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GW-Ruhr: Thermal utilization of occurring low energy heat in mine water

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The key issue of the Project Grubenwasser-Ruhr (GW-Ruhr)¹ is the geothermal heating energy supply through the utilization of occurring low energy heat in mine water². The mine water, depending on the pumping location and uplift depth, has a temperature between 15 and 30 °C. The research objective is to use its geothermal energy. Assistive technologies like heat pumps could be used to increase the temperature level of the mine water. The usage of geothermal energy presents an alternative to fossil fuels like oil and gas. Suitable mine water rising sites will be evaluated with the help of economic and ecological aspects. These evaluations will be the basis for the investments and implementations of a mine water heating system at several locations. Beside the technical aspects, a comprehension and cooperation with potential heat customers in the relevant areas will be decisive for the later success. The technical objective is to connect all heat customers to one low-exergy-network. In this way, the mine water temperature will be transported to the customer with low losses and a heat pump will raise the temperature for the individual customer requirements. With this concept, more than 70 percent of heat from mine water can be used. At the end of the first project phase that started in 2016 and will end in 2019 viable concepts and locations will be presented. By now there are three different locations in planning.

Biography

Lisa Altieri graduated in 2015 with a MSc degree in sales engineering and project management at the Ruhr-Universität Bochum and now works as a scientific assistant at the chair of energy systems and energy economics (LEE) of the Ruhr-Universität Bochum. She is involved in the project GW-Ruhr, which examines the existing mining infrastructure and how it can be used in terms of renewable energy generation.

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