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Innovative local heating solution in Ludwigsburg

Holistic concept for a new housing estate and redevelopment area

Consolidating heating networks in existing urban districts while also connecting areas with a low heat density is particularly ambitious from an economic point of view. The town of Ludwigsburg is taking exactly this route. Here, an existing heating network is being expanded and in future will supply both the district of Sonnenberg and the Grünbühl housing estate, which is badly in need of refurbishment. The BINE-Projektinfo brochure entitled “Local heating network combines new-build schemes with existing district” (04/2015) presents the district energy concept with its two components – energy-optimised construction and efficient heating provision. Based on the example of Ludwigsburg, methods and tools have been developed and tested that can be transferred to other cities with a comparable structure.

Because the existing building fabric in Grünbühl is partially in a poor condition, it makes economic sense to demolish part of the houses and successively construct new buildings. Both urban districts in future will have a juxtaposition of refurbished existing buildings and energy-efficient new buildings with different construction standards. The low building density in conjunction with the low heating requirement has made it more difficult to plan the heating network in parts of Sonnenberg. The most favourable option proved to be to keep the supply temperature in the network low and to only increase it on-site to the level required for space and domestic hot water heating. Since only a small temperature change has to be made, the electricity consumption remains low.

The base load for the heat supply is secured by a brine/water heat pump, with a borehole heat exchanger array totalling nearly 6 km in length, and a CHP plant. A gas boiler covers the peak load. This research project is a collaboration between Stuttgart University of Applied Sciences, the town of Ludwigsburg and the Stadtwerke Ludwigsburg-Kornwestheim municipal utility company. The project forms a component of the town’s integrated urban development concept.

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