

## Overview of National DHC Market

Country

Denmark

### Summary of the National DHC market

In Denmark district heating has a share of just around 50 % of the market for space heating. 1.552.000 households - 62 % of all - enjoy district heating as their source for space heating and hot tap water.

District heating is considered an infrastructure of strategic importance, as it utilises energy and fuels that would otherwise be wasted. Thereby delivering degrees of efficiency to the whole energy system in Denmark, replacing primary fuels as sources for heat and facilitating the use of renewable energy for heating purposes.

Replaced fuels would to a great extent be fossil. Being totally dependent on imported energy in 1972, Denmark today is the only EU country self sufficient with energy. This status was achieved in the 90'ties but may end in some years, as reserves of oil and gas in the North Sea runs out. The degree of self sufficiency also depends on the total energy efficiency of the energy sector, which again is very dependant on the extended use of district heating and CHP.

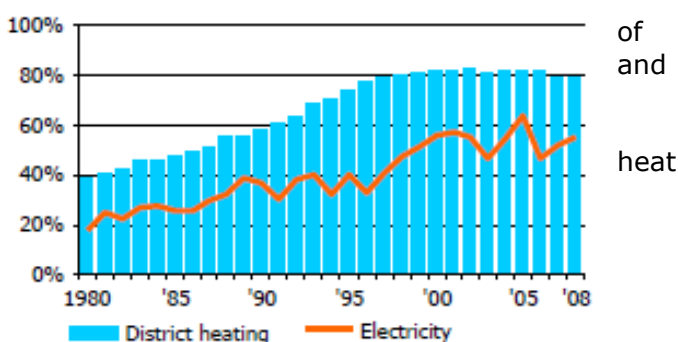
More than 450 district heating schemes are operating district heating networks with a total length of more than 27.000 km. The total installed capacity in district heating is more than 17 GW, and the total floor area heated with district heating exceeds 200 mill. m2. Total turnover of district heating utilities is around 2,5 billion Euros and employment is estimated at 1.850 persons.

A change in the composition of the fuel source in the district heating production has been observed over the past decades. The transformation, mainly from coal and oil products to gas and renewables, has been less distinct in the last 10 years than in the 15 years before. Nevertheless, there has been a significant decrease in the consumption of coal, which to a great extent has been replaced with renewables. The combined use of oil and natural gas has not changed much, apart from a small peak in the beginning of the millennium, but the use of gas has increased a little at the expense of oil. Oil is mainly in use for peak load and reserve capacity production, whereas natural gas is mainly used in localised CHP or, when electricity market prices are low, in boilers.

The combination district heating and cogeneration is very important in Denmark. Being traditionally very dependant on thermal electricity production, abundant waste from power plants has been available as input to district heating. More than 80 % district heating is waste heat from CHP more than half of electricity is being produced in cogeneration. Waste incineration is also an important source of (and electricity).

The heat market is generally regulated in order ensure the socioeconomic most beneficial use of energy for heat. District heating prices are regulated since the networks are considered natural monopolies and since heat planning reduces the competition among sources of heating.

**CHP share of thermal power and heat production for district heating**



## **District cooling**

District cooling is almost unknown in Denmark, with only two schemes in operation. Building cooling has not been standard until recent years, and electricity prices are high due to energy taxation. Interview with district heating stakeholders have not provided much input on district cooling, and in this report it is mainly given consideration in part 1, section III, "8. District cooling law".