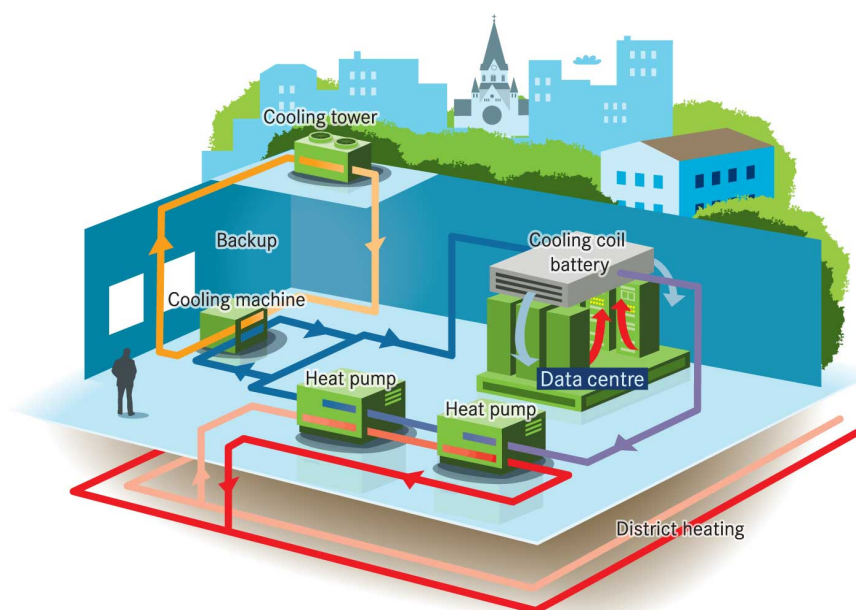


FACTSHEET

Open District Heating

SMART SOLUTION 6: WASTE HEAT RECOVERY



INTEGRATED INFRASTRUCTURES

- Excess heat and capacity are turned into revenue
- Heating and cooling systems are used more efficiently
- Heat recovery contributes to the sustainability effort



Stockholm

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What is the solution?

The concept behind this solution is to use the surplus heat for the city of Stockholm and turn it into a resource. Open District Heating makes it possible to turn costs for cooling into revenue from heat recovered by the district heating system. This is heat which would have otherwise been lost, via cooling towers for example, to the atmosphere.

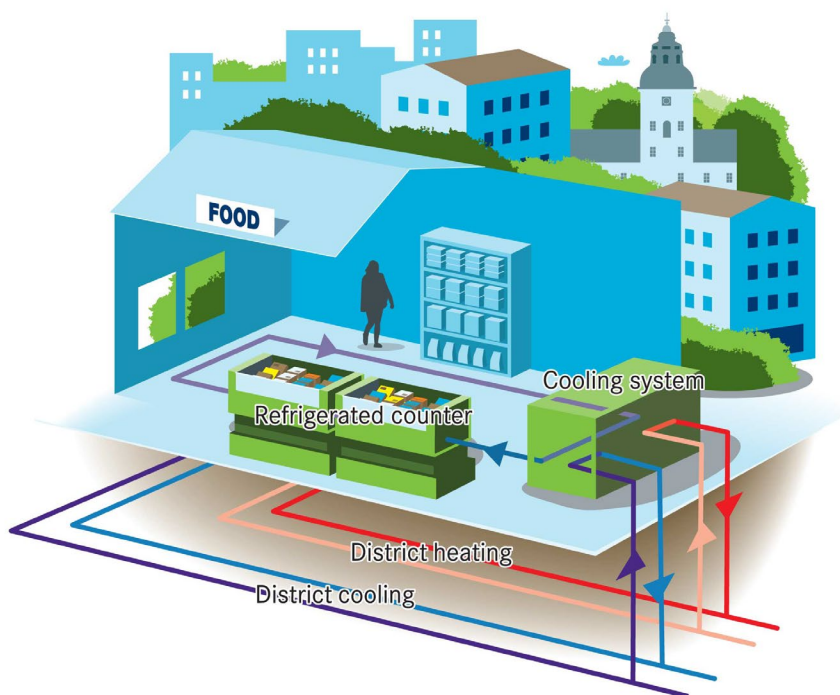
Waste heat is abundant in cities but rarely used. Data centres and shopping malls with numerous freezers and coolers generate lots of excess heat, which is often costly to dispose of. The potential for heat recovery in Stockholm is estimated at 1 TWh annually.

How does it work?

Within the Grow Smarter project, two applications of Open District Heating will be demonstrated: One data centre installation and one supermarket installation.

A data centre generates large amounts of excess heat which need to be cooled off in order to prevent equipment being damaged due to an excessive rise in temperature in the data centre.

With Open District Heating® the excess heat can be recovered using a heat pump that cools the data centre and simultaneously supplies heat to the district heating network. A 1 MW data centre could, in this way, warm up to 1000 standard apartments each year.



Freezers and coolers in supermarkets also generate large amounts of excess heat that needs to be transported away from the store area. A large supermarket with 200 kW cooling capacity generates approximately 25 GWh/year of waste heat. This is usually released into the atmosphere through cooling towers. With Open District Heating®, the waste heat can be recovered and transferred to the district heating network. The recovered heat from a 200 kW supermarket could be used to heat up to 200 standard apartments during one year.

Business model used

Open District Heating® allows businesses to turn costs for cooling into revenue from recovered heat. Through Open District Heating®, Fortum Värme buys recovered heat and excess capacity at market price under long-term and transparent contracts.

Large as well as small companies and businesses can participate in the scheme by selling their excess heat to Open District Heating®. The aim is to achieve profitability and efficiency for both suppliers and Fortum Värme.

Expected impact

Recovery of heat with Open District Heating® is an important part of Fortum Värme's agenda to make district heating in Stockholm 100% fossil-free. Increased heat recycling also reduces the need to invest in new heat production capacity.

With Open District Heating®, we are laying the foundations for next generation urban energy systems based on integration and collaboration between businesses. The economic incentives to recover heat presented by Open District Heating® are expected to encourage sustainable investments in Stockholm, especially in the field of green computing.

These investments are expected not only to improve the efficiency and sustainability of the energy system, but also to drive development in infrastructure in the Stockholm area, enabling continuous improvement in the quality of life for the inhabitants.

Potential for Replication

The Open District Heating concept can be applied in cities with district heating systems.

The concept and trade mark Open District Heating® is owned by Fortum Värme samägt med Stockholm Stad.