Finland's most energetic customer magazine » 3/2019

HELEN

Did you know that, in the early 1900s, only 15% of the world's population lived in cities?

The world is migrating into cities

CITIES HAVE A SIGNIFICANT IMPACT ON CLIMATE CHANGE — AND VICE VERSA. NEARLY TWO-THIRDS OF THE WORLD'S ENERGY IS CONSUMED IN CITIES. THEY GENERATE OVER 70% OF THE WORLD'S GREENHOUSE GAS EMISSIONS BUT, IDEALLY, CITIES CAN ALSO LEAD THE WAY WHEN IT COMES TO THE CIRCULAR ECONOMY AND CLIMATE SOLUTIONS. » p. 8

Jakarta is vying for the top spot

Current projections see Jakarta overtaking Tokyo as the world's most populous city by 2030. By then, there will be more than 40 megacities in the world with populations exceeding ten million.

Urban migration is a long-standing phenomenon, and Finland is no exception. It seems that the rate of urbanisation is only getting faster. Finland is predicted to have only three growing urban regions in 2040: Helsinki, Tampere and Turku.

It's getting crowded in Manila

Manila is the world's most densely populated city. According to the latest statistics, the average population per square kilometre in Manila is 41,500. It is more than ten times higher than in Helsinki.

Psst! By introducing new energy solutions, we want to play an increasingly important role in the daily life of our customers.

Let's join forces

EDITORIAL » Nearly one in four Finns have some connection with Helen's services. Behind individual customer accounts, you may find various partners, families and communities, companies and associations. Occasional encounters and lifelong journeys. Diverse Finnish life that requires energy.

To ensure that Helen is worthy of its customers, we continuously improve the customer experience. We want every encounter with Helen to leave a positive imprint. We develop cleaner and smarter solutions to make electric cars a genuinely practical alternative and ensure that our customers never run out of power at home. Technological progress also enables new forms of cooperation. Helen's customers can already receive compensation for the excess solar power they feed into the network. Energy flows in two directions.

We all need to think about what we can do to mitigate climate change. Helen has set a goal of being carbon neutral by 2035. We are a partner, friend and guide on the path to a new era of energy. We promise you that together we can build a cleaner future. Join us!

"We promise you that together we can build a cleaner future."

Sohvi Salmelin Marketing & Communications Director

A SOURCE OF PRIDE

Half a million

During the past few years, we have seen faster growth in the number of customers than ever before. We now have nearly 500,000 customers. Our northernmost customer is in Nuorgam, westernmost in Kilpisjärvi, easternmost in Möhkö and southernmost in Hanko. It is no exaggeration to say that Helen is an energy company for all of Finland.

Helen's southernmost customer is located in Hanko.

PHOTO: GETTY IMAGES

HELEN

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Energy!

Read about current phenomena and news. Pick up tips for smooth daily life.

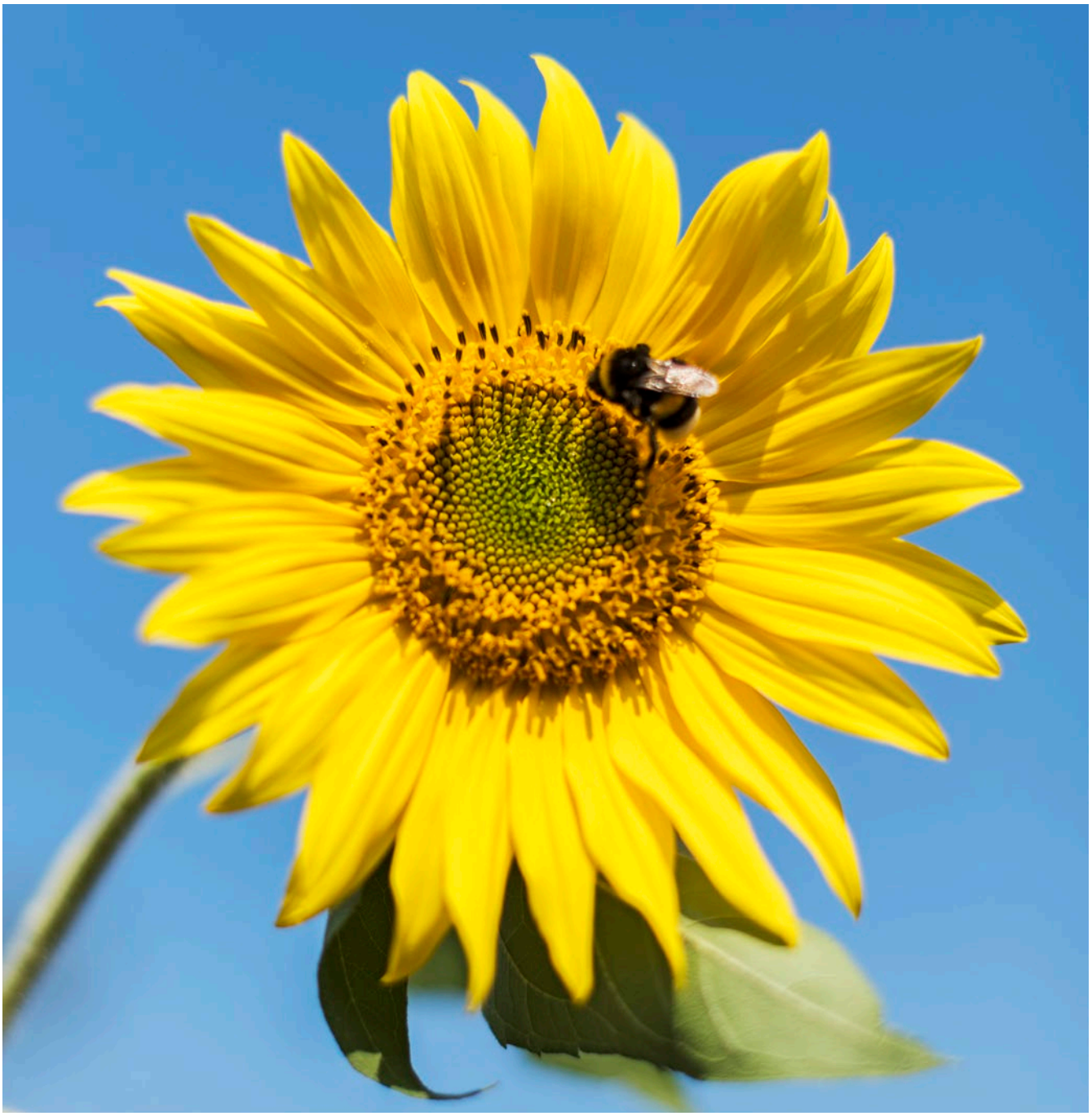


PHOTO: GETTY IMAGES

#solarpower **Join the climate campaign! Reducing your carbon footprint by solar power is now easy even if you don't own any solar panels. Become a solar power producer and rent a designated panel for yourself at the Messukeskus solar power plant: helen.fi/messukeskus.**

#electriccars **Is your housing company considering an investment in charging points for electric cars? Helen's remote survey is a convenient way to find out how many charging points you can safely install in your car park. More information: helen.fi/etakatselmus.**

HOW TO PREPARE FOR AN EXTENDED POWER OUTAGE:

- ✓ GET A TORCH AND BATTERIES OR A CANDLE AND MATCHES AS A LIGHT SOURCE.
- ✓ YOU WILL NEED A BATTERY-POWERED RADIO TO LISTEN TO NEWS AND ANNOUNCEMENTS BY THE AUTHORITIES. YOU CAN USE THE RADIO IN YOUR CAR, BUT PHONES WILL STOP WORKING WHEN THEIR BASE STATIONS GO OFFLINE.
- ✓ CHOP UP FIREWOOD FOR HEATING IF YOU HAVE A FIREPLACE IN YOUR HOME.
- ✓ PUT ASIDE DRINKING WATER AND FOOD THAT CAN BE PREPARED WITHOUT ELECTRICITY. THE SUPPLY OF WATER TO YOUR HOME WILL CEASE BECAUSE WATER PRESSURE IS MAINTAINED BY ELECTRIC PUMPS.
- ✓ TAKE OUT CASH BECAUSE ATMS WON'T WORK AND CARD PAYMENTS WON'T BE POSSIBLE.

PHOTO: PROJECT CONSORTIUM K2S/NRT

The Helsinki Olympic Stadium will reopen in 2020 as an energy-efficient facility. The stadium is heated by Helen's district heating and cooled by district cooling. A solar power plant on the roof of the stadium and EV charging stations will make the atmosphere at sporting events even more electric.

HOW IRRESPONSIBLE IS IT...

...to leave your charger plugged in 24/7?

It is irresponsible. The maximum power consumption allowed for chargers in standby mode is 150 mW. A charger left plugged in without a phone would waste 1.2 kWh of energy each year, and the estimated 6,000,000 chargers in Finland would consume a combined 7,200,000 kWh. That would correspond to the total annual energy consumption of 3,600 apartments. Do environmentally conscious thing and unplug your charger after use.

PHOTO: MIKKO HIRVONEN

#carbonneutral2035 **Helen has set a target of carbon neutral energy production in 2035. We will achieve this goal step by step — first by stopping the use of coal, increasing use of renewable energy, and by building heat pumps and energy storage systems, for example.**

I GIVE IT THE THUMBS UP

Stay on the path

Work site cyclist Aleksi Pippuri, 20, spent his summer riding around Helen's worksites to put their traffic arrangements to the test.

Work sites cause changes to our familiar paths and routes. To promote road safety, Helen hired a work site cyclist for summer 2019 to help test and develop the traffic arrangements at work sites and communicate exceptional routes.

Spending the summer on a bike gave work site cyclist Aleksi Pippuri a whole new perspective on getting around the city.

"I live in the city, so work sites have always been part of the picture, but I hadn't paid much attention to them before. This job gave me the opportunity to really get to know them and help make them better. I hope my role has made people see that work sites are not an inconvenience, but rather a necessary good."

As he surveyed the work sites, Pippuri noted that a psychological perspective is necessary for making effective traffic arrangements. While traffic around work sites is always arranged with safety as the first priority, people will only follow the prepared routes if they are natural and convenient to use.

"People move like water: they follow the path of least resistance. Those in charge of traffic arrangements at work sites need to think about how to create routes that people will actually use instead of taking dangerous shortcuts across the street, for example."

DID YOU KNOW?
During the summer, Helen and Helen Electricity Network improved energy infrastructure at more than 40 work sites.

"A worksite is not an inconvenience, but rather a necessary good."

TEXT: ANI KELLOMÄKI / PHOTO: PETRI MULARI

GETTING TO KNOW HOUSEHOLD APPLIANCES

Hello, I do the drying here!

Dehydration is an ancient and revered method of preserving food.

1

The most important attributes of a food dehydrator are drying power and even airflow.

2

"You can also take advantage of the proximity of heat sources in your home when dehydrating food, e.g. radiators and the spaces above refrigerators and freezers."

Marja Einesalo Energy Advisor, Helen Ltd

3

What makes a food dehydrator better than an oven for drying food?

Dehydrating food in an oven is difficult in the absence of proper air flow. You need to leave the oven door slightly ajar to let moisture out. Setting the temperature as low as you need is not easy. This also applies to convection ovens. New ovens may have a separate dehydration setting.

4

What is the right drying temperature?

It depends. For herbs, the maximum temperature is 30°C, for mushrooms 35–40°C and for berries, fruit and root vegetables 50°C. Drying mushrooms in a food dehydrator, for example, takes 3–6 hours depending on the species, drying power and how full the dehydrator is. Dehydrators range in power from about 200 watts to more than 1,000 watts.

5

What foods can I put in a dehydrator?

All kinds of herbs, root vegetables and berries. As for drying fruit, apples are the typical choice for people in Finland. Vegetables will taste better if you blanch them before drying. The mushrooms that are best for drying include false morels, trumpet chanterelle, yellow foot, horn of plenty, boletes and penny bun, the parasol mushroom, charbonnier and russula.

More information on energy-related topics:
energiatori@helen.fi

PHOTOS: MANUFACTURER AND GETTY IMAGES

#heatstorage **The construction of the Mustikkamaa cavern heat storage facility is well underway. Finland's largest heat storage facility will be in production use in 2021. It will enable a reduction of 21,000 tonnes in annual carbon dioxide emissions.**

Let's find out... about charging

The electric vehicle charging network is expanding quickly.

	What?	How much power?	What else?
HOME CHARGING STATION	A charger with a Type 2 connector. Often installed on the wall or in the yard of a residence. Owned by the person who does the charging.	Minimum power at least 3.7 kW, enough to charge a fully electric car overnight or a plug-in hybrid in a few hours.	As of mid-2019, there were 3,523 pure electric vehicles on Finland's roads along with 18,039 plug-in hybrids.
HOUSING COMPANY CHARGING STATION	Each charging station has one or two Type 2 connectors. Located in a housing company's car park.	More than 90% of cars are charged at home or at housing companies, using equipment ranging from 3.7 kW to 22 kW.	Housing companies can apply for a subsidy from ARA when building capacity for at least 5 charging points.
COMPANY-OWNED CHARGING STATION	Companies can offer charging for employees or customers, either free of charge or for a fee. Owned by the company.	About 5% of cars are charged at company-owned charging stations. They set the power level as necessary.	Companies get approximately 8–10 smart charging points from Helen, equipped with features such as user identification.
PUBLIC CHARGING STATION	A charging service that is open to everyone. Locations include shopping centres, service stations and city streets.	Most stations use medium-speed equipment. Rapid charging equipment exceeding 50 kW can be used with pure electric vehicles.	Helen operates nearly 50 stations and this number is set to double. The Virta service network comprises more than 600 stations.

Come out and spray!

This piece by Elisabeth Vesanto and Pia Iiramo won the painting contest at the grand opening of the Suvilahti graffiti wall. The Kalasatama substation is encircled by a metal wall that is a hundred metres long, three metres high and intended as a canvas for graffiti. It is a living work of art that everyone is welcome to participate in.

"The message of this piece is that a small amount of energy can start a big reaction. Every moment is precious. We want to remind people about the importance of spending time together and sharing positive energy. Let's give each other power!"

— Elisabeth Vesanto and Pia Iiramo

PHOTO: ALEKSI PIPPURI

#solar energy **People living in blocks of flats can now benefit from all the energy produced by the housing company's solar panels. Compensation creates savings in energy and transmission costs as well as electricity taxes. More information: helensahkoverkko.fi.**

No more sweating in the summer heat

The temperature inside the apartments on Minervankatu in Helsinki is just right, even during the hottest days of summer, now that the housing company has joined Helen's district cooling network. The cooling pipes and equipment were installed in conjunction with plumbing renovations.

Text: Marjukka Puolakka | Photos: Petri Mulari

DISTRICT COOLING BECAME A TOPIC OF DIS-cussion at Asunto Oy Minervankatu 2 when the housing company began to plan a plumbing renovation project.

"A neighbouring building had joined Helen's district cooling network. The people at this property wanted to find out if they could do the same. The general meeting then reached separate decisions on the plumbing renovation and the construction of district cooling pipes," says Building Manager Matti Nieminen, Managing Director of Talohallinto Oy.

The housing company is comprised of 49 apartments, with about 60 per cent joining the district cooling network in conjunction with the plumbing renovation. This required the installation of connecting pipes, cooling pipes and space-specific units that are similar to the central unit of an air source heat pump.

"The cost of the plumbing renovation project was just over €2.3 million. The housing company's additional costs of installing the district cooling system were about €200,000. The apartment owners who decided to join the cooling system were also responsible for their individual pipe installations and space-specific equipment. The additional costs per apartment amounted to €2,000 on average."

The average operating cost of the district cooling system has been about €15 per apartment. Joining the district cooling system will also be possible at a later time. When district cooling is provided for in advance, the system can be introduced cost-efficiently even years later.

Minervankatu 2 was connected to Helen's district cooling trunk network located on Museokatu. It covers central Helsinki from Salmisaari to Kalasatama and from Hernesaari to Pasila. Outside the trunk network, district cooling can be implemented using property-specific heat pumps installed in buildings that use district heating.

"District cooling makes life much more comfortable on hot summer days. It also has an undeniable positive impact on the value of the apartments in this housing company."

“District cooling makes life much more comfortable and increases property values.”

Matti Nieminen
Building Manager, Talohallinto Oy

What?

Asunto Oy Minervankatu 2.

A housing company in Helsinki’s Etu-Töölö district, comprised of 49 units including the commercial premises at street level.

A five-storey red brick building built in 1914.

The property was connected to Helen’s district cooling network this summer.

8+1 things you should know about

District cooling

1 When interest in district cooling emerges in the housing company, its representative (building manager or board member) should contact Helen's customer service or sales department.

2 Helen will determine the method of implementation for district cooling based on the housing company's location. If the building is outside Helen's district cooling trunk network, cooling can be produced locally by a heat pump connected to the district heating network.

3 An HVAC engineer authorised by the housing company evaluates the implementation options and their impacts on the end result and costs. The project's scope, preliminary timetable and budget are defined at this stage.

4 The general meeting of the housing company discusses the issue of buying a district cooling system and makes a decision on the matter. In plumbing renovation projects, it makes sense to consider future compatibility with district cooling.

5 The HVAC engineer determines the cooling need and designs a cooling method that suits the building. Helen helps the engineer choose the right equipment to suit the scope of the project and approves the designs.

6 The housing company signs an agreement with Helen on the delivery and transmission of cooling energy. Helen delivers district cooling connection pipes and measurement equipment to the housing company's basement on schedule.

7 The contractor builds the property's cooling system, which includes heat exchangers, pipes and space-specific equipment. The space-specific equipments are integrated in wall and ceiling structures. The building is connected to Helen's district cooling network.

8 Now the homes stay nice and cool even during the hottest days of summer. Chilled water circulating through the cooling pipes absorbs excess heat from the rooms and the heat in the return water is utilised for district heating.

+1 District cooling can be implemented in both new and old buildings. It is an energy-efficient, carefree and easy way to increase living comfort. Best of all, it makes it possible to capture waste heat for use in district heating production.

"A plumbing renovation project is a great time to join the district cooling network. At least, it makes sense to provide for the necessary pipes to make it cost-efficient and easy to join the district cooling at a later time."

Jani Luukkonen
Sales Manager, Helen Ltd

City

Everything you ever wanted to know about urbanisation — and more.

The number of cities of 1–5 million people will grow the fastest in the near future and is expected to approach 600 by 2030.

Half of the world's population now live in cities. Urbanisation is one of the megatrends of our time. The number of megacities with more than 10 million people is growing. What will this mean in the future?

Text: Kati Kelola | Photo: Getty Images

5% of the Finnish population live

IF YOU PLAY TRIVIAL PURSUIT IN 2035 AND you're asked to name the world's most populous city, the correct answer may be Jakarta, Indonesia. It is expected to overtake Tokyo at the top of the list by 2030.

Jakarta exemplifies the metropolis of the future in several ways.

For one thing, the number of megacities like Jakarta is increasing. Megacities are defined as having over 10 million inhabitants. There are currently 34 such metropolitan areas, and the UN predicts this number will reach 43 by 2030.

The majority of the world's megacities are located in Asia. Of those 19 cities, as many as six are in China. There are four megacities in Europe, five in South America and three each in Africa and North America.

Jakarta is also an example of the fastest urban growth being seen in East Asia and South Asia at present. Africa will become a second continent of megacities alongside Asia.

Megacities are part of the broader global megatrend of urbanisation. More than half of the world's population already live in urban areas, compared to only 30 per cent in the 1950s, for example.

Although the number of megacities is increasing, medium-sized cities are where the fastest growth is taking place. The number of cities of 1–5 million people is expected to reach 597 by 2030. This would be an increase of 130 compared to 2018.

Forecasts of population growth in different regions and cities are only estimates, as the way cities are defined and delineated varies around the world. But the trend is the same everywhere.

"WORK OPPORTUNITIES ARE A BIG FACTOR," says Mikko Dufva, Leading Foresight Specialist at Sitra.

The world's population is flowing into cities in search of work, higher incomes and better future prospects.

China has seen what is perhaps the biggest and fastest migration from rural areas to cities in world history.

Nearly 500 million people have been on the move during the past 30 years. Once a country with a rural population, China now has 60 per cent of its people living in cities.

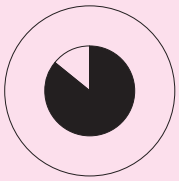
At their best, cities can indeed offer what people seek: a better life. But much

The big five

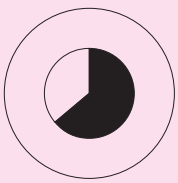
The world's five most populous cities:

- Tokyo, 37 million
- Delhi, 29 million
- Shanghai, 26 million
- México City, 22 million
- São Paulo, 22 million

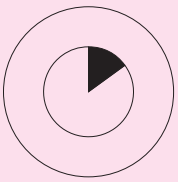
The figures are estimates. Population calculation methods vary around the world.



The UN forecasts that 86% of the people living in developed countries will live in cities in 2050.



The same forecast predicts that 64% of the people in the developing world will live in cities that year.



Urbanisation is happening very fast. In the early 1900s, only 15% of the world's population lived in cities.

PHOTO: VASTAVALO

The British Isles were an exception, with 72% of Englishmen and Welshmen already living in cities in 1891.

In 1891, the largest cities in England were London (5.6 million) and Liverpool (520,000).

After London, the world's largest cities in 1891 were New York (2.7 million) and Paris (2.4 million).

depends on how the city is structured and developed. There are all kinds of places along that continuum.

"At one extreme, you have shantytowns resulting from uncontrolled urban sprawl. At the other extreme, you have a well-planned city," Dufva explains.

Cities where growth gets out of control suffer from various problems because the urban structures can't keep up. There aren't enough homes for everyone, or new arrivals can't afford them, which leads to slums. Electrical power and sewage networks as well as other infrastructure are absent or only partially functional. Traffic becomes congested. You get social problems, such as poverty, disease and appalling inequality.

In the Nigerian megacity of Lagos, for example, most of its 14–21 million inhabitants (estimates vary) live in slum-like areas without running water or sewage systems.

As an extreme example of a planned city, Dufva mentions Masdar City in the United Arab Emirates. It's a project aimed at building the world's first city that was designed to be carbon neutral from the start. However, this city built in the desert from scratch is now at risk of becoming an incomplete ghost town, and it doesn't look like the emission targets will be achieved either.

"The ideal shape of a city is found somewhere between these extremes. People need to be engaged in planning and designing the urban structure," Dufva says.

YOU CAN'T TALK ABOUT URBANISATION AND migration without talking about the environment. Photos of the Beijing skyline barely visible through air pollution are often featured in the media. Highly built-up asphalt jungles generate not only pollution, but also heat.

Cities have a significant impact on climate change – and vice versa. Nearly two-thirds of the world's energy is consumed in cities. They also account for more than 70 per cent of the world's greenhouse gas emissions.

"Cities are often major consumers of energy and resources," Dufva points out.

According to Dufva, at their best, cities can lead the way with regard to the circular economy and climate solutions.

Many kinds of

World of the young

Global population growth affects urbanisation. The UN predicts that the world's population will be nearly 10 billion in 2050. In Nigeria, for example, the median age of the population is currently 18 years. Half of the Indian population is under 25.

alternatives have already been developed. To solve problems related to heat retention and wastewater management, some cities have ramped up their efforts to plant trees and plants as well as installed green roofs on buildings.

Dufva says these types of cities are called sponge cities.

"They absorb rain, neutralise the heat and clean the air. That makes them nicer places to live."

FINLAND IS NO EXCEPTION TO THE TREND of urban migration, and it seems that the rate of urbanisation is only getting faster. According to a forecast by the MDI Consultancy for Regional Development, published last spring and the subject of widespread news coverage, the Finnish countryside is emptying faster than expected.

Finland is predicted to have only three growing urban regions in 2040: Helsinki, Tampere and Turku. An estimated 67.1 per cent of the Finnish population will live within the ten largest urban areas by then. International migration will contribute to population growth at the regional level.

The world's most urban regions

North America, Latin America and the Caribbean are the world's most urban areas, with roughly 80% of the population living in cities. Europe and Oceania are next on the list.

The age of the urbanising population will increase in Finland. The number of people over 65 years of age will increase in all of Finland's regions, while the number of children will decrease in every region except the Åland Islands.

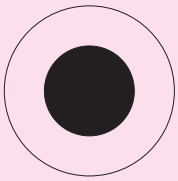
Among Finland's urban areas, Helsinki's population will grow the most. In terms of infrastructure, this means that 5,000 new homes and companies will join the city's electricity network each year in the near future.

"THE TREND OF URBANISATION IN HELSINKI means that the city will become increasingly dense," says Markku Hyvärinen, Director, Development and ICT at Helen Electricity Network.

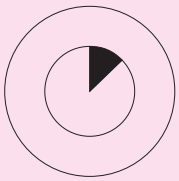
The densification of the urban structure concerns not only new neighbourhoods, but also older areas. Hyvärinen says they will be rebuilt for the second or third time, and old structures will be removed to make way for growth.

"For example, old harbour areas and railway yards will be repurposed."

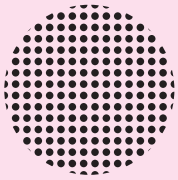
Population growth comes with a growing need for land for homes and business premises. This means



In Kuwait, Monaco, Nauru, Singapore and the Vatican, 100% of the population lives in the city.



In Burundi and Papua New Guinea, only 13% live in cities. In Liechtenstein, the figure is 14%.



The country with the highest population density is the city-state of Monaco at 19,000 per km².

in urbanised areas.

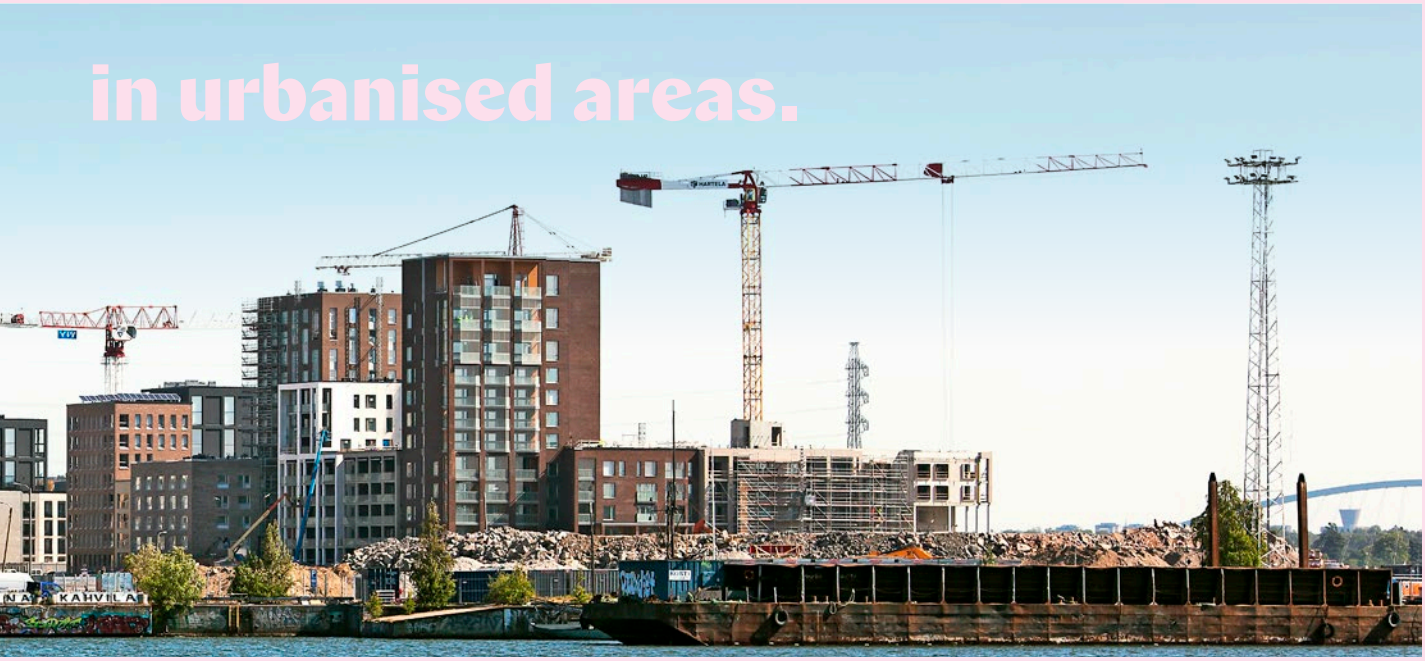
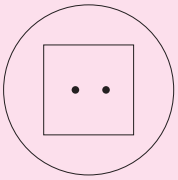
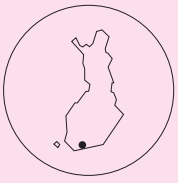


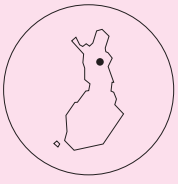
PHOTO: PETRI MULARI



The lowest population density is found in Mongolia at 2 per km^2.



Finland's most densely populated municipality after Helsinki is Kauniainen at 1,630 per km^2.



The most sparsely populated municipality in Finland is Savukoski at 0.16 per km^2.

that overhead power lines must be moved underground. Underground cabling will free up land for construction.

"The demand for electricity will also increase in the future," Hyvärinen points out.

Part of this picture is that Helen is preparing to close down the Hanasaari power plant, which produces district heating and electricity, by the end of 2024. According to Hyvärinen, part of the district heating needed to replace Hanasaari's output will be produced by heat pumps that run on electricity. The mobility solutions of the future will also be increasingly electric.

"This means that we will need to bring in more electricity from outside Helsinki. The need for electricity transmission will increase. We will need to develop higher capacity networks at the same time as we move power lines underground," Hyvärinen explains.

According to Hyvärinen, energy efficiency has improved so much in recent times that the overall increase in electricity consumption is quite moderate compared to the last decades of the 1900s, for example.

URBANISATION APPEARS UNSTOPPABLE, but climate change will influence migration more and more in the future.

"Globally, the key question is where will people be able to live when extreme weather phenomena become increasingly common," Mikko Dufva says.

"We are already seeing not only migration from rural areas to cities, but also migration away from areas that are no longer inhabitable."

Rising sea levels affect people living in coastal and low-lying areas.

"It will be interesting to see how climate change and the post-fossil era will influence the way we work by introducing changes to industries."

Dufva believes cities may play a decisive role in the race to solve problems in the climate change era.

"Cities may take on a key role in the circular economy, meaning the development of relatively self-sufficient, sustainable and closed loop areas," Dufva adds.

"The more of a resource you have in one place, the more efficiently you can make use of it."

The new megacities of Africa

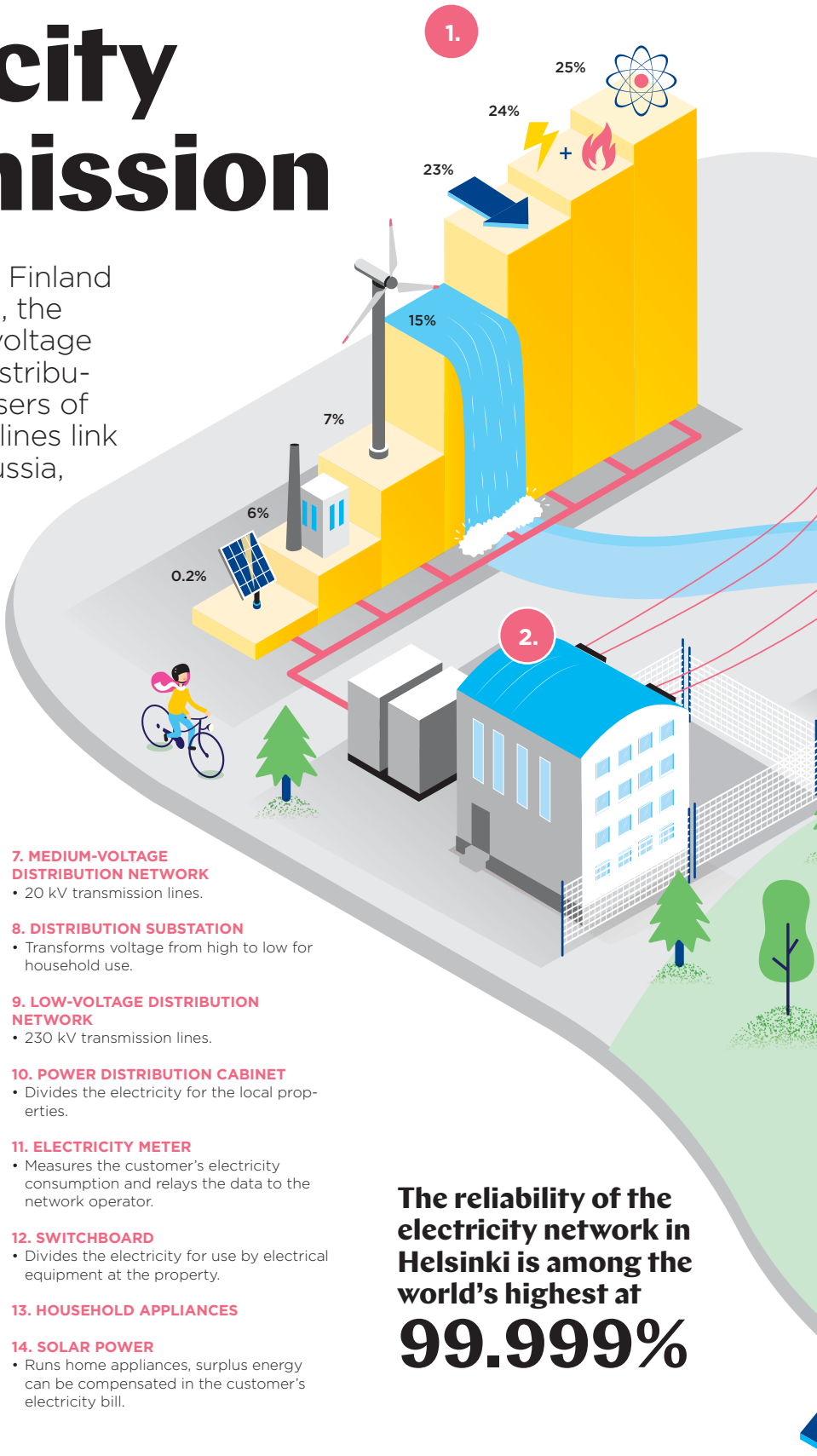
The next African megacities are Dar es Salaam in Tanzania and the Angolan capital Luanda. If the wildest forecasts are to be believed, the population of Lagos in Nigeria could grow to 100 million.

SOURCES: EUROMONITOR, WORLD BANK, PRB, THE GUARDIAN, WORLD ECONOMIC FORUM, UN

Electricity transmission

The electricity system in Finland consists of power plants, the transmission grid, high-voltage distribution networks, distribution networks and the users of electricity. Transmission lines link Finland with Sweden, Russia, Estonia and Norway.

Infographics: Henna Ryynänen



1. PRODUCTION METHODS IN FINLAND IN 2018

Nuclear power 25%

Combined heat and power 24%

- Finland has high heating requirements, and heating plants often generate electricity as well.

Net import of electricity 23%

- Finland imports electricity from Sweden, Russia and Estonia.

Hydropower 15%

- There are about 400 power plants in Finland, with hydropower plants representing more than half of this total.

Wind power 7%

Condensing power 6%

- Condensing power plants produce only electricity. The heat that is generated at the same time is channelled into the sea.

Solar power 0.2%

2. SUBSTATION

- Transforms voltage from low to high for long-distance transmission. The higher the transmission voltage, the lower the power losses.

3. TRANSMISSION GRID

- Power is transmitted in 400 kV transmission lines.

4. SUBSTATION

- Transforms voltage from high to low.

5. HIGH-VOLTAGE DISTRIBUTION NETWORK

- Power is transmitted in 110 kV transmission lines.

6. SUBSTATION

- Transforms voltage from high to low.

7. MEDIUM-VOLTAGE DISTRIBUTION NETWORK

- 20 kV transmission lines.

8. DISTRIBUTION SUBSTATION

- Transforms voltage from high to low for household use.

9. LOW-VOLTAGE DISTRIBUTION NETWORK

- 230 kV transmission lines.

10. POWER DISTRIBUTION CABINET

- Divides the electricity for the local properties.

11. ELECTRICITY METER

- Measures the customer's electricity consumption and relays the data to the network operator.

12. SWITCHBOARD

- Divides the electricity for use by electrical equipment at the property.

13. HOUSEHOLD APPLIANCES

14. SOLAR POWER

- Runs home appliances, surplus energy can be compensated in the customer's electricity bill.

The reliability of the electricity network in Helsinki is among the world's highest at

99.999%


Antti's Footsteps are designer pylons that support 110 kV power lines between Salmisaari and Meilahti.
3.
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ME & MY HOMETOWN

Holiday in Helsinki

Staycationer Vera Melleri enjoys experiencing her hometown through the eyes of a tourist.

I found out about staycations when my children were still young. Travelling for a hobby of mine, I had realised how nice it was to spend some time alone in a hotel room.

At first, it felt extravagant to get a hotel room in your hometown, but now I enjoy it to the full. I take a little time off for myself 2–3 times a year by putting together 24 hours of pampering around one night in a hotel.

A staycation is an eco-friendly choice because it doesn't involve travel.

I prefer places with personality. I always request a room with a sea view if possible. I go for a swim, relax in a whirlpool and enjoy a lovely hotel breakfast.

You experience Helsinki differently when you're on vacation. In the hustle of daily life, you don't have time to wander off into side streets, get lost and visit cute little cafés. A staycation is all about taking it slow and not following a tight schedule.

Having a lie-down is definitely part of my staycation rituals. I have a million things to take care of at home, so I really enjoy being able to just stretch out for a bit. I often treat myself to slightly overpriced chocolate truffles or other delicacies.

You have to give time to yourself just like you give time to your family and employer. Instead of complaining about the hardships of daily life, you need to think about what you can do to make things easier on yourself. I like to look for hotel discounts. When a good one comes along, I come up with a plan for being a tourist in my hometown for that day."

"I prefer places with personality," says Vera Melleri at the Kaisaniemi Botanic Garden in Helsinki.

VERA'S TIPS
How to make the most of your staycation:

- Ask for a room with a view.
- Go for a walk without your phone.
- Enjoy the sea, sky and parks.
- Eat room service in bed.

TEXT: ANI KELLOMÄKI. PHOTO: KIRSI TUURA

Did you know this about apartment buildings?

Find out how familiar you are with the go-to housing choice among city dwellers.

PHOTOS: GETTY IMAGES AND HELSINKI CITY MUSEUM

1

Finnish apartment buildings are typically...

A. ...2–3 storeys
B. ...3–4 storeys
C. ...5–6 storeys

2

Where is the oldest apartment building in Finland?

A. Turku
B. Helsinki
C. Porvoo

3

How tall is the high-rise building planned for Helsinki's Pasila district?

A. 100 metres
B. 130 metres
C. 180 metres

4

Finland's first wood-framed apartment building will be located in...

A. ...Vantaa
B. ...Joensuu
C. ...Lahti

5

How many one-person households are there in Finland?

A. 2,500,000
B. 800,000
C. 1,200,000

6

In the Helsinki region, families with children mostly live in...

A. ...terraced houses
B. ...single-family houses
C. ...apartment buildings

7

The world's fastest lift is in Shanghai Tower in China. How fast does it go?

A. 35 km/h
B. 80 km/h
C. 74 km/h

ANSWER KEY: 1.B, 2.B, 3.C, 4.B, 5.C, 6.C, 7.C, 8.A, 9.A

8

What is the tallest building in the world?

A. Burj Khalifa, UAE
B. One World Trade Center, USA
C. Taipei 101, Taiwan

9

What is the tallest hotel in Finland?

A. Hotel Torni, Tampere
B. Hotel Torni, Helsinki
C. Hotel Flamingo, Vantaa

Hotel Torni in Helsinki was opened in 1931.

The most densely populated city

The Philippine capital Manila has grown around the Pasig River.

According to the latest statistics, Manila has 1,780,000 people living in an area of 42.88 km^2, which gives it a population density of 41,500 people per km^2. It is the world's most densely populated city. By comparison, Helsinki has 650,000 people living in an area of 215.16 km^2, which makes the population density just over 3,000 per km^2.

Manila is part of Mega Manila, which already has more than 20 million people. This figure is expected to reach 30 million by 2030. Traffic congestion, air pollution and hazardous living conditions are among its major problems. The response to these issues involves building several population centres of various sizes, with good cross traffic between them. This would prevent the population from accumulating around a single centre.

PHOTO: GETTY IMAGES

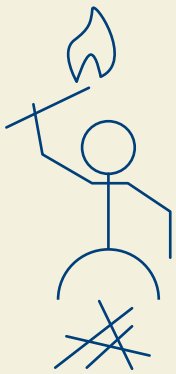
TIMELINE

Heating homes through the years

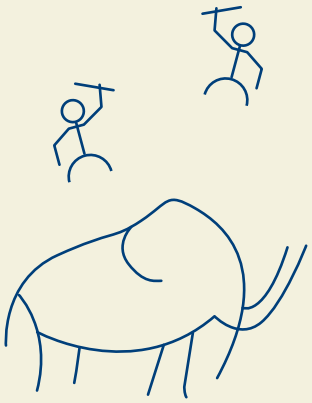
Did you know that district heating was used in Helsinki as early as the 1920s?

1,900,000 BCE

Early humans gathered around campfires to cook food and seek warmth. Fires were eventually moved inside caves and other enclosed areas.

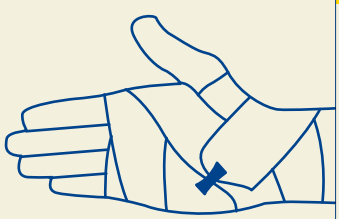


44,000 BCE



Neanderthals built hearths from mammoth bones for heating and cooking. They lived alongside modern humans in Europe and Asia until their extinction.

1940



Robert C. Webber invented the heat pump based on refrigerant circulation. The idea came to him when he accidentally burned his hand on the outlet pipes of his freezer's refrigeration system. He decided to make use of the wasted heat. Later, he would go on to build the first geothermal heat pump using freon gas in copper tubing.

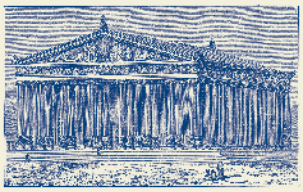
1920

The first application of district heating in Helsinki involved using steam generated by the Suvilahti power plant to heat a nearby repair shop. Commercial district heating production began about three decades later, with water-based district heating was introduced soon after.

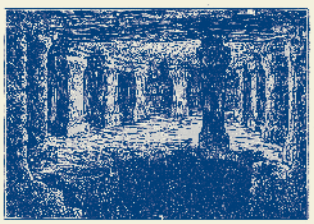
PHOTOS: HELEN, GETTY IMAGES AND MIKKO HIRVONEN

2500 BCE

The first fixed hearths were built at the Temple of Artemis at Ephesus in ancient Greece. Excavations have revealed flues used to channel heat generated by open fires around the temple.



500 BCE



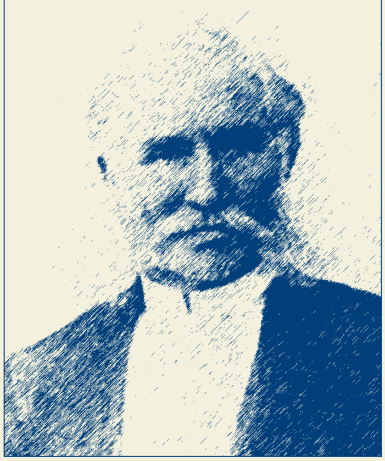
Central heating was a Roman invention. The hypocaust system involved erecting buildings on pillars. A fire was lit underneath to heat the floor and walls without allowing smoke inside. The system was used in upper class homes and Roman baths. Similar systems were also used in Korea and Syria around the same time.

1200

The invention of the chimney provided the foundation for heating methods that are used to this day. The first chimneys were so large that chimney sweeps could fit inside.

1855

Franz San Galli invented the radiator, which was the first significant step towards our modern heating systems. He gave his invention the name “hot-box”.



1900

Albert L. Marsh becomes the father of electrical heating by coming up with nichrome wire. Made from 80% nickel and 20% chromium, it has a melting point of 1,400°C and high resistance to oxidation. Many varieties of nichrome are still widely used.

1919

Alice H. Parker patented a central heating system. Her invention was a gas-heated central furnace that allowed heat to spread throughout a building through air ducts.

ECO-ACTION

Making the city greener

The roof of a distribution substation in Punavuori was transformed into a pollination station for the summer.

There's a buzz in the air in central Helsinki on this bright summer morning. Bees and bumblebees fly from flower to flower, sipping nectar to provide nutrition for their hives.

"They won't sting you," say Eija Leinonen and Kaisa Viitanen.

They are members of Make Punavuori Blossom, a community that waters the flowering plants at the pollination station built on the roof of a local distribution substation.

The pollination station consists of flowering plants and plywood art.

"The artwork features shapes inspired by the species of moss growing on the concrete walls of the substation. The shape of the art piece as a whole is triangular like the roof of the substation, so it combines natural and man-made shapes," says artist-designer Päivi Raivio from the RaivioBumann Art and Design Studio.

She created the piece in collaboration with Daniel Bumann. The station is a pilot for the Green Infra concept developed by the pair.

"We chose pollinator-friendly plants, such as marigold, starflower and runner bean."

When the pollination station is taken down in late August, the plant boxes will be distributed to make yards around Punavuori greener.

DID YOU KNOW?
Helen partners with RaivioBumann on the Green Infra concept, which is aimed at making urban infrastructure — such as roofs, vacant areas and underground spaces — greener.

Green Infra projects are also planned for the roofs of the oil tanks at the Munkkisaari district heating station as well as the Sähkötalo rooftop terrace, which is earmarked for a herb garden.

Kaisa Viitanen (left) and Eija Leinonen are part of the pollination station's enthusiastic plant watering community. Alma is keeping a close eye on them.

TEXT: JOUKO VUORELA, PHOTO: PETRI MULARI

EVENTS

The following customer events are scheduled for this autumn at Helen's Energy Gallery on the third floor of Sähkötalo at Kampinkuja 2 (Malminrinne 6), Helsinki. Coffee will be served starting from 4 p.m. Welcome!
Registration: helen.fi/tapahtumat

TUE 10.9. 5–7 PM
Services for housing companies
New solutions help monitor conditions at housing companies and achieve cost savings. Come listen to presentations and discuss Helen's services with our experts.

TUE 24.9. 5–7 PM
A safe home is functional and well lit
Learn about solutions that make your home safer for people of all ages. Ergonomics, flexibility and good lighting are part of home safety.

TUE 22.10. 5–7 PM
EVs are coming — how to upgrade car parks
There are many ways for housing companies to arrange charging for electric cars. What should housing companies take into account in making decisions on charging points? What methods of implementation are available?

TUE 12.11. 5–7 PM
Sustainability through plant-based cooking — ideas for festive end-of-the-year meals
Adding more vegetables to your diet is not only healthy, but also a climate-friendly choice. Join this event for tips on cooking delicious plant-based meals and making good use of kitchen appliances.

SUDOKU

Sudokus solution: helen.fi/sudoku

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READER SURVEY

Send us your feedback and win a prize!

Which of the stories in this issue was the most interesting to you? You can also let us know what you would like to read about in Helen magazine.

Participate in the survey by 11 October 2019 online at **helen.fi/lukijakilpailu** or send a postcard to Helen, Helen magazine, 00090 HELEN. Don't forget to write your contact details and customer number on the card.

One lucky survey respondent will win a food dehydrator.

OBH Nordica Tasty
This dehydrator is great for drying mushrooms, fruit, vegetables and herbs. It has five trays, with the largest being 33 cm in diameter. You can choose from two dehydration speeds.

Sikke Sumari

1 Power naps

This is a skill I have learned just recently. I sleep for 10–30 minutes in a Hakola chair that has a lovely ottoman so I can put my feet up.

2 Pipsa

I work closely together with Pipsa on the menu at Sikke's. Pipsa's creativity feeds my creativity!

3 Skip-Bo!

We like to do potlucks with a group of friends, with everyone bringing something nice to eat. And then we play Skip-Bo! They are times when I get to just focus on the game and laugh to my heart's content.

Who

Sikke Sumari is an entrepreneur and TV host.

She has a restaurant — Sikke's — in Helsinki and a B&B called NamiNamaste on the island of Muhu in Estonia, which also offers cooking workshops.

Sumari will host the cooking game show Kokkisota on MTV3 this autumn.

4 Family

I have three sons and one grandchild, with another one on the way. My son lives in Switzerland with his family, but when we meet and I get to hold my six-month-old grandchild, I forget about everything else. We don't plan our get-togethers very much. We just live in the moment.

5 Workouts

I want to keep myself physically fit. I'm full of energy after a good workout with my personal trainer!

6 Customers

I could never have guessed how energising it is to have customers find my restaurant. It's a real shot of energy for me and it tells me we're on the right path.

TEXT: EMILIA SALORANTA, PHOTOS: A-LEHDET PHOTO ARCHIVE, GETTY IMAGES AND HAKOLA HUONEKALU OY

The combined area of Finland's cities is 117,144.93 km².

Helen Oy

Sähkötalo,
Kampinkuja 2,
00090 HELEN
- helen.fi

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Mon–Fri 8–18
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- 09 617 8080
- asiakaspalvelu@helen.fi

On the web
- helen.fi/ota-yhteytta

Free online services
- helen.fi

Phone line for movers 24/7
- 09 617 8020

HEATING CUSTOMERS
Mon–Fri 8–16
New district heating connections
- 09 617 8013
- kaukolampoliittymat@helen.fi

Contract amendments and assistance
- 09 617 8014
- kaukolampo@helen.fi

Billing, meter reading and energy consumption
- 09 617 8001

District heating equipment inspections and assistance
- 09 617 8012

COOLING CUSTOMERS
Mon–Fri 8–16
Sales and contracts
- 09 617 8015
- kaukojaahdytys@helen.fi

ENERGY GALLERY AND CUSTOMER SERVICE
Sähkötalo, 3rd floor
Mon–Fri 8–16
Energy Gallery: group visits, advice on topics such as heating, new electricity solutions and consumption monitoring as well as guidance on issues related to the selection, use and maintenance of household appliances
- energiatori@helen.fi

FAULT REPORTS
Disruptions in electricity distribution
- 08001 80808

Disruptions in district heating distribution
- 08001 60602

Real-time information on disruptions
- helen.fi

CALL CHARGES
Calls are subject to local network or mobile call charges

Helen Electricity Network Ltd

- helensahkoverkko.fi

ELECTRICITY NETWORK CUSTOMERS
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- 09 617 8090

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- 09 617 8086

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