



<b>Research Centre</b>	Insight Centre for Data Analytics
<b>Post title</b>	Postdoctoral Researcher: SEAI Funded
<b>Level on Framework</b>	Level 1
<b>Post duration</b>	Fixed term contract up to 18 months

### Research Career Framework

As part of this role the researcher will be required to participate in the DCU Research Career Framework <http://dcu.ie/hr/ResearchersFramework/index.shtml>. This framework is designed to provide significant professional development opportunities to researchers and offer the best opportunities in terms of a wider career path.

DCU has a strong track record in attracting both Irish and European Union research funding under Horizon 2020 (and all previous Framework Programmes), Marie Curie Actions and Erasmus. We offer a dynamic and internationally-focused environment in which you can advance your academic career.

### Background

The Insight Centre for Data Analytics (<http://www.insight-centre.org>) is a joint initiative between researchers at Dublin City University, NUI Galway, University College Cork, and, University College Dublin, as well as other partner institutions. It brings together a critical mass of more than 450 researchers from Ireland's leading ICT centers to develop a new generation of data analytics technologies in a number of key application areas.

The €88m Centre is funded by Science Foundation Ireland and a wide range of industry partners. Insight's research focus encompasses a broad range of data analytics technologies from machine learning, decision analytics and social network analysis to linked data, recommender systems and the sensor web. Together, with more than 70 partner companies, Insight researchers are solving critical challenges in the areas of Connected Health and the Discovery Economy. Current project funding is to July 2019.

### The Project

The specific project for which this role is being recruited, involves technical and economic modelling of the rapid decarbonisation of the Irish energy system, commensurate with the goals of the Paris climate agreement, and with a specific focus on the role of large scale energy storage. For reproducibility, transparency, and to support future work, all models, tools and

datasets will be selected and made available under open development licensing. The project is funded by the **Sustainable Energy Authority of Ireland** Research, Development and Demonstration programme. It is classified as Non-economic Public Good Research under EU State Aid regulations, with a specific objective of providing independent expert input to public energy policy in Ireland. The project will provide early insight into policy options and path dependencies likely to directly impact on Irish energy system development within the next two decades.

## **Background & Role**

Insight wishes to recruit a Postdoctoral Researcher on a fixed term contract basis to contribute to all elements of the project, but with a core focus on the technical development of the relevant energy system modelling framework, the execution of models for a variety of target configurations and scenarios, and the analysis and communication of key results and insights.

## **Main Duties and Responsibilities**

Reporting to his/her Principal Investigator the Postdoctoral Researcher will:

- identify suitable open energy systems modelling platforms and tools.
- Develop a baseline Open Energy System Model for Ireland (OESM-IE).
- Develop a variety of scenario system configurations showing deep decarbonisation (nett negative CO<sub>2</sub> emissions) and specifically investigating the role of large scale energy storage.
- Characterise deep-decarbonisation transformation pathways from the current system configuration to such nett negative CO<sub>2</sub> configurations, consistent with an equitable cumulative CO<sub>2</sub> quota, aligned with the Paris Agreement.
- Analysing and summarise key characteristics arising from these scenarios and pathways, presenting relevant, tailored, communications to all target audiences for the project's results.
- Participate in general Insight Centre activities, including industry showcases, annual reviews and industry and agency visits to the Insight labs.
- Other tasks relevant to successfully implementing the project's and the Research Centre's research programme.
- Carry out administrative work associated with the programme of research as necessary.

**Below are some pointers to examples of knowledge and technologies relevant to the project, to indicate the type of experience we require. The successful candidate should demonstrate strong competence in most if not all of these:**

- Knowledge of energy system concepts: energy sources (fossil fuel, variable renewable, bioenergy, nuclear), transformation/conversion (including carbon capture and storage), roles and characteristics of energy carriers/vectors, energy transport, end use/demand (heating, transport, conventional electricity uses), and energy storage (specifically including hydrogen based, and other synthetic fuels, hydrocarbon and otherwise).

- Knowledge of Python, Jupyter.
- Knowledge of principles of open licensing of both programmes and data; use of open source tools, techniques and services, such as GitHub etc.
- Database management technologies: PostgreSQL, MySQL.

### **Skills**

- Excellent written and oral proficiency in English (essential)
- Excellent written and verbal communication and interpersonal skills.
- Proven ability to prioritise workload and work to strict deadlines.
- Ability to work in a team and to take responsibility to contribute to the overall success of the team.
- Strong problem solving abilities.

### **Minimum Criteria**

The ideal candidate should have a PhD in Engineering, Computer Science, or a related discipline with a strong focus on energy systems modelling and renewable energy technologies specifically including large scale energy storage systems. Experience in open software development would also be an advantage.

### **Additional Information**

The successful candidate will be offered opportunities for developing her/his own career in a number of directions including some support for conference/workshop travel, upskilling through Insight's continuous professional development in areas like research ethics and data privacy, and student supervision and development.

### **Candidates will be assessed on the following competencies:**

**Discipline specific knowledge and Research Skills** (demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline)

**Communicating Research** (Demonstrates the ability to communicate their research with their peers and the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students)

**Managing & Leadership skills** (demonstrates the potential to manage a research project including the supervision of undergraduate students)

**Understanding the Research Environment** (demonstrates an awareness of the research environment (e.g. funding bodies) and takes responsibility for how their research is conducted.

**Informal enquiries to:** Prof. Barry McMullin, [barry.mcmullin@dcu.ie](mailto:barry.mcmullin@dcu.ie)

Please **do not** send applications to this email address, instead apply as described below :

**Salary:** \* €37,223 per annum

\*Salary fixed by external project funding.

**Closing Date: 22<sup>nd</sup> November 2018**

### **Application Procedure**

Application forms are available from the DCU Current Vacancies (open Competitions) website at <http://www.dcu.ie/vacancies/current.shtml> and also from the Human Resources Department, Dublin City University, Dublin 9. Tel: +353 (0) 1 7005149.

**Please clearly state the role that you are applying for in your application and email**

**subject line: Job Ref #1038 Postdoctoral Researcher: SEAI Funded, Insight Centre for**

**Data Analytics**

Applications should be submitted by email to [hr.applications@dcu.ie](mailto:hr.applications@dcu.ie) or by Fax: +353 (0)1 7005500 or by post to the Human Resources Department, Dublin City University, Dublin 9. Human Resources Department, Dublin City University, Dublin 9. Tel: +353 1 700 5149; Fax: +353 1 700 5500 Email: [hr.applications@dcu.ie](mailto:hr.applications@dcu.ie)

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