



**Technology Strategy Board**  
Driving Innovation

**Offshore Energy Research Association of Nova Scotia (OERA) &  
Technology Strategy Board (TSB), United Kingdom**

**In-Stream Tidal Energy: Advancing environmental monitoring, sensing and instrumentation technologies for high flow marine environments.**

**PART A - SCOPE DOCUMENT**

**PART B – ELIGIBILITY DOCUMENT**

**Joint Canada - UK Competition for Collaborative R&D Funding  
August 2014**

**In-Stream Tidal Energy: Advancing environmental monitoring, sensing and instrumentation technologies high flow marine environments.**

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**1.0 Summary**

The Offshore Energy Research Association of Nova Scotia (OERA), the Technology Strategy Board of the United Kingdom (TSB) and the Province of Nova Scotia signed a Memorandum of Understanding (MoU) on 03 March 2014, providing the framework to establish bilateral collaboration in tidal research between Canada and the United Kingdom. The Parties to the MoU seek to identify and support applied research projects through competitive calls with the goal to support the acceleration of the tidal energy sector for both jurisdictions.

The initial call competition under the MoU shall be *environmental monitoring, sensing and instrumentation technologies for application and deployment in high flow marine environments*. Project teams or consortia shall be collaborative and business-led, comprising both Canadian and UK expertise. The aim of this competition is to fund innovative industrial research to address current and compelling knowledge gaps related to sensing and monitoring technologies that will lead to improvements to the quality and quantity of data available to the industry. Ultimately, improved data will contribute to resolving challenges, and reduce risk and costs associated with tidal development. Additionally, the planned research or investigative testing is expected to generate new knowledge and skills for developing and commercializing new products, processes or services, or for bringing about significant improvements in same; to provide support to environmental permitting requirements; and contribute to building social license and acceptance within the sector.

The OERA and TSB are investing collectively approximately \$1.4 million CAD (approximately £755,000) in funding for the initial Call. Funding levels vary by jurisdiction and according to the type of partner organisation in a consortium; large organisations could attract up to 50% of project costs from the call fund, small and medium sized enterprises (SMEs) up to 60%, and research technology organisations (RTOs) and not-for-profit organisations up to 100%. Partners are expected to leverage the remaining portion of the project costs through 'match-funding' or contributions in-kind. Funding from OERA/TSB should not be relied on to cover the total project costs.

Total project costs are anticipated to be in the range of \$500,000 CAD (approximately £275,000), though not to the exclusion of projects of other sizes. Applicants with significantly larger or smaller projects should contact OERA/TSB prior to making an application to gain indication of suitability of project size.

This is a two stage competition, namely stage one Expression of Interest (EOI) and stage two invited proposals. The EOI competition opens for applicants in October 2014 (precise date TBA) with a deadline date for EOIs due in late November 2014. The OERA and TSB plan to host information sessions for potential applicants in their respective countries. Please visit the OERA ([www.oera.ca](http://www.oera.ca)) and TSB ([www.innovateuk.org](http://www.innovateuk.org)) sites for further details on these sessions.

## 2.0 Background

Industry and academia, with the support of Governments in Canada and the UK have made significant investments in research to better understand the resource, environmental impacts and technical challenges of in-stream tidal energy. Knowledge gaps still remain, however, detrimentally impacting project risk and consequent investment in commercial scale energy production from in-stream tidal energy. Given the core competencies and expertise available in in-stream tidal energy on both sides of the Atlantic, a bilateral collaborative effort could better enable innovation to address some of the environmental and technical challenges that persist within the industry in an efficient manner.

A joint funding call would enable industry, academia and other types of organizations from both countries to form consortia and create joint research proposals for consideration.

## 3.0 Scope

This competition is seeking proposals from business-led collaborations in the area of *environmental monitoring, sensing and instrumentation technologies* suited to high flow/harsh in-stream tidal energy environments. The intent of the competition is to bring innovation to the sector whereby new and improved technologies will lead to the acquisition of better data, improved data analysis, and collection methods that facilitate in the reduction of risk, uncertainty and cost to the industry.

Although significant efforts have been made globally over the past number of years in measuring and monitoring tidal environments, limitations and challenges with current technologies and associated data quality still persist. The UK and Canadian in-stream tidal communities recognize that the path to new and improved data is through technology innovation. Through this competition, we want to reach prospective applicants who can address some of these challenges by introducing new and/or developing novel adaptations to existing or off-the-shelf technology systems.

New and/or improved technologies can bring incremental improvement to types and quality of data available. Improvements to data quality, quantity, accuracy, software modelling and analytical tools, and collection methodologies are of interest. Quality and quantity data gaps are noted in various areas including, but not limited to:

- resource assessment and monitoring
- site characterization
- fish and marine mammal behaviour and population survey
- quantifying and measuring turbulence
- cavitation
- currents
- seabed characterization
- water quality
- wind and wave interaction
- sedimentation

The in-stream tidal industry is keen to gain access to breakthrough technologies on a range of challenges to address the data gaps. For this competition, the scope is broad reaching, with the expectation to attract new or adaptations to existing technology systems. Further, all project ideas **must** have scope to develop, test and deploy their proposed work at a site in either Canada's Bay of Fundy or at a suitable location in the UK. Examples of technology areas of interest include, but not limited to:

- improved acoustic and visual sensors
- improved data gathering and retrieval techniques
- advanced technologies for better resource and site characterization
- improved battery life and consequent reliability
- adapting or ruggedizing technology from 'open ocean' to work in 'high flow/harsh' environments
- simplification and/or cost reduction in sensor deployment/retrieval capabilities
- numerical modelling and data analysis tools
- software development

A suitable project will aim to address one or more of the data gaps through development of technology as indicated in the list above.

### **Deployment**

As part of this competition projects are expected to deploy sensor technology at a suitable site in either Canada's Bay of Fundy or the UK and the applicant should clearly make the case that a particular test location will accrue benefits for the overall industry.

Specific reference is made here to possible deployment opportunities, namely, the Fundy Applied Sensor Technology (FAST) platform at the Fundy Ocean Research Centre for Energy (FORCE) site or the Integrated Environmental Monitoring Platform at the European Marine Energy Centre (EMEC) site in the Orkney Islands. Other test sites on the Bay of Fundy or UK waters will be considered on a project specific basis.

Applicants using the FAST or EMEC platforms or other deployment options, are expected to have a good understanding of such sites ahead of EOI submission to determine if/whether their project idea is feasible and cost effective to deploy. Further, applicants are expected to scope out the expected costs associated with deploying their technology in independent conversations with the test centres or platform owners.

To learn more about FORCE and EMEC please visit the following respective websites:

[www.fundyforce.ca](http://www.fundyforce.ca)

<http://www.emec.org.uk/>

### **Eligibility**

Project concepts that can demonstrate technology suitability, applicability and adaptability to both jurisdictions are encouraged. For this competition projects must be business-led and collaborative with

representation from both Canada and the UK. Full eligibility requirements may be found in **Part B** below.

The OERA and TSB will work with potential applicants to facilitate the building of transatlantic consortia, though it will remain the responsibility of the applicants to create and formalise any partnership(s). Please contact the OERA or TSB if you require assistance in this area.

### **Application Process**

This is a two stage competition that opens for applicants in October 2014 (precise date TBA).

**Stage 1** – applicants submit an expression of interest (EOI) which is independently assessed by external assessors.

**Stage 2** – The OERA-TSB will invite selected applicants to submit a full proposal, which is independently assessed by external assessors. A final ranking list will be agreed by a Project Management Committee (PMC) following recommendations from independent review the applications.

All applicants must first register via the OERA or TSB websites. Details on applicant registration are forthcoming and will be available soon on the OERA and TSB web sites.

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**PART B. In-Stream Tidal Energy: Advancing environmental monitoring, sensing and instrumentation technologies for high flow marine environments. ELIGIBILITY DOCUMENT**  
**Joint Canada - UK Competition for Collaborative R&D Funding - August 2014**

## **1.0 Eligibility Overview**

We wish to encourage project concepts that can demonstrate technology suitability, applicability and adaptability to both Canadian and UK jurisdictions. The Offshore Energy Research Association of Nova Scotia (OERA) and Technology Strategy Board (TSB) are interested in seeing cross-jurisdictional teams that draw on an effective mix of expertise and competencies from businesses, academia, research and technology organisations (RTOs), and not-for profit research performing organisations.

We are primarily seeking to fund *industrial research*. Industrial research may be defined as *planned research or critical investigation aimed at developing new products, processes or services or bringing about significant improvement in existing products, processes or service, acquired through new knowledge and skills. It comprises the creation of component parts to complex systems which is necessary for the industrial research, notably for generic technology validation, to the exclusion of prototypes.*

Project duration can be up to 36 months. Total project costs are anticipated to be in the range of \$500,000 CAD (approximately £275,000), though not to the exclusion of projects of other sizes. Applicants with significantly larger or smaller projects should contact OERA/TSB prior to making an application to gain indication of suitability of project size.

## **1.2 Project partner eligibility**

All applications must align with the technical scope defined in the call document as per PART A above. All project applications must be collaborative and have a single lead organisation, which **must be a business**. A consortium should consist of at least two organisations, with a minimum of one Canadian business and one UK business.

Eligible partner organizations include:

Organization Category	Organization Type	Organization Size		Description
		Canada	UK	
<b>Business</b>	Micro, small to medium Enterprise (SME)	500 or less full time equivalent (FTE) employees	250 employees or less. SME definition, please refer to: <a href="http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm">http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm</a>	Incorporated, profit-oriented
	Large Enterprise (LEs)	Greater than 500 FTE employees	LE means any enterprise that is not an SME as per definition (link) above	Incorporated, profit-oriented
<b>Research Organization*</b>	Includes: Research Technology Organizations (RTOs) Higher Education Institutions, Public Sector research establishments or facilities, Research Council Institutes, and Research Demonstration facilities	n/applicable	n/applicable	R&D, technology and innovation provider to enterprises, government, others; supported by significant core government funding
<b>Other</b>	Other types of organizations will be considered. Please consult with either the OERA or TSB on eligibility.			

The consortium should be well balanced, where no single organisation or country can be responsible for more than 75% of the declared total project costs.

\*

Refer to [www.innovateuk.org/-/funding-rules](http://www.innovateuk.org/-/funding-rules) for a definition of Research Organisation for UK participants.

The project results must be exploitable within Canada and the UK.

### 1.3 Funding Eligibility

The OERA and TSB are investing collectively ~\$1.4 million CAD (~£755,000) in funding for the initial Call. Funding levels vary by jurisdiction and according to the type of partner organisation in a consortium. Noting that Canadian funding will only support Canadian project activities and UK funding will only support UK project activities.

A partner in a project consortium would be eligible for funding levels, as a proportion of its total eligible project costs, up to the value given in the table below.

Organization type	Maximum funding on eligible costs
SMEs - UK	60%
SMEs – Canada - IRAP supported <sup>1</sup>	Variable –see Canadian eligibility Section 1.3.1 below
LEs – Canada and the UK	50%
RTOs <sup>2</sup>	100%
Academia <sup>2,3</sup>	100%

Please see below for superscript references (for each of Canada and the UK)

### 1.3.1 Canadian participant eligibility

- All Canadian participants must be separate legal entities.
- Companies must have a valid business registration, for at least 12 months and be HST registered.
- Companies will be requested to provide evidence (eg. bank statements, latest audited accounts, or other as requested by OERA) they have the resources and finances to undertake the project.
- Payments under the Canadian grant must be for project costs incurred in Canada.
- Project management must be undertaken by a project partner and cannot be subcontracted.
- Applications will be reviewed to identify if there are any obvious reasons for exclusion on the basis of national track record such as the partner having already received funding for the same or a very similar activity.

<sup>1</sup> NRC-IRAP program. It is expected that Canadian SME organizations participating on a project for this competition will seek leveraging from the National Research Council (NRC) of Canada- IRAP program. Funding support for successful applicants under the IRAP program will vary by organization type and type of costs, where funding support typically ranges between 50-80%. Guidelines on IRAP eligibility are available from the regional IRAP *Industry Technology Advisor* (ITA) or via the NRC IRAP web link. <http://www.nrc-cnrc.gc.ca/eng/irap/index.html>

<sup>2</sup> Canadian RTOs/academic organisations can claim up to 100% of their eligible costs but the total claim of these organisations in the project cannot exceed 30% of the Canadian portion of the grant.

### 1.3.2 UK participant eligibility

- All UK participants must be separate legal entities.
- Companies must have been trading for at least 12 months and be VAT registered.
- Companies to provide evidence (eg. bank statements, latest audited accounts, or other as requested by TSB) they have the resources and finances to undertake the project.
- Payments under the UK grant must be for project costs incurred in the UK.
- Project management must be undertaken by a project partner and cannot be subcontracted.

- Applications will be reviewed to identify if there are any obvious reasons for exclusion on the basis of national track record such as the partner having already received funding for the same or a very similar activity.
- Further eligibility guidance for UK organisations, where not explicitly stated in this document, will mirror that of a Technology Strategy Board collaborative R&D competition. Information on definitions of organisations, type of research, rules for research organisations and state aid compliance can be found at [www.innovateuk.org/-/funding-rules](http://www.innovateuk.org/-/funding-rules)

<sup>2</sup> UK RTOs and academic organisations can claim up to 100% of their eligible costs but the total claim of these organisations in the project cannot exceed 30% of the UK portion of the grant.

<sup>3</sup> UK academic organisations should apply using the Je-S system and will be funded at a rate of 80% of the Full Economic Costs.

### 1.3.3 Eligibility concerning other types of organizations

**Subcontractors** cannot be a partner on a project team or consortia; however partners may subcontract specific project work packages, whereby subcontractor costs will be limited to a maximum of 20% of the total project costs.

**Micro-Companies (less than 10 employees)** can participate in projects as subcontractors or may alternatively participate in projects as collaborators (subject to the financial criteria listed in Section 1.6 below). In this case they would need to be party to the collaboration agreement and to carry out exploitation of the results under the terms of the standard offer letter. Only with prior approval, should a micro-company be the lead partner of a project.

**Third party participants**, i.e. organisations from outside of Canada or the UK are welcome as part of consortia however:

- They will receive no funding from the call;
- They will be classed 'outside' of the eligibility requirements in this document; that is, projects must be eligible without the inclusion of a third party; and
- They must have other funding in place or be able to evidence ability to self-fund at the time of the application.

## 1.4 Eligible project costs - Canada and the UK

The following headings show the eligible costs for participants in the "In-Stream Tidal Energy: Advancing environmental monitoring, sensing and instrumentation technologies" programme.

### 1.4.1 Labour Costs

This includes the costs of personnel working directly on the project. You should account for the total man-days effort and cost required for your staff to work on the project, briefly describe the role of each person within the project and provide their gross salary and the total labour effort in man days for each

role within the project, together with the total number of working days per year for your organisation can work (eg. 365 days less weekends, less holidays, etc.). Typically, no single individual could claim to be working on the project for more than 236 days in a year, assuming a 25 day annual leave entitlement.

#### 1.4.2 Overheads

In calculating the labour costs, reasonable overheads can be included. Maximum claimable overhead is equal to the employees' salary. The overheads must exclude the costs of land, buildings, and other operational costs not directly attributable to the project.

#### 1.4.3 Materials Consumed

These will be the materials to be consumed on the project, not included in the overheads, purchased from third parties. Materials supplied by subsidiaries or associated companies should exclude the profit element of the value placed on that material. If waste or scrap material has a significant residual/resale value the figures should reflect this. Foreseen cost increases, such as on specific materials, may be considered by the programme.

#### 1.4.4 Sub-contracts; Consultancy; Fees including Fees for Trial and Testing

You should show any work that is essential to the success of the project where the expertise does not exist in the collaborative group. For example, you may wish to demonstrate that it would not be cost-effective to develop in-house skills for this one project. The same rules governing the use of subsidiaries and associated organisations with regard to supply of materials apply here. Attention will be paid to the size of this contribution when assessing eligibility and level of support.

#### 1.4.5 Travel and Subsistence

You should only include reasonable costs that are justified and will be incurred exclusively for progressing this project. Note that if any general travel and subsistence is included in your overhead calculations, this proportion should be subtracted from the Travel and Subsistence expenditure during the claims process.

#### 1.4.6 Training Costs

These costs are eligible for support where they are specific to and necessary for the project. The programme may consider support for management training specific to the project but will not support ongoing training.

#### 1.4.7 Other Costs

Other costs should include costs not accounted for in the above sections. Some examples follow. You should ensure that a case is made for the other costs within your application form.

##### *1.4.7.1 Preparation of Technical Report*

For example, where the main objective of a project is the support of standards or technology transfer.

##### *1.4.7.2 Market Assessment/ Feasibility Studies*

There is some scope for support, in exceptional circumstances, of "state of the art" studies in areas that will affect the nature and likely outcome of a project. Support may also be given for underpinning research leading to development of a programme, i.e. a suite of projects.

#### 1.4.7.3 Licensing in New Technologies

Exceptionally, the programme may consider support where it makes sense to do so, for example, to avoid “reinventing the wheel”. Where imported technology makes up a large part of a project (where technology is valued at more than £100,000 or \$184,000 CAD) then it will be expected that there is development of that technology as part of the project.

#### 1.4.7.4 Patent Costs

The programme will support some of the costs of protecting foreground intellectual property for up to a total of £10,000 or \$18,000CAD per project partner.

### 1.5 Ineligible Project Costs

The following costs are ineligible and should be excluded from any part of the project costs and any overhead calculations.

- (UK) Input VAT; (Canada) (HST, GST, and provincial sales taxes)
- Software purchase or licensing where the software is not specifically needed for the project.
- Residual values of capital assets.
- Interest charges, bad debts, profits, advertising, entertaining.
- Hire purchase interest and any associated service charges.
- Advertising and marketing costs or activities.
- Profit earned by a subsidiary or by an associate undertaking work sub-contracted out under the project.
- Inflation and contingency allowances expressed as an overall arbitrary percentage, additional to eligible costs. However, reasonable inflation rates can be included in labour and material cost estimates.
- The value of existing assets such as intellectual property, data, software programmes and other exploitable assets that any of the collaborators contribute towards the project.
- Project audit or legal fees.

### 1.6 Guidance for Micro-Companies

For support there are additional conditions for micro-companies or other entities with fewer than 10 employees as described below.

We recognise that very small organisations can be the source of important innovation and valuable expertise and welcome their involvement within this programme, where they can add value without creating undue risk and are capable of exploiting the results of the project. To reduce the risks and to satisfy the funders that the projects are not being used as a revenue generating exercise for the micro-organisations, the following guidelines have been developed to regulate their involvement.

#### 1.6.1 Participation of micro-companies

Micro-companies can participate in projects as subcontractors and charge a commercial rate to the project. If they operate in this manner, they will not be party to the collaboration agreement and not receive any long term benefit from the project outcomes, such as any share of intellectual property or beneficial ownership or use.

Micro-companies may alternatively participate in projects as collaborators (subject to the financial criteria below). In this case they would need to be party to the collaboration agreement and to carry out exploitation of the results under the terms of the standard offer letter.

Only in very exceptional circumstances and with prior approval, should a micro-company be the lead partner of a project.

#### 1.6.2 Conditions of Participation for micro-companies

Like all industrial participants, micro-organisations should only be involved in a project if it extends their research and development activities beyond that which they would normally be carrying out and if the outcomes of the project are beneficial to, and exploitable by, them. Funding can only be paid against real costs incurred and defrayed against the project in question. All costs will be subject to an audit as outlined in the project's offer letter. In order to participate therefore, micro-companies must show additional trading activity or sources of additional finance to support their participation in the project of at least the same value as their total project costs (including any funding sought).

In order to participate, a micro-company:

- Must have been trading or have a valid business registration for at least 12 months.
- Must be VAT or HST registered (Flat Rate Scheme is acceptable) and maintain up to date "books" or management accounts sufficient to generate a Profit and Loss account.
- Must show revenue generation from commercial operations for the previous 12 months of at least the same value as their total projected annual costs of participation in the project. This revenue total should not include grant income from this or any other project but could include sub-contract fees from a project that it is not participating in as a collaborator, or work carried out for public sector organisations on a commercial or contractual basis.
- Must be able to show how the balance of the project costs will be funded. Plus capability and funds to be able to fully undertake and exploit potential innovative technologies resulting from the programme.
- At the end of each project year, they must supply a letter from their accountant to verify that revenue generation from commercial operations outside of the project continues to satisfy the requirement of being at least equal to their total eligible project costs. Copies of VAT returns may be used as evidence. Should this revenue drop below the above threshold, support may be withdrawn.

## **Inquiries Contact regarding Eligibility**

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