

JOB DESCRIPTION

Vacancy reference:	SRF40192
Post Title:	Postdoctoral Research Associate (PDRA) for Electricity Derived Transport Fuelling
Grade:	Grade 7
School/Department:	School of the Built Environment
Reports to:	Dr Stefan Thor Smith (technical and general management) Dr Phil Coker (additional technical support and integration with SMaRT)
Responsible for:	n/a

Purpose

The purpose of this role is to support the Investigators in undertaking the EPSRC funded Sustainable Heavy Duty Truck, Marine and Rail Transport (SMaRT) project, namely through conducting agent-based modelling of the spatial and temporal power network loading from delivering electricity derived transport 'fuel'.

Main duties and responsibilities

Research:

- Undertake research under the supervision of the project Co-Investigator (Dr Smith) with additional direction from the project lead (Dr Coker). This will include:
 - Lead on the enhancement of a modelling framework for the impact of electric vehicle charging on the power grid at network voltage tiers relevant for fuelling heavy duty vehicles, including some or all from transport depots, service stations, ports etc.
 - Develop feasible electricity network load characteristics for alternative fuelling strategies including hydrogen electrolysis and ammonia synthesis
 - Assess the electricity network impact of fuelling, utilising a range of mathematical and computational techniques.
 - Access relevant data sources to assess the implications of renewable generation and price variability for temporal fuelling characteristics.
 - Test plausible fleet fuel adoption assumptions to identify network hotspots, capacity thresholds and load characteristics that complement/antagonise other electricity network demands
- Carry out independent research and supervise the work of (student) research assistants
- Take a leading role in the writing of papers for publication in academic journals and other relevant media
- Prepare and disseminate research findings and establish a (inter)national reputation through participation in (inter)national conferences, exhibitions and workshop events

- Design and implement research methodologies that add to knowledge and understanding that are appropriate to the discipline
- Collaborate with colleagues within the University and at other institutions in the development of original research
- Provide specialist advice to other staff and students within the University
- Use initiative and creativity to synthesise, analyse, and interpret research data
- Contribute to the development and writing of research proposals and projects
- Participate in peer review activities appropriate to supporting the discipline

Enterprise & Outreach:

- Liaise closely with industry partners and clients external to the University, such as academics and potential research users, and researchers and partners involved with the project
- Support development and maintenance of relevant website(s) and social media to support research user engagement
- Participate in and help organise relevant seminars, conferences, exhibitions and other events, including those linking the SMaRT project to the associated CREDS Transport & Mobility Theme.
- Participate in relevant activities that contribute to the widening participation agenda

Leadership & Management:

- Participate in School promotion and recruitment initiatives such as Open Days and Visit Days
- Participate in project teams and steering groups at a Research Group, Department or School level
- Contribute to the research culture within the School of Built Environment, particularly pertaining to Energy and Environmental Engineering
- Undertake project-related administration such as organising regular project or client meetings, departmental presentations or seminars (e.g. impact activities and advisory panel meetings)

Supervision received

Technical, regular, supervision with Dr Stefan Thor Smith as well as general management (including finance, impact, and research planning). Additional technical and wider project support, as well as research planning will also come from Dr Phil Coker.

Contact

It is expected that the post holder will liaise with other academics and researchers on and off campus involved in related research. Specifically, this will be with staff and students belonging to the Energy and Environmental Engineering Research Group; the Investigators and research staff working under the SMaRT project at Nottingham and Newcastle, as well as contact with the Transport & Mobility Theme of CREDS (particularly Investigators at Oxford and Leeds Universities) and the wider CREDS research community.

Terms and conditions

The post is full-time, fixed term until September 2023. There are no specific set hours of work, but the appointee will be required to work such hours as are necessary to carry out the duties associated with the post.

This document outlines the duties required for the time being of the post to indicate the level of responsibility. It is not a comprehensive or exhaustive list and the line manager may vary duties from time to time which do not change the general character of the job or the level of responsibility entailed.

Date assessed: October 2020

PERSON SPECIFICATION

Job Title	School/Department
PDRA for Electricity Derived Transport Fuelling	Built Environment

Criteria	Essential	Desirable
Skills Required	<ul style="list-style-type: none"> • Collation and interpretation of evidence from diverse types of sources • Collaborative approach to research and team-work • Excellent programming skills • Excellent computational and mathematical modelling ability • Ability to carry out advanced data analytics • Ability to work independently and as part of an interdisciplinary team. • Ability to communicate effectively, both orally and in writing • Ability to work to deadlines • Ability to present data to a wide variety of audiences 	<ul style="list-style-type: none"> • Ability to publish in top quality refereed journals relevant to area of specialist expertise. • Project management skills • Research and project-related administrative skills. • Proven social media and networking abilities • Excellent critical thinking, analytical and problem-solving skills
Attainment	<ul style="list-style-type: none"> • Strong track record of educational achievement in engineering, mathematical, or physical sciences • PhD in relevant subject or discipline • Appropriate publication record for career level 	
Knowledge	<ul style="list-style-type: none"> • Structure and operation of energy networks and power markets • Knowledge of energy relevant modelling techniques • Ability to interpret patterns of energy supply, especially variable renewable supply, and electricity demand 	<ul style="list-style-type: none"> • Understanding diverse power system benefits of flexibility, including DSM and energy storage • Relevant temporal and / or spatial data sets for energy network research • Knowledge of energy / transport related technologies and practices • Existing energy systems/network models
Relevant Experience	<ul style="list-style-type: none"> • Postgraduate level research on some aspect of energy systems modelling • Professional presentations at workshops and conferences • Management of research projects • Publishing in leading academic journals 	<ul style="list-style-type: none"> • Industry or professional experience in a related field. • Experience of participating in knowledge exchange activities online and using social media and working with stakeholders

		<ul style="list-style-type: none"> • Experience of building and maintaining external contacts/partners in order to drive mutual interests
Disposition	<ul style="list-style-type: none"> • Willingness to travel nationally • Strong commitment to continuous professional development. 	<ul style="list-style-type: none"> • Willingness to instigate and deliver collaborative research with industry and wider research community.

Completed by: Phil Coker, Stefan Thor Smith	Date: 15/10/2020
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