UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Industrial Decarbonisation,

Faculty of Engineering and Physical Sciences

Salary: Grade 7 (£39,355 – £46,735 p.a.) Due to funding restrictions, an appointment will not be made higher than £40,497 p.a.

Reference: EPSPE1121

Location: Leeds Main Campus (with scope for hybrid working)

Closing date: Sunday 20 April 2025

Fixed-term for 30 months

We are open to discussing flexible working arrangements

Research Fellow in Industrial Decarbonisation, School of Chemical and Process Engineering.

Would you like to contribute to two of the UK's foremost academic centres undertaking whole systems research for a sustainable energy future? Do you want to further your career by applying your quantitative modelling skills to examine UK industrial decarbonisation strategies? Do you enjoy working with researchers from other disciplines to tackle problems with significant potential for real-world impact?

Both the UK Energy Research Centre (UKERC) and the Energy Demand Research Centre (EDRC) are undertaking research to explore how industry can dramatically reduce its greenhouse gases emissions by 2050, so helping the UK to meet its net-zero target. This role will involve developing models of manufacturing industry to analyse the deployment of existing and new technologies and infrastructure, as well as changes in the pattern of demand for energy, materials and products. The research will take a whole-systems approach to industrial energy use that will go beyond analysing the major industrial clusters. It will also explore how the availability of future infrastructure – such as electricity and hydrogen networks or carbon dioxide pipelines – could impact viable emissions reduction pathways for key industrial sectors in different places.

You will be based in the School of Chemical and Process Engineering at the University of Leeds, which has an active research group working on issues relating to the Energy Transition and Net Zero. The research is being led by Professor Peter Taylor and you will also work closely with other members of the UKERC and EDRC teams located in different Universities across the UK.

What does the role entail?

As a Research Fellow, your main duties will include:

- Collecting and analysing data on the energy use, emissions, efficiencies, lifetimes, costs and other metrics of existing and future technologies relevant for manufacturing industry, as well as similar data on the supporting infrastructure (e.g. electricity and hydrogen networks and CO2 pipelines) needed for industrial decarbonisation;
- Developing bottom-up, technology-rich and spatially disaggregated models of UK manufacturing industry for the period to (at least) 2050 covering both energy intensive and non-energy intensive industrial sub-sectors, and the supporting decarbonisation infrastructure;
- Making projections of future demand for industrial materials and products taking account of global and UK economic developments and opportunities for increased efficiency in use and greater end-of-life recovery;
- Using models and other analysis to explore different socio-techno-economic scenarios for industrial decarbonisation in the UK, that could be consistent with the net-zero target for 2050;
- Working closely with researchers from other disciplines at the University of Leeds and other universities involved in UKERC and EDRC, to undertake and publish interdisciplinary and multidisciplinary research on industrial decarbonisation;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- 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 research;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals and by presentation at national and international meetings;
- Working independently and as part of a larger team of researchers, both internally and externally, to develop new research links and collaborations and engage in knowledge transfer activities where appropriate;
- 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 have submitted your thesis before taking up the role) in a relevant engineering or other quantitative discipline;
- A strong background in computer modelling using Python or similar software, preferably applied to some aspect of energy;
- Experience of using Geographical Information Systems;
- A good level of numerical literacy and demonstrated ability to interpret complex data;
- Some knowledge of industrial energy use and production processes;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively without close support;
- A developing track record of peer-reviewed publications in international journals;
- Excellent communication skills both written and verbal, and the ability to communicate your research at national and international conferences;
- A proven ability to work well both independently and in a team;
- A strong commitment to your own continuous professional development.

You may also have:

- A track record of developing bottom-up techno-economic energy models to explore decarbonisation strategies;
- Expertise in analysing the development of energy infrastructure including electricity and hydrogen networks and CO_2 pipelines;
- A good knowledge of energy use and energy using technologies in one or more industrial sectors;
- Experience of pursuing external funding to support research.

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:

Professor Peter Taylor, Professor of Sustainable Energy Systems
Email: P.G.Taylor@leeds.ac.uk

Additional information

Faculty and School Information
Further information is available on the research and teaching activities of the Faculty of Engineering & Physical Sciences, and the School of Chemical and Process Engineering.

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.

A diverse workforce
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 Engineering and Physical Sciences 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 and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN 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.

Information for disabled candidates
Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our How to Apply information page or by getting in touch by emailing HR via hr@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.

Salary Requirements of the Skilled Worker Visa Route
Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information, please visit the Government's Skilled Worker visa page.

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit the Government's page, Apply for the Global Talent visa.