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## Dutch city kept warm by hot-water mines



The world's first minewater power station opened in Heerlen six days ago

David Charter, Europe Correspondent

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In an age of rapidly rising fuel bills the discovery of vast supplies of free hot water sounds too good to be true. But that is exactly what one Dutch city has found to run the radiators of hundreds of homes, shops and offices.

Heerlen, in the southern province of Limburg, has created the first geothermal power station in the world using water heated naturally in the deep shafts of old coalmines — which once provided the southern Netherlands with thousands of jobs but have been dormant since the 1970s.

Tapping “free energy” marks a breakthrough in green technology by exploiting the legacy of the coalmines that emitted so much pollution and helped to create the climate change emergency faced by the planet.

“With the threat of global warming and soaring energy prices, nobody can afford to sit back,” said Riet de Wit, a councillor in Heerlen. “We have proven that a local initiative can provide a local solution for sustainable energy. Moreover, our concept can be adapted by former mining regions all over the world.”

The concept sounds simple. The abandoned mineshafts were seen as a blight on an area that has struggled to recover economically from the mass redundancies of miners in the 1970s. After the mineworks were demolished new homes were built and linked to a geothermal power station pumping water up from the mines at a depth of 800 metres, where it reaches temperatures of 35C (95F). The water is used to provide heating for 350 homes and then pumped back into the pit after use, where it will again heat up for the cycle to continue. The water will circulate two or three times a year.

The only drawback is that the homes need to be close enough to the old mines to make use of the heat, which will be topped up by domestic boilers when greater temperatures are needed.

Scientists estimate that the project will produce 55 per cent fewer CO<sub>2</sub> emissions than a traditional coal-fired power station — and are now working on a carbon capture system to liquefy the CO<sub>2</sub> and pump it back into other disused shafts rather than release it into the atmosphere.

The goal is “emission-free” heating and it could revitalise other former mining areas as sources of cheap, renewable energy.

“For wind power, you need wind. If there is no wind, there is no power. But with geothermal energy, you have a constant level of simple heat without any need for conversion,” said Karl-Heinz Wolf, Professor of Coal and Geothermal Energy at the Technical University of Delft. “You have it all year round and if you don’t need it, you close the tap until you need it again. You have heat at a certain level and you only have to top it up if you want it at a higher level.”

During the summer the water can be taken from near the top of the shaft where it is cold enough to cool the city’s buildings.

So, is this the answer to Europe’s energy crisis? Professor Wolf, who is working on a project to drill down to an aquifer 2.5km below Delft where the temperature of the water is 80-85C, said: “It is not difficult to do, the only thing you need is a mine which is in the vicinity of the industry or houses you want to heat.”

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