



**UNIVERSITY OF LEEDS**

## **CANDIDATE BRIEF**

**Research Fellow in Geosolutions: Geothermal Energy Solutions for the University of Leeds and Leeds City Region, Faculty of Environment**



**Salary: Grade 7 (£35,333 – £42,155 p.a.)**

**Reference: ENVEE1600**

**Fixed term for 3 years (to start no later than November 2022) – due to external funding**

**We are open to discussing flexible working arrangements**

## Research Fellow in Geosolutions: Geothermal Energy Solutions for the University of Leeds and Leeds City Region, School of Earth and Environment, Faculty of Environment

Are you an ambitious researcher with a broad background in geology or geophysics? Do you want to be part of a cutting-edge geoscience research programme? Do you want to make a difference by delivering research to underpin robust, sustainable and just climate and energy solutions? Do you want to develop your skills in trans-disciplinary research, equipping yourself with the expertise needed for linking geoscience knowledge and sustainable development?

The University of Leeds has world-leading expertise in subsurface characterisation, resource exploration and geoen지니어ing through its long-established oil and gas, fundamental tectonic, and geophysical and geological [research and teaching programmes](#). In addition, the Faculties of both Engineering and Physical Science, and Environment, have an outstanding track record in shallow geothermal energy deployment via heat pumps and district heating networks, from a technical, social and policy perspective.

In response to the University's bold [climate crisis policy announcement](#), we aim to harness this expertise to focus on the challenges relating directly to decarbonising the energy supply. This post is focussed on assessment and implementation of geothermal energy related solutions for the University of Leeds and the wider Leeds City area. We have a wealth of knowledge, expertise and skills to be applied to these areas as we work together with our [Sustainability Research Institute](#) and the [Priestley International Centre for Climate](#), towards a net-zero greenhouse gas emissions future for our campus and for Leeds City.

The [School of Earth and Environment](#) and the [School of Civil Engineering](#) has secured University funding to run an integrated series of 3 projects on 'Geosolutions' linking Geoscience, Social Science, Sustainability and data analytics expertise with paired Grade 6 and Grade 7 research support. These projects will sit firmly within the University's [Geosolutions Centre](#), and will form part of a larger enterprise that brings together world-leading expertise from across the university to re-orient research towards innovative and sustainable Geosolutions.



These innovative transdisciplinary projects are aimed to address a significant gap in understanding of potential geenergy opportunities, social acceptance, barriers and technologies for a just energy transition in line with Net Zero Carbon ambitions. These projects will set a novel standard of how to approach sustainable geosolutions, including through delivery of a University of Leeds based “Living Lab” as a proof-of-concept that the subsurface can be used efficiently for thermal storage and extraction. Our approach will evaluate and overcome the technical challenges and opportunities of geothermal energy and experiences, feeding directly into the partner project on the social/governance/business challenges associated with such solutions. Projects will be co-supervised by an academic lead from the geosciences, engineering and environmental social sciences.

You will have completed a PhD or be close to completion i.e. the initial thesis needs to have been handed in at the point of application in geoscience or a closely allied discipline. You will be eager to work in a team of geoscientists, engineers, and social scientists to enhance the portfolio of the University of Leeds in contributing to Sustainable Geoscience based solutions in the Energy Transition. You will have the ability to conduct independent research and have excellent communication, planning and team working skills.

Towards the second half of the project links with a data analytics focussed research project will become important.

This position focusses on identifying and quantifying the potential for geothermal energy use and storage at the University of Leeds campus and in the wider Leeds City area. This position is supported by a 1 year Research assistant. You will work closely with the Research Fellow in Geosolutions: Social science, governance and business models for local and regional geothermal energy use.

Key geoscience questions to addressed within the project include:

- How would a geothermal system beneath the University of Leeds campus produce and recharge its energy and fluids?
- What potential would this system have for sustainable energy storage and extraction?
- How would this site act as an exemplar (pilot program) for geothermal heat and storage across the wider city of Leeds?

Results from this project will flow directly into the two associated research projects:



- 1) Social science questions with focus on geothermal energy (post of Research Fellow in Sustainable Geosolutions: governance, public perception and business models for local and regional geothermal energy use);
- 2) Data analytics to maximise the use of the subsurface for geosolutions with minimum additional costs (part of a future Research Fellow in Sustainable Geosolutions: Using Data Analytics for Cost-efficient Use of the Subsurface for the Energy Transition).

## What does the role entail?

As a Research Fellow your main duties will include:

- Design and execution of a programme of instrumentation and monitoring systems for quantifying the geothermal environment, including downhole geophysics techniques;
- Collection, curation and interpretation of geophysical and geological data from existing and to be drilled boreholes;
- Producing 3D geological and thermal models to quantify the geothermal energy potential at the University of Leeds campus;
- Developing dynamic models of the geothermal system to visualise and quantify ongoing and future fluid flow and energy changes/recharge in the system;
- Collating and analysing data to inform the optimal utilization of the geothermal energy at the University of Leeds campus;
- Collaborate with external contractors to maximise the use of the subsurface for geothermal storage and extraction;
- Design the technical aspects of a geothermal energy storage and extraction system in collaboration with University of Leeds Estates;
- Develop a methodology for assessing and modelling the potential of geothermal systems at other sites in the Leeds City council area.
- Acting as a first point of contact for your partner social scientist and later partner data analytics researcher;
- Helping to prepare and organize workshops on geothermal energy in the city environment throughout the tenure;
- Working both independently and as part of a larger team of researchers and stakeholder, engaging in knowledge-transfer activities where appropriate and feasible;
- Generating and pursuing independent and original research ideas in the appropriate subject area;



- Contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and relating such evaluations appropriately to your own work;
- Disseminating research results through recognised forms of output and Providing a concise brief on research results.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

## What will you bring to the role?

As a Research Fellow you will have:

- A PhD or near completion - i.e. the initial thesis needs to have been handed in at the point of application in Geosciences or a closely allied discipline;
- A strong background in geophysics, structural geology, or geoengineering;
- Experience of handling large datasets and 3D geophysical and/or thermal modelling software(s);
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- A proven track record of peer-reviewed publications;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to work well both individually and in diverse teams;
- A strong commitment to your own continuous professional development.

You may also have:

- Experience of interdisciplinary research;
- Experience in working towards sustainable geosolutions is desirable;
- Knowledge of geothermal energy principles and technology;
- Experience of thermal analysis approaches;
- Experience in working in the energy sector;
- Fieldwork experience in geoscience or geophysics.



## How to apply

You can apply for this role online; more guidance can be found on our [How to Apply](#) information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.

## Contact information

To explore the post further or for any queries you may have, please contact:

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## Additional information

Find out more about the [Faculty of Environment](#).



Find out more about the [School of Earth and Environment](#).

Find out more about our [Research and associated facilities](#).

Find out more about [equality](#) in the Faculty.

## **Our University**

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Environment we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian, people who belong to a minority ethnic community; people who identify as LGBT+; and disabled people. Candidates will always be selected based on merit and ability.

The Faculty of Environment has received a prestigious Athena SWAN silver award from [Advance HE](#), the national body that promotes equality in the higher education sector. This award represents the combined efforts of all schools in the Faculty and shows the positive actions we have taken to ensure that our policies, processes and ethos all promote an equal and inclusive environment for work and study.

## **Working at Leeds**

We are a campus based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our [Working at Leeds](#) information page.

## **Candidates with disabilities**

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our [Accessibility](#) information page or by getting in touch with us at [disclosure@leeds.ac.uk](mailto:disclosure@leeds.ac.uk).

## **Criminal record information**

### **Rehabilitation of Offenders Act 1974**



A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

