

# Base Protocol Plan for Low-Impact Hydro Electricity Generation

---

Fast Track Protocol Development Process

**Submitted: September 2008 to Environment Canada**

This document has been prepared by Blue Source Canada ULC on behalf of the Industry  
Provincial Offset Group Working Group 1: Non-Emitting Renewables.

## Contents

|   |          |
|---|----------|
| <b>Part I: Identification of the Protocol Developer.....</b>  | <b>3</b> |
| 1.1 Title of the Base Protocol:.....  | 3        |
| 1.2 Lead Protocol Developer.....  | 3        |
| 1.3 Initiating Entity .....   | 3        |
| 1.4 Rationale for initiating the development of the protocol (optional): .....                                      | 3        |
| <b>Part II: Base Protocol Applicability and Development Approach.....</b>   | <b>5</b> |
| 2.1 Description of the Project Type: .....  | 5        |
| 2.2 Description of Project-specific Technology (if applicable) .....  | 5        |
| 2.3 GHG(s) that will be reduced: .....  | 5        |
| 2.4 Description of how real reductions will be achieved: .....  | 5        |
| 2.5 Base Protocol Flexibility:.....   | 5        |
| 2.6 Federal, Provincial/Territorial Legal Requirements & Climate Change<br>Incentives .....                         | 5        |
| 2.6.1 List of potentially relevant requirements: .....  | 5        |
| 2.6.2 List of potentially relevant climate change incentives:.....  | 6        |
| 2.7 Building on existing protocols or proprietary information (if applicable).....                                  | 6        |
| 2.8 Explanation of how the existing protocol will be adapted:.....  | 6        |
| 2.9 Explanation of the nature of the proprietary information and how it might be<br>used in the Base Protocol:..... | 8        |
| <b>Part III: Declaration / Consent / Signature .....</b>  | <b>9</b> |

## Part I: Identification of the Protocol Developer

### 1.1 Title of the Base Protocol:

**Low-Impact, Hydro Electricity Generation**

### 1.2 Lead Protocol Developer

|                      |   |
|----------------------|---|
| <b>Organization:</b> | Blue Source Canada ULC  |
| <b>Address:</b>      | Suite 2210, 777 – 8th Ave SW  |
| <b>Name:</b>         | Keith Driver  |
| <b>City:</b>         | Calgary   |
| <b>Title:</b>        | Vice-President, Operations  |
| <b>Province:</b>     | Alberta   |
| <b>Postal Code:</b>  | T2P 3R5   |
| <b>Email:</b>        | keithd@bluesourceCAN.com  |
| <b>Website:</b>      | <a href="http://www.bluesourceCAN.com">http://www.bluesourceCAN.com</a> |
| <b>Telephone:</b>    | (403)262-3026   |
| <b>Fax:</b>          | (403)269-3024   |

### 1.3 Initiating Entity

|                      |  |
|----------------------|--|
| <b>Organization:</b> | Industry Provincial Offsets Group (IPOG):<br>Working Group 1 – Non-Emitting Renewables |
| <b>Name:</b>         | Working Group Chair: Paula McGarrigle  |
| <b>Title:</b>        | Manager, Wind Electricity  |
| <b>Address:</b>      | Shell Canada Wind Energy<br>400 4th Avenue S.W.,<br>P.O. Box 100 Station M,<br>Canada  |
| <b>City:</b>         | Calgary  |
| <b>Province:</b>     | Alberta  |
| <b>Postal Code:</b>  | T2P 2H5  |
| <b>Email:</b>        | paula.mcgarrigle@shell.com   |
| <b>Website:</b>      | <a href="http://www.offsetsgroup.ca">http://www.offsetsgroup.ca</a>                    |
| <b>Telephone:</b>    | +1 (403) 691-4593  |
| <b>Fax:</b>          |  |

### 1.4 Rationale for initiating the development of the protocol (optional):

There is industry support behind the development of this protocol and a recognized opportunity to generate greenhouse gas offset credits.

Through the Industry Provincial Offset Group, members strive to ensure that protocols are:

- Based on a complete life-cycle analysis with consideration of all relevant GHG sources and sinks;
- Consistent in their treatment of cross-cutting issues;
- Based on accurate and unbiased best science and best practice guidance;
- Fully transparent; and
- Conservative so as to ensure that environmental integrity is maintained.

## **Part II: Base Protocol Applicability and Development Approach**

### **2.1 Description of the Project Type:**

The implementation of facilities that convert the potential energy of river flow into low retention, water-powered electricity generation as run-of-river or on an existing reservoir.

These facilities will be referred to as ‘run-of-river hydro’ and as ‘existing reservoir hydro’ electricity generation projects, respectively.

### **2.2 Description of Project-specific Technology (if applicable)**

Not Applicable

### **2.3 GHG(s) that will be reduced:**

- CO<sub>2</sub>;
- CH<sub>4</sub>; and
- N<sub>2</sub>O.

### **2.4 Description of how real reductions will be achieved:**

Emission reductions are achieved by displacing a quantity of electricity off the utility grid equal to the quantity of electricity generated by the hydro-electric facility; or

Reducing the quantity of electricity a non grid-connected facility would have to generate on-site equal to the quantity of electricity generated by the hydro-electric facility.

### **2.5 Base Protocol Flexibility:**

Explain optional approaches for quantifying the reductions to be achieved from the project type:

For projects with a dedicated end-user of some or all of the electricity generation, where the generation facility is connected by a dedicated line to that facility, site specific electricity generation emission factors, reflecting the source of generation displaced under the project condition, may be substituted for the generic grid emission factors indicated in this protocol document.

### **2.6 Federal, Provincial/Territorial Legal Requirements & Climate Change Incentives**

#### **2.6.1 List of potentially relevant requirements:**

- The Province of British Columbia: The BC Energy Plan

- The Province of Nova Scotia: Renewable Portfolio Standard
- The Province of Ontario: Renewable Portfolio Standard

### 2.6.2 List of potentially relevant climate change incentives:

- ecoENERGY for Renewable Power
- Ontario's Standard Offer Program
- British Columbia's Call for Green Power
- The Canadian Income Tax Act

## 2.7 Building on existing protocols or proprietary information (if applicable)

|  |   |
|--|---|
| <b>Registered name of protocol:</b>              | Quantification Protocol for Low-Retention, Water-Powered Electricity Generation As Run-of-River or on an Existing Reservoir |
| <b>System for which protocol was developed:</b>  | Alberta Offset System   |
| <b>Date protocol was completed and approved:</b> | January 2008  |
| <b>Developer of the protocol</b>                 |   |
| <b>Name:</b>                                     | Keith Driver  |
| <b>Organization:</b>                             | Blue Source Canada ULC  |

## 2.8 Explanation of how the existing protocol will be adapted:

The existing seed protocol will be adapted through an inclusive, transparent and consistent process coordinated through the Industry Provincial Offset Group's (IPOG) broad membership. In particular, work will be conducted by a protocol technical working group formed specifically to address adaptation of the protocol in question and potentially other related protocols. Cross-cutting issues groups will also be formed to address issues affecting a range of protocols, and to ensure consistency in approach.

### Adaptation of the existing protocol will follow the multi-step process outlined below:

- Collection of technical and background information related to development, review and approval of the protocol to ensure transparency through the adaptation process;
- Review of the protocol to ensure consistency with Canada's "Turning the Corner" action plan and the requirements of the federal offset system. Any areas of inconsistency with the protocol documentation will be identified in this step;

- Review of existing provincial and federal regulations that could impact the surplus nature of the emission reductions from the project activity. This phase will serve to address the surplus requirement relative to applicable federal and provincial legislation;
- Review of the seed protocol's baseline condition to address the incremental nature of the project activity in the Canadian context. This review will include an assessment of the baseline's compatibility with Canadian best practices and potential alternative baseline approaches;
- Review of the protocol to ensure the quantification methodology is consistent with best practice guidance, and applicable to the range of Canadian geographical and climatic conditions;
- Review of the protocol's measurement and monitoring requirements to ensure they are reflective and reasonable in the Canadian context. This will include a review of data collection requirements and frequency of measurement and monitoring;
- Consideration of other environmental impacts and criteria air contaminants, as required by the "Turning the Corner" action plan;
- Additional analysis to address any outstanding issues identified to date that may present a significant challenge to protocol adaptation. This step will include assembly of the technical working group to drive further analysis;
- Redrafting of protocol to address technical issues identified in the previous steps and to ensure it meets the technical and format requirements of the Canadian offset system;
- Review of any material changes made to the quantification approach using project data to ensure the revised methodology is generally consistent with the original documentation;
- Cross-protocol review of the adapted protocol with other protocols adapted by IPOG, to ensure consistency in scope and approach to quantification;
- Compilation of documents required for submission of the final draft protocol to Environment Canada for approval. The results of all stages of the review and adaptation process will be summarized and compiled to support Environment Canada's review.

Given the volume of work required under short timelines, multiple agencies will be required to provide a range of technical inputs, perspectives and capacity. To accomplish

required tasks and meet timelines, technical resources within IPOG will be mobilized to provide input; drawing on group member's significant experience in protocol and project development.

The IPOG working group will draw on the experience of Climate Change Central to manage the adaptation process and to ensure broad stakeholder involvement by parties that may not be comfortable working directly with IPOG.

## **2.9 Explanation of the nature of the proprietary information and how it might be used in the Base Protocol:**

We are anticipating full disclosure and transparency, therefore no proprietary information should be required.

### **Part III: Declaration / Consent / Signature**

The undersigned acknowledges that the undersigned has read, understood and that the undersigned agrees to abide by all the terms, conditions, instructions, and notices set out in the Guide for Protocol Development.

The undersigned acknowledges that the review of, and comments regarding, this base protocol plan or portions thereof does not ensure that the base protocol plan or portions thereof will be used in an Offset System Quantification Protocol by Canada's Offset System for Greenhouse Gases.

The undersigned is legally authorized to use any and all proprietary (or protected) information found in and submitted with the base protocol plan.

The undersigned is duly authorized to sign this application.

The undersigned declares that the base protocol plan submitted for Canada's Offset System for Greenhouse Gases and the information provided on, with or pursuant to this application is true, accurate and complete.

The undersigned consents to the public disclosure, in any manner including, without limitation, posting on Offset System website, of all the information in the base protocol plan and the information submitted with the base protocol plan.

By protocol developer (individual, or an organization's or a corporation's duly authorized representative, date, name, title)

By: **BLUE SOURCE CANADA ULC**

Name: **KEITH DRIVER**

Title: **VICE-PRESIDENT, OPERATIONS  
BLUE SOURCE CANADA ULC**

Signature: \_\_\_\_\_

Signed this \_\_\_\_ day of \_\_\_\_\_, 2008