JULY 2018

CRYSTAL: OPTIMISED UTILISATION OF THE UNDERGROUND FOR GENERATION AND STORAGE OF THERMAL ENERGY

TES (Thermal Energy Storage) is a form of sustainable energy generation to heat or cool buildings in an ecologically justified manner. TES is a crucial tool in the transition towards a sustainable heat supply whereby the use of mineral fuels is minimised. In the near future the number of TES systems in urban areas will grow strongly. The resulting increase in congestion in the subsoil requires tuning at plot level in order to secure the supply of sustainable energy and to utilise the available energy potential in an optimal manner.

Fiber optic monitoring has proven to be an excellent means to avoid negative cross interference in TES systems. It offers the possibility to monitor the functioning of TES systems and to improve their performance.

Primary objective of the **CRYSTAL** project is the development of prototypes for an economically viable monitoring system based on fiber optic technology aimed at the development and exploitation of TES systems at plot level. The system will be field-tested at three locations in the municipalities of Utrecht and The Hague where the problems are paramount and which represent a variety of user profiles. The contribution by Inventec, being a frontrunner in the integration of fiber optic technology, consists of the technical-economic evaluation, development of the optimal system configuration and ultimately the configuration and installation of the prototypes.

Apart from Inventec the following parties are partners in this development project: Royal Haskoning DHV, Buro Bron, Deltares, University of Utrecht and Utrecht Sustainability Institute. The Province and the municipality of Utrecht as well as the Rijksvastgoedbedrijf and the municipality of The Hague are acting as facilitating parties.