ENGINEERING
TOMORROW

Danfoss

Case story | Substations

Teknopark Istanbul
First-mover in district energy

Teknopark Istanbul is the new science and technology hub of Turkey aimed to support technological development in the country. The innovative nature of the new Teknopark called for innovative building solutions.

As part of this ambition, Teknopark management opted for district energy as the heating and cooling solution of the large campus area to make the park highly energy efficient, climate friendly, and cost-effective in daily operation.

ONE supplier

for all heating, cooling and hot water applications

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Scalable and highly efficient
district energy system

In the shorter term, Teknopark will comprise up to 45 buildings for leading-edge start-ups and R&D environments, where innovators and entrepreneurs can meet and pioneer new technologies.

In the longer term, the Park is prepared for up to 200 buildings of varying sizes. The district energy system will provide current and future facilities with highly energy efficient, climate-friendly, and cost-effective supplies of heating, cooling, and hot water.

A central boiler fired by natural gas supplies the energy for the district energy system. In 2016, the first three buildings were connected to the system; and when the next buildings and research facilities are designed and constructed in the coming years, they will gradually be added to the district energy network that was laid down as part of the initial site development project.

All substations and essential control components are connected to the central Building Management System to allow easy and efficient control of the entire system.

"We rely on Danfoss to supply the fully fitted substations. In this way we save time on installation and commissioning. At the same time, we can make a service agreement with only one supplier that knows all parts and can take responsibility for quick and efficient trouble-shooting and repairs. We want to offer the Teknopark institutions and companies reliable supplies of heating, cooling, and hot water at all times", says Ali H. Badur, Control Engineer in Mechanical at Teknopark.

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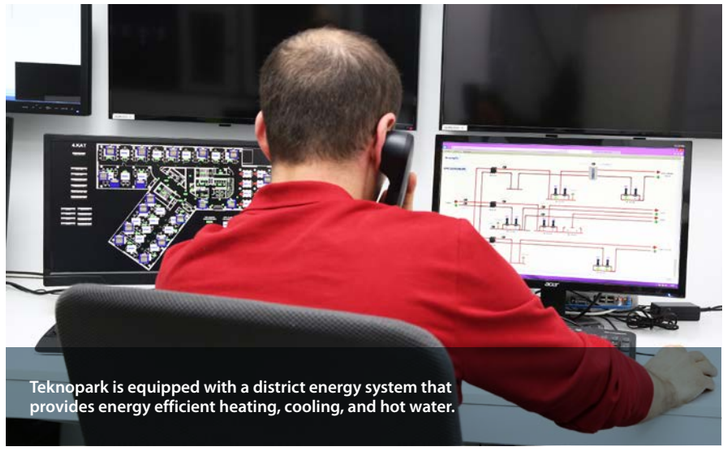
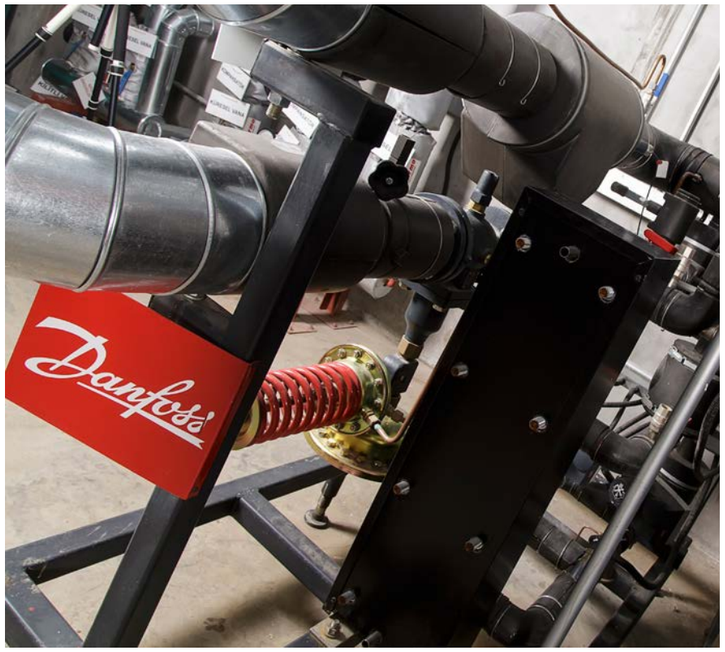
Ali H. Badur,
Control Engineer
in Mechanical at Teknopark



Teknopark is equipped with a district energy system that provides energy efficient heating, cooling, and hot water.

The Teknopark district energy system

- Central co-generation plant fired by natural gas. Total capacity 52,000 kW.
- Up to 45 buildings (or 200 if fully developed) varying in sizes from 750 kW to 2,300 kW will be supplied with district energy
- The Teknopark district energy system provides both heating, cooling, and hot water
- Outlet temperature: 110°C Return temperature: 70°C
- Flow rate, temperature, pressure, etc. monitored through a central Building Management System
- Stepwise construction and commissioning:
  - 3 buildings by the end of 2016
  - 8 buildings by the end of 2017
  - Up to 45 buildings or more when Teknopark is fully developed



Danfoss deliveries to Teknopark

- DSE substations, specially engineered to the specifications of the individual buildings
- Control valves for heating, cooling and hot water
- Electronic controller for weather compensation
- Heat and water meters
- Self-acting flow controller with integrated control valves

Pre-engineered substations
make installation and daily operation easy

For the first three buildings that have now been inaugurated on the Teknopark campus, Danfoss delivered customized and pre-engineered substations that ensure efficient supply of heating, cooling and hot water to the individual buildings.

The large DSE substations contain heat exchangers, control valves for heating, cooling and hot water, and electronic controllers for weather compensation. Heat and water meters and self-acting flow controller with integrated control valves are also part of the Danfoss solution.

"We are proud to be part of the Teknopark development project and to support the ambition of show-casing climate-friendly technologies in Istanbul. Several more buildings are in the pipeline for similar district energy solutions that we have installed in the first three Teknopark buildings", says Serhan Günel, DHS Turkey Sub-Region Sales Director, Danfoss.

Teknopark is prepared for up to 200 buildings of varying sizes that will be connected to the district energy network.

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Danfoss is a pioneer
in district energy solutions

Danfoss is a pioneer in district energy solutions. It all started in the early 1970s when the oil crisis demanded new responses to energy scarcity. Since then, the quest for high efficiency and low carbon solutions has accelerated across the world.

Today, district heating and cooling have become favored solutions to improve urban efficiency and combat climate change. The Danfoss product portfolio for district energy is wide, comprising substations, flat stations, heat exchangers, control valves, control panels, power and water meters, and thermostatic and electronic radiator valves.

Danfoss helps municipalities, building owners, and other parties to get the most out of surplus heat from power plants, industries, and waste incineration plants or from renewable energy sources like wind, sun, and biomass.

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