District cooling in Helsingborg, Sweden

Facts about this case

Installed cooling capacity: From 16 MW to 30 MW
Cooling source: Sea water and district heating
Period: Construction is to begin during fall and winter 2017/2018.
Investment costs: € 2.93 M

Payback period: 10 years
Organization: Öresundskraft AB
Link to web page: https://oresundskraft.se/

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Source: Öresundskraft AB

This case study is part of a project catalogue produced by ReUseHeat to provide inspiration on how to utilize excess heat from urban sources for heating and cooling purposes. The catalogue contains 25 existing or planned projects out of which 12 cases are Danish and 13 cases are from other European countries.

Description

At Västhamnsverket in Helsingborg, heat pumps utilize treated water from Helsingborg's sewage system to produce district heating and district cooling. The local district heating company, Öresundskraft is planning to expand the current district cooling grid by enabling an absorption cooling technology to deliver cooling to offices and commercial buildings, hereby replacing individual chillers with centralized cooling.

Öresundskraft begun production and selling district cooling in 1999 and since has the demand grown steadily. Helsingborg have especially found an increased cooling demand from offices and commercial buildings. Öresundskraft have accordingly decided to invest e 2.93Min an expansion of the current district cooling system and a modernization of production facilities. It is expected, that the fully implemented district heating system can reduce both electricity consumption and environmental emission between 65 and 70%, compared to traditional and individual refrigeration system. The district cooling capacity is expected to be increased from 16MW to 30MW, when the project is fully implemented.

During winter, the district cooling is supplied with sea water to deliver the cooling needed. In summer, an absorption heat pump utilizes excess heat from the district heating network, to transfer energy, and hereby produce cooling for the local offices and buildings. The district cooling option eliminates approximately 1200 ton of CO_2 equivalent emissions annually, as fewer individual chillers reduce the emission of hydrofluorocarbons, which are potent and short-lived greenhouse gasses. The system is built in cooperation with the current Västhamnsverket and construction is expected to begin during fall and winter 2017/2018.

In 2017, the project won a Climate & Clean Air Award for using climate safe and energy-efficient technology to cool down the city of Helsingborg.

References

1. Öresundskraft AB
2. Handbook - 25 cases of urban waste heat recovery