

Helsinki News

City's commitment to climate action

Carbon neutral in
energy production by 2050

Best practices for
other winter cities

New concepts for solar power

Helsinki develops as cycling city

Bike share integrated
with public transport

Share of cycling
of all journeys grows

2/2016

Helsinki seeks to provide best practices in climate action

Deputy Mayor Pekka Sauri outlines Helsinki's commitment in the aftermath of the Paris Climate Agreement

The UN Climate Change Conference in Paris spelled out the significance of cities in reaching the global emission goals. As Former New York City Mayor, UN Secretary-General's Special Envoy for Cities and Climate Change, **Michael R. Bloomberg** put it, "Whatever nation states decide about emission cuts is down to the cities to implement." Helsinki wholeheartedly agrees.

After the Paris conference – COP21 for short – Helsinki Mayor **Jussi Pajunen** appointed a task force to draft climate goals for the next city strategy to be approved by the City Council in 2017. These goals are likely to be ambitious, surpassing the goals set for 2020, which is an intermediary milestone year on the course of Helsinki towards a carbon neutral future.

By 2020, Helsinki's greenhouse gas emissions should be 30 per cent lower than in the benchmark year 1990. According to the Helsinki climate working group, we will not only reach that target but may markedly exceed it, achieving up to 40 per cent reduction. Despite population growth, per-capita emissions in Helsinki are on course to be 56 per cent lower than in 1990.

COP21 provided encouragement and vision for our existing climate policies in Helsinki. Local action – both by the local government and by residents – has been an underlying principle in our climate strategies for the



MAIJA ASTIKAINEN / CITY OF HELSINKI

*Helsinki Deputy Mayor Pekka Sauri,
Environmental Affairs and Public Works*

last four decades. We aim to think in terms of the big picture: climate policy embraces not only energy production and consumption, but also transport and logistics, urban planning, waste management and many other perspectives.

The City of Helsinki was one of the first signatories of the Compact of Mayors and the Covenant of Mayors. As such, Helsinki hopes to provide examples of best practices in climate action especially for other winter cities dealing with similar challenges. The Helsinki mindset might be best crystallised in this slogan: Cutting emissions means a better quality of life for everyone.

COVER: HELEN LTD.



Helsinki moves towards a carbon neutral future

The City of Helsinki energy company Helen has set itself the goal of being carbon neutral by 2050. The intermediate targets are a 20 per cent cut in carbon dioxide emissions and a 20 per cent increase in renewable energy by 2020.

Current projects towards the goals focus on heat energy production for the city's extensive district heating network. About 93 per cent of Helsinki's heated building stock use district heating, which is a highly efficient form of heating.

Maiju Westergren, Helen's director for sustainability, explains how Helsinki cuts carbon dioxide emissions in the near future: "We develop decentralised energy production and diverse forms of renewable energy. We focus on energy efficiency and produce solutions that help to reduce emissions such as technologies that level peaks in consumption. We develop and market home automation solutions that help consumers to reduce their energy consumption."

The renewable-energy palette in Helsinki is broad and comprises new bioheat plants and wide-ranging utilisation of solar energy, geothermal energy and heat pumps. Wood pellets increasingly replace coal at Helen's combined heat and power plants.

Key components of Helen's investment programme in 2016 and near future:

- Second solar power plant in the city
- The Nordic countries' largest electricity storage facility (to level peaks in consumption)
- Heat pump plant to utilise waste heat
- A heat-energy plant using wood pellets to replace an oil-fired plant at the Salmisaari power plant
- Bioheat plants at existing power plants
- Utilisation of biogas to product district heat
- Closure of the major Hanasaari coal-fired power plant after renewable energy production reaches target levels.



The yellow colour of the Helsinki bike-share programme symbolises public cycling services in Helsinki. The bikes carry the logo of the main sponsor, food retail chain Alepa.

Helsinki develops as a cycling city

A bike-share programme is integrated with the metropolitan public transport system

Helsinki introduced a new public bike-share programme in May 2016, linking it seamlessly with the metropolitan area's multi-modal public transport system. In this system, which incorporates a metro, trams, commuter trains, buses and ferries, bike share can serve as the final link on a journey from point A to point B.

All modes of public transport in Helsinki are included in the regional Journey Planner, which defines optimal routes using all modes

of public transport. The Journey Planner now incorporates bike share. The Helsinki Travel Card, a smartcard used to pay for trips on public transport throughout the metropolitan area, can now be used for personal identity verification in the bike-share system.

The Journey Planner indicates the locations of bike docking stations and, in real time, the number of bikes available at each station.

Latest generation bike-share system

Helsinki's bike-share system represents the latest generation of bike share. The key features of the system are online registration, a digital control box used to operate the bike and fixed docking stations. The system relies on renewable energy: the docking stations are powered by solar panels, and the control box is charged through a bike hub dynamo system.

Customers can join the system for a day, a week or the full season. On online registration, they obtain a user ID and PIN code, which they use to pick up a bike at any station. They can switch the user ID on the bike's control box for a Helsinki Travel Card for future user identification.

The first 30 minutes of each ride are free. Additional time incurs fees. A bike can be used for up to five hours at a time.

Helsinki started its bike-share programme with 500 bikes and 50 docking stations. The programme will expand to 1,500 bikes and to 150 stations in 2017. www.hsl.fi/en/citybikes

"A good cycling city"

"The Helsinki bike-share programme is part of our overall plan to develop sustainable forms of transport and to promote cycling," says the city's transport and traffic planning director **Reetta Putkonen**.

Helsinki seeks to raise the share of cycling to 15 per cent of all journeys made in the city by 2020. The current share is 10–11 per cent, and the trend is rising.

According to Putkonen, Helsinki's means to increase the appeal of cycling include safe and continuous routes, good year-round route maintenance and adequate lighting.

"Overall, Helsinki is a good and improving cycling city," she asserts.

Helsinki bike-share programme:

2016

500 bikes

50 docking stations

2017

1,500 bikes

150 docking stations

Helsinki as a cycling city:

2016

10–11%

of all journeys made by cycling

2020

15%

of all journeys made by cycling

3,000

kilometres of cycling paths in the metropolitan area

12,000

bicycle parking spaces at public transport stations

8,000

new bicycle parking spaces upcoming



*Kivikko
solar power plant
being installed*

Helsinki builds solar power in the city

Consumers lease panels and become renewable energy producers

The City of Helsinki energy company Helen opened Finland's largest solar power plant to date in Kivikko, Helsinki, in April 2016. The Kivikko plant, placed on top of an indoor skiing hall, increased Finland's solar power production by 10 per cent and reinforced Helen's role as Finland's biggest solar power producer.

The Kivikko solar power plant followed a similar plant built by Helen at the company's SuviLahti production unit in March 2015.

A common denominator for both plants is Helen's approach to financing the investment and operation: Helen leases the plants' solar photovoltaic panels to the company's electricity customers. The concept allows private individuals for the first time to produce solar power without investing in their own generation systems.

Within two weeks of the Kivikko plant commissioning, more than half of the plant's 2,992 solar panels had been subscribed by cus-

tomers for a monthly fee of 4.40 euros each. The SuviLahti plant's 1,194 solar panels were leased out in a matter of days.

Consumers subscribe to solar panels by clicking on icons on the Helen website and naming the panels after themselves. One Helen customer can lease up to 10 panels. Helen reimburses the subscribers for the electricity produced by the panels on their electricity bills. The subscribers can monitor the panels' electricity output online and compare it with their own electricity consumption.

The Kivikko and SuviLahti solar power plants together produce 1,000 MWh of electricity annually, which corresponds to the annual consumption of 500 one-bedroom apartments and represents 13 percent of Finland's solar power production. The solar power potential of Finland is equal to that of northern Germany, owing to Finland's long summer days and cool average temperatures.

District cooling system serves as a vast solar energy collector

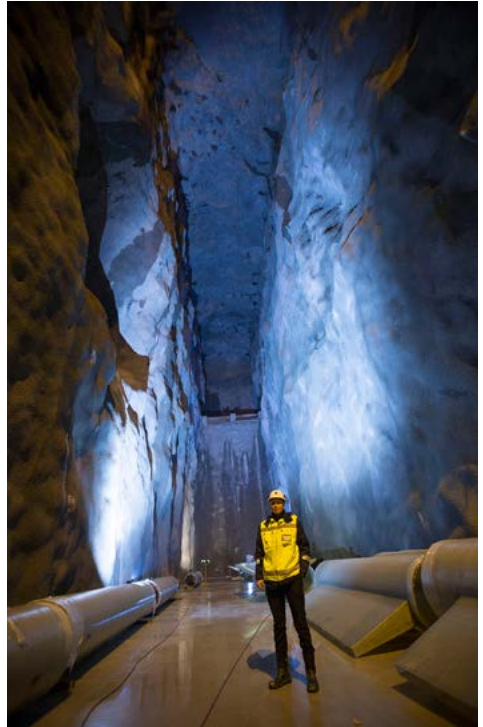
Helsinki is home to Europe's third largest and fastest growing district cooling network. In district cooling, chilled water is delivered to buildings to cool the indoor air.

Helsinki's district-cooling network developer and operator Helen expands the system with smart and eco-friendly solutions. With the help of heat pumps, the system recovers and reuses solar energy: the excessive heat of properties, largely produced by solar radiation, is collected by district cooling water as the water is warmed in the process, the heat is recovered by heat pumps as they re-cool the water for re-circulation, and the recovered heat is fed into the city's district heating network to produce hot domestic water.

Helen has announced the company's second large-scale heat pump plant, which will be built under the downtown Esplanade Park next to a large underground reservoir for chilled water used for district cooling. The new plant will go into operation in early 2018. The plant will markedly expand Helsinki's combined heating and cooling (CHC) production, the heart of which today is the Katri Vala underground heat pump plant. The Katri Vala plant receives both the return water from the district cooling network and the flow of Helsinki's purified sewage water, recovering and recycling the heat from both waters.

The Katri Vala heat pump plant produces enough district heating to meet the summer-time heat energy needs of 250,000 Helsinki residents and enough cooling for 100 large commercial properties. If the energy produced by the plant were generated with solar collectors, the area required for the collectors

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The Esplanade underground reservoir for chilled water used for district cooling (pictured here empty before filled with water). The water acts as a collector of solar heat, which is recovered for reuse with heat pumps.

would be 8 hectares. The carbon dioxide emissions are 80 per cent lower compared with the same amount of energy produced with fossil fuels.

Helsinki appoints Chief Design Officer



Anne Stenros

Anne Stenros is Helsinki's first-ever Chief Design Officer as of 1 September 2016. Her duties include strengthening Helsinki's strategic development and utilisation of design in the planning of public

services. She continues the work of the City of Helsinki over the last four years to establish user-oriented design as an integral part of urban development. This practice has so far been applied in more than 100 City of Helsinki projects. The work has earned Helsinki international recognition as a design city.

Dr Stenros says, "Helsinki's title as World Design Capital 2012 aroused the City to reflect on the possibilities offered by design. The design-driven cities of the world are today networking to share best practices and to learn from each other. In focus here are genuine attention to users and understanding their needs as well as service design driven by empathy. Helsinki is in an excellent position in this regard owing to the City's many years of long-ranging city design development."

As Chief Design Officer, Dr Stenros is also the leader of Helsinki Lab, a new City innovation platform. The office of Chief Design Officer is established on temporary basis to operate until the end of 2018.

Prior to joining the City of Helsinki, Dr Stenros, Architect SAFA, served as Professor of Practice, IDBM Programme Director, at Aalto University. In 2005–2015 she served Kone Corporation as Design Director.

PHOTO: KALLE KATAILA / CITY OF HELSINKI

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Löyly is a new design public sauna and restaurant with multiple outdoor bars on the Helsingin waterfront, which is undergoing a transition from an industrial area to a seaside park and marine sports centre. Design Avanto Architects/Joanna Laajisto Creative Studio



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