

## Candidate Information

<b>Position:</b>	Research Fellow
<b>School/Department:</b>	School of Chemistry and Chemical Engineering
<b>Reference:</b>	24/111613
<b>Closing Date:</b>	Monday 26 February 2024
<b>Salary:</b>	£37,841 per annum
<b>Anticipated Interview Date:</b>	Monday 11 March 2024
<b>Duration:</b>	Available until 31 March 2025

### JOB PURPOSE:

The post holder will play an integral part in the development of a new generation of biorefinery based approaches to the utilisation of biogenic CO<sub>2</sub> for the generation of fuels and chemicals. Based within the school of Chemistry and Chemical Engineering at Queen's University Belfast the work will initially focus on upgrading biogenic CO<sub>2</sub> to e-methane in a collaboration with the National Renewable Energy Laboratory (NREL) and industry partners in Northern Ireland. The role involves being an active member of a research team investigating the coupling of wind powered green hydrogen generation with a biorefinery to upgrade the CO<sub>2</sub> in biogas to e-methane and other fuels. The post holder will be responsible for the planning and delivery of the research activity within this project so that the overall research objectives of the project are met. The appointee will actively collaborate with NREL including spending time conducting research at NREL's facility in Boulder, Colorado. As such, this appointment is subject to NREL and US Government requirements which will form part of the shortlisting criteria.

### MAJOR DUTIES:

1. Develop and execute research deliverables in accordance with the e-methane, CASE funded project with emphasis on investigating the performance of a pilot scale biorefinery system for the upgrading of biogenic CO<sub>2</sub> to e-methane.
2. Carry out analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to the areas of research developed.
3. Present regular progress reports on research to members of the research centre or external audiences to disseminate and publicise research findings in close co-ordination with NREL and the industrial partners.
4. Prepare, in consultation with the project supervisor and other relevant people, material for publication in esteemed national and international journals, social media and presentations at international conferences.
5. Assist the grant holders in the preparation of business cases and research proposals to deliver additional funding to continue and extend the research area from applications to external bodies including industry.
6. Carry out routine administrative tasks associated with the research centre to ensure that deliverables are completed on time and within budget. These might include organisation of project meetings and documentation, financial control and risk assessment of research activities.
7. Carry out occasional undergraduate supervision, demonstrating or lecturing duties associated with The School of Chemistry and Chemical Engineering.
8. Read academic papers, journal and textbooks to keep abreast of developments in own specialism and related disciplines.
9. Travel to meetings and conferences in the UK, Ireland and elsewhere in the world deemed necessary to undertake the research and associated project work.

### ESSENTIAL CRITERIA:

1. Have or about to obtain a PhD in Chemistry, Chemical Engineering, Biochemistry or related research area.
2. Specific relevant research experience to include:
  - Relevant experience and knowledge of biorefineries especially for use in upgrading of CO<sub>2</sub> to fuels or other chemicals.
  - Relevant expertise in system integration across chemical/biological processes, electrical, engineering and sensor systems.
  - Demonstrable interest in interdisciplinary research.
3. Ability to manage own research project including working to deadlines and being accountable for deliverables.

4. Sufficient breadth and depth of specialist knowledge in the discipline and of research and analysis methods and techniques to work within established research programme.
5. Ability to communicate complex information clearly.
6. Ability to build contacts and participate in internal and external networks.
7. Demonstrable intellectual ability.
8. Ability to assess and organise resources.
9. Ability to work efficiently as a team member and be highly motivated.
10. Must be prepared to travel and undertake work with collaborators based in UK/USA.
11. Must be able to comply with US Government requirements for working at NREL.
12. A driving licence will be required.

**DESIRABLE CRITERIA:**

1. Experience of generating and using hydrogen.