

# BEST PRACTICE

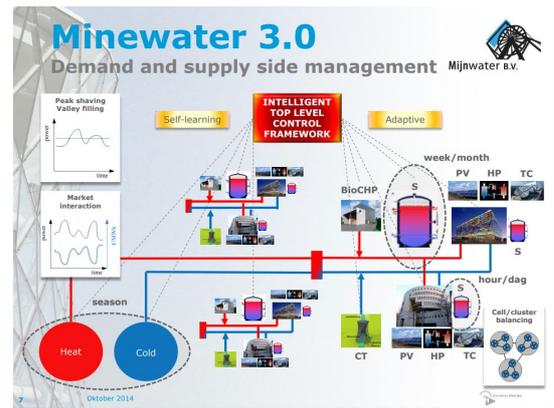


## Mine water for renewable energy

Heerlen, The Netherlands – 70 000 inhabitants

Geothermal – DHC – transition city

In the twentieth century coal mining was the most important economic activity for the eastern mining region of the Netherlands and Heerlen in particular. Since 2008, the municipality has been using the groundwater in the former mine's closed tunnel as a renewable energy source!



### Project in a Nutshell

Thanks to the Minewater project of the municipality of Heerlen, a low-temperature district heating system was launched in October 2008, under the European Interreg IIIB NWE programme and the 6th Framework Program project EC-REMINING-lowex. More recently, the projects Minewater 2 and 3 further enhanced the system's performance. The station is divided into two sections. 825m deep mineshafts provide access to underground mine water at a temperature of 35°C. The water is used for heating purposes and is then conveyed at 17°C to other mineshafts, where it is stored before being used as a coolant. The water, collected from five wells, is transported via an underground exchange station and pipe network and supplied to the connected locations in Heerlen.

In order to further develop the project, the independent company Mijnwater B.V. was established in 2013, with the municipality of Heerlen as main shareholder,

### Impact & Next steps

Currently, the company has 7 connections in place, providing renewable energy to many buildings in different districts of the city. Mijnwater B.V. contributes to a 65% reduction of CO<sub>2</sub> emissions for the heating and cooling of the connected properties in the region. In March 2015 Mijnwater B.V. received the 'European Geothermal Innovation 2015 Award', showcasing excellence in development of the most intelligent applications of geothermal energy. Mijnwater B.V. is already considering further developments with Minewater 3.0. Researchers are working on a demand-based system that recognizes patterns of demand over time.



## Replicability: Challenges & Success Factors

Heerlen demonstrates that traditional mining regions can become champions of renewable energy. The city went from being a renowned coalmining area to being internationally awarded for its impressive efforts in the field of geothermal energy.

Cluster grid applications such as the ones realised in this project are used in combination with low temperature geothermal sources (mine water in this case) and can be applied in general with other sustainable heat and cold energy sources (e.g. waste heat from data centres and greenhouses). The technologies used by Mine Water are generally applicable for all types of exergy based energy infrastructure systems.

## Share & learn more!

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