



COMPANY PRESENTATION AND SOCIAL RESPONSIBILITY REPORT 2020

VISION

We are building the future of water,
energy and resource efficiency
services

– for our customers, employees and partners.

Electricity



Easy everyday life

Heat



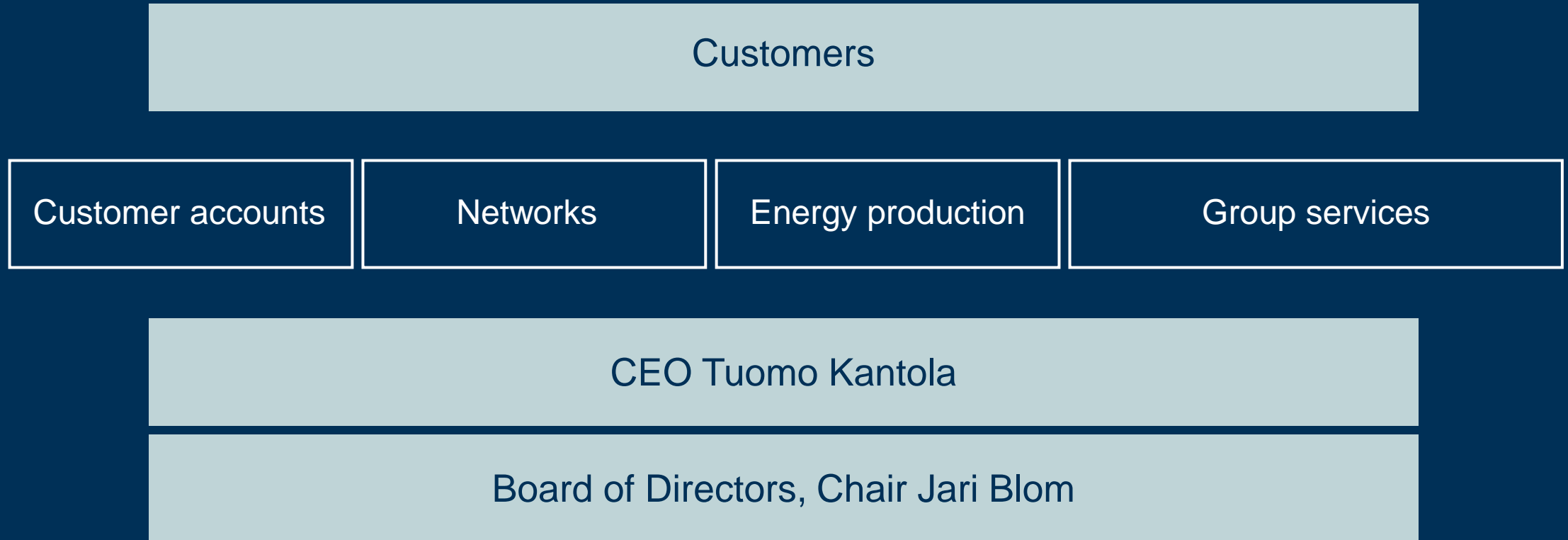
Right temperature
year round

Water

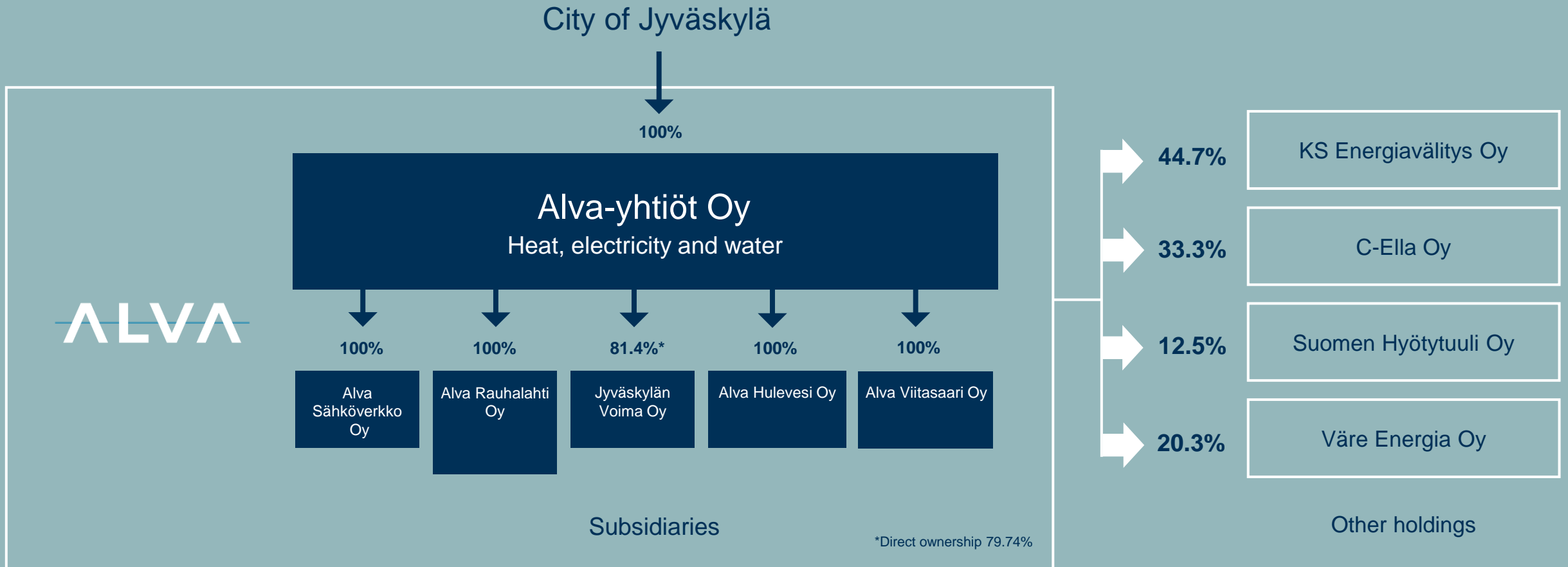


Fresh and pure

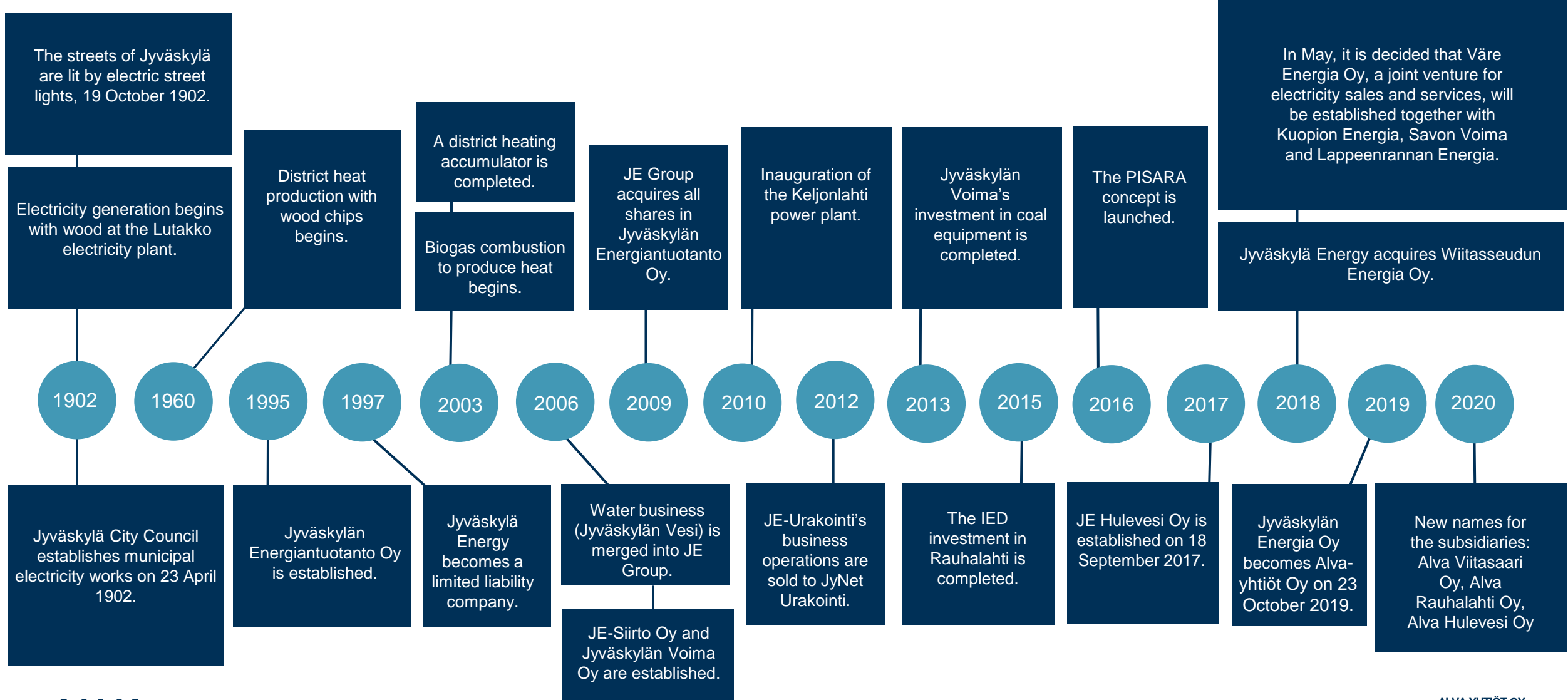
Our organisation



Company ownership structure



Alva throughout its history



EMPLOYEES



We take care of your basic needs. We ensure that water comes from your tap, electricity from your wall socket and your toes stay warm. Every single day.

WE EMPLOY

240

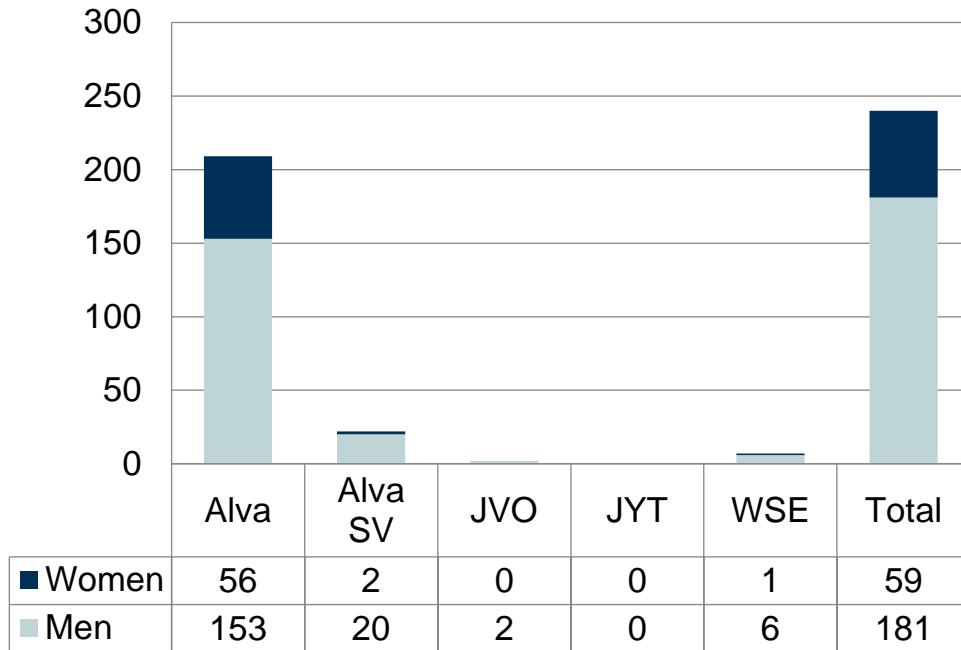
SPECIALISTS

Our entire chain carries out
some 1,000 person-years, every year.

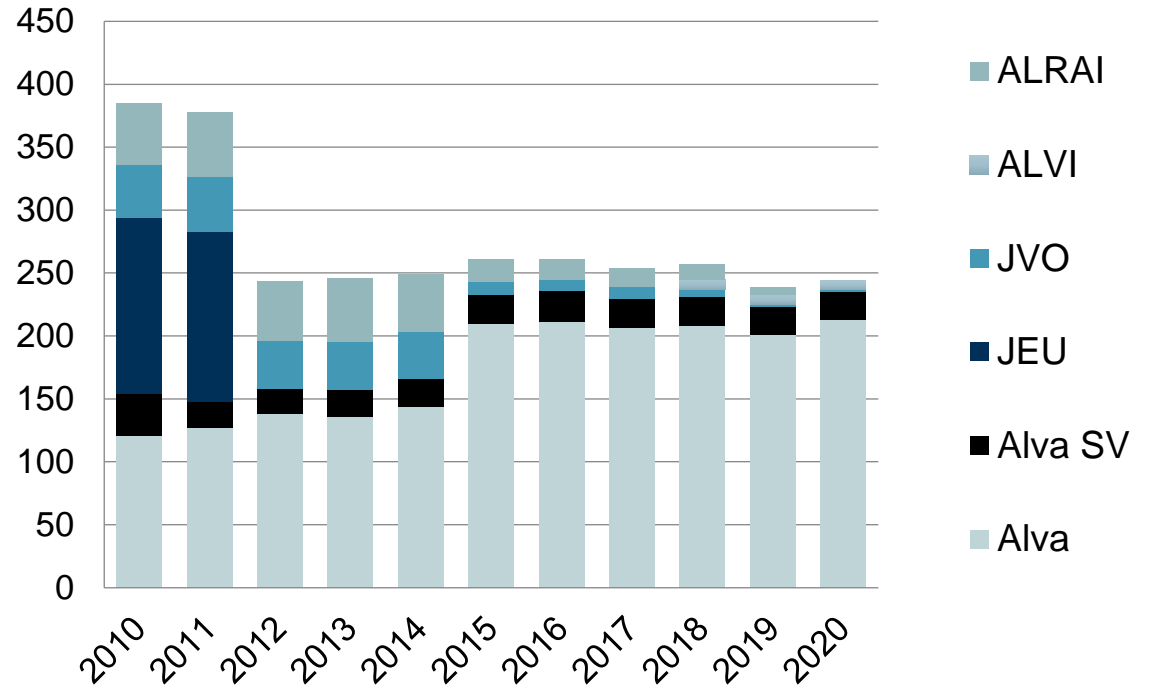
Cooperation with us provides tens of
millions of euros for Finnish companies,
such as transport and machine
contractors.

Employees by group company

Employees by company



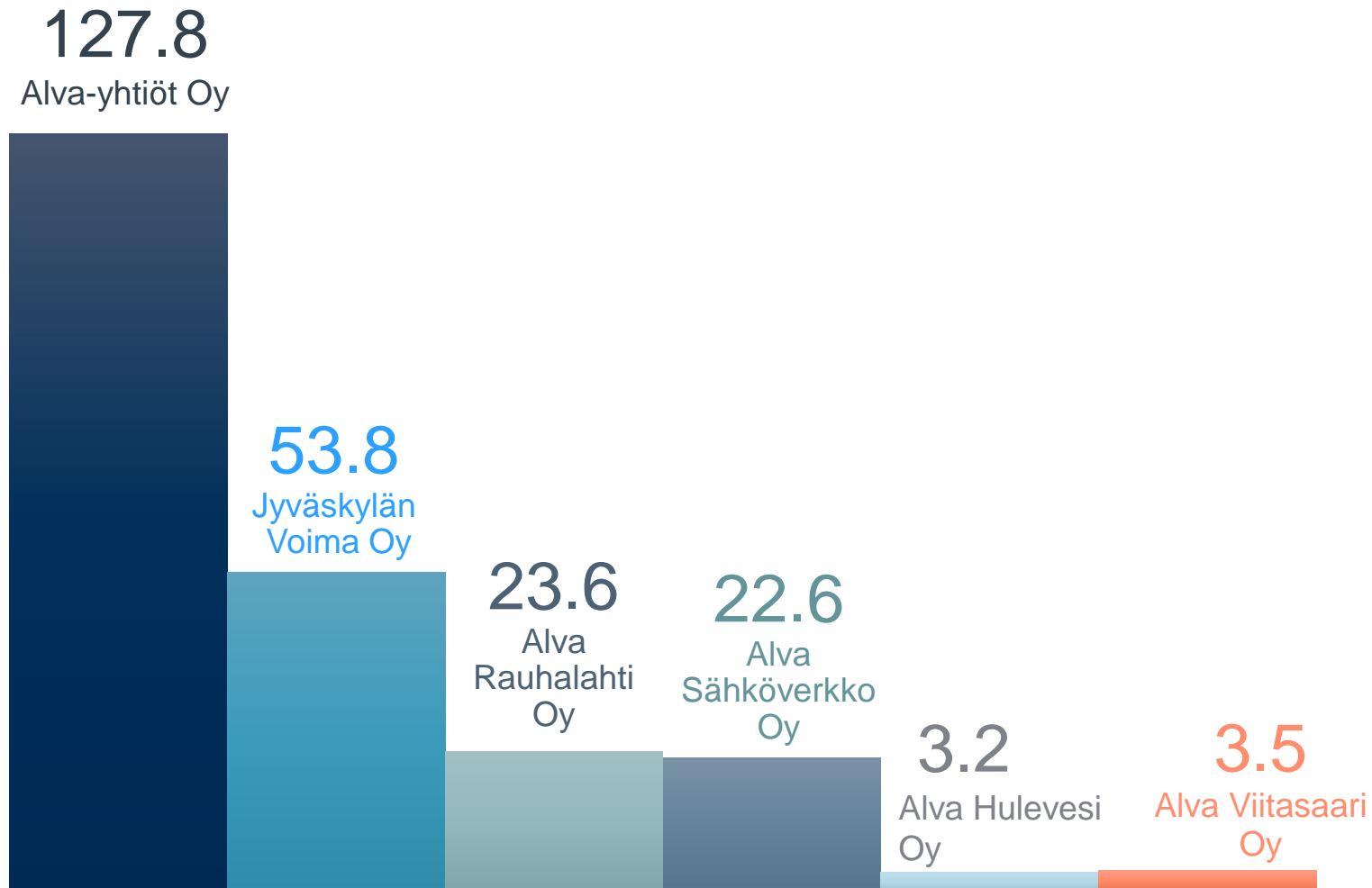
Change in the number of employees



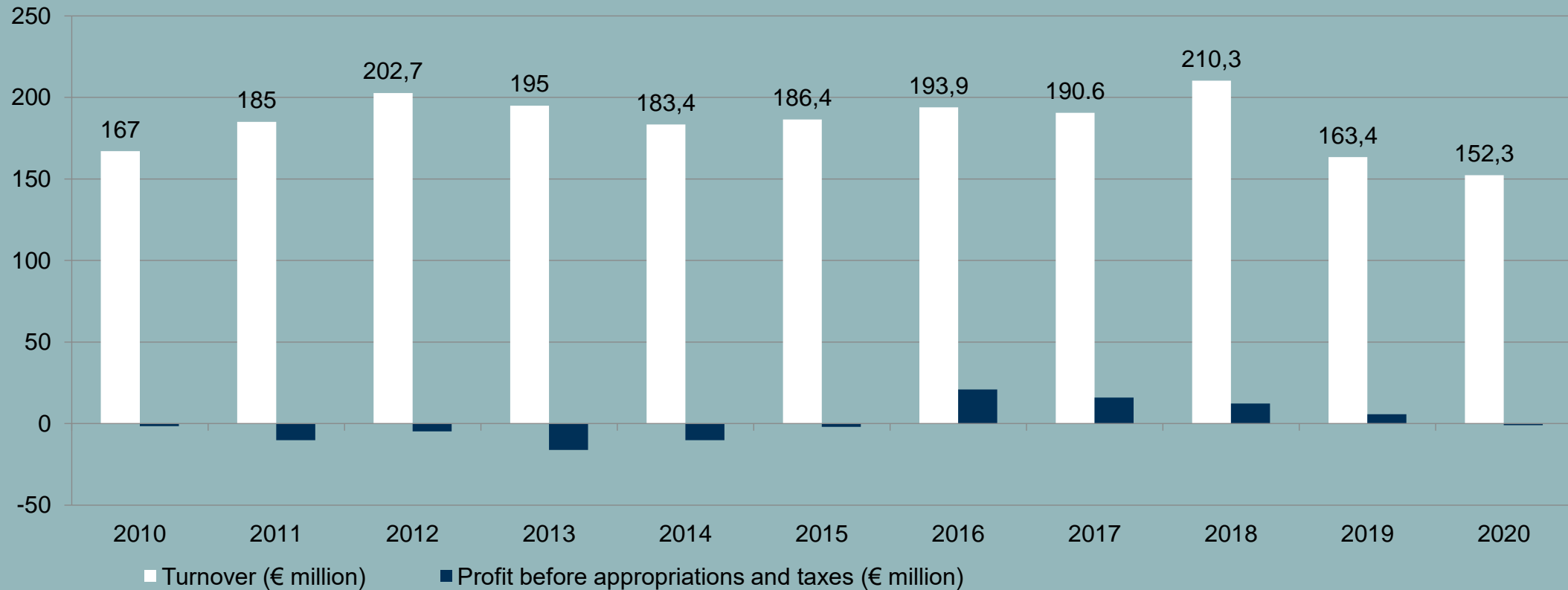
- All JE-Urakointi (JEU) employees transferred to JyNet Urakointi Oy in an acquisition on 1 March 2012.
- At the beginning of 2015, operating employees of JVO and JYT transferred to Jyväskylän Energia.
- Eight employees from Wiitaseudun Energia transferred to Jyväskylän Energia Group on 1 December 2018.
- Alva SV = Alva Sähköverkko, ALRAI = Alva Rauhalhti, ALVI = Alva Viitasaari

FINANCES

Turnover of group companies in 2020 (€ million)



Group's turnover and result in 2010–2020



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 1,364 kilometres in total. In 2020, some 641 GWh of electricity was transmitted to more than 10,300 connections.

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

More information: alva.fi/sahkoverkko

NETWORKS

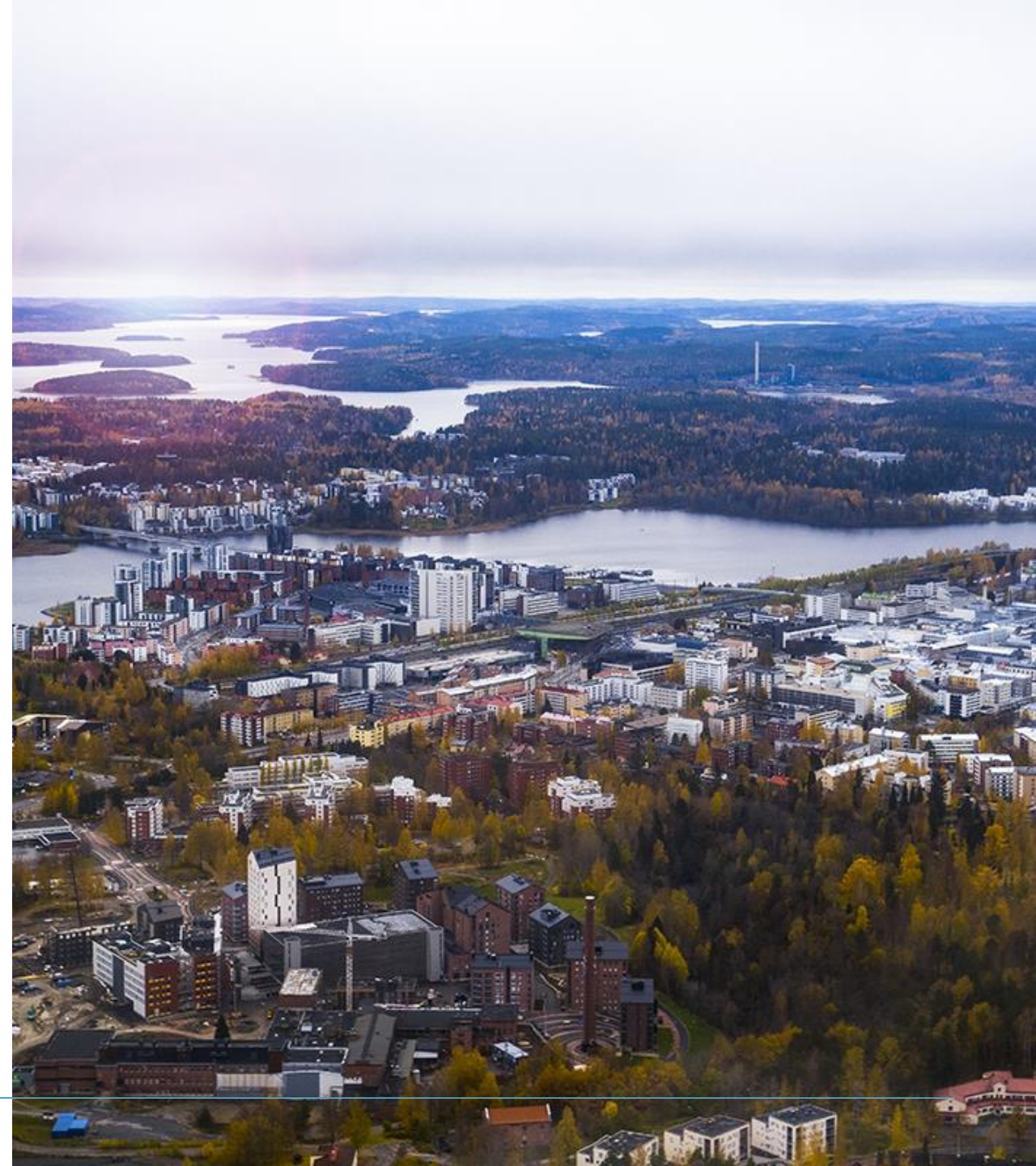
Heat network

Alva generates district heating at power plants, from where it is transmitted to customers via a heat network. The same network can also be used for district cooling.

Alva's heat network is in a good condition, which has also helped to keep the prices of district heating reasonable. Prices have not increased between 2015 and 2020.

Maintaining the heat network is important, as many homes and workplaces in Jyväskylä are heated using district heating. Heat generated in Jyväskylä is also transmitted to most Jyväskylä-based schools, daycare centres, hospitals and health centres. Alva is also responsible for the district heating network in Viitasaari.

Alva's district heating network totals 487 kilometres in the Jyväskylä region and 39 kilometres in Viitasaari.



Water supply network

Our obligation and responsibility is to distribute clean, safe and analysed tap water to our customers via a well-functioning supply network.

In 2020, investments in water supply networks and water production totalled €12.7 million. These investments were funded by operating income.

In 2020, significant investments in water supply included the modernisation of Viitaniemi water treatment plant and the modernisation of water supply systems in Nisula and Lohikoski.

We maintain 873 kilometres of water supply networks in the Jyväskylä region and 95 kilometres in Viitasaari.



PRODUCTION

Our annual production (2020)

1.1

TWh of heat

0.5

Twh of electricity

8.9

Mm³ of water

ENERGY PRODUCTION

Heat and electricity

Our ecological energy production

- Keljonlahti and Rauhalahti, our two power plants, are combined heat and power plants. Combined production saves one third of fuel compared with separate production.
 - We also produce heat and power from biogas at our micro-CHP plant.
 - We are aiming to be carbon neutral by 2030 and therefore constantly increasing the use of biofuels (mostly wood) and using less and less peat. We are also investigating many new ways of producing energy without burning.
 - We are also investing in energy savings by developing solutions to use waste heat and to balance the consumption of heat.
- As a result of our holdings in Suomen Hyötytuuli Oy, the use of wind power in our electricity production has increased significantly in recent years.
 - We can provide our heating customers with green heat, produced wholly using renewable and emission-free energy sources. Our green heat is certified by Kiwa.
 - The reuse of ash is already high – nearly 100% of ash generated at our plants is already being reused.
 - In Viitasaari (WSE) the fuels used in district heating production are 99 % wood.

Keljonlahti power plant

- Main fuels: peat and wood
- 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



ENERGY PRODUCTION

Rauhalahti power plant

- Main fuels: peat and 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
- Year of commissioning: 1986



ENERGY PRODUCTION (VIITASAARI)

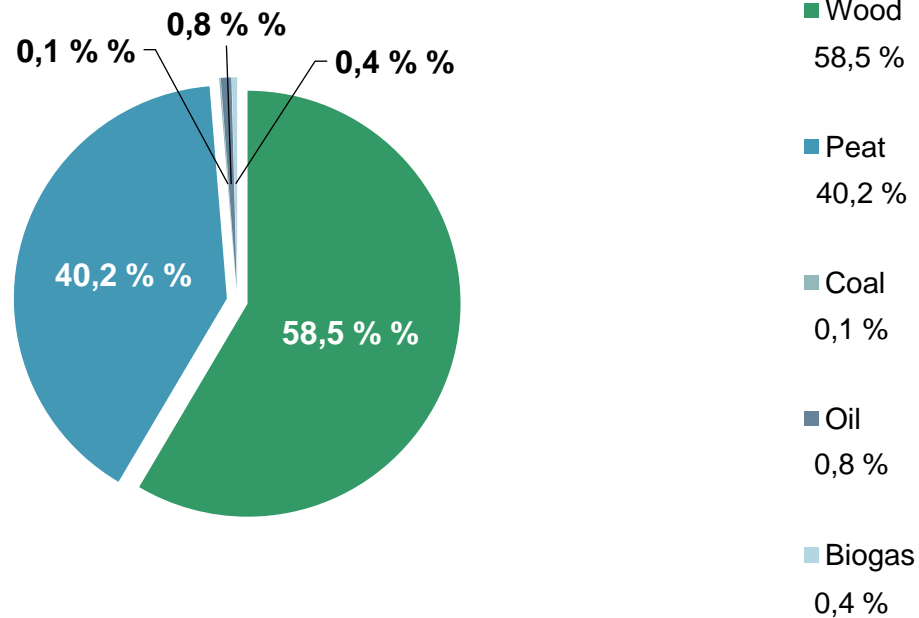
Kokkila heat plant

- Main fuels: wood
- Wood used as fuel is bought from the local wood industry and forest entrepreneurs
- Boiler power: 16 MW
- Annual production approx. 55.000 MWh



Energy production / fuels 2020

In 2020 the share of biofuels was 58.9 % of all the used fuels.



In Alva Viitasaari's heat production fuels are 99 % biofuels (wood).

WATER PRODUCTION

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 quality control carried out in our laboratory, the health authority monitors the quality of water regularly.

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

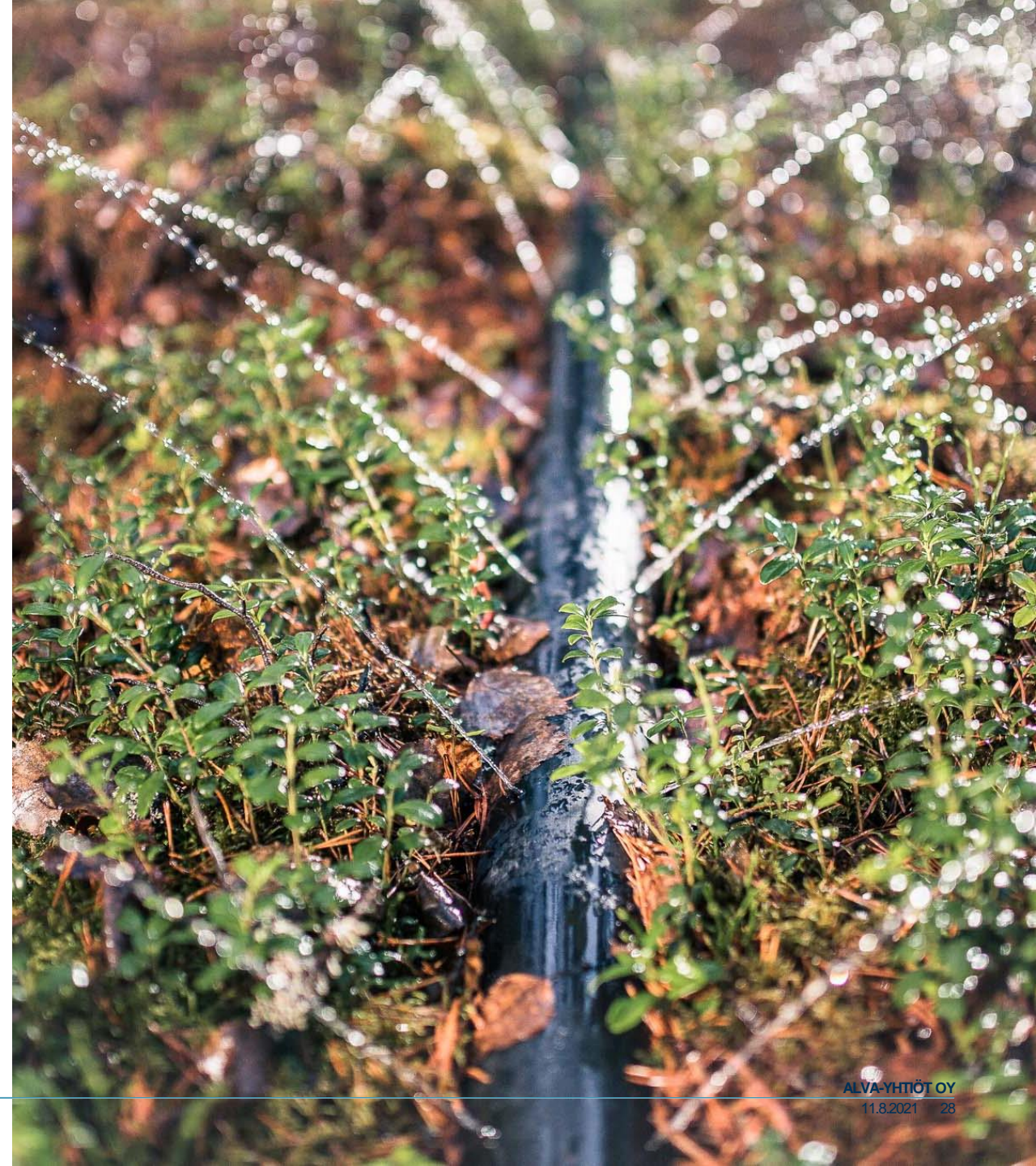


Tap water produced at several plants

Our most important tap water production plants are:

- Viitaniemi surface water treatment plant
- Vuontee artificial groundwater recharge plant in Laukaa
- Janakka–Kaivovesi water supply plant in Vaajakoski

We also produce water at Vihtakangas (Korpilahti), Liinalampi and Köntyslampi (Tikkakoski), Pekonniemi (Keljonkangas) and Vesanka groundwater intake plants, and in Viitasaari at Kokkolanniemi and Luukkaanniemi groundwater intake plants.



SOCIAL RESPONSIBILITY

Our ecological, social and financial responsibilities steer our operations. Our goal is to operate in line with the principles of sustainable development, addressing our relationship with nation, people and life as a whole.

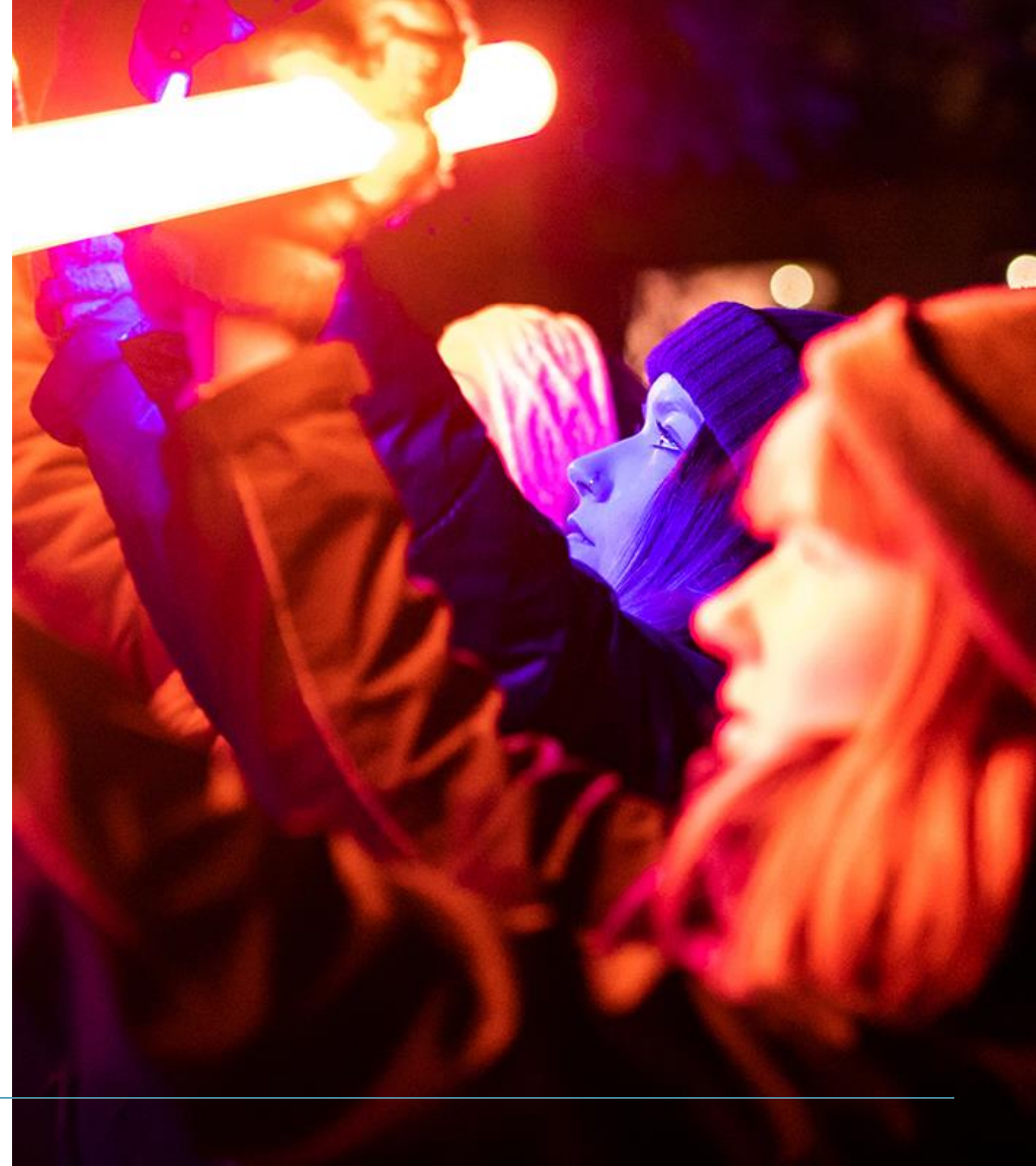
ECOLOGICAL RESPONSIBILITY

Carbon neutral by 2030

Our aim is to produce carbon neutral energy by 2030. Therefore we:

- Make our power plants more efficient
- Develop and offer sustainable heating solutions, such as
 - hybrid solutions that combine both district and geothermal heating
 - our green heat -product, produced wholly using renewable and emission-free energy sources (regional wood fuels and biogas from Mustankorkea)
- Investigate many new ways of producing energy without burning
- Increase the use of biofuels and use less and less peat

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

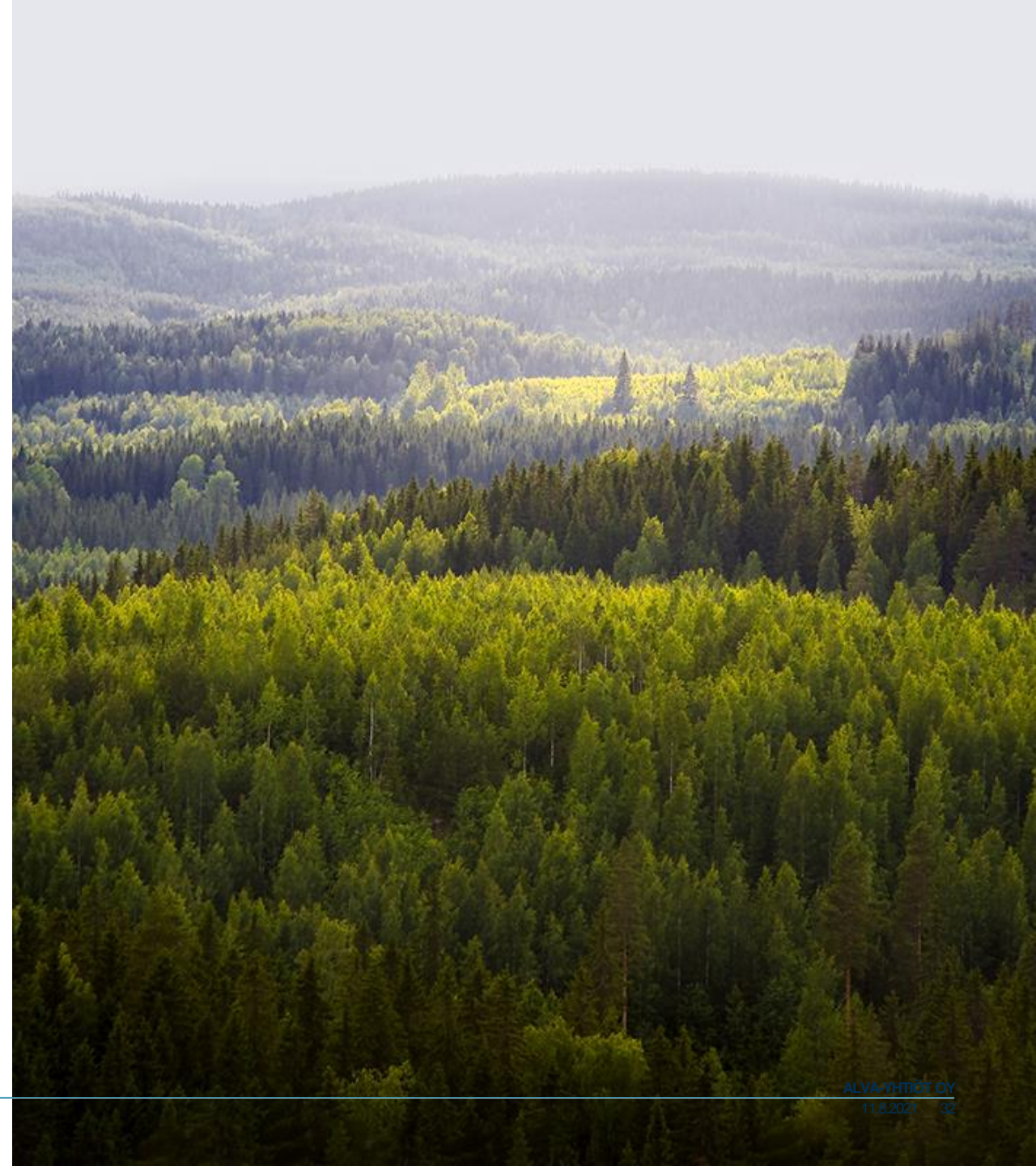


Carbon footprint calculation

Our Group has started carbon footprinting the entire Group's operations. The calculation for 2020 has not yet been completed.

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

We will provide more information about our carbon footprinting as it progresses.



Certified environmental system

Our group's environmental responsibilities are fulfilled in compliance with the certified ISO 14001 environmental management system.

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.



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.

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 WSE (Wiitaseudun Energia) takes care of the wastewater in Mustasuo wastewater treatment plant.

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 2020

132.2

CO₂ g / produced district heating energy kWh

Our specific emissions have decreased as much as 24.5% from 2019.

Our specific emissions are declining, and our carbon neutrality target will reduce them even further in the years to come. The benefit-sharing method* has been used in the calculation of the specific emission factor.

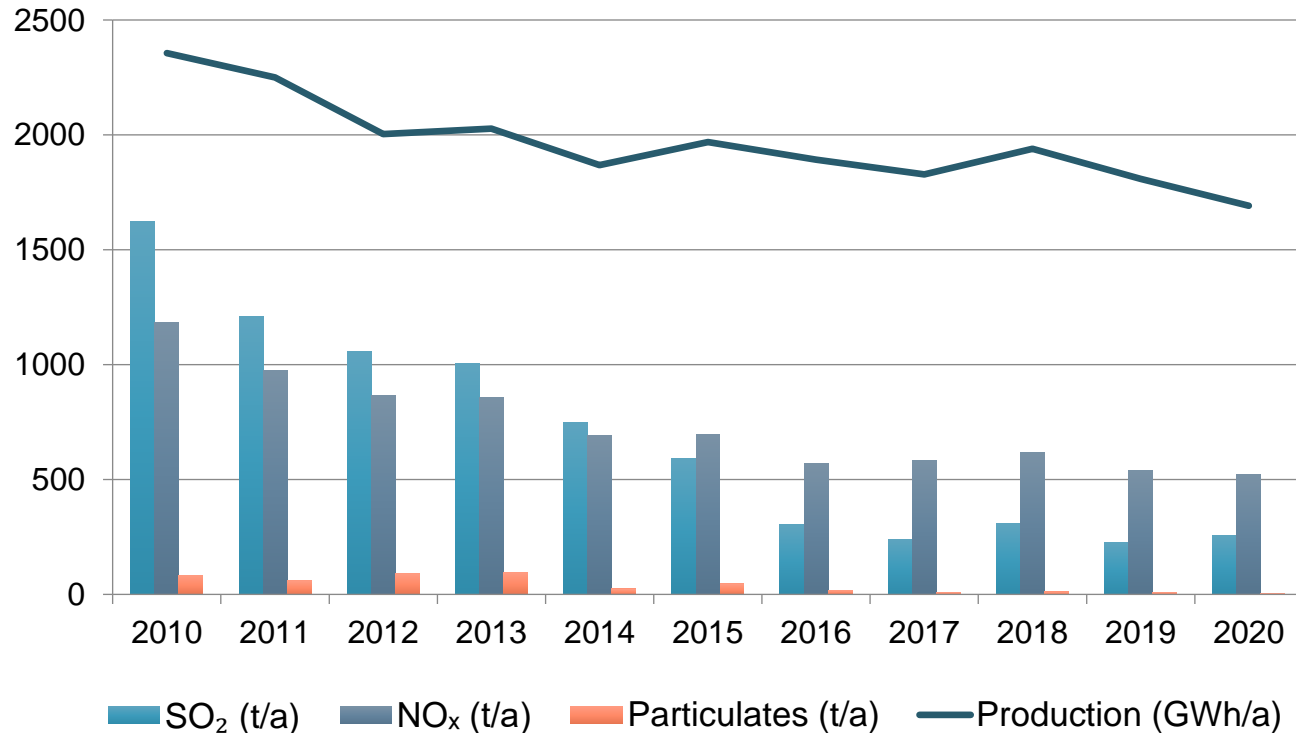
*The benefit sharing method refers to the sharing of the fuels of and emissions from combined electricity and heat production in proportion to the fuel consumption of alternative production methods. As alternatives, condensing power production is used for electricity and boiler heat for heat. When the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

ENERGY PRODUCTION

Emissions: Sulphur dioxide, nitrogen oxides, particulates

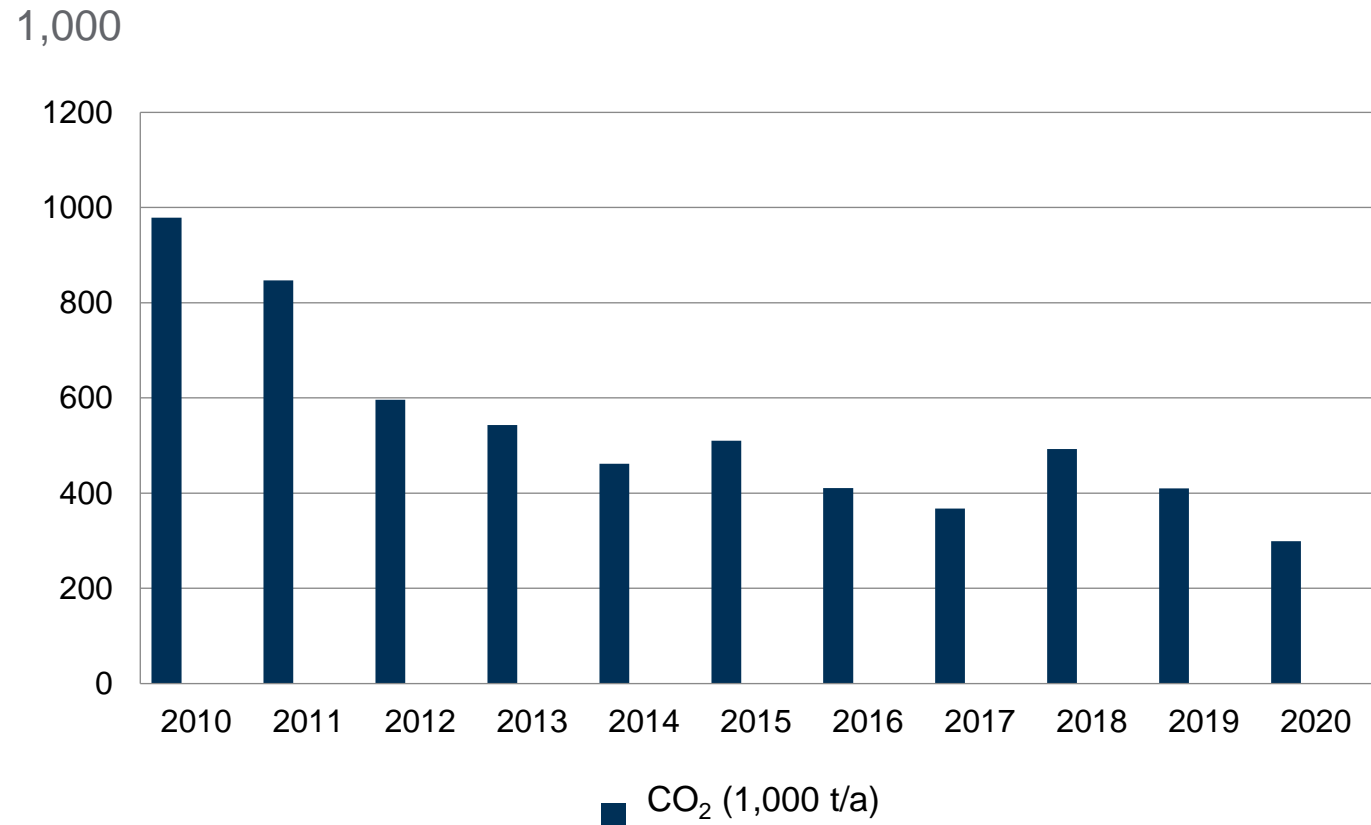
SO₂ = Sulphur dioxide

NO_x = Nitrogen oxides



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

Emissions: Carbon dioxide CO₂



CO₂ emissions from fossil fuels, such as peat, coal and oil, have decreased, while the amount of wood fuels at power plants has increased.

Ecological responsibility: key figures

	2020	2019	2018	2017	2016	2015	2014	2013	2012
Share of green heat from electricity sold (%)	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	2.3	4.5
Network losses, electricity (%)	2.18	2.28	2.15	2.08	2.2	2.4	2.5	2.7	2.7
Network losses, district heating (%)	8.9	6.5	8.0	8.4	8.3	7.9	8.6	7.1	8.4
Make-up water in district heating (m ³)	19,422	10,500	9,990	9,292	11,110	6,690	9,960	3,673	10,311
Consumption of pumping electricity, district heating (MWh)	9,067	9,608	7,946	7,442	7,378	7,221	8,531	8,395	9,057
Wastewater leaks to waterways/soil (m ³)	171	390	280	657	1,442	543	248	874	2,995
Wastewater leaks to waterways/soil (percentage of wastewater)	0.001%	0.003%	0.002%	0.005%	0.011%	0.004%	0.002%	0.006%	0.023%
Repaired leaks in water mains (quantity)	23	27	31	37	29	25	31	42	26
Share of biofuels from all fuels (%)	58.9	47.8	49.3	53.8	51.9	51.7	50.9	44.8	40.5

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

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

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.



SOCIAL RESPONSIBILITY

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

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



Annual support

We provide various support every year. We select the recipients of our support so that they are in line with our goals and values. We have supported, for example, the following through different projects and parties:

- low-income families
- the elderly, children and young people
- nature conservation projects
- sports clubs and teams
- culture



Social responsibility: key figures

	2020	2019	2018	2017	2016	2015	2014
Personnel							
Average number of employees	240	239	257	254	261	261	249
of which those on fixed-term contracts	16	18	23	25	31	28	24
Average age of employees	45	45	45	45	44.4	43.9	44
Sick leave rate (%)	3.3	2.7	3	1	1.6	1.8	2.2
Number of occupational accidents *	4	2	4	2	0	4	4
Lost time injury frequency (LTIF) **	9.8	5.0	9.8	4.5	0	9.5	9.8
Customers							
Electricity transmission, SAIDI ¹⁾ (h/customer)	0.036	0.21	0.08	0.05	0.14	0.06	0.25
Electricity transmission, SAIFI ²⁾ (quantity/customer)	0.158	0.73	0.39	0.24	0.39	0.23	0.58
Interruption time experienced by the customer: district heating (h)	2.4	2.3	2.1	1.58	1.12	1.44	1.08
Disruptions in water supply (h/customer)	0.17	0.38	0.36	0.14	0.35	0.23	0.08
Associations/recipients of support							
Support for associations (€ million)	0.02	0.02	0.02	0.023	0.02	0.012	0.008

* Occupational accidents that have caused at least one day of incapacity to the group's own employees

** The number of occupational accidents per million hours worked

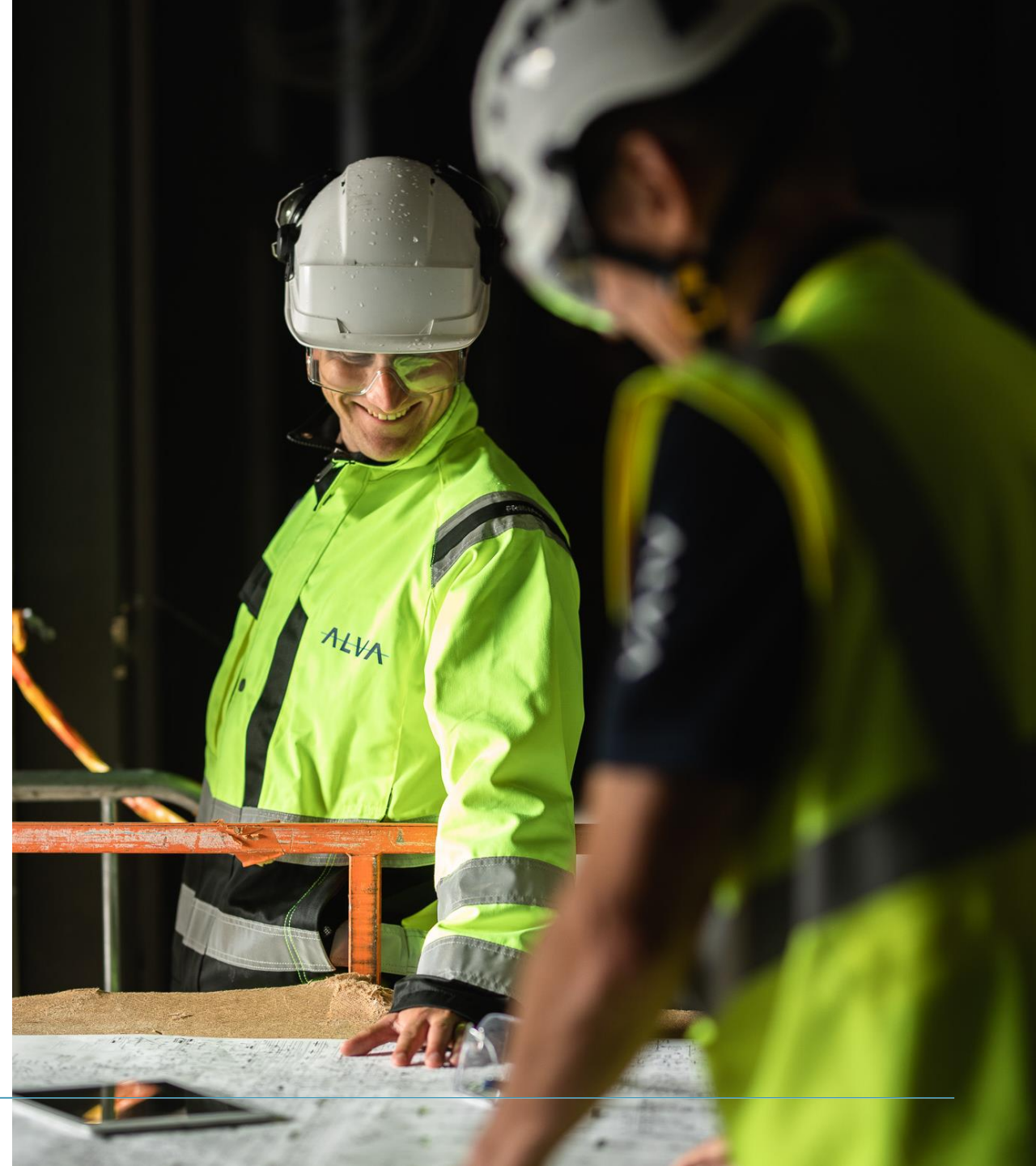
¹⁾ SAIDI = total average interruption duration, h/customer

²⁾ SAIFI = average number of interruptions per customer

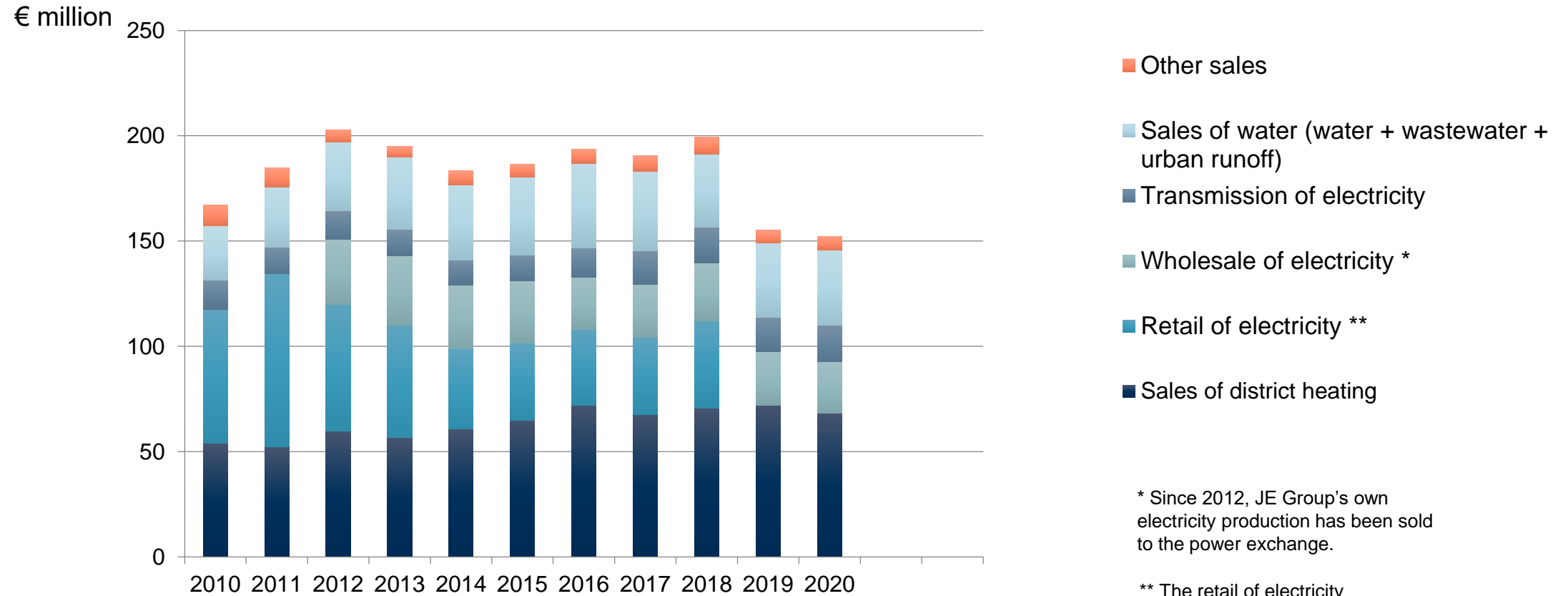
FINANCIAL RESPONSIBILITY

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.
- Our operations produce value for different stakeholders, including our customers and our owner, the City of Jyväskylä.



Sales trend



* Since 2012, JE Group's own electricity production has been sold to the power exchange.

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

Financial responsibility: key figures

	2020	2019	2018	2017	2016	2015	2014	2013	2012
Turnover (€ million)	152.3	163.4	210.3	190.6	193.9	186.4	183.4	195	202.7
Operating profit (€ million)	12.8	20.2	26.8	31.8	36.4	17.7	8.7	6.2	16.3
Income tax (€ million)	0	1.26	0.74	2.11	3.19	0	1.03	0	0.07
Dividends (€ million)	4.0	4.0	4.0	4.0	1.6	0	0	0	0
The owner's interest expenses (€ million)	8.9	8.9	8.9	8.9	9.1	12.9	13.1	16.5	16.5
Investments (€ million)	23.4	28.2	32.2	27.6	26.1	28.2	29.9	37.9	32.6
Return on equity (%)	-1.4	3.3	7.7	10.3	15.3	neg	neg	neg	neg
Equity ratio (%)	21.7	22.7	22.4	22.1	20.0	17.0	6.5	8.4	1.1
Wages and salaries ¹⁾ (€ million)	13.9	14.1	13.9	14.1	13.8	13.7	13.3	13.1	12.7
Purchases from suppliers (€ million)	97.8	101	136	107	105	119	138	139	140

¹⁾ The wage and salary costs include capitalised wages and salaries

2020

Positive and negative aspects

Alva Group's ups in 2020

- The development and research of more sustainable methods of energy production continued throughout the year. Achieving carbon neutrality requires new solutions for more ecological energy production (read more on page 31).
 - Our specific emissions are declining and have decreased by as much as 24.5% since 2019 (read more on page 35).
 - The development of new services that improve the resource efficiency of energy and water consumption also continued. Examples of resource efficiency services we offer nationally include remote water reading and energy optimisation.
 - The development and implementation of hybrid solutions that improve our ecological performance continued. A major hybrid solution was implemented at the commercial property of Volvo Truck Centre in Jyväskylä. The solution combines the best aspects of district and geothermal heating. (Learn more from the [customer story](#) on our website.)
- Extensive cooperation between water supply plants took place during the year to acquire cost-efficient main water meters that comply with requirements for the customers of Alva and the other plants involved in the cooperation. The project is ongoing.
 - Alva's control room service was piloted with Kirkkonummen Vesi. The control room service will be developed across municipal boundaries together with customers.
 - The price of Alva's district heating has not risen for more than six years, nor were there any increases in water prices in 2020.
 - Alva Sähköverkko is still one of the most affordable electricity network companies in Finland. Our prices are the lowest in the country for residents of apartment buildings, and detached houses, industry and business also get to enjoy our low transmission prices. (Source: Energy Authority price statistics, see our website for more information)

Alva Group's downs in 2020

- The Group made a loss of EUR 1.86 million. In terms of operating result, the year was satisfactory, but non-recurring items of approx. EUR 6 million weighed on the overall result.
 - Compared to the previous financial period, the result decreased by EUR 6.2 million and the operating profit by EUR 7.5 million. The result was weakened by the rising prices of wood fuel and emission allowances, for example. The price of emission allowances was high throughout the year and the high price level also reduced subsidy revenues for forest fuel to zero.
 - Due to the coronavirus pandemic, the sales by new service operations became more difficult and face-to-face meetings were largely replaced by remote meetings.
- The legal dispute between Alva-yhtiöt Oy and Jyväskylän Voima Oy, its majority-owned group company, and certain minority shareholders continued. One of Jyväskylä Voima Oy's shareholders filed for bankruptcy, and thus part of the costs of Jyväskylän Voima, which operates under the Mankala principle, has no payer. The bankrupt shareholder's operations will be continued by the bankruptcy estate, but so far it has not been able to pay the bankrupt company's share of the costs to Jyväskylän Voima.

Research and development in 2020

- The SER ProCom project was launched in co-operation with Tapojärvi Oy and Elker Oy. The project aims to update process engineering plans and technical and economic analyses so that, upon completion of the project, it will be possible to make an investment decision on the establishment of a pre-commercial recovery plant. (Read more: [Gold mine of recycling.](#))
 - The development of Pisara, service operations for water supply, continued. In the Finnish market, investments focused on the Digiaalto (Digital wave) project, in which subsidies granted by the Centre for Economic Development, Transport and the Environment of Central Finland are allocated to digitise network data of smaller water supply plants. The Digiaalto project will end at the end of 2022.
 - The development of the Smart Water Cycle concept, designed for international markets, continued with Uros Oy and subcontractors. To support concept development, Business Finland granted a product development loan.
- As a member of a business consortium, Alva participated in Jyväskylä University's KITA project (Research platform for the circular economy: towards self-sufficiency in raw materials through the circular economy), in which Jyväskylä University's expertise in and analytics related to the recovery of critical elements from waste material were developed.
 - Furthermore, Alva participated in the "Hiilimetsätalous" (Carbon forestry) project launched by VTT Technical Research Centre of Finland. The project's key goal is to identify the impact of carbon forestry on forest operators and the business opportunities offered by carbon sequestering in Central Finland.
 - Alva's own ash project investigated the potential and barriers to the utilisation of ash fractions generated by power plants. Particular interest was paid to the concentrations of harmful substances in ashes and their generation mechanisms, as they could potentially prevent the large-scale use of ashes in earthworks, for example.



ALVA