CASE STUDY

ORLÉANS-LA-SOURCE WASTE WATER TREATMENT WORKS

A high-performance heat pump for a greener urban district heating network in Orléans Métropole

ORLÉANS MÉTROPOLE

Orléans-La-Source (45), France

2023

ADVANTAGES

- Low energy consumption level
- High reliability
- Safe design
- Easy and fast installation
- Minimized operating sound levels
- Respect for the environment with a sustainable solution which prevents the release of carbon dioxide emissions

TECHNOLOGIES

- Installation of an Aquaforce® Puretec™ 30XWHPZE fixed-speed, high-temperature screw heat pump

Project description

As part of its energy transition action plan, Orléans Métropole has opted to focus on a green energy source that will allow it to reduce its carbon emissions and make energy savings.

To ensure this, Orléans Métropole and Dalkia, a subsidiary of the EDF group, called on the expertise of the designer and installer Climatelec-Thermique & Industrie and on the innovative solutions from Carrier.

The project undertaken consists of recovering the energy in the waste water at the Orléans-La-Source waste water treatment works (WWTW), for it to then be sent into the district heating network, which extends over 2.5 km. A high-performance Carrier heat pump extracts the calories from the waste water so these can be injected into the district heating network to help increase its temperature, working alongside the wood- and gas-fired boiler room which also supplies the system.

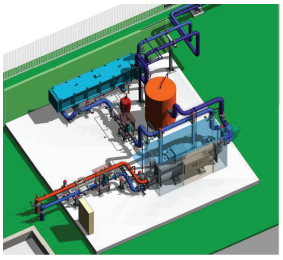
Result

A total of 310 apartments in 13 collective housing buildings in the Clos de Lorette quarter in Olivet, some of the University of Orléans buildings, the La Source Château, and other premises are partly heated using heat recovered from the waste water processed at the WWTW, including the building which houses all of the WWTW administrative offices and a part of the sludge treatment process. The project thereby enables the beneficiaries of this new system to reduce their bills, as fluctuations in the costs of fossil fuels are avoided, and reduce their CO_2 emissions.

Challenges and solutions

A brand new "grey water" recycling system for economical green heating.

At the Orléans-La-Source waste water treatment works, 1.6 million cubic metres of water are treated before being released into the Loire. This water, with a temperature of 14/15°C, has sufficient energy to be sent to the district heating network, via a heat exchanger.



The waste heat in the treated waste water can be used in the district heating network using a plate exchanger combined with a high-performance Carrier Aquaforce® Puretec™ heat pump. The water is then injected back into a parallel circuit to be sent to the Loire, once any energy it holds has been removed.

For more information, please contact your local Carrier representative or visit carrier.fr

DISTRICT HEATING NETWORKS