Cheap-GSHPs - Cheap and efficient application of reliable Ground Source Heat exchangers and Pumps

To reduce the total cost of low enthalpy geothermal systems by 20-30 % the project will improve actual drilling/installation technologies and designs of Ground Source Heat Exchangers (GSHE's). This will be combined with an holistic approach for optimum selection, design and implementation of complete systems across different underground and climate conditions. The proposal will focus on one hand on the development of more efficient and safe shallow geothermal systems and the reduction of the installation costs. This will be realized by improving drastically an existing, innovative vertical borehole installation technology of coaxial steel GSHE and by developing a helix type GSHE with a new, innovative installation methodology. These GSHE's will be installed to a depth of 40 – 50 meters ensuring improved safety and faster permitting. On the other hand, the proposal will develop a decision support (DSS) and other design tools covering the geological aspects, feasibility and economic evaluations based on different plant set-up options, selection, design, installation, commissioning and operation of low enthalpy geothermal systems . These tools will be made publicly available on the web to users, including comprehensive training to lower the market entry threshold. Given that drilling and GSHE technologies are mature but costly, this holistic approach is included in the proposal to bring the overall cost of the total project down, i.e. not just the cost of the GSHE itself but the avoidance of ground response tests, the engineering costs for the design of the GSHE and the integration of heat pumps with building heating and cooling systems. Also the use of novel the heat pumps for higher temperatures developed within the project will reduce the costs in the market for retrofitting buildings. The developments will be demonstrated in six sites with different undergrounds in different climates whilst the tools will be applied to several virtual demo cases.

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Find out more: http://cheap-gshp.eu/