

Delft Aardwarmte Project (DAP)

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In the past decade, for the Netherlands, production of geothermal energy from greater depth was too expensive. However, with the present days energy prices and improvement of development costs, geo-energy technologies are under consideration. In Bleiswijk (Netherlands) a first pair of geothermal wells produce water from 1700 m depth, for heating glass houses. The Hague prepares a project in which about 6000 houses will be connected with a geothermally supported heating grid. In May 2007, students of Delft University, Department of Applied Earth Sciences, started their 23rd lustrum project dealing with CO₂-reduced production of geo-energy. The two innovative aspects in this feasibility study, i.e. composite drilling and CO₂-injection, got the attention of the industry, university and other (non-) governmental organizations. According to the pre-study, nine exploration wells in the Delft area show an anticline below the University grounds, which holds various sand bearing members at a depth of about 2 to 2.5 km. The Rijswijk or Delft sandstone member as the target zone, generally consists of a highly permeable sandstone, which has to produce about 150 m³ of water per hour. The expected geothermal temperature of about 75°C is too low to preheat the existing district heating grid on the campus, but it can be used for new and renovated buildings. To drill an injection and production well for geothermal use in existing urban environments, small foot prints are essential. A new light weight composite tubing makes it possible to drill almost weightless with an innovative mobile telescopic rig. The tubing of the injection and production wells also contain a thermoplastic inner wall, which is expected to be less corrosive and less expensive when compared to regular steel tubing. Hence, the option of CO₂- injection into the returning water is considered.

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