Funded PhD Research Opportunities

Two Research Studentship in Hydropower Energy Recovery from Water Distribution Networks

The School of Engineering, Trinity College Dublin, and the Faculty of Agricultural and Forestry Engineering, University of Cordoba, invite applications for research positions leading to a PhD, part funded under the ERDF INTERREG Atlantic Area programme 2014-2020 (www.atlanticarea.eu). Trinity and Cordoba are collaborating with the Trinity Business School, Action Renewables Ltd, IST Lisbon, Hidropower Ltd, University of Naples, the WATEF Network, FAEN and Feragua in this research.

The project is entitled Reducing the Energy Dependency of Atlantic area Water Networks (REDAWN). The water industry is the 4th most energy intensive sector in the Atlantic area (AA), responsible for significant contributions to climate change and reductions in competitiveness due to the associated costs. REDAWN aims to improve the energy efficiency of water networks through innovative micro-hydropower technology. This technology will recover wasted energy in existing pipe networks across: irrigation, public water supply, process industry settings. REDAWN will develop the institutional, social and technological environment to foster greater resource efficiency in water networks, including:

- Completion of an energy recovery resource assessment in water networks in the AA
- Completion of an economic/environmental impact assessment of this technology on the region
- Development of design guidelines and support tools for hydropower energy recovery in drinking water, waste water, irrigation and process industry sectors.
- Development of policy and institutional support tools to increase the implementation of energy recovery projects
- Quantification of the societal impacts of hydropower energy recovery in water networks
- Widespread dissemination and promotion of energy efficiency in AA water networks

At present significant potential exists to save energy, costs and environmental impacts in AA water networks, but technological, institutional and social barriers prevent the exploitation of this resource. REDAWN will develop technology and policy, and raise awareness to overcome these barriers, improving the energy efficiency of water suppliers and users in the region.
As part of REDAWN, two PhD researchers will be appointed based at Trinity College Dublin, School of Engineering (www.tcd.ie/civileng). These two PhD researchers will address hydropower energy recovery in water distribution networks in the: i) irrigation (PhD-A); and ii) public and private (PhD-B) water network sectors, respectively. Both PhD projects will comprise the completion of the following tasks relating to irrigation or public/private water networks:

- Carry out background research in the fields of micro-hydropower energy recovery in water distribution networks.
- Assess the existing resources in AA water networks for energy recovery
- Assess the economic and environmental impact of the technology on the region
- Design, implement and oversee the lab-scale demonstration of micro-hydropower energy recovery
- Investigate the organisational/policy enablers and barriers to innovation in the water sector

Applicants with good honours degrees in Civil Engineering, Mechanical Engineering, Agricultural Engineering or related disciplines will be considered. Candidates are asked to send a cover letter, CV and the names of two referees, at least one of whom should be an academic, to the address below. Funding for this position comprises €22,000 per annum for a period of 3 years. Closing date for applications is 1st July 2017. Position commencing 1st September 2017. Informal enquiries to amcnabol@tcd.ie or jarodriguez@uco.es;

Further information available at: https://www.tcd.ie/civileng/research/environment/water/water-energy-nexus/index.php

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