



UNIVERSITY OF LEEDS

## CANDIDATE BRIEF

Research Fellow in Geothermal Energy District Heating,  
Faculty of Engineering and Physical Science



**Salary: Grade 7 (£33,797 – £40,322 p.a.)**

**Reference: EPSCV1020**

**Closing date: 06 September 2020**

**Fixed-term for 18 months**

**We will consider flexible working arrangements**

# Research Fellow in Geothermal Energy District Heating

## School of Civil Engineering

**Are you an ambitious researcher looking for a new challenge? Do you have expertise in district heating networks, especially their analysis and connection to ground heat sources or similar? Do you want to join an expanding research team at a leading UK university?**

Decarbonisation of heat is an essential step to meeting our shared climate challenge. Ground heat exchangers, where heat transfer pipes are buried in the ground or structure foundations, must form part of the solution to this challenge. Yet, to ensure the fullest uptake of the technology then they must also be integrated with district heating networks. At the University of Leeds, our dynamic [energy geotechnics](#) team are leading research in this growing area. We would like to recruit someone to lead our research in district heating integration of ground heat exchangers installed in infrastructure foundations.

As part of an exciting new UKRI Innovation Fellowship, Integrated Infrastructure for Sustainable Thermal Energy Provision ([IN-STEP](#)), directed by [Dr Fleur Loveridge](#), you will lead innovative research into the coupling of retaining walls used as ground heat exchangers (so called energy walls) with district heating provision. The project aims to:

- Collate lessons learnt from constructed energy walls;
- Make recommendations on construction detailing;
- Develop protocols for in situ thermal testing and characterisation of energy walls;
- Provide novel analytical/semi-analytical solutions for analysis;
- Facilitate integration of energy walls within district heating networks.

In particular you will lead research in integration of energy walls into district heating networks, considering a variety of end users. You will:

- Carry out coupled analysis of district heating networks and energy walls;
- Assess interactions with different types of users in the network and/or other sources of heat/cool;
- Develop a network of collaborators, nationally and internationally;
- Develop an understanding of the barrier to adoption of district heating networks linked to energy walls and other energy geostructures.





## What does the role entail?

As a Research Fellow, your main duties will include:

- Carrying out numerical and analytical analysis of district heating networks coupled to ground heat exchangers;
- Generating and pursuing independent and original research ideas in the field of district heating networks;
- Developing research objectives and proposals and 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 to relate such evaluations appropriately to your own work;
- Leading the preparation papers for publication in leading international journals and disseminating research results through other recognised forms of output;
- Participating in dissemination and knowledge transfer events, conferences, project meetings and workshops, including presenting and discussing your own research and that of the team;
- Working both independently and also as part of a larger team of researchers and industrial partners in the UK and internationally;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

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 close to completion) or equivalent research experience, in civil or mechanical engineering, or a closely allied discipline;
- A strong background in thermal engineering simulation, including numerical and analytical techniques;



- Knowledge of a range of appropriate commercial and/or open source software for numerical and/or analytical techniques;
- Knowledge of district heating design and analysis approaches;
- Ability to take the initiative in developing your own research;
- Good time management and planning skills, with the ability to meet tight deadlines and work effectively under pressure;
- A proven track record of peer-reviewed publications in high impact factor journals;
- Excellent written and verbal communication skills including presentation skills;
- Proven ability to manage competing demands effectively, responsibly and without close support;
- A proven ability to work well both individually and in a team;
- Experience of interdisciplinary research;
- Willingness to travel within the UK and internationally to work with academic and industrial project partners;
- A strong commitment to your own continuous professional development.

You may also have:

- Knowledge of shallow geothermal energy research, especially energy geostructures such as piles, walls and tunnels;
- Experience of collaborative working, including with industry partners;
- Experience of pursuing external funding to support research;
- Experience of supervision of others.

## 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](#).

## Contact information

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

**[Dr Fleur Loveridge](#), University Academic Fellow**

Tel: +44 (0)113 343 2248

Email: [F.A.Loveridge@leeds.ac.uk](mailto:F.A.Loveridge@leeds.ac.uk)



## Additional information

### Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering](#) and the [School of Civil Engineering](#).

### A diverse workforce

The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN [Bronze or Silver](#) Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.

### Working at Leeds

Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on 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.

