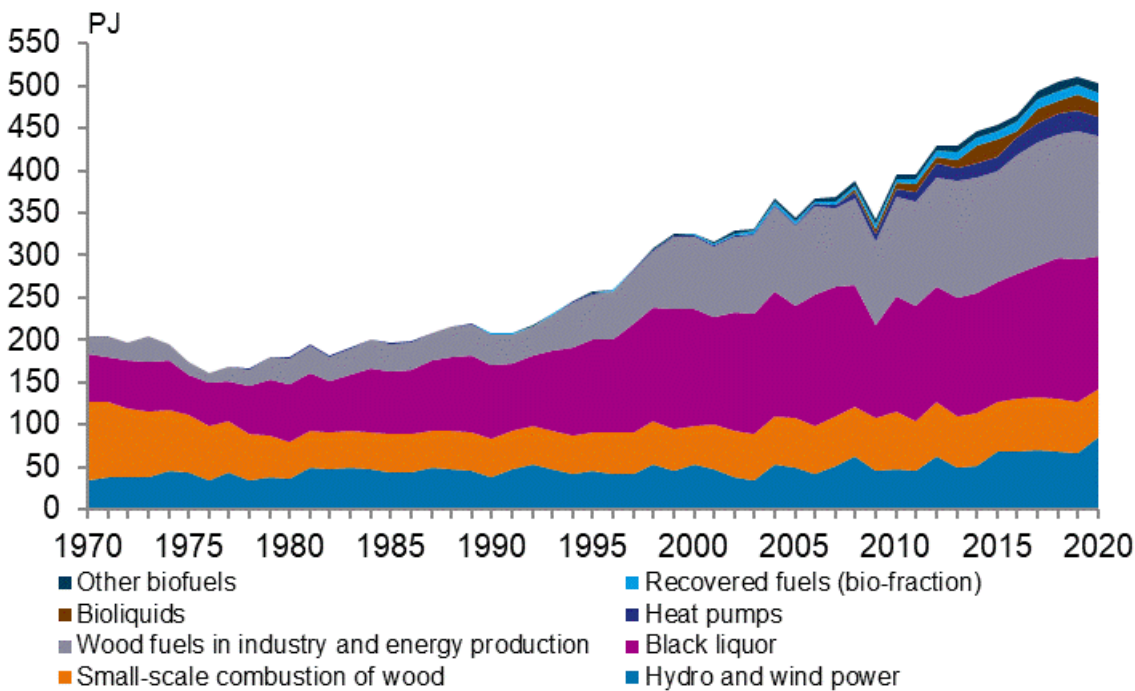
Appendix figure 2. Total energy consumption 1970–2020



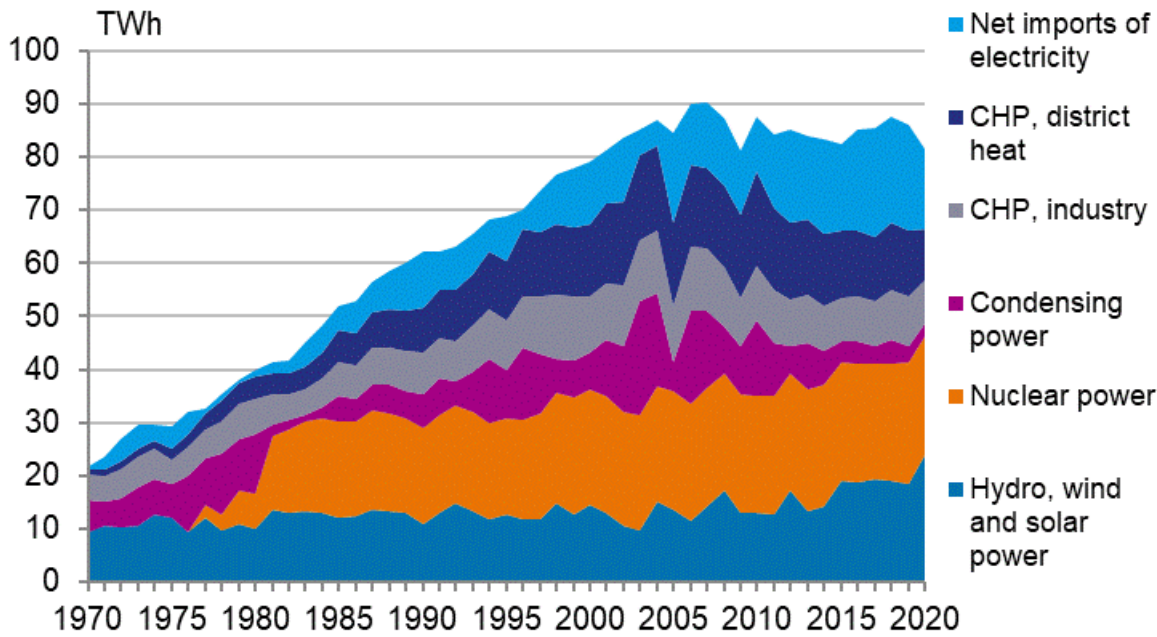
Appendix figure 3. Energy and electricity intensity 1975–2020



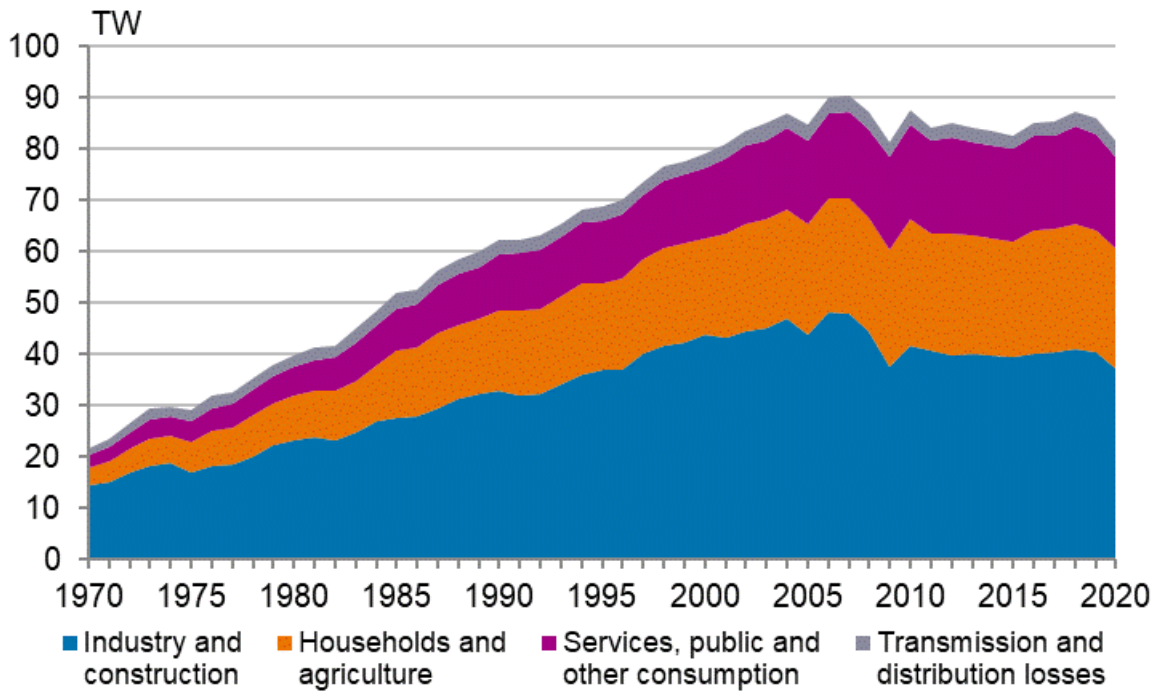
Appendix figure 4. Renewable energy sources 1970–2020



Appendix figure 5. Electricity supply 1970–2020



Appendix figure 6. Electricity consumption by sector 1970–2020



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Source: Statistics Finland, Energy supply and consumption