The largest geothermal investment by PannErgy in NW Hungary

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The geothermal energy investment mitigating emission of pollutants of fossil energy sources has been established by the PannErgy Group in the area of Bőny and Pér just outside the city of Győr in four years.

The Győr Geothermal Project currently consisting of two producing and two injection wells opened and started its operation on November 24, 2015. The geothermal system annually supplies the Audi Hungaria Plc. and Győr-Szol Plc. (urban heating energy supplier) companies jointly with approximately 700 000 GJ green energy. The geothermal energy serves more than 24 000 apartments and 1046 other customers in the heat energy system of Győr, furthermore it covers at least 60% of the needs of Audi Hungaria Plc. factory. The production of this heat amount by geothermal energy instead of natural gas means that it lowers the annual emission of carbon dioxide by 46 000 tons.

Long exploration and planning preceded the successful start. The Pre-Cainozoic basement in the surroundings of Győr is also made up of Upper-Triassic carbonate rocks. Their good water capacity is known from deep drilling and karstic sources but their exact volume was previously not examined. During the first phase of the exploration the geological and geophysical data available about the area were purchased and reevaluated. In this context the seismic profiles of the area earlier identified in the 1980s have been reassessed and reconsidered, which led to new 2D seismic measurements in the second phase of the exploration during 2013-14. Based on the results of the measurements along the four lines the first drilling site was assigned which discovered the good water capacity Upper-Triassic carbonate rocks in the area of Pér in 2300 meters depths.

In the third research phase between 2014 and 2015 a 3D seismic measurement took place by which another three drilling sites were appointed and successfully established. The four wells of the system all targeted the Upper-Triassic age carbonate aquifer: the production wells of Bőny reached the target zone about 2490 meters depth while the injection wells of Pér reached it approximately 2300 meters depth. The well head temperature of the production wells are 99 and 101 °C their current production (circa 900-930 m³/h) enables the heat transfer of 52 MW.

The heart of the Győr Geothermal System (consisting of 17 kilometers of pipeline and two production and two injection wells) is the Bőny Heat Center, from where one can navigate the heat production and transfer with modern technology. Beyond serving primary customers the intent is that the returning heat water still containing potential heat energy could as well serve secondary customers thus increasing the efficient exploitation of the heat of the produced water.

In the currently running fourth phase of the exploration based on the farther geophysical measurements a third production well has been drilled down in the surroundings of Bőny within the geothermal concession.