



4-year PhD position available

Development of an Online Decision Support Tool for Hydrogen Storage in Community Renewable Energy Systems

Description

GENCOMM (GENerating energy secure COMMunities) is a **€9.3 million project** funded by the EU Interreg North-West Europe (NWE) programme, whose aim is to demonstrate the use of **hydrogen (H₂) as an energy storage technology in community renewable energy systems**. Using H₂ allows intermittent renewable energy (wind, solar, biomass) to be stored and/or transformed into other energy products such as electricity, vehicle fuel, biomethane, heat, and valuable chemicals. This will increase penetration of renewable energy, reduce emissions, and increase energy security in communities. *GENCOMM* will achieve its aim by: (1) building and operating three pilot-scale renewable H₂ energy storage sites, (2) creating technical and economic models of plant performance, (3) developing an online map-based decision support tool (DST) that will assist others in developing renewable H₂ systems in their own communities, and (4) fostering a Europe-wide Community H₂ Forum (CH2F). NUI Galway will lead the development of the DST, and the establishment of the CH2F.

The activities that will be carried out by the NUI Galway PhD student are: (1) incorporation of the technical and economic models developed by project partners into an **online map-based DST**, (2) **establishment of the CH2F**, (3) modelling the **integration of additional renewable resources** and technologies into the H₂ framework, (4) exploration of the synergies between electrolytic H₂ production, biomethane production by anaerobic digestion, and bio-SNG production by gasification in a **Power to Gas (P2G) system**. The NUI Galway student will **work closely with all project partners** in Belgium, France, Germany, Ireland and the UK. As a *GENCOMM* team member, there will be opportunities for collaboration and **research exchanges with partner universities**; Free University of Brussels (Belgium), ENSI Caen and INSA Rouen (France).

Duration: 1st September 2017 – 30th August 2021

Stipend & tuition: €16,000 per annum plus tuition fees for 3 years. The successful candidate will be required to work with the supervisor **to secure funding for the 4th year**, for example by applying for the Irish Research Council Scholarship Scheme.

Requirements: Bachelors degree in Engineering with *at least* a 2.1 Honours grade or equivalent. A Masters degree is desirable but not required. The successful candidate will have a strong background in **thermodynamics**, modelling languages (including for example **Matlab, Python, Modelica, Aspen Plus**), and programming languages (including for example HTML, Java). Extremely strong **written and spoken English communication skills** are essential. Backgrounds in geographic information systems (GIS) and/or web design are advantageous.

How to apply: Send a one-page cover letter, and your CV with names and contact details of two referees to the project lead supervisor, Dr. Rory Monaghan at rory.monaghan@nuigalway.ie, with "**GENCOMM PhD application**" in the subject line. The closing date for receipt of applications is **9pm (Irish time) Sunday 30th July 2017**.

Additional information

GENCOMM: <http://www.nweurope.eu/projects/project-search/gencomm-generating-energy-secure-communities/>

Dr. Rory Monaghan: <http://www.nuigalway.ie/our-research/people/engineering-and-informatics/rorymonaghan/>

ThermE research group at NUI Galway: <http://www.nuigalway.ie/therme/>

Informal questions: rory.monaghan@nuigalway.ie

