

Heat re-use in Finland

**Recycling sustainable waste heat from
Microsoft's datacenters with Fortum**

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The world's largest scheme to recycle waste heat from datacenters

Fortum

- Started the hyperscale datacenter site development in 2019
- Target to recycle waste heat from cooling of servers to a 900 km district heating network using hot water as an energy carrier
- Substantial climate benefits by replacing fossil-based heat production
- Affordable, reliable & domestic heat source
- Helps cities and Finland to reach their carbon-neutrality targets

Microsoft

- Announced in '22 the intent to build new datacenters in the Finnish capital region
- Carbon-negative target for 2030
- Fortum's sustainability proposal to recycle energy to heating was a significant investment driver
- Accelerates sustainable digital transformation
- Enables wider community acceptance

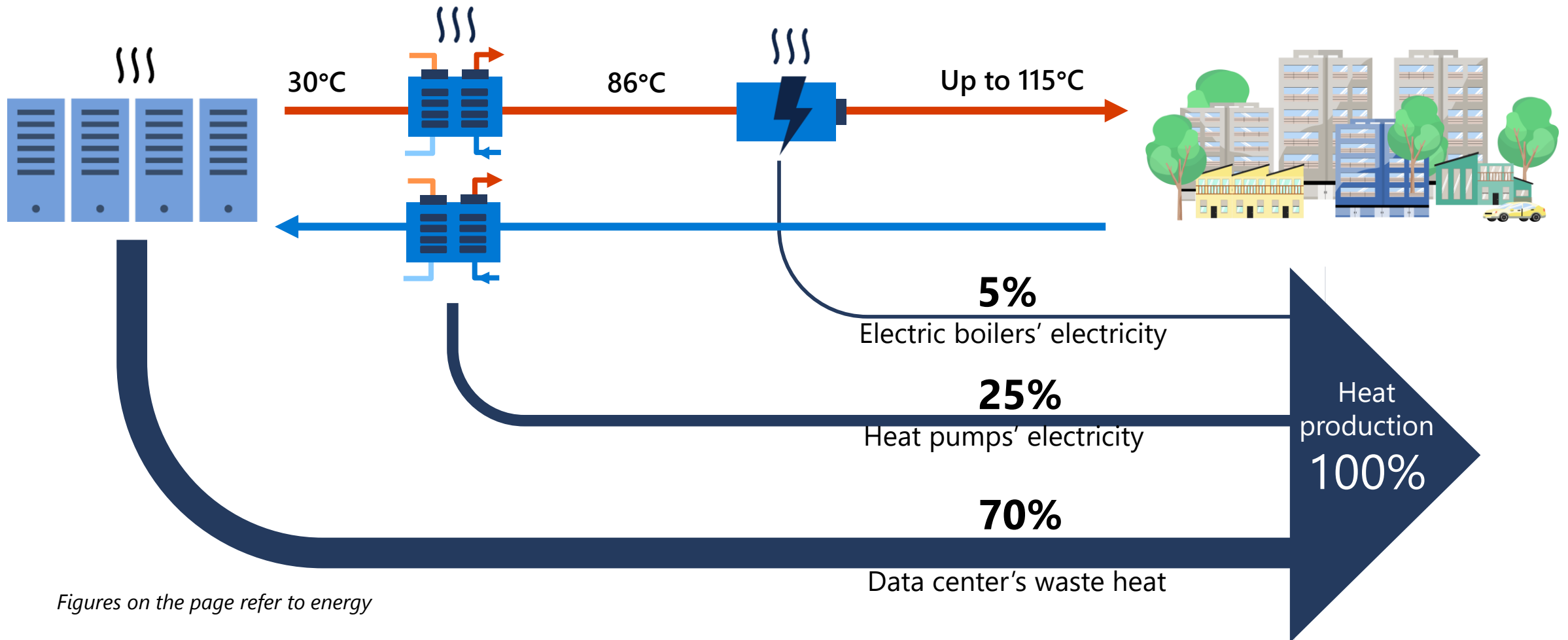


 **fortum**

* Consumption in summer is approx.
10% of the consumption in winter

Principle of recycling waste heat

Over 75% of data center's waste heat can be recovered*



Figures on the page refer to energy

Datacenter collaboration brings well-being on a large scale



ECOLOGICAL

40% of local district heat demand



Carbon-neutral heating in 2029



CO₂ emission reduction: 400,000 tonnes/a



Carbon footprint reduction for every heat user: 2.5 tonnes/a



Biodiversity incorporated in the city area planning



SOCIAL

Competitive carbon-neutral heating



Boosts local economy



200-300 new jobs directly and 1000x indirectly



ECONOMIC

Significant foreign direct investment



Supports digitalization in Finland



Supports investments in clean energy production



Source of new taxes for cities



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"Energy can neither be created nor destroyed - only converted from one form of energy to another."

-Law of conservation of energy, Émilie du Châtelet, Paris, 1740