



Fig. 3. Transmission mains costs over various transport distances with different loads

Fig. 3 illustrates the difference in the capital requirements for installing a transmission main over various distances from a point of heat source to smaller supply areas, up to 50 MW. The costs do not include any intermediate pump station. At peak load conditions the hourly heat demand normally works out to about 5 MW per 1,000 inhabitants.

#### Low temperature potential

Common to most of the above listed recoverable and renewable forms of energy is the fact that the lower the temperature for district heating, the greater will be the number of possibilities for choice of permutation, and the greater the degree of utilization.

In a thermal power station, 40% of the

heat energy content of the fuel is at best utilized, whilst in combined electricity generation and heat production (co-generation), 80% utilization between the needed levels of electricity and heat production. The lower the extraction temperature at the turbine, the lower will be the quantity of additional fuel required for heat production, i.e. when added to the needs of electricity production.

For example it can be calculated that, if any district heating temperature higher than the chosen maximum of 95 °C had been selected as the extraction temperature from the combined heat and power station, the annual fuel consumption – in this case now coal – would increase by approximately 2,000 tonnes for each deg C temperature increase.