

A woman with blonde hair, wearing a yellow jacket and white sunglasses, is looking upwards and smiling. She is surrounded by many blue balloons. A stylized logo consisting of three yellow triangles pointing up and three white triangles pointing down is overlaid on the image. The text is centered in the lower half of the image.

CIRCULAR ECONOMY ON THE HEAT MARKET

**Global District Energy Days, Helsinki
26 September 2018**

AGENDA

Possibilities for utilizing circular economy on the heat market in Europe

Paul Voss, Managing Director, Euroheat & Power
(not confirmed)

Forerunner of recycling waste heat, case Helsinki

Marko Riipinen, Director, Helen Ltd

Panel discussion

leading by Maiju Westergren, Director, Helen Ltd.
Discussion in Finnish.

Panelists:

Kaisa Hernberg, Member of Helsinki City Council

Mia Nores, Environmental Director, Vapo Ltd

Lilli Linkola, Circular Economy Consultant, Ethica Ltd

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2



FORERUNNER OF RECYCLING WASTE HEAT, CASE HELSINKI

Global District Energy Days 25-27.9.2018, Helsinki

Marko Riipinen, SVP, Helen Ltd

HELSINKI, FINLAND

- The capital of Finland
- Northernmost capital city of the European Union
- Population 630,000 (population in Finland 5.5 million)
- Thermal energy demand is greater than electricity demand



The highest temperature ever recorded in the city centre was 33.1 °C on July 1945 and the lowest was -34.3 °C on January 1987.

THE CITY ENERGY SYSTEM IN HELSINKI



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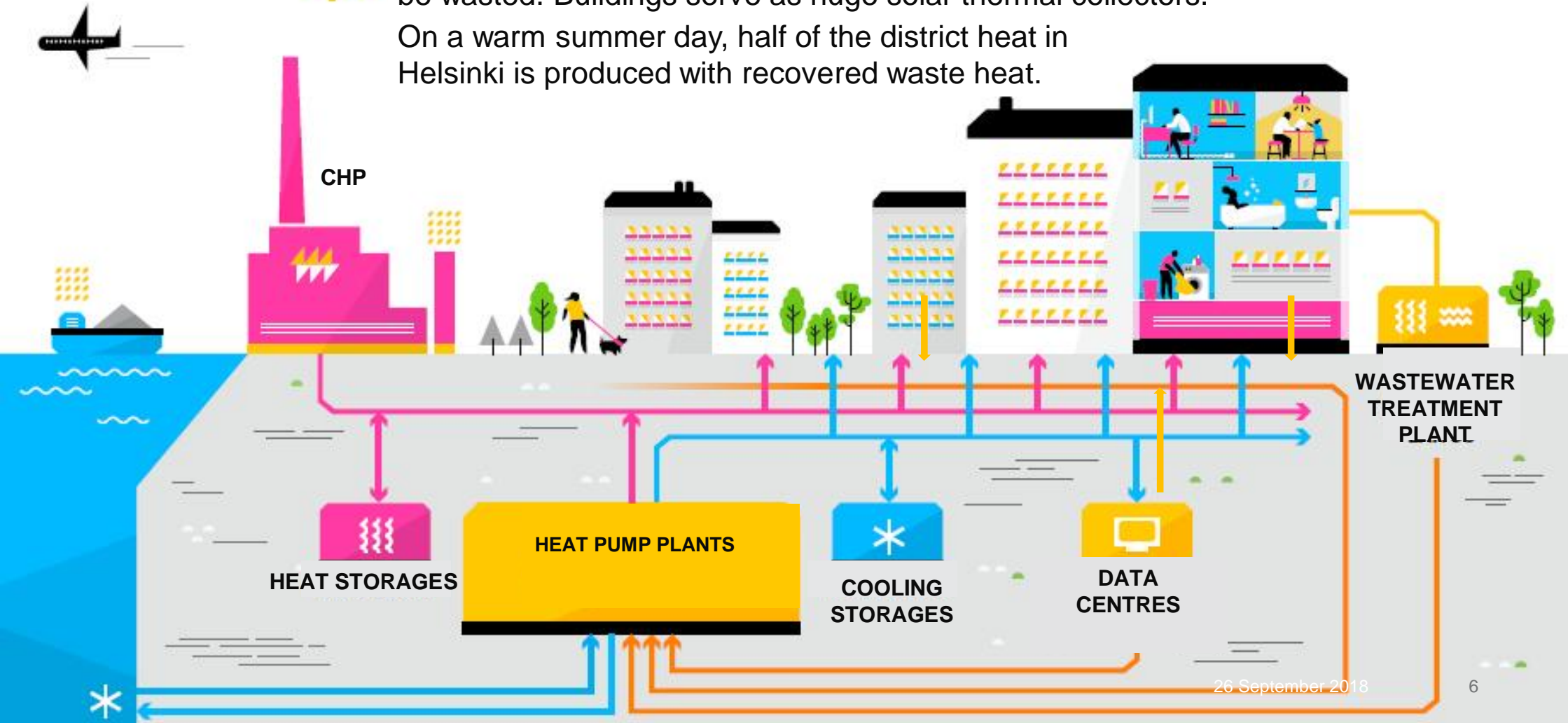
5

HELEN'S CITY ENERGY SYSTEM



District cooling is used for recovering heat from buildings where heat would otherwise be wasted. Buildings serve as huge solar thermal collectors.

On a warm summer day, half of the district heat in Helsinki is produced with recovered waste heat.



26 September 2018



KEY IDEA: WASTE HEAT IS RECOVERED AND REUSED EFFICIENTLY

- No energy is wasted, but recycled as far as possible.
- In the future, utilisation of various heat sources will increase, including waste heat from purified waste water, solar heat and waste heat recovered from properties and data centres.
- Waste heat can be utilised in district heat.
- In Helsinki the heating need in the summer can be met in full by recycled heat in the future.

HEAT PUMPS – THE CORE OF THE ENERGY RECYCLING

- Waste heat from properties such as shopping centres, data centres, offices and residential buildings is recovered with district cooling.
- The Katri Vala heating and cooling plant, which is one of the largest in the world, uses five large heat pumps to utilise waste heat of purified waste water and waste heat collected from properties.



NEW HEAT PUMP PLANT UNDER THE CITY CENTRE

- Commissioned in August 2018.
- Located under the Esplanade Park, Helsinki city centre, at a depth of 50 metres.
- In connection with a cooling accumulator of 25 million litres
- The heat pumps produce both district heat and district cooling recovering waste heat from properties for utilisation in heat production, 2 x 11 MW of heat and 2 x 7.5 MW of cooling.
- The heat pumps will increase the total cooling output of the Esplanade cooling centre to 50 MW (new heat pumps 15 MW and the existing cooling storage 35 MW).



TOWARDS A CLIMATE-NEUTRAL FUTURE VIA SMART CITY SOLUTIONS AND INNOVATIONS

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10

Demand response solutions

New energy services

Solar Power

Energy network is a platform for new innovations and smart city solutions

Electric traffic

Heat Pump applications

Energy storages

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11

THANK YOU.

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12