



MINE WATER HEAT

Mine water in disused underground coal workings can provide renewable, secure, low carbon and stable priced heat for homes, businesses and horticulture in coalfield areas.

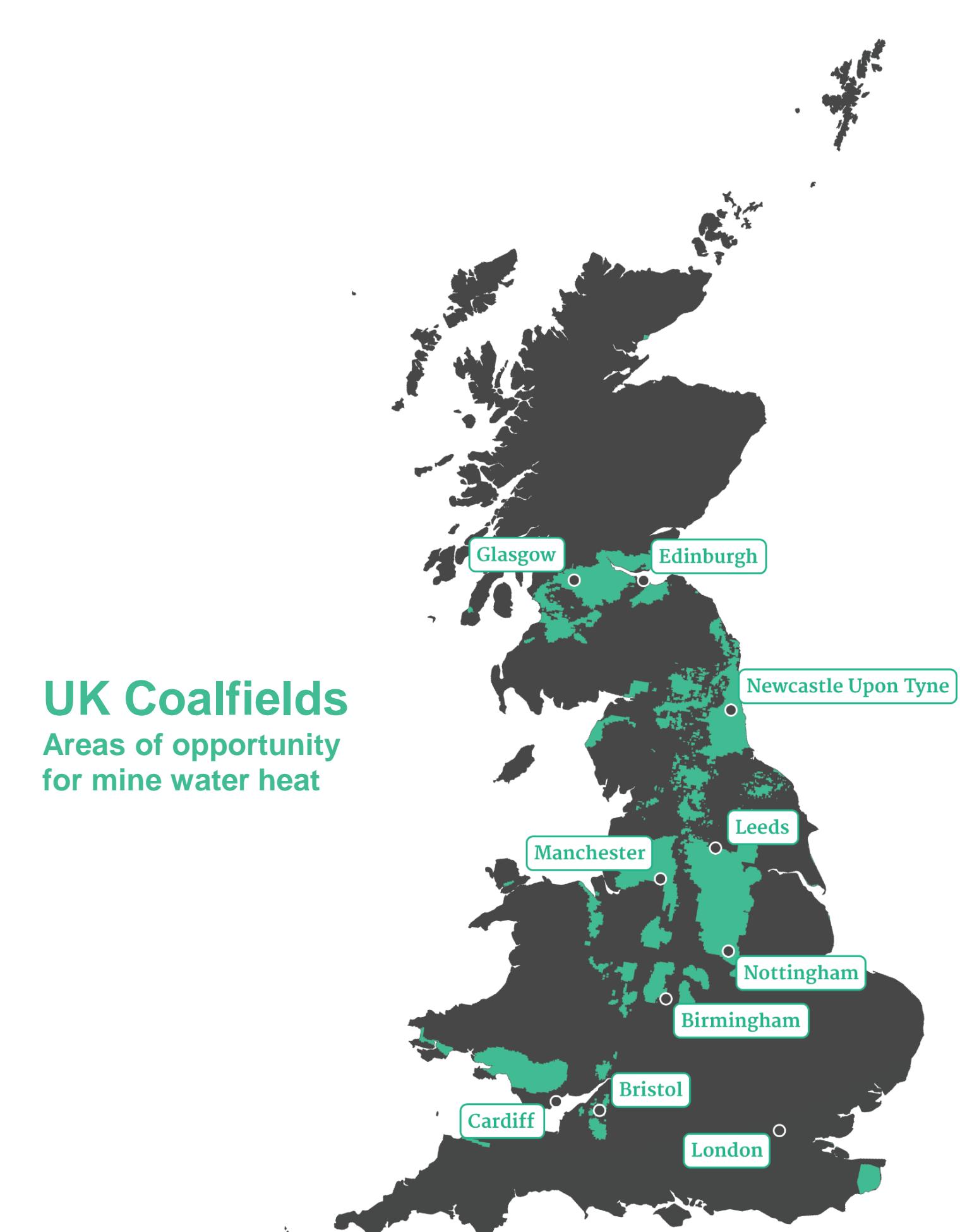
The Coal Authority, Durham Energy Institute and British Geological Survey are working together with partners to undertake research and development that will help us maximise the opportunity to develop mine water heat as a national resource.

Ways to access mine water heat

Mine water treatment schemes The Coal Authority operate 76 mine water treatment schemes where they bring water to the surface to treat it

Mine entries The Coal Authority hold records of over 172,500 mine entries recorded across Britain

New boreholes Developers or partners could drill new boreholes to access mine water



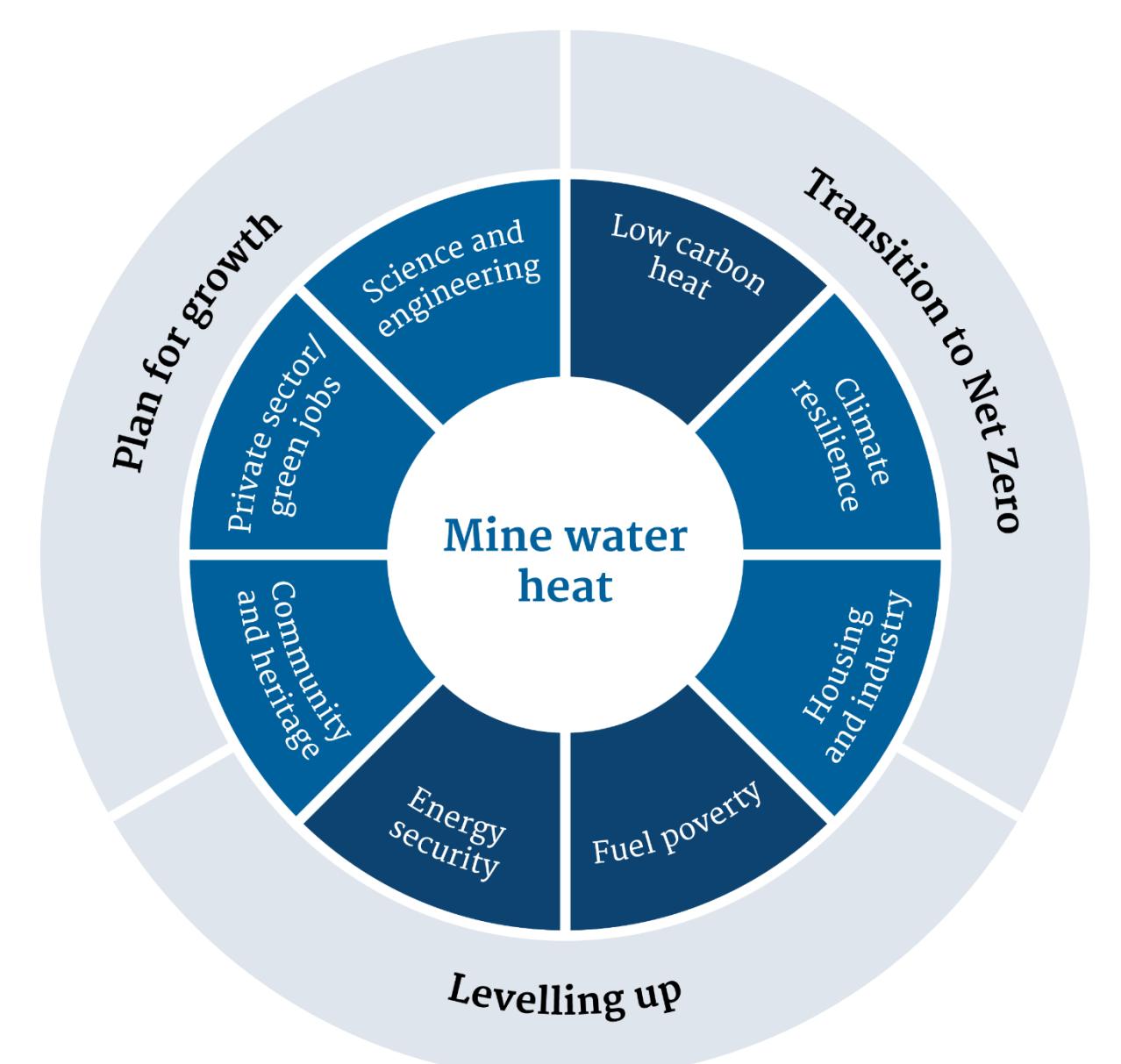
CREATING A BETTER FUTURE FROM OUR MINING PAST

Significant populations live in coalfield areas.

25% of Great Britain's homes and businesses, and **9 out of 10** of the largest cities, are located above former coal mines.

There is a clear overlap between where the heat is needed and the extent of the coalfield areas where mine water heating could support district heating networks.

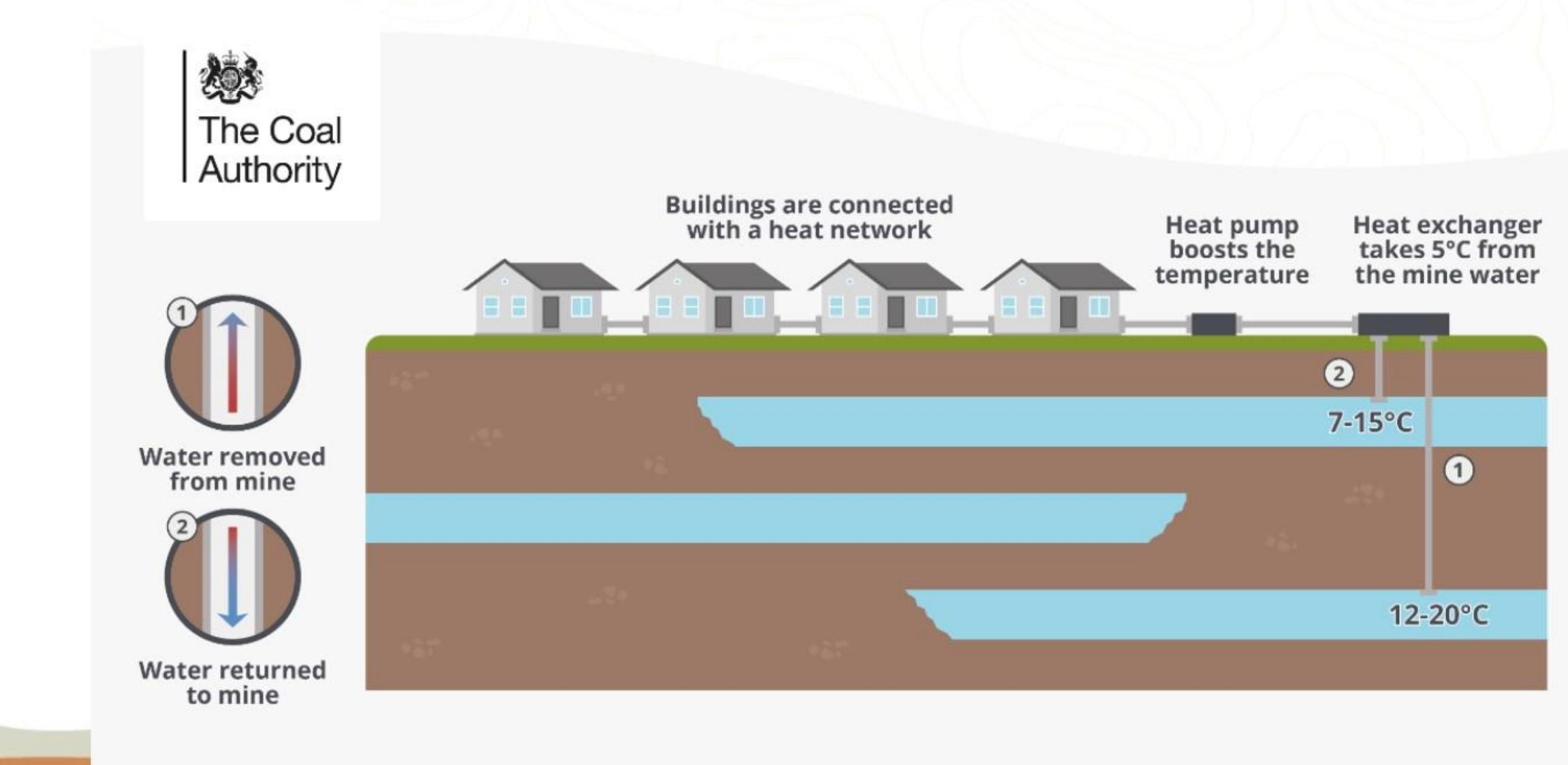
These schemes will also attract new investment, create employment and deliver lower fuel bills to communities which are often facing deprivation as a result of mine closures.



EXTRACTING HEAT FROM MINE WATER

Mine water can be used where available at surface at one of the Coal Authority treatment sites. Alternatively, boreholes can be drilled to access the mine water. At the surface, heat pumps upgrade the heat to higher temperatures before it is distributed to buildings using a clean transfer fluid.

Extracting heat from mine water – Boreholes



Extracting heat from mine water using boreholes or a shaft

Mine water is abstracted from a borehole or shaft and heat is extracted from the mine water as it passes through a heat exchanger. The mine water is then returned safely below ground.

Heat pumps upgrade the heat to higher temperatures before it is distributed to buildings using a clean transfer fluid. The heat transfer fluid is then returned back to the heat exchanger where it is reheated.

Extracting water from a mine water treatment scheme

Mine Water is pumped through a heat exchanger on its way to the mine water treatment scheme.

The heat is extracted from the water and transferred to the energy centre. Here heat pumps upgrade the heat to higher temperatures before it is distributed to homes.

The heat transfer fluid is then returned back to the energy centre to be reheated for reuse.

Extracting heat from mine water – Offtake

