Candidate Information

Position:	Research Fellow - Pre-prototype testing of Tidal Energy Technology
School/Department:	Environmental Change and Resilience
Reference:	21/108851
Closing Date:	Monday 14 June 2021
Salary:	£33,797 to £35,845 per annum
Anticipated Interview Date:	Monday 28 June 2021
Duration:	24 months or until 29 March 2023, whichever is soonest.

JOB PURPOSE:

The Marine Research Group at QUB has been awarded an Invest NI funded CASE project - Vertical Axis Tidal Turbines in Strangford, VATTS, is a 24-month post investigating the hydrodynamic energy available in Strangford Lough for a commercial (G Kinetic) hydrokinetic energy harvesting device. The research will use existing standards for the use of field instrumentation (ADCP's and ADV's) to characterise inflow and wake resources around the device. The successful candidate will be competent in planning, organising and carrying out field work using such field equipment. In addition, post-processing of the data including power performance prediction and turbulence characterisation in highly sheared flow such as experienced in the Strangford narrows, will be required. Some knowledge of energy systems is desirable to undertake tasks relating to the techno-economic assessment of brining the energy to shore.

The successful candidate will be driven to develop a research reputation in the marine energy sector and will have the opportunity to undertake independent research and further the tidal energy test site towards its commercial ambitions. The project will be in close collaboration with industry partners and the researcher will be expected to work as part of the Marine Research Group to help coordinate activities, manage project progress and conduct tasks relating to administration and dissemination.

MAJOR DUTIES:

1. Assist the PI and CIs at Queen's University Belfast to manage and coordinate activities of the VATTS project.
2. Manage and coordinate the deployment of two small-scale vertical axis tidal turbines in the Strangford Narrows.
3. Plan and undertake concentrated periods of monitoring the onset flow and wake characteristics using seabed and vessel mounted field instrumentation deployments.
4. Use existing industry standards for conducting field measurements and develop methodologies for improved resource assessment and hydrodynamic insight.
5. Apply the findings of the research to techno-economic analysis to both specific scenarios and generally within the tidal energy sector.
6. Present regular progress reports on research to the funding body, members of the research group and to external audiences to disseminate and publicise research findings.
7. Prepare, in consultation with supervisor, materials for publication in leading international journals and presentations at international conferences.
8. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget.
9. Assist in the coordination of activities carried out by the University and industrial partners, organisation of project meetings and documentation, financial control, risk assessment of research activities.
10. Travel to industry partner organisations for project meetings.
11. Travel to relevant field sites to collect and analyse relevant information and report accordingly.
12. Assist the supervision of research students under the direction of the grant holder, where appropriate.
13. Willingness to carry out occasional undergraduate supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
14. Read academic papers, journals and textbooks to keep abreast of developments related to the project.

Planning and Organising:

1. Plan for specific aspects of the research program. Timescales range from 1-6 months in advance and contribute to research group planning.
2. Plan for the use of research resources, laboratories and workshops where appropriate.
3. Plan own day-to day activity within framework of the agreed research programme.
4. Plan up to a year in advance to meet deadlines for journal publications and to prepare presentations and papers for conferences.
5. Coordinate and liaise with other members of the research group over work progress.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Plan, procure and maintain relevant research equipment.
3. Provide guidance as required to support staff and any students who may be assisting with research.

Internal and External Relationships:

1. Liaise on a regular basis with staff, researchers and students within the PI's research team.
2. Liaise on a regular basis with other project partners, and deliver tasks specified by the project leaders team.
3. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
4. Build close links with other project partners and other potential collaborators for exchange of information and to form close partnerships for future collaborations.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a relevant PhD.
2. A minimum of three years recent relevant research experience with:
   - demonstrable experimental research in the lab or marine environment;
   - using to a high degree of competency field instrumentation (ADP's and ADV's);
   - proven experience of post-processing of large data sets using matlab, python or similar; and
   - Independent research and time management.
3. A good publication record commensurate with stage of career.
4. Ability to support undergraduate and postgraduate project students on related activities.
5. Ability to contribute to broader management and administrative processes.
6. Contribute to the School's outreach programme by links with industry, community groups etc.
7. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
8. Experience of conducting critical analysis.
9. Ability to communicate complex information clearly.
10. Ability to build contacts and participate in internal and external networks.
11. Demonstrable intellectual ability.
12. Ability to assess and organise resources.
13. Must be able to work as part of the project consortium.
14. Willing to travel internationally for meetings, conferences and field work.
15. Coordinate activities between partners in project.
16. Monitor progress of all partners according to agreed schedule.
17. Support the management of data files for the whole project.

DESIRABLE CRITERIA:

1. PhD with a focus on hydrodynamics, turbulence, marine energy, and field experiments/ measurements.
2. Demonstrable experience in one or more of the following areas:
   - Turbulence
   - Turbines
   - Energy Systems experience
   - Techno-economic analysis.
3. Proven experience of post-processing of large data sets using matlab, python or similar with due consideration for data quality assessment and techno-economic analysis (TEA).

4. Experience of liaising with researchers and industrial partners at other institutions.
5. Demonstrable management experience in co-ordinating experimental/ field activities.
6. Sustainable research interests.
7. An established network of contacts within the marine energy sector.
8. Willingness to acquire new skills.