DISTRICT HEATING LA TOUR-DE-PEILZ - SWITZERLAND
Chauffage à distance (CAD) La Tour-de-Peilz

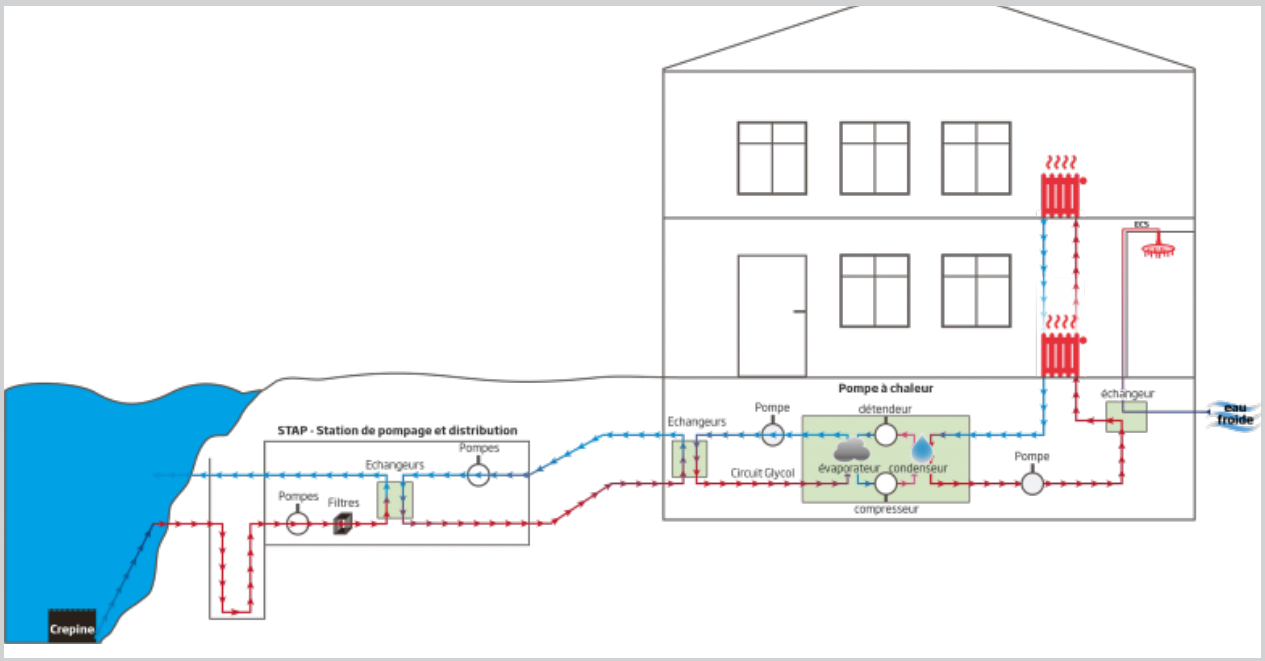

Fig 1: Schematic representation of the district heating system in La Tour-de-Peilz.

Summary of the project

The district heating system of La Tour-de-Peilz is one of the largest projects in Europe to exploit thermal energy from the lake. The district heating system is able to generate thermal energy from the water of Lake Geneva by combining existing technologies, in particular a pumping station, a distribution network and decentralized heat pumps.

The pumping station, located at the beach of Maladaire, is delivering water from the lake into a reservoir. Heat exchangers transfer thermal energy to the distribution network, which is then supplied to a neighbourhood of the city of La Tour-de-Peilz. All connected buildings are equipped with their own heat pumps. The district heating network extends over the northern part of the city and is planned to be expanded on the entire municipal territory over the next few years.

" USING LAKE WATER FROM LAKE GENEVA TO SUPPLY 3 000 HOUSEHOLDS WITH SPACE HEATING AND DOMESTIC HOT WATER IN LA TOUR-DE-PEILZ "

Detailed description of the project

Planning

The engineering office Groupe E Celsius proposed this district heating concept based on water from Lake Geneva due to its numerous economic and environmental advantages. A study by the École Polytechnique Fédérale de Lausanne (EPFL) came to the conclusion that the concept proposed by the Groupe E Celsius - pumping off lake water with individual heat pumps in buildings - is the most economical solution for supplying multiple residential areas, thus enabling the project to be further developed.

Fig 2: Pumping station in La maladaire (left) and pipe drills under the road (right)

The system

The water is pumped off 500 metres from the lake shore at a depth of 70 metres, where the temperature is constant throughout the year. Supply temperature lays at 6 °C and returns with 3 °C into the lake via heat exchangers.

Through the closed loop distribution network, heat is transported from the pumping station to the consumers and transferred to their heat pumps.

Decentralised high-performance heat pumps convert heat from the distribution network into space heating and domestic hot water. The required heating temperature can vary from 35 °C for new buildings to 65 °C for existing buildings.

Today, about 20 buildings are connected to the district heating network of La Tour-de-Peilz and supplied with thermal energy. The network is designed to supply up to 300 buildings and can therefore grow with the increasing demand over the future years. When operating at maximum capacity the pumping station will manage a water flow rate of 3 600 m^3/h, enabling the production of 35 000 MWh/year. This corresponds to the average consumption of 3 000 households. By using renewable energy sources, the plant will avoid emissions of 10 000 tons of CO_2 per year.

Contact information

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FACTS ABOUT THIS PROJECT

Building type: **Residential buildings, office buildings**

Heated floor area [m^2]: 24 buildings

Installed heat capacity [kW]: 10 MW potential of 30 MW

Heat source: Lake water (Lake Geneva) and decentralized heat pumps

Investment cost: 32 millions CHF

Participating countries: Switzerland

Time frame: 2012 - 2015

Project organisation:

Project leader: Groupe E Celsius SA

Project partners:

- Owner: Groupe E Celsius SA
- Planner: Sollertia
- Planner: PLANAIR
- Planner: Conti & Associés Ingénieurs SA
- Sanitory installations and heat pumps: Yerly Installations SA
- Sanitory installations and heat pumps: CTA Services SA

Link to web page or report:
http://blog.groupe-e.ch/wp-content/uploads/2016/03/panneaux_latourdepeilz_BLOG.pdf (in French)

IEA HPT

IEA Technology Collaboration Programme on Heat Pumping Technologies (HPT TCP)