

# Research & Development Engineer

## (Electrification of Transport and Energy Storage)

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|----------------|---|----------------|---------------|
| Department     | Power Networks Demonstration Centre (PNDC)<br>( <a href="http://www.strath.ac.uk/research/powernetworksdemonstrationcentre/">http://www.strath.ac.uk/research/powernetworksdemonstrationcentre/</a> ), Department of Electrical and Electronic Engineering<br>( <a href="http://www.strath.ac.uk/engineering/electronicalelectricalengineering/">http://www.strath.ac.uk/engineering/electronicalelectricalengineering/</a> ) |                |               |
| Faculty        | Faculty of Engineering ( <a href="http://www.strath.ac.uk/engineering/">www.strath.ac.uk/engineering/</a> )   |                |               |
| Staff Category | Knowledge Exchange  | Reference No   | 325994        |
| Reports To     | PNDC Programme Delivery Manager   | Grade:         | 7             |
| Salary Range:  | £32817 - £40322   | Contract Type: | Open Contract |
| FTE            | 1   | Closing Date   | 31/01/2021    |

### About the PNDC

The University of Strathclyde has a large internationally rated Engineering Faculty with a proud history of successful joint ventures with industrial and enterprise partners. As part of the University's strategic development, the PNDC has been established in Wardpark North near Cumbernauld. The PNDC is a world-class facility with dedicated staff that will accelerate the adoption of new, 'smart' technologies within advanced power grids, supporting the increased accommodation of renewable energy, electric vehicles and demand side management. The £12.5 million Centre - the first of its kind in Europe – was founded



by the University of Strathclyde and leading energy companies including Scottish Power Energy Networks and Scottish and Southern Energy Power Distribution, with support from Scottish Enterprise and the Scottish Funding Council. The Centre has expanded its membership since its founding and this growth is set to continue.

The PNDC provides: a purpose-built platform for showcasing state of the art electrical distribution, generation, storage, digital monitoring, smart grids and demand side innovation; a rapid technology pipeline accelerating the proving and deployment of integrated smart grid solutions with commercial partners; a realistic and controllable test bed from primary plant to state-of-the-art

control room for the development of emerging smart grid technologies that will support the realisation of a decarbonised grid.

### Job Advert

The Power Networks Demonstration Centre (PNDC), part of the University of Strathclyde (Times Higher Education Awards University of the Year 2019 and Scottish University of the Year 2020), wishes to appoint a Research and Development Engineer to research, develop, test and demonstrate technologies for electrification of transport and energy storage in the utility and transportation sectors.

The successful candidate will work as part of a growing team on a wide range of technical projects, with a particular emphasis on experimental validation and testing. The postholder will be expected to lead on and contribute to high value industrial funding proposals, in addition to working with the PNDC's industrial partners, with a strong focus on knowledge exchange.

Opportunities for innovation are extensive, through the strong working relationship and routes to market afforded by the PNDC's industry members and commercial engagements. This will be supplemented with collaborative opportunities with other research and industry teams in the UK and abroad.



The PNDC offers a dynamic and varied environment, providing the opportunity to be involved in leading edge work within the energy sector. As part of the University of Strathclyde, the PNDC can offer a wide range of benefits to the post holder, including a generous holiday entitlement, pension scheme, and discounts to the state-of-the-art Strathclyde Sport gym and leisure facilities. The University also currently holds a Bronze Athena SWAN award, recognising our commitment to advancing women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.

To achieve the above, the R&D Engineer will require significant research and/or industrial experience in at least two of the following technical areas:

- a) Smart charging strategies and control techniques;
- b) Vehicle to Grid (V2G) and the provision of ancillary services to the grid;
- c) Grid integration of EV charging and Energy Storage Systems;
- d) EV charging backend systems and data;
- e) Grid scale and behind-the-meter Energy Storage System technologies;
- f) DER grid services including flexibility and wholesale markets;
- g) Energy data analysis and management.

## Job Description

### Brief Outline of Job:

You will undertake specific research and development projects under the guidance of the PNDC leadership team, providing regular updates and reports for industrial partners. Strong engagement with industry colleagues, as well as with the PNDC and wider University team, is required to support the realisation of valuable results. You will work across assigned research areas in accordance with PNDC objectives and on externally funded projects. You will develop project proposals for consideration by industrial partners and clients as well as research applications for geared funding. You will support the PNDC's external profile and technical leadership by engaging in relevant professional and knowledge exchange activities. Working as part of a dynamic team, you will input to PNDC administrative and operational activities.

### Main Activities/Responsibilities:

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| 1 | Research, develop, test & demonstrate electric vehicle and energy storage technologies using the PNDC's facility in a safe and efficient manner.  |
| 2 | Contribute to PNDC's core research themes in collaboration with theme leads, academic leads, and PNDC leadership to deliver the centre's growth ambitions.  |
| 3 | Apply technical knowledge to industry issues to investigate and quantify problems experienced by PNDC members, developing project proposals & specifications in response to these.  |
| 4 | Maintain key relationships with industry partners and stakeholders and appropriate engagement with PNDC industrial members to ensure relevance and accuracy of deliverables, and exploitability of research outputs.              |
| 5 | Provide quality technical and project progress reports for distribution to members and clients, adopting best practice in effective knowledge transfer; support wider dissemination at conferences and in peer-reviewed journals. |
| 6 | Contribute to PNDC's safe operational running, effective administration, and knowledge exchange events and initiatives.   |
| 7 | Plan and manage workload, with guidance from colleagues as required, while adopting safe and appropriate working practices.   |
| 8 | Provide guidance and support fellow researchers in other research areas to help meet PNDC objectives and targets.   |
| 9 | Engage in continuous professional development, participating in external networks and consultations to maintain current knowledge of relevant state of the art, patent positions, products and Technology Readiness Levels.       |

## Person Specification

### Educational and/or Professional Qualifications

(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

- E1 Good honours degree (minimum class 2:1) Electronics, Electrical Engineering, or similar
- E2 Relevant Professional experience or PhD
- D1 Professional qualifications relating to installation, safety and operation of distributed energy resources and working on LV energy systems

### Experience

- E3 A sound understanding of the state-of-the-art and technical issues relating to the electrification of transport
- E4 A sound understanding of the state-of-the-art and technical issues relating to the proliferation of energy storage in the electric power sector
- E5 Good experience of addressing a range of industrial and commercial challenges within a multi-disciplinary team and with external stakeholders
- D2 A track record of developing research and development project proposals and securing funding, including engaging with industry and research institution to shape collaborative research and development projects or programs
- D3 Experience of the communications protocols used in EV supply equipment and back end systems; Understanding of electric vehicle-related interface and communications standards, e.g. CAN, SAE J1772, IEC 61851, ISO 15118, CHAdeMO, and OCCP.
- D4 Knowledge of electrical circuit and cell level components of battery energy storage systems;
- D5 Experience in working with large data volumes for data analysis and processing;
- D6 Experience in high level programming languages, e.g. Matlab, Python, Java;
- D7 Experience with digital real-time simulators (i.e. RTDS, Opal-RT etc.);
- D8 Proficiency in electrical system simulation programs (e.g. OpenDSS, DIgSILENT, Matlab/Simulink);

### Job Related Skills and Achievements

- E6 A sound understanding of electrical theory and practice as well as an appreciation of the electrical utility industry and the future smart grids landscape;
- E7 Developing ability to conduct individual research and knowledge exchange activity, and the preparation of reports and technical papers;
- D9 High levels of initiative with the ability to apply knowledge in a highly practical environment, and to generate new ideas;
- E8 Good evidence of technical writing ability and strong communication skills;

### Personal Attributes

- E9 Excellent interpersonal and communication skills (oral and written), with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.
- E10 The ability to work independently and conduct individual research and knowledge exchange activity, with minimum supervision, and as part of a small team.
- E11 Enthusiastic self-starter and able to work to deadlines, with a customer focus.

## Application Procedure

Applicants are required to complete an application form including the name of three referees via the University's online recruitment portal (<https://www.strath.ac.uk/workwithus/>). Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

## Other Information

Further information on the application process and working at Strathclyde can be found on our website (<http://www.strath.ac.uk/hr/workforus>).

Informal enquiries about the post can be directed to: Ryan Sims, PNDC Senior Research and Development Engineer ([r.sims@strath.ac.uk](mailto:r.sims@strath.ac.uk) / +44 141 444 7431).

### Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found [here](#).

### Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from [Payroll and Pensions](#).

### Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

### Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.

### University Values

The University's Values capture what we're all about: who we are, what we believe in and what we stand for. [Our Values](#) have been derived from how we act and how we expect to be treated as part of Strathclyde.

### Conditions of Employment

Conditions of employment relating to the Knowledge Exchange staff category can be found at: [Conditions of Employment](#).

### Probation

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

