



# COMPANY PRESENTATION AND SOCIAL RESPONSIBILITY REPORT 2023

VISION

We are an excellent provider of water and energy services and a responsible builder of the future.

Electricity



Easy everyday life

Heat



Right temperature  
year round

Water



Fresh and pure

# Our organisation 2023

Customer

Services and sales

Networks

Energy production

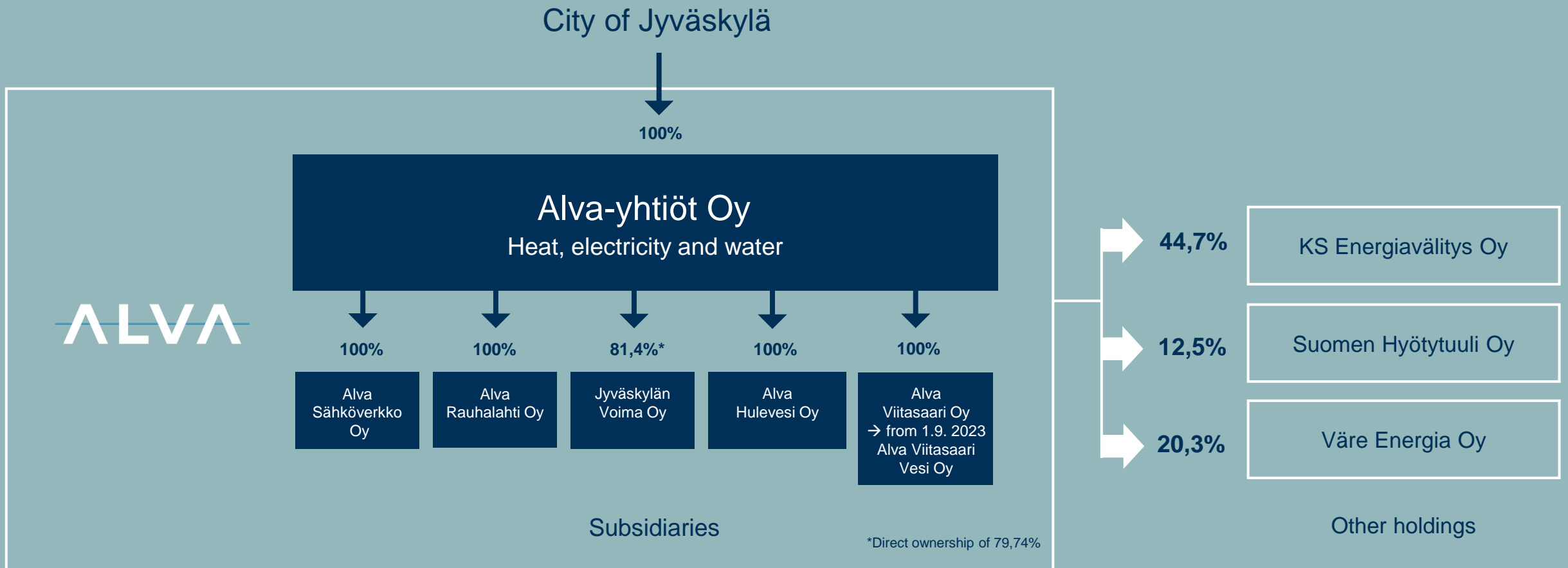
Digital services and IT

Group services

CEO Tuomo Kantola

Board of Directors, chair Sinuhe Wallinheimo

# Company ownership structure



# Developments in 2023

## Operational activities and investments

- Succeeding in the availability of fuels and in the production of wholesale electricity in a turbulent market situation.
- Implementation of the zero carbon roadmap and network investments progressed as planned.
- The security of supply for all products at a good or excellent level.
- Pricing competitive according to national comparisons: among the most affordable companies in terms of electricity transmission and district heating. The price of water is approaching the average of water supply plants.

## Sustainability

- There were no environmental deviations.
- Occupational safety was kept at a good level.
- Personnel satisfaction was at a very good level. We received the Future Workplaces certificate.
- Preparation for future statutory sustainability reporting started.
- Sustainability is extended to all activities (e.g. marketing cooperation).

## Owner companies

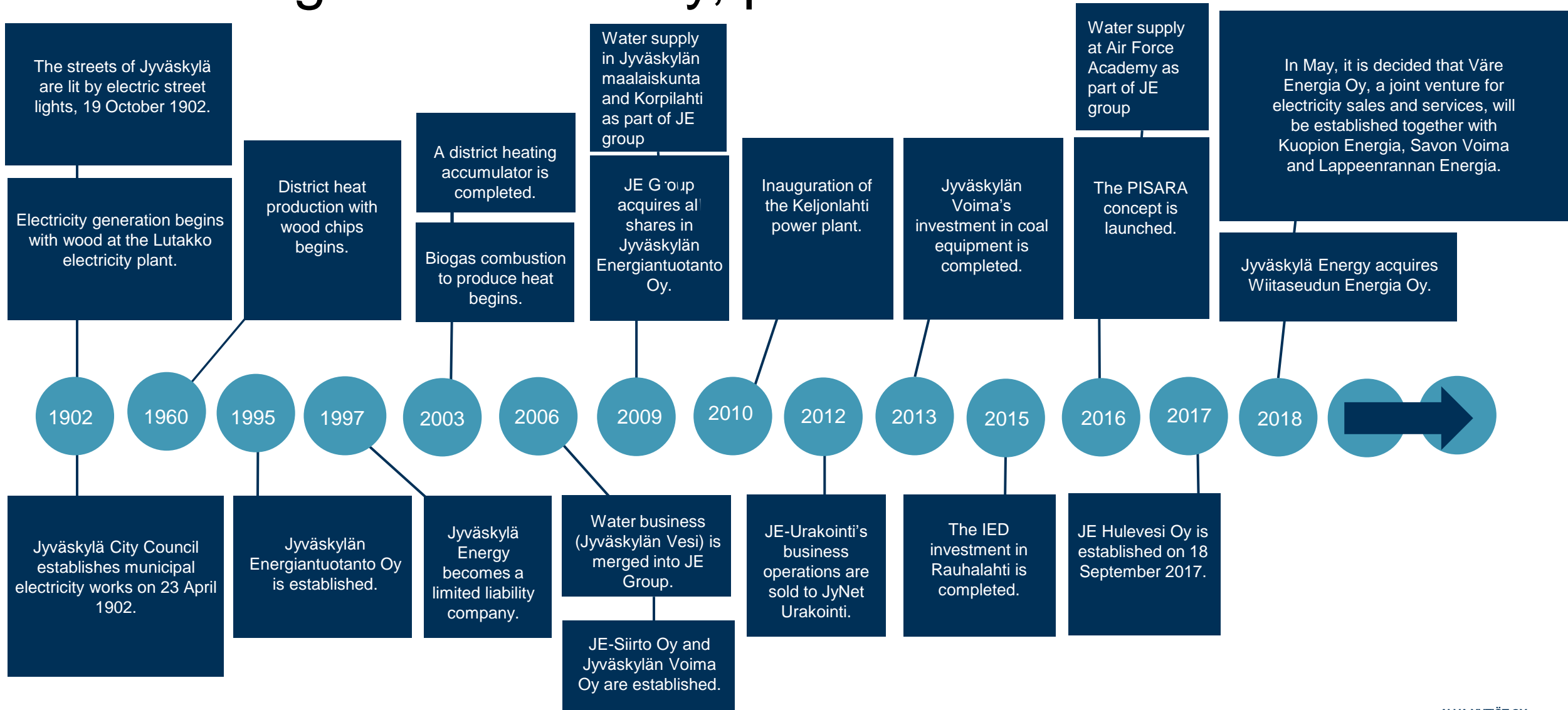
- Väre Oy was effective and active in the consolidation development of the electricity retail market.
- The termination of Alva Viitasaari Oy's heating business was carried out successfully.
- Preparations for the industrial-scale pilot plant for the recovery of waste electronic and electrical equipment progressed as planned.



# Research and development activities in 2023

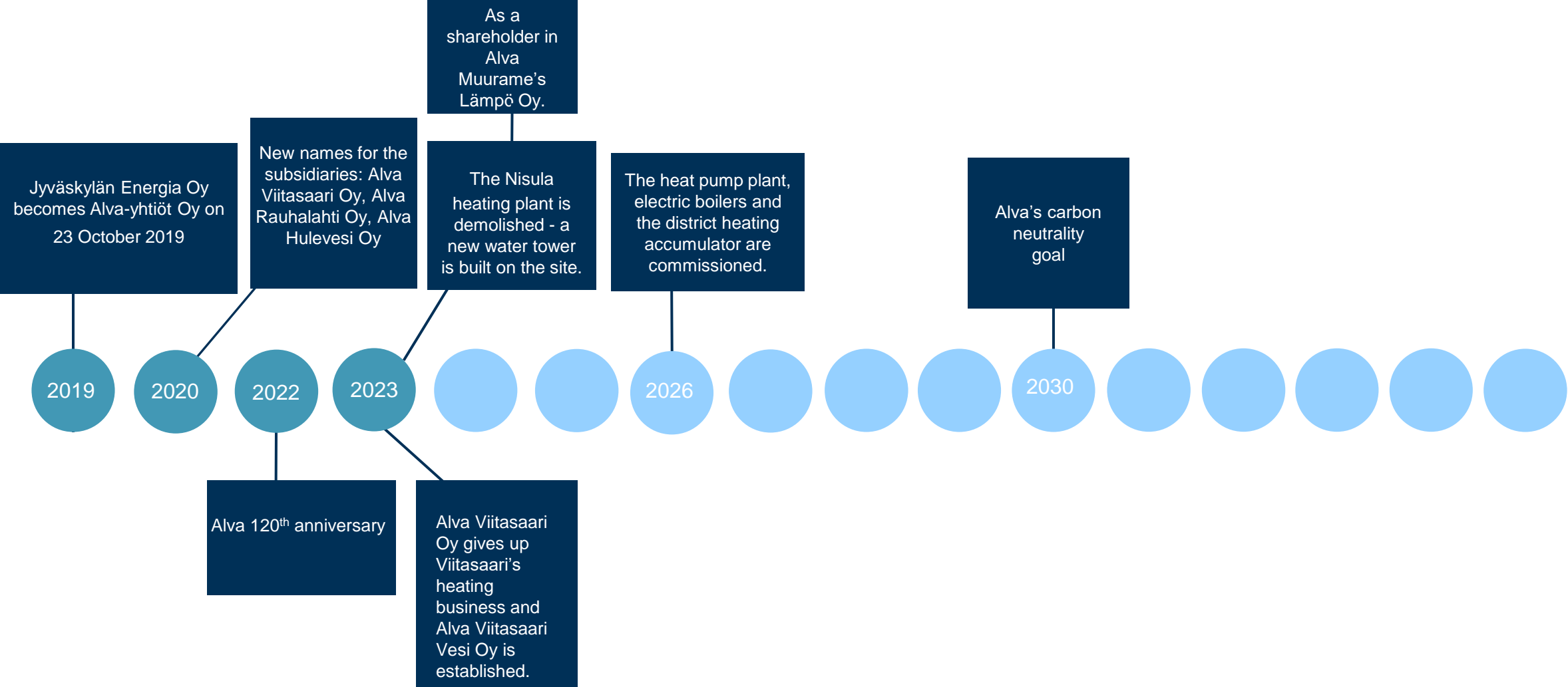
- The next phase of the SER PreCom project on the recovery of waste electronic and electrical equipment was prepared together by Alva, Tapojärvi Oy and Elker Oy. The activities focused on the establishment of a joint venture to advance the development of a pre-commercial test facility and the preparation of the contracts required for the follow-up project, as well as on implementation planning and the launch of the licensing phase.
- Alva participated in research institution development projects that can promote and improve existing business or create new business. VTT Technical Research Centre of Finland's BitKein project studies the efficient use of bio-resources as energy storage and as an enabler of the green transition as well as develops ways to reduce combustion-based energy production and energy production emissions, for example, by increasing the use of electricity in the existing power plants. The Center of Expertise for Circular Economy (CECE), which is coordinated by the University of Jyväskylä's Department of Chemistry, aims to promote sustainable business and set up a network of research organisations and companies that combines high-level research and challenges related to companies' development needs.
- The Pisara service developed by Alva to locate leaks in water networks was introduced in Pieksämäen Vesi Oy. A quality management system in accordance with the ISO9001 standard was drawn up for the Pisara business and a certificate was received for it in October. In addition, an ISO/IEC27001 project was launched, in which the standard-compliant information security management system will be certified during 2024. Both certificates play an important role in the security of supply and information security of the Pisara service.
- The development of digital services continued and as a result, the Alva Vesi portal was completed in cooperation with Elisa. Alva Vesi's complete remote reading service facilitates the management and utilisation of remote reading data for water. The service integrates seamlessly with water meters and produces real-time data that supports decision-making and allows data to be collected onto the same platform simultaneously using different data transmission methods.
- The pre-planning of the heat pump plant to be implemented in connection with the Nenäinniemi wastewater treatment plant in Jyväskylä was completed, and actions to implement the actual investment project were started. An RRF grant of EUR 5,845,360 was applied for and received for the project. The plant's production capacity will rise to more than 40 MW and its estimated annual production will be approximately 280 GWh. Another significant decision about non-combusted heat production was the launch of the design of electric boilers and a district heating accumulator.

# Alva throughout its history, part 1



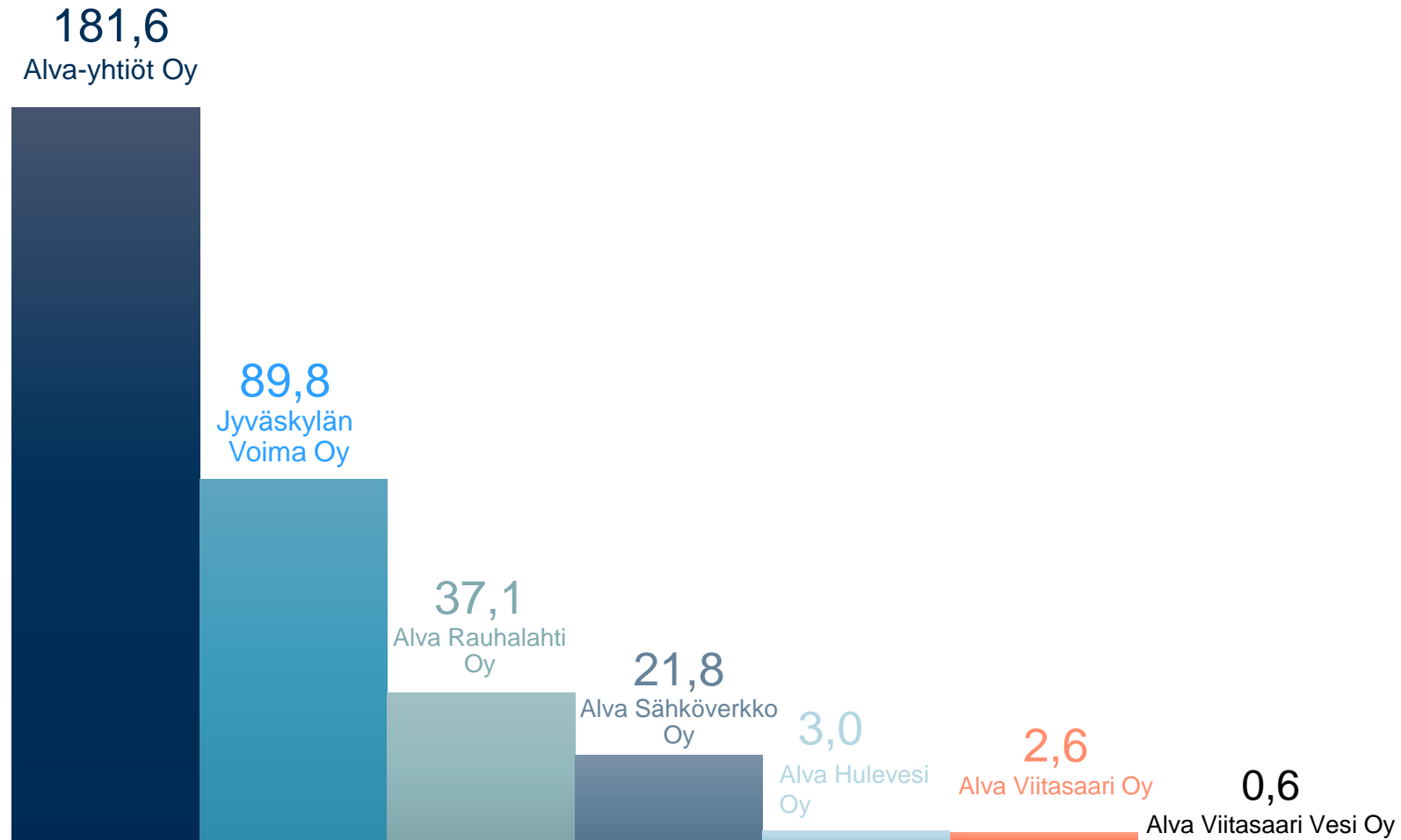


# Alva throughout its history, part 2

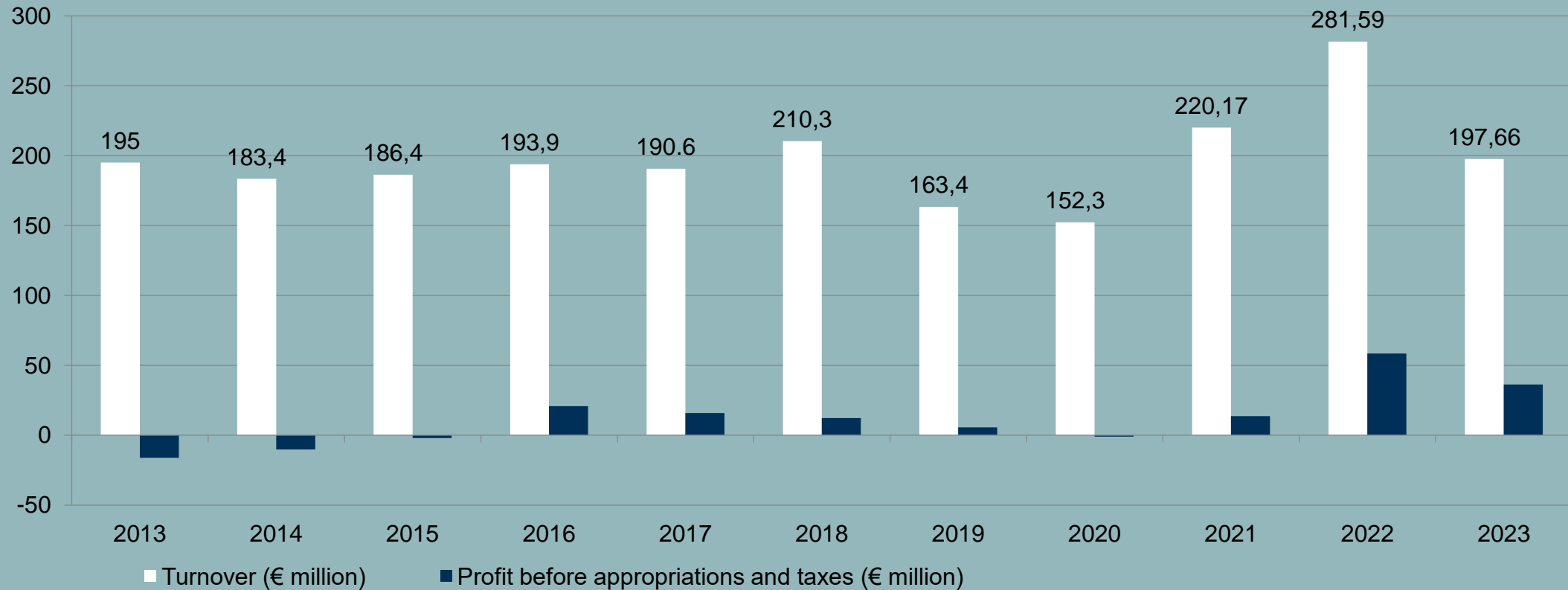


# FINANCES

# Turnover of group companies in 2023 (€ million)



# Group's turnover and result in 2013–2023



# NETWORKS

ELECTRICITY / HEAT / WATER

# Electricity network

Alva Sähköverkko Oy, a company wholly owned by Alva, is responsible for the electricity network in the city of Jyväskylä. It designs, builds, maintains and operates the electricity network, connects customers to it and carries out electricity measurements.

Alva Sähköverkko maintains a network of 1,400 kilometres in total. In 2023, some 650 GWh of electricity was transmitted to more than 10,500 connections and some 63,000 customers.

Electrical network investments totalled €3.8 million in 2023. Roughly 24 % of these investments were allocated to the construction of the distribution network, and the remaining 76 % to improving the delivery reliability and making repair investments.

In 2023, a significant portion of the investments was directed towards substations as well as transformer substation renovations and smaller projects.

On a national scale, Alva Sähköverkko is among the electricity network companies with the lowest rates.

More information: [alva.fi/sahkoverkko](https://alva.fi/sahkoverkko)





# Heat network

Alva generates district heating at power plants, from where it is transmitted to customers via a heat network. The homes and workplaces of many Jyväskylä residents are heated using district heating. Heat generated in Jyväskylä is also transmitted to most of the schools, daycare centres, hospitals and health centres.

Alva's district heating network totals 494 kilometres in the Jyväskylä region.

Alva's heat network is in a good condition, which has also helped to keep the prices of district heating reasonable. The supply reliability of heat networks is also on excellent level.

Investments in district heating networks amounted to approx. € 3 million in 2023. Approximately 29% of the investments were allocated to the construction of new networks. Improving reliability and replacement investments accounted for 71% of the investments.



# Water supply networks in Jyväskylä

Our obligation and responsibility at Alva is to produce and distribute clean and safe drinking water to our customers, manage the transfer and treatment of wastewater, and maintain stormwater networks.

Investments of € 18.6 million were made in water supply networks, facilities, and other infrastructure, of which €14,8 million were allocated to replacement investments, €3.2 million to new investments, and €0.6 million to development investments.

The reorganization of water supply in Tikkakoski area and the area redevelopment projects in Kortemäki and Kortepohja in Jyväskylä were the most significant investment targets.

Key figures in 2023:

- Turnover €43 million
- 19 600 connections
- Tap water production volume 8,4 million m<sup>3</sup> per year
- 7 tap water production plants
- Network length more than 2,100 km
- 320 equipment stations





# Water supply networks in Viitasaari

Our obligation and responsibility is to produce and distribute clean and safe drinking water to our customers, and manage the transfer and treatment of wastewater.

In year 2023 a total of €177,000 was invested in water supply networks, equipment stations, and other infrastructure in Viitasaari. Of this amount, €61,000 were allocated to water production, €95,000 to the water distribution network, and €21,000 to the wastewater network

Key figures in 2023:

- Turnover 1,33 M€
- 1112 connections
- Tap water production volume 23 8405 m<sup>3</sup> per year
- 2 tap water production plants
- Network length 178 km
- 68 equipment stations



# Tap water produced at several plants

Alva has water production plants in Jyväskylä, Laukaa and Vaajakoski as well as in Korpilahti, Tikkakoski and Vesanka.

In Viitasaari drinking water is produced at two local groundwater intake plants.

In addition to quality control conducted at the production plants, water in the network is regularly tested using water samples taken from various locations across the city.





WATER

# Safe high-quality water

We make sure that everyone living in the area covered by our water supply network has access to clean high-quality water.

The quality of the tap water we produce is monitored constantly. In addition to self-monitoring in our laboratories, the quality is monitored regularly by the health protection authorities.

The quality of water is not only monitored at water treatment plants, but water samples are regularly taken from different parts of the network.



# PRODUCTION



# Our annual production 2023

1,2

TWh of heat

0,6

Twh of electricity

8,3

Mm<sup>3</sup> of water

# ENERGY PRODUCTION

Heat and electricity

# Our ecological energy production

- Both our power plants in Jyväskylä, Keljonlahti and Rauhalampi, are combined heat and power plants. Combined production saves one third of fuel compared with separate production.
  - Our target is carbon neutral energy production by 2030. The share of wood in fuels will be increased, while the share of peat will be reduced. We are also exploring and testing non-combustion-based production methods: see [alva.fi/hiilineutraaliksi-2030](https://alva.fi/hiilineutraaliksi-2030).
  - We will build a heat pump plant in connection with the Jyväskylä wastewater treatment plant to recover waste heat.
  - We will invest in electric boilers and a heating accumulator in connection with the Rauhalampi power plant.
- We also invest in the conservation of energy by developing solutions to utilise waste heat and balance the consumption of heat (energy optimisation).
  - As a result of our holdings in Suomen Hyötytuuli Oy, the use of wind power in our electricity production has significantly increased in recent years.
  - We can provide our heating customers with green heat, produced wholly from renewable and emission-free energy sources. Our green heat is certified by Energiavirasto.
  - The reuse of ash is already high – nearly 100% of the ash generated at our plants is currently being reused.

# Keljonlahti power plant

- Main fuels: wood, peat as a backup fuel source
- Coal and oil as auxiliary fuels when necessary
- Two operating principles:
  - combined heat and power production (CHP)
  - condensing power production
- Boiler power: 495 MW
- Electric output in condensing power production: 215 MW
- Electric output in combined production: 163 MW
- District heating output: 260 MW
- Year of commissioning: 2010



# Rauhalahti power plant

Main fuels: peat and wood (since spring 2022 100 % wood)

Oil as an auxiliary fuel when necessary

Operating principle: combined heat and power production (CHP)

Electric output: 85 MW

District heating output: 200 MW

New flue gas scrubber and electric filter installed in 2015

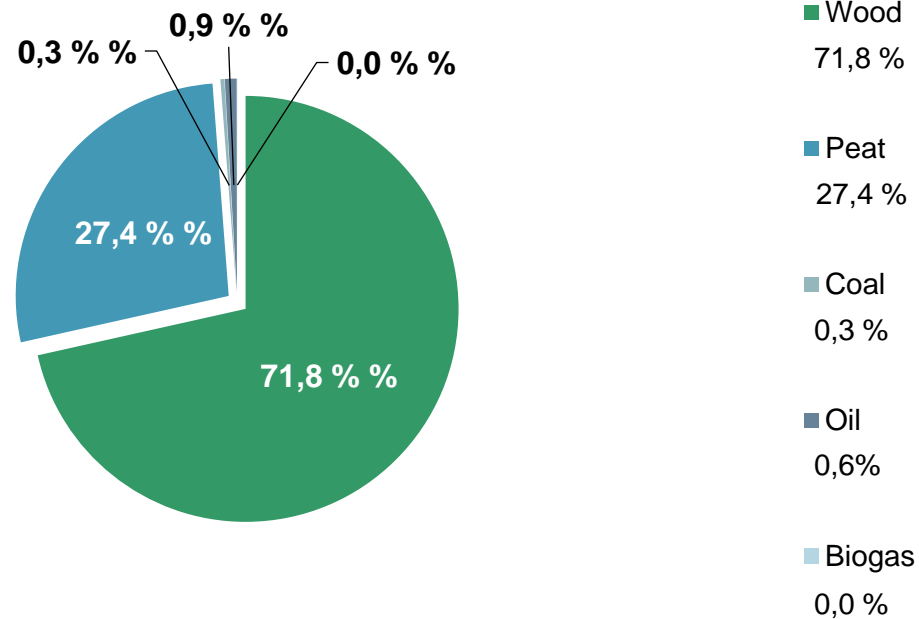
2021-2022 urea injection equipment (Nox)

Year of commissioning: 1986



# Energy production / fuels 2023

In 2023 the share of biofuels was 71,8 % of all the used fuels.



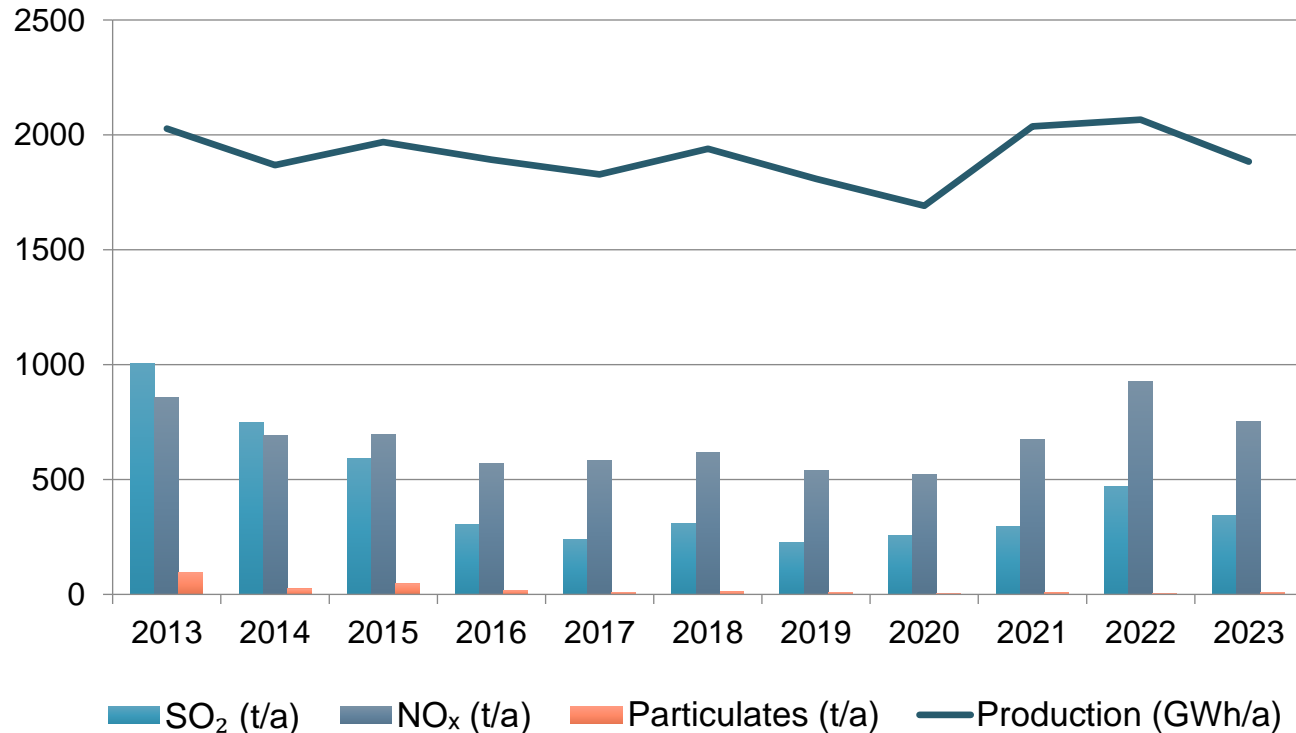


## ENERGY PRODUCTION

# Emissions: Sulphur dioxide, nitrogen oxides, particulates

SO<sub>2</sub> = Sulphur dioxide

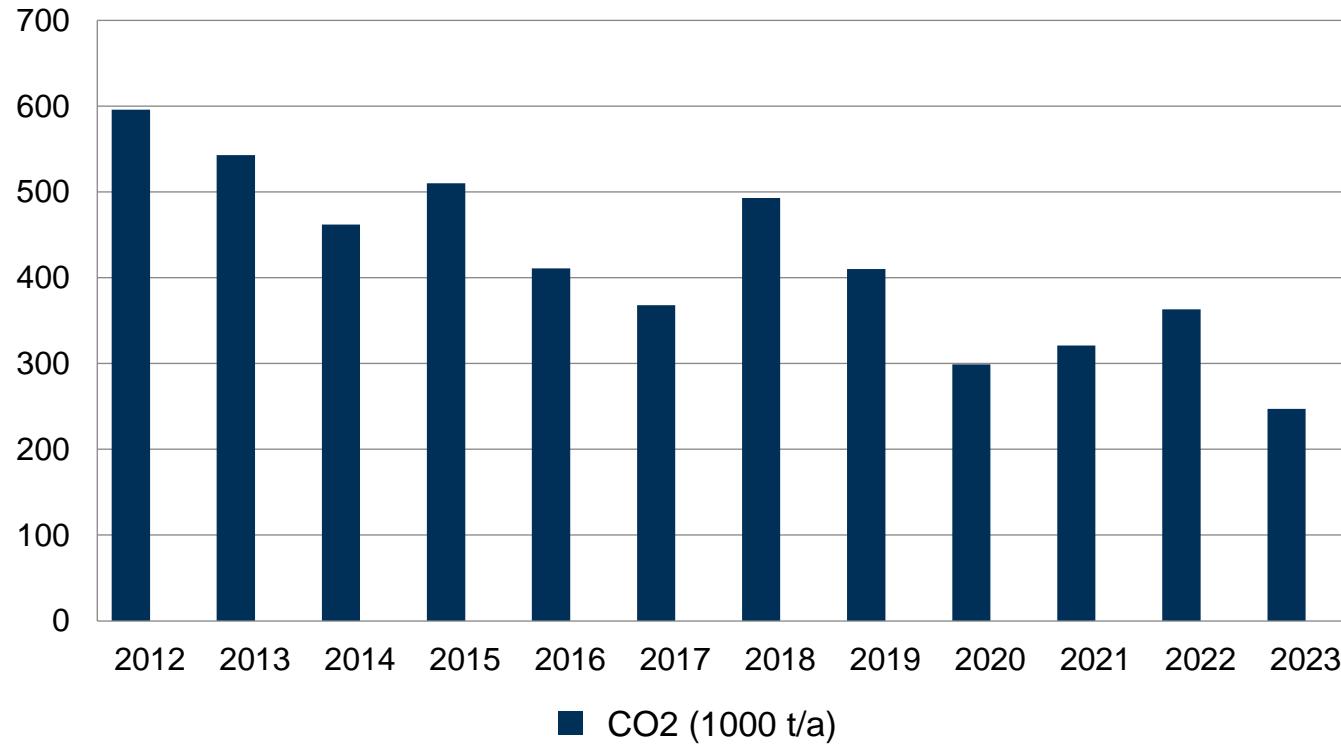
NO<sub>x</sub> = Nitrogen oxides



The Rauhalahi flue gas scrubber has significantly reduced sulphur dioxide and particulate emissions since 2016.

# Emissions: Carbon dioxide CO<sub>2</sub>

1000 tonnia



CO<sub>2</sub> emissions from fossil fuels, such as peat, coal and oil, have decreased, while the amount of wood fuels at power plants has increased.

# SOCIAL RESPONSIBILITY

Responsibility is a central part of our strategy. Our operations are committed to environmental, social, and economic responsibility.

# ENVIRONMENTAL RESPONSIBILITY

# Carbon neutral by 2030

Our aim is to produce carbon neutral energy by 2030.

Therefore we:

- By developing and providing sustainable heating solutions, such as green heat produced with 100% renewable biofuel.
- In 2023, we made an investment decision to build a heat pump plant in connection with the Jyväskylä wastewater treatment plant to recover waste heat.
- In 2023, we made an investment decision for electric boilers and a heating accumulator in connection with the Rauhalampi power plant.
- Increase the use of biofuels and use less and less peat

More information (in Finnish): [Hiilineutraaliksi 2030](#) and [Alva hiilineutraaliustiekartta](#)



# Carbon footprint calculation

We have started carbon footprinting of the entire Group's operations. You will find the calculation results on our website [alva.fi/hiilijalanjalki](https://alva.fi/hiilijalanjalki)

Although our carbon footprint is mostly made up of energy production, we also want to transparently consider our other emission sources in the calculation. Recognising the overall climate impact of our operations takes us closer to carbon neutrality both in production and other operations.

Through our energy efficiency activities, we aim to reduce emissions from operations other than energy production.

Recognising the overall climate impact of our operations takes us closer to carbon neutrality both in production and other operations.





# Certified environmental system

Our group's environmental responsibilities are fulfilled in compliance with the certified ISO 14001 environmental management system and with the energy efficiency system ETJ+.

Our environmental policy is guided by the principles approved by Alva's Board of Directors:

- We aim to reduce and prevent the adverse environmental impact of our operations.
- We aim to promote the sensible use of energy and water resources.
- In line with the principles of sustainable development, our energy sourcing is primarily based on regional renewable fuels and the combined production of power and heat.

[Environmental and energy policy at Alva](#)





# Wastewater treatment while respecting nature

Wastewater treatment is an integral part of water supply. Our responsibility is to ensure that the wastewater we receive from our customers is conducted to wastewater treatment plants. We also monitor the quality of the wastewater.

We have some 250 wastewater pumping stations in the Jyväskylä network area. In 2023, the overflow rate (wastewater network) was 38,4 %. Jyväskylän Seudun Puhdistamo Oy, a limited company owned by the City of Jyväskylä and the municipalities of Laukaa and Muurame, is responsible for wastewater treatment processes in Jyväskylä area. Our wastewater treatment plants are located in Nenäinniemi and Korpilahti.

In Viitasaari Alva Viitasaari Oy takes care of the wastewater in Mustasuo wastewater treatment plant. We have some 59 wastewater pumping stations in the Viitasaari network area. In 2023, there were no wastewater overflows or bypasses at the treatment plant or in the network.

The treatment plants serve to ensure that water can be safely recirculated, while respecting nature and in line with the principles of sustainable development.



## SPECIFIC EMISSIONS 2023

# 90,8

CO<sub>2</sub> g / produced district heating energy kWh

Driven by Alva's carbon neutrality goal, specific emissions will show a downward trend in the next few years.

The benefit-sharing method\* has been used in the calculation of the specific emission factor.

- 
- Specific emission factor for sold green energy 0 g/kWh CO<sub>2</sub>
  - Specific emission factor for other sold energy 101,5 g/kWh CO<sub>2</sub>

\*The benefit sharing method refers to the sharing of the fuels of and emissions from combined electricity and heat production in proportion to the fuel consumption of alternative production methods. As alternatives, condensing power production is used for electricity and boiler heat for heat. When the benefit-sharing method is used, the benefits of combined electricity and heat production are shared equally between the two products. (Source: Motiva.)

# Environmental responsibility: key figures

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Share of green heat from electricity sold (%)	11,6	8,2	6,9	5,16	4,33	3,96	3,94	1,25	*	*
Share of green electricity from electricity sold (%)	**	**	**	**	**	48,0	44,8	36,5	32,7	32,0
Network losses, electricity (%)	2,12	2,24	2,09	2,18	2,28	2,15	2,08	2,2	2,4	2,5
Network losses, district heating (%)	8,8	9,2	8,8	8,9	6,5	8,0	8,4	8,3	7,9	8,6
Make-up water in district heating (m <sup>3</sup> )	9 837	7 019	15 700	19 422	10 500	9 990	9 292	11 110	6 690	9 960
Consumption of pumping electricity, district heating (MWh)	7 891	7 576	7 715	9 067	9 608	7 946	7 442	7 378	7 221	8 531
Waste water leaks to waterways/soll (m <sup>3</sup> )	879	218	219	171	390	280	657	1 442	543	248
Water water leaks to waterways/soll (percentage of wastewater)	0,01%	0,002%	0,002%	0,001%	0,003%	0,002%	0,005%	0,011%	0,004%	0,002%
Repaired leaks in water mains (quantity)	33	21	31	23	27	31	37	29	25	31
Share of biofuels from all fuels (%)	71,8	64,4	66,8	58,9	47,8	49,3	53,8	51,9	51,7	50,9

\* The amount of green heat was not reported at the time.

\*\* Electricity sales transferred to Väre on 1 January 2019.

# HUMAN RESOURCES AND SOCIAL RESPONSIBILITY

# When employees feel well, the company feels well

- We take care of the occupational safety and health of our employees.
- We encourage our employees to develop their professional skills and provide them with opportunities for development.
- We want to build an open working community and an innovative work culture, where everyone values their own work and that of others.
- Equality and non-discrimination are basic values for us.
- The development of wellbeing at work and employee experiences is an integral part of our personnel strategy.



*FUTURE  
WORKPLACES*  
— 2023 CERTIFICATION —



# Social responsibility: key figures

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Personnel</b>										
Average number of employees	230	230	244	240	239	257	254	261	261	249
of which those on fixed-term contracts	8	4	14	16	18	23	25	31	28	24
Average age of employees	46	46	45	45	45	45	45	44,4	43,9	44
LTI1*	5,4	5,1	10,2							
<b>Customers</b>										
Electricity transmission, SAIDI <sup>1)</sup> (h/customer)	0,06	0,05	0,074	0,036	0,21	0,08	0,05	0,14	0,06	0,25
Electricity transmission, SAIFI <sup>2)</sup> (quantity/customer)	0,13	0,19	0,302	0,158	0,73	0,39	0,24	0,39	0,23	0,58
Interruption time experienced by the customer: district heating (h)	1,7	2,4	2,6	2,4	2,3	2,1	1,58	1,12	1,44	1,08
Disruptions in water supply (h/customer)	0,08	0,05	0,23	0,17	0,38	0,36	0,14	0,35	0,23	0,08
<b>Yhteisöt / Tukikohteet</b>										
Support for associations (M€)	0,2	0,02	0,01	0,02	0,02	0,02	0,023	0,02	0,012	0,008

\* Lost Time Incident, the number of occupational accidents per million hours worked

<sup>1)</sup> SAIDI = total average interruption duration, h/customer

<sup>2)</sup> SAIFI = average number of interruptions per customer

# Smother living for every customer

We work hard every day to ensure that our networks and services operate to the maximum and our customers can enjoy their everyday life. Furthermore, we ensure that any interruptions due to improvements and repairs cause the minimum of inconvenience for our customers. Similarly, we aim to solve different disturbances as quickly as possible.

Using up-to-date fault notifications, customers obtain information about planned interruptions in their area beforehand and about any disturbances via email or text messages. More information (in Finnish): [alva.fi/asiakaspalvelu](https://alva.fi/asiakaspalvelu)

We are also constantly developing our services to meet our customers' needs and wishes.



# Annual support

We support various causes annually. The supported causes are chosen to align with our strategic objectives and values. The allocation of support is also influenced by the societal significance of the activities and responsibility.

For example, in addition to sports, we have supported the following through different projects and parties:

- young people, student associations and the elderly
- children with diseases and low-income families
- nature conservation projects
- culture.



# ECONOMIC RESPONSIBILITY

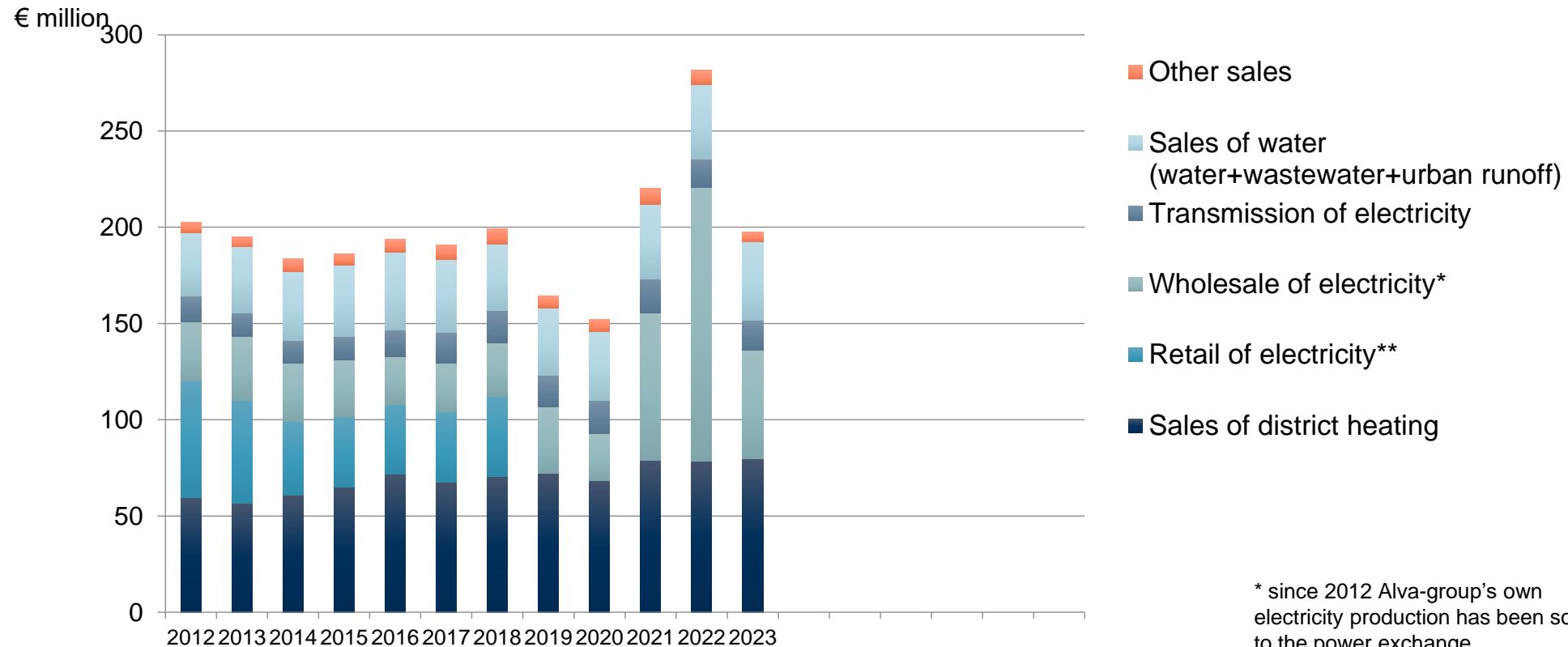
# Development and more efficiency



- We are working constantly to improve the efficiency of all our operations.
- We are developing new competitive energy and water solutions that help our customers to improve the efficiency of their operations and that also materialise through savings.
- Our pricing is based, for example, on general price levels and any restrictions and requirements set by laws and our owner.
- Through our operations, we create value for various stakeholders, such as our customers and owners, including the City of Jyväskylä. A significant portion of our revenue comes from businesses with national or international operations.
- We are a significant employer in the region both directly and through our subcontracting chain. Annually, we invest approximately €20 million locally in networks and production facilities, and we pay a considerable amount of taxes both directly and through employment effects.



# Sales trend



\* since 2012 Alva-group's own electricity production has been sold to the power exchange

\*\* The retail of electricity transferred to Väre in 2019

# Economic responsibility: key figures

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Turnover (€ million)	197,7	281,6	220,2	152,3	163,4	210,3	190,6	193,9	186,4	183,4	195
Operating profit (€ million)	47,7	66,6	26,2	12,8	20,2	26,8	31,8	36,4	17,7	8,7	6,2
Income tax (€ million)	3,97	10,27	3,88	0	1,26	0,74	2,11	3,19	0	1,03	0
Dividends (€ million)	5,0	2,0	4,0	4,0	4,0	4,0	4,0	1,6	0	0	0
The owner's interest expenses (€ million)	6,1	6,1	6,1	8,9	8,9	8,9	8,9	9,1	12,9	13,1	16,5
Investments (€ million)	33,9	30	113,7	23,4	28,2	32,2	27,6	26,1	28,2	29,9	37,9
Return on equity (%)	14,9	31	7,5	-1,4	3,3	7,7	10,3	15,3	neg	neg	neg
Equity ratio (%)	29,1	24,5	18,6	21,7	22,7	22,4	22,1	20,0	17,0	6,5	8,4
Wages and salaries <sup>1)</sup> (€ million)	15,13	14,58	15,38	13,9	14,1	13,9	14,1	13,8	13,7	13,3	13,1
Purchases from suppliers (€ million)	125	176	156,9	97,8	101	136	107	105	119	138	139

<sup>1)</sup> The wage and salary costs include capitalised wages and salaries

The logo features the word "ALVA" in a bold, white, sans-serif font. A thin, light blue horizontal line passes through the middle of the letters, extending slightly beyond the left and right edges of the text. The background is a dark blue, textured surface with wavy, organic patterns, resembling water ripples or a liquid surface.