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Using the right energy, right in Aalborg – taking the common energy solutions to the next (green) level

Abstract

In order to reach the ambitious levels of 100% renewable energy district energy systems in the cities after 2030 Aalborg Forsyning has adapted a comprehensive strategy paving the way towards the green future.

The strategy relates to both the consumption of energy in the form of district heating, district cooling and citi-gas, as well as how the aforementioned energy services are delivered and produced. In Aalborg, which is a traditional industrial city, more than 50% of the district heating has for many years been produced with the help of fossil energy in the form of coal, while the entire city gas supply has been based on fossil natural gas. But the desire to convert to green energy solutions before 2030 has set a major conversion in motion.

On the consumption side, work is especially being done with temperature optimization and energy savings – therefore, in the future, district heating will be able to be delivered at a maximum of 60 degrees Celsius to satisfy the needs for comfort amongst the customers. The lower temperatures in the district heating network and higher temperatures in the cooling systems mean a tremendously better utilization of the future's energy sources such as ambient heat/cooling from air and water-sources in particular (lake, seawater, groundwater etc.).

In Aalborg, a large part of the district heating of up to approx. 30% has already been produced using surplus heat from industry and in the future RE system this proportion is expected to increase all the way up to between 40-50%. There is still a lot of untapped potential and at the same time the synergy between the cooling and heating systems means that the cooling of some processes automatically generates heat that can be used in the district heating system which today supplies district heating to 99% of the customers in the district heating area.