

# District heating on the path towards low energy cities

By Energy Cities

**C**ities consume energy. Even a lot of energy. More than half of all people live in cities. Cities induce transports and consume goods. Most industries can be found in urban areas. From an energy perspective, this is the bad side of cities. But cities can also prove very energy efficient. Distances are shorter. Heating and transportation can be shared. Economies of scale can take place. From an energy perspective, this is the good side of cities. So, what do we do with cities?

The concept of low energy cities aims at underlining the better quality of life cities can offer by consuming less energy. Such an ideal city would mean a healthier population (more human powered mobility), more conviviality (public spaces), more solidarity and cohesion, and a relocalised economy focused on the territory.

On the path towards low energy cities, many steps lead the way. At the forefront, local solutions seem to be the most relevant approach. Energy efficiency and local renewable energy sources are the basis of

the urban energy transition.

Within this scope, district heating is an effective solution. Already developed in many northern European cities, district heating is gaining interest in other parts of Europe as well, as an efficient, low carbon solution, which can fit well with local energy sources.

The two following examples of Växjö (Sweden) and Echirrolles (France) show us how innovation in the field of district heating has more than ever a significant role to play in the energy transition of European territories.





In Växjö, a district heating system connected to a biomass CHP plant is now used to produce cooling for the hospital and the university via absorption chillers. The demand for cooling in Växjö was driven by increased indoor temperatures due to several factors: climate change, powerful lighting, flows of people, widespread use of electronic equipment, and excessive solar exposure of glass areas in modern buildings. Until now, electrical systems were commonly used to solve this. Växjö Energy Ltd (VEAB) demonstrated that electricity can be saved through absorption cooling, which is driven by district heating produced in the CHP plant. The additional heat production for cooling allows for electricity production during the summer

period, previously impossible due to a too low heat demand in the summer.

In the La Viscose area of Echirrolles, unaffordable electric heating has been replaced by biomass district heating. A similar switch to renewable energy sources is being developed in other social housing areas. As part of the CONCERTO SESAC programme, French consultants visited the City of Växjö to get inspired by their district heating system

Three different options were then explored for La Viscose. The adopted solution – using prefabricated substations in each building – brought improvements to the traditional French model, along with consequent time and money savings. ●

**To go further:**

- VÄXJÖ: ABSORPTION COOLING in the Hospital and University (2011)
- LA VISCOSE A warm-hearted district thanks to biomass and solar energy (2011)
- Energy and territories: new breaking points and new cohesions English, French by Gérard Magnin, Executive Director of Energy Cities
- Cities of Tomorrow, Low Energy Cities With A High Quality Of Life For All, Gérard Magnin & Stephane Dupas, 2010
- [http://www.energy-cities.eu/cities/members\\_in\\_action\\_en.php](http://www.energy-cities.eu/cities/members_in_action_en.php)