Finland's most energetic customer magazine » 3/2020



Perttu Pölönen: "A chance to update values" » p.5 Why do I get two electricity bills? » p.6 Smart solutions generate savings » p.8 Sami Kuronen's energising evening routine **» p. 27** 

# Red hot rocky planet

The Earth's 6,000 °C core is an inexhaustible source of energy, providing geothermal heat that is used to an increasing extent.

» p. 11

Psst! Let Kiinteistövahti adjust the temperature and save euros. Read more on page 8.



# **Additional energy**

**EDITORIAL** » Solar and wind power are important renewable energy sources. Northern darkness is no obstacle to solar power: its generation is as efficient in Finland as in Northern Germany. In the future, energy hidden deep in the Earth will provide heat to an increasing number of Finnish homes and companies.

At the beginning of the last century, Helen created a district heating network in Helsinki to provide cleaner heat to houses that had been heated by burning wood. Climate change challenges us all to find new alternatives. In Helen's Solution Business, I am at the forefront of the development of renewable energy.

It is easy to switch to renewable district heating or you can order solar panels as a turnkey delivery or rent your own designated solar panel. Housing companies, properties and city blocks both in Helsinki and in other parts of Finland can get a ground source heating solution from Helen.

In Finland, you cannot bathe in a hot spring – unless you count Jacuzzis and wooden hot tubs as such – but with ground source heat and renewable district heat, you can take a climate-friendly hot shower.

## "At the forefront of renewable energy."

Sari Mannonen SVP of Solution Business, Helen Ltd

A SOURCE OF PRIDE

## Innovation

Helen's designated panels were recognised as one of the most innovative energy solutions in the international Eurelectric event. According to the grounds provided, the service also takes into account customers who cannot invest in small-scale solar power generation. Eurelectric is the advocacy organisation of the European electricity industry.

You can rent a designated panel at the Messukeskus, Kivikko and Suvilahti solar power plants.





PUBLISHER Helen Ltd, Kampinkuja 2, Helsinki, 00090 HELEN, tel. 09 6171 EDITOR-IN-CHIEF Mia Virolainen EDITORIAL TEAM Mari Eskelinen, Anna Huotari, Tiina-Kaisa Saukkola, Seija Uusitalo, Petri Vihavainen PRODUCTION Genero | A-lehdet COVER PHOTO Getty Images REPRO Aste Helsinki Oy PAPER Cover: WFUI30g, pages: StellaPress HB65g PRINTED BY UPC Print, Vaasa ISSN 1455-9528 HELEN MAGAZINE is Helen Ltd's and Helen Electricity Network Ltd's shared customer benefit. The magazine is published four times per year – the next issue in November 2020. To cancel your subscription, send a message to asiakaslehdet@helen.fi. Address change notifications: helen.fi. Our services online: helen.fi and helensahkoverkko.fi.



# Energy

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



**#betterenergy** Did you know that otters hold paws when sleeping? This and other better energy facts can be found on Helen's Facebook and Instagram pages (in Finnish).

**#moving** When moving, you can shorten your to-do list by taking care of two important agreements at the same time: Helen's Service Agreement for Household includes an electricity contract and comprehensive home insurance with a fixed monthly payment.

HOW TO MAKE RETURNING FROM ALONG HOLIDAY EASIER V TRYASOFT DESCENT END YOUR HOLIDAY IN THE MIDDLE OF THE WEEK TO MAKE THE FIRST WORKING WEEK SHORTER THAN NORMAL. DO THE TASKS THAT REQUIRE THE MOST BRAINPOWER AT THE BEGINNING OF THE DAY. V DON'T GET SWAMPED BY EMAIL: TAKE YOUR TIME GOING THROUGH THE MESSAGES ONE AT A TIME V TAKE A SUFFICIENT NUMBER OF BREAKS TO GIVE YOUR BRAIN SOME RER. EAT PROPER MEALS TO KEEP UP YOUR GET PEER SUPPORT FROM YOUR COLLEAGUES DURING COFFEE BREAKS.



In summer, Helen was looking for sports and hobby clubs to share good energy through videos. The jury chose five clubs to receive a €5,000 award of encouragement. Read more about the clubs' good energy in pulling together at helen.fi/hyvänenergianseura (in Finnish).

HOW IRRESPONSIBLE IS IT ...

# ...to leave LED lights on when leaving the room?

It's not that irresponsible. Energy-efficient LED light bulbs only use approximately one fifth of the electricity that incandescent light bulbs use so turning them off does not create as significant energy savings. On the other hand, the saying "an empty room does not need light" is still valid: even little unnecessary consumption is – well, unnecessary. If you turn lights on and off frequently, choose a light bulb with a manufacturer promise of a minimum of 50,000 switch-ons/switch-offs.



**#Tampere** Helen wants to make the opportunities presented by the new era of energy available to everyone all around Finland. The branch office that opened in Tampere serves single-family houses, housing companies and enterprises in western Finland.

TRENDSETTER

# Coronavirus lessons

Futurist Perttu Pölönen sees potential for change in the pandemic.

The pandemic has a powerful impact on people's thoughts, but it may also generate new kinds of thinking. According to futurist Perttu Pölönen, it will be interesting to see if we learn to use our resources more wisely.

"Hopefully, the crisis teaches us that overconsumption is not worthwhile."

A change may give rise to new kinds of sharing, borrowing and renting services.

"Perhaps we don't want to return to how things used to be. Now we have an excellent chance to update our values to this decade."

It's time to think about what we want from the future. "Speed or direction?" asks Pölönen, considering the options.

"For a long time, we've been living in an era of increasing efficiency, hoping for growth. Now we will perhaps see other aspects, too. However, it's still too early to say."

The prevailing situation is a good lesson in tolerating uncertainty. New things emerge, but you should not act rashly.

"During a fast-paced change, you don't need to reinvent the world and disrupt everything. Nevertheless, you should pay attention to what's going on in the world and be fast to react. The first changemakers are rarely the most successful – now, the winner is a fast runner-up."

#### DID YOU KNOW?

Disruption refers to a phenomenon in which an invention based on new technology challenges traditional methods. "The first changemakers are rarely the most successful – now, the winner is a fast runner-up." **#solarpower** Solar power can also be used when the sun does not shine. Helen's Virtual Battery, a digital storage service, allows you to store the solar power that you have generated but have not used and utilise it later – come rain or shine.

# Let's find out... about yardwork

There are many ways to get rid of fallen leaves.

	What?	How?	Price?
RAKING	A rake is the most familiar tool for removing leaves. It consists of a handle with a toothed bar fixed to it transversely.	Rake leaves into a pile and compost them. The fastest way to turn leaves into soil is to put them into a black garbage bag.	The price of a leaf rake is approx. €8–37.
BLOWING	A leaf blower is powered by a battery, mains electricity or an internal combustion engine and it propels air out of a nozzle.	Blow leaves into a pile and compost together with other green waste, for instance.	The price of a leaf blower is approx. €100-500.
SHREDDING	A lawn mower is a familiar device. It is powered by an internal combustion engine or a battery and its operation is based on revolving blades.	Shred leaves into small pieces using a lawn mower. Leave the shredded leaves on the ground to provide nutrients for the lawn.	The price of a lawn mower is approx. €200-650.
ROLLING	Rolling is a handy way of col- lecting leaves in late autumn. The only tool you need is a pair of gardening gloves.	When the temperature goes down to zero, roll frozen leaves into bundles that are easy to take away.	The price of a pair of garden- ing gloves is approx. €2-12.

# Why do I get two electricity bills?

Electricity transmission and electricity sales are two separate things. Your local electricity network company is responsible for electricity transmission and sends a bill for transmission. The electricity seller you have chosen sends a bill for electricity they have sold you. An exception to this rule is Helen, which provides its electricity sales customers in Helsinki with a combined bill with Helen Electricity Network Ltd.

Remember that you can replace paper invoices with convenient e-invoices. For instructions, see **helen.fi/e-invoice**.

**#carbonneutral** Helen's cooling, available in all parts of Helsinki, is carbon neutral. Helen has set a target of making its energy production carbon neutral by 2035. This means that production does not increase the amount of carbon dioxide in the atmosphere.

PHOTO: GETTY IMAGES

# What can I use a blender for?

With a blender, you can make smoothies, milkshakes, iced drinks, pastes and sauces, purée fruit, berries and boiled vegetables as well as crush hard, solid substances, such as chocolate, nuts and ice.

# 2

"You can get a basic model for €25–50, but the price of top-ofthe-line blenders can be as much as €1,000. The price depends on the powerfulness of the motor, the functions, the stability and sound reduction of the base and the material of the bowl, among other things. Design and the brand also affect the price."

**Sari Loukasmäki** Energy Advisor, Helen Ltd

## Sunny smoothie (serves 2)

2 dl natural yoghurt 1 dl apple juice 1 banana 1 dl cubed mango 2 tbsp sea buckthorn juice 1 tbsp liquid honey 1 tsp turmeric

Mix in a blender and enjoy.

# Hello, just blending in here...

GETTING TO KNOW HOUSEHOLD APPLIANCES

A blender is the power tool of all kitchens.

10 Million

## How do I clean a blender?

A blender is easy to clean. Immediately after use, put some water and a drop of dishwashing liquid in the blender bowl, spin the bowl to clean it and then rinse. The best option is if the components are dishwasher safe and the bowl and blades are removable. Wipe the base with a moist cloth after each use. See the user's manual for the manufacturer's cleaning instructions.

# 4

## How do I select the optimal blender?

Consider the purposes for which you will use the blender. Choose the bowl size according to your needs. A glass bowl is not prone to scratching but is heavier than a plastic one. The basic models are suitable for softer ingredients that contain more liquid. If the main purpose of use is to make iced or crushed ice drinks, choose a sufficiently powerful device that is suitable especially for this purpose. A heavier blender is more stable.

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

PARTICIPATE in our reader survey on page 26 for a chance to win a blender. LET'S JOIN FORCES

# **Smarter** heating

Kiinteistövahti and Helen's other smart property solutions provide housing companies with tools for achieving the optimal temperature in apartments. No more euros wasted by overheating! Text: Marjukka Puolakka | Photos: Getty Images and Petri Mulari

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HELEN 3/2020



# "Smart solutions will become more common in housing companies"

#### FOR A LONG PERIOD OF TIME, THE RESIDENTS

of the 26-apartment housing company consisting of terraced houses had talked about the need to monitor apartment temperatures more closely.

"Some apartments were too cool and others too hot. We wanted all apartments to have constant temperatures. By avoiding overheating, we can also save money without sacrificing living comfort," says Danny Fallenius, building manager and CEO of Isännöitsijätoimisto Fallenius Oy.

The solution was Helen's Kiinteistövahti service, which is based on the efficient utilisation of temperature data collected from apartments. Data received from temperature and humidity sensors in apartments is transferred to Helen's cloud service for analysis. On the basis of this data, Kiinteistövahti instructs the housing company to adjust the temperature or optimises the temperature automatically with the aid of artificial intelligence.

"Purchasing the service was easy. I filled in an order form on Helen's website, providing information about the housing company and its heating. When the sensors were delivered by mail and installed, I activated them in the service."

Fallenius and the Board of the housing company monitor apartment temperatures in the online service. The service indicates when temperatures should be increased or decreased.

Even though heating is one of the main expenditure items in housing companies, the overheating of apartments is a common phenomenon in Finland.

In an energy-efficient building, the costs of housing are kept under control and residents can live comfortably. Looking after energy efficiency is also a form of environmental action.

"Taking environmental friendliness into account in housing is an emerging trend. Residents want to influence environmental burden through the housing company's decision making," says Fallenius.

"I believe that smart solutions like Kiinteistövahti will become more common in housing companies. They provide precise data to support decision making."



Isännöitsijätoimisto Fallenius Oy. Four employees. CEO Danny Fallenius.

Building management company established in 2019. Domicile: Helsinki, main business: property services.

# 8+1 things you should know

## if your housing company wants to use energy smartly

Well-functioning district heating equipment that is controlled on the basis of data makes heating energy-efficient. 2 District heating equipment must be replaced every 20-25 years. Helen makes the smart heat distribution centre investment on your behalf - the conditions in apartments are comfortable and the equipment functions throughout its life cycle. B Kiinteistövahti helps housing companies optimise heating. It collects data on conditions in apartments, enabling appropriate temperature adjustments. Kiinteistövahti improves living comfort and creates savings in heating costs.

Renewable district heat reduces carbon dioxide emissions. A housing company can replace 5-100 per cent of its annual heat consumption with renewable energy. No changes to the heating system are needed. Helen's cooling brings relief in hot weather. Helen offers carbon neutral cooling for old and new housing companies in Helsinki. 6 Through ventilation, a housing company loses valuable heat that could be reused. You can avoid this waste by recovering the heat with the aid of exhaust air heat pumps.

Too cold, too hot, noisy radiators? The basic adjustment of the radiator network may be the solution to these problems that reduce living comfort and are a nuisance to residents.

in pours

B Helen has a lot of knowledge about heat consumption in housing companies. We know how to help you find the right solutions to different heating needs. The most effective way to take climate action is smart housing solutions.

18

"We are familiar with our customers' data and help housing companies find the best ways to improve energy efficiency and increase living comfort."

Henna Auno Product Manager in the Smart Properties unit, Helen Ltd

# Earth's heat

Everything you ever wanted to know about geothermal heat — and more.

The Earth's crust is 6-70 km thick. It is composed of different types of rock. Scientific drilling has only penetrated the surface layer of the crust.

The mantle is 2,900 km thick. It is divided into three parts: lithosphere, asthenosphere and mesosphere. The temperature in the upper parts of the mantle is approximately 1,000 °C.

The outer core is liquid and 2,080 km thick. Temperature at the boundary of the outer core and the lower parts of the mantle is about 3,000 °C.

The radius of the Earth's solid inner core is 1,390 km. Temperature at its centre is approximately 6,000 °C due to high pressure and radioactive decay.

> The Earth's 6,000 °C core is an inexhaustible source of heat. The heat it releases to the surface of the Earth can be seen in geysers, hot springs and volcanos. This geothermal energy can be used in the generation of heat and electricity.

Text: Kati Kelola | Photos: Getty Images

**IF YOU HAVE ADMIRED A GEYSER IN ICELAND OR** relaxed in a hot spring during your holiday in Turkey, you have been in contact with geothermal heat.

In volcanic areas, the Earth's crust is so thin that the heat of the core is released through fissures and other vents in the form of boiling water or lava. Iceland's famous Strokkur geyser erupts every 6–10 minutes, shooting 80–100 °C water to a height of approximately 20 metres, sometimes higher.

In addition to spectacular natural phenomena, geothermal energy also provides benefits to humankind. When tamed, it can be used to heat houses and other buildings and to generate electricity in geothermal power plants.

## **GEOTHERMAL HEAT IS HEAT FROM DEEP IN THE EARTH,** resulting from three processes.

The first of these processes started already roughly 4.65 billion years ago. At that time, the accretion of the planet created a core with a temperature of approximately 6,000 °C.

"When a lot of matter came together, kinetic energy turned into thermal energy. Some of this heat remained trapped in the Earth's core," explains Teppo Arola, Chief Expert at Geological Survey of Finland.

The temperature difference between the Earth's core and surface brings heat approximately 3,000 kilometres towards the surface.

Another process that generates geothermal heat is also related to the Earth's core: the solid core is surrounded by a liquid core. Heat is released when liquid matter turns solid at the boundary of the cores.

Geothermal heat is also generated by a radiogenic process. In this case, heat results from radioactive materials, such as minerals containing uranium, in the Earth's crust decaying at the depth of approximately ten kilometres. This is the Earth's natural background radiation that surrounds us all the time.

**THE EARTH'S CORE GENERATES HEAT ENDLESSLY. FOR** people, this means an inexhaustible source of renewable heat and electricity.

"It is like a storage that constantly re-fills itself naturally. A bit like a water well."

The great powers in the generation of geothermal heat are the United States, the small Central American country of El Salvador and, in Europe, Turkey, Italy and in particular Iceland.

All these countries have volcanic areas that are the best option for utilising the Earth's internal heat. Especially the generation of electricity requires high temperatures. In a volcanic region, the Earth's crust is so thin that heat can be extracted near the surface. The Mývatn geothermal area in north-eastern Iceland could be from another planet. Steam rising from deep in the Earth, craters, bubbling mud pools and soil oozing sulphur create spectacular scenery. Lake Mývatn, or Mosquito Lake, was created by a large volcanic eruption 2,300 years ago.



"For instance, in Iceland, a 1–2-kilometre hole is enough. You can get up to 250 °C water from it," says Arola.

The depth where heat is located determines how easily it can be used. Furthermore, the utilisation requires that heat must be contained in a liquid.

According to Arola, for geothermal heat to be used directly in a district heating network, the liquid should be approximately 75–100  $^{\circ}$ C when extracted. If the water extracted from the ground is roughly 150–160  $^{\circ}$ C, it can be used profitably in the generation of electricity.

Geological Survey of Finland has analysed the possibilities of utilising geothermal heat in Finland.

In Finland, the ground is very different from Iceland: ancient, thick bedrock. This means that here geothermal heat is deeper in the ground. In Finland, you have to drill to approximately six kilometres to find 100 °C geothermal heat and to roughly 10 kilometres to find 150–160 °C.

Arola thinks that Finland still has good possibilities for generating geothermal heat. Research has shown that the best geothermal heat areas in Finland are the rapakivi granite areas in Southeast Finland and the Åland Islands and, to a smaller extent, in Southwest Finland. The granite areas in Central Lapland and Helsinki are good, too.

"We have a major need for heat. The generation of geothermal heat is a very good solution as it is nearly emission-free," says Arola.

#### **HEAT IN THE GROUND IS ALREADY USED IN HEATING** and cooling in Finland. In Finland, ground source heat pumps yield approximately 10 °C heat from a

# Is Iceland the home of geysers?

The origin of the word "geyser" can be tracked back to lcelandic, but in terms of absolute numbers, lceland is not the leading geyser country in the world. More than half of the world's active geysers are located in Yellowstone National Park in the United States. Every year, 500-700 geysers erupt in the national park. The most famous of them is Old Faithful, which regularly shoots up water and steam to approximately 40 metres.

The name "Old Faithful" comes from the fact that the geyser erupts at regular intervals roughly 20 times per day.



300-metre well, 20-25 °C heat from a 1-kilometre well and 35-40 °C heat from a 2-kilometre well.

However, this is not geothermal heat but geoenergy, or ground source heat. It is heat from the sun stored in the ground, whereas geothermal heat originates from the Earth's core. However, some heat emanating from the ground is also mixed in ground source heat.

A familiar example is ground source heat wells built in a building's plot.

"With a heat pump, ground source heat can be perfectly well and efficiently used in generating heat even at lower temperatures," says Arola.

"In order for a heat pump plant in Finland to generate energy for a low-temperature district heating network, the well should reach a depth of more than 500 metres."

In Finland, there is plenty of room for growth when it comes to using ground source heat, says Arola. We can find a good example in the neighbour: Sweden produces by far the most geoenergy in Europe.

"They are 5–10 years ahead of us. The lead is largely a result of their energy policy. Already in the early 1980s, Sweden supported the use of ground source heat, while we got cheap oil from Russia."

According to Arola, Finland has the same – or even better – opportunities as Sweden.

In the utilisation of mid-depth heat (at a depth of roughly 1–3 kilometres), Finland is already ahead of Sweden.

"In that field, we could become the leading country in Europe. There is not much mid-depth geothermal heat elsewhere in Europe."

HELEN IS INVESTIGATING THE POSSIBILITIES OF UTILIS-

ing geothermal heat in Helsinki, together with Geological Survey of Finland. This year, Helen is implementing pilot solutions for housing companies based on ground source heat, the first of their kind in the Helsinki region.

"As is the case with other energy solutions, ground source heat systems must be energy-efficient, ecological and economically viable. Helen acts as a trendsetter by offering new kinds of renewable energy solutions. Ground source heat is a good addition to the options when you want to reduce your carbon footprint," says Sari Mannonen, SVP of Helen's Solution Business.

Helen's objective is to create a new heat production model for households that combines the best elements of district and ground source heat and, in so doing, contributes to the ambitious targets of reducing carbon dioxide emissions in Helsinki and throughout the entire country.

"We are currently seeking pilot sites for the new service in different parts of Finland."

Finland's bedrock is among the oldest in the world. Most of it is at least 1,800–1,900 million years old and more than half is composed of different kinds of granite. Ground source heat has been used in heating in Finland since the 1970s.

were formed more than 10,000 years ago when glacial melting water swirled loose stones against solid rock



An important element in the development of ground source heat solutions is customer surveys.

"The objective is to find an economical and low-emission solution that meets the customer's needs, and through the use of which the customer can take part in the building of a carbon neutral society," notes Mannonen.

#### ACCORDING TO TEPPO AROLA, THE UTILISATION OF

geothermal heat is currently growing in the Nordic countries, Germany, France, the United States and Canada. Emerging geothermal electricity producers include Ethiopia, Kenya and Mexico.

Even though geothermal heat is an inexhaustible source of heat and electricity, its utilisation is restricted by technology, at least for the time being. Drilling and making wells are expensive activities that require special expertise.

"It is technically challenging to drill a hole that is one kilometre deep, let alone a hole that is four or eight kilometres deep," says Arola.

"In certain areas, drilling may change pressure conditions and make the surface of the ground move. In Finland, this risk is very small."

At the moment, people around the world are frantically seeking and developing forms of emission-free energy production to replace less climate-friendly options.

When compared to other forms of renewable energy, such as solar power, wind power or hydropower, Arola sees one clear advantage in geothermal energy: it provides heat constantly and does not depend on the seasons.

"It is a 24/7/365 source of energy."

## **California heatin'**

The first generator of geothermal electricity was built in Italy in 1904. It provided enough power for five lamps. The world's largest geothermal power plant complex is located in California, north of San Francisco. It is appropriately named "The Geysers". The area contains 18 power plants, drawing heat from 350 wells. The complex generates enough electricity to cover the consumption of 725,000 households, or a city the size of San Francisco.

The Geysers power plant complex produces one fifth of California's renewable energy.



# Heat from the ground

Ground source heat is stored in the surface layers of the ground and bedrock, whereas geothermal heat comes from deeper in the ground. Both can be utilised with the aid of heat pumps and water circulating in pipes. Infographic: Henna Ryynänen





ME AND MINERALS

# A rolling stone

The award-winning amateur geologist Aaro Paananen, 73, has been searching for gold and other minerals ever since his childhood.

As a child, I lived near a mine, which spurred my interest in rocks and stones. Ore-containing rocks were found in the area, which inspired me to explore. I'm still interested in mineralogy. The most important thing in this hobby is getting a chance to move around in nature. It has also allowed me to find the best berry spots.

Sometimes you can see with the naked eye that a stone is promising. You might even find gold in a boulder or a rock surface. That is a bit like finding treasure.

I have a gold claim in Lapland, but that is not the only place with gold. At folk high school, I make rings and chains of Lapland gold with embedded stones.

Some amateur geologists specialise in gemstones. One of Finland's most commercially successful gemstones in spectrolite. At the moment, the minerals needed in electric vehicle batteries and smart devices are a hot topic. Many young people are surprised when they learn how many minerals are needed in the devices. It is of course great that raw materials can be found in Finland, too.

In Finland, there are many mineralogy clubs, which make mineralogy trips together. You can also send samples to Geological Survey of Finland (GTK) for analysis. They are developing the OmaKivi application, with which you can save your boulder and bedrock observations and send samples to GTK.

More than 30 new mines have been opened in Finland as a result of amateur geologists' observations. One of my findings was acknowledged with an award. I found a rock area with gold, silver, copper and zinc in Toholampi.



9 TRICKY QUESTIONS

## 9

### What is the largest hot spring in Yellowstone National Park?

A. Grand Prismatic SpringB. Frying Pan LakeC. Boiling Lake

# Did you know this about geothermal heat?

Find out how familiar you are with heat emanating from the Earth's depths.

### 1

Which country is the largest geothermal energy producer in Europe? A. Turkey

- B. Italy
- C. Iceland

3

#### Who were the first to use geothermal heat for cooking and bathing?

- A. Paleo-Indians
- B. Icelanders
- C. Aztecs

### 5

How many ground source heat pumps were there in Finland in 2019?

A. About 35,000B. About 135,000C. About 235,000

## 7

## What is the highest volcano in the world (6,900 m)?

- A. Ojos del Salado in Chile
- B. Popocatépetl in Mexico
- $\ensuremath{\textbf{C}}\xspace$  . Soufrière Hills on the Antilles

## 2

4

What was the geothermal energy production capacity of the US in 2019?

- **A.** 367.6 MW
- **B.** 3,676 MW
- **C.** 36,760 MW

Which city is located near the place where geothermal heat was first put into industrial use? A. San Francisco in the USA B. Akureyri in Iceland

C. Larderello in Italy

How deep is the world's deepest geothermal well, drilled for research use in Russia?

**A.** 9.3 km**B.** 12.3 km**C.** 15.3 km

8

6

Who invented the geothermal power plant in 1904?

- A. Hakan Ünsal from Turkey
- **B.** John Smith from the US
- C. Piero Ginori Conti from Italy

The vivid and bright colours of the spring are due to microbes floating at the borders of mineralrich water. Japanese macaques enjoy bathing in hot springs in the winter.

TRY THE



# Land of the rising heat

#### Japan will invest in geothermal energy production in the near future.

The first thought to cross the mind of a tourist relaxing in a hot spring is not necessarily where will Japan get its energy in the future. Nevertheless, proponents of geothermal energy believe that hot springs play a crucial role in the island state's energy production.

Currently, geothermal energy only accounts for 0.2 per cent of energy needed by Japan, but its advocates believe the figure will rise to 10 per cent by 2050.

Japan produces 500 MW of geothermal energy per year, which makes it the tenth biggest producer in the world – even the tiny Iceland is ahead of them. It is estimated that Japan could produce 23,400 MW of geothermal energy per year, which would make it the third largest producer on the global scale.





British-American photographer Eadweard Muybridge developed the zoopraxiscope, in which consecutive photographs seemed to create moving images. The device is regarded as an early form of the movie projector.





**American Philo** Farnsworth submitted a patent application for the first fully electronic television system, which he decided to call an Image Dissector.

The first VHS video entered the market in lapan. DVD ousted it roughly 20 years later.

1895 🔌 1927 🔌 1976 🔌 1989 🔌 2007

**French brothers Auguste and Louis** Lumière introduced the Cinématographe projector, capable of showing 16 frames per second. They also organised the world's first commercial screening of films.

> Cinématographe in the projection mode.



**)** 

# Turning the radiators down

Saara Hietanen chose renewable district heat for her apartment and reduced her carbon footprint by an amount equal to driving 4,500 kilometres by car. Text: Viivi Mujunen | Photo: Paula Virta

#### IN THE SPRING LAST YEAR, SAARA

Hietanen and her spouse bought an apartment in an early 2000s apartment building in Lauttasaari, Helsinki. The old and cosy stone buildings of Töölö changed into a modern maritime scenery.

How have they settled in: do they already say briefly that they are living "on the island", like the locals do?

"Mainly as a joke," says Saara Hietanen, with a little laugh.

Last autumn, Saara's colleague mentioned renewable district heat, which was a completely new thing for Saara. She had never thought she could decide herself what kind of district heat would be used in heating her apartment. In apartment buildings, the housing company signs the district heating contract on behalf of the residents and pays the bill. Then each apartment pays its share as part of the charge for housing company expenditure or the rent.

However, it is actually possible for residents to choose the kind

of district heating they want. A resident (owner or tenant) living in an apartment building in Helsinki can choose renewable district heat and promote climate neutral energy production in their hometown. Renewable district heat is an easy and affordable way to contribute to environmental friendliness.

The monthly price of renewable district heat is a small surcharge on top of the ordinary district heating charge. You can find out the actual price with a calculator that is based on the apartment's square metres. For instance, the monthly charge for a 50-sq.m. apartment in an apartment building is only slightly over two euros. By signing a personal contract, the resident can ensure that their share of district heating is produced with renewable sources of energy.

#### IN HER NEW APARTMENT, SAARA

has been able to turn the radiators down significantly. The thermometer in the bedroom shows that the temperature is sometimes clearly below 20 °C. Research has shown that cool conditions contribute to good sleep. Comfortable room temperature depends on personal preferences. The often-repeated recommendation is 20–22 °C. By decreasing your room temperature by only one degree means 5% savings in heating costs.

"In any case, I like wearing woollen socks at home."

#### THE COUPLE HAVE BOUGHT A CAR

for visiting the summer cottage and getting to hobbies. It was reassuring and even surprising to learn that solely by switching from ordinary district heat to renewable district heat, she reduced her carbon footprint by an amount equal to driving 4,500 kilometres by car. This would be a dozen trips to the family summer cottage in South Savo and back, for instance.

"It is said that he who increases knowledge increases sorrow, but it also gives hope that you can make a difference."

"The world needs better decisions, at both the individual and social levels."

1.20

Saara Hietanen

SUDOKU

Sudokus' solutions: helen.fi/sudoku



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 2020 online at helen.fi/magazine-feedback 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 blender.

#### Smeg blender BLF01RDEU

A good blender is full of power! It mixes a delicious smoothie or purée in no time and can crush nuts, ice cubes and frozen berries.

7 SOURCES OF ENERGY

# Sami Kuronen

POp

# Sauna

Going to sauna is an evening tradition for me, a way to unwind both mentally and physically. At the same time, it is a way to charge my batteries for the next day.

# 2 Being alone

As my job consists of intensive social interaction with people, I enjoy being alone at home to balance things out.

# POI 4

## Playing instruments

I play guitar and drums. When I was younger, I played drums in all kinds of band experiments, and when I turned 40, I bought myself electronic drums.

# Summer

In the summer, waking up at 4 a.m. on weekday mornings does not feel bad at all. Light gives me an amazing amount of energy.

# Cooking

6

I enjoy cooking. As I have started to exercise more, I also pay more attention to eating properly, to have enough energy for the day.

# Golf

Golf requires concentration and takes your mind off other things. It is also good exercise: you can end up walking for four hours almost without noticing.

## Music

I listen to music on the car radio and I am already looking forward to going to live gigs later this year. My taste in music is more diverse now than when I was younger. However, if I were to name one favourite that has stayed with me since the 80s, it would be Bon Jovi.

#### Facts

Sami Kuronen, 46, hosts the morning show on Radio Aalto with Jenni Alexandrova.

The Toisenlaiset teiniäidit series is available in the Ruutu+ service and in the autumn also on the Nelonen channel.

Junnut kokkaa, a book written by Sami and his brother Pasi, was published by Otava on 12 August. The distance from the surface to the centre of the Earth is more than 6,000 km.

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