Pressinformation

BINE Informationsdienst

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Tapping geothermal energy in inner cities

Geothermal plant systems can be cheaply integrated in tunnels

When new tunnel structures are constructed in inner cities, this provides an excellent opportunity to also tap geothermal energy parallel to this and with little expenditure and effort. This energy can be used, for example, for heating and cooling buildings. The BINE Projektinfo brochure “Metro tunnels enable geothermal air-conditioning” (09/2013) presents a research project in Stuttgart. The aim is to research the effects of extracting heat from the surrounding ground.

Two ten-metre-long tunnel sections were equipped with absorbers during the construction, whereby the tubing was installed on the shotcrete used on the outer tunnel lining and embedded in the in-situ concrete used for the inner lining. Both absorbers are connected to a heat pump. Using this system, the researchers are simulating various extraction profiles. The measurements show that the temperature of the ground is only influenced up to a distance of eight metres. The scientists are also investigating the influence of groundwater and the tunnel air on the output of the system.

The measurements have been conducted by the Institutes for Building Energetics (IGE) and Geotechnical Engineering (IGS) at the University of Stuttgart. The test section was installed on the new tunnel built by Stuttgarter Straßenbahnen AG for its underground metro Line 6.

The BINE Projektinfo brochure, which can be obtained free of charge from the BINE Information Service at FIZ Karlsruhe, is available online at www.bine.info or by calling +49 (0)228 92379-0. The brochure cover and additional image material can also be downloaded from the press section in this web portal.

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