

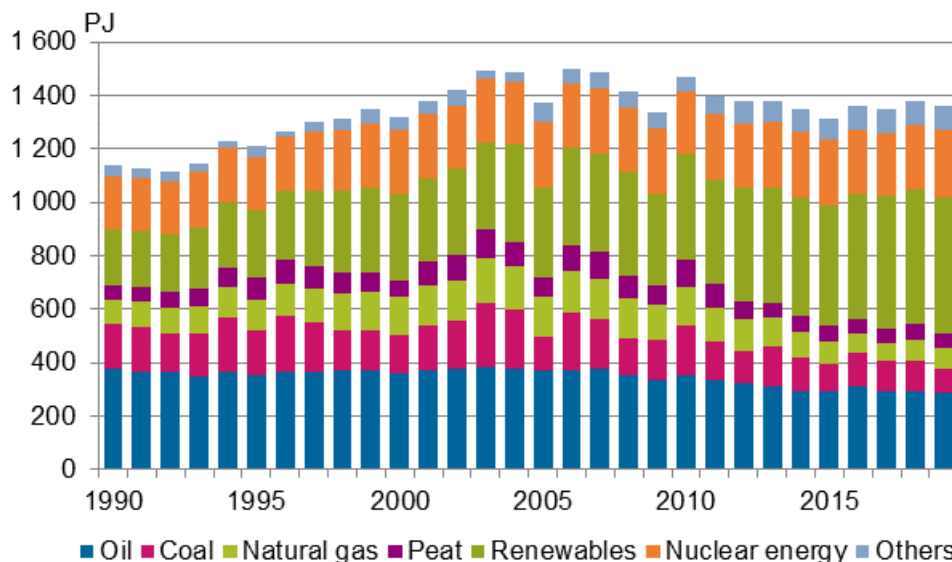
# Energy supply and consumption

2019

## Total energy consumption decreased and consumption of renewable energy grew by one per cent in 2019

According to Statistics Finland, total consumption of energy in Finland amounted to 1.36 million terajoules (TJ) in 2019, which corresponded to a fall of one per cent compared with the previous year. The consumption of electricity totalled 86.1 terawatt hours (TWh), which was two per cent less than in the previous year. The consumption of fossil fuels and peat decreased in total by seven per cent. The consumption of coal and peat decreased most, by 20 and 8 per cent. Carbon dioxide emissions from the use of fuels diminished correspondingly by seven per cent. The use of renewable energy grew by one per cent remaining at a record high level just like in previous years.

### Total energy consumption in 1990 to 2019



The use of renewable energy grew by one per cent in 2019 from the year before. The consumption of wood fuels continued growing for the fourth consecutive year and their use rose again record high in 2019. The share of wood fuels in Finland's total energy consumption was 28 per cent in 2019. The use of wood

fuels in energy production and manufacturing grew by two per cent compared with 2018. The production of hydro power, dependent on the water situation, fell by seven per cent. The production of hydro power decreased for the fourth year in a row, but the production of wind power continued growing, by three per cent from 2018. The annual production of wind power reached its new record, as nearly 80 new wind farms started in 2019. The use of solar power grew by 53 per cent from the previous year but its share of total energy consumption is still only 0.5 per cent.

Nearly 38 per cent of total energy consumption and 43 per cent of final consumption were covered with renewable energy sources in 2019. As late as 1990, the share of renewable energy in total consumption was just 18 per cent, after which it has grown steadily, growing in the 2010s still clearly faster than before.

EU targets for renewable energy are calculated relative to total final energy consumption. Calculated in this way, the share of renewable energy sources in Finland rose to 43 per cent in 2019. Finland has exceeded its target for the share of renewable energy, 38 per cent of final energy consumption since 2014. The share of renewable energy in final energy consumption has been the second highest among EU countries.

The share of fossil fuels and peat in total energy consumption decreased by seven per cent from the previous year. The consumption of coal and peat declined most, by 20 and 8 per cent. Most of the energy use of coal is hard coal, whose consumption diminished by 23 per cent. Apart from hard coal, coal consumption also includes coke, blast furnace and coke oven gases used in manufacturing. The consumption of fossil oil decreased by two per cent and that of natural gas by three per cent. The use of fossil fuels and peat decreased most in the production of electricity and heat. [Greenhouse gas emissions from combustion in the energy sector declined by seven per cent from the previous year.](#)

Nuclear energy covered 18 per cent of total energy consumption and its use grew by around five per cent compared with the previous years 2017 and 2018, when the production of nuclear power was a few per cent lower than average. The share of other energy sources was still six per cent. Other energy sources include net imports of electricity and reaction heat of industry.

#### **Total energy consumption in 2018 to 2019, terajoule**

	2018	2019	Change %
Wood fuels	374 706	380 092	1
Oil	308 422	305 243	-1
Nuclear energy	238 700	249 981	5
Coal	114 096	91 143	-20
Natural gas	75 646	73 300	-3
Peat	61 877	56 652	-8
Net imports of electricity	71 769	72 151	1
Hydro power	47 295	44 059	-7
Wind power	21 019	21 689	3
Others	66 790	67 744	1
<b>Total</b>	<b>1 380 319</b>	<b>1 362 053</b>	<b>-1</b>

In Finland, the use of electricity totalled 86.1 terawatt hours (TWh) in 2019. This was 1.4 TWh less than in the previous year, most of which resulted from lower consumption in the manufacturing. At the same time, 66 TWh of electricity was produced, which is 1.5 TWh less than in 2018. The share of net imports of electricity in consumption grew by 0.5 percentage points and its share of consumption was 23 per cent. Electricity was imported most from Sweden and Russia. Imports from Sweden grew by 16 per cent and imports from Russia decreased by three per cent compared to the previous year. Electricity was exported most to Estonia. Exports to Estonia were again higher than imports and exports to Estonia grew by 60 per cent from the year before. Combined heat and power production covered 25 per cent of electricity consumption and condensing power four per cent. The production of hydro power accounted for 14 per

cent of electricity consumption, wind power for seven per cent and solar power for 0.2 per cent. The share of nuclear power was 27 per cent of the electricity consumed.

Final energy consumption fell by 1.6 per cent year-on-year. Final consumption decreased most, over two per cent, in manufacturing. Volumes of production and the energy used fell especially in the manufacture of basic metals, but also in the forest and chemical industries. The long-visible structural shift in industrial fuels from fossil fuels towards renewable fuels continued. Manufacturing uses 45 per cent of the final energy consumption.

The consumption of heating energy in residential buildings decreased by two per cent from the previous year despite the continued growth in the number and volume of dwellings. The year 2019 was warmer in Southern Finland than 2018, in Northern Finland the situation was the opposite. The development in the consumption of heating energy in other than the residential buildings is similar, but the figures contain uncertainty due to model-based calculation. In addition to the area to be heated and the energy efficiency of the building stock, the need for heating energy is also affected by the outdoor temperature. The use of heat pumps for heating has grown significantly from the start of the millennium, which is visible in the statistics in the growing use of both heat pump energy and heat pump electricity.

The share of domestic transport was 16.5 per cent of final energy consumption. The use of energy in domestic transport decreased by one per cent in 2019. The consumption of petrol continued to fall, by two per cent from 2019. The consumption of diesel oil also decreased by two per cent after previous years' growth. The most significant use of diesel oil is transports of business life. 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 11 per cent in 2019. 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 0.2 per cent, that of biogas 0.2 per cent and that of natural gas 0.1 per cent.

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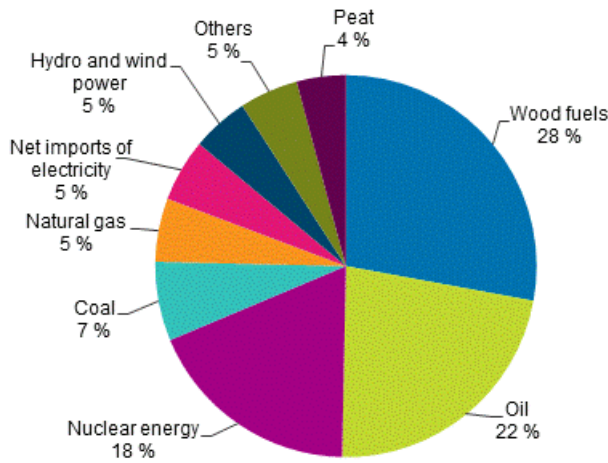
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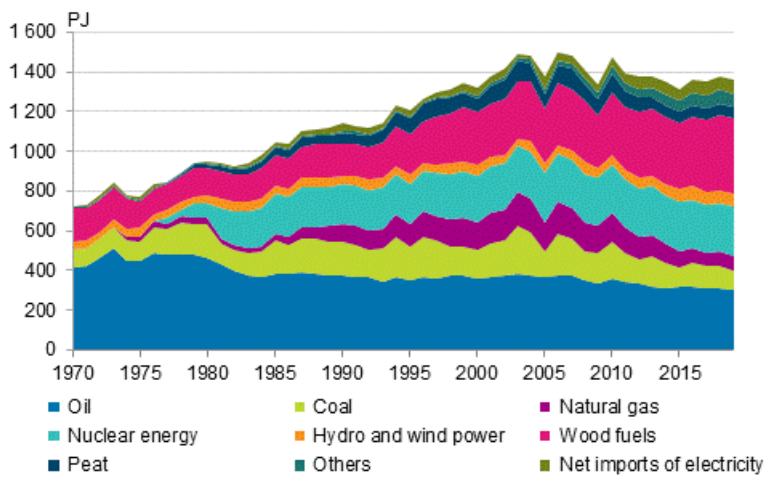
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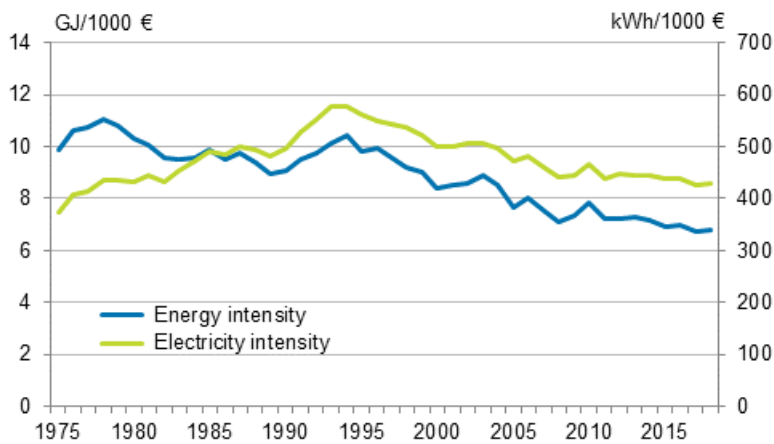
**Appendix figure 1. Total energy consumption 2019**



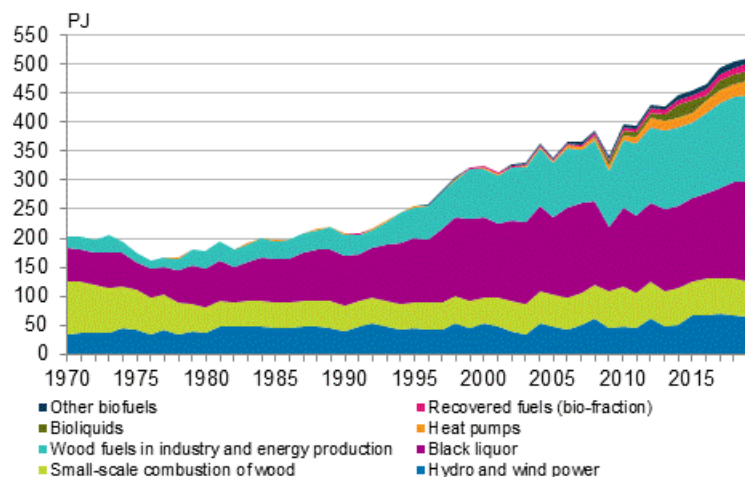
**Appendix figure 2. Total energy consumption 1970–2019**



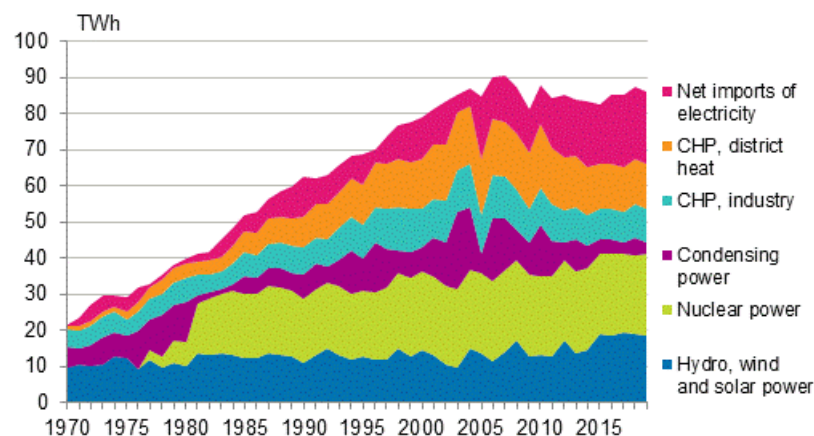
**Appendix figure 3. Energy and electricity intensity 1975–2019**



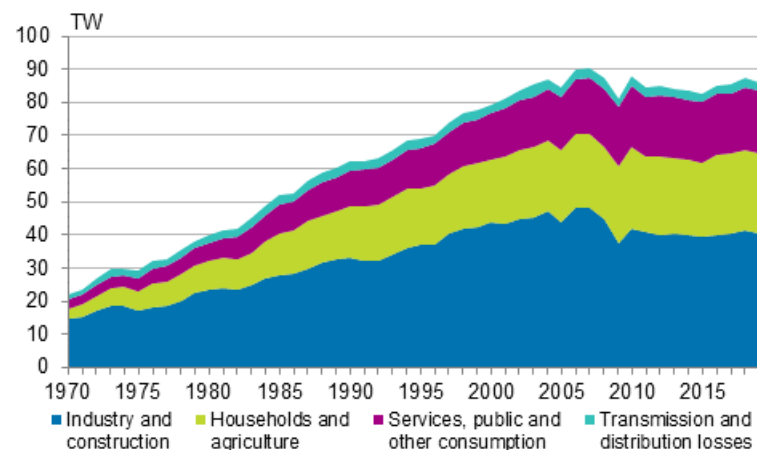
**Appendix figure 4. Renewable energy sources 1970–2019**



**Appendix figure 5. Electricity supply 1970–2019**



**Appendix figure 6. Electricity consumption by sector 1970–2019**



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Source: Statistics Finland, Energy supply and consumption