

PEAK LOAD STATION AT COPENHAGEN AIRPORT



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KLC2 is one of CTR's 14 peak load stations

The KLC2 peak load station

The primary purpose of KLC2 is to generate heat if one of the combined-heat-and-power plants, e.g. the Amager Power Station, has to stop its production processes. Although KLC2 is ultramodern, it is only expected to be in operation a few days a year. KLC2 can be started at CTR's control room in Frederiksberg, but for security reasons the peak load station is always inspected by the operating staff after it has been in operation. The peak load station is designed to start up very quickly. The plant can start supplying heat to the system within 15 minutes. This ensures that heating consumers rarely notice the unforeseen incidents which occur in other parts of the transmission system. KLC2 is also used to support the base load units in very cold periods.

The need for KLC2

The placement of a peak load station is partly based on where it have the greatest benefit within CTR's transmission system and on where CTR can actually be permitted to build a facility.

KLC2 is located at the very end of the transmission pipeline running along Amager Strand. As there were no other alternative supply options nearby and as the consumption of heat in Tårnby Municipality is appreciable, it was necessary to build a brand-new, ultramodern peak load station in Kastrup to ensure that heat could be supplied to the some 20,000 inhabitants of Tårnby Municipality and the international airport. KLC2 was built in 2006.

Prize-winning construction

KLC2 is placed on top of a landfill area east of Copenhagen Airport. The building is designed to look like an overgrown hill in the surrounding marsh landscape when seen from above and three sides. Sedum and moss grow on the roof which changes colour with the changing seasons.

The Gottlieb Paludan firm of architects designed KLC2, and CTR won the Scandinavian Green Roof Award 2007 for the building.



Supplies of heat
Six combined-heat-and-power plants and waste incineration plants in Greater Copenhagen supply surplus heat to CTR.



CTR's control room
CTR controls, adjusts and monitors the supply of heat at CTR's control room which is staffed round the clock.



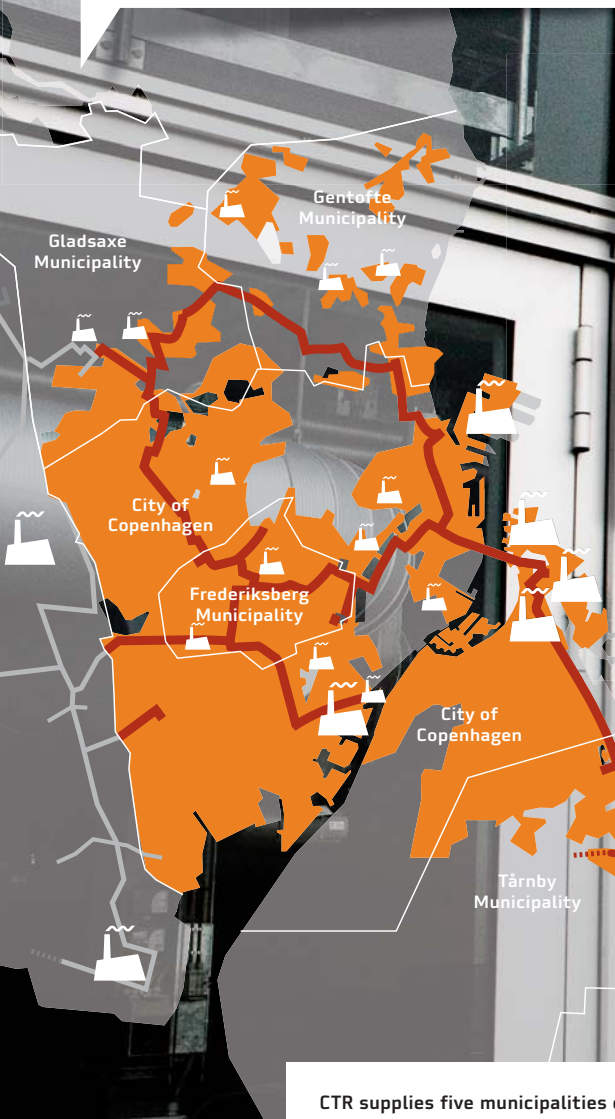
Exchange and pump station
29 stations transfer the heat from the transmission system to the local district heating systems.



Peak load stations
14 peak load stations start up whenever the demand for heat exceeds the capacity the power plants and incineration plants can deliver.



Consumers
The heat is distributed via five municipal distribution companies to more than 250,000 households, i.e. to half a million citizens in Greater Copenhagen.



KLC2 PEAK LOAD STATION

Capacity: 3 x 20 MW
Oil tanks: 2 tanks, 180,000 l each
Expansion tank: 160,000 l
Total cost: DKK 81 million

With full tanks, KLC2 can operate at maximum capacity for 90 hours. The oil-tank contents equate to 5,400 MWh, which is enough to supply 500 apartments or 250 bungalows for one year. At maximum heat production, three times 2,000 (6,000) litres of oil are burned an hour, or 100 litres a minute.

PEAK LOAD STATION

CTR supplies five municipalities of Greater Copenhagen with district heating: Frederiksberg, Gentofte, Gladsaxe, Copenhagen and Tårnby. CTR's transmission system comprises a 54-km distribution grid with 3 pump stations, 14 peak load stations and, finally, 26 heat exchanger stations that transfer the heat to the local district heating systems.

PROVIDING INEXPENSIVE, CONVENIENT, RELIABLE AND **ECO-FRIENDLY** HEAT TO THE CAPITAL

CTR is the heating transmission company for its five member municipalities in Greater Copenhagen: Frederiksberg, Gentofte, Gladsaxe, Copenhagen and Tårnby. CTR supplies about 250,000 households in Greater Copenhagen with district heating based on surplus heat.

As the transmission system makes it possible to optimise heat production within the region, it helps the municipalities to offer their citizens inexpensive, convenient, reliable and eco-friendly heat. Surplus heat from power stations and waste incineration plants comprises 97–99% of the annual production. Utilizing this heat prevents 1,000,000 tonnes of carbon a year being released into the environment, compared to heat produced by individual oil-fired heating systems, a figure that increases year by year concurrent with the increase in the proportion of biomass used.

CTR is responsible for purchasing heat from the production units, for transporting it through the transmission grid, for selling the heat to the five member municipalities and to VEKS, which oversees a similar task for the municipalities in the western area of Greater Copenhagen.

In addition, CTR generates heat at its own peak-load and reserve-load facilities when needed and is also responsible for maintaining the entire system.

The heat is supplied through a 54-km distribution grid with three pump stations, 14 peak load stations and 26 heat exchanger stations.

CTR manages, adjusts and monitors the supply of heat round the clock at the central control room in Frederiksberg via signals emitted by more than 10,000 points distributed throughout the system.