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Helsingin Energia 100 years

1 The buildings tell a story

In Helsinki, the buildings from different decades are individual in looks and ideas. The buildings also tell a story of energy use in different periods.

In the first decades of the 1900s, Töölö already looks like Töölö. The solid stone buildings are built closely abutting each other, and the children play Church Mouse, a variety of hide-and-seek, in the sheltered courtyard. The caretaker shoos the youngsters to make way, a load of firewood is coming soon...

This was the scene in Töölö and many other parts of town, such as Kruununhaka, Kaartinkaupunki and Punavuori. Warm nostalgia, as well as excellent heating economy:

“The century-old apartment blocks are first-class in terms of energy efficiency. The sturdy stone buildings, erected in situ, are well insulated. They contain a great deal of mass, in which heat is stored. As the buildings abut each other, the wind cannot whistle around the corners and cool them down”, says Marko Riipinen, a director at Helsingin Energia.

Many of these apartment blocks already have water-circulating central heating systems looked after by their own caretakers. Wood

for heating must sometimes be brought from great distances. The availability and storage of firewood is a constant headache. What is more, the burning creates soot in the city.

From logs to timber, from sawdust to wool

Crackling wood fires also burn in the open fireplaces, closed storage heaters and stoves in the small-scale housing at the edges of the city. A hundred years ago the inhabitants of the wooden houses could only dream of the signs of a modern age in dwellings in the city centre: piped water, drains and electricity.

“Until the 1930s, small-scale housing was mainly log-framed. During the material shortages after the wars, timber-framed, board-clad houses with sawdust insulation gained favour. From the 1960s on came lower small-scale housing, and more and more brick was used alongside timber. In the 1970s, sawdust was abandoned and mineral wool became the standard insulation material”, Energy Advisor Erkki Pulkkinen explains.

From the 1930s–40s, small-scale housing was heated by wood, coke and coal. Oil became increasingly popular in the 1960s. At the same time, direct electric heating also started to gain ground. Even district heating was already available.

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2 Forerunner in energy efficiency

Helsingin Energia celebrates its centenary this year. History shows that Helsingin Energia has done pioneering work in utilising new technology through the decades.

Systematic construction of an eco-efficient district heating network began in Helsinki as early as the 1950s. District heating allowed the replacement of individual, rather unecological central heating boilers with new, more efficient technology. District heating generation became even more environmentally friendly when heat production was begun as co-generation, in the same process with electricity production, in the early 1960s.

The Hanasaari and Salmisaari flue-gas desulphurisation plants, built in the 1980s and 1990s, have significantly cleaned up the combustion gases of power stations. Before the expansion of district heating in the 1950s and 1960s, annual mean sulphur dioxide values in central Helsinki were commonly tenfold compared to today.

Millions of euros are spent every year on air, soil and waterways protection at Helsingin Energia. Large investments are also targeted at research and development activities. The developments of new technology are monitored intensively. There are a number of projects ongoing, through which we can ensure that Helsingin Energia is at the forefront of development also in future years.

We are currently investigating a completely new type of power plant concept, in which different fuels can be used in a very varied and flexible way. Construction of wind power is also under investigation in mega-class marine wind power projects. Biomass-firing has been experimented with at the Hanasaari power plant. The share of renewable energy sources in the Helsingin Energia production structure is constantly increased. Biomass, for example, can be used as a gas or a liquid. Utilisation of other technologies increasing energy efficiency and environmental friendliness is also under investigation, for example in carbon dioxide recovery.

However, the most important energy efficiency is energy saving, both in businesses and households. This way, the use of fuels in energy generation is kept under control, and climate change prevention is furthered.

With best energy efficiency wishes,
Seppo Ruohonen
Managing Director



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Prefabricated elements and district heating

Stone and brick buildings are erected in the old way in situ right up to the 1950s. After that, construction with prefabricated elements becomes increasingly common. Multi-storey housing is completed quickly and efficiently. It is in great demand, as a constantly growing stream of people move into the capital.

“Good buildings in many ways, but in terms of heating economy they are no longer quite in league with the old well-insulated stone buildings”, Marko Riipinen describes the prefabricated buildings of the 1960s–80s.

In the 1950s, a new form of heating arrives within reach of both old and new apartment blocks: district heating. Old centrally heated apartment blocks can be easily joined to the new system.

Right from the start, a central feature of district heating is the efficient co-generation of power and heat. The environmentally friendly nature of co-generation is only understood in later decades.

The 1970s oil crisis leads the Finns to really save energy for the first time – and to get excited about insulating buildings.

In insulation, thickness is in

Today, the energy efficiency of buildings receives more attention than ever before. The buildings are insulated well and equipped with controlled mechanical ventilation. When old buildings are repaired and modernised, additional insulation is often installed at the same time.

District heating is the undisputed number one in multi-storey housing today. Where available, it is also the most popular heating solution for small-scale housing. A number of alternatives are available for new small housing.

“The choices may be for example a heat pump or electric heating. In extremely well insulated, so-called passive buildings, for the best part of the year the actual living spaces are adequately heated by solar heat rays, the thermal load brought by electric appliances and people, and post-heating of the incoming air of the ventilation”, says Erkki Pulkkinen.

“In cooler weather, additional heating is required. In wet areas, underfloor heating of tiled floors also adds to the comfort and speeds up drying. Energy is also required for heating domestic water. When a building that uses little external energy is linked to eco-efficient district heating, it becomes even better in environmental terms”, Marko Riipinen adds.

A hundred years ago, a Helsinki family was very happy to have just a couple of incandescent bulbs light up the apartment. Now the same apartment may contain numerous light fittings, domestic appliances, flat-screen television sets, home entertainment electronics and computers.

“Electric equipment produces so much heat that it reduces the need for actual heating”, Erkki Pulkkinen comments.

3 Air quality improved in the Helsinki metropolitan area

According to a new study by Helsinki Metropolitan Area Council (YTV), air quality in and around the capital has improved in 2007–2008. Sulphur emissions in the Helsinki metropolitan area fell by 26%, fine particles by 10%, and nitrogen emissions by 5%.

Overall quantities of carbon monoxide and volatile hydrocarbon emissions have remained roughly unchanged. 75% of these emissions come from motor vehicle traffic. 32% of fine particles come from small-scale wood-burning.

Last year, energy production was a little lower than usual. The reasons were the mild winter and on the other hand good availability of hydropower. Emissions resulting from energy generation fell in the capital area.

Emissions from motor vehicle traffic also fell by 3-6%, depending on the impurity, while emissions from air traffic and ports rose.

Of the energy companies, Helsingin Energia's emissions fell the most when comparing data from 2008. Helsingin Energia's coal usage fell by one-third, and the share of natural gas grew.



Helsingin Energia electricity price among the lowest in Europe

The price of electricity sold to households by Helsingin Energia is among the lowest in Europe. This is shown by the international Household Electricity Price Index (HEPI*) for Europe released in May.

The index shows that the domestic electricity price level of Helsingin Energia is in the same class as the lowest in Europe, which in the study was allocated to Athens. Helsingin Energia's price per kilowatt hour is 11.62 cents (Athens 11.43 cents). The highest price for electricity is paid by households in Copenhagen (30.88 cents per kilowatt hour). Helsingin Energia customers pay only about one-third of that paid by the Danes for their domestic electricity.

The price index also draws comparisons with competitor prices among the largest companies operating in the capital cities. In Helsingin Energia's case, the study does not show a significant price advantage to be gained from moving over to a competitor, unlike in many other capital cities.

*) The HEPI Index is an independent index comparing European electricity prices and updated daily. It is produced by the Austrian energy authority (E-Control) and the VaasaETT Global Energy Think Tank, which specialises in energy sector research worldwide. The index includes 15 EU capital cities, taking account of the most important energy companies in the capital cities.



Farewell to incandescent bulbs

Incandescent bulbs are vanishing from shop shelves. How and why? And what will replace them?

From the beginning of September, the production of pearl incandescent bulbs will cease in the EU countries, as will their sale with depletion of stocks. Clear incandescent bulbs will disappear in stages from shop shelves: production of 60-watt incandescent bulbs will end in September 2011 and a year later that of bulbs with lower output.

An incandescent bulb may be replaced for example with a halogen bulb. Halogen bulbs will be permitted at least until autumn 2016.

"Halogen bulbs are practically identical in terms of controllability, appearance and light qualities to incandescent bulbs, but their energy saving is 30–50 percent compared to incandescent bulbs. The purchase price of halogens is higher, but their service life in turn is three times longer", promises **Henri Juslén**, Director at Philips Oy.

An energy-saving bulb is also an alternative to an incandescent bulb. Their energy-saving compared to an incandescent bulb is up to 80 percent.

Juslén also recommends LED bulbs. Their product range is quickly expanding, while their consumer prices are most likely falling.

"With LEDs, the light comes on quickly and immediately reaches the maximum luminous flux. LED is very suitable for example for a light fitting equipped with a movement sensor which detects movement and turns on the light. In warm spaces, such as saunas, LED is not the best alternative.

Light bulb jungle

An energy-saving bulb is suitable for practically any lighting purpose

in the home. However, the choice and range is large. There are energy-saving light bulbs that look very different and have different characteristics. The light production or lumen value of energy-saving bulbs is a question mark for many. Fortunately, manufacturers display on bulb packaging an estimate of the power of an incandescent bulb corresponding to the energy-saving bulb in question in terms of light output. The light output of an energy-saving bulb is somewhat reduced with age, so one might choose an energy-saving bulb a notch more powerful than that recommended on the package.

When shopping for light bulbs, it's a good idea to take along the burned-out incandescent bulb. This way, you can compare the base and wattage of the old bulb and the new one.

Down with emissions

Lighting technology advances constantly, and consequently the energy efficiency boundaries move accordingly. Therefore, it is hard to know what kinds of bulbs will be permitted in ten years' time. Banning of incandescent bulbs is simply a question of reducing carbon dioxide emissions and the related EU Directive on energy efficiency or Energy-using Products (EuP).

"Replacing incandescent light bulbs with more energy-efficient bulbs has proved a sensible and economical way to save electricity and to rationalise energy use", Juslén comments.

Additional information at www.sstl.fi

4 Energy Advisory Centre – one of a kind

Lisa Joensuu photos Suvi Laine

The Helsingin Energia Energy Advisory Centre moved to new customer service premises on the third floor of Sähkötalo eighteen months ago. The centre is unique with its exhibitions and advisory services.

At the Energy Advisory Centre, the expertise of Helsingin Energia is at the disposal of the visitor in a number of ways. The service point is seamlessly integrated in the Kamppi Centre. The point combines large exhibition areas, advisory services, and meter-lending facilities. In the same premises, one can sign a power supply agreement, receive guidance in choosing an energy-efficient household appliance, read various research results, and take away brochures. We also provide information on the various methods of heating. The services are just as beneficial for a customer thinking of purchasing a new domestic appliance as for a small-scale builder or an architect.

Anyone who wants to may borrow a consumption meter, allowing easy measuring of the electricity consumption of plug-in home appliances. You can also borrow moisture, radon and surface temperature meters, as well as wallscanners and light meters.

Group excursion destination

“Customers have found our new premises well. The easiest way in is through Malminrinne 6. After the glass doors, straight into the elevator and up to the third floor. Coming up the stairs, a good marker is formed by the orange Perspex walls at the railings”, says Energy Advisor **Eva Spiegel**.

The visitor numbers at the Energy Advisory Centre were up last year: the visitors totalled

about 20,000. Electricity and heating issues also interest groups, a couple of hundred of which come every year. About 850 visitors were interested in heating issues.

“As well as individual clients, we also receive for example schoolchildren and various adult groups. For them, we have a 24-seater classroom”, explains Energy Advisor **Erkki Pulkkinen**.

The energy advisors and sales negotiators also provide telephone advisory services. On average, 4,000 people call the Energy Advisory Centre every year about household issues, and about 2,000 about heating issues.

Updated exhibition

At the Energy Advisory Centre, there is a display of a large array of various types of domestic appliances, for example the smallest washing machine on the market and a safety cooker hood. The exhibition is constantly updated. The idea is that the models are also available in the shops.

The heating appliance stock is longer-lasting, so the changeover rate is slower. Heaters, sockets and thermostats change only over several years, as the basic technology remains the same for a long time.

The exhibition also contains the various compact fluorescent light bulbs available on the market. The energy advisors provide guidance on the kind of bulb suitable for a particular position.

“All the machines and equipment are on loan and are returned to the importers. There is room for about 200 appliances in the domestic appliance

exhibition, and about 20 on the heating side. You can examine everything, but we do not have any sales”, Eva and Erkki tell us.

The visitor can also take away various home appliance guides. They contain information model-for-model on things like the energy consumption of the appliance, its external dimensions and prices. A useful aid in comparing the consumption figures of household electricity and appliances is the leaflet *Sähkölaitteiden kulutuslukuja*, providing examples with which one can compare one's own measurements. There is a consumption figures table also on the Helsingin Energia website.

The autumn and early winter bring a lot of enquiries to the heater exchange service. The job is easily accomplished as a full package solution: Helsingin Energia takes care of the replacement and all its stages.

To book group visit appointments and borrow meters, call (09) 617 2726. Individual clients may visit the Energy Advisory Centre without appointment, regardless of which energy company they purchase their power from.



● AT YOUR SERVICE Service numbers and price info

Helsingin Energia

Telephone (09) 6171
Sähkötalo, Kampinkuja 2,
FI-00090 Helen
www.helen.fi

Customer service, 3rd floor

Mon–Fri 8.30–16
June 18–August 16: Mon–Fri 8–15
Telephone service Mon–Fri 8–18
Telephone service July 1–August 18:
Mon 8–18, Tue–Fri 8–16
Domestic customers 010 802 802
Business customers 010 802 803
Electricity meter readings 010 802 804

Fault reports

Breakdowns in electricity supply
08001 80808
Breakdowns in district heating supply
08001 60602
Faults in outdoor lighting 08001 73173
Telephone calls received by Helsinki
Energy customer service are recorded.
Call charges for numbers beginning with
010:
• from landlines: 8.21 c/call + 5.9 c/min.
• from mobile phones, all operators:
8.21 c/call + 16.9 c/min.
The prices include VAT at 22%.
Our free e-services are available on our
website: www.helen.fi

Advisory services

Energy Advisory Centre (09) 617 2726
Advice on how to choose and use domestic
appliances. You can also borrow energy,
moisture, structural, surface temperature
and light meters from us:
energiakeskus@helen.fi
Advice on electricity use and energy saving
(09) 617 4010

District heating

New connections to district heat
(09) 617 2961
Advisory service on heat use
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