

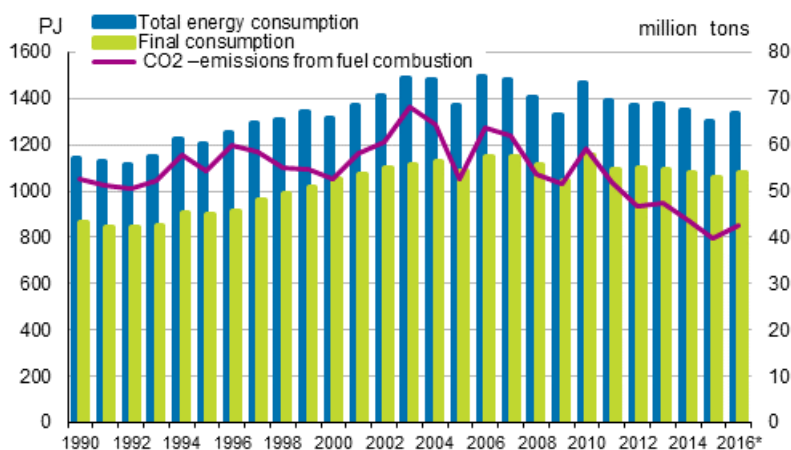
Energy supply and consumption

2016, 4th quarter

Total energy consumption rose by 2 per cent in 2016

According to Statistics Finland’s preliminary data, total energy consumption in 2016 amounted to 1,335 PJ (petajoule), or 371 TWh, which was two per cent more than in 2015. Electricity consumption amounted to 85.1 TWh, up by around three per cent year-on-year. Energy consumption rose on account of slightly colder weather last year compared with the record warm previous year. Despite a small rise, total consumption was the second lowest in the 2010s. Carbon dioxide emissions from energy production rose by seven per cent.

Total energy consumption, final consumption and carbon dioxide emissions 1990–2016*



Among fuels, the consumption of coal (including hard coal, coke, and blast furnace and coke oven gas) rose by 16 per cent and wood fuels by five per cent last year. In turn, the consumption of natural gas decreased by nine per cent and that of peat by five per cent. The consumption of oil was nearly on level with the previous year. The main energy sources were wood fuels with a 26 per cent share and oil with a 23 per cent share.

The use of fossil fuels grew by five per cent from the previous year and their share in total energy consumption was 38 per cent. Renewable energy was used almost as much as in the previous year and its share was 34 per cent. In addition, for renewable energy, it should be noted that the consumption of biofuels

fell by 65 per cent, after having been on record level in two previous years. Annual variation in the consumption of biofuels is caused by Finland's biofuel legislation, which gives distributors the possibility to fulfil the bio obligation flexibly in advance.

EU targets for renewable energy are calculated relative to final energy consumption and in Finland this share has been around three to five percentage points higher than the share calculated from total energy consumption. Finland's target for the share of renewable energy is 38 per cent of final energy consumption in 2020. In 2015, this share was 39.3 per cent.

Final consumption of energy went up by two per cent. Final consumption of energy in manufacturing remained unchanged from the previous year, being 45 per cent of total consumption according to preliminary data. The use of heating energy of buildings was eight per cent higher and its share was 26 per cent. The use of energy in transport rose by one per cent and was 17 per cent of final energy consumption.

Domestic production of electricity excluding transmission losses was 66.1 TWh, which is nearly as much as one year ago. Most electricity was produced with nuclear power, which accounted for 34 per cent of the total. Nearly as much electricity was produced in combined heat and power production as in the year before and its share of electricity production was the second highest, 31 per cent. The production of condensate power increased by eight per cent and it accounted for seven per cent of domestic production. Last year, the water situation weakened towards the end of the year and the volume of electricity produced with hydro power fell by six per cent, but its share still reached 24 per cent. The production of wind power continued growing strongly at 32 per cent and its share was five per cent last year.

Net imports of electricity to Finland amounted to 19.0 TWh in 2016, which was more than ever before. Compared to 2015, the growth was 16 per cent and its share of electricity consumed in Finland was 22 per cent. Most electricity was imported from Sweden, 15.4 TWh. Electricity imports from Russia increased by 49 per cent and amounted to 5.9 TWh last year. Almost all exports of electricity from Finland were directed to Estonia, amounting to 3.1 TWh.

Last year, diverse energy products were imported into Finland to the value of EUR 7.2 billion, which was seven per cent less than one year earlier. Most energy products were imported from Russia, whose share of the value of imports was around 63 per cent. Respectively, energy products were exported from Finland to the value of EUR 3.9 billion, which was seven per cent up on 2015. Most energy products were exported from Finland to OECD countries, which accounted for 79 per cent of the value of exports.

Total energy consumption by source (TJ) and CO2 emissions (Mt)

Energy source, TJ ⁴⁾	2016*	Annual change-%*	Percentage share of total energy consumption*
Oil	310,408	0	23
Coal ¹⁾	116,744	16	9
Natural gas	74,990	-9	6
Nuclear energy ²⁾	243,119	0	18
Net imports of electricity ³⁾	68,235	16	5
Hydro power ³⁾	56,227	-6	4
Wind power ³⁾	11,047	32	1
Peat	54,836	-5	4
Wood fuels	346,475	5	26
Others	52,940	0	4
TOTAL ENERGY CONSUMPTION	1,335,020	2	100
Bunkers	38,861	-1	.
CO2 emissions from energy sector	43	7	.

1) Coal: includes hard coal, coke, blast furnace gas and coke oven gas.

2) Conversion of electricity generation into fuel units: Nuclear power: 10.91 TJ/GWh (33% total efficiency)

3) Conversion of electricity generation into fuel units: Hydro power, wind power and net imports of electricity: 3.6 TJ/GWh (100%)

4) *Preliminary

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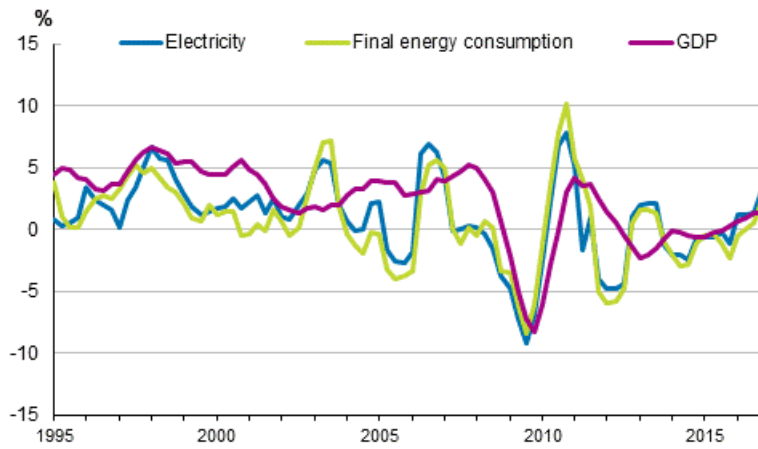
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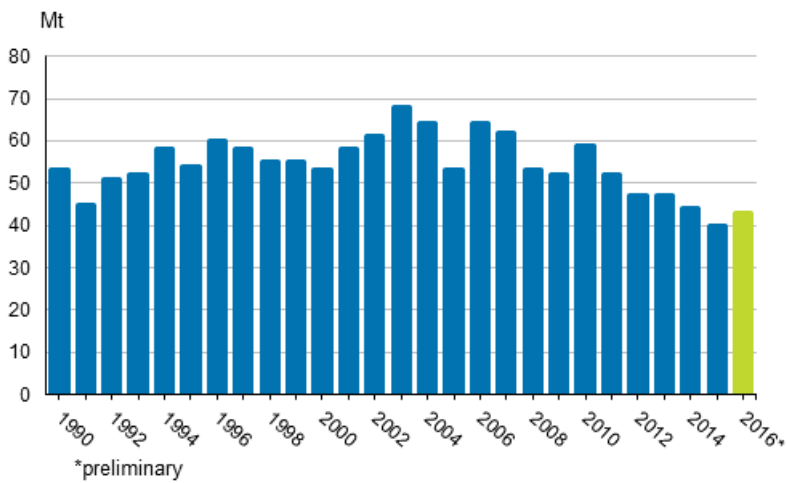
Appendix figures

Appendix figure 1. Changes in GDP, Final energy consumption and electricity consumption 1995–2016*



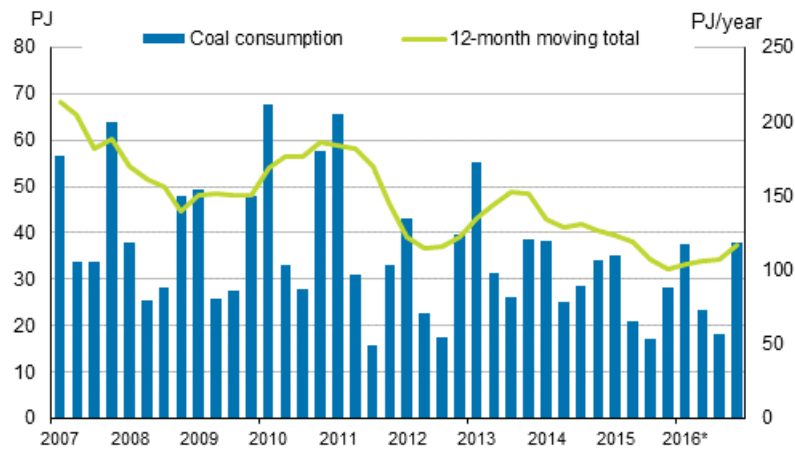
*preliminary

Appendix figure 2. Carbon dioxide emissions from fossil fuels and peat use



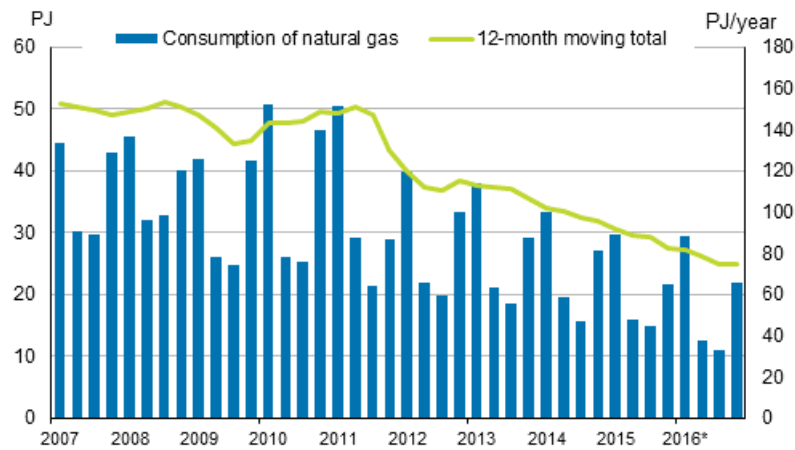
*preliminary

Appendix figure 3. Coal consumption



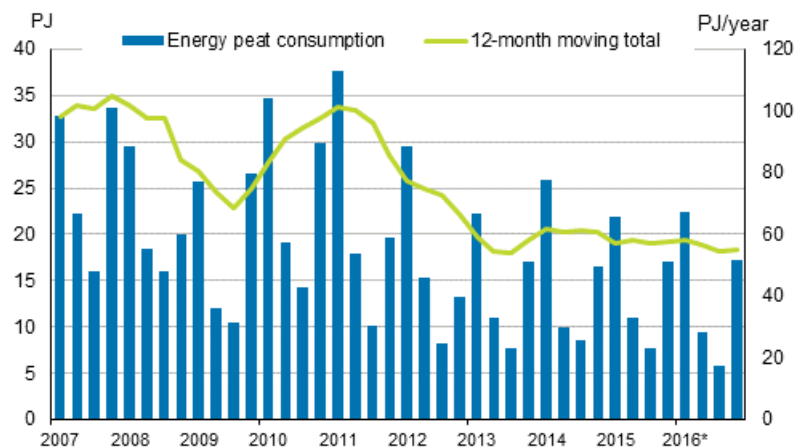
*preliminary

Appendix figure 4. Consumption of natural gas



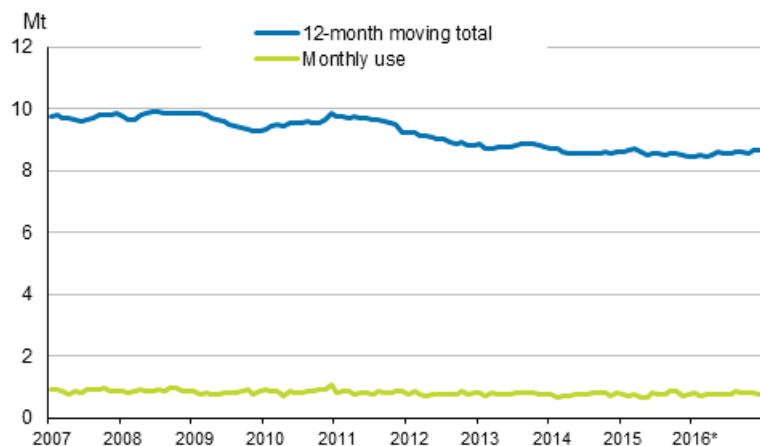
Source: Gasum Oy, *preliminary

Appendix figure 5. Energy peat consumption



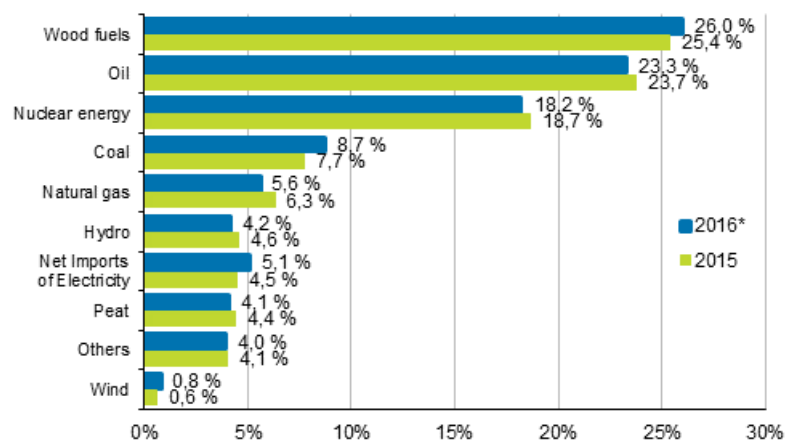
Source: The Bioenergy Association of Finland, *preliminary

Appendix figure 6. Domestic oil deliveries



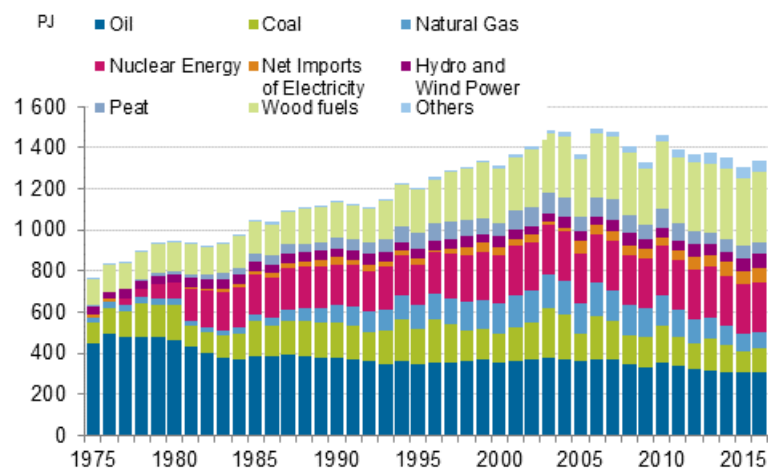
Source: Finnish Petroleum and Biofuels Association

Appendix figure 7. Share of total energy consumption 2015–2016*



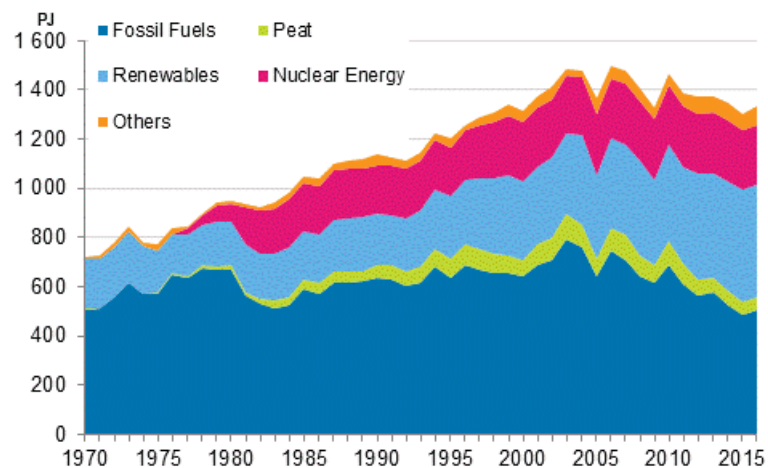
*preliminary

Appendix figure 8. Total energy consumption 1975–2016*



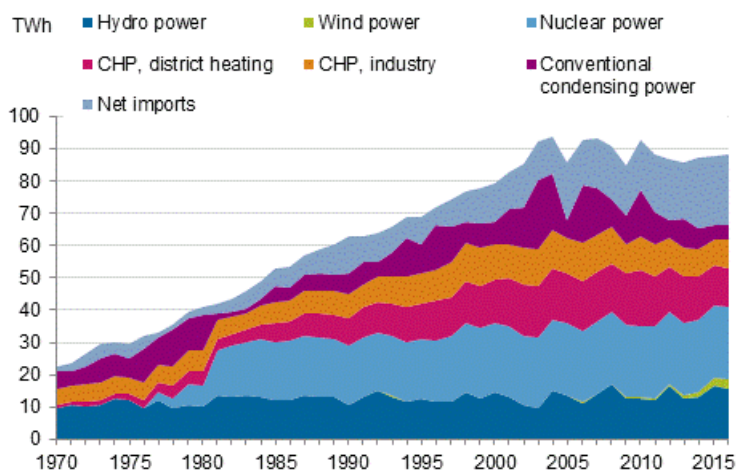
*preliminary

Appendix figure 9. Fossil fuels and renewables 1970–2016*



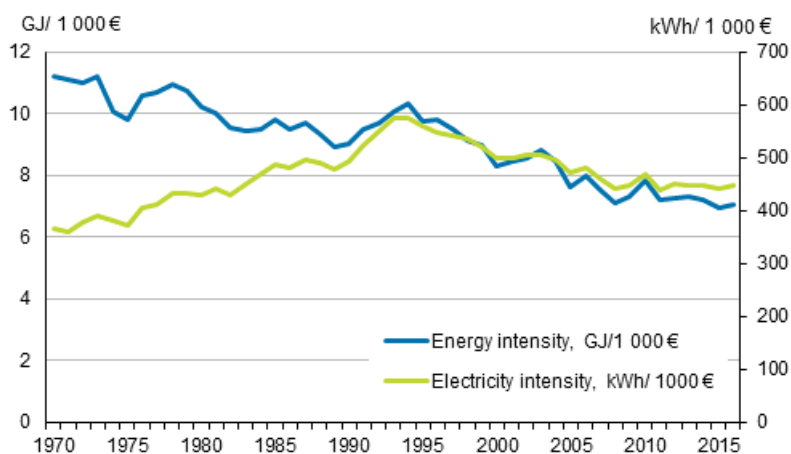
*preliminary

Appendix figure 10. Electricity supply 1970–2016*



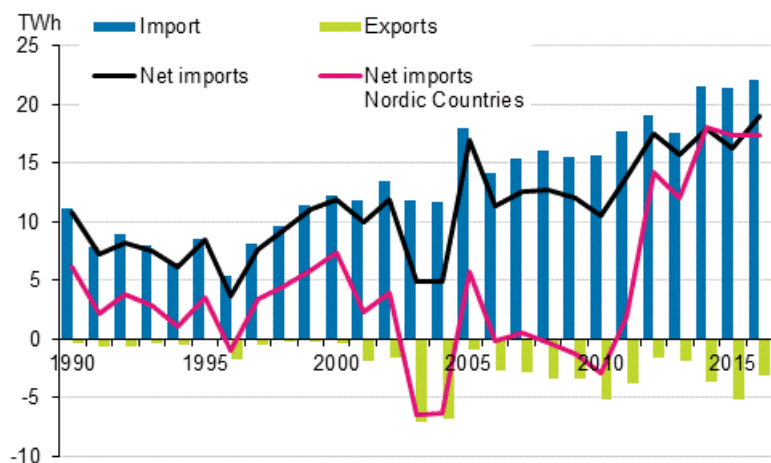
*preliminary

Appendix figure 11. Energy and electricity intensity 1970–2016*



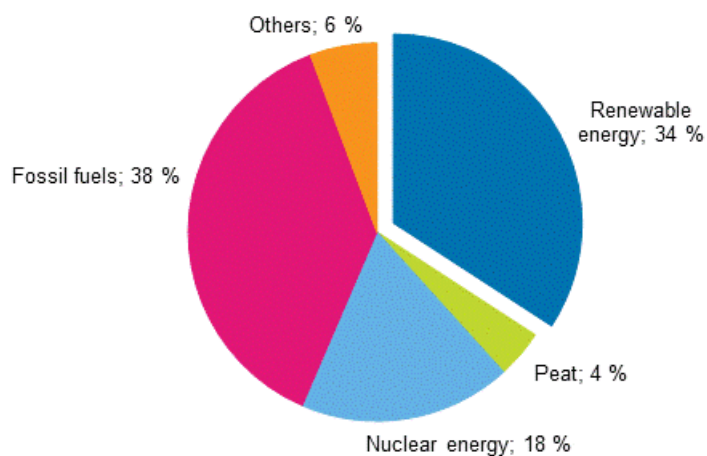
*year 2016 preliminary

Appendix figure 12. Imports and exports of electricity 1990–2016*



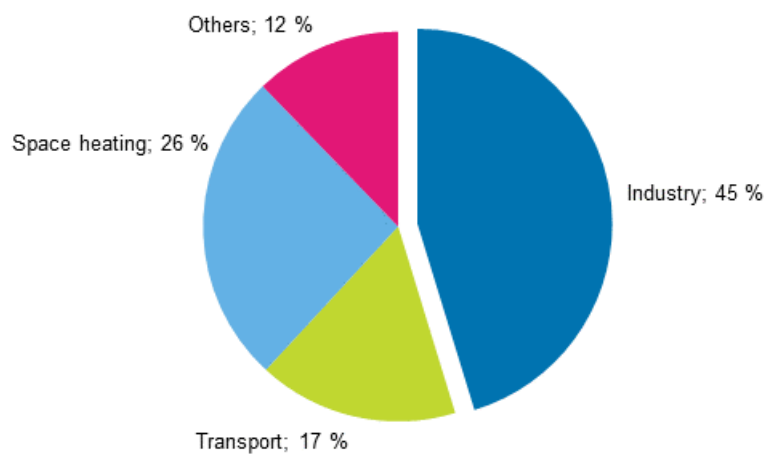
Source: Finnish Energy Industries, *preliminary

Appendix figure 13. Share of renewables of total primary energy 2016*



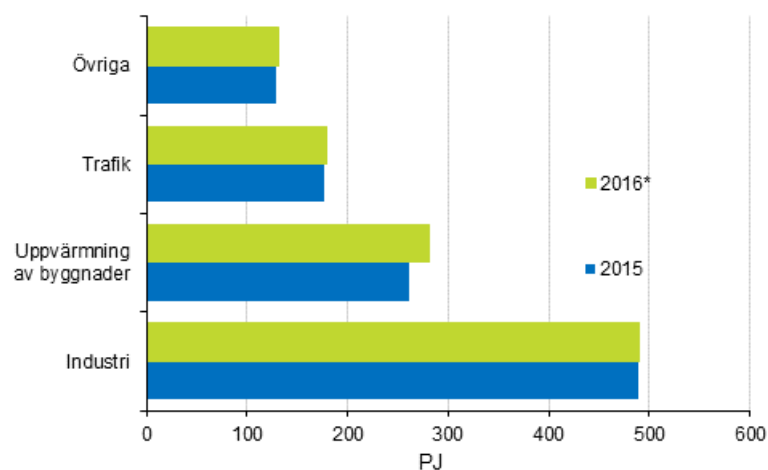
*preliminary

Appendix figure 14. Final energy consumption by sector 2016*



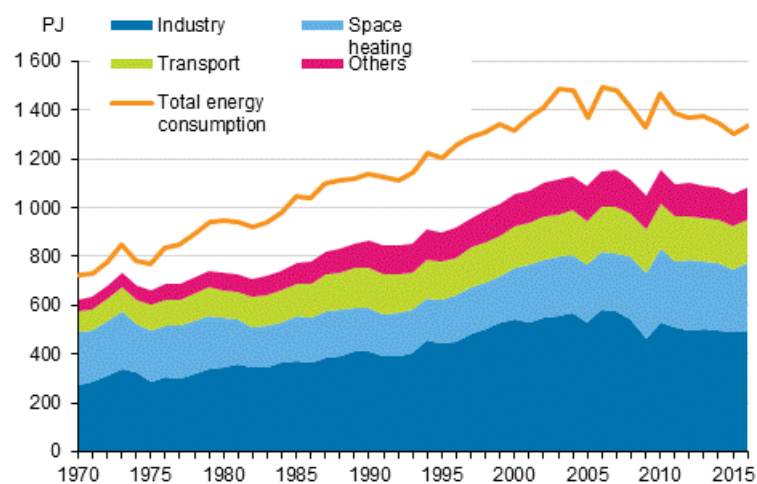
*preliminary

Appendix figure 15. Final energy consumption by sector 2015 and 2016*



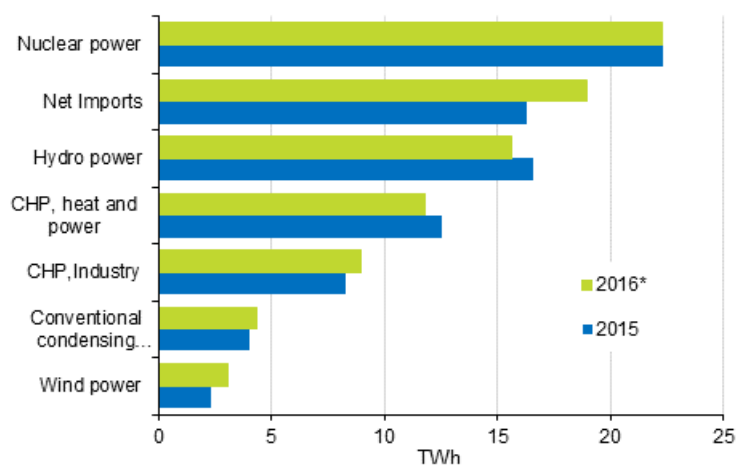
*preliminary

Appendix figure 16. Total energy consumption and final energy consumption 1970–2016*



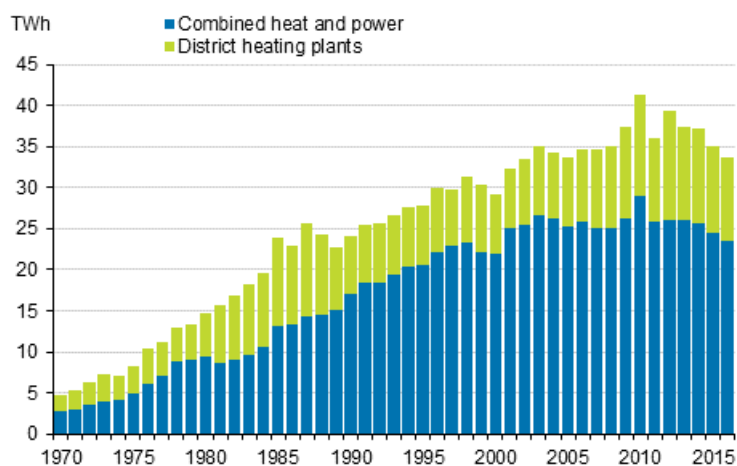
*preliminary

Appendix figure 17. Electricity supply 2015–2016*



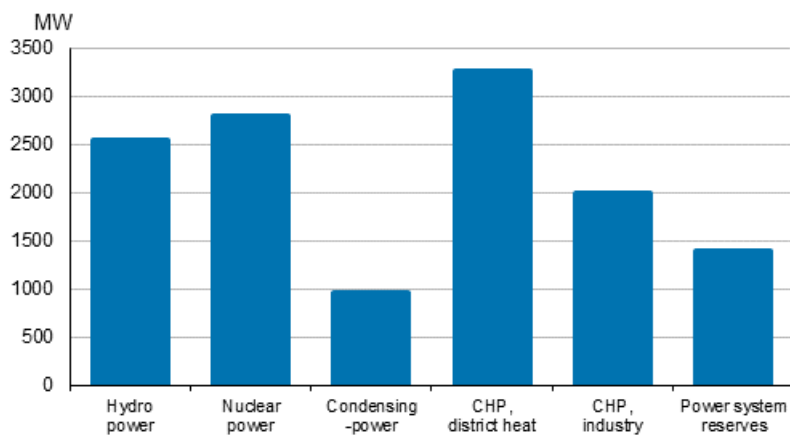
Source: Finnish Energy Industries, *preliminary

Appendix figure 18. Production of district heat 1970–2016*



Source: Finnish Energy Industries *preliminary

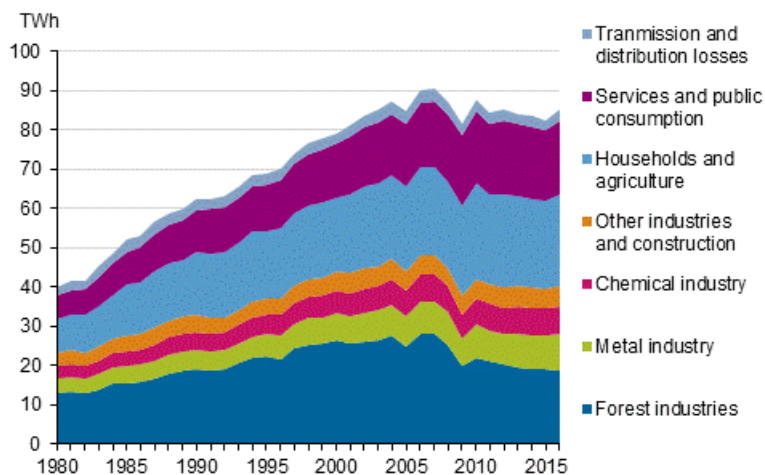
Appendix figure 19. Electricity generation capacity in peak load period in the beginning of the year 2017



The simultaneously available capacity (net) 11,562 MW

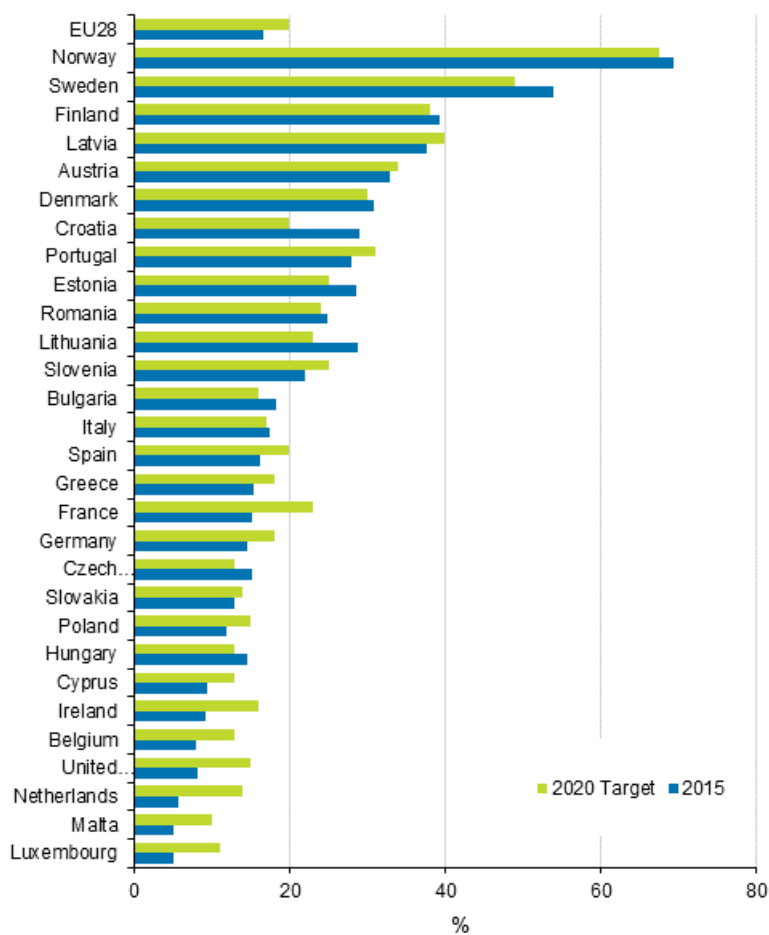
Source: Fingrid Oyj and the Energy Authority

Appendix figure 20. Electricity consumption by sector 1980–2016*



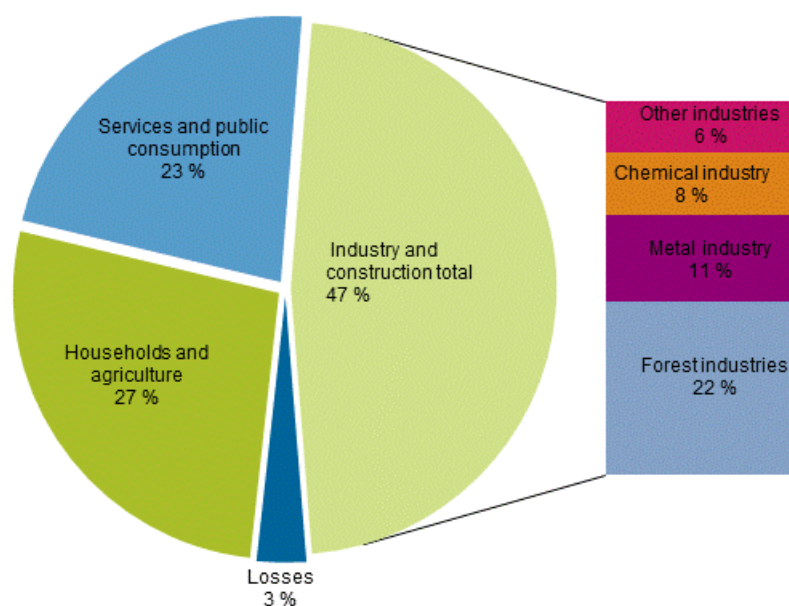
Source: Finnish Energy Industries, *preliminary

Appendix figure 21. Renewable energy as a proportion of final energy consumption in 2015, and the target for 2020



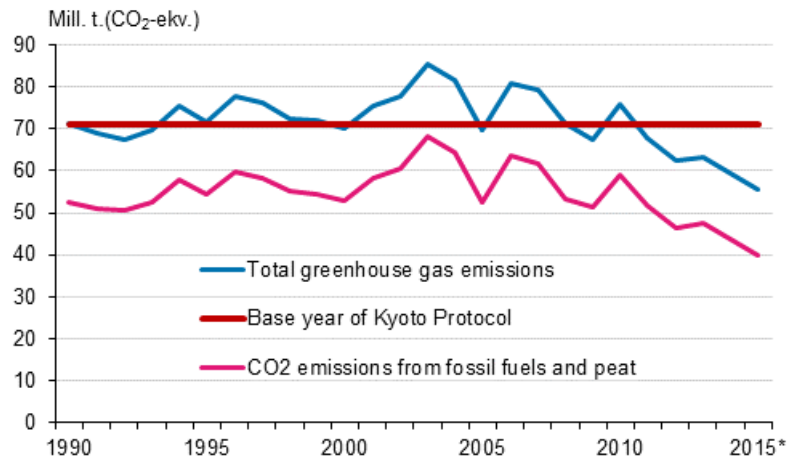
Source: Eurostat

Appendix figure 22. Electricity consumption by sector 2016*



Source: Statistics Finland, *preliminary

Appendix figure 23. Finland's greenhouse gas emissions 1990–2015*



Revisions in these statistics

The data of the statistics have become revised according to the table below. For more information about data revisions, see Section 3 of the quality description (only in Finnish).

Revisions to data on annual changes in total energy consumption¹⁾

Total energy consumption and quarter		Annual change (%)		Revision (%-point)
		1st release	Latest release 23rd March 2017 (%)	
	I-IV 2016	.	2	.
	I/2016	5	4	-1
	II/2016	2	0	-2
	III/2016	2	0	-2
	IV/2016	.	4	.

1) The revisions describe the difference between the annual change percentages of the latest and first releases in percentages. The first release refers to the time when preliminary data for the statistical reference quarter in question were released for the first time.

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Source: Statistics Finland, Energy supply and consumption