



ANNUAL REPORT

2017

15.3.2018
Helen Ltd

HELEN



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FROM MANAGING DIRECTOR

WE ARE BUILDING A SUSTAINABLE ENERGY FUTURE WITH OUR CUSTOMERS

Year 2017 at Helen was a year of development and growth. We have made a determined effort to develop our sales and customer management, and during the year the number of our customers rose to a record level, well over 400,000.

The Helen Group's net sales increased and the results were at the anticipated level, slightly higher than in the previous year. We continued to develop new services and sales in accordance with the strategy, and we promoted projects related to renewable energy production and the recycling and storage of energy.

During the year, we made progress towards our long-term target, climate-neutral energy production. The first fire was ignited at the Salmisaari pellet-fired heating plant in October, and the plant started commercial operation in February 2018.

The Esplanade underground heating and cooling plant, which is currently under construction, will be completed in the spring. With the plant, we will produce more district cooling and recycle energy even more efficiently than before.

During the past year, we sold new services, such as solar power plant solutions and the Demand Response service to companies. Interest in the charging solutions for electric vehicles has increased in all customer groups, and we at Helen are strongly engaged in creating new services and operating models for electric vehicles. In the autumn, we opened Finland's first two-way charging point for electric vehicles in Hanasaari. The two-way charging point is a step towards an energy system of the future, where vehicle batteries play a key part in storing energy and increasing flexibility in the system.

We also made substantial investments in energy storage and presented a plan for Finland's largest energy storage facility, which would be implemented in disused oil caverns located deep in the bedrock of Helsinki.

The district heating network and the existing energy system in Helsinki provide a good basis for new energy solutions, such as storage and flexibility. The significance of storage is emphasised in the energy system of the future, where solar energy and wind power will play an increasing role.

TOWARDS STRONGER ENERGY PARTNERSHIP THROUGH DEVELOPMENT

We have been able to develop our operations and improve Helen's competitive position. For example, we have gained substantial savings at power plants and in maintenance by developing our operating models. This work is reflected in our financial performance.

We want to be an energy partner for our customers and the most responsible operator in the sector, a company you can trust in all situations. The contribution of every Helen employee plays a part in this work. We believe that the best solutions and the most suitable service entities can be built through seamless cooperation with our customers. Our production is also directed and developed on the basis of our customers' needs to an increasing degree, and we are constantly implementing more joint production solutions with our customers.

We need sensitivity to listen to our customers' needs and an ability to respond to these needs with an increasing speed and agility. Our goal is to have more than half a million customers in two years' time. I believe that we have every chance of achieving that goal.

I wish to thank our customers and stakeholders for good cooperation in 2017 and all Helen employees for their valuable contribution to Helen's success.

We continue to develop our operations towards climate neutrality and build a sustainable energy future together with our customers.

Pekka Manninen



KEY FIGURES 2017

GROUP AND PARENT COMPANY: KEY FIGURES 2017

	Group		Parent company	
	2017	2016	2017	2016
Net sales, EUR mill.	805	782	681	664
Operating profit, EUR mill.	81	75	51	53
Operating profit, % of net sales	10	10	7	8
Profit before appropriations, EUR mill.	60	52	66	45
Investments, EUR mill.	95	90	49	53
Equity ratio	72	71	76	75
Return on equity (ROE), %	3	3	4	3
Employees as of 31 December	1 144	1 269	888	1 017
Total equity and liabilities, Balance sheet, EUR. mill	2 732	2 720	2 584	2 564

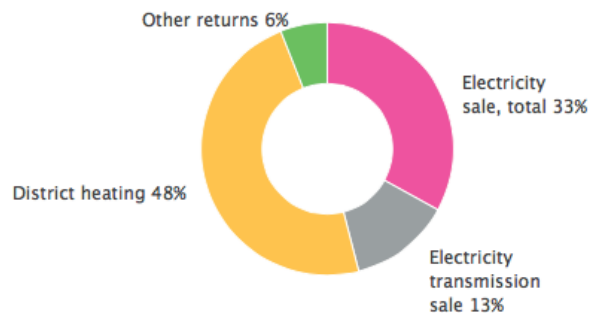
BUSINESS YEAR

BUSINESS YEAR

The Helen Group's results were at the anticipated level, which was higher than in the previous year. The positive profit trend in the network business, the low market price of electricity and the increased fuel costs had a key impact on the performance. Net sales for 2017 totalled EUR 805 million (EUR 782 million) and operating profit stood at EUR 81 million (EUR 75 million). Operating profit accounted for 10.1 per cent of net sales.

Net turnover, Helen Group

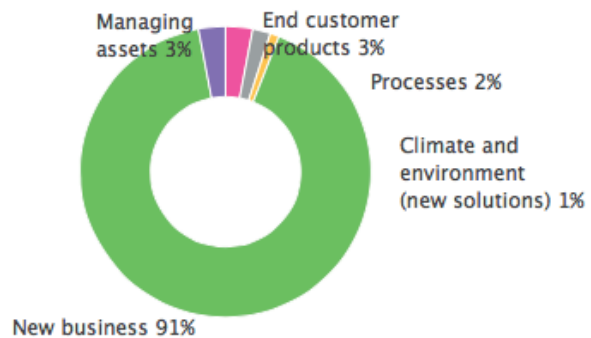
Net turnover EUR 805 million



RESEARCH AND DEVELOPMENT

The development of energy production focused on the planning of investments in renewable production forms and on the preparation of the decisions to be made to replace heat production in Hanasaari by year 2024.

Distribution of R&D costs



Total EUR 4,966,194.

The options for the first stage are new investments in bio-based heat production, heat pumps and the storage of heat.

We are also studying versatile heat pump solutions, electric boilers, geothermal heat, replacing coal with bio-based fuels, distributed microgeneration together with the customers, increasing energy efficiency in customers' operations, and the utilisation of purchased energies and waste heat, e.g. in data centres. Solutions related to the circular economy and the utilisation of waste heat are developed together with the customers to an increasing degree.

DISTRICT HEAT AND DISTRICT COOLING

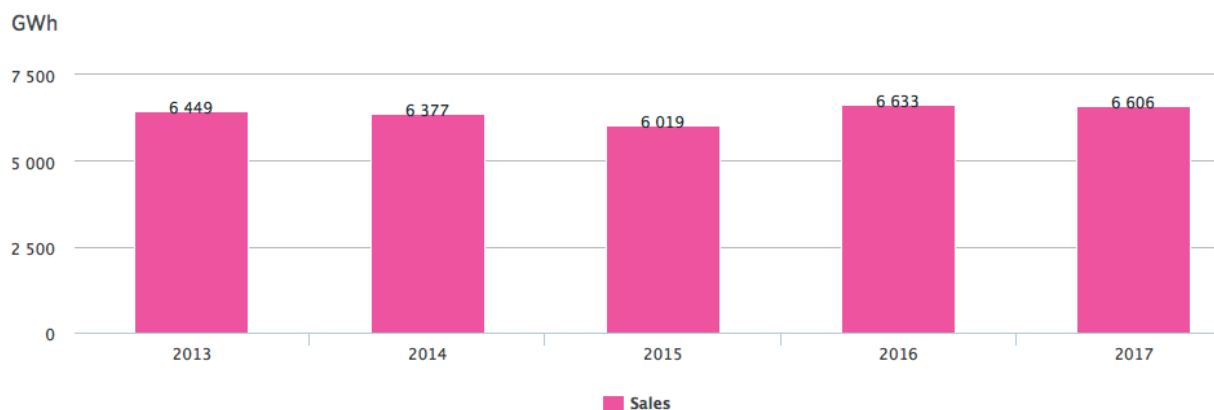
The overall price of district heat in Helsinki was about 24 per cent lower than the average price in the country.

District heat sales were at the previous year's level at 6,606 GWh.

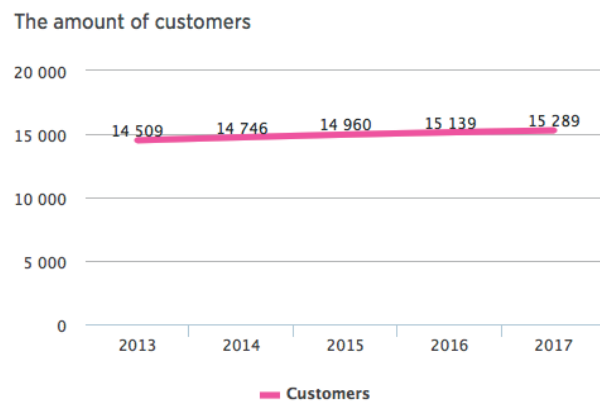
The number of district heat connections continued to grow, standing at 15,289. District heat accounts for 90.9 per cent of the heated cubic volume of buildings in Helsinki.

We sold 141 GWh of district cooling energy, i.e. sales were at the previous year's level despite the exceptionally cool summer. The number of district cooling connections grew: their total number was 360 at the end of 2017.

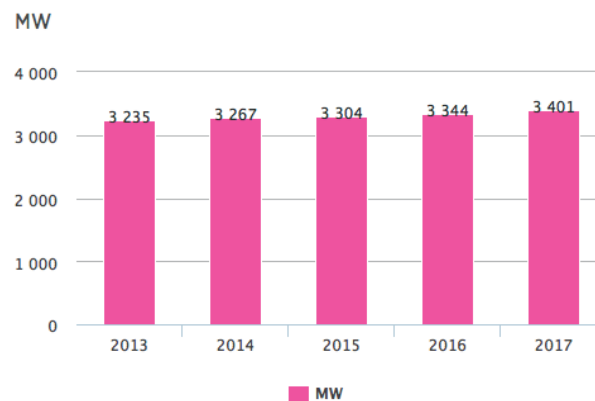
District heat sales



District heat customers



District heat connection power



ELECTRICITY SALES

A total of 6,167 GWh of electricity was sold. This was down by 2 per cent on the previous year.

The market price of electricity remained at a low level.

The spot price trend (Finland's area price) is presented in the graph.

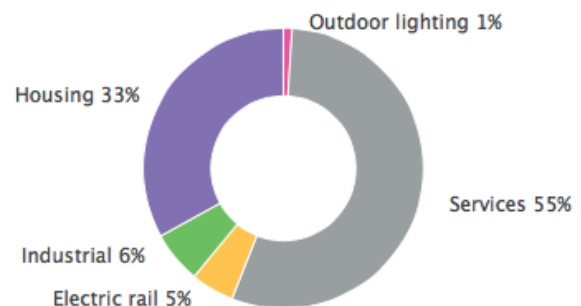
Spot price, Finland's area price



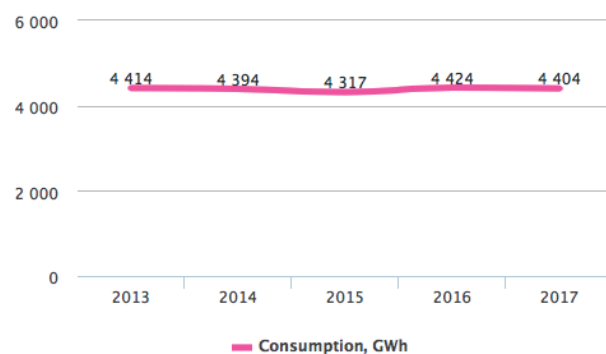
ELECTRICITY DISTRIBUTION

Electricity distribution in Helsinki was at the previous year's level, standing at 4,404 GWh.

Distribution of electricity consumption in Helsinki 2017

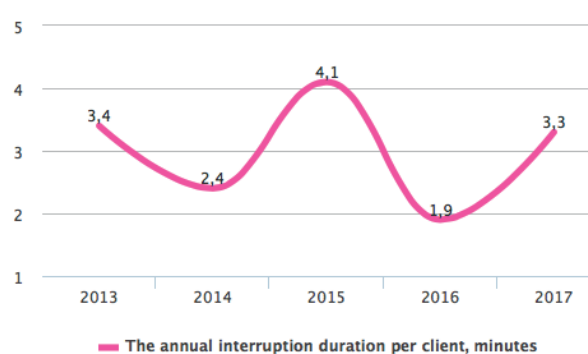


Consumption of electricity in Helsinki in total



Helsinki residents consumed 4,404 GWh of electricity in 2017.

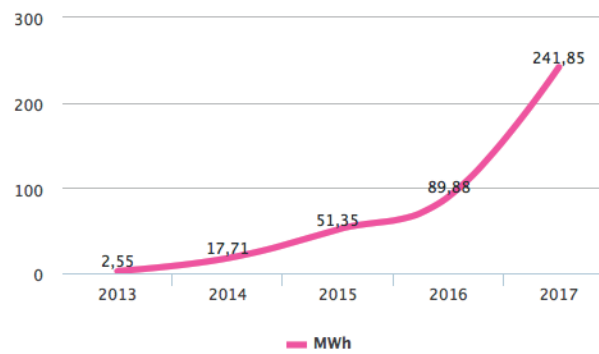
Reliability of electricity distribution



The reliability of the electricity network in Helsinki is outstanding. An electricity user in Helsinki had, on average, only one power cut lasting three minutes during the year.

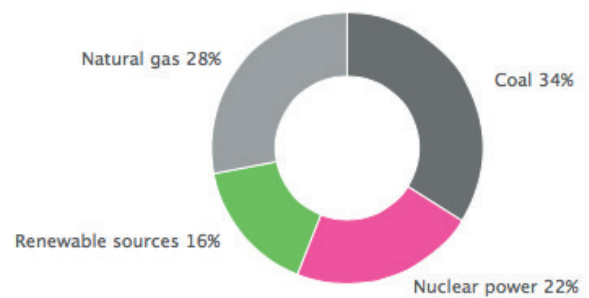
TREND IN MICROGENERATION OF SOLAR POWER

In 2017, microgeneration of solar power increased considerably on the previous year.

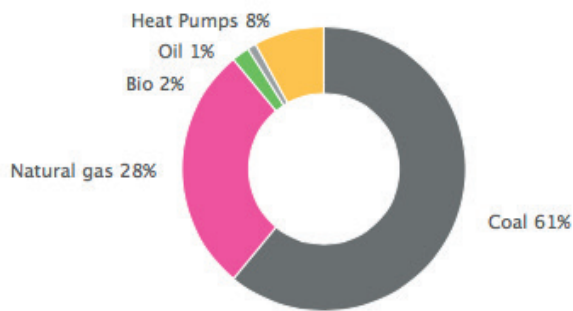


ELECTRICITY PRODUCTION FOR THE WHOLESALE MARKET

A total of 6,292 GWh of electricity was produced for the wholesale market in the power plants in Helsinki and through power assets. The share of climate-neutral production forms was 38 per cent of total electricity generation. The share of renewables increased from 15 per cent to 16 per cent.



ORIGIN OF DISTRICT HEAT



We produced 7,082 GWh of district heat, which is almost at the same level as in the previous year.

In 2017, the share of energy we produced in mixed combustion of coal and wood pellets increased and, correspondingly, the share of natural gas production decreased. This trend, which started in 2016, is due to changes in the energy market, which have

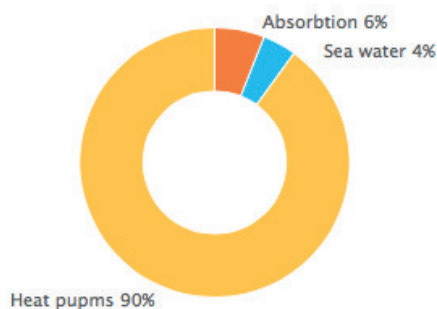
resulted in higher profitability of energy produced from coal.

The amount of energy we produce with heat pumps also increased in 2017.

We produced more heat with heat pumps than ever before, 570 GWh.

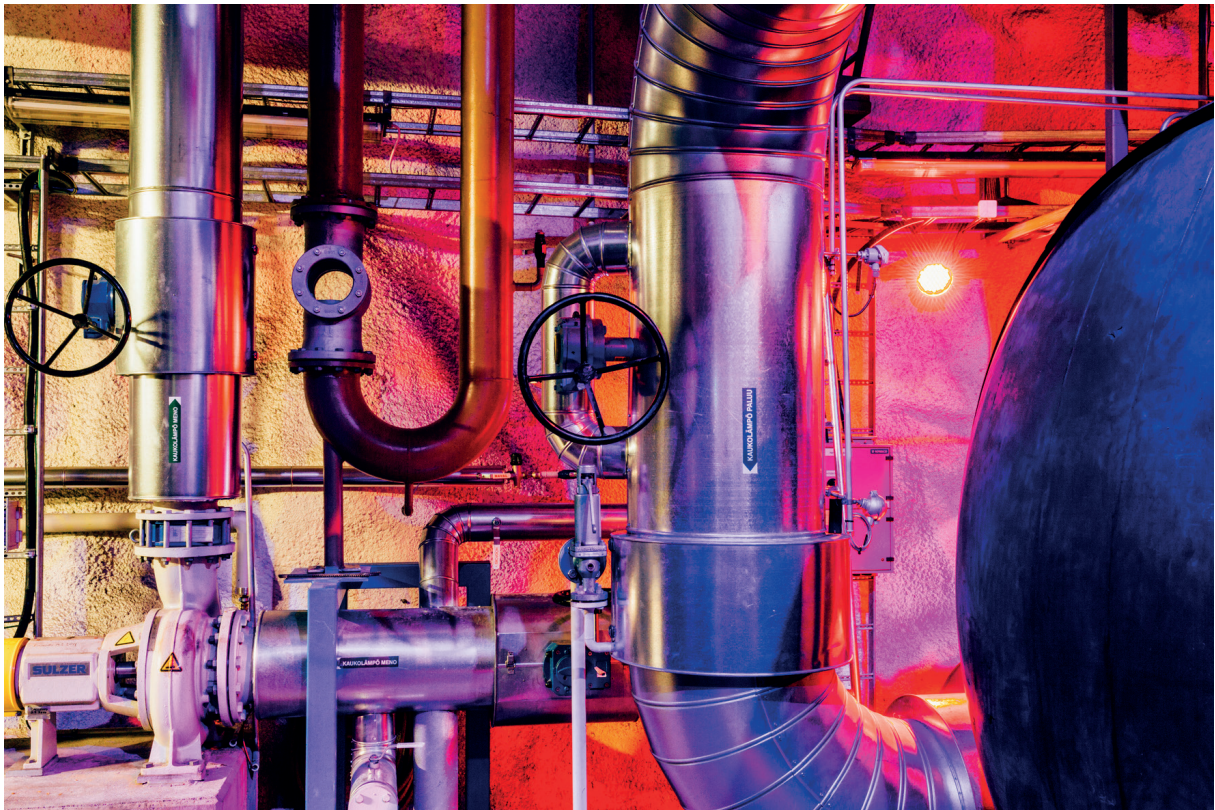
We also started trial operation of the Salmisaari wood pellet heating plant towards the end of 2017. We burned more wood pellets in 2017 than before, a total of 46,000 tonnes (38,000 tonnes in 2016).

ORIGIN OF DISTRICT COOLING



The production of district cooling remained at the same level as in 2016 despite the exceptionally cool summer. District cooling production amounted to 141 GWh.

REVIEW OF 2017



HEATING AND COOLING PLANT WAS SELECTED FOR THE PEAK LOAD CAPACITY SYSTEM

In February, Finland's largest heating and cooling plant was selected to be part of the national peak load capacity system. Helen is taking part in safeguarding sufficient electricity supplies in the entire country with the Katri Vala heating and cooling plant.

THE MOST SUSTAINABLE BRAND AMONG ENERGY COMPANIES

Finnish people regard Helen as the most sustainable brand among energy companies according to the largest survey in the Nordic countries concerning citizens' views on the responsibility of well-known brands. At Helen, sustainability has been integrated into all operations: development of production, product and service development, customer service, sales, marketing, and communications.

NEW SUBSTATION FOR KALASATAMA

Helen Sähköverkko is building a substation in Kalasatama to strengthen electricity distribution in nearby areas and to improve the security of electricity supply. The city is developing in Kalasatama, Sörnäistenniemi and Sompasaari, and electricity consumption in these areas is increasing. The construction of a new section of the underground distribution network is also ongoing in the area.



ELECTRICITY STORAGE FOR COMMERCIAL USE

Helen is the first company in Finland to offer electricity storage services to enterprises. Cooperation in electricity storage with the City of Helsinki Environment Centre was launched in May.

HELEN AWARDED FOR ITS LONG-TERM ENERGY EFFICIENCY WORK

The Ministry of Economic Affairs and Employment, the Energy Authority and Motiva awarded Helen with a recognition for its excellent energy-efficiency work.

Our most notable achievement in energy efficiency during the period 2008–2016 was the Katri Vala heating and cooling plant that enables efficient utilisation of waste heat and recycled heat.



FIVE SOLUTIONS FOR A CLIMATE NEUTRAL FUTURE

At its Environment Day, Helen presented solutions for a climate-neutral future: participation of city residents, recycling of waste heat, flexibility, and moving away from fossil fuels. Renewable energy production needs an increasing amount of space. Investment in research, training and development is needed in the field in order to create new innovations.



FINLAND'S FIRST TWO-WAY CHARGING POINT WAS OPENED

In September, we opened Finland's first two-way charging point in the Suvilahti district of Helsinki in connection with Helen's solar power plant and electricity storage facility. The V2G (vehicle-to-grid) charging point enables not only charging of electric vehicles, but also using them as an electricity storage unit and taking part in the balancing of the electricity system.

ESPLANADE UNDERGROUND COOLING CENTRE WAS UNDER CONSTRUCTION

Helen's new, industrial-scale heat pumps arrived in Finland by ship from France in September, and they were transported to the Esplanade underground cooling centre for installation. Helen is building a new heating and cooling plant in the cooling cavern located under the Esplanade Park. The plant consists of two large heat pumps that produce cooling and heat. These pumps help to utilise waste heat even more efficiently than before.

MORE SOLAR POWER

We delivered solar power plants, e.g. to Allas Sea Pool and Etola, and we signed a contract on a solar power plant with Jounin Kauppa. After the completion of the solar power plant, Allas Sea Pool will be run almost fully on renewable energy.



HEAT PRODUCTION STARTED IN NEW PELLET-FIRED HEATING PLANT

The first wood pellets were ignited at Helen's new pellet-fired heating plant in Salmisaari in Helsinki in October. Round-the-clock heat production with pellets started in November. Even during the trial run, the plant produced substantial amounts of renewable district heat for Helsinki residents. The pellet-fired heating plant is a significant project to increase renewable energy in Helen's energy production.

HELEN LAUNCHED DEMAND RESPONSE SERVICE FOR ELECTRICITY CONSUMPTION BY COMPANIES

Helen started to offer companies the Demand Response service that can save them hundreds of thousands of euros per year. Thanks to Helen's demand response service, the search engine company Yandex gained a 5–10 per cent saving in electrical energy costs at its data centre in Mäntsälä.

PLANNING OF FINLAND'S LARGEST ENERGY STORAGE FACILITY WAS STARTED

We started the planning of Finland's largest energy storage facility in disused underground oil caverns in Mustikkamaa deep in the bedrock of Helsinki. The storage facility would accommodate over 40 times as much hot water as the amount of water in the pools at the Helsinki Swimming Stadium.

