



Katri Vala heating and cooling Plant in Helsinki. Photo: Helsingin Energia

Katri Vala heating and cooling plant

Heat from waste water

The facility excavated under the Katri Vala Park houses the world's largest heat pump plant, producing district heat and cooling in a single process. Various parts of a similar type of production are used elsewhere in the world, but so far have not been combined in this way.

The rock cave of the heating plant is excavated under the Katri Vala Park, a few kilometres from Helsinki city centre. The cave is at a depth of 25 metres from the ground level. The location is ideal due to the fact that an outfall tunnel for purified wastewater and a multi-utility tunnel, through which the heat and cooling energy produced at the plant is transmitted to customers, intersect under the park.

Utilisation of wasted energy.

A high volume of purified wastewater, the heat of which is utilised in district heat production, flows in the wastewater outfall tunnel 24 hours a day. In winter, heat energy is obtained with heat pumps from purified wastewater, which is led from the Viikinmäki central waste water treatment plant to the sea. In winter, the necessary district cooling energy is obtained direct from the sea with heat exchangers.

In summer, heat energy is transmitted from the return water in district cooling, in which case the heat pumps produce both district heat and district cooling. If all of the heat produced in the summer season is not needed, the extra heat can be condensed into the sea.

An environmentally sustainable production solution

Heat pumps enable the utilisation of sea water and the wasted heat from waste water in production. The carbon dioxide emissions of the Katri Vala heating and cooling plant are 80% smaller than those of alternative production solutions, such as separate heat production with heavy fuel oil or building-specific cooling production with compressor technology.

The plant is remote controlled, and it is monitored from the Sähköotalo heat control room. When the frost limit is reached, the output of separate heating plants are required in addition to the production of own power plants. The production output of the plant is 90 MW of district heat output and 60 MW of cooling output.

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