District cooling is **5-10 times more energy efficient** than conventional cooling.

District cooling is a future-proof system that efficiently cools buildings through centralized distribution of chilled water. By investing in the use of district cooling, cities will become much more energy efficient and heavily reduce greenhouse gas emissions – supporting the objective of reducing Europe’s greenhouse gas emissions by 80-95% by 2050.

**How district cooling works**

- **COOLING SOURCES**: Free cooling from e.g. sea, lake, river or ground water etc. or renewables from e.g. waste heat.
- **DISTRICT COOLING UTILITY**: Combines cooling sources and produces chilled water.
- **DISTRIBUTION NETWORK**: Underground, insulated pipes carry the chilled water.
- **COLD TOWER**: Stores cooling to balance peak demand.
- **DELIVERY**: District energy substations deliver the chilled water to a network of buildings.
- **APPLICATION**: Commercial, retail and residential.

**CASE STUDY**

**Realizing district cooling potential**

Paris is a pioneer in district cooling, resulting in great environmental improvements. **50%** improvement in energy efficiency, **35%** lower electricity consumption, **50%** reduction in CO₂ emissions.

**Sources:** Climespace: Discover District Cooling

- **Free up space** on rooftops and in basements for increased aesthetics and design freedom.
- **Up to 50%** reduction of cooling energy consumption through higher energy utilization with district cooling.
- > **50%** reduction of CO₂ emission and hazardous refrigerants can be achieved with district cooling.
- **40%** of commercial and institutional buildings in Europe already have cooling systems and demand is set to grow substantially.
- **9,500,000** cars worth of CO₂ can be saved every year if district cooling is expanded to cover 25% of the European cooling market.
- **50-60 TWh** reduction in energy consumption annually if district cooling is expanded to cover 25% of the European cooling market.
How district cooling can release the full potential of energy efficiency and renewables in cities

District cooling represents a paradigm change in the fundamental thinking behind the provision of comfortable indoor environments. Providing the required cooling effect from a high efficiency central facility, district cooling combines the most environmentally responsible technologies currently available with considerable economies of scale.

This has a great impact on lowering the energy bill due to higher energy efficiency. Furthermore, district cooling has a number of advantages, e.g. lowering CO₂ emissions, lowering operating costs and improving the balancing on energy peaks, demand capacity, and integration of renewables.

Danfoss is the only total supplier of cooling solutions and provides a range of automatic controls, heat exchangers and substations needed throughout the process of generating and distributing district cooling to homes and buildings.

Danfoss solutions will secure the most energy efficient operation of the district cooling network:
- Accurate control of the temperatures
- Hydronic balancing of the network from supply to last terminal unit

Danfoss offers consultancy of control component selection, design, and supply of substations

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