Finnish Energy

District heating in Finland

2025



Contents

The statistical presentation is divided into three parts. The first part presents statistical graphs. The next section provides statistical analysis. The third part presents future scenarios.

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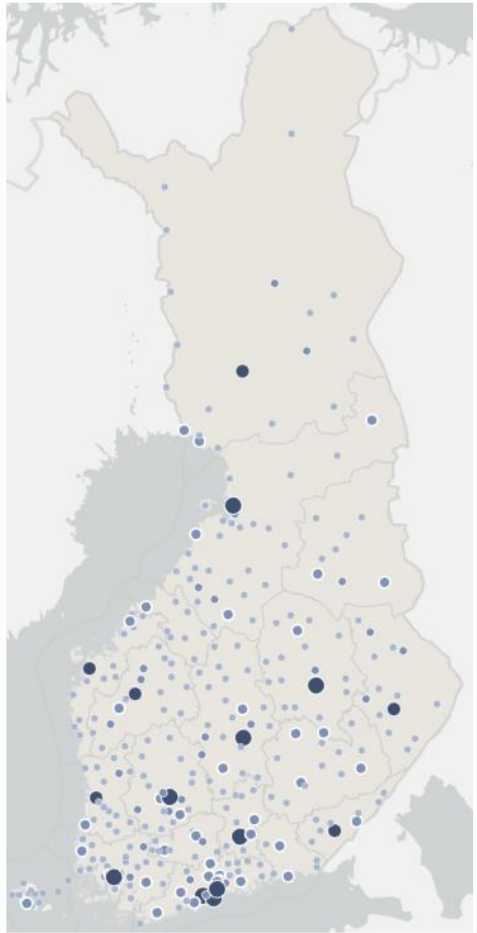
Statistical year 2025

- In 2025, the electrification of district heating continued.
  - Non-combustion-based district heat production increased by 20 % from 2024.
- Large-scale coal use in district heating production ended in spring 2025.
- The year 2025 was on average 1,5 °C warmer than the normal year (1991–2020 average). However, the monthly temperatures differed from the average year.
  - The winter was warmer than normal, while May, June and August were colder than normal.

Statistics in graphs

Statistics 2025

District heating networks in Finland



~34 TWh
energy sold annually

~3,0 million people
lives in houses with district heating

~16 600 km
district heating networks

~11,0 cent/kWh
The average price including taxes

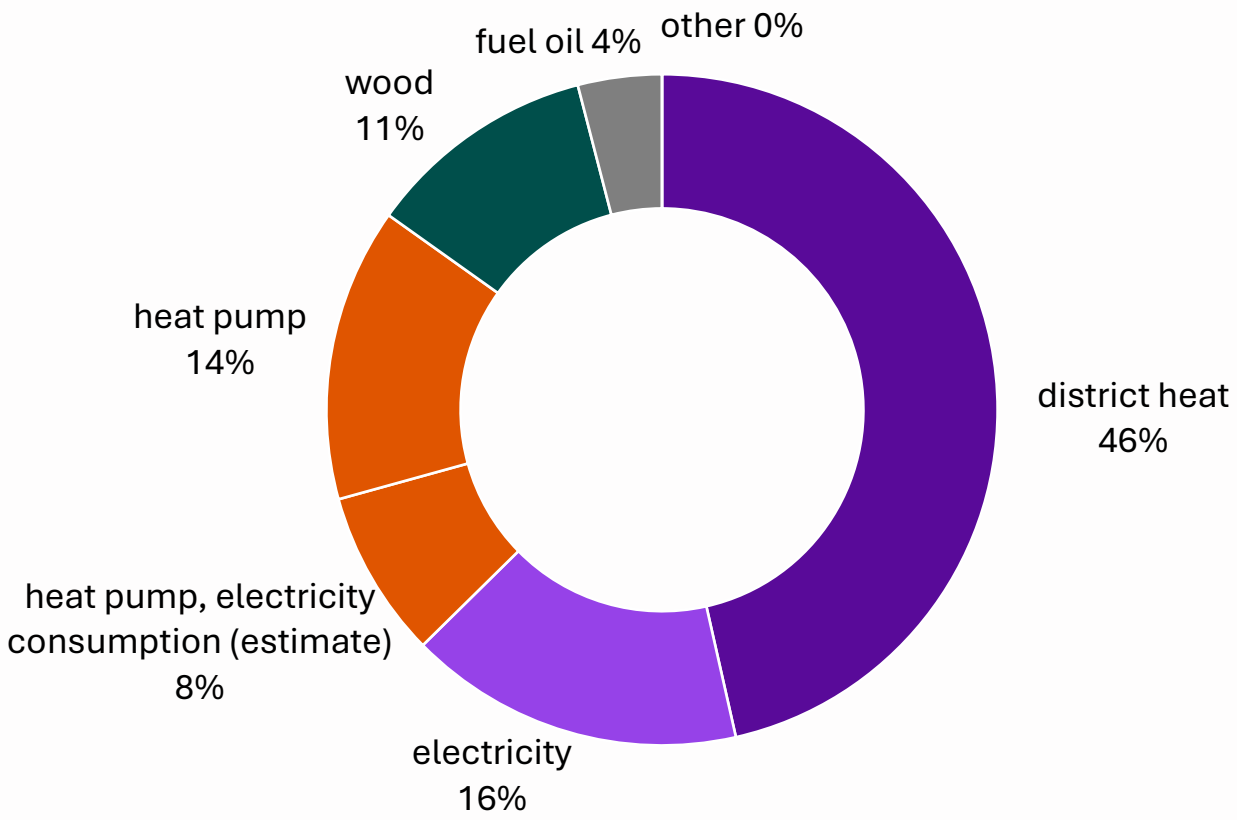
46 %
market share*

~3 mrd. EUR
the value of heat sold including taxes

*market share of heating in residential and apartment buildings

Finnish Energy

Market share of space heating in 2024

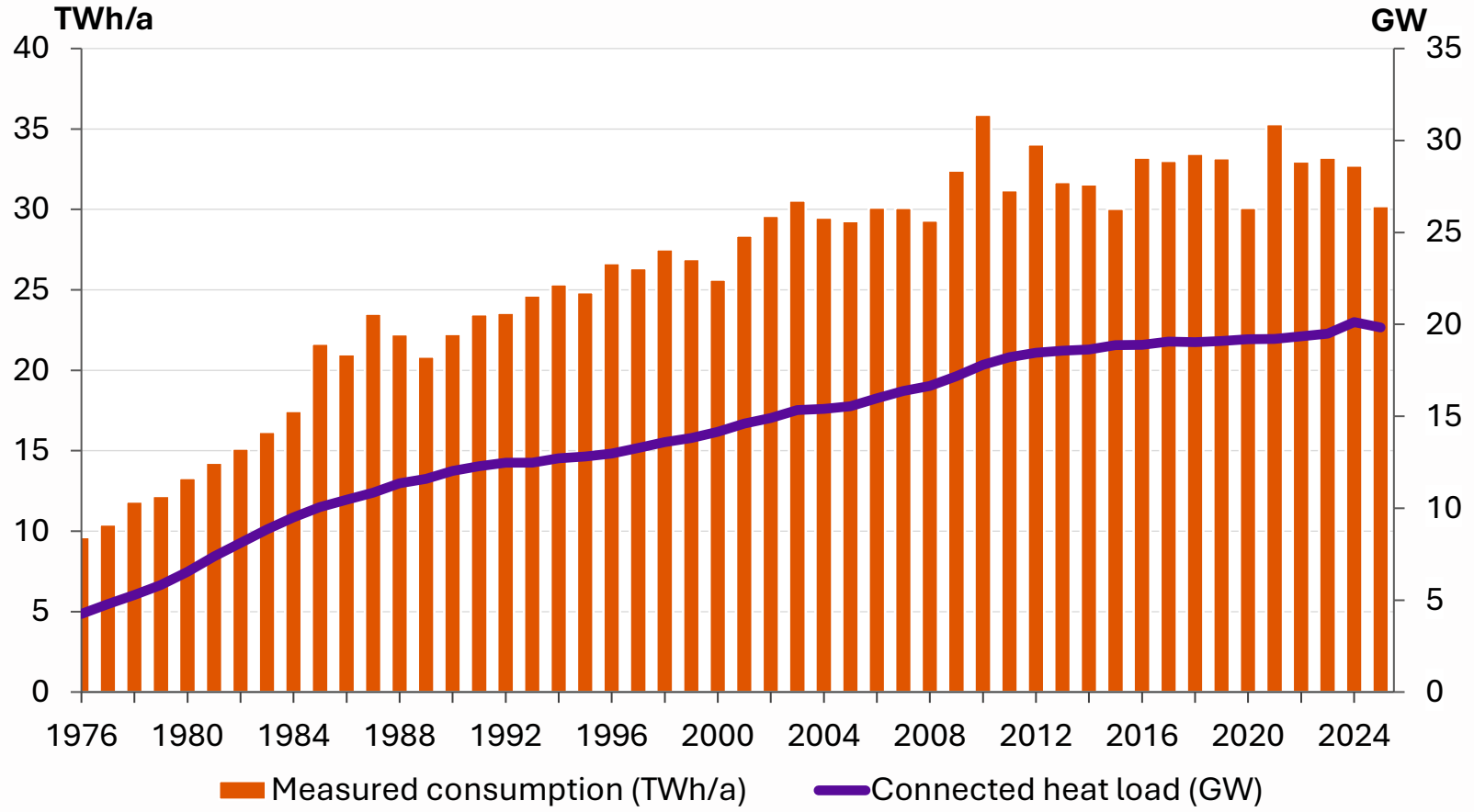


- Includes residential, commercial and public buildings

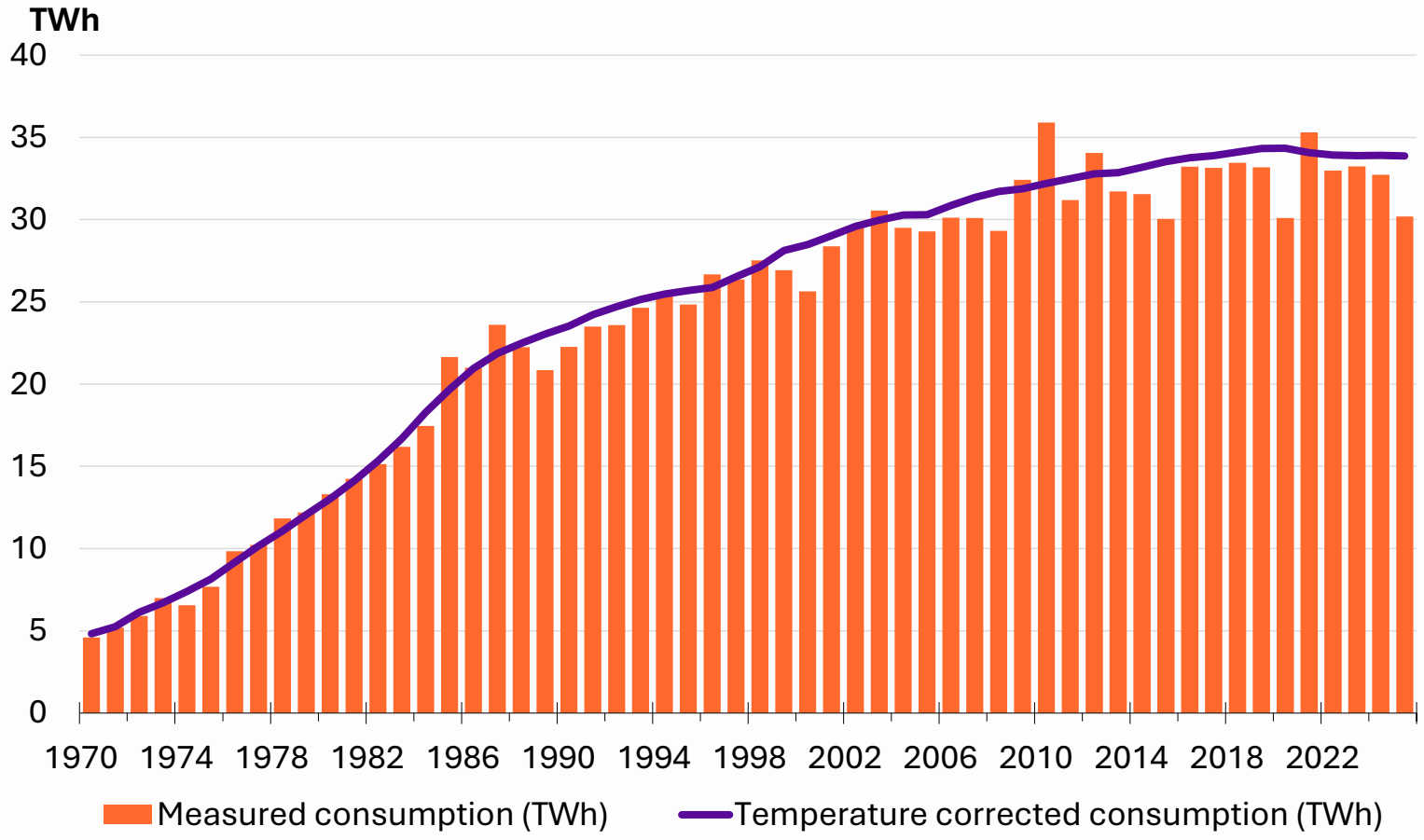
- **Heat pump**: ambient energy extracted with heat pumps
- **Heat pump, electricity**: Estimated electricity used by heat pumps that is converted into heat.
- **Electricity**: includes the electricity consumption of heat distribution equipment and electric sauna stoves
- **Wood**: includes the wood used by sauna stoves

Source: Statistics Finland: Energy 2025 –table service, Table 7.2. and ”Energy consumption in households: documentation of statistics”
Electricity consumption of heat pumps is estimated by Finnish Energy

District heat consumption and connected heat load of the customers



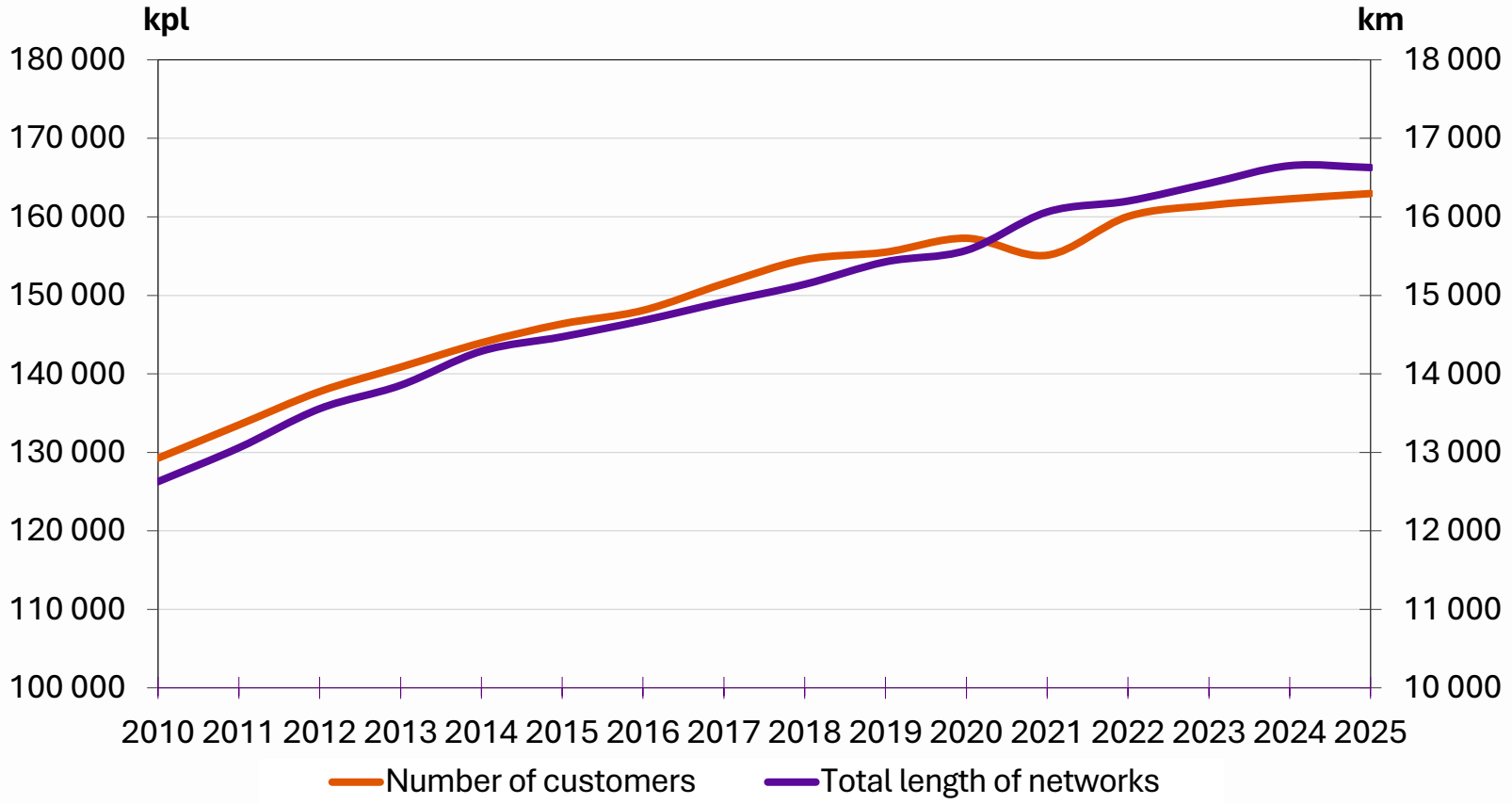
Temperature corrected heat consumption



- District heat consumption 30,2 TWh (year 2025)
  - Temperature corrected heat consumption 33,9 TWh
- Temperature corrected heat consumption did not change compared with the previous year.

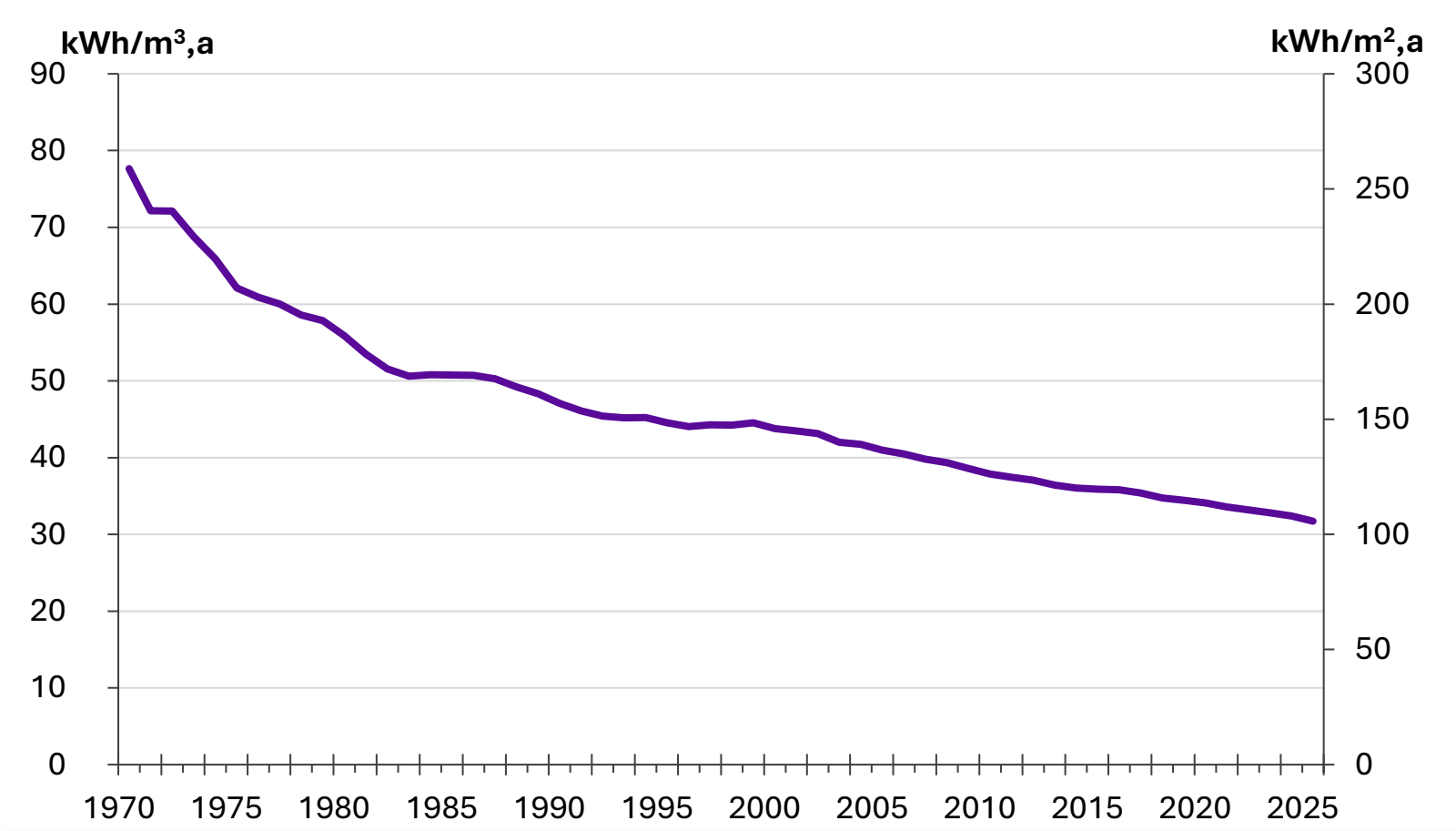
- Temperature correction takes into account annual temperature differences.

Number of customers and the length of networks



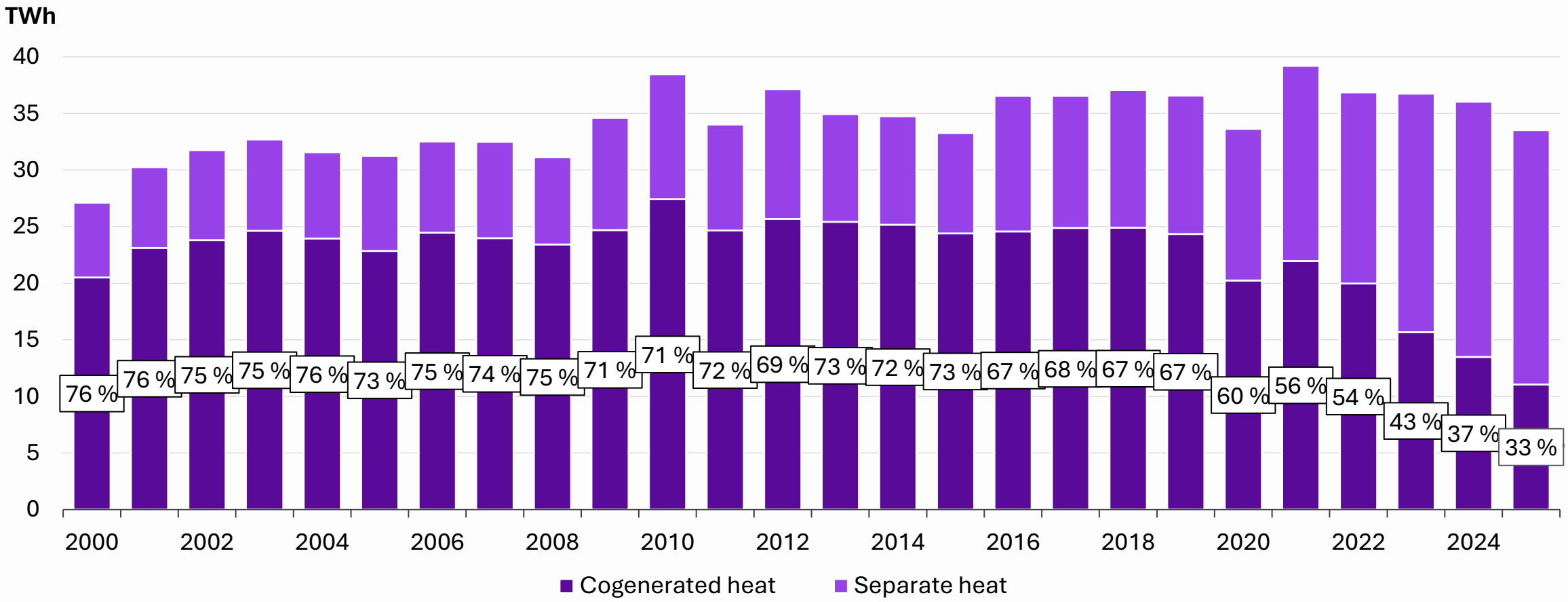
The deviation in the number of customers in 2021 is mainly due to changes in how respondents reported their data.

Specific heat consumption in district heated buildings

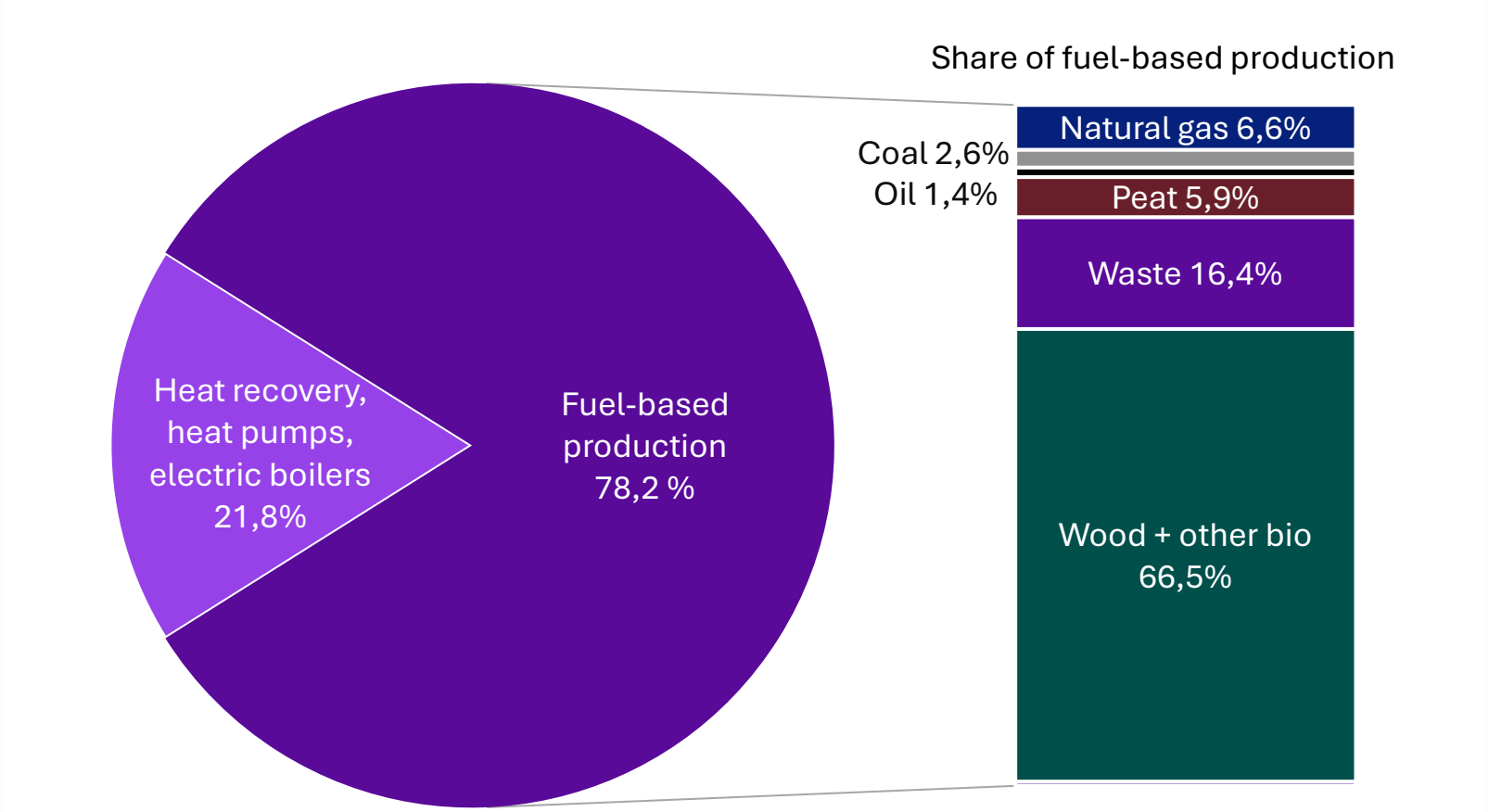


- Specific heat consumption indicates how much energy has been used to heat premises and domestic water per building volume or surface area.
- Specific heat consumption has been standardised to correspond to the comparison period 1991-2020

District heat supply and the share of cogeneration

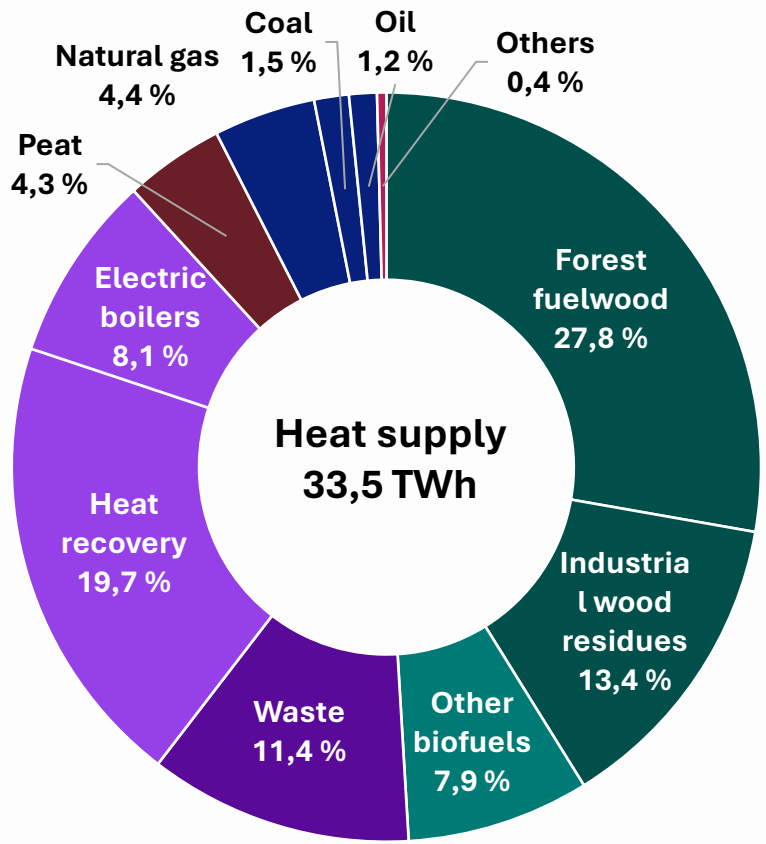


District heat supply and the fuels used for DH and cogeneration



Total district heat supply	33,5 TWh
District heat production by fuels	24,2 TWh
Net production of electricity in CHP production	3,6 TWh
Fuel energy consumed	34,1 TWh
Heat recovery and heat produced by heat pumps	9,3 TWh

Energy sources for district heat supply in 2025 by fuel category

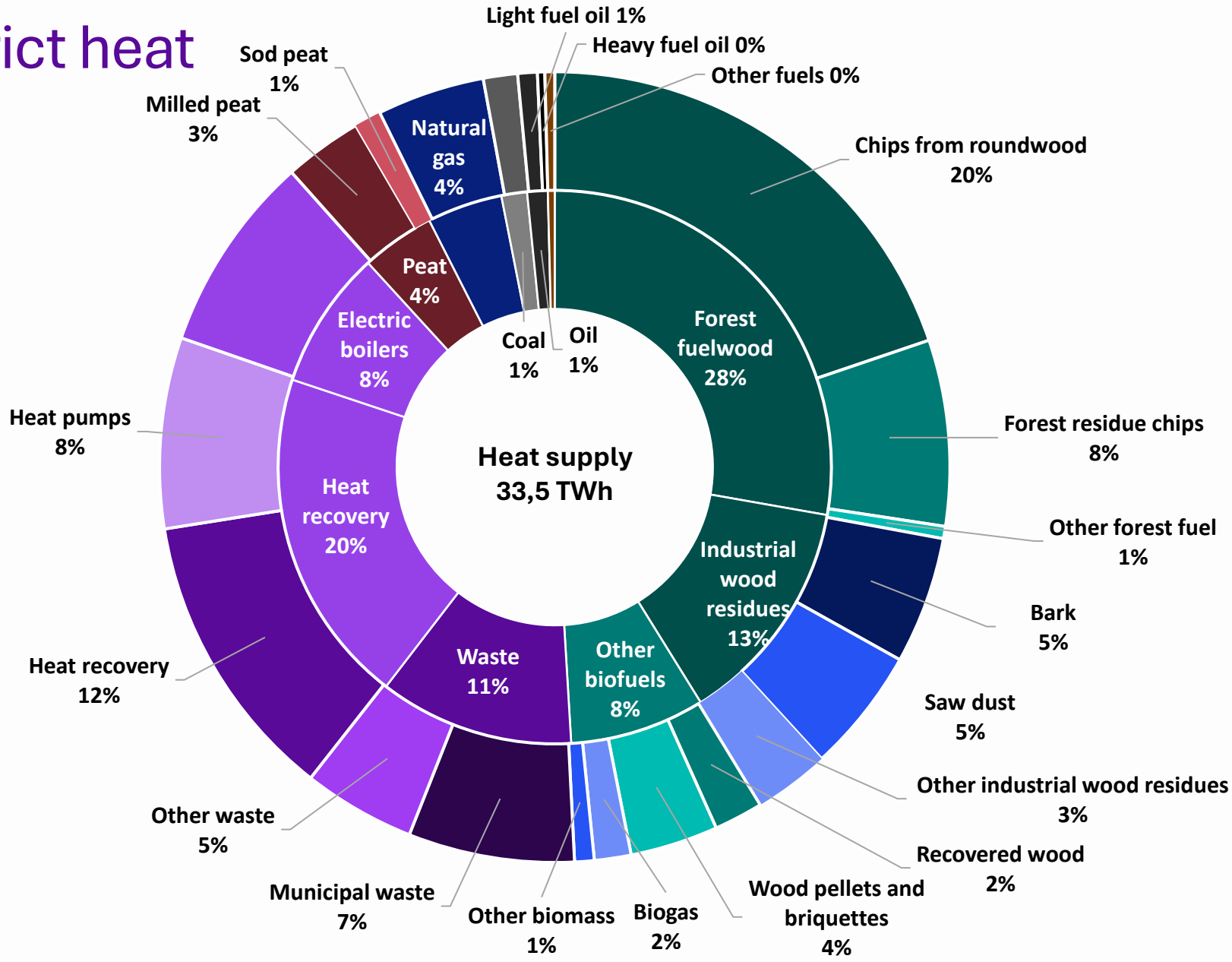


- Carbon neutral*: 83 %
  - Renewables (incl. bio waste) + Heat recovery + electricity usage of electric boilers
- Share of imported fossil fuels in district heat supply 7 %

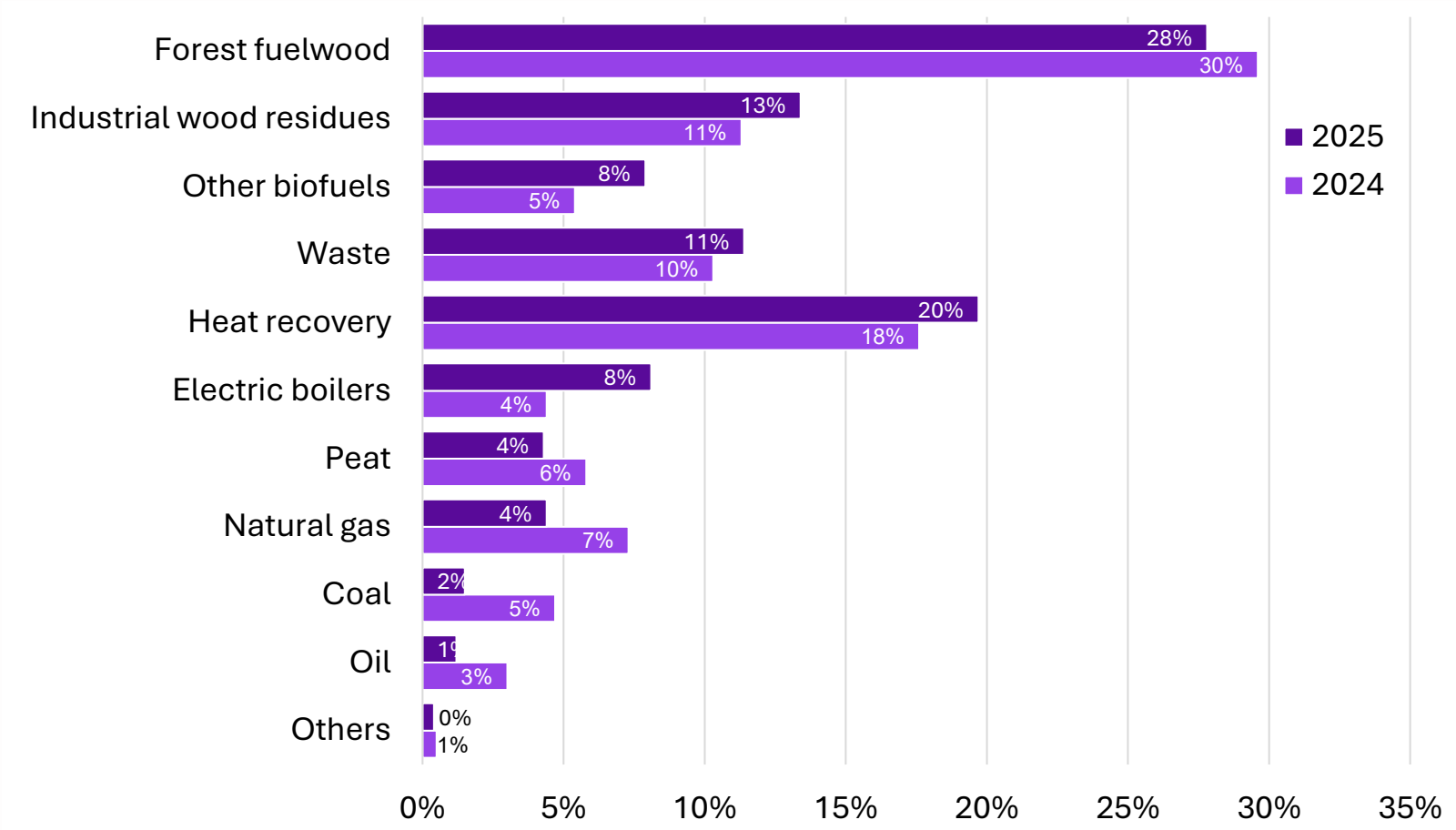
- *Carbon neutral energy sources include those energy sources whose carbon dioxide impact is not reported in heat production. The climate impact of bioenergy is included in the land use sector and emissions from electricity used in district heat production in electricity production.

- Waste category includes municipal waste, recovered fuels, demolition wood, impregnated wood, plastic waste and hazardous waste.
  - Bio share of waste is 49 % and fossil share 51 %.
- Other biofuels: other biofuels and mixed fuels
- Others: steam, hydrogen

Energy sources for district heat supply in 2025 by fuels

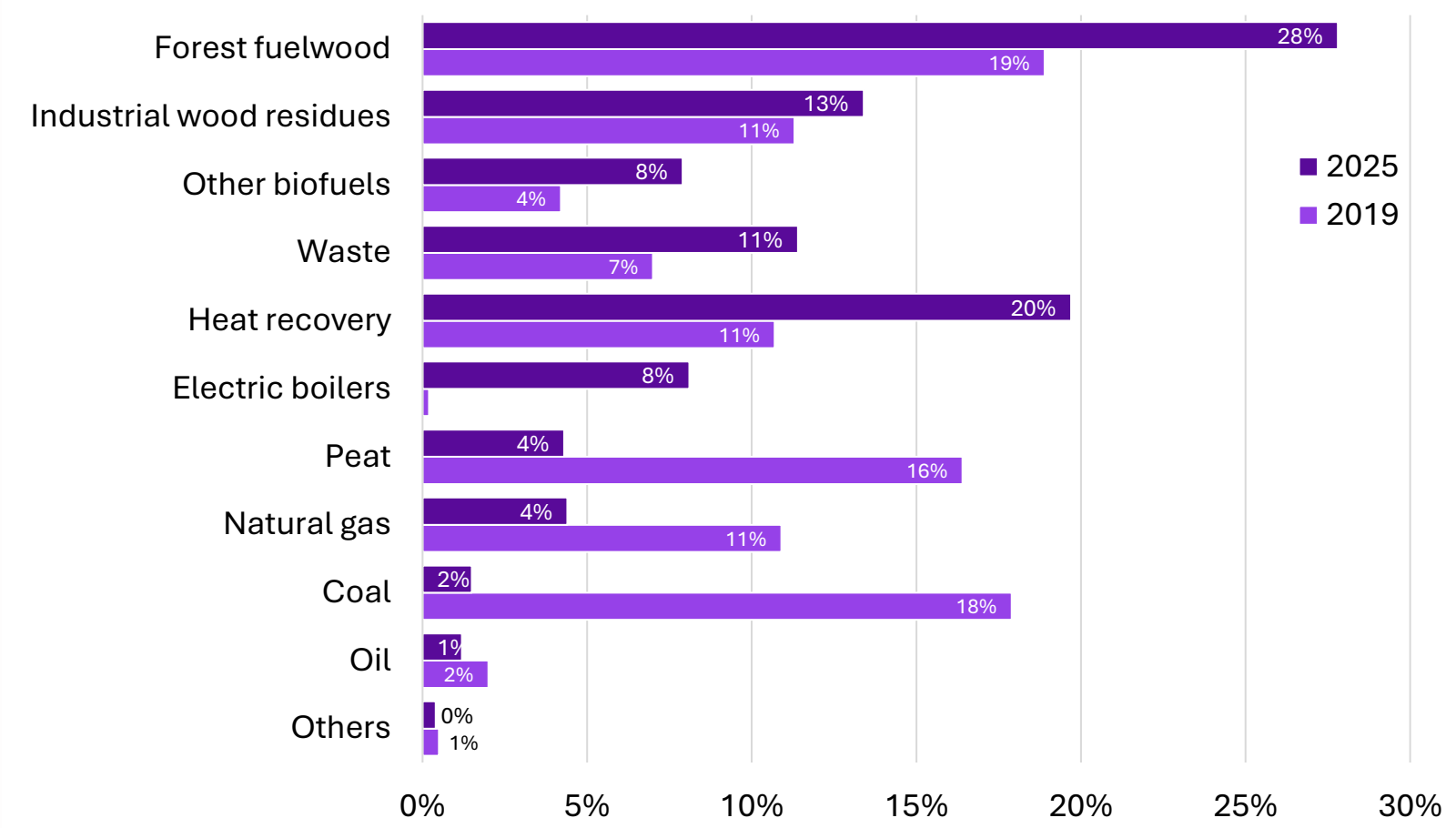


Energy sources for district heat supply in 2025 and 2024



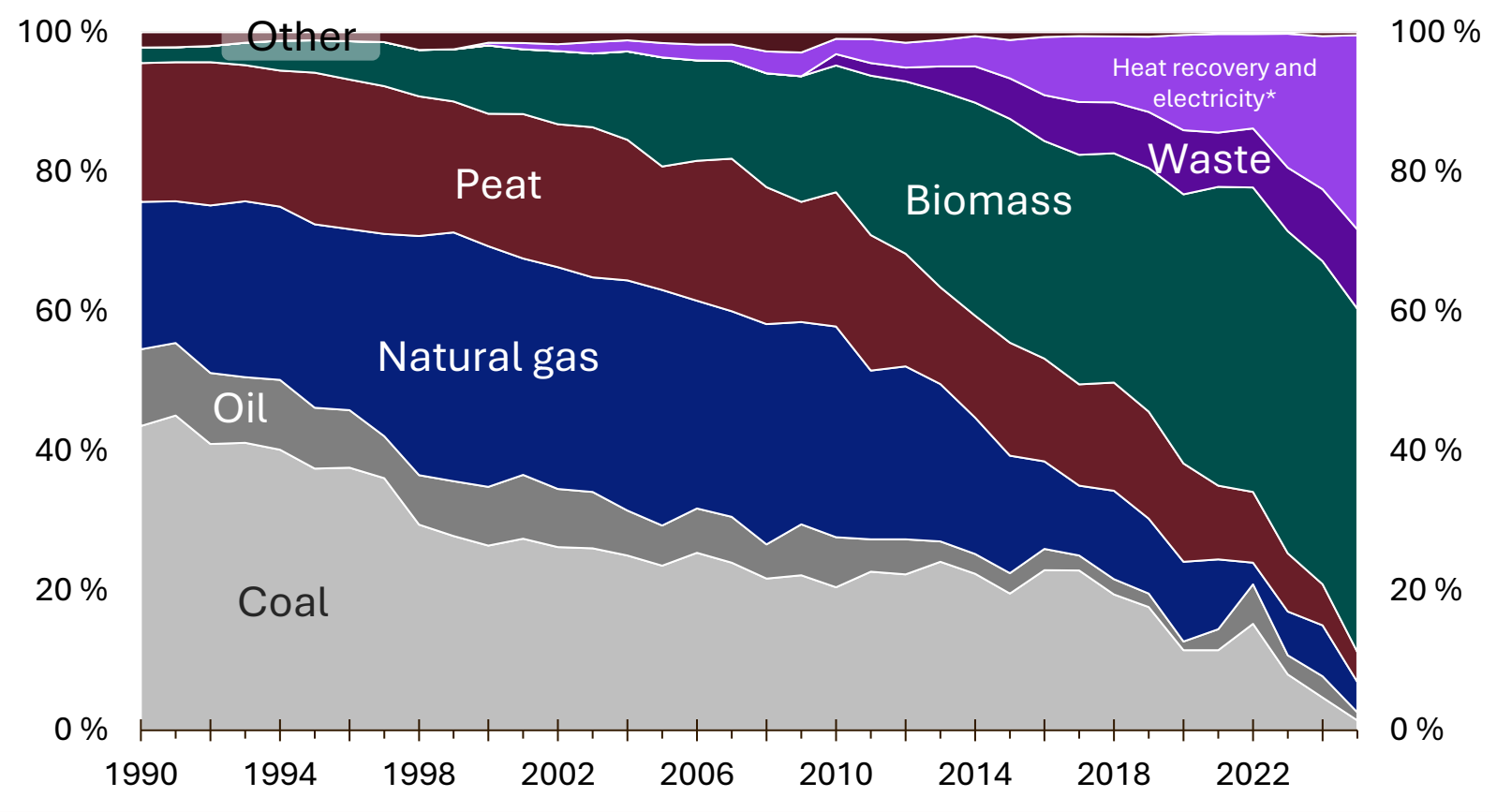
- Heat recovery: energy that would otherwise go to waste, e.g. heat recovery from wastewater, flue gases, return water from district cooling.
- Waste category includes municipal waste, recovered fuels, demolition wood, impregnated wood, plastic waste and hazardous waste.
- Others: steam, hydrogen

Energy sources for district heat supply in 2025 and 2019



- Heat recovery: energy that would otherwise go to waste, e.g. heat recovery from wastewater, flue gases, return water from district cooling.
- Waste category includes municipal waste, recovered fuels, demolition wood, impregnated wood, plastic waste and hazardous waste.
- Others: steam, hydrogen

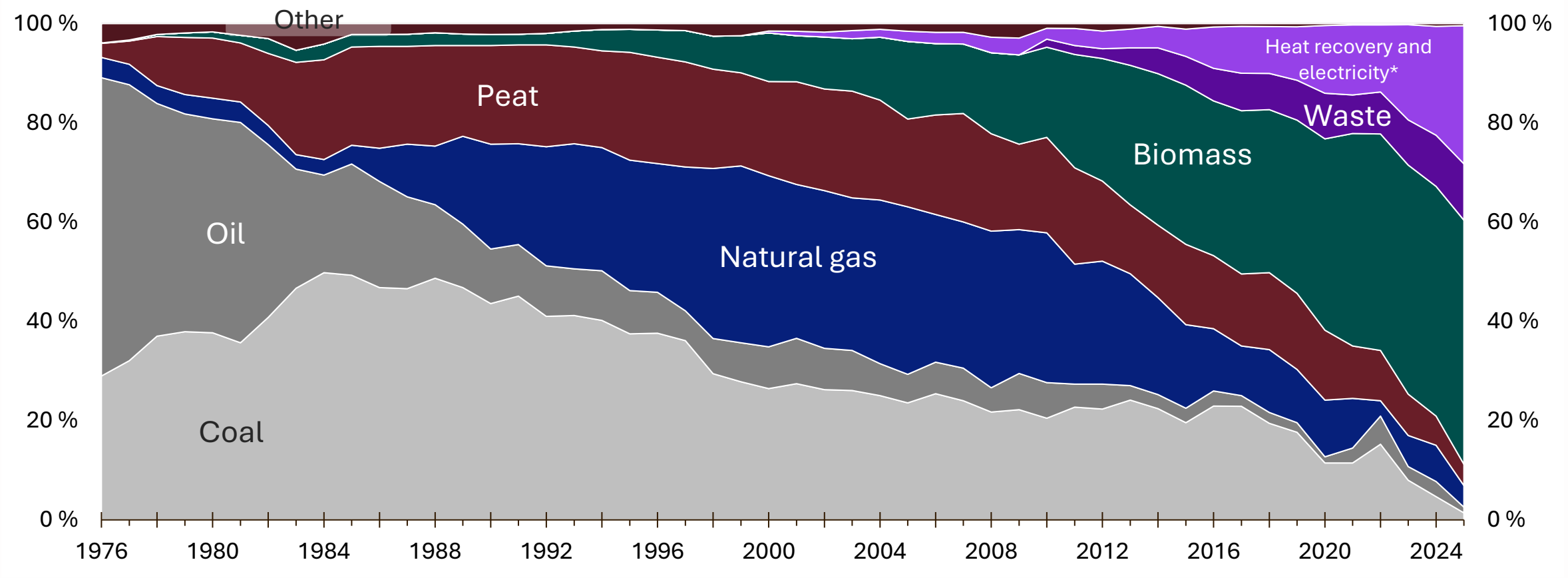
Energy sources for district heat supply 1990-2024



* includes heat pumps, heat recovery and electric boilers

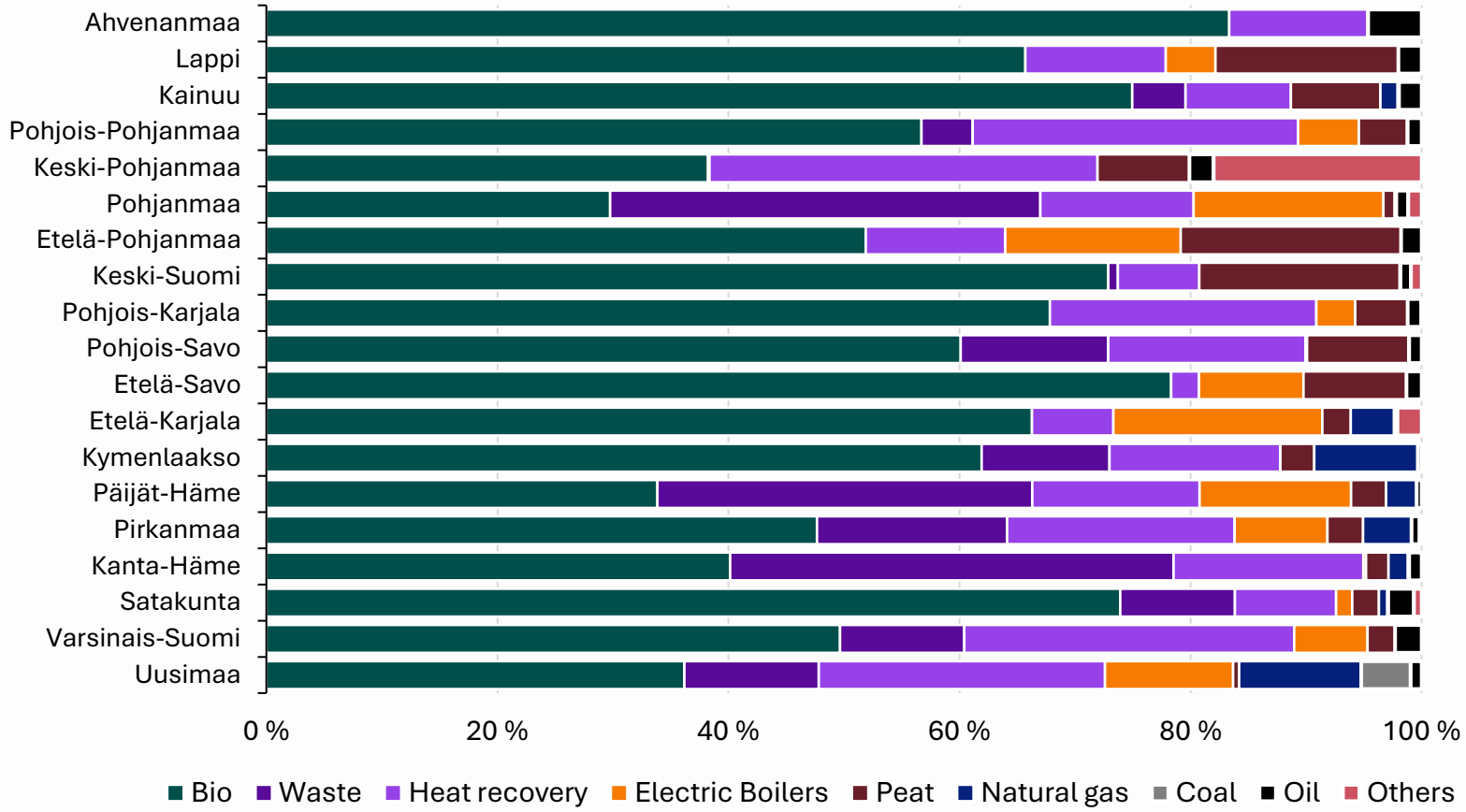
- Fossil fuels have increasingly been replaced by biomass, recovered heat and electric boilers.
- The use of biomass has increased 1.3-fold since 2019.
- The amount of recovered heat has increased increased 2.5-fold since 2019. Fuel consumption is avoided by making use of surplus heat.

Energy sources for district heat supply 1976-2024



*includes heat pumps, heat recovery and electric boilers

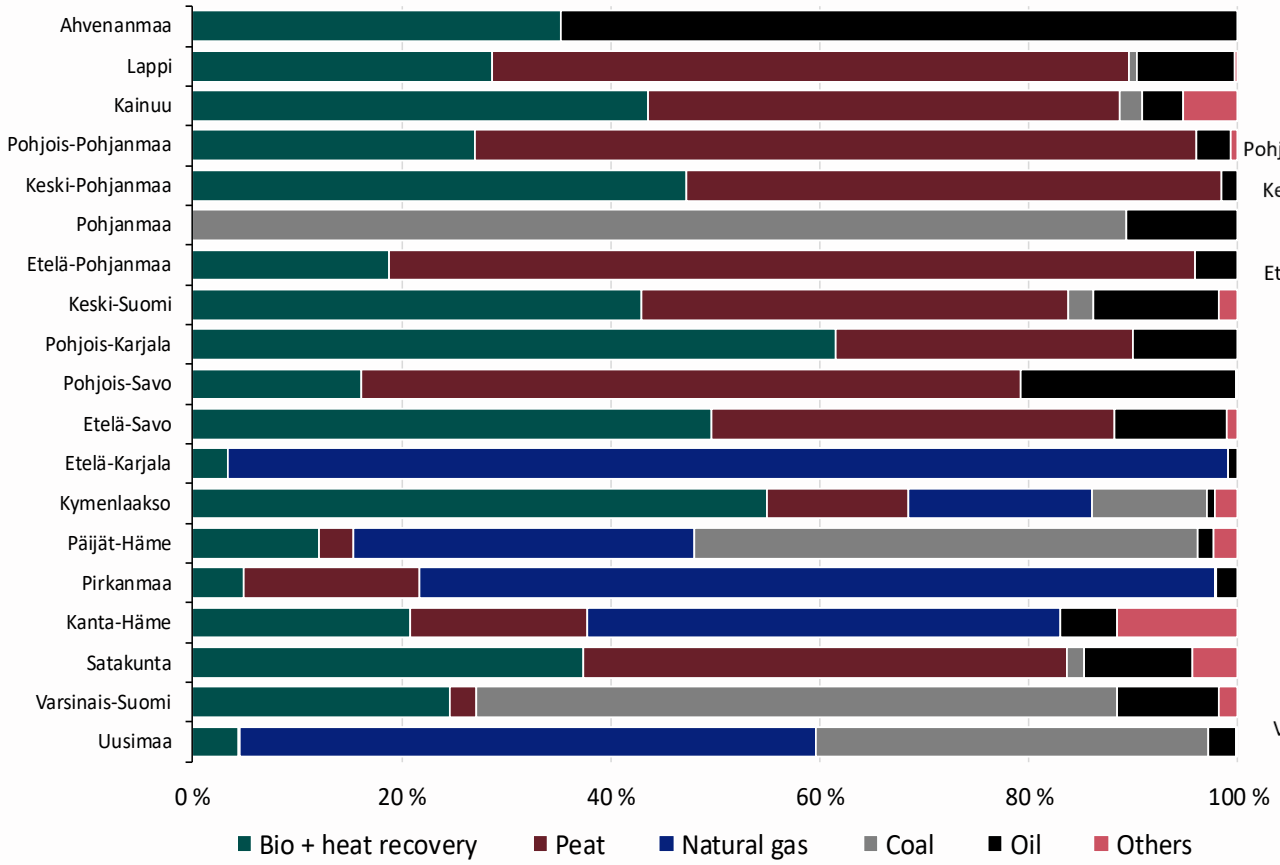
Energy sources for district heat by region in 2025



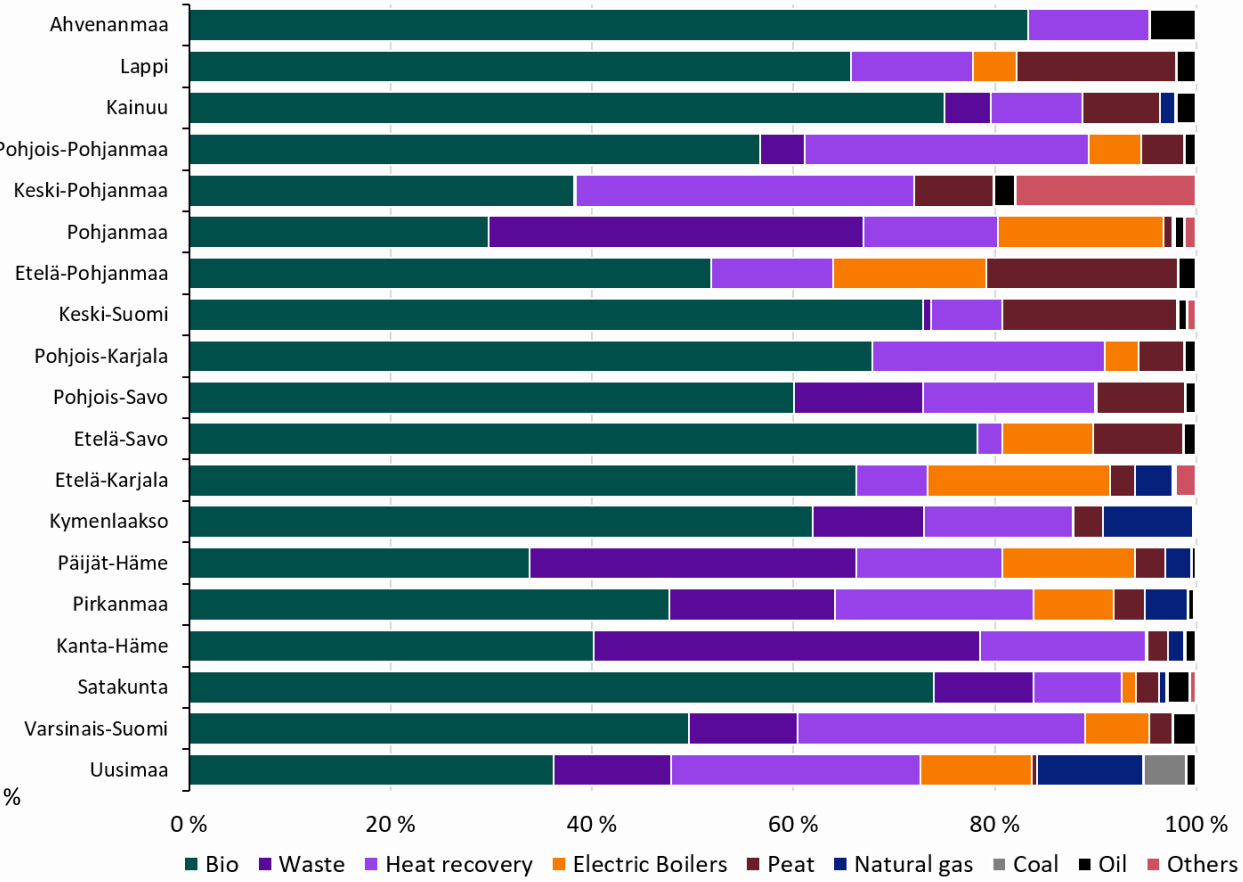
- The share of district heat energy sources in combined heat and power plants has been estimated using general coefficients that have not been adjusted to the county-specific level.

Energy sources for DH by region in 2005 and in 2025

Year 2005

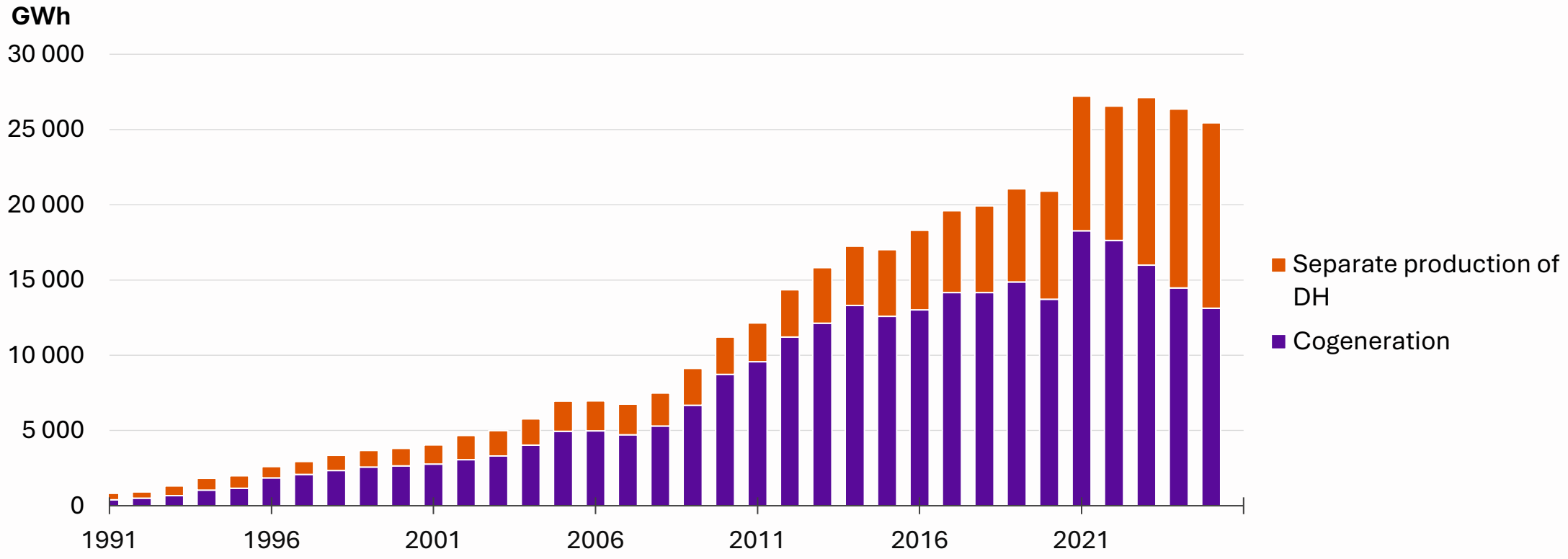


Year 2025

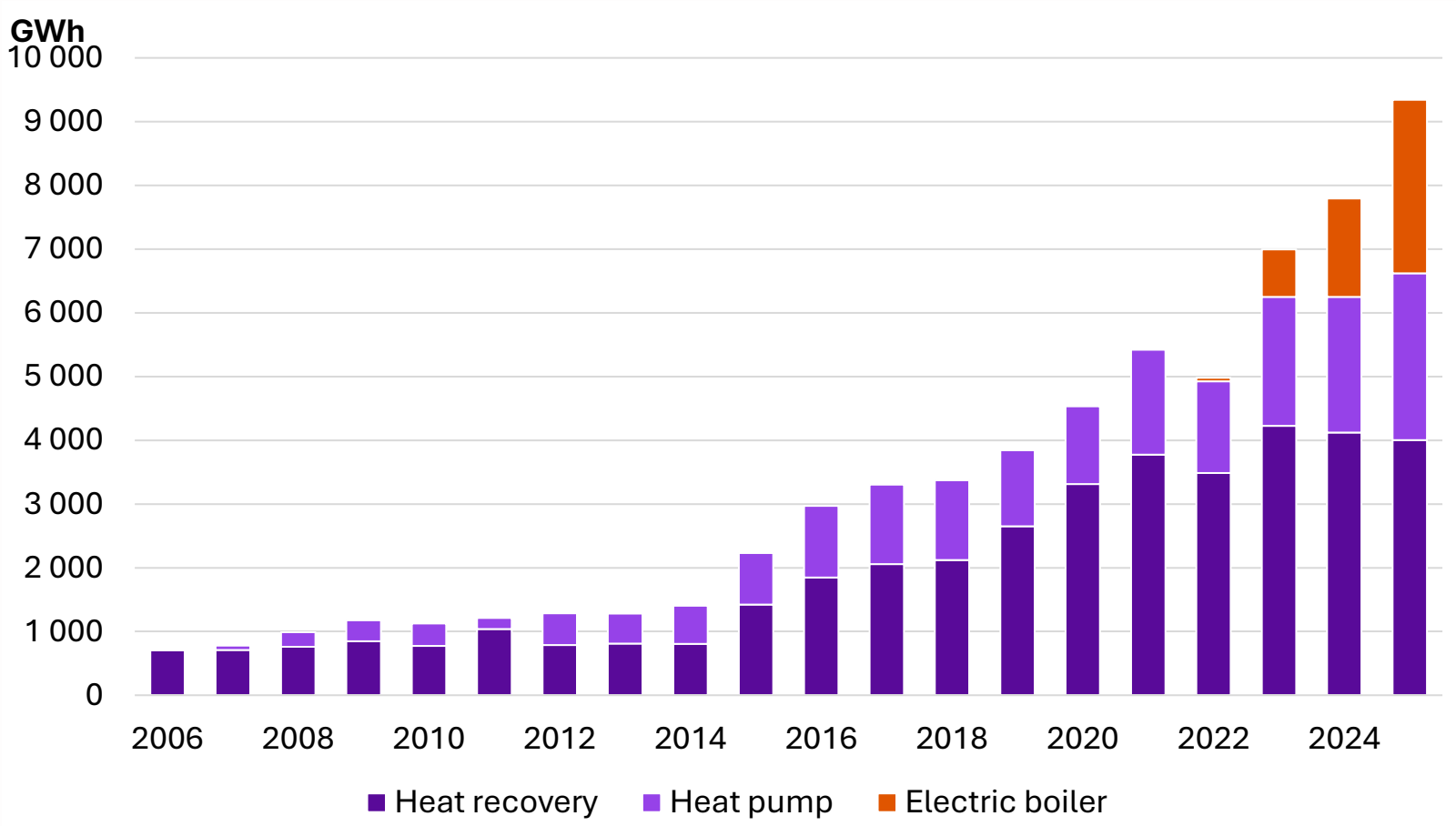


Renewable fuels in the production of district heat and CHP electricity

Renewable fuels used for district heat and associated electricity production

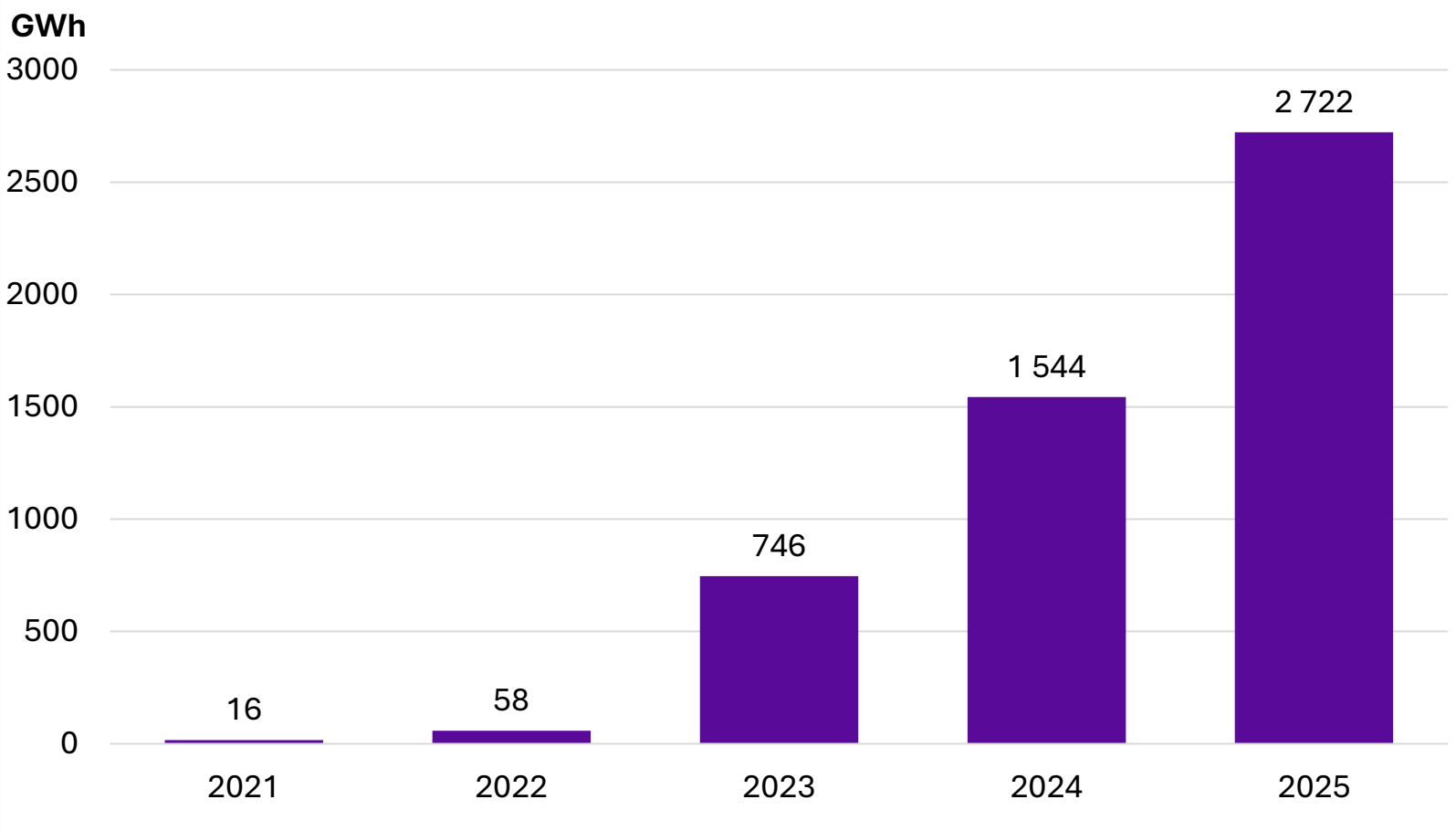


Heat recovery and electric boilers



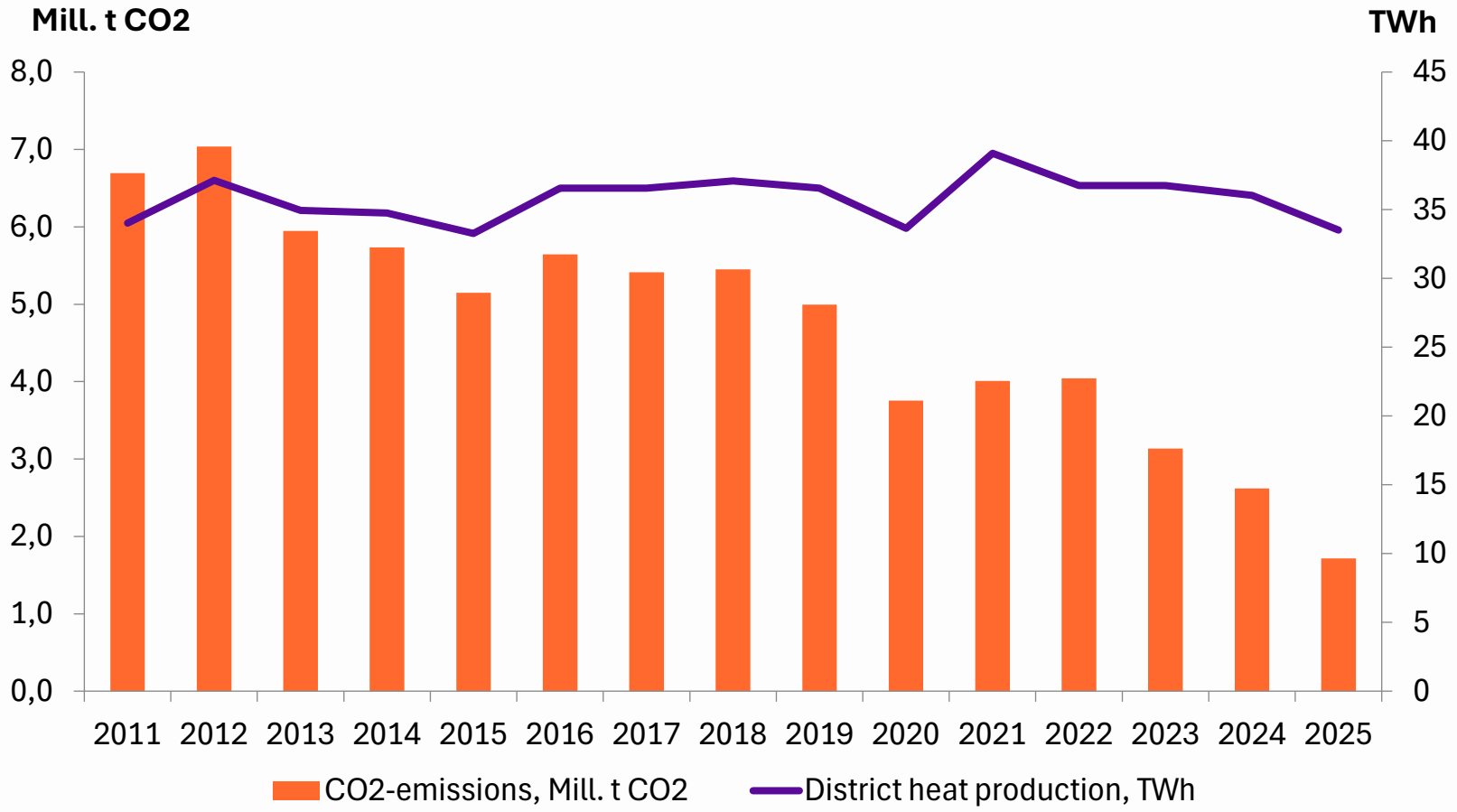
- The electric boilers produced 2720 GWh of heat in 2025.
- 6620 GWh of district heat was produced by heat recovery
- Heat recovery by heat exchangers 4000 GWh
  - The most significant heat sources: flue gases and industrial processes.
- Heat produced by the heat pumps 2620 GWh
  - The most significant heat sources: sewage, district cooling return water and data centers

Heat generated by electric boilers



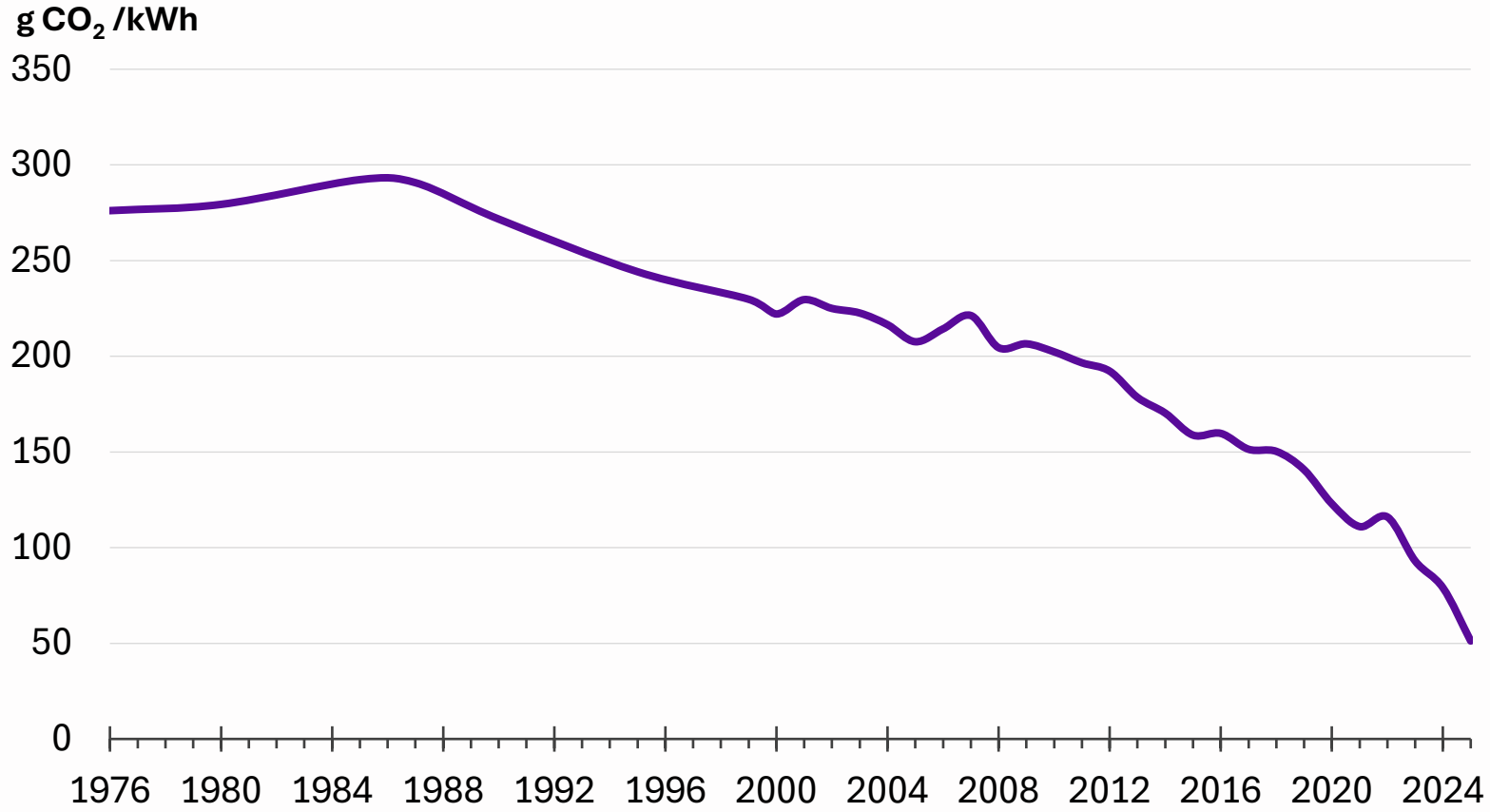
- Electric boilers reduce the use of fuels when electricity price is low.
- Alongside electric boilers, there is usually a heat storage.
- Electric boilers can also participate in the balancing power market.

Total emissions from district heating



- CO_2-emissions from district heat production in 2025 were 1,7 Million tons and decreased by 34 % from the previous year

CO_2 -emissions from the district heat supply

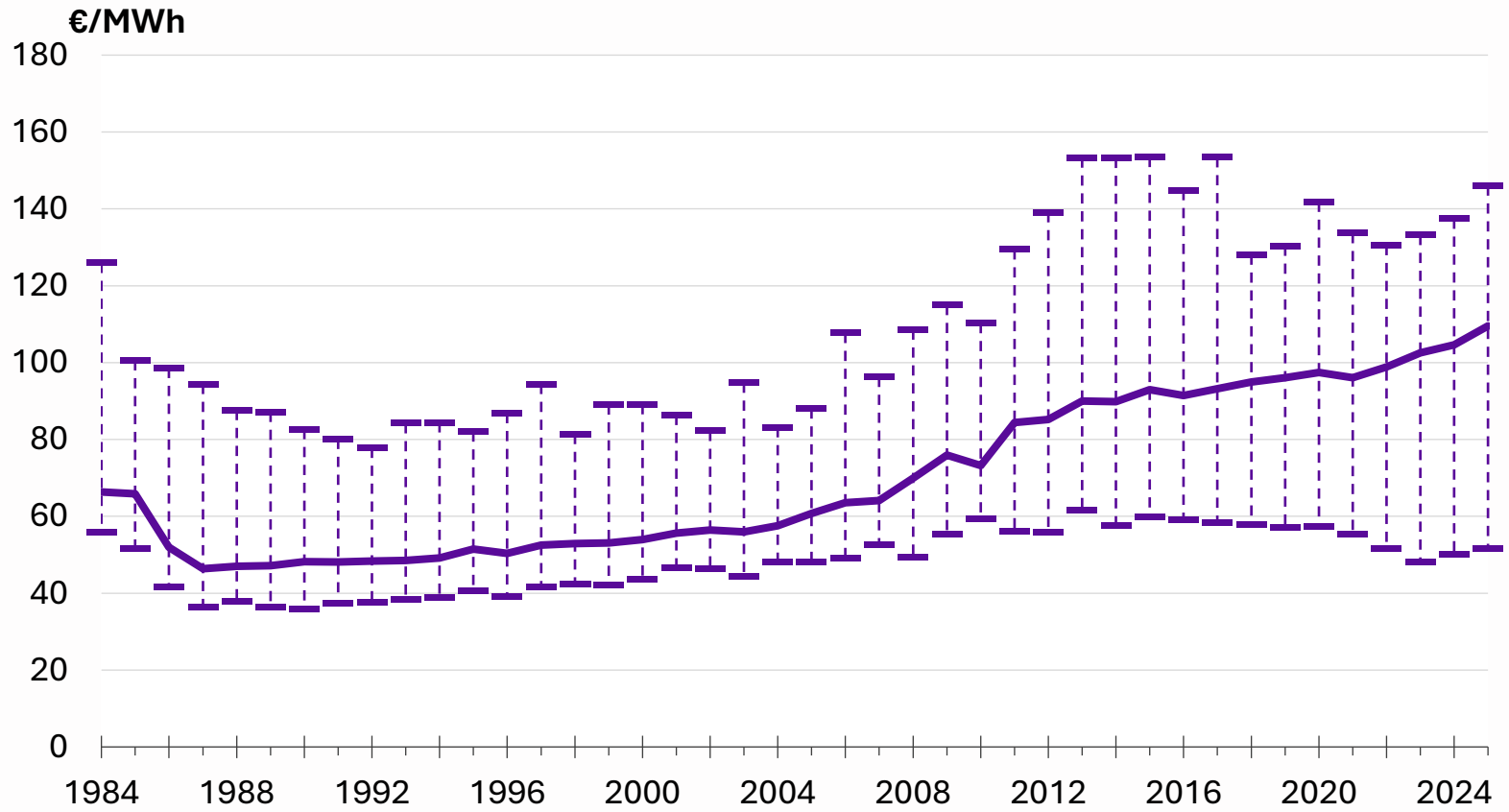


Sources: Statistics Finland (2000…2024), Finnish Energy (1976…1999, 2025)

- Specific emissions from district heat production in 2025 were 51 gCO_2/kWh, which
  - Decreased by 35 % from the previous year
  - Decreased by 75 % since 2010
- Fuels used in combined heat and power production were allocated according to the benefit allocation method

Inflation-adjusted price of district heat (incl. VAT)

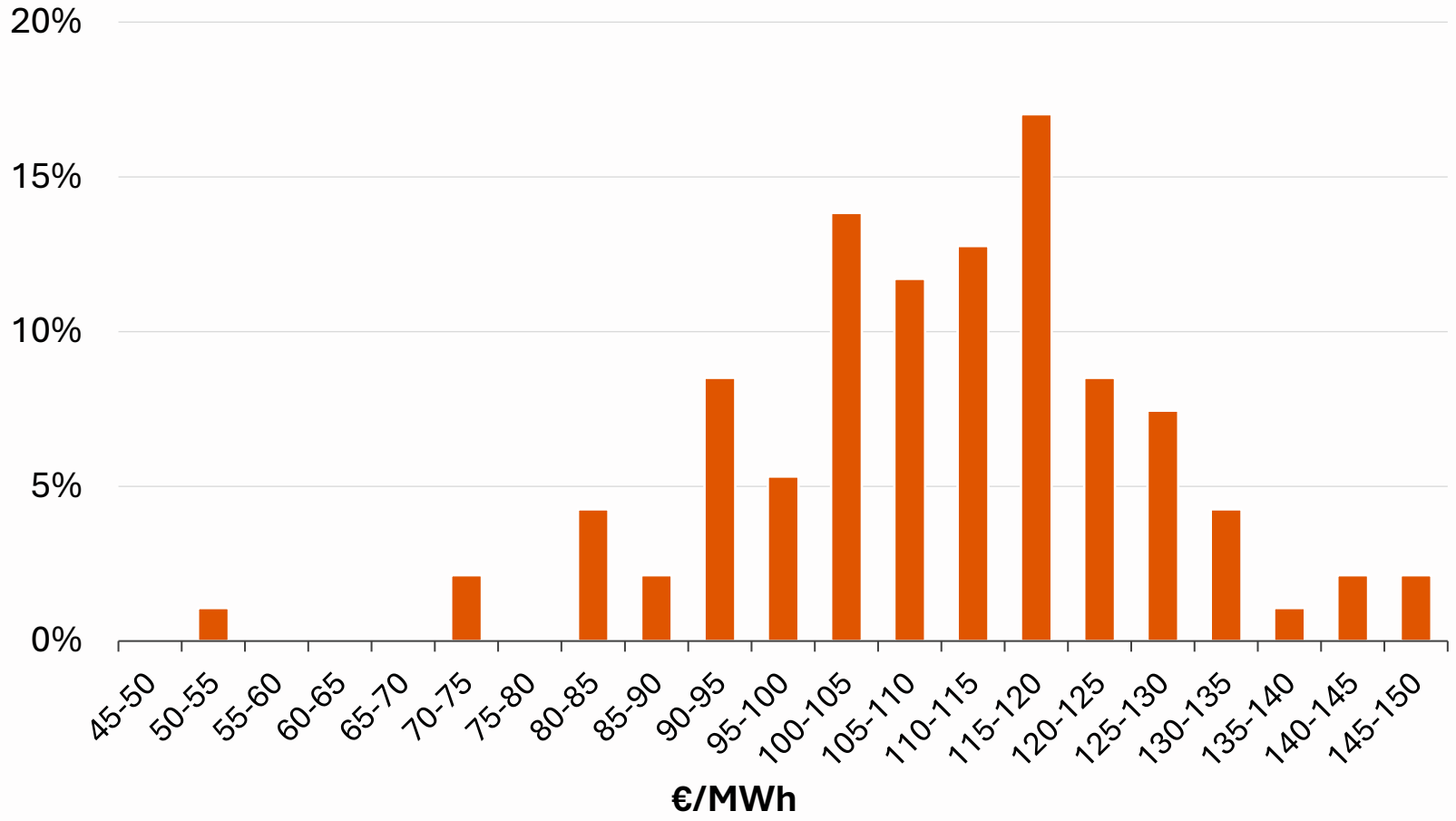
Average, minimum and maximum values



Source: Finnish Energy, DH statistics; Statistics Finland, cost-of-living index

- The price includes all taxes, demand and energy charges as well as other possible annual charges. Connection fees are excluded.
- Adjusted for inflation
- Weighted average price: 109,54 €/MWh
- Arithmetical average price: 110,23 €/MWh

The share of district heating companies according to the average heat sales price in 2025 (incl. VAT)

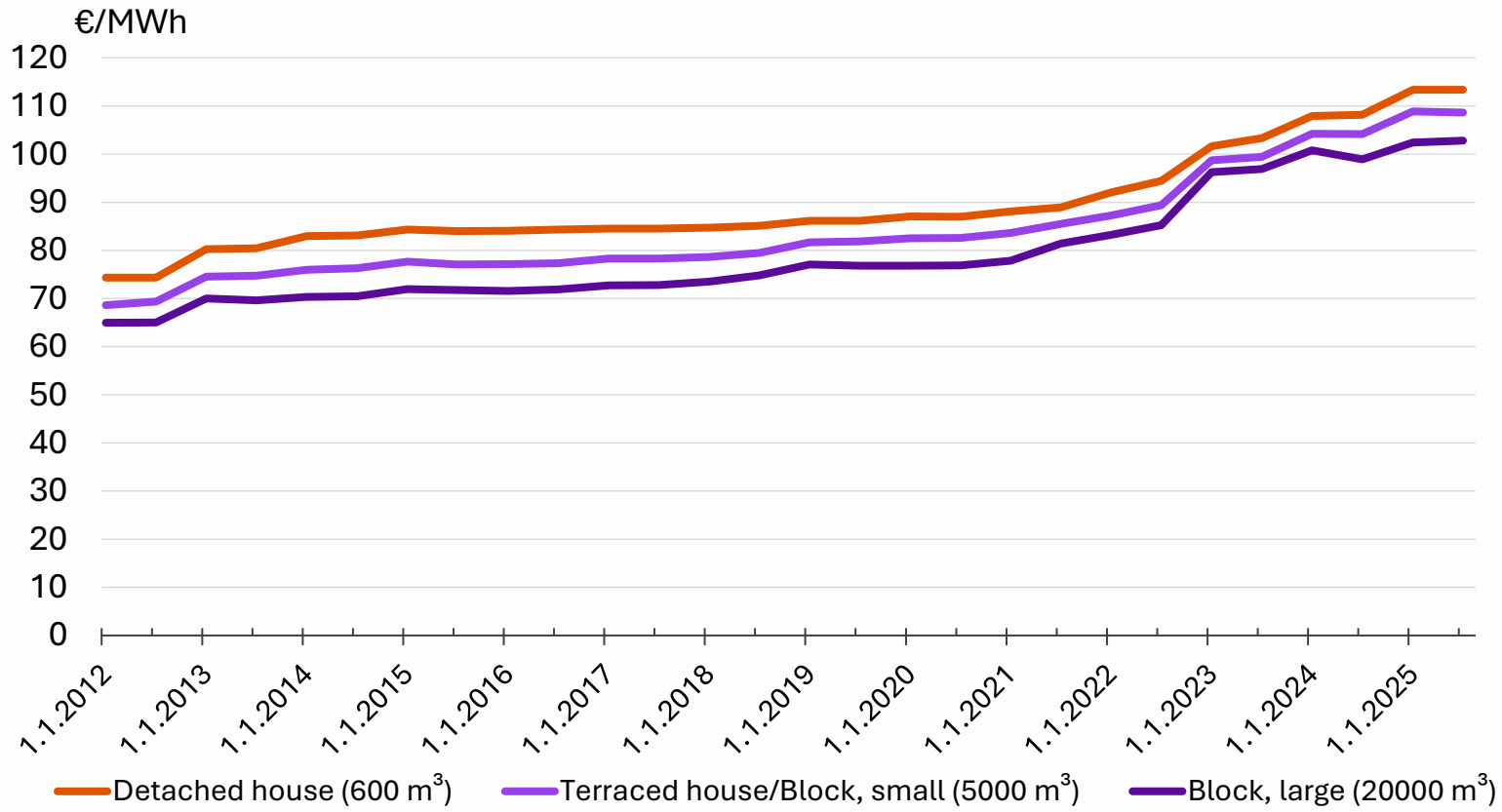


- The price includes all taxes, demand and energy charges as well as other possible annual charges. Connection fees are excluded.

The graph represents only enterprises that responded to the sales section of the statistics.

Price of district heat in new buildings (€/MWh)

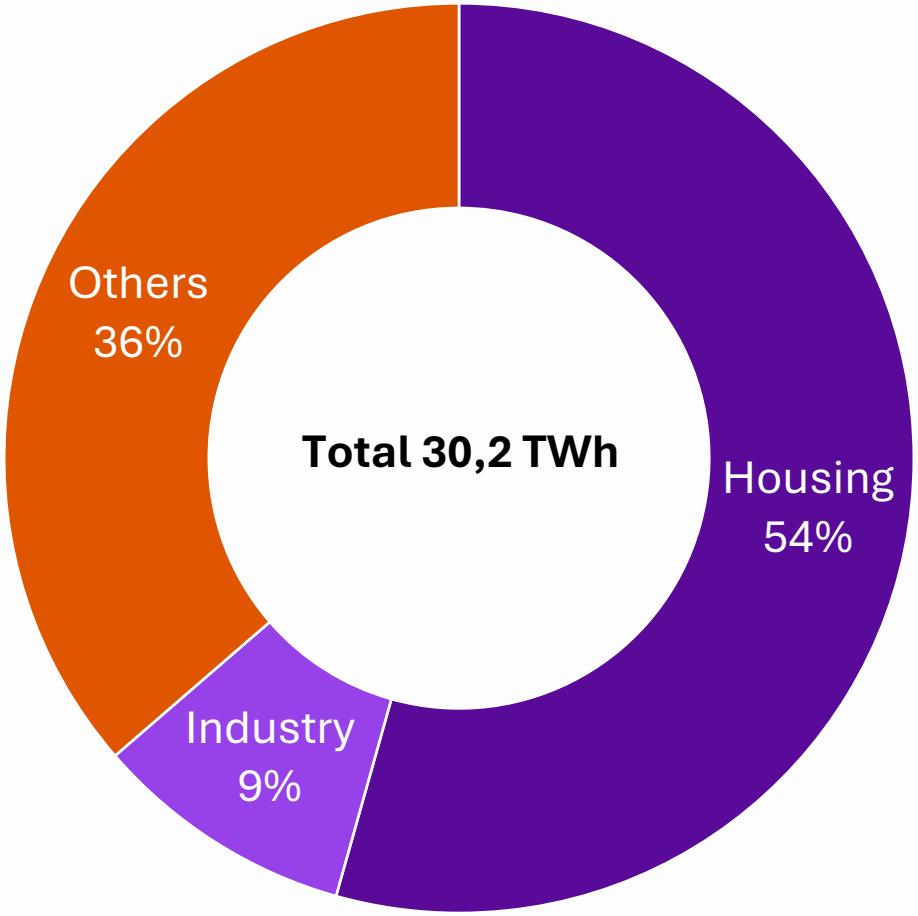
Fixed price + energy fee, incl. taxes



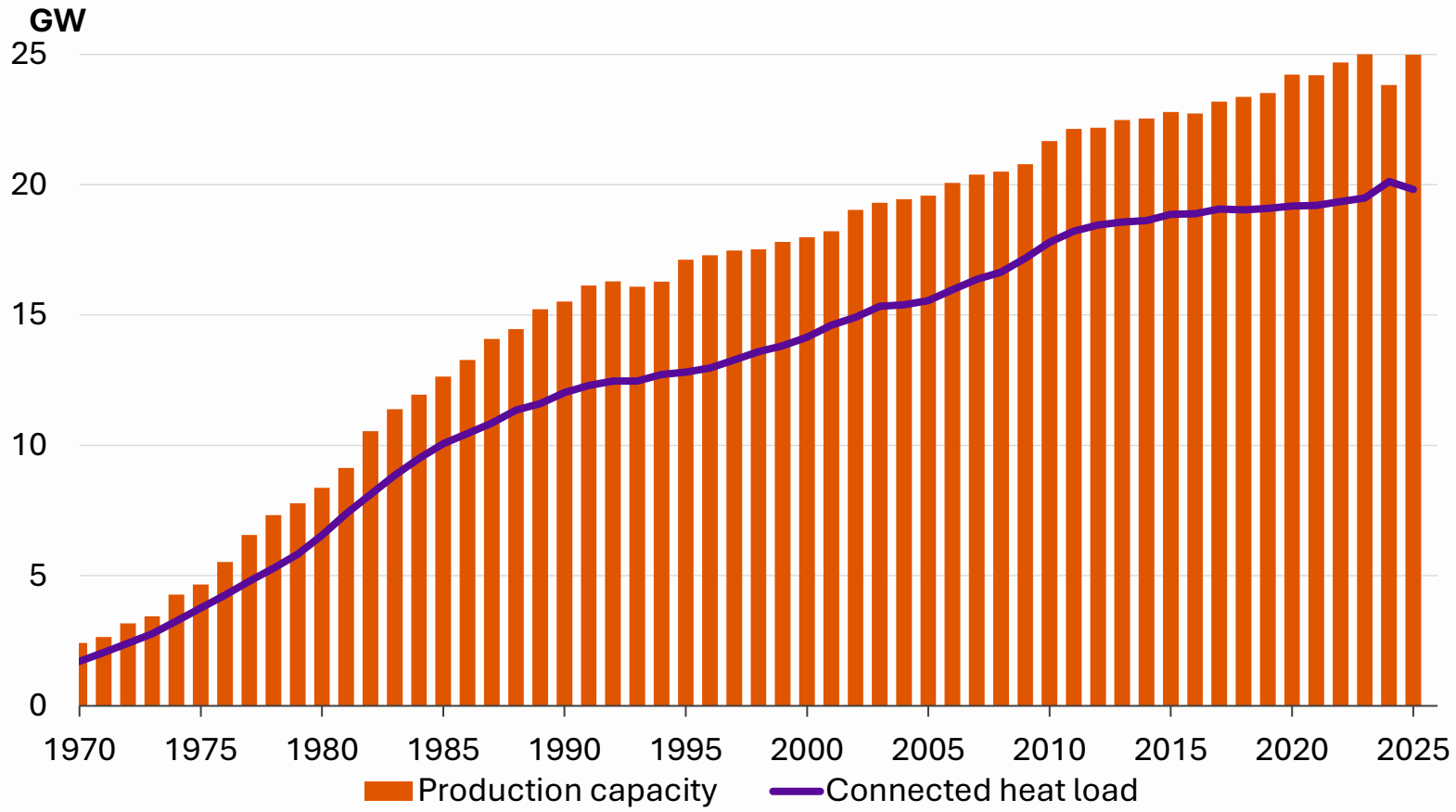
- The price includes all taxes, demand and energy charges as well as other possible annual charges. Connection fees are excluded.

Source: Finnish Energy, District heating prices 07/2025

District heat consumption in 2025

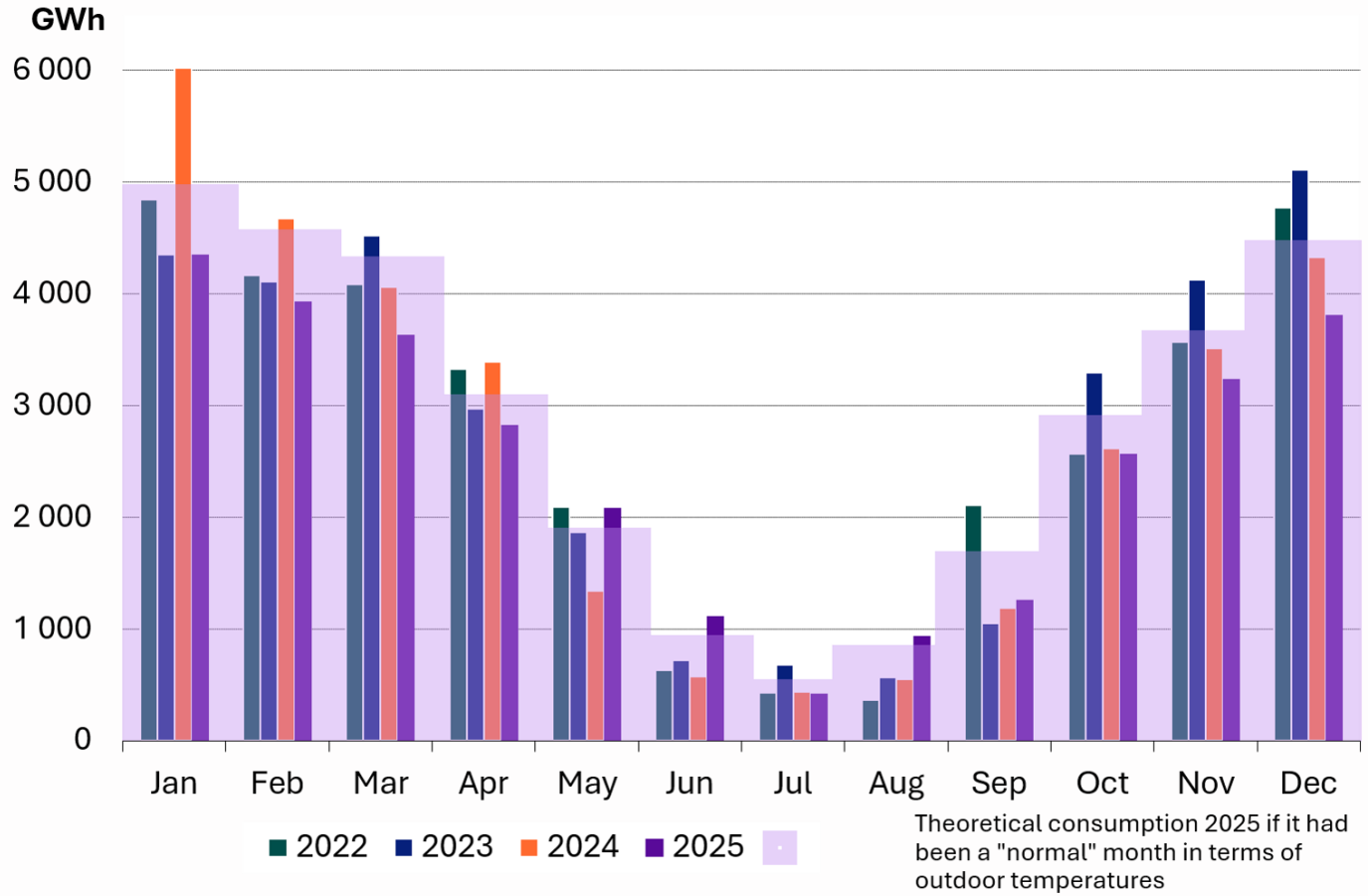


Production capacity and connected heat load of the customers



Analysis

Estimated monthly district heat demand

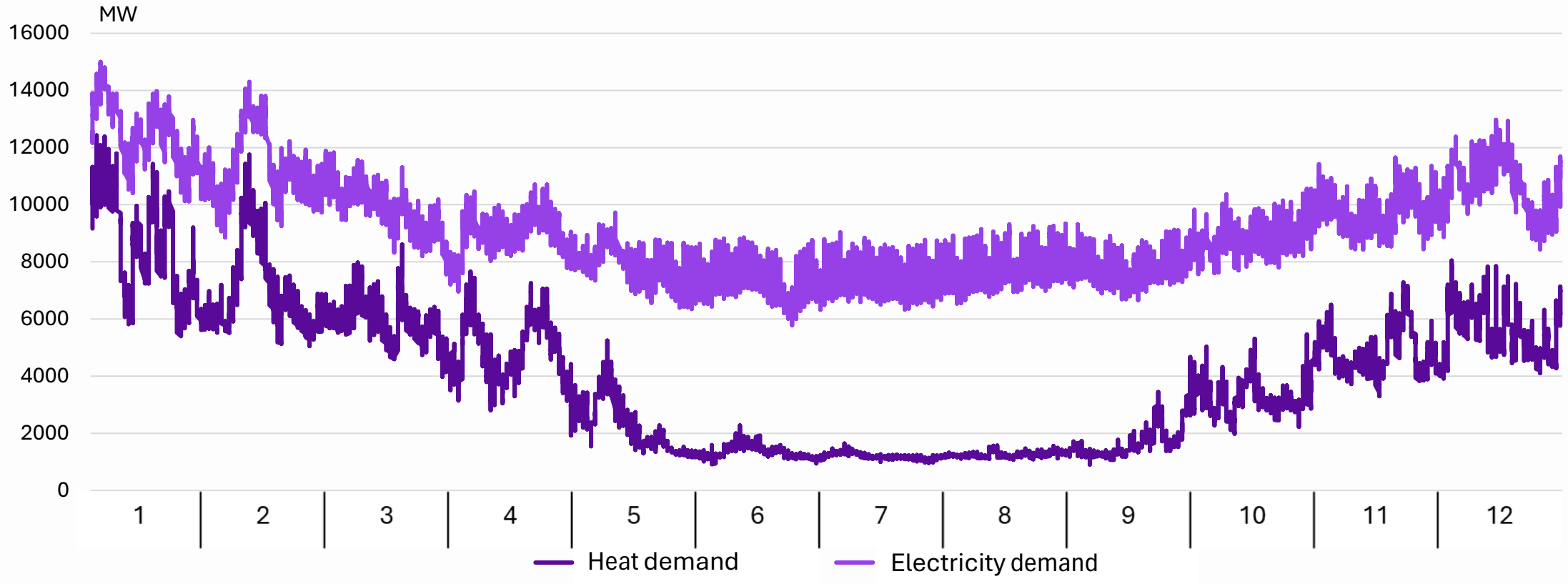


Year 2025 was 1,5 °C warmer than the normal period of 1991-2020.

- However, monthly temperatures differed from the average year.
- Heating season was warmer than normal, and summer was colder than normal.

The cold winter months exemplify the need for a wide palette of fuels to ensure the security of supply of heating.

Comparison 2024 - Peak consumptions of district heat and electricity are close to each other

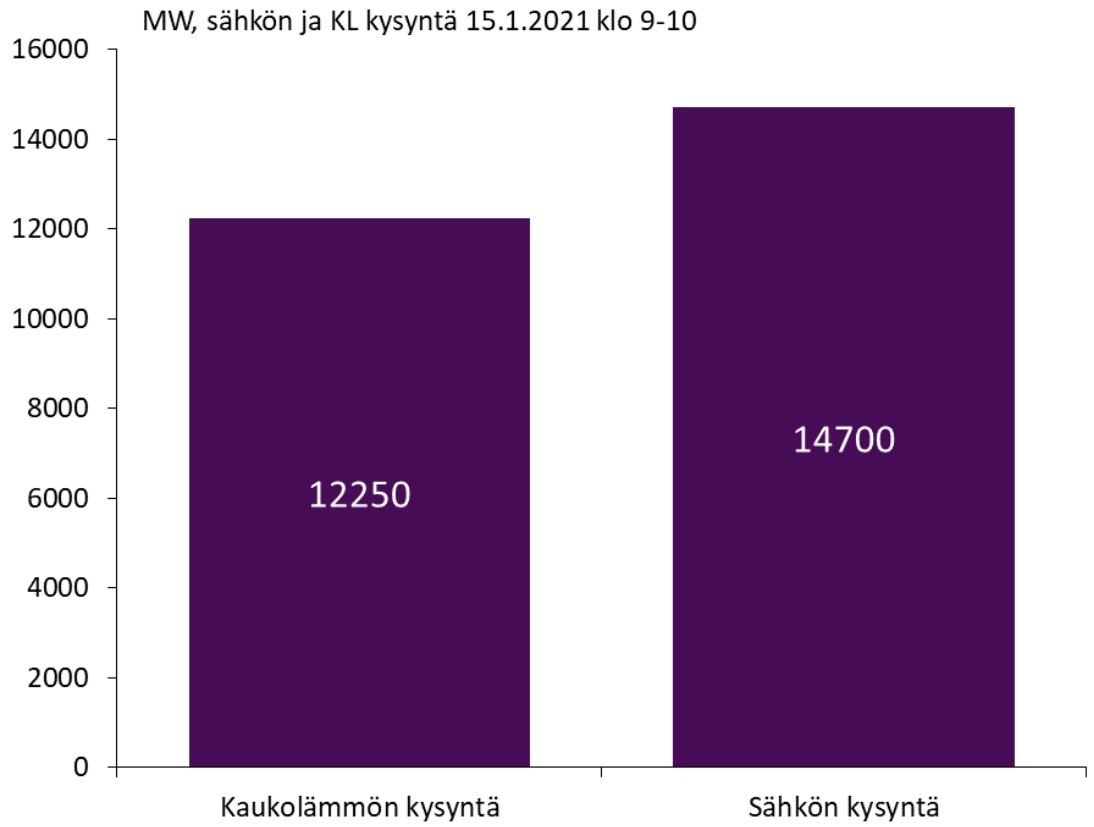


- Hourly consumption of district heat and electricity in 2024
- Despite a significant difference in overall demand for electricity and heat, peak consumptions are relatively close to each other

Source: Finnish Energy; estimation is based on Helen preliminary open data 2024 and Entso-E

Electricity vs heat demand in winter in 2021

- Demand of district heating (DH) at the time of the peak consumption is about the same magnitude as the demand for electricity. On annual basis the demand of electricity is higher than DH (ca. 85 TWh vs. 35 TWh)
- Combined Heat and Power (CHP) plants produce a significant amount of electricity (2 500 MW) while producing heat.
- District heating reduces electricity demand peaks, in addition to electricity production



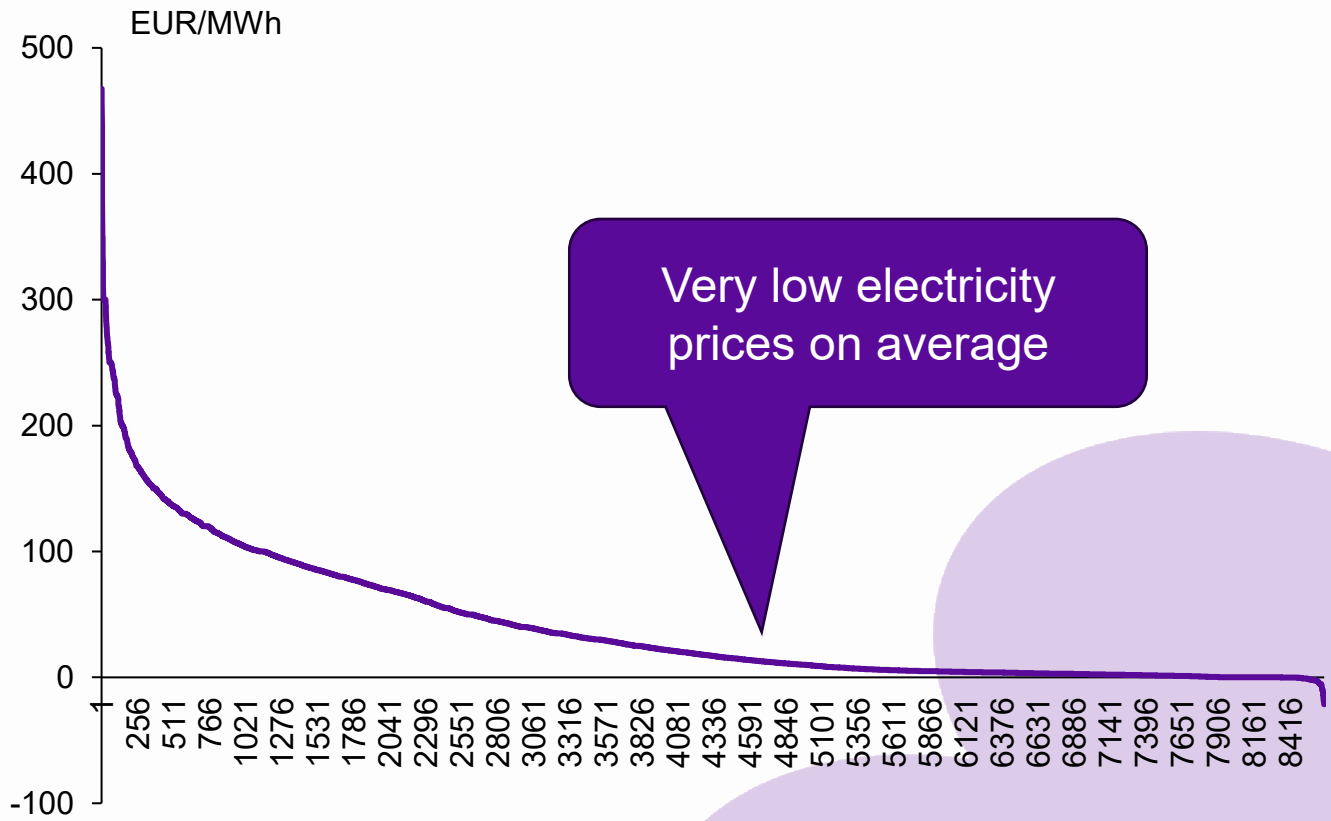
Analysis

District heating as an electricity producer and consumer

We are quite good at producing a lot of energy cheaply



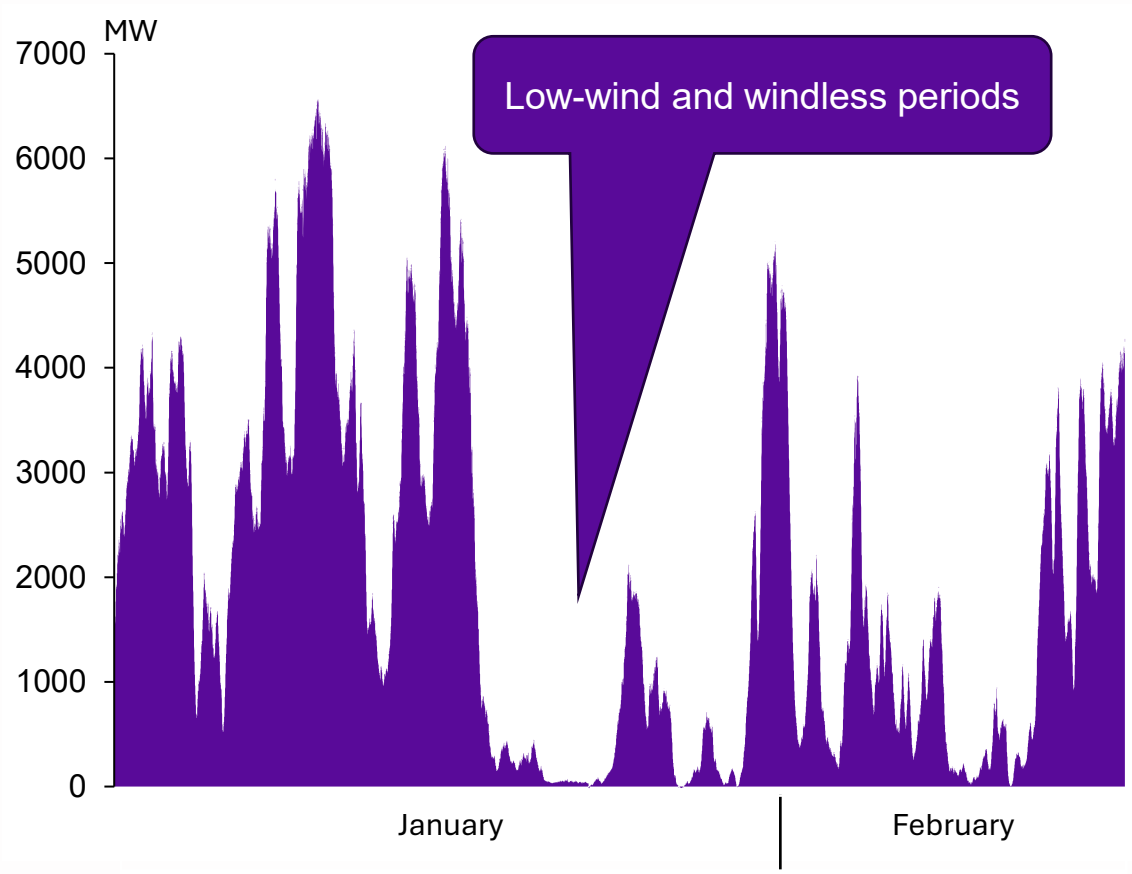
Nuclear power, wind power and hydropower...



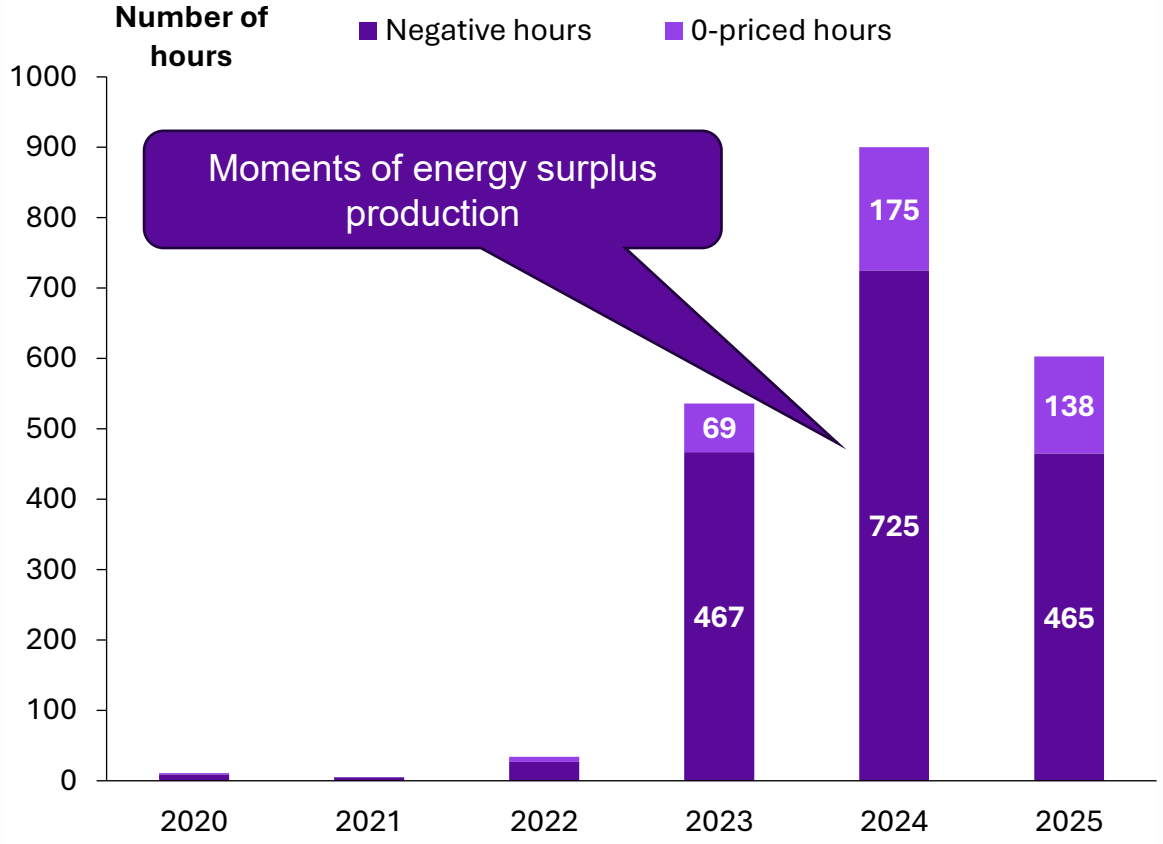
Very low electricity prices on average

However, we have certain situations where very flexible consumption and production are required

Wind power production 1.1.2026-17.2.2026



Number of negative and 0-price hours in Finland 2020-2025



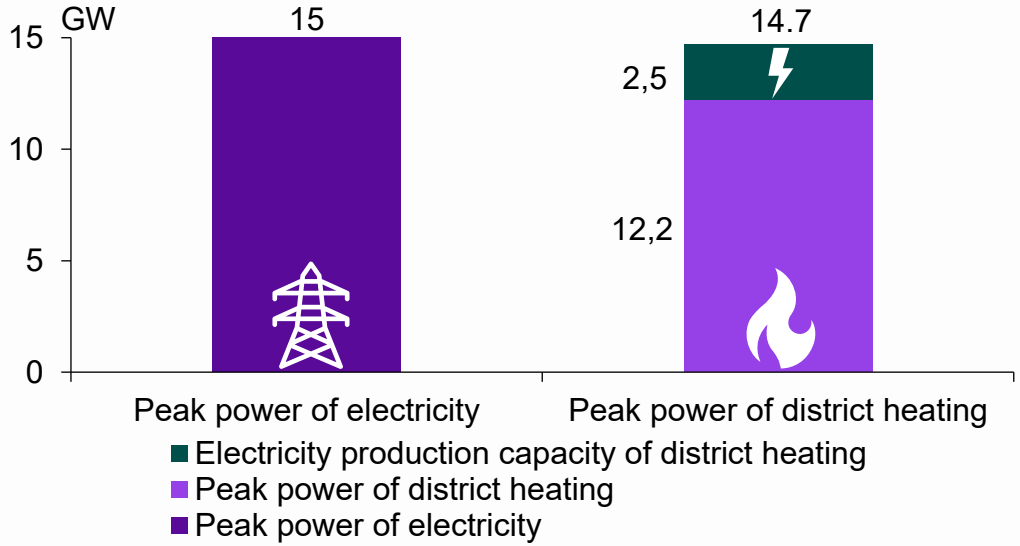
Low-wind and windless periods: fuels enable very high flexibility in heat and electricity production

- In district heating, CHP plants produce both electricity and heat
- Heating only plants produce heat without the need to use electricity
- District heating has the ability to reduce electricity consumption and produce heat with fuels, and in CHP plants increase electricity production when there is a need for it in the market. This significantly reduces the pressure on the electricity system and helps to balance the demand for electricity

Fact Box

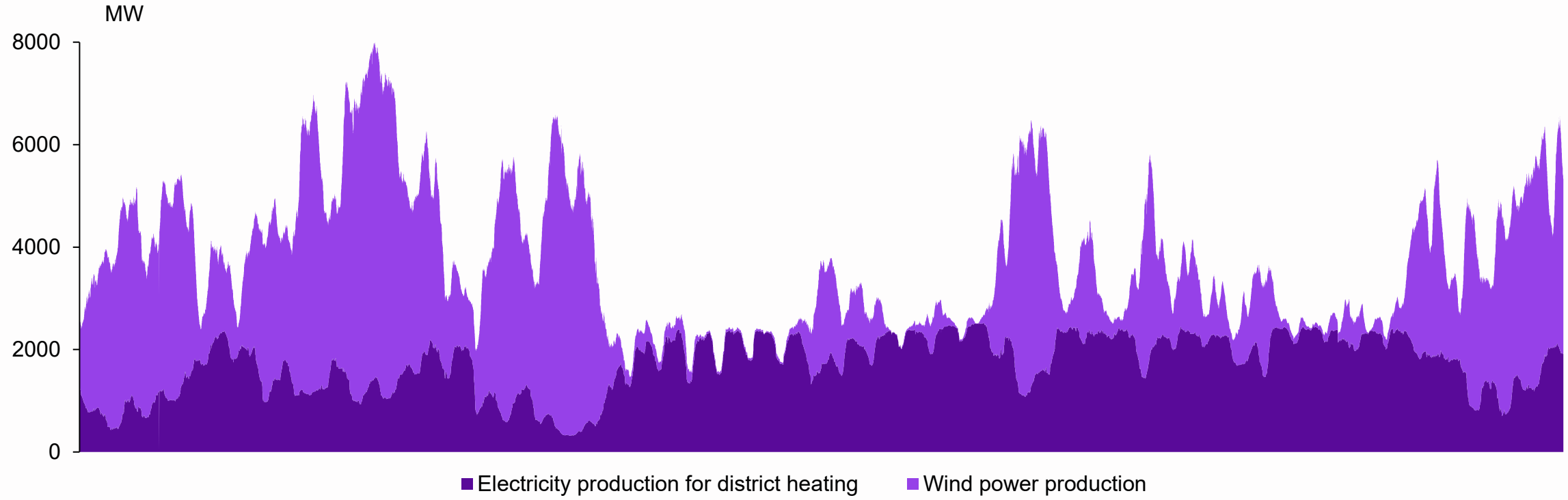
In early 2026, district heating CHPs produced 24% of domestic electricity at their best

In cold weather, district heating output peaks at over 12 GW, alongside more than 2.5 GW of electricity generation



Combined heat and power plants balance the fluctuations in wind power production and thus help to keep the Finnish energy system in balance

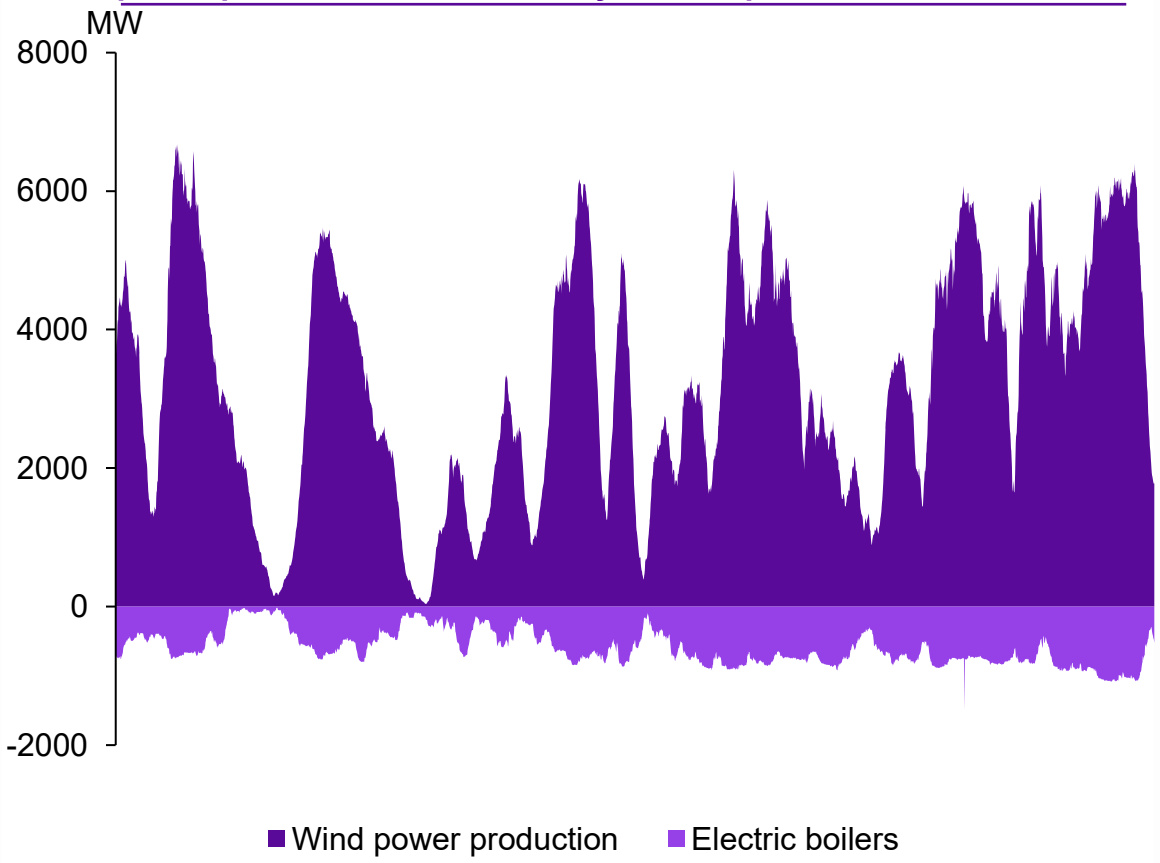
Electricity production of wind power and district heat combined heat and power plants 1.1.2026-18.2.2026



Source: Fingrid open data

Moments of overproduction: The ever-increasing flexibility of district heating enables the balancing of wind power production

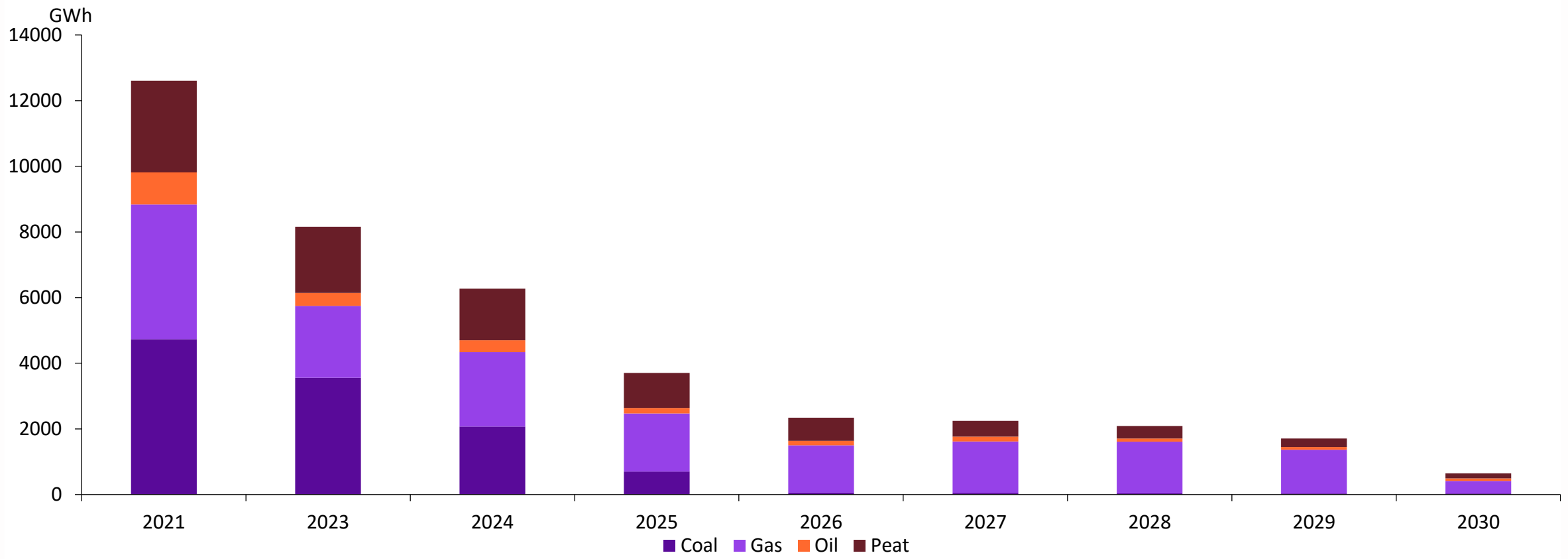
Wind power production and electricity consumption of electric boilers 12/2025



- Electric boiler production follows wind power production
- Electric boilers balance the energy system at times when electricity is produced in abundance

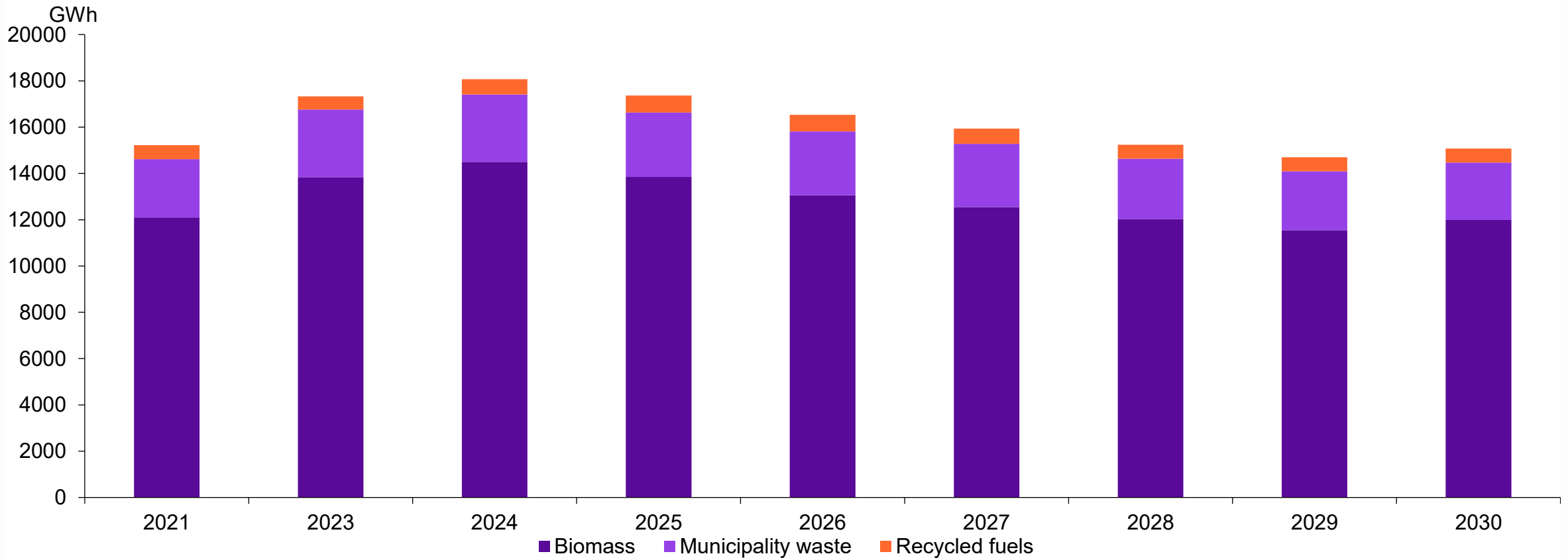
Future scenarios

Use of fossil fuels and peat is declining rapidly



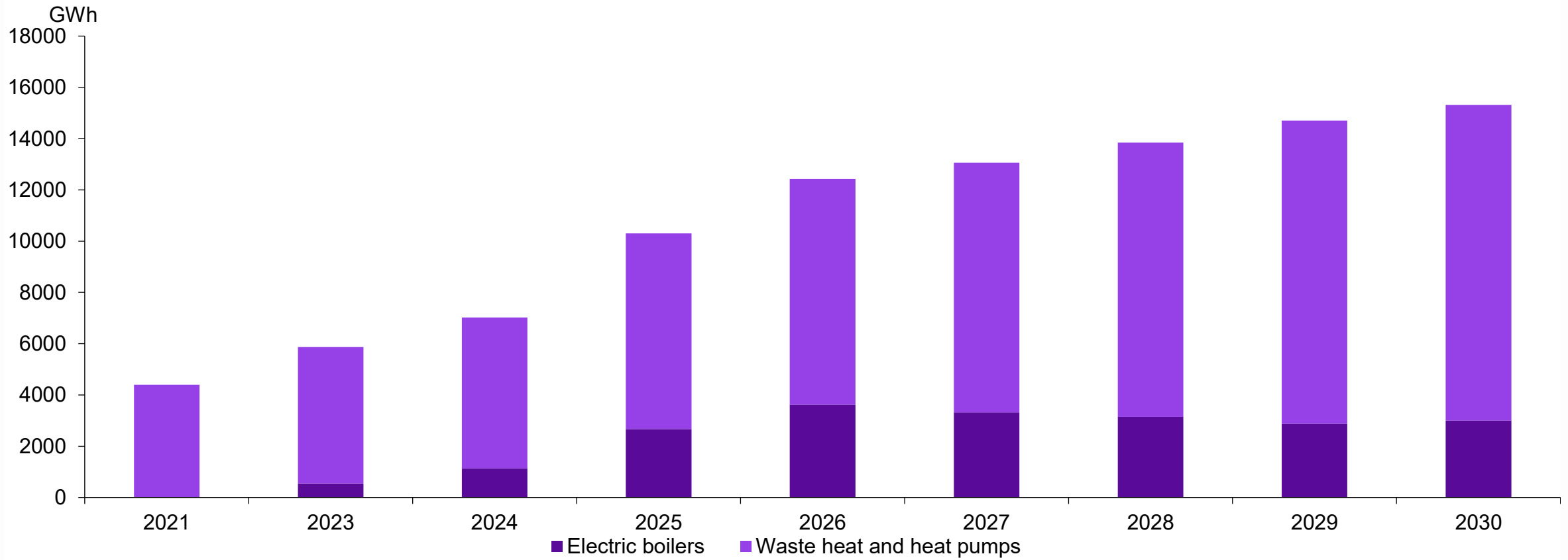
Source: Member survey in spring 2024

The share of biomass and waste in district heating will decrease slightly towards the end of the decade



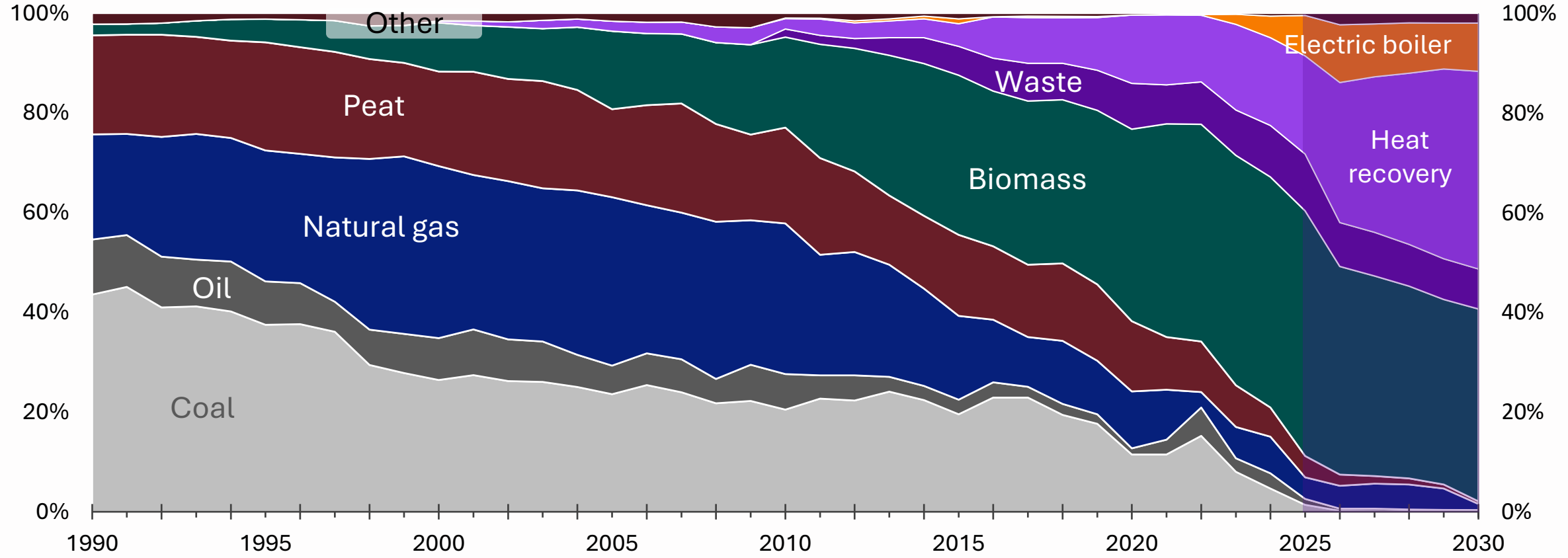
Source: Member survey in spring 2024

Electrifying district heat production replaces fossil fuels and peat and reduces the need for energy use of biomass



Source: Member survey in spring 2024

Energy sources for district heat supply 1990-2030



Source for 2025-2030: Member survey in spring 2024

*includes heat pumps and heat recovery