



[Media and events](#) > [Press releases](#) > [2022](#) >

ADDRESSING THE CHALLENGES OF GEOTHERMAL ENERGY ADOPTION



🕒 WED, 02 FEBRUARY, 2022

TWI has been working on a range of collaborative projects to help address the challenges that are slowing the adoption of geothermal as a renewable energy resource.

With COP-26 still fresh in our minds and many nations making commitments to reduce their carbon emissions, there is no better time to promote geothermal energy as a cornerstone for government energy policies.

The flexibility of geothermal means it has the capability to reach the demanding goals set by COP-26, all underlined by the spiralling costs of oil and gas, which are forcing so many people into “fuel-poverty,” where they are forced to decide whether to “eat or heat (or cool).”

The cost of natural gas is particularly sensitive, since it is the primary energy source for the transition away from coal fired power stations and oil systems. In addition, the direct use of

gas for domestic and industrial heating, along with many industrial processes including steel manufacture and cement processing, add to the supply and demand pressures that we are seeing at the moment. And this is without even mentioning the pressing issue of carbon dioxide emissions.

To assist with this problem, the GeoDrill collaborative group, which includes EU-funded research projects [GeoDrill](#), [OptiDrill](#), [GeoHex](#), [GeoSmart](#) and [GeoCoat](#), have pooled their collective research and innovation skills, with help and support from the [Horizon Results Booster \(HRB\)](#) programme, to address issues that are slowing the exploitation of geothermal energy.

Speaking on the important role that geothermal energy could play in the future of energy, TWI's Dr. Namrata Kale, said, "Geothermal energy takes so many forms and offers so many solutions, it is vitally important that its deployment is fast-tracked. It will be key to decarbonising domestic heating throughout Europe (and globally), as over 50% of energy consumption is for heating. So, supplying geothermal heat direct to communal and district heating schemes makes such sense. As there are fewer losses associated with converting one energy source into electrical power and then converting it back to heat, the efficiencies will increase. And, by freeing up electrical power required elsewhere, carbon emissions can be greatly reduced."

Reducing the cost of geothermal drilling is just one of the obstacles for widespread exploitation of geothermal resources, with Geolorn's Kevin Mallin, technical manager for the Optidrill Project, saying, "Data shows that drilling operations consume a large portion of CAPEX spending. So, increasing the lifecycle times of drilling equipment and reducing the uncertainties of drilling outcomes will go a long way to helping lower costs. The GeoDrill and

OptiDrill projects are developing novel drilling and downhole data technologies, that help inform so that optimal parameters are achieved.”

Of course, the nature of geothermal resources mean that equipment must be able to withstand harsh environments, as Dr Kale elaborates, “Many geothermal environments are extremely harsh, with high temperatures, pressures and corrosive agents present. So, even when we reduce the cost of drilling, we need to increase the lifetime of materials used in the production of geothermal energy. This includes coatings for components that are deployed, the systems used to extract the heat energy when the temperatures are low (heat exchangers), and maximising the flexibility of supply with Organic Rankine Cycle (ORC) plants used in Combined Heat and Power production (CHP). GeoSmart, GeoHex and GeoCoat are addressing most of these issues through intense research.”

As well as the technical challenges of geothermal energy, there is a need to improve public knowledge of the potential of this renewable energy source, as Kevin Mallin explained, “Geothermal is very much a hidden resource and not something that the general population is widely aware of. Therefore, getting the public to engage with the possibilities that geothermal can bring has to be part of our development strategy. We also need to ensure that policy makers include its usage in any decarbonisation strategy, which is something that can prove challenging when you consider politicians have quite short spans in power and often they can be gone by the time geothermal developments are completed. Rightly or wrongly, politicians make policies that win votes, and wind farms and solar farms are relatively quick turnarounds (no pun intended) and are hugely visible. With the help of the HRB programme, we are making inroads into solving these issues.”

You can find out more about the work of TWI as part of the GeoDrill Policy Group in the document, below:

[HRB-GeoDrill Policy Brief-Jan22 - pdf - 646kb](#)

The GeoSmart project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 818576

The Geo-Drill project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 815319

The GeoCoat project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 764086

The GeoHex project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 851917

For more information please email:

contactus@twi.co.uk

Granta Park, Great Abington, Cambridge, CB21 6AL, UK

 +44(0)1223 899000

 contactus@twi.co.uk

[Subscribe to our newsletters](#)

Copyright © 2022 TWI Ltd. All rights reserved.

[Terms](#) [Privacy](#) [Cookies](#) [Modern Slavery Statement](#) [Safeguarding Policy](#) [Covid-19 Risk Assessment](#)