



Department for  
Business, Energy  
& Industrial Strategy

**Lord Callanan**  
Minister for Business, Energy and Corporate  
Responsibility

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Dear Rt Hon Philip Dunne MP

Thank you for your letter of 19<sup>th</sup> October 2022 and for sharing the findings of the Environmental Audit Committee's evidence session on Geothermal Technologies. I appreciate the work of the committee in exploring how best to strengthen the UK's energy security and its transition to net zero.

Please find BEIS' responses to the questions in your letter below:

## **A. The scale of the resource and the Government's ambition**

- 1. Please set out what consideration was given to (a) including detailed geothermal heat and power in the British Energy Security Strategy and the Net Zero Strategy and (b) setting generation targets for these zero-emission technologies.**

In the British Energy Security Strategy, BEIS set out that it would explore renewable energy opportunities afforded by our geography and geology, including tidal and geothermal. For electricity generation the approach is for the electricity market to determine the best solutions for very low emissions and reliable supply, at a low cost to consumers, rather than targeting a particular generation mix. BEIS will rely on competition to spur on greater investment in technologies which are cheaper and more efficient; and in innovation which will reduce the costs of existing options.

In terms of heat the 2021 Heat and Buildings Strategy identified heat pumps, heat networks and potentially hydrogen as playing an important role in decarbonising heating, and that pivotal decisions on the decarbonisation of heat pathway would be made by 2026. BEIS continues to investigate the potential of geothermal energy for heat and to support the development of geothermal projects, such as the Gateshead scheme that you reference in

your letter, provided they represent value for money and can be delivered at an acceptable cost to consumers.

Geothermal technology remains at an early stage of development and it is the department's current understanding that the need for suitable geological conditions will limit availability to specific areas of the UK. The Deep Geothermal Review commissioned by DECC in 2013 sets out what this means for power generation. In order to utilise geothermal heat for heating purposes the suitable geological conditions need to correspond with a demand for heat. A few studies have investigated the potential market for geothermal projects in the UK. These were based on optimistic assumptions of the availability of geothermal resource, supply chain cost reductions, heat demand and financial incentives.

You mention in your letter that the Gateshead scheme will be able to provide heat at a price below that of gas. However, this is only the case because of the support provided by the Heat Networks Investment Project. These factors together with limited UK operational sites and geological data mean that it was not currently possible to make an assessment of the technical and financial viability of geothermal technologies so as to be able to justify setting generation targets for this technology in the strategies mentioned above.

## **B. Support for geothermal power generation under Contracts for Difference**

### **2. Will your Department consider the creation of a ringfenced pot for geothermal power projects under the Contracts for Difference scheme?**

The Contract for Difference (CfD) scheme is the government's main mechanism for supporting low-carbon electricity generation. It incentivises investment in renewable energy by providing developers of projects with high upfront costs and long lifetimes with direct protection from volatile wholesale prices, and they protect consumers from paying increased support costs when electricity prices are high. The scheme is managed by BEIS and the CfD delivery partners: National Grid ESO, the Low Carbon Contracts Company and Ofgem.

BEIS is currently considering auction parameters for all technologies in the next round of the Contracts for Difference scheme, including any for geothermal, taking into account evidence of the pipeline of available projects. The Government will publish details of these parameters ahead of the round opening in March 2023.

## **C. Licensing of heat from geothermal technologies**

### **3. Will your Department undertake to investigate and to implement an appropriate licensing regime for geothermal projects in the UK?**

Based on your letter we understand the focus of your question to be on the deeper Geothermal sources. Introducing a licencing regime can have benefits but also introduces additional costs and barriers which can slow down development. Geothermal heat is also different from other natural resources that have been or are licensed in the UK. The Environment Agency has told us that a review of the regulations around heat may be needed when the deployment of geothermal systems increases and the impacts on the subsurface heat resource are better understood. BEIS will therefore continue to monitor progress in the development of geothermal projects in the UK alongside engaging with the Environment Agency, Coal Authority and North Sea Transition Authority to consider the

timing, form and benefits of creating a licensing regime. BEIS will consider findings of studies into the potential interference or risk of heat abstraction of reinjection at different depths, in different geologies and geographies in the UK as well as the existing permitting schemes in this process. Engagement with industry bodies as well as the Mine Water Task Force will continue to understand their views on how a proportionate licencing framework for geothermal heat could support the industry.

#### **D. Support for accessing geothermal heat**

##### **4. Will your Department give consideration to longer-term support for geothermal heat, and other forms of renewable heat?**

The Government wants to support the development of geothermal projects provided it represents value for money and can be done at an acceptable cost to consumers. As covered in the evidence BEIS provided to the committee, extracting lower temperature geothermal heat for use in heat networks represents the most widespread opportunity for geothermal energy to decarbonise the energy system within the UK. Therefore, as set out in the Heat and Buildings Strategy, the government is acting to develop the market and bring down costs for heat pumps and heat networks because they are proven scalable options for decarbonising heat and will play substantial roles in any Net Zero scenario.

The *Opportunity areas for district heating networks in the UK* report, published in 2021, identified and quantified several low carbon heat sources, that could provide heat to heat networks. The Green Heat Network Fund has been designed to support all of these including geothermal sources as long as they can deliver low carbon heat within the carbon metrics stipulated. It has already attracted interest from several schemes based around geothermal heat. The Public Sector Decarbonisation Scheme has also supported the delivery of communal heat networks utilising ground source heat pumps.

The Gateshead scheme referred to in your letter is an example of a scheme that has been enabled by the predecessor to the Green Heat Network Fund. In 2019, Gateshead Council were awarded a £5.9m grant from the Heat Networks Investment Project for development and construction of an extension to the Gateshead District Energy Scheme. The funding was for the installation of a 6 MW mine water source heat pump to displace gas boiler generated heat and reduce the operating hours of the network's gas CHP engines. Upon completion, the network will supply lower carbon heat to Gateshead Quays Arena and Conference Centre and 270 new private homes. A subsequent grant of £2.856m was made to enable expansion of the network to include 550 council homes, and potentially two schools, was made in 2021. The Green Heat Network fund has also received interest from several schemes which plan to utilise geothermal sources.

The Government has committed to introducing heat network zoning by 2025 as part of a wider programme of measures to bring down the costs of heat networks. BEIS will use the outputs from the research report being conducted by the British Geological Society to inform any future support mechanisms for heat networks and geothermal sources.

##### **5. Please set out what plans your Department has to ensure that appropriate risk-sharing mechanisms are in place for the geothermal industry, and what models, if any, are under consideration.**

As set out in the evidence that was provided to the committee BEIS has commissioned research that is being conducted by the British Geological society into the potential contribution that geothermal technologies could make in the UK. As existing studies focus on the theoretical potential, a better understanding of the commercial potential of using UK geothermal resources to decarbonise heating is needed to inform future policy decisions. Feedback from stakeholders in the geothermal sector will be an integral part of these future decisions.

BEIS is also building its understanding of the risk mitigation mechanisms that have been implemented by other countries, such as France, the Netherlands and Germany to decide which of these approaches may be suited to the UK. The market conditions and particular geological conditions in the UK means that any future risk mitigation mechanism would have to be designed carefully, and that the mechanisms used in other countries may not be appropriate. Projects such as the European Geothermal Energy Council's GEORISK study have informed this work and may be useful to establish a framework for a risk mitigation mechanism.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Martin Callan', with a long horizontal flourish extending to the right.

**Lord Callanan**  
**Minister for Business, Energy and Corporate Responsibility**