



## PROJECT REGISTRATION FORM

<b>Project Number:</b> RDG-10-41	<b>Task Force:</b> Renewable Energy and Distributed Generation								
<b>Title of Project:</b> Enabling accelerated deployment of tidal current energy conversion systems through open-sea grid connected demonstration									
<b>Lead Partner Country:</b> Canada									
<b>Participating Partner Countries and Organizations:</b> USA, Pacific Northwest National Laboratory (PNNL) South Korea: Ocean Space Inc South Korea: Daehwa Power Engineering Co South Korea: Korea Tidal Stream Energy Research Centre (TSERC), Korea Maritime University (KMU)									
<b>Project Location (Country, State/Province, City):</b> Canada, British Columbia, Surrey South Korea, Seoul South Korea, Yeosu, South of Korean Peninsula South Korea, Busan									
<b>Project Manager Information</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; padding: 2px;"> <b>Name:</b> Dr Gouri S. Bhuyan, <i>P.Eng.</i> </td> <td style="width: 50%; padding: 2px;"> <b>Phone:</b> 1 604 590 7407         </td> </tr> <tr> <td style="padding: 2px;"> <b>Title:</b> Principal Advisor – Alternative Energy         </td> <td style="padding: 2px;"> <b>Fax:</b> 1 604 590 6656         </td> </tr> <tr> <td style="padding: 2px;"> <b>Organization:</b> Powertech Labs Inc         </td> <td style="padding: 2px;"> <b>Email:</b> gouri.bhuyan@powertechlabs.com         </td> </tr> <tr> <td style="padding: 2px;"> <b>Address:</b> 12388-88<sup>th</sup> Ave, Surrey, BC V3W7R7         </td> <td></td> </tr> </table>		<b>Name:</b> Dr Gouri S. Bhuyan, <i>P.Eng.</i>	<b>Phone:</b> 1 604 590 7407	<b>Title:</b> Principal Advisor – Alternative Energy	<b>Fax:</b> 1 604 590 6656	<b>Organization:</b> Powertech Labs Inc	<b>Email:</b> gouri.bhuyan@powertechlabs.com	<b>Address:</b> 12388-88 <sup>th</sup> Ave, Surrey, BC V3W7R7	
<b>Name:</b> Dr Gouri S. Bhuyan, <i>P.Eng.</i>	<b>Phone:</b> 1 604 590 7407								
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<b>Address:</b> 12388-88 <sup>th</sup> Ave, Surrey, BC V3W7R7									
<b>Project Start Date:</b> December 4, 2009	<b>Proposed Project End Date:</b> March 31, 2011								



**Description of Project:** *Please include project context (i.e. opportunity or need for the project) appropriateness under the APP, and expected project outcomes.*

Tidal current power represents a large renewable resource opportunity for Canada and other Asia Pacific Partnership countries. Currently a large number of conversion technologies being developed in Canada, Korea, US, and other countries. Some of the challenges that this emerging renewable energy sector is facing for enabling deployment in different parts of the world are: (a) lack of systematic consideration of emerging renewable resource option in developing long-term resource and infrastructure portfolio as part of long-term planning process, (b) lack of reliable performance (mechanical, electrical & environmental) of the conversion processes, and (c) lack of understanding of interaction of variable tidal current power with electricity network for large scale deployment.

Through this APP project, expertise and relevant technological solutions pertaining to small and large scale tidal power generations will be further developed; systematic consideration of emerging tidal current energy resource option through electricity network assessment will be demonstrated and the corresponding results will support efforts to create both a policy and program framework in APP countries for ocean energy; data acquisition and analysis of performance of tidal current conversions will allow project proponents to understand interaction of a variable tidal current power with electricity network.

**Project Objectives:** *Please provide a clear statement of the purpose or aim of the Project (one sentence).*

Developing smart grid and performance assessment tool for dynamic characterization of tidal current conversion systems and integrated electrical system analysis of Korean system for establishing tidal current power deployment

**Project Deliverables:** *Please list outputs to be delivered by this project.*

- Smart grid tools for characterizing tidal current conversion systems;
- Establishment of deployment potential of tidal current power in South Korea;
- Performance monitoring of a tidal current conversion process in Korea;
- A report summarizing the task activities & the results from the project; and
- Dissemination of the results from the project at workshop organized by TSERC in S. Korea and at relevant meeting in Canada



**Project Milestones:** *Please list major milestones (including steps in project methodology) with timing (month/year) and performance indicators.*

- Project design and development - February 2010
- Development of dynamic models for tidal current conversion systems - April 2010
- Integrated system scenario analysis of the Korean Electricity Systems, considering tidal current deployment - August 2010
- Assessment of power characteristics of tidal current conversion through performance monitoring in Korea - December 2010
- Development of an environmental performance protocol for limited environmental assessment of tidal current conversions - March, 2011
- Final Report - March, 2011

**Resources:**

Environment Canada, Canada: \$500,000.

Powertech Labs Inc, Canada: \$337,000. (In-kind and consulting revenue from other relevant projects)

PNNL, USA: \$363,000. (In-kind)

Ocean Space Inc., S. Korea – will provide access to a tidal current power generation demonstration project as well as confidential information on the conversion process for smart grid tool development

TSERC, KMU, S. Korea – will provide valuable information on tidal current resource for S. Korea and assist on dissemination of information from the project in Korea

**Other Information:**

Please attach any supplemental project information to this form. Please refer to Procedure for Adding New Projects and Activities in the Partnership (April 2007) for guidance on how to complete this form.