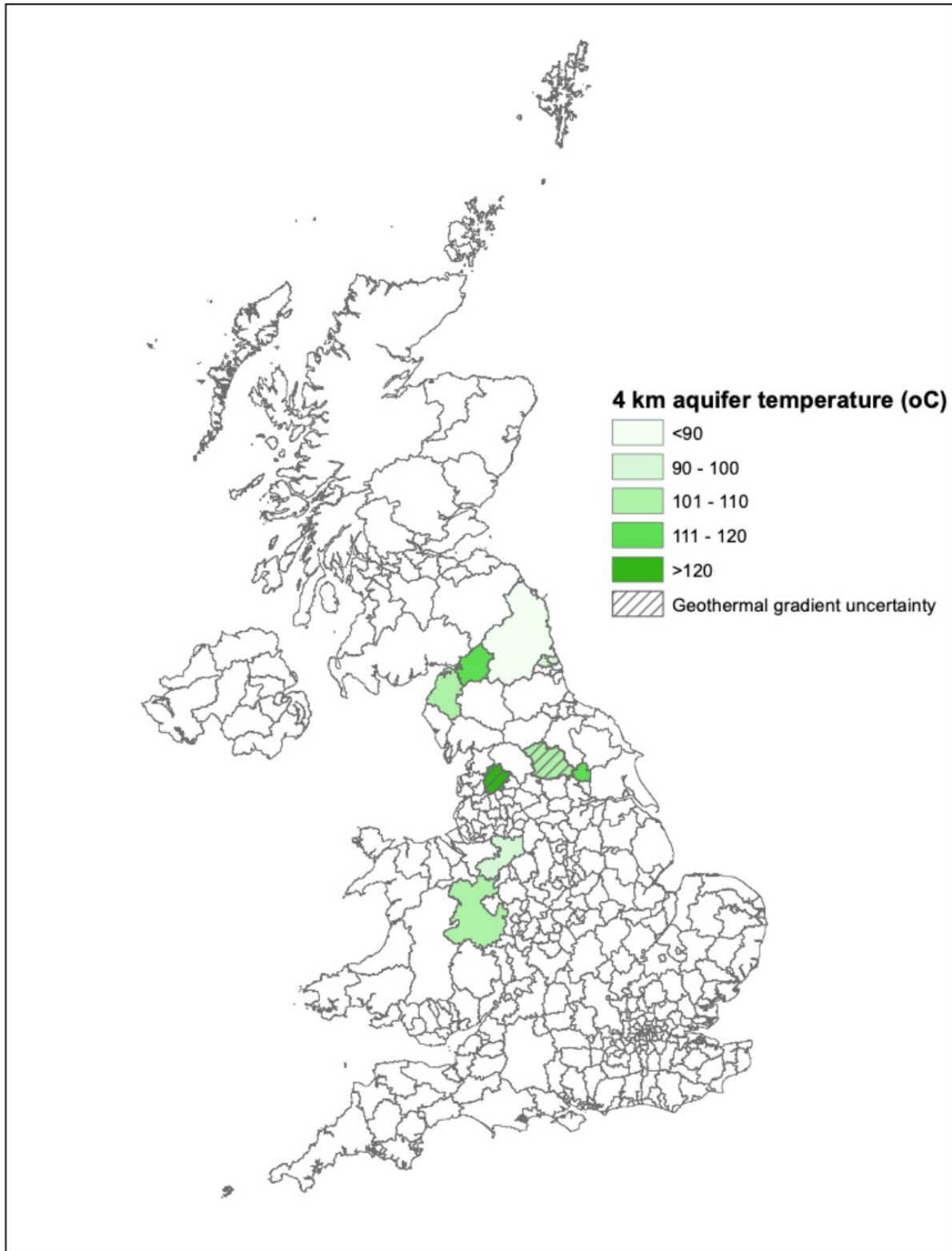


Carbon neutral heat beneath our feet 'could supply large parts of UK'

June 7 2023



Council areas with a currently mapped aquifer at a depth of 4 km, scaled by

estimated temperature (°C). Credit: *GEOTHERMAL ENERGY OPPORTUNITIES OF THE U.K* (2023).

New research from some of our leading energy experts has shown that the UK sits on underground heat capable of providing sustainable, carbon-neutral heating and cooling for large areas of the nation.

Harnessing this [natural resource](#) would diversify and strengthen the UK's [heat](#) supply as well as bring opportunities for [economic growth](#) to regions of the UK.

Geothermal heat

The study was led by researchers from Durham Energy Institute (DEI), and commissioned by Kieran Mullan, Member of Parliament for Crewe and Nantwich.

It built on an earlier study from the DEI which recognized geothermal heat as a source of ultra-low carbon and secure form of energy. This study estimated that deep geothermal resources could provide all the UK's heat demand for at least 100 years.

The research identified the opportunity to exploit sustainable [geothermal energy](#) to displace gas usage in the UK and improve energy security.

It assessed and ranked the geothermal potential of individual council areas in the UK and demonstrate that many of the more populated areas of the UK also have high geothermal potential.

The research concluded that investment is needed to understand of the UK's deep subsurface and reduce the uncertainty for future geothermal

exploration and developments.

The report from this research confirmed that geothermal energy has a significant role in the energy mix for the UK's energy transition to deliver a secure, low-carbon energy future.

Findings inform MP's report

The findings from this research informed Dr. Kieran Mullan's report *Dig Deep Opportunities To Level Up Through Deep Geothermal Heat & Energy On The Way To Net Zero*.

A purpose of this report is to specific localities where the opportunity for deep geothermal exploration is greatest.

Analysis of the research identifies 45 high potential sites in the UK with the presence of hot water stored in rocks deep underground suitable for deep geothermal plants.

Delivering the UK's net zero ambitions

The report considers that deep geothermal heat can be cost competitive with the Green Gas Support Scheme and Nuclear identifies that a tariff-based approach as the most effective way to kickstart a UK deep geothermal sector.

It concludes that with the right support, it is possible that by 2050 the UK could have 360 geothermal plants producing 15,000 GWh annually.

UK Prime Minister Rishi Sunak welcomed the report, saying it was excellent and would help the Government consider whether there is a bigger role for geothermal [energy](#).

Economic benefit for North East England

For North East England the likely greatest potential exploitation opportunities for deep geothermal exploration are in County Durham, Hartlepool, Middlesbrough, Newcastle upon Tyne, North Tyneside, and Redcar and Cleveland.

The [report](#) recognizes the contribution that developing a deep geothermal industry will make to the North Sea transition. The technology and skills set associated with the traditional drilling and geological expertise the oil and gas sector in the North Sea are transferable to this new industry.

This would bring to jobs and skills to Redcar and Cleveland, Middlesbrough, Hartlepool, and Northumberland, thereby improving the economic resilience of these communities.

More information: Main report: [www.drkieranmullan.org.uk/site ... les/2023-06/Appendix %20%20Geothermal%20Energy%20Opportunities%20of%20the%20UK%202023.pdf](http://www.drkieranmullan.org.uk/site...les/2023-06/Appendix%20%20Geothermal%20Energy%20Opportunities%20of%20the%20UK%202023.pdf)

MP's report: [www.drkieranmullan.org.uk/site ... uk/files/2023-06/Dig %20Deep%20June%202023.pdf](http://www.drkieranmullan.org.uk/site ... uk/files/2023-06/Dig%20Deep%20June%202023.pdf)

Provided by Durham University

Citation: Carbon neutral heat beneath our feet 'could supply large parts of UK' (2023, June 7) retrieved 4 May 2024 from <https://techxplore.com/news/2023-06-carbon-neutral-beneath-feet-large.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.