REQUEST FOR PROPOSALS

SMART METERING SYSTEM

RFP #4401

Initial Proposal Closing Time: (PDT)	**21 September at 11:00:00 a.m.**
Delivery Address:	**535 Hamilton Street**
	Vancouver, B.C., V6B 2R1
Contact Person:	**Xavier Serrano**
E-mail address:	**xavier.serrano@bchydro.com**

TABLE OF CONTENTS

SUMMARY OF RFP

RFP TITLE	The title of this RFP is: **Request for Proposals for a Smart Metering System RFP #4401** Please use this title on all correspondence.
CONTACT PERSON	The Contact Person for this RFP is: **Xavier Serrano** **Email:** xavier.serrano@**bchydro.com** Please direct all enquiries, in writing, to the above named Contact Person. **No telephone enquiries please.**
PROPONENT INFORMATION SESSION	**July 27th, 2010 at 10:00 am**
ENQUIRIES DEADLINES	Enquiries received after 11:00 a.m. (PDT) 5 days before either the Initial Closing Time or the Final Closing time may not be processed and may not receive a response.
INTERIM FINANCIAL CAPACITY SUBMISSION	Proponents should submit their Interim Financial Submission by: **August 6th, 2010** **At 8:30 a.m. (PDT)**
PRELIMINARY RELATIONSHIP DISCLOSURE FORM SUBMISSION	Proponents should submit their completed Relationship Disclosure forms by: **September 10th, 2010** **At 11:00:00 a.m. (PDT)**
INITIAL PROPOSAL CLOSING TIME	The Initial Proposal Closing Time is: **September 21st, 2010** **At 11:00:00 a.m. (PDT)**
FINAL PROPOSAL PROPOSED PERSONNEL AND SUBCONTRACTORS (Appendix N)	Proponents should submit their completed Proposed Personnel and Subcontractors Form by email to the Contact Person by: **December 1st, 2010** **At 11:00:00 a.m. (PDT)**
FINAL PROPOSAL CLOSING TIME **(SHORT LISTED PROPONENTS ONLY)**	The Final Proposal Closing Time is: **December 7th, 2010** **At 11:00:00 a.m. (PDT)**
DELIVERY ADDRESS	The Delivery Address is: **BC Hydro** **535 Hamilton Street** **Vancouver, B.C. V6B 2R1**
DELIVERY HOURS	Deliveries will be accepted at the Delivery

	Address on weekdays (excluding Statutory Holidays) from 8:30 a.m. to 4:00 p.m. (local time in Vancouver), **but no later than the Initial or Final Proposal Closing Time**.

1. INTRODUCTION

1.1 Procurement Background

In 2008, BC Hydro initiated a procurement process, whereby a single Solution Integrator firm (SI) would be selected to provide and implement the full end-to-end scope of Smart Metering and Infrastructure Program (SMI or the Program). All SMI technology components, including the meters, metering communications, software applications, deployment services, implementation services, and customer experience (including In Home Feedback (IHF), conservation rates, and customer service) would be sub-contracted through the SI to third-party technology vendors and service providers. After a detailed evaluation of the proposals, BC Hydro determined the proposed end-to-end; turnkey approach to implementing SMI was not in the company's best interest.

In March 2010, BC Hydro received approval to proceed with a modified and "disaggregated" procurement approach. Under this modified procurement, BC Hydro will continue with the SI procurement but only for project management and information technology components and BC Hydro will contract directly with a metering system contractor, a MDMS software vendor, and a meter deployment services contractor.

Currently, BC Hydro is proceeding with four immediate procurements including:

a) Smart Metering System: a single contractor to provide the full end-to-end metering system which includes smart meters for residential and commercial customers, collectors to start consolidating meter reading data in the field, telecommunications cards in the meter to enable meter reading data to be transmitted to a customer's home as well as back to BC Hydro, and the Automated Data Collection System software application.

b) Meter Deployment Services: a single contractor to complete in-field deployment of meters. This contractor will also help support BC Hydro's customer engagement plan during deployment.

c) Meter Data Management System: a packaged software application that stores the large volumes of meter reading data and ensures that data is accurate, complete, and useable before sending the data into BC Hydro's corporate systems.

d) Professional Services: an SI services company to provide experienced resources to support the Project Management, IT and integration, and custom software development tasks.

In addition to the streams of work mentioned above, BC Hydro anticipates pursuing future streams of work related to SMI, such as IHF and theft detection.

1.2 Purpose of this RFP

The purpose of this RFP is to invite eligible Proponents to prepare and submit competitive Proposals for a metering system consisting of:

a) Smart Meters
b) Field Area Network (FAN) Telecom Infrastructure;
c) A single Head End Software (Automated Data Collection System) System, and;
d) Associated Design, IT, and Support Services.

In addition Proponents are invited to respond to an optional service item.

1.3 Procurement Team

a) BC Hydro

BC Hydro is one of North America's leading providers of clean, renewable energy, and the largest electric utility in British Columbia, serving approximately 95 per cent of the province's population and 1.8 million customers. BC Hydro's goal is to provide reliable power, at low cost, for generations.

As a provincial Crown Corporation established in 1962 under the Hydro and Power BC Hydro Act, BC Hydro reports to the Minister of Energy, Mines and Petroleum Resources, and is regulated by the British Columbia Utilities Commission (BCUC).

BC Hydro's various facilities generate between 43,000 and 54,000 gigawatt hours (GWh) of electricity annually, depending on prevailing water levels.

Electricity is delivered through a network of 18,336 kilometres of transmission lines and 55,705 kilometres of distribution lines. The transmission and telecom assets are owned and operated by BC Hydro.

Additional information about BC Hydro is available at: www.bchydro.com

b) Partnerships BC

Partnerships BC was established by the Province to evaluate, structure and implement partnership solutions which serve the public interest.

BC Hydro has engaged Partnerships BC to manage the procurement for the Smart Metering Program.

Additional information about Partnerships BC is available at www.partnershipsbc.ca.

1.4 Administration of this RFP

Partnerships BC is managing this RFP on behalf of BC Hydro.

1.5 Definitions

Refer to Section 12.1 for the defined terms used in this RFP.

1.6 Eligibility

Any interested party, or parties, may submit an Initial Proposal to the Initial Proposal Phase of this RFP. Proponents may be individuals, corporations, joint ventures, partnerships or any other legal entities. Only those Proponents, subject to changes in Proponent team membership as permitted by this RFP, may submit Proposals or otherwise participate in the Final Proposal Phase of this RFP.

2. SMART METERING AND INFRASTRUCTURE (SMI) PROGRAM OVERVIEW

2.1 Legislative Context

The 2007 B.C. Energy Plan: A Vision for Clean Energy Leadership strategy document outlined 55 policy actions focused on energy self-sufficiency, conservation, and development of renewable alternative energy sources. Several policy actions were relevant for the SMI Program, including:

a) Acquire 50 per cent of BC Hydro's incremental resource needs through conservation by 2020;

b) Ensure a coordinated approach to conservation and efficiency is actively pursued in British Columbia (B.C.);

c) Encourage utilities to pursue cost effective and competitive demand side management opportunities; and

d) Explore with BC Utilities Commission new rate structures that encourage energy efficiency and conservation.

In 2008, the Province of British Columbia (Province) released a Climate Action Plan which outlined a series of strategies and programs which were calculated to take B.C. approximately 73 per cent towards meeting the goal of reducing provincial Green House Gas (GHG) emissions by 33 per cent by 2020. The Climate Action Plan identified smart meters as an integral component to achieving these GHG reductions, specifically as related to energy savings in the building sector.

Subsequently, the Province has supported smart metering through the introduction of:

a) Amendments to the Utilities Commission Amendment Act in 2008 which required BC Hydro to install smart meters by the end of the 2012 calendar year; and

b) The 2008 Energy Efficient Buildings Strategy: More Action, Less Energy which called for BC Hydro to introduce real time, in-home displays to help to reduce overall energy consumption in residential units.

In April 2010, the Province introduced a new Clean Energy Act which expects BC Hydro to:

a) Meet 66 per cent of our future incremental electricity demand from conservation and efficiency improvements by 2020, an increase from the previous target of 50 per cent; and

b) Proceed with the Smart Metering & Infrastructure Program that will allow ratepayers to better manage their electricity use and save on power bills. Note that, within this new Act, the overall SMI Program is further defined as a Smart Metering Program focused on smart meters, in-home feedback, communications infrastructure, and conservation rates; and a Smart Grid Program focused on advanced metering strategies to reduce the theft of electricity, and advanced telecommunications infrastructure.

2.2 SMI Program Objectives

In addition to meeting the Province's objectives with respect to energy efficiency and conservation, the SMI Program is one of BC Hydro's key strategic initiatives in support of our grid modernization vision, which is to: "Enable customers to actively manage their energy choices, adopt new energy and conservation solutions and benefit from an electric grid that is modern, reliable, safe and cost-effective."

SMI's key strategic objectives include:

a) Improve Customer Service: provide real-time and detailed information on consumption and cost, and enable better customer communication around outages.

b) Achieve Conservation and Energy Efficiency: energy and capacity savings achieved through time-based rates, effective communication and incentives to customers, customer direct control of energy use, and grid operational improvements.

c) Achieve Operational Efficiencies: improved reliability and lower operating costs in areas such as meter reading, distribution system maintenance, and outage management.

d) Protect Revenue: reduced revenue loss due to the theft of power directly from the distribution grid and tampering with the meters, as well as revenue "leakage" in some customer processes.

e) Keep Customer Bills Low: achieving the conservation benefits, operational efficiencies, and revenue protection lead to utility rate reductions which translate directly into customer savings.

f) Achieve Environment and Social Benefits: facilitating customer conservation, energy efficiency, reduced greenhouse gas emissions, and improve safety for employees and the public.

g) Support Advanced Customer Applications: provide a substantial portion of the foundational infrastructure required to modernize the grid in support of advanced customer applications such as distributed generation, electric vehicles, demand response, microgrids, and future applications. SMI is a key, but not sole, enabler of these advanced applications,

h) Economic Development: contribute to economic development and innovation in British Columbia, through employment opportunities in the deployment of meters, creation of more information-based jobs, significant energy savings that can be used for other purposes, and support for BC-based businesses where appropriate.

2.3 SMI Program Scope

The SMI Program will deliver against the strategic objectives outlined in section 2.2 through the following scope components. Each of these scope components will be managed as specific, but integrated, work streams in a single, overall SMI project delivery plan.

a) Smart Metering System: implement a full function smart metering system for all BC Hydro customers. Scope elements include:

(i) Smart Meters – these multi-channel meters, capable of two-way communications, which capture both the amount of power consumed and when it is being consumed. The SMI Program will:

- deploy smart meters for approximately 1.95M residential and commercial customers, with a target completion date of December 2012.
- deploy FAN collectors (data aggregation devices) and other telecommunication devices to collect meter data.
- Provide a service disconnect switch, in the majority of the self contained meters, to enable safe and secure remote customer connection, disconnection and reconnection.

(ii) Metering Communication System – the communications network that provides a complete solution to collect meter reading data and also manages the smart meter assets.

- Devices to be included within a meter are a Field Area Network (FAN) network interface card (NIC) and a HAN gateway.
- The Automated Data Collection System (ADCS) software which manages the metering system and processes the high volume of interval-based meter reads.
- The metering communication system will be operational for all installed meters, based on the same target date of 2012.

b) In-Home Feedback (IHF) Solutions: with the availability of detailed usage data from smart meters, SMI will implement communication channels to provide up-to-date energy consumption and price information directly to customers. Scope elements for this IHF work stream in SMI include:

(i) IHF HAN Device – BC Hydro will provide all customers with the option to acquire a basic, market-available IHF HAN device.

(ii) Product Testing & Eligibility Process – to ensure IHF HAN devices operate correctly, safely, and securely within a home, BC Hydro will establish criteria for IHF HAN functionality and performance. Any products meeting the established criteria will be tested in lab and field environments as part of the SMI Program.

(iii) IHF HAN Device Pairing Application – to enable an IHF HAN device, it must be securely and reliably paired with its associated smart meter. The SMI Program will design and develop a highly secure, IHF HAN device pairing application.

(iv) Web-based Conservation Portal –by implementing interactive and informative applications designed to help customers better understand their energy usage and change their behaviour to conserve more. These portals will use consumption information collected from smart meters, and will be implemented in two phases; 1) "basic" capability based on daily register reads and 2) "advanced" capability based on hourly interval reads. There will typically be a one day lag in the presentment of this usage data.

c) Conservation Rates: with the availability of hourly energy usage information, BC Hydro will design and implement new rate structures designed to incent conservation behaviour at the customer level. The SMI team will be responsible for implementing the technology infrastructure to support these rates – specifically implementation of the MDMS application (key dependency) and modifications to the current SAP Billing system.

Rates included in SMI scope include:

(i) Inclining Block Rate – ensure the smart metering and in-home feedback solutions can support real-time calculation of customer's usage cost, based on the existing Inclining Block Rates.

(ii) Time of Use Rate – enable new voluntary Time of Use (TOU) rates, which apply different rates structures depending specifically on when power is being consumed.

(iii) Critical Peak Pricing Rate – enable new voluntary Critical Peak Pricing (CPP) rates, which apply different rate structures to power being consumed during critical periods of load on the system.

d) Theft Detection Solution: BC Hydro is experiencing a significant level of energy diversion which shows up in higher than expected distribution line losses, because BC Hydro does not have the measurement devices, analytical tools and modeling methods to quickly and accurately identify where theft is occurring.

BC Hydro is a thought leader with our proposed approach of using system meters and theft analytics software to pinpoint theft through electricity balancing.

Scope elements of the Theft Detection Solution include:

(i) Transformer and Feeder Meters – new meters will be installed at key points on the distribution grid to measure electricity supplied to localized areas, thus enabling evaluation against electricity recorded downstream at the customer meters.

(ii) Theft Analytics Software – an application consolidates data from transformer and feeder meters, customer smart meters, Geographical Information System (GIS), Distribution Management System (DMS), and security databases to identify areas of theft.

(iii) Operational Enhancements – new processes and work flows, Customer Information System (CIS) enhancements, and system changes will be implemented to enhance the efficiency of field investigations to rapidly shut down thefts and prevent reoccurrence.

e) Telecommunications Infrastructure: refers to the communications infrastructure that enables the two-way transmission of data between the FAN collectors and the head end ADCS. Scope elements include:

(i) Wide Area Network (WAN) Connections – the Chief Information Officer (CIO) is responsible for all enterprise-wide telecommunications. Working with the CIO, and leveraging Network BC as appropriate, SMI will connect all FAN collectors to a WAN.

(ii) Advanced Telecommunications – design and deployment of advanced and redundant communication devices and infrastructure to support advanced smart grid and customer applications. Specific requirements and timing of the implementation of such advanced telecommunications are still to be defined, and will likely continue beyond 2012.

f) Information Technology (IT) Infrastructure: develop, install, and implement the software applications and data infrastructure required to support the full scope of the SMI Program. This systems integration work involves three broad categories: new software applications, modifications to existing corporate applications, and interfaces between new and existing systems.

2.4 Scope Summary

By the target date of 2012, the SMI Program will:

a) Install 1.95 million residential and commercial smart meters.

b) Deploy field telecommunications required to transmit metering data.

c) Implement infrastructure to support in-home feedback options including:

(i) A web portal which provides feedback to all customers; and

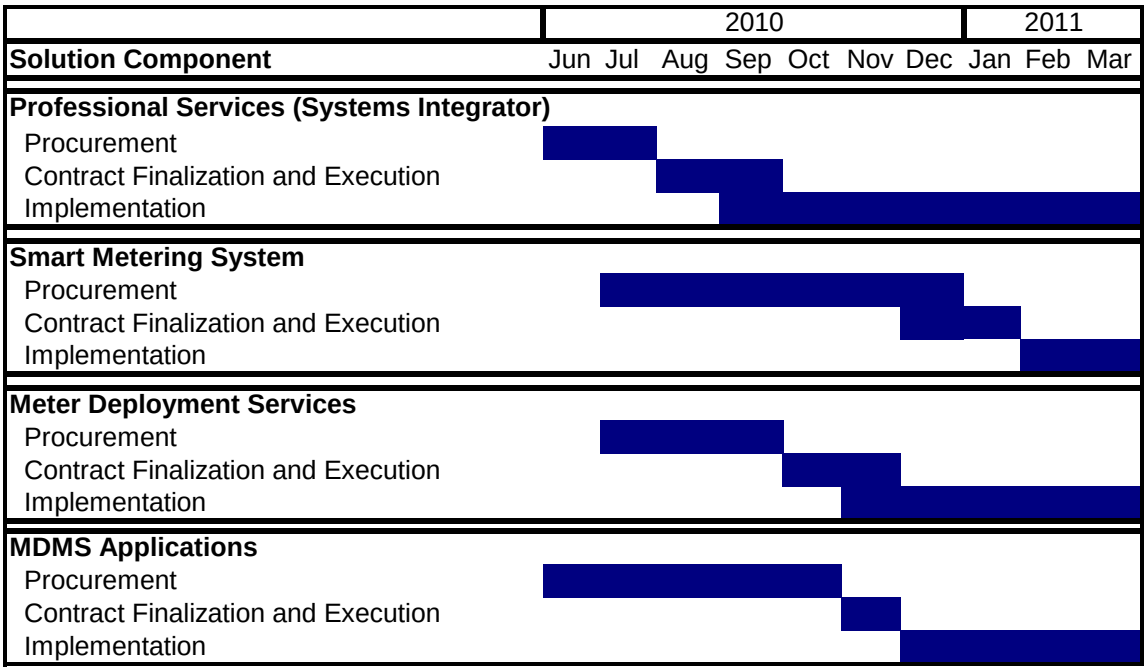
(ii) An in-home display option, for customers who choose to use them.

d) Implement the infrastructure to enable conservation rates (specifically the MDMS).

e) Start installing Transformer and Feeder meters and advanced telecommunications.

2.5 Schedule

The high level schedule for the four current SMI streams is as follows:



Key upcoming milestones for the overall Program include:

a) Systems Integrator selected – July 2010

b) Smart Metering System Contractor selected – December 2010

c) Commence telecom installation – June 2011

d) Expected installation of first production meter – July 2011

e) Meter installation complete – December 2012

3. THE PROJECT

3.1 Smart Metering System

BC Hydro is looking for a Contractor to supply a Smart Metering System (the Project) and to provide the software licenses, annual maintenance and support, and associated services to support the system implementation and transition to operations. The Contractor will also be requested to provide the interface adapters and implementation services required to support the integration of the Project with BC Hydro's corporate Enterprise Service Bus (ESB) (TIBCO).

In addition to the licensed software components, BC Hydro expects the Contractor to bring its expertise, methodologies, and tools to support the installation, design, configuration, build, integration, testing, and deployment of the Smart Metering System.

In addition to the core Project functionality, BC Hydro is interested in exploring whether the Contractor's solution could provide value added functionality that is required for overall program success. Such value added functionality could include revenue protection, outage management, and anything the Contractor believes could be value-added to BC Hydro.

3.2 General Scope of Responsibility

The Contractor will be expected to deliver the scope of work and software described in this document (Appendix I). Through this RFP, BC Hydro intends to select a Contractor for the design and supply of a Smart Metering System, consisting of:

a) Approximately 1.95 million smart electricity meters, for all residential and commercial customers, complete with a FAN (or WAN direct) Network Interface Card (NIC);

b) A Field Area Network (FAN), FAN collectors and other FAN elements;

c) Home Area Network (HAN) gateways located within the meters;

d) A head-end Automated Data Collection System (ADCS) for managing the meters and metering networks;

e) Meter and network tools;

f) Support during the deployment, configuration and testing;

g) Installation, integration and training for the metering system's ADCS and other IT applications.

h) Ongoing supply of meters and FAN infrastructure for a period of 10 years following completion of the project in 2012; and

i) Ongoing software updates and technical support of the Smart Meter System for a period of 10 to 20 years following completion of the project in 2012.

The Project scope does not include the following items which will be provided by others:

a) Meter Deployment Services;

b) FAN deployment;

c) WAN supply (other than the FAN collectors) or deployment;

d) IHF HAN device supply and

e) Transformer and Feeder meters.

BC Hydro anticipates the Project schedule to be as follows:

Milestone	Expected Date
Requirements & Design	January 2011 – February 2011
ADCS Install and Configure	February 2011
ADCS Integrate and Test	May 2011
FAN Telecom Design	June 2011
Meter Installation	July 2011 – December 2012
Stabilize and Transition to Operations	October 2011 – December 2012
Project Work Complete	December 2012

3.3 Collaboration

The Contractor is expected to work in a cooperative and collaborative manner with the Meter Deployment Services contractor and with BC Hydro's program manager, the SI, who will be responsible for the overarching integration of the systems including the MDMS, metering system head end (ADCS), billing (SAP) and portal.

A significant interface issue that will affect the Contractor is that the deployment schedule will only be known after the Meter Deployment Services contractor is selected. This schedule will ultimately dictate the meter supply requirements as well as the schedule for the FAN design for each region. For the Initial Proposal Phase a preliminary schedule of meter supply has been provided to all Proponents. The Final Proposal Phase will occur after the selection of the Meter Deployment Services contractor, with the expectation that the schedule of meter supply will be updated prior to the Final Proposal submission.

3.4 Key Commercial Principles

The scope of services performed by the Contractor will be governed by the terms and conditions of the Contract. The key commercial principles of these agreements are summarized below for the convenience of Proponents but should not be considered to be an exhaustive listing.

3.4.1 Term

The term of the Contract will commence on execution and is anticipated to continue for 10 years after project completion (approximately 12 years in total, 2 years of design and initial meter supply and 10 years of ongoing supply of meters and FAN Infrastructure). It is expected that the initial meter supply period will be completed by November 2012.

3.4.2 Supply

Approximately 40,000 of the meters acquired by BC Hydro may be resold to other municipalities in British Columbia (BC) that are within BC Hydro's service territory but operate their own electric distribution

system. These municipalities, while not served by BC Hydro, have expressed interest in using the same metering technology so that BC Hydro could use its Metering System to monitor their meters and collect the meter reads.

3.4.3 Pricing and Payment

Meters and FAN Infrastructure will be paid for in US dollars, upon delivery, for a fixed price / unit. Services will be paid in Canadian dollars on either a fixed basis or at time and materials rates depending on the type of service.

3.4.1 Performance Guarantee and Liquidated Damages

Schedule is very important to BC Hydro for this project, therefore BC Hydro is looking for the Contractor to guarantee several aspects of their work that could dramatically impact the schedule. Each of these items has liquidated damages attached to them, recognizing the impact of the delay on BC Hydro:

Schedule

- The Contractor is required to meet the delivery dates for the meters and FAN Equipment once ordered. Failure to do so will attract an LD of up to $150,000 / day.

- The Contractor is required to meet the delivery dates agreed to for the design of each Region. Failure to do so will attract an LD of up to $25,000 / day.

FAN Infrastructure Guarantee

- The Contractor will guarantee the amount of coverage BC Hydro will achieve with their system and the maximum amount of FAN Infrastructure required to achieve this coverage. Any FAN Infrastructure above this guaranteed amount will be at the Contractors cost.

Performance Guarantee

- Each region will be tested to ensure it meets with the specifications outlined. If the region is not accepted by BC Hydro after testing, the Contractor will have 30 days to correct the deficiencies and re-test. If upon re-testing the Region is still not accepted by BC Hydro, the Contractor will pay an LD of $2,500 / day / region until such time as the Region has been accepted.

3.4.2 Incentive Mechanism

BC Hydro is proposing an incentive mechanism, of up to $5 million. The incentive is intended to encourage the Contractor to complete the required design on time, deliver the meters according to the contracted schedule and to take a collaborative approach to working with BC Hydro's other SMI contractors and vendors on working towards the common goal of achieving the baseline project plan. 100 per cent of the incentive payment will be non discretionary based on overall project outcomes.

4. COMPETITIVE SELECTION PROCESS

4.1 Overview

This section describes the process that BC Hydro expects to use in the selection of a Preferred Proponent. The anticipated Competitive Selection Process includes two stages: the Initial Proposal Phase; and the Final Proposal Phase.

4.2 Initial Proposal Phase

The objective of the Initial Proposal Phase is to create a short list of up to three (3) Proponents to participate in the Final Proposal Phase. A Proponent's eligibility to be short-listed is conditional upon the Proponent having successfully demonstrated to the satisfaction of BC Hydro, in its absolute discretion, that it is one of the Proponents that best meets the criteria set out in Appendix A.

BC Hydro will give notice in writing to those Proponents whose Initial Proposal is under consideration by BC Hydro as being one of the highest ranking Proposals. Only Proponents who have received the above-referenced notice in writing from BC Hydro and who have confirmed their willingness to continue participation in the Competitive Selection Process will be eligible to be short-listed and proceed to the Final Proposal Phase of the Competitive Selection Process.

4.2.3 Proponent Information Session

BC Hydro intends to hold a Proponent Information Session on July 27th, 2010 at 10 am to introduce the Project to which all interested parties will be invited. The meeting will be conducted via the internet, with no attendance in person. Attendance will not be mandatory. Minutes from the meeting will not be prepared or circulated. Any issues that arise that require distribution will be included in this RFP by way of addendum. Details regarding the meeting will be provided to Proponents after receipt of an executed Participation Agreement. Proponents will be allowed up to 10 representatives to participate in the Proponent Information Session

4.2.4 Proponent Question and Answer Sessions

To assist Proponents in preparing their Initial Proposals, BC Hydro will make certain of its representatives available for an optional three hour technical Question and Answer Session (Q&A) for each Proponent.

The exact time and location of the sessions will be provided to each Proponent once a Participation Agreement attached as Appendix F has been executed by the Proponent and delivered to BC Hydro. The sessions are expected to take place in Vancouver from August 3rd-5th Participation is in person only and limited to 12 representatives per Proponent team.

Proponents should submit requests for clarification and any questions arising in connection with the RFP that they would like addressed at the Q&A session at least three business days in advance of the Q & A session. To facilitate free and open discussion at the Q&A Session, Proponents should note that any comments provided by or on behalf of BC Hydro during any Q&A Session, including in respect of any particular matter raised by a Proponent or which is included in any documents or information provided by a Proponent prior to or during the Q&A Session, and any positive or negative views, encouragement or

endorsements expressed by or on behalf of BC Hydro during the Q&A Session to anything said or provided by Proponents will not in any way bind BC Hydro and will not be deemed or considered to be an indication of a preference by BC Hydro even if adopted by the Proponent. Prior to the commencement of each Q&A Session, Proponents will be required to acknowledge, in writing, the non-binding nature of the comments provided by or on behalf of BC Hydro during each Q&A Session.

If a Proponent wishes to rely upon anything said or indicated at a Q&A Session, then the Proponent must submit an Enquiry describing the information it would like to have confirmed and request that BC Hydro provide that information to the Proponent in written form and, if such information relates to a clarification, explanation or change to a provision of the RFP or the Contract, request an Addendum to the RFP clarifying and amending the provision in question.

4.2.5 Initial Draft Contract Comments

Each Proponent should review the Initial Draft Contract for the purpose of identifying any issues or provisions that the Proponent would like to see clarified or amended. Following such review, if the Proponent requests changes:

a) each Proponent should provide BC Hydro with a prioritized list of up to ten requested changes, if any, to the Initial Draft Contract using the Proponent Comments Form attached as Appendix E by the date indicated in Table 1;

b) BC Hydro may invite Proponents as part of a Topic Meeting to discuss possible clarifications or amendments to the Initial Draft Contract; and

c) BC Hydro will consider all comments and requested clarifications or amendments received from the Proponents and may amend the Initial Draft Contract as BC Hydro may determine in its discretion.

The Initial Revised Draft Contract will be the common basis for the preparation of all Initial Proposals, and Proponents should not in their Initial Proposal make any modifications, changes or additions to the Initial Revised Draft Contract.

4.2.6 Interim Submission on Financial Capacity

Proponents should submit to the Contact Person by 8:30 am (local time in Vancouver) on August 6th, 2010 an interim financial capacity submission (the “Interim Financial Capacity Submission”) which should include for each Proponent and each of the meter manufacturers:

a) Credit rating and copies of current credit agency reports, if available;

b) Most recent Annual Report or similar detailed corporate and business overview, including a description of the legal status (i.e. corporation, partnership or other) of the business entities that the Proponent is proposing as the contracting party for this SMI Project;

c) Proponent’s audited financial statements, if available, for the past 3 years, including any interim statements for each quarter since the last audited statement, if available;

d) Proponent’s details of any material events that may affect the Proponent’s financial standing since the last annual or interim statement;

e) Where the financial statements, Annual Report, and/or credit information provided above are that of the Proponent's parent company or affiliate, provide confirmation of the willingness of the parent or affiliate to provide a guarantee; and

f) For Proponents without an established credit rating or audited financial statements and where a parental or affiliate guarantee will not be provided, present evidence to show that the Proponent has access to sufficient capital to secure adequate assets, resources, materials, etc. to fulfill all of its obligations described under the RFP.

4.2.7 Use of Interim Financial Capacity Submission

BC Hydro:

a) will retain each of the Interim Financial Capacity Submissions as strictly confidential; and

b) intends, by August 13th, 2010, to provide a response to each Proponent who has submitted an Interim Financial Capacity Submission. The response is non binding on BC Hydro. It is meant to provide Proponents with feedback on their Interim Financial Capacity Submissions. BC Hydro's response may indicate that the financial capacity of the parties put forward by the Proponent are adequate or inadequate. If they are inadequate BC Hydro will endeavor to provide brief suggestions on what area(s) need to be improved.

A Proponent may request a meeting to discuss its Interim Financial Capacity Submission if the BC Hydro indicates the financial capacity of the parties put forward by the Proponent are inadequate.

A Proponent should submit with its Initial Proposal financial capacity information that is at least equal in form and substance to the Interim Financial Capacity Submission submitted by the Proponent which BC Hydro reviewed and indicated was adequate. Only the financial capacity information submitted by the Proponent with its Initial Proposal will be considered in the evaluation. The Interim Financial Capacity Package Submission will not be considered or reviewed by the BC Hydro in the evaluation of Proposals.

4.3 Final Proposal Phase

The objective of the Final Proposal Phase is to select the Preferred Proponent who may be offered the opportunity to enter into the Contract. The Final Proposal Phase will include interactive sessions with the short listed Proponents relating to technical and commercial matters in accordance with the terms of the RFP and the Participation Agreement, to allow Proponents to provide comments on Project specific issues raised through the process.

4.3.8 Interactive Sessions

Prior to the Final Proposal Closing Time, BC Hydro will make available certain of its personnel, consultants and advisers (BC Hydro Representatives) to participate in interactive sessions (Interactive Sessions) with the Proponents. The Interactive Session will take place in accordance with the following:

a) the purposes of the Interactive Sessions include

(i) providing BC Hydro Representatives with comments on the Initial Revised Draft Contract concerns;

(ii) providing Proponents with some comments and feedback from BC Hydro on the general acceptability of particular technical solutions; and

(iii) providing an opportunity for each of the Proponents to present aspects of their Final Proposal;

b) five days in advance of the Interactive Session, each Proponent will provide BC Hydro with a list of issues it would like to discuss. Three days in advance of the Interactive Session BC Hydro will provide each Proponent with a finalized agenda which in addition to the issues put forward by the Proponent will include any issues BC Hydro would like to raise;

c) BC Hydro will determine which BC Hydro Representatives will be present at any Interactive Session;

d) at each Interactive Session, a Proponent may have up to twelve officers, directors, employees, consultants and agents of the Proponent present;

e) to facilitate free and open discussion at the Interactive Session, Proponents should note that any comments provided by or on behalf of BC Hydro during any Interactive Session, including in respect of any particular matter raised by a Proponent or which is included in any documents or information provided by a Proponent prior to or during the Interactive Session, and any positive or negative views, encouragement or endorsements expressed by or on behalf of BC Hydro during the Interactive Session to anything said or provided by Proponents will not in any way bind BC Hydro and will not be deemed or considered to be an indication of a preference by BC Hydro even if adopted by the Proponent. Prior to the commencement of each Interactive Session, Proponents will be required to acknowledge, in writing, the non-binding nature of the comments provided by or on behalf of BC Hydro during each Interactive Session;

f) if a Proponent wishes to rely upon anything said or indicated at an Interactive Session, then the Proponent must submit an Enquiry describing the information it would like to have confirmed and request that BC Hydro provide that information to the Proponent in written form and, if such information relates to a clarification, explanation or change to a provision of the RFP or the Contract, request an Addendum to the RFP clarifying and amending the provision in question;

g) BC Hydro will use reasonable efforts to distribute to all Proponents any new information provided by BC Hydro to any Proponent during an Interactive Session, save and except that information which may be related to items raised by a Proponent in an Enquiry on the basis that such item would be treated as “Commercial in Confidence” and where, under Section 7.5, BC Hydro considered it would be dealt with on that basis;

h) an anticipated schedule for the Interactive Sessions is set out in Table 1 – Anticipated Schedule. However, following the release of the RFP, BC Hydro will consult with each Proponent to confirm specific dates. If one or more Proponents requests additional or fewer Interactive Sessions, or if BC Hydro considers it desirable or necessary to schedule additional or fewer Interactive Sessions, BC Hydro in its sole discretion may amend the anticipated schedule.

4.3.9 Comments on the Initial Revised Draft Contract

Each Proponent should review the Initial Revised Draft Contract for the purpose of identifying any issues or provisions that the Proponent would like to see clarified or amended. Following such review:

a) BC Hydro will invite Proponents as part of the Interactive Session process to discuss possible clarifications or amendments to the Initial Revised Draft Contract, including with respect to commercial, legal and design matters;

b) at least five Business Days in advance of the Interactive Session at which the Proponent wishes to discuss the Initial Revised Draft Contract, each Proponent should provide BC Hydro with a prioritized list of requested changes, if any, to the Initial Revised Draft Contract using the Proponent Comments Form attached as Appendix E; and

c) BC Hydro will consider all comments and requested clarifications or amendments received from the Proponents in the Interactive Sessions and will amend the Initial Revised Draft Contract as BC Hydro may determine in its discretion.

Prior to the Final Proposal Closing Time, BC Hydro intends to issue by Addendum one or more revised drafts of the Contract, including one that will be identified as the Final Draft Contract (Final Draft Contract). The Final Draft Contract will be the common basis for the preparation of all Final Proposals, and Proponents should not in their Final Proposal make any modifications, changes or additions to the Final Draft Contract. The only exception to this is with respect to Appendix 15b of the Final Draft Contract, which is the Form of Guarantee. A Proponent may propose an alternate form of security in lieu of the Form of Guarantee. BC Hydro will have to be satisfied at its discretion that the alternate form of security provides the same overall security of performance protection to BC Hydro. If BC Hydro rejects the alternate form of security, the Proponent will be required to provide the Appendix 15B Form of Guarantee. . For further clarity, the Proponent may not have any price adjustment regardless if BC Hydro accepts or rejects the alternate form of security. Proponents who are considering submitting an alternate form of security are recommended to discuss the issue with BC Hydro at the Interactive Sessions or at a date in advance of the Closing Time.

4.3.10 Closing

If BC Hydro selects a Preferred Proponent, the Preferred Proponent should anticipate that the Final Draft Contract will not be amended except as agreed by BC Hydro and provided in Section 9.1.

4.4 Competitive Selection Process Estimated Timelines

Table 1. Anticipated Schedule

MAJOR ACTIVITIES	
Initial Proposal Phase	
RFP issued to Proponents	July 19th, 2010
Proponent Information Session	July 27th, 2010
Contract Comments	August 13th, 2010
In Person Proponent Q&A Sessions	August 3rd-6th, 2010
Interim Financial Capacity Submission	August 6th, 2010
Issuance of Initial Revised Draft Contract	September 7th, 2010

Preliminary Relationship Disclosure Form Submitted	September 10th, 2010
Initial Proposal Closing Time	September 21st, 2010
Proponents Shortlisted	October 29th, 2010
Final Proposal Phase	
Interactive Sessions	November 16th – November 18th, 2010
RFP Addendum Issued	November 3rd , 2010
Proponent Information Session	November 4th 2010
Final Draft Contract Issued	November 24, 2010
Final Proposal Closing Time	December 7th , 2010
Selection of Preferred Proponent	Early January 2011
Execute Agreement	February 2011

The above anticipated schedule is subject to change at the sole discretion of BC Hydro.

4.5 Data Room

BC Hydro has established a web site to be used as an electronic data room (Data Room) in which it has placed documents in the possession of BC Hydro that BC Hydro has identified as relevant to the Project, and that may be useful to Proponents. BC Hydro does not make any representation as to the relevance, accuracy or completeness of any of the information available in the Data Room except as BC Hydro may advise with respect to a specific document. Proponents will be given access to the Data Room upon receipt by BC Hydro of the executed Participation Agreement

The information in the Data Room may be supplemented or updated from time to time. Although BC Hydro will attempt to notify Proponents of all updates, Proponents are solely responsible for ensuring they check the Data Room frequently for updates and to ensure the information used by the Proponents is the most current, updated information.

Data Room information includes but is not limited to:

a) Metering System RFP Data Room Documents Index – The document provides an index of the Data Room documents.

b) *Pricing Template* – Includes a section, to be completed by the Proponent, to provide price information.

c) *Pricing Template Instructions* – Provides additional information on the use of the Pricing Template.

d) *Pricing and Payment Structures* – Provides details regarding pricing and payment for each area of scope.

e) *Metering System Requirements* – This document specifies the metering system technical requirements.

f) *Meter Data Sheet* – This document specifies the required metrology, and other characteristics, by meter type. It also includes a section, to be completed by the Proponent, to indicate compliance with these requirements.

g) *Meter Data Sheet Instructions* – This document provides additional information on the use of the *Meter Data Sheet*.

h) *Telecom Design Submission Requirements* – This document specifies the metering system telecom performance requirements. It also describes the information that the Proponent must submit to describe, and rationalize, their proposed telecom designs.

i) *Long Term Forecasts* – This document, to be used in conjunction with the *Telecom Design Submission Requirements*, provides details on the other end point devices (e.g. transformer meters, feeder meters, distribution automation and smart grid devices) that are expected to be connected to the telecom network.

j) *WAN Assumptions* - This document is provided to enable Proponents to optimize life-cycle costs for their telecom design.

k) *WAN Requirements Submission Template* – This document, to be used in conjunction with the *WAN Assumptions* document shall be completed by the Proponent and will be used to assess the life-cycle cost of the proposed telecom design.

l) DRAFT – *Smart Meter and Telecom Network Supply and Services Agreement.*

m) Various Reference Documents

4.6 Compensation for Participation in Competitive Selection Process

BC Hydro will not provide any compensation to Proponents for participating in the Competitive Selection Process.

5. AFFORDABILITY

5.1 Affordability Ceiling

BC Hydro has identified and calculated a mandatory affordability ceiling (Affordability Ceiling) for certain components (listed below) of the Project. The Affordability Ceiling, expressed in US dollars is $270 million. The Initial Proposal and Final Proposal submitted by Proponents at both stages of the Competitive Selection Process must be less than, or equal to, the stated Affordability Ceiling.

The Affordability Ceiling includes the following components supplied by the Contractor:

- Delivery of required number of meters, for all residential and commercial customers, complete with a FAN (or WAN direct) Network Interface Card (NIC);
- Delivery of a Field Area Network (FAN), FAN collectors and other FAN elements; FAN design
- Home Area Network (HAN) gateways located within the meters;
- A head-end Automated Data Collection System (ADCS) for managing the meters and metering networks;
- Meter and network tools; and
- Project management, integration support or other services as required to support and deliver the project.

The Affordability Ceiling will also include the following components that will be delivered by BC Hydro, but which are dependent on the Contractor's Proposal:

- FAN installation
- WAN

The Affordability Ceiling will exclude the following components supplied by the Contractor:

- Meters supplied beyond the required number during the 12 year term of the Contract
- Ongoing maintenance and services after Final Acceptance Testing.

Proponents will be required to demonstrate compliance with the Affordability Ceiling by inputting certain key Proposal assumptions into a BC Hydro developed Affordability Ceiling Model (located in the *Pricing Templates*).

5.2 Scope Ladder

If not all of the elements of the base requirements are achievable within the Affordability Ceiling, a Proponent may propose to reduce the scope of the Project in order to ensure that its Initial Proposal and/or Final Proposal if eligible, is equal to or below the Affordability Ceiling. Proponents are required to eliminate elements in the order outlined in Table 2 below. The 1st reduction adjustment must be used completely before the 2nd and so on.

Likewise, if a Proponent is able to provide all of the elements of the base requirements within the Affordability Ceiling, the Proponent may propose to expand the scope of the Project to include additional features in the order outlined in Table 2 below. The 1st expansion adjustment must be used completely before the 2nd and so on.

Table 2. Scope Ladder

Scope Ladder Adjustment Order	Customer Meter Coverage (% of Customers)	Telecom Coverage (% of Customers)	Meter	Number of P263 and P264 Meter Manufacturers	Completion Date
2nd Expansion	99.95% or higher	95% or higher	Base – Plus Distribution System Connectivity Determination	One	December 2012
1st Expansion	99.95% or higher	95% or higher	Base	One	December 2012
Base	99.95% or higher	95%	Base	One	December 2012
1st Reduction	99.95% or higher	95%	Base	One	December 2012
2nd Reduction	99.95% or higher	95%	Base	One	June 2013
3rd Reduction	99.95% or higher	95%	Base – Without Service Disconnect Switch	One	December 2013

Table 2 Notes

1 The Base Meter includes the following *Meter Pricing Template* and *Meter Data Sheet* components and functionality:
- Basic Meter (e.g., Body, Metrology Board, Display, etc.);
- Primary FAN (or WAN Direct) Network Interface Card (NIC);
- Service Disconnect Switch – where specified with a "Y" in the "Service Disconnect Switch Required" row of the Meter Data Sheet;
- HAN Gateway – where specified with a "Y" in the "HAN Gateway Required" row of the Meter Data Sheet;
- Registers, Load Profile Channels and Instrumentation Profile Channels, as specified in the Meter Data Sheet, with a:
  - "YT", which are required to support the BC Hydro tariff, shall be provided without exception;
  - "Y", which are required to support project benefit realization. Any exceptions will be evaluated to determine their reduction in benefit impact

2 The Customer Meter Coverage is the % of the 1,951,237 meters in the Meter Pricing Template, "1.a (1) Customer Meters" worksheet which are offered and meet the Base Meter criteria.

3 The Telecom coverage is *Telecom Design Submission Requirements* Design-1.

5.3 Total Business Value

Each Proponent's technical solution will be considered with regard to BC Hydro's Total Business Value. The Total Business Value incorporates the net present value (discounted at an annual rate of 8%) to BC Hydro of the Smart Metering System over a 22 year period, inclusive of the meter deployment period. BC Hydro's goal is to maximize the Total Business Value (net of capital and operating costs) of the Project. The Total Business Value includes the following elements:

- Capital costs associated with the Smart Metering System
- BC Hydro operating costs associated with the Smart Metering System
- Benefits realization to BC Hydro as a result of the Project – (Major benefits include meter reading savings, VVO, theft detection)

To determine the Total Business Value Proponents will be required to give BC Hydro certain key inputs including cost and metering system attributes (by filling out the *Total Business Value Model Input Sheet in the Pricing Templates)* to allow BC Hydro to determine the Total Business Value.

6. PROPOSAL REQUIREMENTS

6.1 Participation Agreement

As a condition of participating in this RFP each Proponent must sign and deliver to the Contact Person a participation agreement (Participation Agreement), substantially in the form attached as Appendix F or otherwise acceptable to BC Hydro in its discretion. Proponents will not be provided with access to the Data Room (including the Initial Draft Contract), be invited to participate in the Proponent Information Session, Proponent Question and Answer Sessions or Interactive Sessions or participate further in the Competitive Selection Process unless and until they have signed and delivered a Participation Agreement as required by this Section.

6.2 Initial Proposal Form and Content

Initial Proposals should be in the form and include the content described in Appendix A.

6.3 Initial Pricing Schedules

Initial Proposals should include completed pricing templates.

6.4 Final Proposal Form and Content

Final Proposals should be in the form and include the content described in Appendix B. Each Proponent shall be entitled to submit a maximum of one Final Proposal submission.

6.5 Final Pricing Schedules

Final Proposals should include completed pricing templates included in Appendix B (to be issued by Addendum to short listed Proponents).

7. SUBMISSION INSTRUCTIONS

7.1 Closing Times and Delivery Address

Proposal submissions, both Initial and Final, must be received at the Delivery Address before the required Closing Times. Proposals, either Initial or Final, received after the respective Closing Times will not be considered and will be returned unopened.

7.2 No Fax or Email Submission

Proposals, either Initial or Final, submitted by fax or email will NOT be accepted.

7.3 Language of Proposals

Proposals, both Initial and Final, should be in English. Any portion of a Proposal not in English may not be evaluated.

7.4 Receipt of Complete RFP

Proponents are responsible to ensure that they have received the complete RFP, as listed in the table of contents of this RFP, plus any addenda. A submitted Proposal, either Initial or Final, will be deemed to have been prepared on the basis of the entire RFP issued prior to the appropriate Closing Time. BC Hydro accepts no responsibility for any Proponent lacking any portion of the RFP.

7.5 Enquiries

All enquiries and communications regarding any aspect of this RFP should be directed to the Contact Person by email (each, an "Enquiry") using the form attached to the RFP as Appendix G, and the following applies to any Enquiry:

a) if the Contact Person responds, the response will be in writing;

b) all Enquiries, and all responses to Enquires from the Contact Person, will be recorded by BC Hydro;

c) a response to an Enquiry by BC Hydro will not be distributed to all Proponents if it is of a minor or administrative nature that BC Hydro, in its sole discretion, considers to relate only to the Proponent who submitted the Enquiry and as not material to other Proponents;

d) BC Hydro may respond to an Enquiry from one Proponent by way of a circular to all Proponents. If a Proponent does not want a response to its Enquiry to be shared with other Proponents, the Enquiry must be clearly marked "Commercial in Confidence" by the Proponent. If BC Hydro in its sole discretion considers that BC Hydro should respond to the Enquiry on a confidential basis, then BC Hydro will do so. However, if BC Hydro in its sole discretion considers that BC Hydro should not respond to the Enquiry on a confidential basis, BC Hydro will notify the Proponent who submitted such Enquiry of BC Hydro's decision and the Proponent will have the opportunity to withdraw the Enquiry. If the Proponent does not withdraw the Enquiry, then BC Hydro may provide its response to all Proponents;

e) if BC Hydro identifies that there is a need for general clarification on an issue or if BC Hydro identifies a matter of substance which BC Hydro considers should be formally brought to the attention of all Proponents, whether or not such issue or such matter has previously been

covered by an Enquiry marked "Commercial in Confidence" and a confidential response by BC Hydro, a letter of clarification will be sent to all Proponents at the same time; and

f) without limiting Section 7.5(e), if there are subsequent Enquiries made by one or more other Proponents on the same or similar topic, which was previously covered by an Enquiry marked "Commercial in Confidence" and a confidential response issued by BC Hydro, BC Hydro reserves the right to respond to such subsequent Enquiries by way of a circular to all Proponents.

Information offered from sources other than the Contact Person with regard to this RFP is not official, may be inaccurate, and should not be relied on in any way, by any person for any purpose. In respect of communications from the Contact Person, Proponents may rely only on Addenda and formal written responses to an Enquiry.

7.6 Electronic Communication

Proponents should not communicate by fax, and the Contact Person may not respond to any communications sent by fax.

The following provisions will apply to any communications with the Contact Person, or the delivery of documents to the Contact Person by email where such email communications or delivery is permitted by the terms of this RFP:

a) BC Hydro does not assume any risk or responsibility or liability whatsoever to any Proponent:

   (i) for ensuring that any electronic email system being operated for BC Hydro or Partnerships BC is in good working order, able to receive transmissions, or not engaged in receiving other transmissions such that a Proponent's transmission cannot be received; or

   (ii) if a permitted email communication or delivery is not received by BC Hydro or Partnerships BC, or received in less than its entirety, within any time limit specified by this RFP; and

b) all permitted email communications with, or delivery of documents to, the Contact Person will be deemed as having been received by the Contact Person on the dates and times indicated on the Contact Person's electronic equipment.

7.7 Addenda

BC Hydro may, in its absolute discretion through the Contact Person, amend this RFP at any time before the Closing Time by issuing a written addendum. Written addenda are the only means of amending or clarifying this RFP, and no other form of communication whether written or oral, including written responses to Enquiries as provided by Section 7.6, will be included in or in any way amend this RFP. Only the Contact Person is authorized to amend or clarify this RFP by issuing an Addendum. No other employee or agent of BC Hydro is authorized to amend or clarify this RFP. BC Hydro will send a copy of any Addendum to all Proponent Representatives.

7.8 Intellectual Property Rights

By submitting an Initial Proposal, each Proponent will, and will be deemed to, have granted to BC Hydro a royalty-free license without restriction, any and all of the information, ideas, concepts, products, alternatives, processes, recommendations, suggestions and other intellectual property or trade secrets obtained from each Proponent either from its Initial Proposal, or that are otherwise disclosed by the Proponent to BC Hydro for the purpose of evaluation of the Proposal

By submitting a Final Proposal, each Proponent will, and will be deemed to, have granted to BC Hydro a royalty-free license without restriction to use for this Project, any and all of the information, ideas, concepts, products, alternatives, processes, recommendations, suggestions and other intellectual property or trade secrets obtained from each Proponent either from its Final Proposal, or that are otherwise disclosed by the Proponent to BC Hydro for the purpose of evaluation of the Proposal, and that the Proponent has waived or obtained a waiver of all moral rights contained in its Final Proposal.

BC Hydro acknowledges and agrees that Proponents will not be responsible or liable for any use of information, ideas, concepts, products, alternatives, processes, recommendations or suggestions by BC Hydro with other Proponents for the Project, or for projects other than the Project whether such use is by BC Hydro or any sub-licensee or assignee of BC Hydro.

7.9 Inconsistency between Paper and Electronic Form

If there is any inconsistency between the paper form of a document issued by or on behalf of BC Hydro to Proponents and the digital, electronic or other computer readable form, the paper form of the document will prevail.

7.10 Amendments to Proposals

A Proponent may amend its Initial Proposal or Final Proposal at any time prior to the Initial Closing Time or Final Proposal Closing, respectively, by delivering written notice, or written amendments, to the Delivery Address prior to the Closing Time.

7.11 Validity of Final Proposals

By submitting a Proposal (either Initial or Final), each short listed Proponent agrees that its Proposal, including all prices, remains valid and irrevocable from the applicable Proposal Closing Time (either Initial or Final), until midnight at the end of the 120th day following the applicable Proposal Closing Time (either Initial or Final), (Proposal Validity Period).

7.12 Material Change after RFP Closing Times

A Proponent will give immediate notice to BC Hydro of any material change that occurs to a Proponent after the Initial Closing Time, including a change to its membership or a change to financial capability.

Changes to any of the information provided (including Key Individuals and resources) in Sections 10 through 12 of the Initial Proposal after delivery of the Initial Proposal may only be made with the permission of the BC Hydro. If for any reason a Proponent wishes to make or requires that a change be made, the Proponent will deliver a written request to BC Hydro for permission to make the proposed change no later than 7 business days prior to the Final Proposal Closing Time.

BC Hydro may, in its discretion, by written notice refuse or permit the proposed change. Any permission of BC Hydro may be on such terms and conditions as BC hydro may consider appropriate.

The Proponent will immediately notify BC Hydro if, after submission of the Final Proposal a material change in circumstances occurs which may adversely affect a Proponent's ability to enter into or perform the Contract.

Such a change may not automatically render a Proponent ineligible so as to be disqualified from the Competitive Selection Process. BC Hydro's decision in its discretion as to whether or not to disqualify a Proponent as a result of such a change will be final and binding.

7.13 Change to Proponent Teams

If for any reason a Proponent wishes or requires to change a Team Member before submitting a Final Proposal , or add a new Team Member, then the Proponent must submit a written application to BC Hydro for approval. BC Hydro, in its absolute discretion, may grant or refuse an application under this Section, and in exercising its discretion BC Hydro may consider the objective of achieving a competitive procurement process that is not unfair to the other Proponents or detrimental to BC Hydro's commercial interests and Project objectives. For clarity:

(i) BC Hydro may refuse to permit a change to the membership of a Proponent Team if the change would, in BC Hydro's judgement, result in a weaker team or Proposal than the originally short-listed Proponent team or Initial Proposal; or

(ii) BC Hydro may, in the exercise of its discretion, permit any changes to a Proponent Team, including changes as may be requested arising from changes in ownership or control of a Proponent or a team member, or changes to the legal relationship between the Proponent or individual team members, such as the creation of a new joint venture or other legal entity or relationship in place of the short-listed Proponent.

BC Hydro recognizes that certain sub-suppliers, contractors and/or financial supporters may currently, or on a going forward basis, be participating in or supporting more than one Final Proposal. It is imperative that through this process of reevaluating, supplementing, or otherwise changing the composition of your team the commercially sensitive, confidential and competitive aspects of your Proposal not be shared with Team Members or prospective Team Members who are, or who may have an opportunity to be on another shortlisted Proponent team.

BC Hydro may require periodic and timely updates from each lead Proponent regarding the identity of the sub-suppliers, contractors or financial supporters, the Proponent may be intending to engage in discussions with, so that BC Hydro can provide appropriate feedback or guidance on expected communication protocols to be followed.

BC Hydro may as a condition of granting its approval require that the Proponent and its Team Members adopt certain requirements satisfactory to BC Hydro (e.g. use of segregated teams, ethical walls and related communication and information safeguarding practices).

8. EVALUATION

8.1 Evaluation Criteria

BC Hydro will evaluate Proposals by application of the Evaluation Criteria as set out in Appendix A for the Initial Proposals and in Appendix B for Final Proposals. The overall objective of the evaluation is to select the Final Proposal that will provide the best solution within the Affordability Ceiling.

8.2 Affordability

Regardless of whether a Proponent proposes to reduce or expand the scope of the Project, BC Hydro will evaluate the whole of the Proposal, both Initial and Final, on the basis of the Evaluation Criteria contained in Appendix A or B, respectively. As a result, Proponents should not assume that a poor Proposal that includes the full set of Project scope will be evaluated higher than a superior Proposal with a reduced Project scope.

8.3 Proposals Mandatory Requirements

BC Hydro will review Proposals, both Initial and Final, on a preliminary basis to determine whether they comply with the Mandatory Requirements. Proposals which do not, in the sole opinion of BC Hydro, comply with the Mandatory Requirements may be rejected and not considered further in the evaluation process.

BC Hydro has determined that the following are the Mandatory Requirements:

a) the Proponent must sign, deliver and comply with the Participation Agreement, as set out in Section 6.1;

b) the Proposal, both Initial and Final, must be received at the Delivery Address before the Closing Time;

c) the Proponent must include a signed Relationship Disclosure Form; and

d) as set out in Section 5.1, the Proposal, both Initial and Final, must not exceed the Affordability Ceiling.

e) Specified Technical and Business Criteria

f) Financial Capacity sufficient to meet long term obligations in the Contract

8.4 Evaluation

To assist in evaluation, the BC Hydro may, in its sole and absolute discretion, but is not required to:

a) conduct reference checks relevant to the Project with any or all of the references cited in a Proposal, both Initial on Final, to verify any and all information regarding a Proponent, including its directors, officers and Key Individuals, conduct any background investigations

that it considers necessary, and the BC Hydro may rely on and consider any relevant information from such cited references in the evaluation of Proposals, both Initial and Final,;

b) conduct any background investigations that it considers necessary in the course of the Competitive Selection Process;

c) seek clarification of a Proposal, both Initial and Final, from any or all Proponents and consider such supplementary information in the evaluation of Proposals;

d) request interviews or presentations with any, all or none of the Proponents to clarify any questions or considerations based on the information included in Proposals, both Initial and Final, during the evaluation process, with such interviews or presentations conducted in the sole discretion of BC Hydro, including the time, location, length and agenda for such interviews or presentations, and BC Hydro may consider any supplementary information from such interviews or presentations in the evaluation of Proposals;

e) and BC Hydro may in its sole and absolute discretion rely on and consider any information received as a result of such reference checks, background investigations, requests for clarification or supplementary information and interviews/presentations in the evaluation of Proposals, both Initial and Final.

BC Hydro may decide not to complete a detailed evaluation of any Proposal, either Initial or Final, if the BC Hydro concludes, having undertaken a preliminary review of the Proposal, as compared to other Proposals, that the Proponent is not in contention to be selected as either a shortlisted Proponent or the Preferred Proponent.

8.5 Initial Proposal

In the event that the price proposal submitted with the Final Proposal is greater than that submitted with the Initial Proposal, BC Hydro reserves the right to execute the Initial Revised Draft Contract with the Preferred Proponent based on the terms and pricing contained in the Preferred Proponent's Initial Proposal.

9. SELECTION OF PREFERRED PROPONENT AND AWARD

9.1 Selection and Award

It is the intention of BC Hydro that any issues with respect to the Final Draft Contract will be finalized prior to the Closing Time so that the Final Draft Contract, once issued, will not be further modified and is to be executed by the Preferred Proponent without further amendment, except for changes, modifications and additions:

a) relating to the determination by BC Hydro in its discretion regarding which parts, if any, of the Proposal are to be incorporated by reference or otherwise, into the Contract or otherwise pursuant to express provisions of the Contract, or relating to the determination by BC Hydro in its discretion regarding which of the Proponent's comments, if any, on the technical requirements are acceptable to BC Hydro, and modifications, changes and additions as a consequence of or in connection with such incorporations or changes, modifications and additions to the technical requirements;

b) to those provisions or parts of the Final Draft Contract which are indicated as being subject to completion or finalization or which BC Hydro determines in its discretion, require completion or finalization, including provisions which require:

   (i) modification or the insertion or addition of information relating to the Proponent's formation (e.g. corporate, partnership or trust structure) and funding structure; and

   (ii) modification or the insertion or addition of information in order to reflect accurately the nature of the Proponent's relationships with its subcontractors

c) required by BC Hydro in order to complete, based on the Final Proposal, any provision of the Final Draft Contract, including changes, modifications and additions contemplated in or required under the terms of the Final Draft Contract;

d) contemplated under section 8.5;

e) that are necessary to create or provide for a duly authorized and legally complete and binding agreement; or

f) that enhances clarity in legal drafting.

BC Hydro also reserves the right in its discretion to negotiate changes to the Final Draft Contract.

If for any reason BC Hydro determines that it is unlikely to reach final agreement with the Preferred Proponent, then BC Hydro may terminate the discussions with the Preferred Proponent and proceed in any manner that BC Hydro may decide, in consideration of its own best interests, including:

a) terminating the Competitive Selection Process entirely and proceeding with some or all of the Project in some other manner, including using other contractors; or

b) inviting one of the other Proponents to enter into discussions to reach final agreement for completing the Project.

Any final approvals required by BC Hydro, such as from the board of BC Hydro or from the Provincial Government, will be conditions of final execution or commencement of the Contract.

9.2 Debriefs

BC Hydro will, following contract award, upon request from a Proponent, conduct a debriefing for that Proponent. In a debriefing BC Hydro may discuss the relative strengths and weaknesses of that Proponent's Proposal, either initial or Final as the case may be, but BC Hydro will not disclose or discuss any confidential information of another Proponent.

9.3 Preferred Proponent Security Deposit

Subject to the terms of this RFP:

a) BC Hydro will invite the Preferred Proponent to deliver the Preferred Proponent Security Deposit on or before the date and time specified by BC Hydro, such date not to be earlier than 5 Business Days after notification of the appointment of the Preferred Proponent; and

b) the Preferred Proponent's eligibility to remain the Preferred Proponent is conditional upon the Preferred Proponent delivering the Preferred Proponent Security Deposit to BC Hydro on or before the date and time specified by BC Hydro.

9. 4 Return of Security Deposit

Subject to Section 0 BC Hydro will return the Preferred Proponent Security Deposit to the Preferred Proponent:

a) within 10 days after receipt by BC Hydro of notice of demand from the Preferred Proponent, if:

    1. BC Hydro exercises its right under Section 11.1 to terminate this RFP prior to entering into the Contract for reasons unrelated to the Preferred Proponent or any member of the Preferred Proponent's Proponent Team; or

    2. BC Hydro fails, within the Proposal Validity Period, to execute and deliver an agreement substantially in the form of the Final Draft Contract finalized by BC Hydro in accordance with Section 9.1, provided that such failure is not the result of:

        A. the failure of the Preferred Proponent to satisfy any conditions set out in the Final Draft Contract; or

        B. any extensions to the Proposal Validity Period arising from any agreement by BC Hydro to negotiate changes to the Final Draft Contract pursuant to Section 9.1; or

b) within 10 days after execution of the Contract with the Preferred Proponent.

9.5 Retention of Security Deposit

Notwithstanding any receipt by BC Hydro of the notice described in Section 9.4, BC Hydro may, in its discretion, draw on, retain and apply the proceeds of the Preferred Proponent Security Deposit for BC Hydro's own use as liquidated damages, if:

a) the Proponent or any Proponent Team member is in material breach of any term of this RFP or the Participation Agreement; or

b) after receipt of written notice from BC Hydro:

1. the Preferred Proponent fails to execute and deliver an agreement substantially in the form of the Final Draft Contract finalized by BC Hydro in accordance with Section 9.1; or

2. Contract execution fails to occur within 30 days (or such longer period as the parties may agree) of receipt of such notice from BC Hydro,

unless:

3. any such failure was the result of a significant event which could not have been reasonably prevented by, or was beyond the reasonable control of, the Preferred Proponent; and

4. the Preferred Proponent demonstrates to BC Hydro's satisfaction, acting reasonably, that the occurrence of such significant event would materially frustrate or render it impossible for the Preferred Proponent to perform its obligations under the Contract for a continuous period of 180 days as if the Final Draft Contract was in force and effect.

10. CONFLICT OF INTEREST AND RELATIONSHIP DISCLOSURE

10.1 Conflict of Interest Adjudicator

BC Hydro has appointed a conflict of interest adjudicator (COI Adjudicator) to provide decisions on conflicts of interest or unfair advantage issues, including whether any person is a Restricted Party. There is no requirement for all issues to be referred to the COI Adjudicator.

10.2 Relationship Disclosure and Review Process

Proponents should submit a preliminary Relationship Disclosure Form (Appendix D) in advance of their Initial Proposal on the date identified on the covering page of this RFP and disclose all conflicts of interest or unfair advantage. Proponents will also be required to submit a final Relationship Disclosure Form with their Final Proposal.

BC Hydro reserves the right to disqualify any Proponent that in BC Hydro's opinion has a conflict of interest or an unfair advantage, whether existing now or is likely to arise in the future, or may permit the Proponent to continue and impose such conditions as BC Hydro may consider to be in the public interest or otherwise required by BC Hydro.

Proponents, including all firms, corporations or individual members of a Proponent, will promptly disclose to the Contact Person any potential conflict of interest and existing business relationships they may have with BC Hydro, Partnerships BC or others providing advice or services to BC Hydro with respect to the Project or any other matter that gives rise, or might give rise, to an unfair advantage. At the time of such disclosure, the Proponent will advise the Contact Person how the Proponent proposes to mitigate, minimize or eliminate the situation.

For the purposes of this RFP, references to unfair advantage include references to confidential information that is not, or would not reasonably be expected to be, available to all Proponents.

BC Hydro and the COI Adjudicator may, in their discretion, consider actual, perceived or potential conflicts of interest and unfair advantage.

BC Hydro may provide any decision by BC Hydro or the COI Adjudicator regarding conflicts of interest to all Proponents where BC Hydro, in its discretion, determines that the decision is of general application.

10.3 Use or Inclusion of Restricted Parties

BC Hydro may, in its sole and absolute discretion, disqualify a Proponent, or may permit a Proponent to continue and impose such conditions as BC Hydro may consider to be in the public interest or otherwise required by BC Hydro, if the Proponent is a Restricted Party, or if the Proponent uses a Restricted Party:

a) to advise or otherwise assist the Proponent respecting the Proponent's participation in the Competitive Selection Process; or

b) as a Proponent Team member or as an employee, advisor or consultant to the Proponent or a Proponent Team member.

Each Proponent is responsible, and bears the onus, to ensure that neither the Proponent nor any Proponent Team member uses or seeks advice or assistance from any Restricted Party, or includes any Restricted Party in the Proponent Team except as permitted by this Section 10.3.

10.4 Current Restricted Parties

At this RFP stage, and without limiting the definition of Restricted Parties, BC Hydro has identified the following persons, firms or organizations as Restricted Parties:

Enerex L.L.C.	KnowledgeTech Consulting Inc
Everest Group	Borden Ladner Gervais LLP
ISE Consulting Inc	Bit Stew
Enspiria Solutions	Ferax Consulting Co.
McKinsey & Company	Quanta Services
Telvent	Accenture Business Services for Utilities
PricewaterhouseCoopers LLP	Black & Veatch
Capgemini	Accenture Consulting
HP	JTS Consulting
Honeywell	Corix

In addition to the list above, BC Hydro and Partnerships BC, including their former and current employees who fall within the definition of “Restricted Party”.

This is not an exhaustive list of Restricted Parties. Additional persons, firms or organizations may be added to, or deleted from, the list during any stage of the Competitive Selection Process through an Addendum.

10.5 Request for Advance Decision

A Proponent or a prospective member or advisor of a Proponent who has any concerns regarding whether a current or prospective employee, advisor or member of that Proponent is, or may be, a Restricted Party, or has a concern about any conflict or unfair advantage it may have, is encouraged to request an advance decision in accordance with this section through the following process:

a) to request an advance decision on whether a person is a Restricted Party, a Proponent or prospective team member or advisor of that Proponent should submit to the Contact Person, not less than ten (10) days prior to the Initial Closing Time by email, the following information:

   (i) names and contact information of the Proponent and the person or firm for which the advance opinion is requested;

   (ii) a description of the relationship that raises the possibility or perception of a conflict of interest or unfair advantage;

   (iii) a description of the steps taken to date, and future steps proposed to be taken, to mitigate the conflict of interest or unfair advantage, including the effect of confidential information; and

(iv) copies of any relevant documentation.

BC Hydro may make an advance decision or may refer the request for an advance decision to the COI Adjudicator. If BC Hydro refers the request to the COI Adjudicator, BC Hydro may make its own response to the COI Adjudicator.

Subject to Section 10.5, all requests for advance decisions will be treated in confidence. If a Proponent or prospective team member or advisor becomes a Restricted Party, it may be listed in an Addendum or in subsequent Competitive Selection Process documents as a Restricted Party.

10.6 BC Hydro May Request Advance Decisions

BC Hydro may also independently make advance decisions, or may seek an advance decision from the COI Adjudicator, where BC Hydro identifies a potential conflict, unfair advantage or a person who may be a Restricted Party. BC Hydro will, if it seeks an advance decision from the COI Adjudicator, provide the COI Adjudicator with relevant information in its possession. If BC Hydro seeks an advance decision from the COI Adjudicator, BC Hydro will give notice to the Proponent, and may give notice to the possible Restricted Party so that it may make its own response to the COI Adjudicator.

The onus is on the Proponent to clear any potential conflict, unfair advantage, or Restricted Party, or to establish any conditions for continued participation, and BC Hydro may require that the Proponent make an application under Section 10.5.

10.7 Decisions Final and Binding

The decision of BC Hydro or the COI Adjudicator, as applicable, is final and binding on the persons requesting the ruling and all other parties including Proponents, Proponent Team members and BC Hydro. BC Hydro or the COI Adjudicator, as applicable, has discretion to establish the relevant processes from time to time, including any circumstances in which a decision may be reconsidered.

10.8 Shared Use

A Shared Use Person is eligible to do work for a Proponent, but is required to commit that they will not enter into exclusive arrangements with any Proponent. As of the date of this RFP, no Shared Use Persons have been identified.

10.9 Exclusivity

Unless permitted by BC Hydro in its sole discretion or permitted as a Shared Use Person, or a Key Individual may only participate as a member of one Proponent Team.

11. RFP TERMS AND CONDITIONS

11.1 No Obligation to Proceed

This RFP does not commit BC Hydro in any way to award a Contract and BC Hydro reserves the complete right to at any time reject all Proposals, either Initial or Final, and to terminate this RFP and the Competitive Selection Process and proceed with the Project in some other manner.

11.2 No Contract

This RFP is neither an offer nor an agreement to purchase work, goods or services. No contract of any kind for work, goods or services whatsoever is formed under or arises from this RFP, or as a result of or in connection with the submission of a Proposal, either Initial or Final, including as a result of or in connection with the submission of any part of the Proposal, save and except only if the Contract is executed and delivered and then only to the extent expressly set out in the Contract.

11.3 Freedom of Information and Protection of Privacy Act

All documents and other records in the custody of, or under the control of, BC Hydro are subject to the Freedom of Information and Protection of Privacy Act (FOIPPA) and other applicable legislation. Except as expressly stated in this RFP, and subject to FOIPPA or other applicable legislation, all documents and other records submitted in response to this RFP will be considered confidential.

11.4 Cost of Preparing the Proposals

Each Proponent is solely responsible for all costs it incurs in the preparation of its Proposal, both Initial and Final, including all costs of providing information requested by BC Hydro, attending meetings and conducting due diligence.

11.5 Confidentiality of Information

All information pertaining to the Project received through participation in this RFP is confidential and may not be disclosed without the written authorization from the Contact Person, and in no event will a Proponent discuss the Project with any member of the public or the media without the prior written approval of BC Hydro.

11.6 Reservation of Rights

BC Hydro reserves the right, in its sole and absolute discretion, to:

a) amend the scope of the Project, modify, cancel or suspend the Competitive Selection Process at any time for any reason;

b) accept or reject any Proposal, Initial or Final, based on the Evaluation Criteria;

c) waive a defect or irregularity in a Proposal, Initial or Final, and accept that Proposal;

d) reject or disqualify or not accept any or all Proposals, Initial or Final, without any obligation, compensation or reimbursement to any Proponent or any of its team members;

e) re-advertise for new Proposals, call for tenders, or enter into negotiations for this Project or for work of a similar nature;

f) make any changes to the terms of the business opportunity described in this RFP; and

g) negotiate any and all aspects of Proposals, Initial or Final;

h) extend, from time to time, any date, time period or deadline provided in this RFP, upon written notice to all Proponents.

11.7 No Collusion

Proponents, Proponent Team Members and Key Individuals will not discuss or communicate, directly or indirectly, with any other Proponent or any director, officer, employee, consultant, advisor, agent or representative of any other Proponent (including any Proponent Team Member or Key Individual of such other Proponent) regarding the preparation, content or representation of their Proposals, Initial or Final.

By submitting a Proposal, a Proponent, on its own behalf and as authorized agent of each firm, corporation or individual member of the Proponent (including a connection arising solely through shareholdings or other equity interests in or of a Proponent or Proponent Team Member), represents and confirms to BC Hydro, with the knowledge and intention that BC Hydro may rely on such representation and confirmation, that its Proposal, Initial and Final, has been prepared without collusion or fraud, and in fair competition with Proposals, Initial and Final, from other Proponents.

Given the extent to which multiple or cross over Proponent team participation and cross communication may occur amongst Proponents and/or their Team Members, very clear and strict lines will have to be drawn and adhered to by Proponents and their respective Team Members between proper and acceptable collaboration and improper and unacceptable collusion (whether inadvertent or not). As well, certain conflict, confidentiality, and/or fair process type protocols will have to be followed by all or some of the shortlisted Proponents (and their Team Members) to ensure proper practices are being applied, and being seen to be applied, by those who may be scrutinizing this Competitive Selection Process.

For clarity, the following must be adhered to by each Proponent and their Team Members:

i. no disclosure or exchange of any confidential information about your Initial Proposal or proposed Final Proposal with another Proponent or any of their sub-supplier teams, contractors involved in the development of their proposal or financial supporters unless the Proponent has obtained BC Hydro's prior written consent to such disclosure;

ii. BC Hydro's approval or consent to such disclosure will be based in part on BC Hydro's knowledge of other existing or proposed participation in this RFP by the sub-supplier or contractor in question and the existing or proposed communication protocols that are to apply.

iii. no disclosure or exchange of any commercially sensitive or competitive proposal information with any of your Team Members, other than your own affiliates and your and their respective employees, unless BC Hydro has provided written approval to such disclosure or exchange;

iv. no involvement in more than one Proponent team, except with BC Hydro prior approval, where such approval may be conditioned upon the requirement for use of segregated teams, ethical walls and related communication and information safeguarding practices.;

v. At BC Hydro's request the confirmation of the adoption of the foregoing protocols and submission of updated declarations by the parties involved in these cross communications confirming strict adherence to these protocol rules and standards.

Participation by a sub-supplier or contractor and/or proponent on more than one shortlisted Proponent team, will likely require that special protocols will also be applied to that person's participation in the interactive sessions and/or other process steps or activities comprising the Final Proposal Phase. BC Hydro will confirm what these protocols will be after receiving the proposed list of attendees.

If a Proponent has any uncertainty regarding the appropriate course of action or protocol they are encouraged to seek guidance from BC Hydro in advance of pursing any action or protocol.

11.8 No Lobbying

Proponents, Proponent Team Members and Key Individuals, and their respective directors, officers, employees, consultants, agents, advisors and representatives will not in relation to the Project, this RFP, or the Competitive Selection Process, engage in any form of political or other lobbying whatsoever, including for the purpose of influencing the outcome of the Competitive Selection Process or the selection of the Preferred Proponent. Further, no such person (other than as expressly contemplated by this RFP) will attempt to communicate in relation to the Project, this RFP, or the Competitive Selection Process, directly or indirectly, with any representative of BC Hydro, the Ministry of Energy Mines and Petroleum Resources, Partnerships BC or, including any Minister or Deputy Minister of Energy Mines and Petroleum Resources, any member of the Executive Council, any Members of the Legislative Assembly, any Restricted Parties, or any director, officer, employee, agent, advisor, consultant or representative of any of the foregoing, as applicable, for any purpose whatsoever, including for purposes of,

a) commenting on or attempting to influence views on the merits of the Proponent's Proposal, Initial and Final, or in relation to Proposals of other Proponents;

b) influencing, or attempting to influence, the evaluation, scoring and ranking of Proposals, Initial or Final, the selection of the Preferred Proponent, or any negotiations with the Preferred Proponent;

c) promoting the Proponent or its interests in the Project, including in preference to that of other Proponents;

d) commenting on or criticizing aspects of this RFP, the Competitive Selection Process, the Project, or the Contract, including in a manner which may give the Proponent a competitive or other advantage over other Proponents; and

e) criticizing the Proposals, Initial or Final, of other Proponents.

In the event of any lobbying or communication in contravention of the foregoing, BC Hydro in its sole discretion may at any time, but will not be required to, reject any and all Proposals, Initial or Final, submitted by that Proponent without further consideration.

11.9 Ownership of Proposals

All Proposals submitted to BC Hydro as a result of this Competitive Selection Process become the property of BC Hydro and will be received and held in confidence by BC Hydro, subject to the provisions of FOIPPA and this RFP.

11.10 Disclosure and Transparency

BC Hydro is committed to an open and transparent Competitive Selection Process. To assist BC Hydro in meeting its commitment, Proponents will cooperate and extend all reasonable accommodation to this endeavor.

BC Hydro expects to disclose the following information during this stage of the Competitive Selection Process:

a) the RFP document;

b) the number of Proponents; and

c) the name of the short listed Proponents.

Following Contract Award, BC Hydro expects to disclose:

a) the Fairness Advisor's report; and

b) the name of the Contractor.

Each Proponent agrees that:

a) to ensure that all public information generated about the Project is fair and accurate and will not inadvertently or otherwise influence the RFP, the disclosure of any public information generated in relation to the Project, including communications with the media and the public, must be coordinated with, and is subject to prior written approval of BC Hydro;

b) it will notify BC Hydro of any and all requests for information or interviews received from the media; and

c) it will ensure that all of the Proponent Team Members and others associated with the Proponent comply with the requirements of this RFP.

11.11 Fairness Adviser

BC Hydro has appointed John Singleton, QC as Fairness Adviser (the Fairness Adviser) to act as an independent observer of the fairness of the implementation of the Procurement process, up to the selection of a Preferred Proponent. The Fairness Adviser will be kept fully informed by BC Hydro of all activities associated with the implementation of the Procurement process, and will have full access to all documents, meetings and information related to the process. The Fairness Adviser will report to the Executive Project Board as to the fairness of the implementation of the process. The reports of the Fairness Adviser will include a report on the process followed leading to the selection of the Preferred Proponent under this RFP, and BC Hydro will make such report public.

Proponents may contact the Fairness Adviser directly with regard to concerns about the fairness of the Procurement process.

11.12 Limitation of Damages

Each Proponent on its own behalf and on behalf of the Proponent Team and any member of a Proponent Team:

a) agrees not to bring any Claim against BC Hydro or any of its employees, advisers or representatives for damages in excess of an amount equivalent to the reasonable costs incurred by the Proponent in preparing its Proposal, Initial or Final, for any matter in respect of the RFP or Competitive Selection Process, including:

   (i) in the event BC Hydro accepts a non compliant proposal or otherwise breaches, or fundamentally breaches, the terms of this RFP or the Competitive Selection Process; or

   (ii) if the Project or Competitive Selection Process is modified, suspended or cancelled for any reason (including modification of the scope of the Project or modification of the RFP or both) or BC Hydro exercises any rights under the RFP; and

b) waives any and all Claims against BC Hydro or any of its employees, advisers or representatives for loss of anticipated profits or loss of opportunity if no agreement is made between BC Hydro and the Proponent for any reason, including without limitation

   (i) in the event BC Hydro accepts a non compliant proposal or otherwise breaches or fundamentally breaches the terms of this RFP or the Competitive Selection Process; or

   (ii) if the Project or Competitive Selection Process is modified, suspended or cancelled for any reason (including modification of the scope of the Project or modification of the RFP or both) or BC Hydro exercises any rights under the RFP.

12. INTERPRETATION

12.1 Definitions

In this RFP, unless a term is defined in this Section, capitalized terms have the meaning given in the Contract.

ADCS, means Automated Data Collection System, and is the head end component that manages customer meters, other end point devices, metering system telecommunication networks and data collection process;

Addenda means an amendment to this RFP issued by the Contact Person as described in Section 7.7;

Affordability Ceiling has the meaning set out in Section 5.1;

ANSI means American National Standards Institute.

BC Hydro means the provincial Crown Corporation established in 1962 under the Hydro and Power BC Hydro Act;

BC Hydro Representatives has the meaning set out in Section 4.2.3;

Claim means any claim, demand, suit, action, or cause of action, whether arising in contract, tort or otherwise, and all costs and expenses relating thereto;

COI Adjudicator means the person described in Section 10.1;

Competitive Selection Process means the overall process for the selection of a Preferred Proponent for the Project including, but not limited to, this RFP;

Contact Person means the person identified as such on the cover page of the RFP;

Contiguous Coverage Area means a defined geographical design area around FAN (or WAN, as applicable) collectors, repeaters and any other FAN elements that ensures reliable, consistent and predictable performance for 100% of the customer meters and/or end point devices contained within that area. Customer meters and/or end point devices beyond the defined Contiguous Coverage Area may have connectivity that is unreliable, inconsistent and unpredictable; however, this shall not be the case within the area.

Contract means:

a) prior to BC Hydro awarding a contract for the Project to the Preferred Proponent and execution of that contract, the most recently issued Initial Draft Contract or the Final Draft Contract, once issued, as amended, or

b) after execution of a contract by BC Hydro and the Preferred Proponent for the Project, the contract as executed,

c) and in each case includes all Addenda, Schedules, Appendices, Attachments and other documents included therein.

Contractor means the entity that enters into the Contract with BC Hydro.

Data Room has the meaning set out in Section 4.5;

Delivery Address means the delivery address identified as such on the cover page of the RFP;

End Point Devices means customer meters, and any other future measurement and/or control devices that may use the same telecommunication networks, as the customer meters, to communicate to the ADCS They potentially include feeder meters, transformer meters, reclosers, faulted circuit indicators, capacitor banks, voltage regulators etc.

Enquiry has the meaning set out in Section 7.5;

Evaluation Criteria means the criteria referred to in Appendix A for the Initial Proposal, or in Appendix B for the Final Proposal;

Fairness Adviser means the person described in Section 11.11;

FAN means Field Area Network and is a secure 2 way telecommunication network between, customer meters, other end point devices, FAN collectors and FAN elements.

FAN Collectors means the field device which aggregates telecommunication traffic from multiple meters, and other end point devices, and interfaces them, via the WAN, to the ADCS;

FAN Elements means telecommunication devices that extend and/or support the FAN only, i.e. they do not perform a distribution system measurement and/or control function. They include repeaters, relays, range extenders etc.

Final Draft Contract has the meaning set out in Section 4.2.3;

Final Proposal or **Final** means a proposal submitted in response to the Final Proposal Phase of the RFP as set out in Section 4.3;

Final Proposal Closing Time means the time identified as such on the cover page of the RFP;

Final Proposal Phase has the meaning set out in Section 4.3.

Financial Close means the time when the Contract and all financing and other agreements related to the Project have been executed and delivered and all conditions to the effectiveness of the Contract and Project financing agreements have been satisfied;

FOIPPA has the meaning set out in Section 11.3;

HAN means Home Area Network and is a secure 2 way telecommunication network between a HAN gateway in a customers meter and the customers IHF HAN device in their premise.

IEEE means the Institute of Electrical and Electronics Engineers

IHF means In Home Feedback and is used to provide customer feedback of electrical energy usage and demand. It can be provided via an IHF HAN device or via a web based portal.

Initial Draft Contract has the meaning set out in Section 4.2.3;

Initial Proposal or Initial means a proposal submitted in response to the Initial Proposal Phase of the RFP as set out in Section 4.2

Initial Proposal Closing Time means the time identified as such on the cover page of the RFP;

Initial Proposal Phase has the meaning set out in Section 4.2;

Interactive Sessions means the meetings, discussions and other communications contemplated by Section 4.3.8;

Intellectual Property Rights has the meaning set out in Section 7.8;

Key Individuals means the persons identified as such in the Proponent's Initial or Final Proposal;

Meter, Customer means an advanced electricity meter that registers a customer's bi-directional, energy flow. It includes an integrated FAN (or WAN direct) NIC for two way telecommunication with the ADCS. It also includes an integrated HAN gateway for two way telecommunications into the customer premise. Customer meters are further classified as self contained customer meters or instrument transformer customer meters. When the term "meter" is used, without further qualification, it is assumed to be a customer meter.

Meter, Feeder means an end point device that registers bi-directional, energy flow, at a point on a distribution system feeder.

Meter, Transformer means an end point device that registers bi-directional, energy flow, on the secondary voltage side of a distribution transformer. Transformer meters should not be confused with instrument transformer customer meters

Meter and Networks Tools means any number of potential hardware and/or software tools used to initiate local meter functionality, i.e. not via the ADCS.

Meter Deployment Services has the meaning given in Section 1.1;

NIC means a Network Interface Card which provides either FAN, or WAN direct, telecommunication connectivity to a customer meter or other end point device.

Partnerships BC means Partnerships British Columbia Inc.;

Participation Agreement means an agreement substantially in the form of Appendix F, including any amendments, or as otherwise acceptable to BC Hydro;

Preferred Proponent means the Proponent selected pursuant to this RFP to negotiate and enter into the Contract;

Preferred Proponent Security Deposit means an irrevocable letter of credit in the amount of $500,000 in the form set out in Appendix L or in such other form acceptable to BC Hydro in its discretion.

Program Objectives means BC Hydro's objectives for the Program set out in Section 2.2;

Project has the meaning given in Section 3;

Proponent means a party responding to the RFP;

Proponent Comment Form means a form substantially in the form of Appendix E;

Proposal means a proposal submitted in response to the RFP;

Proposal Declaration Form means a form substantially as set out in Appendix B or as otherwise acceptable to BC Hydro;

Proposal Validity Period has the meaning set out in Section 7.11 ;

Reference Projects means those projects identified by the Proponent in Table 4 Section 8 of Appendix A.

Relationship Disclosure Form means a form substantially as set out in Appendix D or as otherwise acceptable to BC Hydro;

Restricted Party means those persons or firms (including their former and current employees) who had, or currently have, participation or involvement in the Competitive Selection Process or the design,

planning or implementation of the Project, and who may provide a material unfair advantage or confidential information to any Proponent that is not, or would not reasonably be expected to be, available to other Proponents. Restricted Parties include those identified in Section 10.4;

RFP means this request for proposals;

Smart Metering System has the meaning set out in section 2.3;

Team Members means any of the following identified or otherwise referenced in the Initial Proposal: Key Individuals, sub-suppliers, contractors and/or financial supporters (i.e. guarantors or others)

Topic Meeting has the meaning set out in 4.2.5

Total Business Value has the meaning given in section 5.3.

WAN means Wide Area Network and is a secure 2 way telecommunications network between the FAN collectors and the ADCS.

12.2 References within the RFP

Unless otherwise indicated, in this RFP:

a) each reference to a section within the RFP is a reference to a section in which the reference is made;

b) each reference to an Appendix is a reference to an Appendix of this RFP;

c) each reference to time of day is a reference to Pacific Standard time or Pacific Daylight Saving time, as the case may be;

d) all monetary amounts dealing with the delivery of goods are to be expressed in American Dollars;

e) all monetary amounts dealing with the delivery of services are to be expressed in Canadian Dollars; and

f) the words “include”, “includes” or “including” are to be construed as meaning “include without limitation”, “includes without limitation” or “including without limitation”, respectively.

APPENDIX A – INITIAL PROPOSAL REQUIREMENTS, PRICING SCHEDULES AND EVALUATION CRITERIA

Table of Contents – Appendix A

1. Initial Proposal Guidelines

Initial Proposals should:

1. Be in the form and include the content described in Appendix A.
2. Include:

    a) One soft copy (excluding pricing information) of Packages One and Two in unsecured standard portable document format, to be delivered on an USB memory stick;

    b) One soft copy of Package Three, including all Financials Models, in unsecured standard portable document format, to be delivered on an USB memory stick;

    c) One soft copy of Package Four, in unsecured standard portable document format and excel format where appropriate, to be delivered on an USB memory stick;

    d) Five hard copies of Package One (Four bound copies numbered one through to four; plus one unbound copy marked as “Master”);

    e) Five hard copies of Package Two (Four bound copies numbered one through to four; plus one unbound copy marked as “Master”);

    f) Seven hard copies of Package Three (Six bound copies numbered one through to six; plus one unbound copy marked as “Master”);

    g) Three hard copies of Package Four (Two bound copies numbered one through to two; plus one unbound copy marked as “Master”);

    h) One hard copy and seven soft copies of any supplemental technical information and manuals, in unsecured standard portable document format, to be delivered on seven USB memory sticks; and

    i) All Proposals should be labelled in the following way: “Package One, Copy one of four”; “Package Two, Copy one of four, “Package Three, Copy one of six”, “Package Four, Copy one of two”.

3. Be in accordance with the following style guidelines:

    a) Font: Arial, point size 11, with the exception of graphics;

    b) Margins: should not be less than 0.75 inches on any one margin;

    c) All graphics should be legible (of a resolution size to allow expansion to increase readability),

    d) Paper stock should be from 100 per cent recycled material; and

    e) All Proposals should be typed.

4. Be delivered in an envelope/box, clearly marked with the words, “Smart Metering System RFP #4401, Response to Request for Proposals – Initial Proposal”, to the Delivery Address.

5. Proposals should be split into four Packages (Packages One, Two, Three and Four) and correspond to the section numbers and titles provided in Tables 4, 5, 6 and 7 of section 3 of this Appendix.

2. Evaluation

2.1 Evaluation Criteria

BC Hydro will evaluate Proposals by applying the Evaluation Criteria and weighting in Table 3, in accordance with each section of the Proposal content requirements outlined in Section 3 of this Appendix.

The evaluation criteria is be based on a combination of:

a) Systems and equipment that you have supplied to date, particularly for the Reference Projects listed in Table 4, section 8;

b) the Proponent's planned road map for delivering nascent evolving technology and functionality for this project and risk of achieving it, particularly with regard to the Functionality Realization Schedule 7D of the *Smart Meter and Telecom Network Supply and Services Agreement*; and

c) The Proponent's demonstrated past performance in the timely delivery of similar nascent evolving technology and functionality.

Table 3: Evaluation Criteria and Weighting

Criteria	Weighting
1. Mandatory Criteria a) Affordability Ceiling b) Technical and Business Criteria c) Financial Capacity	Pass/Fail
Overall Metering Solution	20%
2. Comprehensiveness of solution to deliver planned SMI program benefits and system functionality. **3.** Maturity, expandability and functionality of the system to meet future changes. **4.** Flexibility of schedule and supply to meet BC Hydro's planned schedule.	
Technical Solution	40%
5. Ability to meet the specified meter requirements. **6.** Ability to meet the specified FAN telecom requirements. **7.** Ability to meet the specified HAN and IHF requirements. **8.** Ability to meet the specified ADCS requirements. **9.** Ability to meet the specified Safety and Security requirements.	
Services & People	15%
10. Strength and demonstrated ability to undertake Telecom Design. **11.** Strength and demonstrated ability to deliver required IT services. **12.** Strength and demonstrated ability to support meter deployment, business transformation and project management.	
Commercial & Financial	25%
13. Ability to maximize Total Business Value to BC Hydro.[1] **14.** Ability to deliver a solution under the affordability ceiling.[2]	
TOTAL	**100%**

[1] BC Hydro will allocate points (up to a maximum of 20), for each $10 million dollar increment that a Proponent's Initial Proposal is above a Total Business Value of $400 million.

[2] If an Initial Proposal includes all scope ladder expansions, pursuant to Section 5.2 of the RFP, BC Hydro will allocate points (up to a maximum of 5), calculated as: (a) the amount by which the Proposal is less than the Affordability Ceiling; (b) divided by $5 million.

2.2 Disqualification of Proposals

Without limitation, BC Hydro may, in its sole discretion, disqualify a Proposal if:

a) Background investigations reveal any criminal affiliations or activities by the Proponent or a member of the Proponent Team and such affiliations or activities would, in the sole opinion of BC Hydro, interfere with the integrity of the Competitive Selection Process; or

b) It includes a false or misleading statement, claim or information.

Proponents may be required to undertake a criminal records check to participate in the Program.

3. Initial Proposal Format

For Proposals, Proponents should use the section numbers and titles provided in the following tables below.

Table 4: Package One: Proposal Transmittal Package

Section No.	Title & Contents
Proponents are required to submit the following information with their Transmittal Package.	
	Transmittal Package
1	**Proposal Covering Letter** Submit a Proposal Covering Letter in the form of Appendix J.
2	**Personal Consent Forms** Completed Forms, in the form of Appendix H should be completed and signed by each individual for whom the Proponent included a resume, work history, summary of qualifications or other personal information as part of their proposal.
3	**Proposal Declaration Form** Submit a Proposal Declaration Form as required in the form of Appendix M.
4	**Relationship Disclosure Form** Submit a Relationship Disclosure Form as required in the form of Appendix D.
5	**Proponent Confirmations** Proponents are to specifically confirm in their Proposals: (a) Proponent is familiar with the (BC) Freedom of Information and Protection of Privacy Act (the FOIPP Act) and is prepared to track amendments to the FOIPP Act as they may occur from time to time.
6	**Proposed Proponent Team** (a) Provide the legal name of the entity for the following: 1. Proponent
7	**Contact Information** Provide the name and contact details for the Proponent's Representative. **Please note:** The Proponent's Representative will be the **only** person to receive communication from the Contact Person regarding the RFP. Proponent's Representative: (a) Name (b) Employer (c) Mailing/courier addresses (d) Telephone number (e) Email address (f) Website address

Section No.	Title & Contents
8	**Reference Projects** Provide a summary of Reference Projects (no more than ten) either currently engaged in or completed within the past three years that are of a similar nature, scope and complexity to the work required under this RFP document. Provide the following details for each project listed: (a) Name, nature and location of project and owner; (b) Status/scope of involvement on project; (c) Why the project is comparable to this Project; (d) Starting and completion dates for each project; (e) One client reference per project (at a minimum), including name, title and contact particulars (telephone numbers, e mail addresses, etc.) of contact person; (f) Ability to quickly develop and maintain excellent working relationships within the client organization(s); (g) Ability to manage multiple, complex project timelines and deliverables within budget; (h) Ability to manage the development, control and maintenance of required documentation; (i) Ability to provide project management that delivers solutions offering an optimal outcome for the client(s); (j) If the Proponent was a member of a joint venture on any of these projects, the response should identify the Proponent's degree of participation; and (k) A description of the nascent evolving technology and functionality that was included within the project scope and your delivery performance.

Table 5: Package Two: Mandatory Technical and Business Requirements

1	Mandatory Technical and Business Requirements
a)	For the Metering System proposed within this RFP, Respondents must demonstrate experience in multiple electric utility deployments with commercialized products that meet the functional requirements outlined in the *Metering System Requirements* and the following minimum requirements: (a) 1,000,000 electricity smart meter end points under contract worldwide; and (b) 500,000 electricity smart meters end points installed and operational, within a single metering system worldwide, as of June 1, 2010; and (c) 50,000 electricity smart meter end points under contract within North America. [1] Specifically experience with the network capabilities of the solution proposed and as such the experience should relate to the FAN and FAN elements
	Provide the information requested in the following table for the Reference Projects that meet the requirements in question 1 a) above, also ensure to provide contact data for each project listed. Examples are illustrated in blue.

Utility Name, Location and Contact Details	Meter End Points under Contract	Operating Meter End points (As of August 2010)	Residential Meter Manufacturer and Model	Commercial Meter Manufacturer and Model
Utility A Idaho A. Smith 311 555-2368	700,000	550,000	ABC Blondel 2 CDE Mark 2	ABC Multiphase EFG Edison
Utility B Oregon B Jones 311 555-2369	400,000	390,000	ABC Blondel	EFG Edison
Utility C Arizona C White 311 555-2370	250,000	20,000	ABC Blondel Plus EFG Phasor	ABC Watt
Utility D Ontario D Black 311 555-2371	250,000	120,000	ABC Blondel Plus	ABC Multiphase
Utility E Quebec E Wong 311 555-2372	180,000	3,000	ABC Blondel	EFG Edison
Total	2,400,00	1,000,000		

b) **Affordability Ceiling**

Proponents should provide a letter with their Initial Proposal that confirms that their Initial Proposal is within the Affordability Ceiling and confirm which Scope Ladder items, if any, the Proponent has used.

c)	**Financial Capacity** i. For the Proponent and each of the meter manufacturers comprising the Proponent's proposal, provide the following information: ii. Credit rating and copies of current credit agency reports, if available. iii. Most recent Annual Report or similar detailed corporate and business overview, including a description of the legal status (i.e. corporation, partnership or other) of the business entities that the Proponent is proposing as the contracting party for this SMI Project. iv. Proponent's audited financial statements, if available, for the past 3 years, including any interim statements for each quarter since the last audited statement, if available. v. Proponent's details of any material events that may affect the Proponent's financial standing since the last annual or interim statement. vi. Where the financial statements, Annual Report, and/or credit information provided above are that of the Proponent's parent company or affiliate, provide confirmation of the willingness of the parent or affiliate to provide a guarantee. vii. For Proponents without an established credit rating or audited financial statements and where a parental or affiliate guarantee will not be provided, present evidence to show that the Proponent has access to sufficient capital to secure adequate assets, resources, materials, etc. to fulfill all of its obligations described under the RFP.

Table 6: Package Three: Initial Proposal Technical Content Requirements

TECHNICAL PACKAGE
Based on your understanding of the Project, the scope of work identified in this RFP, and the information outlined in the Data Room, please structure a comprehensive Proposal to respond to BC Hydro's requirements. The proposal should be structured with the headings and numbering systems below and remain within the Proposal page limits indicated. Any requested drawings should be sized on 8.5" x 11" paper, and up to 11" x 17" for readability and detail where required. Electronic copies should be in unsecured standard portable document format. References to past performance should be with regard to the Reference Projects you have listed. In addition, include the following items in Package 3: • Any proposed exceptions, qualifications, clarifications or comments to the *Metering System Requirements* document; • Completed *Meter Data Sheet.* (This document will be assessed primarily under Criteria 6); • Telecom Designs and descriptions of the telecom designs in accordance with the *Telecom Design Submission Requirements.* (Design-1 and Design-2 will be assessed primarily under Criteria 6, Design-3 under Criteria 3 and overall comprehensiveness of designs under Criteria 5); • Completed *WAN Requirements Submission Template;* • Completed copy of the Functionality Realization Schedule 7D of the *Smart Meter and Telecom Network Supply and Services Agreement.* (This document should indicate the proposed delivery schedule for nascent evolving technology and functionality, e.g. evolving protocols, interfaces and interoperability, HAN gateway, diversion detection functionality, distribution system connectivity determination, distribution automation and smart grid, advanced meter functionality etc. It will be primarily assessed under Criteria 4); • Copies of any sales collateral, data sheets, instruction books, white papers and case studies for the proposed metering system components and services. (These documents will be used to establish a better overview of the proposed metering system); and • Examples of software license agreements, maintenance agreements and escrow agreements (These documents will be assessed primarily under Criteria 8).

2.	**Overall Metering Solution - Comprehensiveness of solution to deliver planned SMI program benefits and system functionality**	**Proposal Page Limit**
2.1	**Meter Registration**	
2.1.1	For a stabilized functional metering system, describe how the metering system will automatically detect, validate and register, provision, commission, and report newly installed meters. How long will this take?	**0.5**
2.2	**Meter Reading**	
2.2.1	For the reference projects you have listed provide examples of typical scheduled, and on-demand, meter reading metrics which are routinely achieved, on operational metering systems which would be indicative of the expected performance.	**1.0**

2.3	**Outage, Restoration and Meter Tampering Detection**	
2.3.1	Describe how the metering system will filter, process and aggregate meter and FAN collector outage events to determine the likely extent of an outage.	**1.0**
2.3.2	For metering system with "last gasp" functionality, following a meter detected outage: (a) How long do individual meters have "last gasp" communications capability; and (b) Do meters receive and relay "last gasp" outage messages from other meters?	**1.0**
2.3.3	For both a partial or full restoration, describe details and how long it will take, for the metering system to: (a) Re-configure itself; (b) Re-optimize itself; and (c) Re-synchronize time.	**0.5**
2.3.4	Which tamper events are detectable, how they are detected, and how does the meter, and the metering system, differentiate between probable tampers and other events such as, power outages, scheduled meter removals and unscheduled meter removals?	**0.5**
2.4	**Time Keeping**	
2.4.1	Describe; (a) The time synchronization of all end point devices, including the maximum time discrepancy between any two devices (b) How the metering system supports multiple time zones and daylight savings time transitions, with particular regard to "customer facing" applications, i.e. IHF HAN devices.	**1.5**
2.4.2	If the meter and/or FAN (or WAN direct) NIC has a battery: (a) Provide a description of the battery; (b) Describe the anticipated life expectancy of the battery under both normal and extreme temperature conditions; (c) Describe the anticipated life expectancy of the battery when the meter is energized and when it is de-energized, i.e. the meter is in storage; (d) Provide copies of test reports supporting the anticipated battery life expectancy; (e) Describe the process for replacing the battery and for recycling the meter at end-of-life; (f) Describe the time accuracy or drift when the meter clock is powered from the battery only; and (g) Describe the battery life status reporting that is available through the ADCS.	**3.0**
2.4.3	If the meter and/or FAN (or WAN direct) NIC does not have a battery: (a) Describe the power outage duration that the meter can experience before "losing time"; (b) If the meter "loses time" during a power outage, describe the time re-synchronization process and the expected duration for re-synchronization to occur; and (c) Describe how load profile intervals, generated prior to or during time re-synchronizing, are "adjusted" upon time re-synchronization.	**3.0**
2.5	**Meter and Network Tools**	
2.5.1	For each proposed meter manufacturer/model, FAN (or WAN direct) NIC, and HAN gateway combination, describe, or provide documentation that explains: (a) How the meter and network tools are interfaced to the meter, e.g. optical probe, FAN, HAN etc.;	**2.0**

	(b) How changes to Measurement Canada metrology are restricted when the seal is unbroken; (c) The meter and network tools: i. Functionality; ii. Physical characteristics (if the tools includes supplied hardware); and iii. Hardware requirements (if the tools are software only).	
3.	**Overall Metering Solution - Maturity, expandability and functionality of the system to meet future changes**	
3.1	**General**	
3.1.1	If meters and the metering system are supplied by different companies, describe the integration process used to ensure that all current, and future, meter functionality is available throughout the ADCS plus the meter and network tools. Specifically describe: (a) Which manufacturer and model of commercially available customer meters are currently integrated with your metering system ADCS, and the Measurement Canada type approval status; (b) Which other manufacturer and model of customer meters you are commercially or contractually committed to integrating into the metering system and the scheduled commercial, and Measurement Canada type approval dates; (c) Your process, and the experience you have, in obtaining Measurement Canada and Industry Canada approvals (as applicable) for your products; (d) Your ongoing notification, testing and revalidation process when hardware, firmware, software or manufacturing changes are made to any metering system component or sub-component; and (e) Your active participation on ANSI C12.19 data table harmonization efforts including National Institute of Standards (NIST) priority action plan 5.	**3.0**
3.1.2	For each proposed meter manufacturer/model, describe the metrology, FAN (or WAN direct) NIC and HAN Gateway including specifically: (a) Architecture including what functions are performed on what board within the meter; (b) Processor, and other chipset, manufacturer, types and speeds; (c) Capability, and current utilization, of processors and memory plus the associated overhead for current and future features & applications; (d) Any other characteristics that are indicative of the meters ability to support future protocol, functionality and security; and (e) Describe the process for supporting remote firmware upgrades including the download and activation process, as well as what functions and components can be firmware upgraded versus what functions and components cannot be firmware upgraded.	**3.0**
3.1.3	In addition to providing pricing information elsewhere, provide a full technical description of any optional equipment and features. Specifically provide details on any software keys that can be enabled to support the optional features.	**1.0**
3.1.4	Describe the current and committed future availability in the different domains of your metering system to support device IP addressability (e.g. IPv4, IPv6, UDP, TCP), protocols (e.g. ANSI C12.22, IEEE 1815, IEC-61850, IEEE 802.15.4g, IEEE 1588, SNMPv3, IEEE P1901, etc.), interfaces (e.g. serial, RJ45, fibre, mini PCI, etc.), and interoperability (e.g. plug-	**3.0**

	n-play or other integration process, modifications required for integration, etc.). Describe the basis of any decisions not to use open standards.	
3.1.5	For each meter, FAN element, and any other proposed components, describe the: (a) Estimated annual failure rate; (b) Actual failure rates to date, for the reference projects you have listed; and (c) Estimated useful life expectancy.	**1.0**
3.1.6	Describe your support and active participation, both Canadian and international, standards organizations, electrical utility and regulatory authority committees.	**2.0**
3.2	**FAN Scalability**	
3.2.1	Describe how the system supports future bandwidth improvements, traffic management, additional spectrum, etc. Include product roadmaps.	**1.0**
3.2.2	In the future, the FAN may be used for peer-to-peer communications for Distribution Automation (DA) schemes. Describe the peer-to-peer capability of your FAN.	**0.5**
3.3	**Diversion Detection**	
3.3.1	In accordance with section 4.12 of the *Metering System Requirements*, describe: (a) The overall revenue protection support and philosophy of your metering system; and (b) The transformer meters, feeder meters, and other potential diversion detection devices which are currently integrated into the metering system and are commercially available; and (c) The transformer meters, feeder meters, and other potential diversion detection devices, that you are committed to integrating into the metering system and the scheduled commercial availability dates. Provide details of the device functionality and measurement accuracy; and (d) Any other additional measurements and functionality that is included in your standard meters that may aid in diversion detection, e.g. time synchronized instantaneous voltage and power "snapshot" readings, per phase energy registration.	**3.0**
3.4	**Distribution System Connectivity Determination**	
3.4.1	In accordance with section 4.13 of the *Metering System Requirements, d*escribe the optional metering system functionality that currently exists, or is planned, to dynamically identify which feeder, phase and distribution transformer a customer meter is connected to.	**3.0**
3.5	**Distribution Automation and Smart Grid**	
3.5.1	In accordance with section 4.11 of the *Metering System Requirements,* describe the metering systems support for Distribution Automation and Smart Grid including specifically: (a) Your Smart Grid strategy with regard to Smart Metering – from end point devices, through the network to the ADCS and interfacing, including data segmentation, differences in latency, frequency, availability and bandwidth; (b) Which commercially available Smart Grid devices (e.g. reclosers, faulted circuit indicators, capacitor banks, voltage regulators), and applications (e.g. Distribution Management Systems (DMS), Outage Management Systems (OMS), Volt var Optimization (VVO)) have been integrated into the metering system; and	**3.0**

	(c) Which other Smart Grid devices and applications you are committed to integrating into the metering system and the scheduled commercial availability dates; and (d) The functional level of integration of these devices, i.e. does the metering system perform a communication function or is there functional integration? and (e) The physical integration of these devices, i.e. is a metering system NIC card physically installed within the device or is it located within an externally packaged device which is cabled to the smart grid device?	
3.6	**Reading of Existing Industrial Meters**	
3.6.1	In accordance with section 4.15 of the *Metering System Requirements,* describe the ability of the metering system to read the existing industrial meters.	**0.5**
3.7	**Gas and Water Meters**	
3.7.1	In accordance with section 4.16 of the *Metering System Requirements,* describe the metering systems support for water and gas meters including specifically: (a) Which commercially available water meters have been integrated into the metering system; (b) Which other water meters you are committed to integrating into the metering system and the scheduled commercial availability dates; and (c) Which Measurement Canada approved gas meters have been integrated into the metering system; and (d) Which other gas meters you are committed to integrating into the metering system and the scheduled Measurement Canada approval dates; and (e) How they are interfaced, i.e. via the FAN or HAN and how these devices are provisioned and commissioned including the pairing process.	**3.0**
4.	**Overall Metering Solution - Flexibility of schedule and supply to meet BC Hydro's planned schedule**	
4.1	For all meter system equipment proponents are to describe the following in detail: (a) Current capacity of manufacturing facilities; (b) Current available capacity; (c) Any confirmed plans to expand manufacturing capacity; and (d) Current logistics capabilities and capacities for transportation/shipping.	**3.0**
4.2	Do you see any challenges in your supply chain, within the timeframes indicated, that would inhibit your ability to provide the outlined meters in the required quantities as described in this RFP?	**2.0**
5.	**Technical Solution – Ability to meet the specified meter requirements**	
5.1	**Meters – General**	
5.1.1	What are the key features of your meters? Specifically address: (a) Current and voltage sensing technology; (b) Display functionality, durability and longevity; (c) Serviceability; (d) Components; and (e) Techniques used to offset the effects of aging.	**2.0**

5.1.2	If you have indicated availability of the following: (a) Periodic self-read energy registers – describe the functionality and number of available registers, (i.e. can you have both a weekly and daily?); (b) Instantaneous power and voltage registers - describe the sampling, calculation and register updating algorithms; (c) Instrumentation profile – describe the instantaneous power and voltage snapshot capability; and (d) Optional KYZ output pulse contacts– provide a description.	**2.0**
5.1.3	For each proposed unique combination of, meter manufacturer, meter model type, FAN (or WAN direct) NIC and HAN gateway, describe the: (a) Potential impact, on meter shop test boards as a result of the meter power supply, i.e. reactive loading; (b) The Measurement Canada implications of: i. Local and remote maximum demand resets; ii. Changing the load profile interval length; iii. Using load profile interval data for maximum demand calculation outside of the meter; (c) Time-of-use (TOU) capability, for both energy and demand, within the meter, i.e. using internal registers, rather than derivation from load profile data in the billing system; (d) Event log and reporting capability; and (e) Self test functionality.	**3.0**
5.1.4	Describe the ability of the metering system to identify and locate stolen meters.	**1.0**
5.2	**Meters – Service Disconnect Switch** Note - Where there are differences, the following questions must be addressed for each proposed unique combination of meter manufacturer and meter model type, i.e. for both the primary and optional alternative P263 (ANSI 2S) and P264 (ANSI 12S) meters.	
5.2.1	The ANSI C12.1 committee is currently determining the meter service disconnect switch testing requirements to be added to the standard: (a) Provide a copy of your proposed changes, to the ANSI C12.1 standard, to address service disconnect switch design and testing requirements; and (b) Describe what other standards your meter service disconnect switch is designed and tested to.	**1.0**
5.2.2	Describe the service disconnect switch including the: (a) Manufacturer; (b) Principal of operation, (e.g. solenoid) and design features which will result in long term reliability and performance; (c) Ratings, including the following characteristics. (Include a copy of third party testing agency results that substantiate the ratings); i. Rated number of mechanical operations e.g. 50,000 cycles; ii. Rated number of "unity power factor load" electrical operations, e.g. at 100% rated current and 1.0 power factor, for 15,000 cycles; iii. Rated number of "reactive load" electrical operations, e.g. at 100% rated current, 0.5	**3.0 + Test Results**

	power factor inductive, for 5,000 cycles; iv. Maximum "through fault" short circuit current for a closed disconnect switch, e.g. 5 kA peak for 6 cycles without impacting accuracy and 5 kA peak for 6 cycles without compromising the mechanical integrity; v. Maximum "fault closing" short circuit current, e.g. 240 V pre fault voltage, 5 kA peak for 6 cycles without impacting accuracy and 10 kA peak for 6 cycles without compromising the mechanical integrity; (d) Impact of temperature cycling on accuracy; (e) Impact of temperature cycling on life expectancy; (f) Results of accelerated life cycle testing to ascertain the safety and long term reliability of the service disconnect switch for both very frequent and very infrequent duty cycles, i.e. the switch operates very frequently, or alternatively, does not operate for 10 years and then is instructed to operate in an ambient of -35° C; (g) How it can be assured that the service disconnect switch does not remain in an intermediate position; and (h) Construction of the service disconnect switch to mitigate the impact of humidity and corrosion.	
5.2.3	If you are participating in the current National Electric Testing Research and Applications Center (NEETRAC) Project #07-244 Performance Evaluation of Integral Disconnect: (a) Describe your meters test results; and (b) If your meter has failed any tests, or you have withdrawn your meter from testing, describe the remedial changes you are making to improve its performance.	**3.0**
5.2.4	Service disconnect switches may contribute to significant temperature rise within the meter. Describe the design features which insure that high temperature rises do not adversely impact the safety, accuracy, Measurement Canada seal period attestation or functionality of the meters.	**1.0**
5.2.5	Service disconnect switches have the potential to mitigate feeder restoration "cold or hot load" pickup problems by selectively restoring load. However, this would require that the meter disconnect switch opens upon outage detection, or immediately upon power restoration. (a) For meters supplied with a "last gasp communication" capacitor, could the capacitor be used to open the service disconnect switch? (b) Alternatively, could the disconnect switch be programmed to immediately open upon restoration and then automatically close based on a preconfigured time delay?	**1.0**
5.2.6	Describe the service disconnect switch service limiting capability. Specifically describe how it can be used to limit: (a) Demand (kW); (b) Cumulative Energy (kWh).	**0.5**
5.2.7	Describe how the metering system supports pre-paid metering with, in addition to time-of-use energy capability, the following capabilities: (a) Time-of-use demand; (b) Critical peak pricing;	**0.5**

	(c) Inclining energy block rates; (d) Customer in-home feedback (IHF) indication of remaining balances etc.	
5.3	**Meter Standards and Regulatory**	
5.3.1	Where you have indicated in the *Meter Data Sheet* that Measurement Canada type approval exists, provide a copy of the Measurement Canada notice of approval for each currently approved unique combination of meter manufacturer, meter model type, FAN (or WAN direct) NIC, HAN gateway and ancillary equipment, e.g. service disconnect switch, KYZ output pulses, external antenna etc. as applicable.	**1.0 + Required Documents**
6	**Technical Solution – Ability to meet the specified FAN telecom requirements**	
6.1	**FAN General**	
6.1.1	What are the key features your metering system provides as it relates to meeting BC Hydro's requirements and objectives? Specifically address (but not limited to) the following items: (a) The frequency band of operation, carrier bandwidth and how the system mitigates interference over the medium used; (b) The FAN access method and protocols, particularly the media access control and routing and which parts are non-deterministic, including how exception and scheduled events are handled by the network; (c) The transmission of packets including header and payload size as well as mechanisms for packet transmission, error detection, correction and reliability, sequencing, and re-transmission; (d) Volume of overhead traffic (routing or other) during steady state and outage recovery states; and (e) Effective data rates, types, packets/sec and maximum bandwidth utilization.	**5.0**
6.1.2	Given BC Hydro's long term coverage requirements, device counts and predicted traffic model, describe the capability of your FAN architecture to be scalable and upgradeable to allow future expansion while minimizing the risk of a high volume replacement of dispersed equipment. In your response, address the practical limitations for scaling and performance impacts as well as what solutions you see for reaching 100% coverage within the BC Hydro service territory.	**3.0**
6.2	**FAN System Performance**	
6.2.1	Describe the metering systems design and implementation features that cost effectively address the coverage challenges for the following hard to reach meters. If using add-on accessories onto a meter (e.g. external antenna or other), provide sufficient detail and indicate if it can be installed without breaking the Measurement Canada seal; (a) Urban canyons (downtown high rises) and meters in ferrous / non ferrous cabinets located in sub grade electrical rooms in close proximity to electromagnetic interference equipment - how will you provide 100% communications for these meters; (b) Instrument transformer rated meters, connected via 200 VA and small voltage transformers, supplied from very dense urban substations with 10's of thousands of customers per bus - how will you provide 100% communications for these meters; (c) Residential subdivisions with only an underground electrical distribution system; (d) Very low customer densities and meters linearly distributed along a feeder in a valley; (e) Any alternate, integrated WAN backhaul solutions for addressing any of the above; (f) Your ability to tune devices and components to meet the performance and reach-ability requirements in	**6.0**

	these environments; and (g) Your ability to test performance in these environments including process, tools, and reports.	
6.2.2	Describe the ability of your system to support periodic "drive by" meter reading for locations where a fixed WAN installation may be cost prohibitive. Specifically address the: (a) Ability to support TOU rates using either load profile energy intervals or TOU registers in the meter; (b) Time synchronization and battery implications; (c) Advanced functionality including instrumentation profiling, service disconnect switch operation, IHF HAN functionality etc; (d) Meter reading times; and (e) Security.	**3.0**
6.2.3	Describe how the FAN supports Quality of Service (QoS), i.e. how you prioritize traffic to support multiple service flows with different bandwidth and latency requirements to end devices. Specifically: (a) How many levels are provided; and (b) What is the required capability of WAN facing interfaces to support Quality of Service.	**1.0**
6.2.4	Describe the capability of the FAN to support multicast messaging to reduce traffic for broadcast messages such as critical peak pricing updates and firmware upgrades. Define the multicast protocols and if they are Source Specific Multicast (SSM) or Any Source Multicast (ASM).	**1.0**
6.2.5	The metering system should support the distribution and installation of firmware updates to the entire population of meters, FAN (or WAN direct) NICs, HAN gateways and other devices, without adversely affecting the response time and performance of the metering system. Describe the capability of the metering system in general, and the FAN in particular, to support large scale device updates in a timely manner. What is the ability to rollback, either manually or automatically, to a previous firmware version if the upgrade is unsuccessful or other issues arise within the new firmware? For the Reference Projects you have listed, provide the following metrics for actual successful firmware upgrades: (a) The maximum number of meters upgraded; (b) The time required to complete the upgrade; (c) The file size transferred to the meters; and (d) The impact on the metering system performance during the upgrade.	**3.0**

6.3	**FAN Reliability and Redundancy**	
6.3.1	Describe the techniques used to ensure the reliability and robustness of the FAN with respect to the following; a) Path redundancy; b) Component redundancy, load sharing components, modularity and hot swappable capability of failed FAN elements or components (describe for each FAN element); c) Data persistence within devices and recoverability after a power outage or failure; d) How the network is made aware of failed devices; e) The robustness of your FAN equipment and enclosures for physical environmental performance – seismic, temperature, wind, ice, water extremes; and f) Applicable certifications or in-house testing for environmental extremes.	**3.0**
6.3.2	Briefly outline any FAN elements, or their components, requiring on-site maintenance, the expected maintenance interval, recommended replacement of any components (i.e. batteries or other) and expected replacement timeframe, if shorter than 20 years. For FAN elements with batteries, describe: (a) The type of battery used and device battery management; and (b) Capability of FAN elements to operate short term or long term without the battery.	**1.0**
6.4	**FAN Network Management and Functionality**	
6.4.1	Describe for each FAN element: (a) Status, alarms and event log capability and storage capacity. Indicate if stored in volatile or non-volatile memory; (b) Ability to detect, record and date/time stamp all momentary and sustained power outage/restoration events associated with the FAN elements power supply; and (c) Local access capability for viewing any of the above.	**2.0**
6.5	**FAN Standards and Regulatory**	
6.5.1	For each piece of communication equipment: (a) Provide a copy of the Industry Canada approval documents or scheduled commercial approval dates if pending or planned; and (b) Provide a copy of certifications, (e.g. RSS-GEN, RSS-102, RSS-123, RSS-310, etc); as well as compliance with Health Canada's Safety Code 6.	**1.0 + Required Documents**
7	**Ability to meet the specified HAN and IHF requirements**	
7.1	Describe how the metering system and HAN functionality will provide customers with near real-time demand feedback, energy feedback, and cost information based on BC Hydro's tariffs (e.g. Residential Inclining Block rates). Specifically provide: (a) Any relevant information from pilots, trials, and partnerships you have participated in; and (b) A list of certified Smart Energy Profile (SEP) IHF HAN devices that you interoperate with.	**2.0**
7.2	Where you have indicated, in the *Meter Data Sheet*, that the HAN gateway is capable of being remotely upgraded, between ZigBee SEP) profiles, describe the HAN gateway upgrade process. Specify any impacts to IHF HAN devices already connected to the HAN prior to the upgrade.	**1.0**

7.3	Describe the ability of the metering system to remotely upgrade IHF HAN devices (e.g. an in-home display) firmware via the FAN and HAN. Provide a description of this upgrade process.	**1.0**
7.4	Describe the process for the distribution of HAN gateway firmware and messages across the SMI network including packet protocol and transport (IP encapsulation and tunnelling), cutover to new firmware version and the ability to roll back to a previous firmware if unsuccessful.	**2.0**
7.5	Describe the sampling times, and algorithms used, by the meter and/or HAN gateway to calculate instantaneous power.	**1.0**
7.6	Describe the IHF HAN device management capabilities including monitoring, diagnostics and logging of message status.	**0.5**
7.7	Describe how the metering system, and a single HAN gateway, supports simultaneous operation of multiple IHF HAN devices. Specify any limitations (e.g. number of devices).	**0.5**
7.8	For SEP 2.0 HAN gateways, describe how the metering system would support multiple Energy Service Interfaces (ESI) (e.g. BC Hydro HAN, other utility HAN and internet) and how the various System Services from SEP 2.0 would migrate between multiple ESIs.	**1.0**
7.9	Describe the IHF HAN device pairing and un-pairing process (with, and without, customer input capability at the device), and typical time durations, including all communications and events between the IHF HAN device and the ADCS. Specifically describe how the process supports BC Hydro's call centre customer support for problem determination and resolution; as well as capabilities for the customer to self-diagnose and resolve problems (e.g. data entry errors in the pairing process).	**2.0**
7.10	Describe how it would be possible for the metering system to support pre-pairing and un-pairing of IHF HAN devices, e.g. without the metering system FAN.	**1.0**
7.11	Describe any interim processes to support inclining energy block rates (i.e. BC Hydro's Residential Inclining Block (RIB) rate) for IHF HAN devices prior to the availability of meters with SEP 1.1.	**1.0**
7.12	Describe the optional cluster attributes within SEP 1.0, and SEP 1.1 if available, that your HAN gateway does not support, namely: (a) Simple Metering; (b) Price; (c) Messaging; and (d) Demand Response / Load Control.	**0.5**
7.13	Describe the process for supplying energy, demand and price information to IHF HAN devices including the sampling rate and latency parameters (e.g. energy registers, interval data, $/hour, kW, kWh, or current bill period).	**1.0**
7.14	Describe the challenges, solutions, and proven performance as demonstrated on your Reference Projects provided, of your HAN network operating in various residential settings, including Multiple Dwelling Units (MDUs) (including hi-rise concrete and steel apartments with meters co-located together several floors away from the IHF HAN device, estate properties, etc.). Specifically: (a) Describe the constraints and design factors as well as the strategy to preserve the functionality and security of the HAN environment; (b) Provide examples of where the HAN solution has been deployed within MDUs and/or any test results for HAN connectivity (e.g. RF distances through various building structures); (c) Describe optional HAN extender and/or converter devices that can be used to extend HAN coverage;	**3.0**

	(d) Describe any available alternative HAN gateway options and ADCS support, i.e. non-meter FAN to HAN gateways including U-SNAP etc.; (e) Describe the practical maximum number of meters that can be co-located without significantly impacting HAN performance; and (f) For the various residential settings, describe the HAN performance metrics that could potentially form the basis of a performance guarantee and how they could be measured and validated.	
7.15	Describe how the metering system HAN recovers following a power outage, meter exchange or IHF HAN device power loss, e.g. battery exchanges.	**0.5**
7.16	Describe your support for HAN industry initiatives (e.g. ZigBee, Home Plug, Wi-Fi, OpenHAN, etc.)	**1.0**
7.17	Describe the planned future availability of SEP 2.0 functionality in the meters including specifically: (a) The ability to upgrade meters remotely (over the metering system); (b) Details on the location of ESI functions and the secure trust center; (c) Strategies to de-risk SEP 2.0 rollout, including your active participation in industry/standards groups; (d) A description of the HAN gateway architecture to facilitate upgrades; (e) Your roadmap for supporting SEP 2.0 on various transport mechanisms including IEEE P1901 PLC; (f) The level of assurance that you provide that the meters and HAN NIC can be upgraded to support SEP 2.0 including the network/protocol, and application specifications. (g) The ability to support both SEP 2.0 and SEP 1.x devices either attached to a single meter as well as across meters. Will an upgrade to SEP 2.0 require all meters to be upgraded or will there be fine-grained control over the upgrade process?	**2.0**
7.18	Describe the HAN ability to support customer load control, demand response, the ability to opt-in or opt-out of scheduled events and distributed generation programs. Describe the process for opting in and out of events/programs and how the integrity of the interactions (i.e. messages) can be maintained between the HAN and the ADCS.	**1.0**
7.19	Describe how the metering system prevents IHF HAN device access to meter data, and other data, prior to a specific date and time, i.e. prevent access to previous customer's data resident within the meter.	**1.0**
7.20	Describe how IHF HAN devices, which have temporarily suspended communication (e.g. battery powered devices returning from sleep mode), would resynchronize time-of-use (TOU) and inclining energy block rate consumption data upon communication restoration.	**1.0**
8	**Ability to meet the specified ADCS requirements**	
8.1	**ADCS – General**	
8.1.1	Can the ability to operate the meter service disconnect switch be disabled for groups of meters? If so, describe how this is achieved.	**0.5**
8.2	**ADCS - Network Management**	
8.2.1	Describe the ADCS network management and diagnostic capabilities for the Metering System including the WAN, FAN, and HAN. Which of the following Network Management System functions are available, and if available, provide a summary description of how it is provided: (a) Fault and performance management including support for traffic and quality of service (QoS) management;	**8.0**

	(b) Network change and configuration management; (c) Management, monitoring and trouble shooting functionality including alarm filtering, remote configuration and diagnostics to the module or board level for all telecommunication systems, and provision of historical databases with tools for statistical and trend analysis; (d) Auto discovery, inventory, configuration base-lining, network diagramming, and network planning tools; (e) Tools to support help desk and trouble tracking functions; (f) Major alarms extension (e.g., to a 24/7 manned control room) and automatic email, page and/or telephone call-out to a preset sequence of numbers; and (g) Provisioning and commissioning of devices on the WAN, FAN or HAN.	
8.2.2	What graphical user interface and geographic representations are provided and supported. Is there an interface available to a higher level network management system (e.g., HP OpenView, IBM Tivoli, etc.)	**1.0**
8.2.3	Does your system provide any outage management capabilities such as filtering, detection or reporting outage flags geographically? If so, describe what functionality you provide.	**1.0**
8.3	**ADCS – IT**	
8.3.1	Describe your recommended and supported hardware and operating systems. In your response ensure the following topics are included where relevant: (a) The ability for your system run in a virtual environment. Describe how and any limitations if it is deployed in this configuration; (b) Operating System, hardware, and any dependencies for required patches or third part software; and (c) Describe the infrastructure requirements and sizing needed to support the system (e.g. detailed server hardware and software requirements).	**2.0**
8.3.2	Describe the ADCS support for auditing and logging of messages and data, including those to and from the WAN, FAN, and IHF HAN devices. Provide details on how your system supports guaranteed message delivery to meters and other end point devices.	**1.0**
8.3.3	Provide the maximum number of meters and other end point devices supported per instance of your application. Describe any performance degradation the system experiences as the number of end devices increases and/or the number of message interactions increases (e.g. an increase in polling frequency as well as message “storms” as a result of outages).	**1.0**
8.3.4	Describe how your system can scale and support load balancing. Do you support vertical and horizontal scaling?	**1.0**
8.3.5	Describe the user and role based access and security model for your ADCS.	**1.0**
8.3.6	Describe any key and certificate management capabilities provided by your ADCS.	**1.0**
8.4	**ADCS - Interfaces**	
8.4.1	Describe the integration options your system supports and ensure any specific ESB (TIBCO) adapters are included. What functionality do you expose as web services? What functionality is not exposed as a web service and requires a different integration approach? Do you subscribe to any industry standard integration messaging schema or protocols and if so list the ones your ADCS supports.	**2.0**

8.4.2	Describe any previous deployments with Meter Data Management System (MDMS) providing details of the MDMS and integration method. Refer to the appropriate Reference Projects.	**1.0**
8.4.3	What import /exports features are available and what formats are supported?	**0.5**
8.4.4	Describe how the ADCS will support the communication of messages, (rates, pricing events, utility information) to IHF HAN devices via the HAN gateway.	**1.0**
8.5	**ADCS - Software License and Maintenance**	
8.5.1	Describe your ADCS software licensing maintenance approach in detail. In your response, ensure specific answers to the following are included: (a) Does the software license allow for firmware and product upgrades on a regular basis? If yes, how frequently are such upgrades released? How are firmware and product upgrades released to clients? How much upgrade installation support is provided under maintenance? Are the software license fees tranched? If so, on what basis? (b) How are product defects managed? How are fixes to product defects delivered to the client base (i.e. as client-specific patches, as part of regularly scheduled maintenance releases, some combination?) (c) How are product defect fixes incorporated into product upgrade releases? (d) Do you have an emergency fix process? If so, describe how this works; (e) Are software performance issues considered defects and covered under maintenance? (f) What level of product-based Help Desk support is provided under maintenance? (g) Do you offer additional client support services that would be incremental to the software maintenance? If so, describe these services and how they are priced. (h) Does the software license include full product and component documentation including functional capabilities, technical architecture, data architecture, data model, installation guide, technical support guide, and production support guide? (i) Does the software license include any standard interface adapters or integration methods? (j) Does the software license include any development or testing tools?	**4.0**

9	**Ability to meet the specified Safety and Security requirements**	
9.1	**Safety – Meters**	
9.1.1	In addition to transient, short duration, line surges, as described in the referenced ANSI and IEEE standards, energized meters may be exposed to 60 Hz power frequency overvoltage, across their line side terminals, for several seconds. This is typically due to distribution transformer insulation failure or accidental contact between transmission voltage, primary voltage or secondary voltage circuits. For each proposed meter manufacturer/model, what are the maximum per unit 60 Hz overvoltage magnitudes and time durations, applied across the line side terminals, that an energized meter can sustain without: (a) Impacting accuracy; (b) Failing, i.e. the metrology, display, FAN (or WAN direct) NIC, HAN gateway or protective surge arrestors fail; and (c) Failing catastrophically, i.e. the metrology, display, FAN (or WAN direct) NIC, HAN gateway, or protective surge arrestors fail catastrophically to the extent that personnel or property could be jeopardized. Note – This is not the condition specified in ANSI C12.1 section 4.7.3.1 which is applicable to de-energized meters. Rather, it is the condition where the system voltage rises and is applied across the meter line side terminals, power supply and potential sensing coil(s).	**2.0**
9.1.2	Describe the meter design features that will minimize, and contain, the impact of a catastrophic overvoltage failure, e.g. due to a sustained 60 Hz overvoltage incident, the protective surge arrestors rupture and considerable energy is dissipated within the meter case.	**1.0**
9.1.3	What is the flammability rating of the meter, e.g. UL94 rating V-0?	**0.5**
9.1.4	Service disconnect switches have the potential to significantly contribute to worker safety by permitting the meter to be installed or removed under “no load” with the disconnect switch open. However, this would require that meters be shipped with the disconnect switch open. (a) Describe the steps, and how long it would take, for the meter installer to close the service disconnect switch. Specifically, would the meter need to first register on the metering system? (b) If this time is excessive, could the disconnect switch be programmed to automatically close 30 seconds initial energization?	**1.0**
9.1.5	For ANSI Form 2S meters used on a 120/240 V, single phase, 3 wire services, describe how the meters detect, and prevent the service disconnect switch from closing, if a 120 V load side backfeed is applied between one pole only and the neutral of an open service disconnect switch.	**2.0**
9.1.6	Describe how the meter load side voltage detection circuit distinguishes between an applied voltage and phantom voltages associated with an open customer load side switch.	**1.0**
9.2	**Security – General**	
9.2.1	Provide details on your overall security policy and strategy and provide a copy of your security road map and Security System Architecture. Include details on your participation in any security validation and/or security testing activities.	**3.0**

9.2.2	Describe the process and procedure for identifying, mitigating and reporting vulnerabilities that may arise within a deployment of your system. Describe standards for resolution and rollout of patches (i.e. testing, timing, monitoring effectiveness). Provide details on your overall development and testing capabilities for patches and firmware.	**2.0**
9.2.3	With regard to the reference projects, provide details of previous security breaches, how you dealt with the breach, what lessons were learned and how have you applied these to your processes and products.	**3.0**
9.2.4	Describe the logging and auditing capabilities provided by your solution and describe any associated mechanisms to ensure the integrity and non-repudiation of the data captured. Describe how your proposed solution supports audit and security event reporting.	**1.0**
9.3	**Security - Domain and Zones**	
9.3.1	Describe how the components of your proposed system map to the Open Smart Grid AMI-SEC security domains described in the Security Requirements Specification.	**2.0**
9.3.2	Describe how you plan to apply the security zones discussed in that specification to the components and topology of your architecture.	**2.0**
9.4	**Security – Standards**	
9.4.1	List the industry, national or international standards for security that your system uses, including security frameworks, protocols, algorithms or methodologies. Explain why you chose these particular standards. Describe what subsets or supersets of these standards you use and why.	**5.0**
9.4.2	Provide an update on the current state, and future roadmap, for your metering system security with specific regard to: (a) NIST Cyber Security requirements and NIST Framework and Roadmap for Smart Grid Interoperability Standards Release 1.0 (Draft); (b) North American Electric Reliability Corporation (NERC) CIP 002 – 009; and (c) Open Smart Grid AMI-SEC System Security Requirements.	**3.0**
9.4.3	Describe how your proposed solution addresses the security requirements as specified in the above the standards.	**1.0**
9.4.4	Describe from your Reference Projects where you have experience in deploying and supporting NERC compliant security frameworks for CIP.	**1.0**
9.4.5	For the Reference Projects you have listed, describe projects where you have demonstrated experience with at least 2 production sites in North America in implementing the following standards: ISO/IEC 10746-4, IEC 61850, IEC 61968 and IEC 61970.	**1.0**
9.5	**Security – Controls**	
9.5.1	Describe what security controls your architecture implements in the following security areas of interest, and on which components they are applied: (a) Integrity, including protection against interference, spoofing, repudiation, modification and replay; (b) Availability, including protection against denial of service attacks; (c) Confidentiality, including encryption and privacy concerns; (d) Access and Trust, including authentication, authorization, management of keys, firmware upgrades and other security credentials, and intrusion detection; (e) Physical security and resistance to, or detection of, tampering;	**3.0**

	(f) Unauthorized access or use of hand held field tool that has capability to access meter, FAN or collector and may contain customer or other potentially sensitive data; and (g) Support for monitoring and notification of suspicious events.	
9.5.2	Describe what security controls you have implemented in your manufacturing, procurement, QA and delivery processes.	**1.0**
9.6	**Security – Platform**	
9.6.1	Describe the security measures implemented on each component platform and in particular the meter and IHF HAN in the following areas: (a) Updates of firmware and configurations; (b) Initial installation and registration of meters and IHF HAN devices; (c) Integrity of firmware, data, configuration, and in particular, security credentials including the ability to verify the integrity of end-to-end messages; (d) Physical security and resistance to, or detection of, tampering including FAN collectors, meter and network tools or other field based devices; (e) Prevention of access to, or corruption of, data stored at or transmitted from the meter; and (f) Support for deactivation/access revocation for missing/stolen devices.	**4.0**
10	**Services & People - Strength and demonstrated ability to undertake Telecom Network Design**	
10.1	Describe your process for designing the telecom network and how BC Hydro would be involved.	**4.0**
10.2	With regard to the reference projects, describe the typical deployment configuration and optimization process to setup your FAN within a utility. What time frames and what type of resources are required from: a) you; and b) BC Hydro.	**2.0**
10.3	Provide a sample of your configuration and acceptance testing documentation, for both factory and field acceptance testing.	**NA**
10.4	For each of the Key Individuals that are required to successfully design and deliver the telecom network design: • Describe the role; • Describe the skills required to successfully perform the role; • Provide the name of the individual proposed to perform the role; and • Describe how their experience aligns with the required role skills.	**4**
10.5	Provide a copy of a proposed telecom network design services schedule.	**NA**
11	**Services and People - Strength and demonstrated ability to deliver required IT services**	
11.1	**IT – General**	
11.1.1	With regard to the reference projects, describe the typical installation and configuration process to setup your ADCS within a utility. What time frames and what type of resources are required from: a) you; and b) BC Hydro. Include any details of design artifacts generated in this process.	**4.0**
11.1.2	Provide a copy of a proposed IT design services schedule.	**NA**

11.2	**IT – Sizing**	
11.2.1	Provide details on your sizing process and provide copies of any sizing tools or spreadsheets.	**2.0**
11.2.2	Describe the process for capacity planning and monitoring.	**1.0**
11.2.3	Describe the design with respect to high availability and disaster recovery of your ADCS.	**1.0**
11.3	**IT – Security**	
11.3.1	Provide: (a) Details on your overall security policy and strategy; (b) A copy of your security road map; (c) Details on your participation in any security validation and/or security testing activities; and For the Reference Projects you have listed, a description of your experience in deploying and supporting NERC compliant security frameworks for CIP. This experience should be demonstrated through at least 2 North American deployments that are currently in production.	**3.0**
11.4	**IT - Environment/Configuration Management**	
11.4.1	Provide a sample of a Environment/Configuration Management Plan	**NA**
11.5	**IT - Configuration and Build**	
11.5.1	Provide a sample of your configuration documentation.	**NA**
11.6	**IT – Testing**	
11.6.1	Describe what testing tools you use to capture your test scripts and how these can be reused by BC Hydro for future testing including tests that can be conducted in development, test, and production environments.	**2.0**
11.6.2	Describe your defect tracking, notification and resolution processes.	**1.0**
11.7	**IT – Interface Design and Build**	
11.7.1	Describe your software development process and what methodology you utilize to ensure quality Describe your Services Oriented Architecture approach to development of the interfaces described in the Interface Design and Build section of Appendix I Base Services.	**1.0**
11.7.2	Describe your performance testing process to ensure that the interface is robust and scalable.	**1.0**
11.7.3	Describe the capabilities of your interfaces for logging.	**1.0**
11.7.4	What reports are available on the operations of your interfaces?	**1.0**

11.7.5	Provide a sample of your technical design/build/test documentation.	**NA**
11.7.6	Provide a sample of your production turnover/support documentation.	**NA**
11.8	**IT – Key Individuals**	
11.8.1	For each of the Key Individuals that are required to successfully design and deliver the IT services: • Describe the role; • Describe the skills required to successfully perform the role; • Provide the name of the individual proposed to perform the role; and • Describe how their experience aligns with the required role skills.	**4**
12	**Services and People - Strength and demonstrated ability to support meter deployment, business transformation and project management**	
12.1	**Project Management**	
12.1.1	Describe what level of BC Hydro resources you believe to be required to support the quality of the deliverables to be produced by the Proponent. For each of the Proponent's Key Individuals that are required to successfully manage the Project (including the project manager): • Describe the role; • Describe the skills required to successfully perform the role; • Provide the name of the individual proposed to perform the role; and • Describe how their experience aligns with the required role skills.	**1.0**
12.1.2	Provide samples of the project reporting templates that you would use on this project.	**NA**
12.1.3	Describe how you would structure a detailed end-to-end acceptance testing process, ensuring to describe how your project management activities would support that work	**1.0**
12.2	**Deployment**	
12.2.1	Describe how you typically work with a Meter Deployment Services contractor on a smart metering project, including such areas as exception management and network troubleshooting.	**1.0**
12.3	**Business Transformation**	
12.3.1	List the business processes for which baseline workflows will be provided, and provide samples to illustrate level of detail and format.	**1.0**
12.3.2	Describe your approach to assessing BC Hydro training requirements and describe a typical training plan based on your previous experience and your high level understanding of BC Hydro. Where possible, provide samples of typical training materials.	**1.0 + Required Documents**
12.3.3	Describe the type and skill-level of new resources that are required in BC Hydro to sustain the metering system.	**1.0**

12.4	**Post Cut-over Support**	
12.4.1	Describe how you would propose to meet the requirements for Post Cut-over Support Services as outlined in Appendix I of this document.	**1.0**
12.4.2	Describe the processes and resources that are required in BC Hydro to sustain the environment including the Network Operation Centre, change control/management, and test/certification programs (for upgrades, new meters and other end point devices, etc.).	**1.0**
12.5	**Environmental & Social**	
12.5.1	Describe, in detail, the organization's efforts to: (a) Identify and understand the environmental impact of this product throughout product life cycle (e.g. by means of a formal life cycle assessment or otherwise); (b) Reduce, and where possible eliminate, environmental impacts associated with the product lifecycle, including but not limited to: i. Achievements in reducing and/or eliminating the use of toxic substances within product constituents and/or packaging over and above major legal requirements; ii. Improvements in product energy efficiency during use; iii. Use of recycled plastics, packaging, and other materials as feasible; iv. Consideration of environmental factors associated with product end of life; and v. Other initiatives to reduce energy and material use in any stage of product life cycle.	**2.0**
12.5.2	List any environmental certifications or accreditations received through formally recognized third party ecolabelling schemes (e.g. Energy Star, EcoLogo) related to any aspect of product design.	**0.5**
12.5.3	Do you partake in any formal external reporting of green house gas emissions (e.g. Carbon Disclosure Project)?	**0.5**
12.5.4	Describe your existing processes (if any) to define environmental performance requirements and/or expectations for your suppliers, and to monitor adherence to these expectations, including: (a) Documented requirements for suppliers to, at minimum, comply with environmental laws and regulations, and minimize/control the environmental impacts of products, activities, services; (b) Documented requirements for suppliers to have an environmental management system in place that conforms to the requirements of ISO 14001; (c) Mechanisms for: i. assessing supplier adherence to your defined expectations for environmental responsibility (e.g. self declaration, independent verification etc.), and ii. addressing identified deficiencies; and working with suppliers to improve performance.	**1.0**
12.5.5	Detail the scope / extent of your supply chain greening efforts (i.e. type of suppliers addressed – component manufactures; outsourced transportation; packaging suppliers etc.)	**0.5**
12.5.6	Describe the coverage and/or scope of your environmental management system within your direct control including, but not limited to: manufacturing, product development, transportation and logistics, and/or facilities management.	**0.5**

12.5.7	Describe significant policies, systems, programs, or leadership initiatives practiced by your organization that would support advancement of social responsibility. Relevant information may include, but not be limited to: (a) Existence of a Social Responsibility Policy that addresses substantial areas of social impact related to the organization's products, activities and services. (b) Demonstration of implementation of elements of the Social Responsibility Policy including, but not limited to: i. Active participation or leadership roles in environmental and social responsibility organizations and initiatives in your industry or communities, or with your customers. ii. Programs to support and/or encourage workplace and supplier diversity. iii. Investment in community development activities in the markets you source from and/or operate within; iv. External report of performance according to Global Reporting Initiative or other recognized international guideline/standard; and v. Recognition of excellence in external corporate social responsibility/sustainability reporting.	**2.0**
12.6	**Quality**	
12.6.1	Describe your quality assurance program including but not limited to incoming inspection, pre-shipment inspections / order verification, and quality management processes including: (a) Dealing with product non-conformance; (b) Process and target timelines for non conformance investigations; (c) Corrective action processes; (d) Management of metrics regarding supplier product quality issues; (e) Incoming inspections (if requested); and (f) List any specific process quality programs / certifications including date of most recent audit and certification.	**3.0**
12.7	**Privacy & Confidentiality**	
12.7.1	BC Hydro has certain statutory obligations, derived from the Freedom of Information and Protection of Privacy Act (FOIPPA), with respect to protecting personal privacy and the confidential business information of our customers. Proponents will assume many of the same obligations directly, by statute, and by contract. Proponents are to describe in detail in their Proposals: (a) Their approach to the management and protection of personal information and confidential business information; (b) The significance, if any, from a FOIPP-Act and Privacy Protection Schedule (PPS) point of view, of any alternations required to the PPS by the Proponent in order to comply with FOIPPA, as a result of: i. Proponent's jurisdiction; ii. Current corporate affiliations; iii. Current corporate reporting structure; iv. Existing service provider agreements; v. General IT, or IT security, adjustments; and	**2.0**

	vi. Data transmission and data storage facilities and capabilities (c) Training measures the Proponent will introduce in order to ensure their workforce would comply with the FOIPP Act and the PPS;	
12.7.2	Proponents are to specifically address in their Proposals: (a) Their willingness to sign a contract containing the Privacy Protection Schedule (the PPS) attached to this RFP as Appendix H; (b) If the Proponent is not willing to sign the PPS, then the Proposal should clearly identify all proposed changes to the PPS; and (c) That Proponent is familiar with the (BC) Freedom of Information and Protection of Privacy Act (the FOIPP Act) and is prepared to track amendments to the FOIPP Act as they may occur from time to time.	**3.0**

COMMERCIAL PACKAGE
Without limiting the requirements set out below and in the following table, the Proponent is to include in Package 4: • Confirmation of any scope ladder items added or removed in respect of which the Commercial Package is made; • A completed *Total Business Value Model Input Sheet* (as part of the *Pricing Templates);* • A completed *Affordability Ceiling Model* (as part of the *Pricing Templates)*; • *Pricing Templates*; and • Confirmation that their Proposal is within the Affordability Ceiling

Table 7. Package Four: Initial Proposal Commercial Content Requirements

13	**Cost of Ownership**
13.1	**Scope Ladder** BC Hydro will need to understand the extent to which scope ladder element reductions or additions will impact the Proposal and the Project. Where you have altered scope on one or more of the elements to achieve the affordability ceiling, describe the impacts to the overall scope of components and services, specifically; (a) The capital cost savings / increase as a result of using each scope ladder item; (b) For the adjusted completion date, provide an updated meter supply table; and (c) Rather than the total elimination of the service disconnect switch, discuss the financial and technical feasibility of: • Physically providing it in all meters, but disabling its operation; • At a future date, enabling its operation
13.2	**Affordability Model** Proponents should complete the *Affordability Model Input Sheet* located in the Data Room
13.3	**Total Business Value** Proponents should complete a *Total Business Value Model Input Sheet* located in the Data Room;
14	**Cost of Services**
14.1	BC Hydro has included *Pricing Templates* and a set of standard pricing structures to facilitate a comparative assessment of Proposals. Proponents are requested to complete the *Pricing Templates* included in the Data Room. Please refer to the Data Room for detailed instructions on how to submit *Pricing Templates*.

APPENDIX B – FINAL PROPOSAL REQUIREMENTS, PRICING SCHEDULES AND EVALUATION CRITERIA

Table of Contents – Appendix B

1. Final Proposal Guidelines

Final Proposals should:

1. Be in the form and include the content described in this Appendix B.
2. Include:
   a) One soft copy (excluding pricing information) of Packages One and Two in unsecured standard portable document format, to be delivered on an USB memory stick;
   b) One soft copy of Package Three in Microsoft Excel, to be delivered on an USB memory stick;One hard copy of Package One (Six bound copies numbered one through to six; plus one unbound copy marked as “Master”);
   c) Seven hard copies of Package Two (Six bound copies numbered one through to six; plus one unbound copy marked as “Master”);
   d) One hard copy of Package Three; and
   e) All Proposals should be labelled in the following way: “Package One, “Package Two, Copy one of six.
3. Be in accordance with the following style guidelines:
   a) Font: Arial, point size 11, with the exception of graphics;
   b) Margins: should not be less than 0.75 inches on any one margin;
   c) All graphics should be legible (of a resolution size to allow expansion to increase readability),
   d) Paper stock should be from 100 per cent recycled material; and
   e) All Proposals should be typed.
4. Be delivered in an envelope/box, clearly marked with the words, “Smart Metering System RFP #4401, Response to Request for Proposals – Final Proposal”, to the Delivery Address.
5. Proposals should be split into two Packages (Packages One and Two) and correspond to the section numbers and titles provided in section 3 of this Appendix.
6. Where the response to a Submission Requirement is unchanged from the Initial Proposal, the Proponent should reference the Initial Proposal material. Where the Submission Requirements have been amended by introducing new questions or modifying a question from Appendix A, Proponents should submit a full response to those amended questions. Any modifications to a response from the Initial Proposal should be clearly indicated.

2. Evaluation

2.1 Evaluation Criteria

BC Hydro will evaluate Proposals by applying the Evaluation Criteria and weighting in Table 8, in accordance with each section of the Proposal content requirements outlined in Section 3 of this Appendix. Where the Submission Requirements have remain unchanged from the Initial Proposal Phase and the Proponent references the Initial Proposal, the Proponent will obtain the same score for that Submission Requirement as obtained in the Initial Proposal.

Table 8: Evaluation Criteria and Weighting

Criteria	Weighting
1. Mandatory Criteria a) Affordability Ceiling. b) Re-assessment of Financial Capacity[3] c) If applicable (Alternate Security Proposed in lieu of Financial and Performance Guarantee) [4]	Pass/Fail
Overall Metering Solution	20%
2. Comprehensiveness of solution to deliver planned SMI program benefits and system functionality. **3.** Maturity, expandability and functionality of the system to meet future changes. **4.** Flexibility of schedule and supply to meet BC Hydro's planned schedule.	
Technical Solution	40%
5. Ability to meet the specified meter requirements. **6.** Ability to meet the specified FAN telecom requirements. **7.** Ability to meet the specified HAN and IHF requirements.[5] **8.** Ability to meet the specified ADCS requirements and proposed license, maintenance and escrow terms. **9.** Ability to meet the specified Safety and Security requirements.	
Commercial & Financial	40%
10. Ability to maximize Total Business Value to BC Hydro.[1] **11.** Ability to deliver a solution under the affordability ceiling.[2]	
TOTAL	**100%**

[1] BC Hydro will allocate up to 35 points. Points will be calculated as follows: Points = (Proponent's TBV/Highest proposed TBV among all Proponents) x 35.

[2] If a Final Proposal includes all scope ladder expansions, pursuant to Section 5.2 of the RFP, BC Hydro will allocate points (up to a maximum of 5), calculated as: (a) the amount by which the Final Proposal is less than the Affordability Ceiling (b) divided by $5 million.

[3] Proponents and/or guarantors must have the financial capacity and performance capabilities to meet all obligations in the Final Draft Contract and the Proponent's Proposal with a high degree of certainty.

[4] A Proposal containing an alternate security proposal that is not acceptable to BC Hydro will continue to be evaluated and the Proponent will have to provide an Appendix 15b Form of Guarantee of the Final Draft Contract as per Section 4.3.9 of the RFP.

[5] Items in this section indicated as optional in Appendix I Scope of Work will be evaluated from a technical perspective, but don't need to be included in the Affordability Ceiling calculation.

2.2 Disqualification of Proposals

Without limitation, BC Hydro may, in its sole discretion, disqualify a Proposal if:

a) A Proponent has made a change which would impact the information provided in sections 10 through 12 of the Proponent's Initial Proposal without prior written permission by BC Hydro;

b) Background investigations reveal any criminal affiliations or activities by the Proponent or a member of the Proponent Team and such affiliations or activities would, in the sole opinion of BC Hydro, interfere with the integrity of the Competitive Selection Process; or

c) It includes a false or misleading statement, claim or information.

Proponents may be required to undertake a criminal records check to participate in the Program.

3. Proposal Format

For Proposals, Proponents should use the section numbers and titles provided in the following tables below (**tables to be issued by addendum**).

Table 9. Package One: Final Proposal Transmittal Package

Table 10. Package Two: Final Proposal Technical Content Requirements

Section No.	Title & Contents	Can Reference Initial Proposal?
Proponents are required to submit the following information with their Transmittal Package.		
	Transmittal Package	
1	**Personal Consent Forms** Completed Forms, in the form of Appendix H should be completed and signed by each individual for whom the Proponent included a resume, work history, summary of qualifications or other personal information as part of their proposal.	**Yes**
2	**Proposal Declaration Form** Submit a Proposal Declaration Form as required in the form of Appendix C.	**No**
3	**Relationship Disclosure Form** Submit a Relationship Disclosure Form as required in the form of Appendix D.	**Yes**
4	**Proponent Confirmations** Proponents are to specifically confirm in their Proposals: (a) Proponent is familiar with the (BC) Freedom of Information and Protection of Privacy Act (the FOIPP Act) and is prepared to track amendments to the FOIPP Act as they may occur from time to time.	**Yes**
5	**Proposed Proponent Team** (a) Provide the legal name of the entity for the following: i. Proponent ii. Meter Suppliers iii. Contractors iv. Guarantor (if applicable)	**No**
6	**Contact Information** Provide the name and contact details for the Proponent's Representative.	**No**

Section No.	Title & Contents	Can Reference Initial Proposal?
	Please note: The Proponent's Representative will be the **only** person to receive communication from the Contact Person regarding the RFP. Proponent's Representative: (a) Name (a) Employer (b) Mailing/courier addresses (c) Telephone number (d) Email address (e) Website address	
7	**Reference Projects** Provide a summary of Reference Projects (no more than ten) either currently engaged in or completed within the past three years that are of a similar nature, scope and complexity to the work required under this RFP document. Provide the following details for each project listed: (a) Name, nature and location of project and owner; (b) Status/scope of involvement on project; (c) Why the project is comparable to this Project; (d) Starting and completion dates for each project; (e) One client reference per project (at a minimum), including name, title and contact particulars (telephone numbers, e mail addresses, etc.) of contact person; (f) Ability to quickly develop and maintain excellent working relationships within the client organization(s); (g) Ability to manage multiple, complex project timelines and deliverables within budget; (h) Ability to manage the development, control and maintenance of required documentation; (i) Ability to provide project management that delivers solutions offering an optimal outcome for the client(s); (j) If the Proponent was a member of a joint venture on any of these projects, the response should identify the Proponent's degree of participation; and (k) A description of the nascent evolving technology and functionality that was included within the project scope and your delivery performance.	**Yes**
8	Proposed Personnel Form in the form of Appendix N and Amended Proposed Personnel Form (as required) in the form of Appendix O.	**No**
9	**Affordability Ceiling**	**No**

Section No.	Title & Contents	Can Reference Initial Proposal?
	Proponents should provide a letter with their Initial Proposal that confirms that their Initial Proposal is within the Affordability Ceiling and confirm which Scope Ladder items, if any, the Proponent has used.	
10	**Financial Capacity Update** Proponents are to provide written acknowledgement of no material adverse change. This must be executed on behalf of the Proponent, the Proponent Team Members, and Proponent guarantors, if any, for which financial information was submitted in the Initial Proposal Phase, by the Chief Financial Officer or other authorized officer of each respective entity. If there has been a material adverse change, full details should be provided. BC Hydro may, in its sole discretion, request further evidence of financial capacity.	**Yes**
11	Alternate Security Proposed in lieu of Financial and Performance Guarantee (If Applicable)	**No**
12	**Guarantor Declaration Form** Submit a Guarantor Declaration Form substantially in the form of Appendix P.	**No**
13	**BC Hydro Written Permissions** Submit the forms required by Appendix Q (if applicable)	**No**
14	**Due Diligence Questionnaire** Submit the completed Appendix R – Due Diligence Questionnaire	**No**

TECHNICAL PACKAGE
Based on your understanding of the Project, the scope of work identified in this RFP, and the information outlined in the Data Room, please structure a comprehensive Proposal to respond to BC Hydro's requirements. The proposal should be structured with the headings and numbering systems below and remain within the Proposal page limits indicated. Any requested drawings should be sized on 8.5" x 11" paper, and up to 11" x 17" for readability and detail where required. Electronic copies should be in unsecured standard portable document format. References to past performance should be with regard to the Reference Projects you have listed. In addition, include the following items in Package 3: • Any proposed exceptions, qualifications, clarifications or comments to the *Metering System Requirements* document; • Completed *Meter Data Sheet.* (This document will be assessed primarily under Criteria 5); • Telecom Designs and descriptions of the telecom designs in accordance with the *Telecom Design Submission Requirements.* (Design-1

TECHNICAL PACKAGE
and Design-2 will be assessed primarily under Criteria 6 and Design-3 under Criteria 3); • Completed *WAN Requirements Submission Template* has now been changed to "*Telecom Design 1"* tab within the *Pricing Template* in the same format along with some additional inputs and a stand-alone document *Design-1 Eng Detail* from a tab of the same name; • Completed copy of the *Functionality Realization Schedule 7D* of the *Smart Meter and Telecom Network Supply and Services Agreement.* (This document should indicate the proposed delivery schedule for nascent evolving technology and functionality, e.g. evolving protocols, interfaces and interoperability, HAN gateway, diversion detection functionality, distribution system connectivity determination, distribution automation and smart grid, advanced meter functionality etc. It will be primarily assessed under Criteria 4); • Completed *ADCS Sizing spreadsheet.* (This document will be assessed primarily under Criteria 8); • Copies of any sales collateral, data sheets, instruction books, meter programming and configuration worksheets, white papers and case studies for the proposed metering system components and services. (These documents will be used to establish a better overview of the proposed metering system); and • Proposed software license agreements, maintenance agreements and escrow agreements to be included in the Final Draft Contract (These documents will be assessed primarily under Criteria 8).

2.	Overall Metering Solution - Comprehensiveness of solution to deliver planned SMI program benefits and system functionality	Proposal Page Limit
2.1	**Meter Registration**	
2.1.1	For a stabilized functional metering system, describe how the metering system will automatically detect, validate and register, provision, commission, and report newly installed meters. How long will this take?	**0.5**
2.2	**Meter Reading**	
2.2.1	For the reference projects you have listed provide examples of typical scheduled, and on-demand, meter reading metrics which are routinely achieved, on operational metering systems which would be indicative of the expected performance.	**1.0**
2.3	**Outage, Restoration and Meter Tampering Detection**	
2.3.1	Describe how the metering system will filter, process and aggregate meter and FAN collector outage events to determine the likely extent of an outage.	**1.0**
2.3.2	For metering systems with "last gasp" functionality: (a) Following a meter power outage, how long do individual meters have "last gasp" communications capability; and (b) Following a meter power outage, does a meter continue to receive and relay "last gasp" outage messages from other meters?	**1.0**
2.3.3	For both a partial or full restoration, describe details and how long it will take, for the metering system to: (a) Re-configure itself; (b) Re-optimize itself; and	**0.5**

	(c) Re-synchronize time.	
2.3.4	Which tamper events are detectable, how they are detected, and how does the meter, and the metering system, differentiate between probable tampers and other events such as, power outages, scheduled meter removals and unscheduled meter removals?	**0.5**
2.4	**Time Keeping**	
2.4.1	Describe; (a) The time synchronization of all end point devices, including the maximum time discrepancy between any two devices (b) How the metering system supports multiple time zones and daylight savings time transitions, with particular regard to "customer facing" applications, i.e. IHF HAN devices.	**1.5**
2.4.2	If the meter and/or FAN (or WAN direct) NIC requires a battery: (a) Provide a description of the battery; (b) Deleted; (c) Deleted (Moved to Meter Data Sheet for an individual response for each meter code); (d) Provide copies of test reports supporting the anticipated battery life expectancy; (e) Describe the process for replacing the battery and for recycling the meter at end-of-life; (f) Describe the time accuracy or drift when the meter clock is powered from the battery only; and (g) Describe the battery life status reporting that is available through the ADCS; (h) If the battery is faulty, or reaches end-of-life, describe any potential alternatives for remotely re-synchronizing the meter clock following a power restoration, i.e. without replacing the battery.	**3.0**
2.4.3	If the meter and/or FAN (or WAN direct) NIC does not require a battery: (a) Describe the power outage duration that the meter can experience before "losing time"; (b) If the meter has "lost time" during a power outage, upon power restoration, describe the time re-synchronization process and the expected duration for re-synchronization to occur; and (c) Describe how load profile intervals, generated prior to or during time re-synchronizing, are "adjusted" upon time re-synchronization.	**3.0**
2.4.4	If the meter and/or FAN (or WAN direct) NIC has an optional battery: (a) Describe the benefits of the optional battery; (b) Provide a response to section 2.4.2.	
2.5	**Meter and Network Tools**	
2.5.1	For each proposed meter manufacturer/model, FAN (or WAN direct) NIC, and HAN gateway combination, describe, or provide documentation that explains: (a) How the meter and network tools are interfaced to the meter, e.g. optical probe, FAN, HAN etc.; (b) How changes to Measurement Canada metrology are restricted when the seal is unbroken; (c) The meter and network tools: i. Functionality; ii. Physical characteristics (if the tools includes supplied hardware); and iii. Hardware requirements (if the tools are software only).	**2.0**

3.	**Overall Metering Solution - Maturity, expandability and functionality of the system to meet future changes**	
3.1	**General**	
3.1.1	If meters and the metering system are supplied by different companies, describe the integration process used to ensure that all current, and future, meter functionality is available throughout the ADCS plus the meter and network tools. Specifically describe: (a) Which manufacturer and model of commercially available customer meters are currently integrated with your metering system ADCS, and the Measurement Canada type approval status; (b) Which other manufacturer and model of customer meters you are commercially or contractually committed to integrating into the metering system and the scheduled commercial, and Measurement Canada type approval dates; (c) Your process, and the experience you have, in obtaining Measurement Canada and Industry Canada approvals (as applicable) for your products; (d) Your ongoing notification, testing and revalidation process when hardware, firmware, software or manufacturing changes are made to the meter and/or the metering system; and (e) Your active participation on ANSI C12.19 data table harmonization efforts including National Institute of Standards (NIST) priority action plan 5.	**3.0**
3.1.2	For each proposed meter manufacturer/model, describe the metrology, FAN (or WAN direct) NIC and HAN Gateway including specifically: (a) Architecture, complete with a functional block diagram, that describes which functions are performed on what board within the meter; (b) Processor, and other chipset, manufacturer, types and speeds. Specifically for the HAN gateway, if the solution is a multichip design, indicated the chip for the 802.15.4 radio and the chip for the ZigBee application layer support; (c) Capability, and current utilization, of processors and memory plus the associated overhead for current and future features & applications; (d) Any other characteristics that are indicative of the meters ability to support future protocol, functionality and security; and (e) Describe the process for supporting remote firmware upgrades including the download and activation process, as well as what functions and components can be firmware upgraded versus what functions and components cannot be firmware upgraded.	**3.0**
3.1.3	In addition to providing pricing information elsewhere, provide a full technical description of any optional equipment and features. Specifically provide details on any software keys that can be enabled to support the optional features.	**1.0**
3.1.4	Describe the current and committed future availability in the different domains of your metering system to support device IP addressability (e.g. IPv4, IPv6, UDP, TCP), protocols (e.g. ANSI C12.22, IEEE 1815, IEC-61850, IEEE 802.15.4g, IEEE 1588, SNMPv3, IEEE P1901, etc.), interfaces (e.g. serial, RJ45, fibre, mini PCI, etc.), and interoperability (e.g. plug-n-play or other integration process, modifications required for integration, etc.). Describe the basis of any decisions not to use open standards.	**3.0**

3.1.5	Provide the following failure and life expectancy information: (a) Meters: i. Estimated annual failure rates, by meter code, including the FAN (or WAN direct) NIC, HAN gateway and service disconnect switch (as applicable); ii. Estimation method, whether calculated or other; iii. Actual failure rates to date, for the reference projects you have listed; and iv. Estimated useful life expectancy. (b) FAN Elements, and any other proposed components: i. Estimated annual failure rate without a cellular WAN card (as applicable); ii. Estimated annual failure rate with a cellular WAN card (as applicable); iii. Estimation method, whether calculated or other; iv. Actual failure rates to date, for the reference projects you have listed; and v. Estimated useful life expectancy.	**2.0**
3.1.6	Describe your support and active participation, for both Canadian and international, standards organizations, electrical utility and regulatory authority committees.	**2.0**
3.1.7	Describe the meters optional advanced features, including: (a) Wired communications ports, e.g. RS 232/485, Ethernet; (b) Additional instrumentation profile quantities, e.g. Vh, Ah, harmonics; (c) Power quality monitoring; and (d) Loss compensation calculation.	**2.0**

3.2	**FAN Scalability**	
3.2.1	Describe how the system supports future bandwidth improvements, traffic management, additional spectrum, etc. Include product roadmaps.	**1.0**
3.2.2	In the future, the FAN may be used for peer-to-peer communications for Distribution Automation (DA) schemes. Describe the peer-to-peer capability of your FAN.	**0.5**
3.2.3	BC Hydro is interested in operating metering on a licensed basis. Would you support a BC Hydro and UTCC effort to obtain a spectrum license for operation near the 902 MHz ISM band in Canada? How frequency agile is your meter (i.e. 868-960, 900-932, 902-928?). How much bandwidth is required to operate your meter in a licensed environment (i.e. 200kHz, 400kHz, 3MHz)? Please note these questions apply to all wireless systems including mesh networks.	**1.0**
3.2.4	BC Hydro is finalizing contracts with our 2 WiMAX vendors. The specifications of the CPE will be made available as soon as possible. How will a WiMAX WAN solution best be incorporated into your system design? Can CPE be integrated into your collector? CPE dimensions will be less than 250x205x90mm	**1.0**
3.2.5	Can your collectors or repeaters support a dual band 1.8GHz / 900MHz external antenna?	**0.5**
3.3	**Diversion Detection**	
3.3.1	In accordance with section 4.12 of the *Metering System Requirements*, describe: (a) The overall revenue protection support and philosophy of your metering system; and (b) The transformer meters, feeder meters, and other potential diversion detection devices which are currently integrated into the metering system and are commercially available; and (c) The transformer meters, feeder meters, and other potential diversion detection devices, that you are committed to integrating into the metering system and the scheduled commercial availability dates. Provide details of the device functionality and measurement accuracy; and (d) Any other additional measurements and functionality that is included in your standard meters that may aid in diversion detection, e.g. time synchronized instantaneous voltage and power "snapshot" readings, per phase energy registration.	**3.0**
3.4	**Distribution System Connectivity Determination**	
3.4.1	In accordance with section 4.13 of the Metering System Requirements, describe the optional metering system functionality that currently exists, or is planned, to dynamically identify which feeder, phase and distribution transformer a customer meter is connected to. If additional equipment is required, outside of the meter, to achieve this functionality, provide a description, the quantities and the per unit costs in your response to this question.	**3.0**
3.5	**Distribution Automation and Smart Grid**	
3.5.1	In accordance with section 4.11 of the *Metering System Requirements,* describe the metering systems support for Distribution Automation and Smart Grid including specifically: (a) Your Smart Grid strategy with regard to Smart Metering – from end point devices, through the	**3.0**

	network to the ADCS and interfacing, including data segmentation, differences in latency, frequency, availability and bandwidth; (b) Which commercially available Smart Grid devices (e.g. reclosers, faulted circuit indicators, capacitor banks, voltage regulators), and applications (e.g. Distribution Management Systems (DMS), Outage Management Systems (OMS), Volt var Optimization (VVO)) have been integrated into the metering system; and (c) Which other Smart Grid devices and applications you are committed to integrating into the metering system and the scheduled commercial availability dates; and (d) The functional level of integration of these devices, i.e. does the metering system perform a communication function or is there functional integration? and (e) The physical integration of these devices, i.e. is a metering system NIC card physically installed within the device or is it located within an externally packaged device which is cabled to the smart grid device?	
3.6	**Reading of Existing Industrial Meters**	
3.6.1	In accordance with section 4.15 of the *Metering System Requirements,* describe the ability of the metering system to read the existing industrial meters.	**0.5**
3.7	**Gas and Water Meters**	
3.7.1	In accordance with section 4.16 of the *Metering System Requirements,* describe the metering systems support for water and gas meters including specifically: (a) Which commercially available water meters have been integrated into the metering system; (b) Which other water meters you are committed to integrating into the metering system and the scheduled commercial availability dates; and (c) Which Measurement Canada approved gas meters have been integrated into the metering system; and (d) Which other gas meters you are committed to integrating into the metering system and the scheduled Measurement Canada approval dates; and (e) How they are interfaced, i.e. via the FAN or HAN and how these devices are provisioned and commissioned including the pairing process.	**3.0**
4.	**Overall Metering Solution - Flexibility of schedule and supply to meet BC Hydro's planned schedule**	
4.1	Describe the proposed meter manufacturing facilities: (a) Location; (b) Ownership; (c) Current capacity; (d) Current production; (e) Planned capacity, and how achieved, over the timeframe in Table 9 of Appendix I; (f) Planned production, including the quantities of meters in Table 9 of Appendix I.	**1.5**

	Where the meter and FAN (or WAN) NIC are manufactured at different locations, provide the description for both facilities.	
4.2	Provide the following information for the Measurement Canada accredited service provider(s) that will be verifying and sealing the meters: (a) Name and ownership; (b) Location; (c) Current verification and sealing capacity; (d) Current verification and sealing quantities; (e) Planned verification and sealing capacity, and how achieved, over the timeframe in Table 9 of Appendix I; (f) Planned verification and sealing quantities, including the quantities of meters in Table 9 of Appendix I. (g) A copy of the service providers Measurement Canada certificate of accreditation; (h) Documentation confirming that the service provider is accredited to seal the specific meter type; and (i) The most recent Measurement Canada surveillance audit report along with any associated corrective action documentation.	**1.0 + Required Documents**
4.3	For each FAN element describe the proposed manufacturing facilities: (a) Location; (b) Ownership; (c) Current manufacturing capacity; (d) Current manufacturing production; (e) Planned manufacturing capacity, and how achieved, over the timeframe in Table 9 of Appendix I; (f) Planned manufacturing production, including the quantities of proposed FAN elements.	**1.0**
4.4	Describe your proposed transportation and customs logistics capabilities.	
4.5	With specific reference to the Functionality Realization Schedule 7D, provide an assessment of the risks (including but not limited to technology realization, schedules, costs, patent filings or patent infringements, etc.), and your proposed mitigation strategies, that address the challenges in providing the meters, FAN elements, any other proposed components and/or functionality that is not already in commercial production, in the required quantities as described in this RFP.	**2.0**
4.6	Describe your quality assurance program including but not limited to incoming inspection, pre-shipment inspections / order verification, and quality management processes including: (a) Dealing with product non-conformance; (b) Process and target timelines for non conformance investigations; (c) Corrective action processes; (d) Management of metrics regarding supplier product quality issues; (e) Incoming inspections (if requested); and	**3.0**

	List any specific process quality programs / certifications including date of most recent audit and certification. (Formerly Section 12.6)	
4.7	Describe any known meter and FAN element quality issues and how they have been addressed.	**2.0**
5.	**Technical Solution – Ability to meet the specified meter requirements**	
5.1	**Meters – General**	
5.1.1	What are the key features of your meters? Specifically address: (a) Current and voltage sensing technology; (b) Display functionality, durability and longevity; (c) Serviceability; (d) Components; (e) Techniques used to offset the effects of aging.	**2.0**
5.1.2	Provide the following information: (a) Periodic self-read registers – describe the functionality and number of available registers, (i.e. can you have both a weekly and daily?); (b) Instantaneous power and voltage registers - describe the sampling, calculation and register updating algorithms; (c) Instrumentation profile – describe: vi. If the instrumentation profile channels are separate and distinct from the load profile channels; vii. The instantaneous voltage snapshot capability; viii. The minimum, maximum and average voltage capability; ix. The instantaneous power snapshot capability; (d) Optional KYZ output pulse contacts – provide a description; (e) Optional pulse input totalizing capability - provide a description; and (f) Optional A base meters – provide a description; and (g) Further to the Meter Data Sheet Instructions note (k), an explanation of the Form 3S meters.	**2.0**
5.1.3	For each proposed unique combination of, meter manufacturer, meter model type, FAN (or WAN direct) NIC and HAN gateway, describe the: (a) Potential impact, on meter shop test boards as a result of the meter power supply, i.e. reactive loading; (b) The Measurement Canada implications of: iv. Local and remote maximum demand resets; v. Changing the load profile interval length; vi. Using load profile interval data for maximum demand calculation outside of the meter; (c) Time-of-use (TOU) capability, for both energy and maximum demand, within the meter, i.e. using internal registers, rather than derivation from load profile data in the billing system;	**3.0**

	(d) Event log and reporting capability; and (e) Self test functionality.	
5.1.4	Describe the ability of the metering system to identify and locate stolen meters.	**1.0**
5.2	**Meters – Service Disconnect Switch** Where there are differences, the following questions must be addressed for each proposed unique combination of meter manufacturer and meter model type.	
5.2.1	The ANSI C12.1 committee is currently determining the meter service disconnect switch testing requirements to be added to the standard: (a) Provide a copy of your proposed changes, to the ANSI C12.1 standard, to address service disconnect switch design and testing requirements; and (b) Describe what other standards your meter service disconnect switch is designed and tested to.	**1.0**
5.2.2	Describe the service disconnect switch including the: (a) Manufacturer; (b) Principal of operation, (e.g. solenoid) and design features which will result in long term reliability and performance; (c) Ratings, including the following characteristics. (Include a copy of third party testing agency results that substantiate the ratings); i. Rated number of mechanical operations e.g. 50,000 cycles; ii. Rated number of "unity power factor load" electrical operations, e.g. at 100% rated current and 1.0 power factor, for 15,000 cycles; iii. Rated number of "reactive load" electrical operations, e.g. at 100% rated current, 0.5 power factor inductive, for 5,000 cycles; iv. Maximum "through fault" short circuit current for a closed disconnect switch, e.g. 5 kA peak for 6 cycles without impacting accuracy and 5 kA peak for 6 cycles without compromising the mechanical integrity; v. Maximum "fault closing" short circuit current, e.g. 240 V pre fault voltage, 5 kA peak for 6 cycles without impacting accuracy and 10 kA peak for 6 cycles without compromising the mechanical integrity; (d) Impact of temperature cycling on accuracy; (e) Impact of temperature cycling on life expectancy; (f) Results of accelerated life cycle testing to ascertain the safety and long term reliability of the service disconnect switch for both very frequent and very infrequent duty cycles, i.e. the switch operates very frequently, or alternatively, does not operate for 10 years and then is instructed to operate in an ambient of -35° C; (g) How it can be assured that the service disconnect switch does not remain in an intermediate position; and (h) Construction of the service disconnect switch to mitigate the impact of humidity and corrosion.	**3.0** **+** **Test Results**

5.2.3	If you are participating in the current National Electric Testing Research and Applications Center (NEETRAC) Project #07-244 Performance Evaluation of Integral Disconnect: (a) Describe your meters test results; and (b) If your meter has failed any tests, or you have withdrawn your meter from testing, describe the remedial changes you are making to improve its performance.	**3.0**
5.2.4	Service disconnect switches may contribute to significant temperature rise within the meter. Describe the design features which insure that high temperature rises do not adversely impact the safety, accuracy, Measurement Canada seal period attestation or functionality of the meters.	**1.0**
5.2.5	Service disconnect switches have the potential to mitigate feeder restoration "cold or hot load" pickup problems by selectively restoring load. However, this would require that the meter disconnect switch opens upon outage detection, or immediately upon power restoration. (a) For meters supplied with a "last gasp communication" capacitor, could the capacitor be used to open the service disconnect switch? (b) Alternatively, could the disconnect switch be programmed to immediately open upon restoration and then automatically close based on a preconfigured time delay?	**1.0**
5.2.6	Describe the service disconnect switch service limiting capability. Specifically describe how it can be used to limit: (a) Demand (kW); (b) Cumulative Energy (kWh).	**0.5**
5.2.7	Describe how the metering system supports pre-paid metering with, in addition to time-of-use energy capability, the following capabilities: (a) Time-of-use maximum demand; (b) Critical peak pricing; (c) Inclining energy block rates; (d) Customer in-home feedback (IHF) indication of remaining balances etc.	**0.5**

5.3	**Meter Standards and Regulatory**	
5.3.1	Where you have indicated in the *Meter Data Sheet* that Measurement Canada type approval exists, provide a copy of the Measurement Canada notice of approval for each currently approved unique combination of meter manufacturer, meter model type, FAN (or WAN direct) NIC, HAN gateway and ancillary equipment, e.g. service disconnect switch, KYZ output pulses, external antenna etc. as applicable.	**1.0 + Required Documents**
5.3.2	In accordance with section 3.2 of the *Metering System Requirements:* (a) Provide a copy of the Measurement Canada documentation confirming that the proposed meters, complete with the proposed FAN (or WAN direct) NIC, HAN gateway and ancillary equipment, currently has a 10 year initial seal; (b) If a 10 year initial seal currently exists for a proposed meter, but does not explicitly include the proposed FAN (or WAN direct) NIC, HAN gateway and ancillary equipment, provide supporting evidence that the addition of these components will not cause revocation of the 10 year initial seal.	**1.0 + Required Documents**
5.4	**Safety – Meters (Formerly Section 9.1)**	
5.4.1	In addition to transient, short duration, line surges, as described in the referenced ANSI and IEEE standards, energized meters may be exposed to 60 Hz power frequency overvoltage, across their line side terminals, for several seconds. This is typically due to distribution transformer insulation failure or accidental contact between transmission voltage, primary voltage or secondary voltage circuits. For each proposed meter manufacturer/model, what are the maximum per unit 60 Hz overvoltage magnitudes and time durations, applied across the line side terminals, that an energized meter can sustain without: (a) Impacting accuracy; (b) Failing, i.e. the metrology, display, FAN (or WAN direct) NIC, HAN gateway or protective surge arrestors fail; and (c) Failing catastrophically, i.e. the metrology, display, FAN (or WAN direct) NIC, HAN gateway, or protective surge arrestors fail catastrophically to the extent that personnel or property could be jeopardized. Note – This is not the condition specified in ANSI C12.1 section 4.7.3.1 which is applicable to de-energized meters. Rather, it is the condition where the system voltage rises and is applied across the meter line side terminals, power supply and potential sensing coil(s).	**2.0**
5.4.2	Describe the meter design features that will minimize, and contain, the impact of a catastrophic failure, , for example, due to a service disconnect switch closing into a fault in excess of its rating or due to a sustained 60 Hz overvoltage incident, the protective surge arrestors rupture and considerable energy is dissipated within the meter case. Where applicable, provide a copy of a schematic drawing describing these features	**1.0**
5.4.3	What is the flammability rating of the meter, e.g. UL94 rating V-0?	**0.5**
5.4.4	Service disconnect switches have the potential to significantly contribute to worker safety by permitting the meter	**1.0**

	to be installed or removed under "no load" with the disconnect switch open. However, this would require that meters be shipped with the disconnect switch open. (a) Describe the steps, and how long it would take, for the meter installer to close the service disconnect switch. Specifically, would the meter need to first register on the metering system? (b) If this time is excessive, could the disconnect switch be programmed to automatically close 30 seconds initial energization?	
5.4.5	For ANSI Form 2S meters used on a 120/240 V, single phase, 3 wire services, describe how the meters detect, and prevent the service disconnect switch from closing, if a 120 V load side backfeed is applied between one pole only and the neutral of an open service disconnect switch.	**2.0**
5.4.6	Describe how the meter load side voltage detection circuit distinguishes between an applied voltage and phantom voltages associated with an open customer load side switch.	**1.0**
6	**Technical Solution – Ability to meet the specified FAN telecom requirements**	
6.1	**FAN General**	
6.1.1	What are the key features your metering system provides as it relates to meeting BC Hydro's requirements and objectives? Specifically address (but not limited to) the following items: (a) The frequency band of operation, carrier bandwidth and how the system mitigates interference over the medium used; (b) The FAN access method and protocols, particularly the media access control and routing and which parts are non-deterministic, including how exception and scheduled events are handled by the network; (c) The transmission of packets including header and payload size as well as mechanisms for packet transmission, error detection, correction and reliability, sequencing, and re-transmission; (d) Volume of overhead traffic (routing or other) during steady state and outage recovery states; and (e) Effective data rates, types, packets/sec and maximum bandwidth utilization.	**5.0**
6.1.2	Given BC Hydro's long term coverage requirements, device counts and predicted traffic model, describe the capability of your FAN architecture to be scalable and upgradeable to allow future expansion while minimizing the risk of a high volume replacement of dispersed equipment. In your response, address the practical limitations for scaling and performance impacts as well as what solutions you see for reaching 100% coverage within the BC Hydro service territory.	**3.0**
6.2	**FAN System Performance**	
6.2.1	Describe the metering systems design and implementation features that cost effectively address the coverage challenges for the following hard to reach meters. If using add-on accessories onto a meter (e.g. external antenna or other), provide sufficient detail and indicate if it can be installed without breaking the Measurement Canada seal; (a) Urban canyons (downtown high rises) and meters in ferrous / non ferrous cabinets located in sub grade electrical rooms in close proximity to electromagnetic interference equipment - how will you	**6.0**

	provide 100% communications for these meters; (b) Instrument transformer rated meters, connected via 200 VA and small voltage transformers, supplied from very dense urban substations with 10's of thousands of customers per bus - how will you provide 100% communications for these meters; (c) Residential subdivisions with only an underground electrical distribution system; (d) Very low customer densities and meters linearly distributed along a feeder in a valley; (e) Any alternate, integrated WAN backhaul solutions for addressing any of the above; (f) Your ability to tune devices and components to meet the performance and reach-ability requirements in these environments; and (g) Your ability to test performance in these environments including process, tools, and reports.	
6.2.2	Describe the ability of your system to support periodic "drive by" meter reading for locations where a fixed WAN installation may be cost prohibitive. Specifically address the: (a) Ability to support TOU rates using either load profile energy intervals or TOU registers in the meter; (b) Time synchronization and battery implications; (c) Advanced functionality including instrumentation profiling, service disconnect switch operation, IHF HAN functionality etc; (d) Meter reading times; and (e) Security.	**3.0**
6.2.3	Describe how the FAN supports Quality of Service (QoS), i.e. how you prioritize traffic to support multiple service flows with different bandwidth and latency requirements to end devices. Specifically: (a) How many levels are provided; and (b) What is the required capability of WAN facing interfaces to support Quality of Service.	**1.0**
6.2.4	Describe the capability of the FAN to support multicast messaging to reduce traffic for broadcast messages such as critical peak pricing updates and firmware upgrades. Define the multicast protocols and if they are Source Specific Multicast (SSM) or Any Source Multicast (ASM).	**1.0**
6.2.5	The metering system should support the distribution and installation of firmware updates to the entire population of meters, FAN (or WAN direct) NICs, HAN gateways and other devices, without adversely affecting the response time and performance of the metering system. Describe the capability of the metering system in general, and the FAN in particular, to support large scale device updates in a timely manner. What is the ability to rollback, either manually or automatically, to a previous firmware version if the upgrade is unsuccessful or other issues arise within the new firmware? For the Reference Projects you have listed, provide the following metrics for actual successful firmware upgrades: (a) The maximum number of meters upgraded; (b) The time required to complete the upgrade; (c) The file size transferred to the meters; and (d) The impact on the metering system performance during the upgrade.	**3.0**

6.3	**FAN Reliability and Redundancy**	
6.3.1	Describe the techniques used to ensure the reliability and robustness of the FAN with respect to the following; a) Path redundancy; b) Component redundancy, load sharing components, modularity and hot swappable capability of failed FAN elements or components (describe for each FAN element); c) Data persistence within devices and recoverability after a power outage or failure; d) How the network is made aware of failed devices; e) The robustness of your FAN equipment and enclosures for physical environmental performance – seismic, temperature, wind, ice, water extremes; and f) Applicable certifications or in-house testing for environmental extremes.	**3.0**

<table>
<tr><td>6.3.2</td><td>Briefly outline any FAN elements, or their components, requiring on-site maintenance, the expected maintenance interval, recommended replacement of any components (i.e. batteries or other) and expected replacement timeframe, if shorter than 20 years. For FAN elements with batteries, describe:
(a) The type of battery used and device battery management; and
(b) Capability of FAN elements to operate short term or long term without the battery.
(c) Fill in the following summary table (expand as required for all FAN Elements) as well as the additional related inputs in the Pricing Template: Telecom Design 1
(d) For integrated, non BCH WAN options (such as cellular), describe process for BC Hydro to get collectors upgraded to a future new technology (ex HSPA to LTE)
(e) Advise where repair facility is located for servicing BC Hydro long term.

<table>
<tr><th>FAN Element [1]</th><th>Battery Run Time [2] (hours)</th><th>Battery / Device Replacement Interval (years)</th><th>Select Battery Replacement Option as per list under Notes [3]</th><th>On Site Maintenance Interval (years) [4]</th></tr>
<tr><td>Ex. Device A</td><td>4</td><td>5-7 years</td><td>Shop Replaceable/Vendor</td><td>5</td></tr>
<tr><td>Device B, etc</td><td></td><td></td><td></td><td></td></tr>
</table>
[1] Note the definition of FAN Elements as defined within this RFP
[2] Must be minimum 4hrs as per Metering System Requirements 4.158
[3] Battery Replacement Options
Field Replaceable - purchased from vendor or elsewhere
Shop Replaceable/BCH - unit must be swapped out and battery replaced in BCH indoor shop facility. Battery purchased from vendor or elsewhere.
Shop Replaceable/Vendor - unit must be swapped out and battery replaced in BCH indoor shop facility. Battery purchased from vendor only
Shop Replaceable/Factory - unit must be swapped out and battery replaced in proponent facility only.
Other – describe
[4] On site Maintenance interval for device type. If none, then as a minimum, must equal the battery replacement interval and if a range, the shortest end of the range</td><td>2.0</td></tr>
<tr><td>6.4</td><td>FAN Network Management and Functionality</td><td></td></tr>
<tr><td>6.4.1</td><td>Describe for each FAN element:
(a) Status, alarms and event log capability and storage capacity. Indicate if stored in volatile or non-volatile memory;
(b) Ability to detect, record and date/time stamp all momentary and sustained power outage/restoration events associated with the FAN elements power supply; and
(c) Local access capability for viewing any of the above.</td><td>2.0</td></tr>
</table>

<table>
<tr><td>6.5</td><td>FAN Standards and Regulatory</td><td></td></tr>
<tr><td>6.5.1</td><td>For each piece of communication equipment:
(a) Provide a copy of the Industry Canada approval documents or scheduled commercial approval dates if pending or planned; and
(b) Provide a copy of certifications, (e.g. RSS-GEN, RSS-102, RSS-123, RSS-310, etc); as well as compliance with Health Canada’s Safety Code 6.</td><td>1.0
+
Required Documents</td></tr>
<tr><td>7</td><td>Ability to meet the specified HAN and IHF requirements</td><td></td></tr>
<tr><td>7.1</td><td>Describe how the metering system and HAN functionality will provide customers with near real-time instantaneous demand feedback, energy feedback, and cost information based on BC Hydro’s tariffs (e.g. Residential Inclining Block rates). Specifically provide:
(a) Any relevant information from pilots, trials, and partnerships you have participated in; and
(b) A list of certified Smart Energy Profile (SEP) IHF HAN devices that you interoperate with.</td><td>2.0</td></tr>
<tr><td>7.2</td><td>Where you have indicated, in the Meter Data Sheet, that the HAN gateway is capable of being remotely upgraded from the utility head-end between ZigBee SEP profiles, describe the HAN gateway upgrade process. Specify any impacts to IHF HAN devices already connected to the HAN prior to the upgrade.</td><td>1.0</td></tr>
<tr><td>7.3</td><td>Describe the ability of the metering system to remotely upgrade IHF HAN devices (e.g. an in-home display) firmware via the FAN and HAN. Provide a description of this upgrade process.</td><td>1.0</td></tr>
<tr><td>7.4</td><td>Describe your firmware control process the process including the distribution of HAN gateway firmware across the SMI network including packet protocol and transport (IP encapsulation and tunnelling), cutover to new firmware version and the ability to roll back to a previous firmware if unsuccessful.</td><td>2.0</td></tr>
<tr><td>7.5</td><td>Describe the process for supplying energy, demand and price information to IHF HAN devices including the sampling rate and latency parameters (e.g. energy registers, interval data, $/hour, kW, kWh, or current bill period).

Complete the following table describing ZigBee SE HAN communications tests that you have conducted between your residential meter and any SE 1.0 certified IHD. The table includes sample answers for each question.
<table>
<tr><td>Device</td><td>Question</td><td>Result</td><td>Source (Lab Test or Utility Pilot/Trial)</td><td>Devices used for test</td></tr>
<tr><td>Meter</td><td>1. How frequently is instantaneous demand (kW) updated in the HAN gateway with new information from the metrology?</td><td>kW: every 5 seconds</td><td>Lab test</td><td>Meter: ABC meter</td></tr>
<tr><td>Meter</td><td>2. How frequently is cumulative energy (kWh via the Current</td><td>kWh: every 30 seconds</td><td>Lab test</td><td>Meter: ABC meter</td></tr>
</table></td><td>2.0</td></tr>
</table>

			Summation attribute) updated in the HAN gateway with new information from the metrology?					
		Meter/IHD	3. What is the maximum polling rate of the price attribute supported by the HAN gateway?	$/hr: every 10 seconds	Lab test	Meter: ABC meter IHD: XYZ IHD		
		Meter/IHD	4. Based on your tests with IHDs and without Fast Polling enabled, how frequent is instantaneous demand (kW) and cumulative energy (kWh) values updated in (and displayed on) the IHD?	kW: every 15 seconds kWh: every 60 seconds	Lab test	Meter: ABC meter IHD: XYZ IHD		
		Meter/IHD	5. Same as item 4 above, but with Fast Polling enabled.	kW: every 5 seconds kWh: every 60 seconds	Lab test and field trial at XYZ Utility	Meter: ABC meter IHD: XYZ IHD		

7.6	Thoroughly describe the following IHF HAN device, network and program management capabilities:	**2.0**
7.6.1	Clearly identify all the monitoring and diagnostic features provided to assist a customer service representative or technical representative in troubleshooting a specific meter-to-IHF HAN device link within a single HAN. Indicate how this information is reported back to the ADCS (i.e. on a daily basis, ad-hoc basis, other). Specifically, indicate if there is per-message or aggregate logging/reporting on the following items. If the system provides per-message reporting, specify which message identifiers are included (i.e. timestamp, sequence number, content, etc.). a. ESI-to-Device Interactions i. Signal strength/RSSI ii. Join status with instructive failure description (e.g. MAC not permitted, incorrect link key, etc.) iii. Device status (e.g. active/inactive) iv. Message delivery success v. User acknowledgments or opt-outs from device vi. Other status, warning or error conditions b. Head-End-to-ESI Interactions i. Device pairing information added to or removed from ESI. ii. Rate, Schedule, Tier information delivered to ESI. iii. User acknowledgments or opt-outs to messages or programs iv. Other status, warning or error conditions	**3.0**
7.6.2	Identify the system or component that provides the device management features listed in section 7.6.1, and specify whether this is included in the base bid, or if this is an optional add-on or 3rd party system. Likewise, identify which system, if any, provides automatic device management services such as move-in/move-out and meter swap. Include any pricing information in the ADCS pricing sheets and indicate if it is base or optional.	**2.0**
7.6.3	Clearly identify the monitoring and diagnostic features provided for HAN messaging to enable the monitoring and evaluation of a HAN program across multiple premises (i.e. Critical Peak Price events, demand response events, and text messages to a group of meters), and identify the extent to which drill-down is available for each parameter (e.g. to individual ESI's or IHF HAN devices). For each program type, indicate whether it is possible to query: a. Program target size (number and list of end devices) b. Number of successful message receipts per ESI and per end-device c. Number of failed message receipts. If this information is available by failure type, indicate all reported failure modes. d. Number of acknowledgments, if applicable e. Number of opt-in or opt-out responses, if applicable f. Other statistics, if any	**2.0**

7.6.4	Identify the system or component that provides the program management features listed in section 7.6.3, and specify whether this is included in the base bid, or if this is an optional add-on or 3rd party system. Indicate which of the processed described above is based explicitly on the ZigBee specifications and which processes are performed outside of the specifications (e.g. non-SEP clusters for management to support specific vendor devices).	**2.0**
7.7	Describe how the metering system, and a single HAN gateway, supports simultaneous operation of multiple IHF HAN devices. Specify any limitations (e.g. number of devices).	**0.5**
7.8	For SEP 2.0 HAN gateways, describe how the metering system would support multiple Energy Service Interfaces (ESI) (e.g. BC Hydro HAN, other utility HAN and internet) and how the various System Services from SEP 2.0 would migrate between multiple ESIs.	**1.0**
7.9	BC Hydro may provide customers with a rebate towards purchasing an IHF HAN device, such as an IHD, from a retail store in BC. In this scenario, IHF HAN device vendors must first test their products to work with BC Hydro's selected metering system. BC Hydro, in consultation with the metering system vendor, would publish test criteria for IHF HAN devices. These test criteria would include optional ZigBee SE attributes as well as other functional tests and performance tests. Furthermore, customers would need to be able to pair their IHF HAN device to the meter in a secure manner using a web portal (e.g. similar to the Texas PUC web portal) and retail stores may assist in this process using a special extranet access to the web portal. (a) How would your metering system solution facilitate IHF HAN device pairing using an online web portal for both customers (self-serve) and retailers on behalf of customers (in the store)? (b) How would your company facilitate interoperability testing with IHF HAN devices for the purpose of those devices seeking to be sold to BC Hydro's customers? Do you offer test harnesses or other test support to vendors seeking interoperability? Specify any and all additional costs to either BC Hydro or IHF HAN device vendors for what you have stated in your response. (c) Describe the IHF HAN device pairing and un-pairing process (with, and without, customer input capability at the device), and typical time durations, including all relevant communications and events between the IHF HAN device and the ADCS. Aside from ZigBee certification and adherence to SEP, how do you ensure different devices can operate on your system?	**3.0**
7.10	DELETED	
7.11	Given that the Block Tariff Optional Cluster in SEP 1.1 is currently a provisional feature (not yet certifiable), describe any interim processes to support inclining energy block rates (i.e. BC Hydro's Residential Inclining Block (RIB) rate) prior to the full certification of SEP 1.1.	1.0
7.12	Describe the optional cluster attributes within SEP 1.0, and SEP 1.1 if available, that your HAN gateway does not support, namely: (a) Simple Metering; (b) Price; (c) Messaging; and (d) Demand Response / Load Control.	**0.5**

7.13	DELETED	
7.14	As indicated in the Metering System Requirements HAN item 4.8 and 4.9, Proponents are to provide HAN solutions for all residential housing types including Multiple Dwelling Units (MDUs), estate properties, etc. Describe the challenges, solutions, and proven performance as demonstrated on your Reference Projects provided, of your HAN network operating in various residential settings. Specifically: (a) Describe the constraints and design factors as well as the strategy to preserve the functionality and security of the HAN environment; (b) Provide examples of where the HAN solution has been deployed within MDUs and/or any test results for HAN connectivity (e.g. RF distances through various building structures); (c) Describe optional HAN extender and/or converter devices that can be used to extend HAN coverage; (d) Describe any available alternative HAN gateway options and ADCS support, i.e. non-meter FAN to HAN gateways including U-SNAP etc.; (e) Describe the practical maximum number of meters that can be co-located without significantly impacting HAN performance; and (f) For the various residential settings, describe the HAN performance metrics that could potentially form the basis of a performance guarantee and how they could be measured and validated. (g) If your solution supports ZigBee SE range extenders, repeaters or collars as an option for the challenging environments, provide product details (e.g. specifications) and describe a typical installation within the MDUs and estate properties. Identify if these devices are offered as part of your current metering solution, a future product or a 3rd party device.	**3.0**
7.15	Describe how the metering system HAN recovers following a power outage, meter exchange or IHF HAN device power loss, e.g. battery exchanges.	**0.5**
7.16	Describe your support for HAN industry initiatives (e.g. ZigBee, Home Plug, Wi-Fi, OpenHAN, etc.). list any SEP 1.1 and SEP 2.0 (App Spec and ZigBee IP) test events you have participated in	**1.0**
7.17	Describe the planned future availability of SEP 1.1 and 2.0 functionality in the meters including specifically: (a) The ability to upgrade meters remotely (over the metering system); (b) Details on the location of ESI functions and the secure trust center; (c) Strategies to de-risk SEP 1.1 and SEP 2.0 rollout, including your active participation in industry/standards groups; (d) A description of the HAN gateway architecture to facilitate upgrades; (e) Your roadmap for supporting SEP 2.0 on various transport mechanisms including IEEE P1901 PLC; (f) In reference to question 3.1.2, identify how SEP 1.1 and 2.0 will impact your current ZigBee chipset. If there are planned software or hardware upgrades to support these SEP releases, indicate the estimated dates for the upgrades (including reference in the Functionality Realization Schedule 7D of the Smart Meter and Telecom Network Supply and Services Agreement) and any impacts to the estimated meter delivery and/or Measurement Canada certification for the hardware or software changes.	**2.0**

	(g) The ability to support both SEP 2.0 and SEP 1.x devices either attached to a single meter as well as across meters. Will an upgrade to SEP 2.0 require all meters to be upgraded or will there be fine-grained control over the upgrade process?	
7.18	Deleted	**1.0**
7.19	Describe how the metering system prevents IHF HAN device access to meter data, and other data, prior to a specific date and time, i.e. prevent access to a previous customer's data resident within the meter.	**1.0**
7.20	Describe how IHF HAN devices, which have temporarily suspended communication (e.g. battery powered devices returning from sleep mode), would resynchronize time-of-use (TOU) and inclining energy block rate consumption data upon communication restoration.	**1.0**
7.21	Explain why you believe SEP 2.0 should be incorporated into the HAN and meter	**1.0**
8	**Ability to meet the specified ADCS requirements based on the proposed production version available as of Feb.1, 2011.**	
8.1	**ADCS – General**	
8.1.1	Can the ability to operate the meter service disconnect switch be disabled for groups of meters? If so, describe how this is achieved.	**0.5**
8.2	**ADCS - Network Management**	
8.2.1	Describe the ADCS network management and diagnostic capabilities for the Metering System including the WAN, FAN, and HAN. Which of the following Network Management System functions are available, and if available, provide a summary description of how it is provided: (a) Fault and performance management including support for traffic and quality of service (QoS) management; (b) Network change and configuration management; (c) Management, monitoring and trouble shooting functionality including alarm filtering, remote configuration and diagnostics to the module or board level for all telecommunication systems, and provision of historical databases with tools for statistical and trend analysis; (d) Auto discovery, inventory, configuration base-lining, network diagramming, and network planning tools; (e) Tools to support help desk and trouble tracking functions; (f) Major alarms extension (e.g., to a 24/7 manned control room) and automatic email, page and/or telephone call-out to a preset sequence of numbers; and (g) Provisioning and commissioning of devices on the WAN, FAN or HAN.	**8.0**
8.2.2	What graphical user interface and geographic representations are provided and supported. Is there an interface available to a higher level network management system (e.g., HP OpenView, IBM Tivoli, etc.)	**1.0**
8.2.3	Does your system provide any outage management capabilities such as filtering, detection or reporting outage flags geographically? If so, describe what functionality you provide.	**1.0**

8.3	**ADCS – IT**	
8.3.1	Describe your recommended and supported hardware and operating systems. In your response ensure the following topics are included where relevant: (a) The ability for your system run in a virtual environment. Describe how and any limitations if it is deployed in this configuration; (b) Operating System, hardware, and any dependencies for required patches or third part software; and (c) Describe the infrastructure requirements and sizing needed to support the system (e.g. detailed server hardware and software requirements). (d) Complete the ADCS Sizing spreadsheet in the Data Room based on Design 1 of the *Telecom Design Submission Requirements*. Identify also what is required to scale the ADCS to support Design 2 and 3. (e) Based on Design 1 of the *Telecom Design Submission Requirements,* describe the ability of the ADCS to store 6 months of data retrieved from meters and other devices on the metering network.	**3.0**
8.3.2	Describe the ADCS support for auditing and logging of messages and data, including those to and from the WAN, FAN, and IHF HAN devices. Provide details on how your system supports guaranteed message delivery to meters and other end point devices.	**1.0**
8.3.3	Provide the maximum number of meters and other end point devices supported per instance of your application. Describe any performance degradation the system experiences as the number of end devices increases and/or the number of message interactions increases (e.g. an increase in polling frequency as well as message “storms” as a result of outages).	**1.0**
8.3.4	Describe how your system can scale and support load balancing. Do you support vertical and horizontal scaling?	**1.0**
8.3.5	Describe the user and role based access and security model for your ADCS.	**1.0**
8.3.6	Describe any key and certificate management capabilities provided by your ADCS.	**1.0**
8.4	**ADCS - Interfaces**	
8.4.1	Describe the integration options your system supports and ensure any specific ESB (TIBCO) adapters are included. What functionality do you expose as web services? What functionality is not exposed as a web service and requires a different integration approach? Do you subscribe to any industry standard integration messaging schema or protocols and if so list the ones your ADCS supports.	**2.0**
8.4.2	Describe any previous deployments with Meter Data Management System (MDMS) providing details of the MDMS and integration method. Refer to the appropriate Reference Projects.	**1.0**
8.4.3	What import /exports features are available and what formats are supported?	**0.5**
8.4.4	Describe how the ADCS will support the communication of messages, (rates, pricing events, utility information) to IHF HAN devices via the HAN gateway.	**1.0**

8.5	**ADCS - Software License and Maintenance**	
8.5.1	Describe your ADCS software licensing maintenance approach in detail. In your response, ensure specific answers to the following are included: (a) Does the software license allow for firmware and product upgrades on a regular basis? If yes, how frequently are such upgrades released? How are firmware and product upgrades released to clients? How much upgrade installation support is provided under maintenance? Are the software license fees tranched? If so, on what basis? (b) How are product defects managed? How are fixes to product defects delivered to the client base (i.e. as client-specific patches, as part of regularly scheduled maintenance releases, some combination?) (c) How are product defect fixes incorporated into product upgrade releases? (d) Do you have an emergency fix process? If so, describe how this works; (e) Are software performance issues considered defects and covered under maintenance? (f) What level of product-based Help Desk support is provided under maintenance? (g) Do you offer additional client support services that would be incremental to the software maintenance? If so, describe these services and how they are priced. (h) Does the software license include full product and component documentation including functional capabilities, technical architecture, data architecture, data model, installation guide, technical support guide, and production support guide? (i) Does the software license include any standard interface adapters or integration methods? (j) Does the software license include any development or testing tools?	**4.0**

9	**Ability to meet the specified Security requirements**	
9.2	**Security – General**	
9.2.1	Provide details on your overall security policy and strategy and provide a copy of your security road map and Security System Architecture. Include details on your participation in any security validation and/or security testing activities.	**3.0**
9.2.2	Describe the process and procedure for identifying, mitigating and reporting vulnerabilities that may arise within a deployment of your system. Describe standards for resolution and rollout of patches (i.e. testing, timing, monitoring effectiveness). Provide details on your overall development and testing capabilities for patches and firmware.	**2.0**
9.2.3	With regard to the reference projects, provide details of previous security breaches, how you dealt with the breach, what lessons were learned and how have you applied these to your processes and products.	**3.0**
9.2.4	Describe the logging and auditing capabilities provided by your solution and describe any associated mechanisms to ensure the integrity and non-repudiation of the data captured. Describe how your proposed solution supports audit and security event reporting.	**1.0**
9.3	**Security - Domain and Zones**	
9.3.1	Describe how the components of your proposed system map to the Open Smart Grid AMI-SEC security domains described in the Security Requirements Specification.	**2.0**
9.3.2	Describe how you plan to apply the security zones discussed in that specification to the components and topology of your architecture.	**2.0**
9.3.3	Within each of the AMI-SEC domains, and specifically with the Automated Network, Managed Network, and Utility Edge domains provide details on technology and techniques to detect and contain attacks. The details should include, among other specifics, consequences, detection alerts and notifications as well as containment capabilities either specifically incorporated in devices/software or through design elements of the AMI network.	**3.0**
9.4	**Security – Standards**	
9.4.1	List the industry, national or international standards for security that your system uses, including security frameworks, protocols, algorithms or methodologies. Explain why you chose these particular standards. Describe what subsets or supersets of these standards you use and why.	**5.0**
9.4.2	Provide an update on the current state, and future roadmap, for your metering system security with specific regard to: (a) NIST Cyber Security requirements and NIST Framework and Roadmap for Smart Grid Interoperability Standards Release 1.0 (Draft); (b) North American Electric Reliability Corporation (NERC) CIP 002 – 009; and (c) Open Smart Grid AMI-SEC System Security Requirements.	**3.0**
9.4.3	Describe how your proposed solution addresses the security requirements as specified in the above the standards.	**1.0**
9.4.4	Describe from your Reference Projects where you have experience in deploying and supporting NERC compliant security frameworks for CIP.	**1.0**

9.4.5	For the Reference Projects you have listed, describe projects where you have demonstrated experience with at least 2 production sites in North America in implementing the following standards: ISO/IEC 10746-4, IEC 61850, IEC 61968 and IEC 61970.	**1.0**
9.5	**Security – Controls**	
9.5.1	Describe what security controls your architecture implements in the following security areas of interest, and on which components they are applied: (a) Integrity, including protection against interference, spoofing, repudiation, modification and replay; (b) Availability, including protection against denial of service attacks; (c) Confidentiality, including encryption and privacy concerns; (d) Access and Trust, including authentication, authorization, management of keys, firmware upgrades and other security credentials, and intrusion detection; (e) Physical security and resistance to, or detection of, tampering; (f) Unauthorized access or use of hand held field tool that has capability to access meter, FAN or collector and may contain customer or other potentially sensitive data; and (g) Support for monitoring and notification of suspicious events.	**3.0**
9.5.2	Describe what security controls you have implemented in your manufacturing, procurement, QA and delivery processes.	**1.0**
9.5.3	Describe in detail how the design and architecture supports high-availability of the entire end-to-end solution. The description should include the meters, IHF, FAN, WAN and ADCS aspects and account for failure points (including identification of single points of failure that must be accounted for and addressed during design-time activities). If any affinities (or direct associations) exist between components then provide a description of how this can be addressed in failover situations.	**4.0**
9.5.4	Provide details of the specific actions, controls and instructions that are available for field personnel when directly accessing the meter onsite (e.g. through an optical port). The detail should cover specifics of authorization to access actions/controls/instructions, the tracking and auditing of actions performed at the field, and the ability to limit/restrict field personnel access.	**3.0**
9.5.5	Provide details of the security measures available for Collectors in the field (regardless of function) including physical and cyber security controls. The details should specify physical restraints, physical tamper detection mechanisms, electronic tamper detection mechanisms, storage/processing/handling of data, and maintenance capabilities such as remote access or onsite access for maintenance and updates. The detail should include specifics regarding access control and authorization by personnel such as field technicians, the type of instructions that can be initiated by Collectors, the tracking of access to Collectors by the ADCS, and the encryption/decryption of data that is performed by the Collectors.	**4.0**
9.6	**Security – Platform**	
9.6.1	Describe in detail, the end-to-end security measures implemented on each component platform and in particular the meter and IHF HAN in the following areas: (a) Updates of firmware and configurations including the end-to-end process, tools and techniques used to protect the integrity of firmware that is delivered to BC Hydro for distribution to and update of the	**4.0**

	meters. The detail should cover firmware testing and validation, integrity checking, cryptographic processes, key management, secure delivery from the ADCS to the meters and any dependencies or configurations required in the AMI network. Within this detail, it is important to provide information regarding ADCS processing, Collector processing, Meter processing, IHF processing and hand tool processing as applicable for handling secure firmware packages (b) Initial installation and registration of meters and IHF HAN devices; (c) Integrity of firmware, data, configuration, and in particular, security credentials including the ability to verify the integrity of end-to-end messages; (d) Physical security and resistance to, or detection of, tampering including FAN collectors, meter and network tools or other field based devices; (e) Prevention of access to, or corruption of, data stored at or transmitted from the meter; and (f) Support for deactivation/access revocation for missing/stolen devices.	
9.6.2	Provide specific details regarding the use and management of cryptographic keys within the AMI solution—with specific attention to how keys are generated, distributed, negotiated, protected, and changed over the lifetime of the AMI solution and meters. The centralized key management facilities should be described in detail along with protection mechanisms for any key storage. The detail should also include what and when keys are used and how they are applied within the meter, IHF, FAN, WAN, and ADCS.	**4.0**

Table 11. Package Three: Final Proposal Commercial Content Requirements

COMMERCIAL PACKAGE	
Without limiting the requirements set out below and in the following table, the Proponent is to include in Package 3: • Confirmation of any scope ladder items added or removed in respect of which the Commercial Package is made; • A completed *Total Business Value Model Input Sheet;* • A completed *Affordability Ceiling Model*; • Fully developed and completed *Pricing Templates*; and • Confirmation that their Proposal is within the Affordability Ceiling	
10	**Cost of Ownership**
10.1	**Scope Ladder** BC Hydro will need to understand the extent to which scope ladder element reductions or additions will impact the Proposal and the Project. Where you have altered scope on one or more of the elements to achieve the affordability ceiling, describe the impacts to the overall scope of components and services, specifically; (a) The capital cost savings / increase as a result of using each scope ladder item; (b) For the adjusted completion date, provide an updated meter supply table; and (c) Rather than the total elimination of the service disconnect switch, discuss the financial and technical feasibility of: • Physically providing it in all meters, but disabling its operation; • At a future date, enabling its operation
10.2	**Affordability Model** Proponents should complete the *Affordability Model Input Sheet* located in the Data Room
10.3	**Total Business Value** Proponents should complete a *Total Business Value Model Input Sheet* located in the Data Room;
11	**Cost of Services**
11.1	BC Hydro has included *Pricing Templates* and a set of standard pricing structures to facilitate a comparative assessment of Proposals. Proponents are requested to complete the *Pricing Templates* included in the Data Room. Please refer to the Data Room for detailed instructions on how to submit *Pricing Templates*.

APPENDIX C – PROPOSAL DECLARATION FORM

1. ***This Proposal Declaration should be executed by the Proponent and each member of the Proponent Team, excluding Key Individuals.***
2. ***By executing this Proposal Declaration, you agree to the provisions of the RFP and this Proposal Declaration.***

[RFP Proponent's Letterhead]

British Columbia Hydro and Power Authority

9100 Glenlyon Parkway,

Burnaby V5J 5J8

Attention: Xavier Serrano, Contact Person

Capitalized terms have the definitions given them in the RFP.

In consideration of BC Hydro's agreement to consider Proposals in accordance with the terms of the RFP, the Proponent hereby agrees and acknowledges that:

1. Proposal

(a) this Proposal Declaration Form has been duly authorized and validly executed;

(b) the Proponent is bound by all statements and representations in its Proposal;

(c) its Proposal strictly conforms with the RFP and that any failure to strictly conform with the RFP may, in the sole and absolute discretion of BC Hydro, be cause for rejection of its Proposal;

(d) its Proposal is in all respects a fair Proposal made without collusion or fraud;

(e) BC Hydro reserves the right to verify information in its Proposal and conduct any background investigations including criminal record investigations, verification of the Proposal, credit inquiries, litigation searches, bankruptcy registrations and taxpayer information investigations or other investigations on all or any of the Proponent Team members, and by submitting a Proposal, the Proponent agrees that they consent to the conduct of all or any of those investigations by BC Hydro.

2. Acknowledgements with Respect to the RFP

(a) the Proponent has received, read, examined and understood the entire RFP including all of the terms and conditions, all documents listed in the RFP "Table of Contents", and any and all Addenda;

(b) the Proponent has provided a price proposal that does not exceed the affordability criteria as defined in the RFP;

(c) the Proponent agrees to be bound by the entire RFP including all of the terms and conditions, all documents listed in the RFP "Table of Contents", and any and all Addenda;

(d) the Proponent's representative identified below is fully authorized to represent the Proponent in any and all matters related to its Proposal, including but not limited to providing clarifications and additional information that may be requested in association with the RFP;

(e) the Proponent has disclosed all relevant relationships, in accordance with the instructions and format outlined in the Relationship Disclosure Form; and

(f) the Proponent confirms accepting the terms of, and have no further comments on, the Final Draft Contract, and that this agreement is acceptable without modification (save as contemplated therein).

3. Proponent Team consists of:

Name	Address	Key Individual

PROPONENT REPRESENTATIVE

Name	Name of Employer
Address	E-mail Address
Name of Authorized Signatory	Telephone
Signature	Fax Number

APPENDIX D – RELATIONSHIP DISCLOSURE FORM

This must be completed by each Proponent Team member

(including firms and individuals)

The Proponent declares that:

1. The Proponent has reviewed the list of Restricted Parties.
2. The following is a full disclosure of all relationships that the Proponent has with:
   (a) any Restricted Party or their current or former employees, shareholders, directors or officers; or
   (b) employees (both current or former) of BC Hydro, or individuals of firms who have been involved in the Competitive Selection Process or the design, planning or implementation of the Project;

that could constitute a conflict of interest or unfair advantage.

Name of Restricted Party/Person	**Details of the Nature of the Proponent's relationship with the listed Restricted Party/Person** *(e.g. Proponent was an adviser to the Restricted Party from 1999-2000)*

APPENDIX E – PROPONENT COMMENTS FORM

BC HYDRO
IINITIAL DRAFT CONTRACT

Section	Proposed Change (including detailed drafting)	Reasons for Proposed Change

APPENDIX F – PARTICIPATION AGREEMENT

Proponents will be required to sign a Participation Agreement as a condition of participating in the RFP. The agreement will include confidentiality and other provisions as outlined below in this

Month/ Day/2010

British Columbia Hydro and Power Authority
9100 Glenlyon Parkway,
Burnaby V5J 5J8
Phillip.Dryer@bchydro.com

Attention: Xavier Serrano, Contact Person

Dear Sir:

Re: **Smart Metering System – Participation Agreement in respect of the Request for Proposals issued by BC Hydro** ("**BC Hydro**") **on July, 19 2010, as amended or otherwise clarified from time to time, including by all Addenda (the RFP)**

This letter agreement sets out the terms and conditions of the Participation Agreement between ▼ [insert name of Proponent] (the **Proponent**) and BC Hydro, pursuant to which the Proponent agrees with BC Hydro as follows:

1. **Defined Terms**. Capitalized terms not otherwise defined in this Participation Agreement have the meanings given to them in the RFP.

2. **Participation**. The Proponent agrees that as a condition of participating in the RFP, including the Competitive Selection Process, Topic Meetings, Interactive Sessions and access to the Data Room, the Proponent will comply with the terms of this Participation Agreement and the terms of the RFP.

3. **Confidentiality**. The Proponent will comply with, and will ensure that all of the Proponent Team members and others associated with the Proponent also comply with, the Confidentiality Conditions attached as Schedule 1 to this Participation Agreement, all of which conditions are expressly included as part of this Participation Agreement.

4. **Terms of RFP**. The Proponent will comply with and be bound by, and will ensure that all of the Proponent Team members and others associated with the Proponent also comply with and are bound by, the provisions of the RFP all of which are incorporated into this Participation Agreement by reference. Without limiting the foregoing the Proponent agrees:

(a) that the terms of this Participation Agreement do not limit the Proponent's obligations and requirements under the RFP , or any other document or requirement of BC Hydro; and

(b) to be bound by the disclaimers, limitations and waivers of liability and Claims and any indemnities contained in the RFP, including Section 11.12 (Limitation of Damages) of the RFP.

5. Amendments. The Proponent acknowledges and agrees that:

(a) BC Hydro may in its sole discretion amend the RFP at any time and from time to time; and

(b) by submitting a Proposal the Proponent accepts, and agrees to comply with, all such amendments and, if the Proponent does not agree to any such amendment, the Proponent's sole recourse is not to submit a Proposal.

6. **General**.

(a) Capacity to Enter Agreement. The Proponent hereby represents and warrants that:

(i) it has the requisite power, authority and capacity to execute and deliver this Participation Agreement;

(ii) this Participation Agreement has been duly and validly executed by it, or on its behalf by the Proponent's duly authorized representatives; and

(iii) this Participation Agreement constitutes a legal, valid and binding agreement enforceable against it in accordance with its terms.

(b) Survival following cancellation of the RFP. Notwithstanding anything else in this Participation Agreement, if BC Hydro, for any reason, cancels the Competitive Selection Process or the RFP, the Proponent agrees that it continues to be bound by, and will continue to comply with, Section 3 of this Participation Agreement.

(c) Severability. If any portion of this Participation Agreement is found to be invalid or unenforceable by law by a court of competent jurisdiction, then that portion will be severed and the remaining portion will remain in full force and effect.

(d) Enurement. This Participation Agreement enures to the benefit of BC Hydro and binds the Proponent and its successors.

(e) Applicable Law. This Participation Agreement is deemed to be made pursuant to the laws of the Province of British Columbia and the laws of Canada applicable therein and will be governed by and construed in accordance with such laws.

(f) Headings. The use of headings are for convenience only and are not to be used in the interpretation of this Participation Agreement.

(g) Gender and Number. In this Participation Agreement, words imputing any gender include all genders, as the context requires, and words in the singular include the plural and vice versa.

(h) Including. The word including when used in this Participation Agreement is not to be read as limiting.

Yours truly,

(Name of Proponent)

Authorized Signatory

SCHEDULE 1

CONFIDENTIALITY CONDITIONS

1. Definitions.

In these confidentiality conditions:

a) "**Confidential Information**" means all documents, knowledge and information provided by the Disclosing Party to, or otherwise obtained by, the Receiving Party, whether before or after the date of this Agreement, whether orally, in writing or other visual or electronic form in connection with or relevant to the Program, the RFP, the RFQ or the Competitive Selection Process, including, without limitation, all design, operational and financial information, together with all analyses, compilations, data, studies, photographs, specifications, manuals, memoranda, notes, reports, maps, documents, computer records or other information in hard copy, electronic or other form obtained from the Disclosing Party or prepared by the Receiving Party containing or based upon any such information. Notwithstanding the foregoing, Confidential Information does not include information which:

(i) Is or subsequently becomes available to the public, other than through a breach of this Agreement by the Receiving Party;
(ii) Is subsequently communicated to the Receiving Party by an independent third party, other than a third party introduced to the Receiving Party by the Disclosing Party or connected with the Program, without breach of this Agreement and which party did not receive such information directly or indirectly under obligations of confidentiality;
(iii) Was rightfully in the possession of the Receiving Party or was known to the Receiving Party before the date of this Agreement and did not originate, directly or indirectly, from the Disclosing Party;
(iv) Was developed independently by the Receiving Party without the use of any Confidential Information; or
(v) Is required to be disclosed pursuant to any judicial, regulatory or governmental order validly issued under applicable law,

b) **"Disclosing Party"** means BC Hydro or any of its Representatives,

c) **"Permitted Purposes"** means evaluating the Program, preparing a Proposal, and any other use permitted by this Agreement,

d) **"Receiving Party"** means the Recipient or any of its Representatives,

e) **"Recipient"** means a Proponent or any other interested party who completes a Receipt Confirmation Form, and

f) **"Representative"** means a director, officer, employee, agent, accountant, lawyer, consultant, financial adviser, subcontractor, Key Individual, or any other person contributing to or involved with the preparation or evaluation of Proposals or proposals, as the case may be, or otherwise retained by the Recipient, BC Hydro or Partnerships BC in connection with the Program.

2. Confidentiality.

The Recipient will keep all Confidential Information strictly confidential and will not without the prior written consent of BC Hydro, which may be unreasonably withheld, disclose, or allow any of its Representatives to disclose, in any manner whatsoever, in whole or in part, or use, or allow any of its Representatives to use, directly or indirectly, the Confidential Information for any purpose other than the Permitted Purposes. The Recipient will make all reasonable, necessary, and appropriate efforts to safeguard the Confidential Information from disclosure to any other person, firm, corporation, or other entity except as permitted in this Agreement, and will ensure that each of its Representatives agrees to keep such information confidential and to act in accordance with the terms contained herein.

a) **Ownership of Confidential Information**. BC Hydro owns all right, title and interest in the Confidential Information and, subject to any disclosure requirements under applicable law, and except as permitted by this Agreement, the Recipient will keep all Confidential Information that the Recipient receives, has access to, or otherwise obtains strictly confidential for a period of three years after the date of this Agreement, and will not, without the prior express written consent of an authorized representative of BC Hydro, which may be unreasonably withheld, use, divulge, give, release or permit or suffer to be used, divulged, given or released, any portion of the Confidential Information to any other person, firm, corporation or other entity for any purpose whatsoever.

b) **Limited Disclosure**. The Recipient may disclose Confidential Information only to those of its Representatives who need to know the Confidential Information for the purpose of evaluating the Program and preparing its Proposal or proposal as applicable and on the condition that all such Confidential Information be retained by each of those Representatives as strictly confidential. The Recipient will notify Partnerships BC, on request, of the identity of each Representative to whom any Confidential Information has been delivered or disclosed.

c) **Destruction on Demand**. On written request, the Recipient will promptly deliver to Partnerships BC or destroy all documents and copies thereof in its possession or control constituting or based on the Confidential Information and the Recipient will confirm that delivery or destruction to Partnerships BC in writing, all in accordance with the instructions of Partnerships BC (for this purpose information stored electronically shall be deemed destroyed upon removal from all storage systems and devices); provided, however, that the Receiving Party may retain one copy of any Confidential Information which it may be required to retain or furnish to a court or regulatory authority pursuant to applicable law.

d) **Acknowledgment of Irreparable Harm**. The Recipient acknowledges and agrees that the Confidential Information is proprietary and confidential and that BC Hydro or Partnerships BC may be irreparably harmed if any provision of this Agreement were not performed by the Recipient or any party to whom the Recipient provides Confidential Information in accordance with its terms, and that any such harm could not be compensated reasonably or adequately in damages. The Recipient further acknowledges and agrees that BC Hydro will be entitled to injunctive and other equitable relief to prevent or restrain breaches of any of the provisions of this Agreement by the Recipient or any of its Representatives, or to enforce the terms and provisions hereof, by an action instituted in a court of competent jurisdiction, which remedy or remedies are in addition to any other remedy to which BC Hydro may be entitled at law or in equity.

3. Waiver.

No failure to exercise, and no delay in exercising, any right or remedy under this Agreement by BC Hydro will be deemed to be a waiver of that right or remedy.

APPENDIX G – REQUEST FOR INFORMATION FORM

REQUEST FOR INFORMATION

Smart Metering & Infrastructure

Raised by:

Individual's Name: _____

Proponent Name: _____

Date Submitted: _____

Request / query: (one request/query per sheet)

_____

_____

_____

_____

_____

_____

_____

Commercial in confidence:

Do you request that this query be treated as "commercial in confidence"?

☐ Yes ☐ No

APPENDIX H – PERSONAL INFORMATION CONSENT FORM(S)

This form should be completed and signed by each individual for whom the Proponent included a resume, work history, summary of qualifications or other "personal information" as part of your

Proponents should note that receipt of these consents is important for BC Hydro to meet its obligations under the (BC) Freedom of Information and Protection of Privacy Act. Responses that do not include the necessary consent forms may be rejected at BC Hydro's discretion.

PERSONAL INFORMATION CONSENT FORM

RFQ
Reference # 4401
Title: BC Hydro Smart Metering System RFP 4401

With the provision of my signature at the foot of this statement I, _____,
(Print Name)
Consent to the indirect collection from _____
(Print Name of Proponent)
by BC Hydro, of my personal information in the form of a work history, resume or summary of qualifications.

In consenting to this indirect collection, I understand that my personal information, so collected, will be used by BC Hydro for the sole purpose of evaluating the submitted response to the above-noted Competitive Selection Process. I understand further that my personal information, once collected by BC Hydro, will be handled by BC Hydro in accordance with the provisions of the (BC) *Freedom of Information and Protection of Privacy Act.*

_____) _____
Signature) Date

BC Hydro is collecting this personal information in furtherance of its mandate under the Hydro and Power Authority Act and/or Utilities Commission Act. If you have any questions about how BC Hydro collects, uses or discloses your personal information, you may contact Xavier Serrano at (778) 452-6670

APPENDIX I – SCOPE OF WORK

SUMMARY

BC Hydro is looking for a Contractor to supply all of the components of a Metering System (customer meters, telecom FAN infrastructure, and head–end ADCS software) as well as providing the necessary design, IT, and support services to ensure a successful project implementation by BC Hydro.

In addition BC Hydro is looking for the Contractor to continue to supply meters and telecom hardware for a period of 10 years following completion of the project, and to provide ongoing software maintenance, for a period of 10 to 20 years following the completion of the project.

The scope of work for this RFP is comprised of the following elements:

1.) Base Component Supply
   (a) Customer Meters
   (b) FAN Infrastructure
   (c) Head End (ADCS) Software and License of Use
   (d) Meter and Network Tool(s) and License of Use
   (e) Post 2012 Supply

2.) Base Services
   (a) Telecom Network Services
   (b) IT Services
   (c) Delivery Services
   (d) Support Services
   (e) Post 2012 Software Maintenance

3.) Optional Supply and Services
   (a) ADCS Integration

Proposals **must** include responses to items 1, and 2 above. BC Hydro however may or may not decide at its discretion to proceed at this time with item 3a. Proponents may decide at their discretion to submit proposals with respect to item 3a which BC Hydro will consider after selection of a Preferred Proponent.

BC Hydro will be seeking a separate contractor for Meter Deployment Services. The Contractor will be expected to work in a cooperative and collaborative manner with this eventual service provider.

(1) BASE COMPONENT SUPPLY

(a) Customer Meters

BC Hydro is looking for the Contractor to supply approximately 1.95 million customer meters (see the Data Room) as part of our Smart Metering and Infrastructure Program. These meters (the "base meters") will be mass deployed. In addition, BC Hydro is looking for the Contractor to supply approximately 20,000 additional meters to replace our existing meter inventory as part of our ongoing operations (the "inventory meters").

All of the meters supplied need to meet the specifications outlined in the Data Room and adhere to the following parameters:

1.) *Base Meter Supply* - Meter supply should incorporate one FAN technology. The breakdown is as follows:

- 100% of Meter Code P263 may be supplied from one manufacturer, and 100% of P264 meters may be supplied from the same or another manufacturer;
- where feasible, the meters for the remaining Meter Codes should be supplied from the manufacturer referred to in this section 1a.
- Proponents unable to provide pricing for some or all of the remaining meter codes may utilize the following assumed basic meter pricing for the initial proposal phase;

Meter code	Assumed price (USD)	Meter code	Assumed price (USD)
P261	30	P960	200
P963	185	P411	200
P964	185	P212	65
P968	250	P412	200
P966	250	P414	215
P969	690	P416	215
P967	250	P415	215

2.) *Base Meter Delivery*

The number of meters required per month, as well as the number and location, of warehouses will be determined in conjunction with the Meter Deployment Services contractor. It is anticipated that this information will be available to shortlisted Proponents prior to Final Proposal submissions. For Initial Proposals Proponents should assume that the volume of meters required per month is per Table 9 below, and that the delivery of meters will be to the cities listed in Table 10 below (assume that all FAN Infrastructure will be delivered to the Surrey warehouse location):

Table 9 – Anticipated Meter Supply Volumes Per Month

Delivery Date	Meter Volumes Supply
01/Jun/11	45,000
01/Jul/11	50,000
01/Aug/11	73,100
01/Sep/11	138,695
01/Oct/11	145,630
01/Nov/11	138,695
01/Dec/11	145,630
01/Jan/12	145,630
01/Feb/12	145,017
01/Mar/12	142,126
01/Apr/12	156,339
01/May/12	149,232
01/Jun/12	149,232
01/Jul/12	163,445
01/Aug/12	92,956
01/Sep/12	64,370
01/Oct/12	3,001
01/Nov/12	3,134
01/Dec/12	0
Total	**1,951,232**

Table 10 – Assumed Warehouse Locations by Region

Region	Cross Dock Location	Start Date	End Date
Fraser Valley	Surrey	01-Jul-11	31-Jul-12
Northern	Prince George	01-Jul-11	30-Sep-12
Coastal	Terrace	01-Aug-11	29-Feb-12
Vancouver Island	Victoria	01-Aug-11	31-Dec-12
Metro	Burnaby	01-Sep-11	31-Oct-12
Interior	Kamloops	01-Oct-11	30-Nov-12
Kootenay	Cranbrook	01-Apr-12	30-Sep-12

3.) *Inventory Meter Supply and Delivery* – The Contractor will be responsible for delivering these meters to a central BC Hydro warehouse located in Surrey.

(b) FAN Infrastructure

In the Data Room BC Hydro has outlined the system performance specifications that it is seeking for the telecom system (FAN and WAN). BC Hydro is looking for the Contractor to supply the FAN telecom infrastructure (collectors, repeaters, etc.) necessary to meet these performance specifications.

(c) Head End (ADCS) Software and License of Use

In accordance with the specifications outlined in the Data Room, BC Hydro is looking for the Contractor to supply a ***single*** ADCS for the metering system which includes the Head End (ADCS) Software, for production and non-production environments, ADCS interfaces adaptors, any tools required to support the deployment, configuration and testing and the ongoing license of use.

(d) Meter and Network Tools and License of Use

In accordance with the specifications outlined in the Data Room, BC Hydro is looking for the Contractor to supply Meter and Network Tools (the number and types to be determined during contract negotiations) to access the meters and metering system, and the ongoing software license of use.

(e) Post 2012 Supply

In addition to the Base Meter supply, and the Inventory Meter Supply, BC Hydro is looking for a 10 year commitment for the ongoing supply of meters, FAN Infrastructure, and Meter and Network Tools following the completion of this project in 2012. For bidding purposes the anticipated volume of meters required per annum is included in the pricing tables.

(2) BASE SERVICES

The following service descriptions outline the Base Services that BC Hydro expects the Contractor to provide.

The Base Services have been broken down into the following categories:

(a) Telecom Network Services
   i. Design
   ii. Network Configuration

(b) IT Services
   i. Design
   ii. Configuration and Build
   iii. Testing
   iv. Integration

(c) Delivery Services
   i. Project Management
   ii. Integrated Testing
   iii. NOC Operations

(d) Support Services
   i. Meter Deployment
   ii. Training

(e) Post 2012 Software Maintenance - Updates and Technical Support

(a) Telecom Network

i. Design

In accordance with the requirements specified in the Data Room, and the WAN connection information provided by BC Hydro, BC Hydro is looking for the Contractor to design the telecom system and provide performance guarantees for its operation.

ii. Network Configuration

BC Hydro is looking for the Contractor to support the installation of the FAN infrastructure and the interconnection to the WAN by providing technical expertise to aid in the development of a FAN / WAN deployment plan.

Where applicable to the Contractor's system, BC Hydro is also looking for the Contractor to optimize the FAN during deployment by providing technical expertise to assist with the placement / configuration, and commissioning of the collectors / repeaters and other FAN infrastructure. This should include the necessary tools and equipment to support the configuration.

(b) IT Services

The following services are to be delivered in accordance with the requirements as outlined in the Data Room:

i. Design

BC Hydro is looking for the Contractor to:

- develop the infrastructure and sizing requirements for the ADCS (e.g. detailed server hardware and software requirements) for all production and non production environments. BC Hydro will be responsible for ordering and installing the required hardware as indicated in the design;
- develop a Metering System security design including cyber security, privacy and physical security of the end to end Metering System solution from the Meter to the ADCS. Ensuring the implementation and configuration of the system meets or exceeds the end to end cyber security, physical security and privacy requirements.
- propose an Environment/Configuration Management Plan which allows for a cost effective approach to manage all production and non production environments. This Environment Management Plan should include provision of any ADCS specific administrative tools and release management/change control processes required to manage the environments.
- propose and develop test cases and quality assurance plans for all aspects of the metering system from the ADCS to the Meter.

ii. Configuration and Build

BC Hydro is looking for the Contractor to configure and build the ADCS. This includes:

- developing the configuration requirements and documentation for each component of the Metering System. This will include the out-of-the-box configuration along with the applied configuration changes based on BC Hydro requirements. This documentation, along with the standard provided documentation, will later represent the end state (As–builts) of the system upon final acceptance; and
- installing and configure all instances of the ADCS software, including all set-up work to prepare for testing, and for migration to production.

iii. Testing

BC Hydro is looking for the Contractor to develop and perform testing of the ADCS. This includes developing a test plan to ensure the configuration and build of the ADCS meets the requirements and design. Testing should include but not be limited to functional testing, disaster recovery, and performance testing.

iv. Integration

BC Hydro is looking for the Contractor to provide design and development support for the integration of the ADCS. During this task the Contractor will work under the direction of BC Hydro or BC Hydro's System Integrator. BC Hydro or BC Hydro's System Integrator will provide the overall project planning and coordination of the work and end to end testing.

(c) Delivery Services

i. Project Management

BC Hydro is looking for the Contractor to provide the project management resources, processes and tools necessary to carry out the Contractors scope of work and integrate with BC Hydro's project team. Required project management activities include:

- providing and updating a detailed project plan for the Contractor's services;

- providing weekly: status reporting, financial reporting, issues management reporting, and risk management reporting; and
- participation in the overall project management meetings on a daily or weekly basis.

BC Hydro is looking for the Contractor to develop a Quality Management Plan and a Risk Management Plan, for the Contractor's scope of work, for each stage of the project.

ii. Integrated Testing

The completed Metering System shall be subject to BC Hydro Acceptance, which will only occur after System Performance Tests have been conducted. It is intended that the testing will be completed by the Contractor (with BC Hydro present, and with the involvement of the System Integrator as appropriate), with the Contractor providing all procedures, forms, test equipment, and tools.

The following key system tests will be conducted to ensure the Metering System performs to the levels required in the Metering System Requirements and as per the Proponent's Proposed Base Reference Design:

- Integrated Factory Acceptance Testing – complete testing and demonstration of the functional operation, features and performance of the Metering System including all interfaces. This will be staged and assembled at the factory or other suitable location in the same logical configuration as it will be installed in the field.
- Field Solution Validation Test – comprehensive testing on the first deployed Region, or portion thereof, to validate complete end to end functionality and performance of the installed Metering System.
- System Acceptance Tests (SAT's) – testing will be conducted each time a Region has reached Substantial Completion. The SAT's will be based on the Region that has just reached Substantial Completion, and including traffic loading from all other Regions that have already reached Substantial Completion.
- Final Acceptance Test – testing will be conducted when all Regions have reached Substantial Completion. Tests will involve a subset of the Field Solution Validation Test in order to confirm performance at full scale.

iii. NOC Operations

BC Hydro is looking for the Contractor to operate the NOC while BC Hydro is deploying the meters and telecom network. It is expected that the operation of the NOC would transition to BC Hydro on a Regional basis. In this case the Contractor would be responsible for the NOC operations for a particular Region, until the Region was Accepted by BC Hydro. As part of providing the NOC operations the Contractor will provide all necessary Software Updates (to the same extent as described below in Post 2012 Software Maintenance) for all Regions and for all Customer Meters, FAN Infrastructure, ADCS, Meter and Network Tools until completion of the project in Dec 2012, notwithstanding that each Region transfers to BC Hydro.

(d) Support Services

i. Meter Deployment

BC Hydro is looking for the Contractor to support the Meter Deployment Services. This includes:

- participating in the development of the overall BC Hydro deployment plan;

- providing ongoing coordination with BC Hydro and the Meter Deployment Services contractor to ensure that meters are available for installation at the right location at the right time; and
- providing on the ground technical expertise to work with BC Hydro and the Meter Deployment Services contractor through the duration of the meter deployment to ensure problems are addressed quickly.

ii. Training

BC Hydro is looking for the Contractor to provide expertise in training around all aspects of the Metering System, including recommending and assisting in the delivery of an overall training program for IT, field, meter shop, back-office, network management and management teams. This includes:

- assessment of BC Hydro training needs;
- development of a proposed training plan;
- development of training materials; and
- delivery of training based on assessment of needs (e.g. classroom, train the trainer, in field, on-line).

(e) Post 2012 Software Maintenance – Updates and Technical Support

BC Hydro is looking for the Contractor to provide software updates and technical support for the end to end metering system for a period of 10 to 20 years following completion of the project in 2012.

i. Software Updates

- Software updates for the head-end (ADCS) including all patches and version upgrades
- Software updates for the collector includes all patches and version updates for software and firmware running in the collector or other FAN devices
- Software updates for the meter includes all patches and version updates to the firmware running on the meter. This includes any changes to metrology, NIC or HAN firmware
- Software updates for any required Meter and Network Tools

ii. Technical Support

- Provide guidance and assistance with the operations of the end to end metering system including
  - guidance and assistance in the testing of the software or firmware updates,
  - installing and troubleshoot the software or firmware updates
  - troubleshooting and problem resolution of the end to end metering system

(3) OPTIONAL SUPPLY & SERVICES

(a) ACDS Integration Services

In addition to the Integration Services outlined above (Base Service / IT Services – Integration) BC Hydro is allowing Proponents to bid on the following optional integration service:

Provide the resources and tools to deploy the interfaces for the ADCS as described in the SMI Program ADCS Interface Descriptions document in the Data Room. BC Hydro will provide the connection between the ESB and BC Hydro back-end applications. The SI will provide the overall program planning and coordination of the work and end to end testing. In particular BC Hydro is looking for the Contractor to design, configure, build, test, and implement the interfaces from the ADCS to support:

i. Meter installation and commissioning;

ii. Meter to cash and conservation rates e.g. register and interval data for billing, CPP and TOU rates;

iii. In-Home Device Pairing (device to meter) and IHD device management,

iv. Other business processes as identified during the solution design.

APPENDIX J – PROPOSAL COVERING LETTER

[Letterhead or Proponent's name and address]

Date:

BC Hydro

535 Hamilton Street

Vancouver, B.C. V6B 2R1

Canada

Attention: Xavier Serrano

Subject: Proposal Submission – Smart Metering System RFP #4401

The enclosed Proposal is submitted in response to the above referenced RFP.

We have carefully read and examined the RFP and have conducted such other investigations as we considered prudent and reasonable in preparing the Proposal. We are authorized to submit this Proposal on behalf of the Proponent.

Yours truly,

_____

Signature

Name:

Title:

Telephone Number:

E-mail address:

Legal name of Proponent:

Date:

APPENDIX K – PRIVACY AND PROTECTION SCHEDULE

This Schedule forms part of the agreement between British Columbia Hydro and Power Authority ("BC Hydro") and _____ (the "Contractor") respecting the contract referred to as _____ (the "Agreement").

Definitions

1. In this Schedule,
   (a) "Act" means the Freedom of Information and Protection of Privacy Act (British Columbia), as amended from time to time;
   (b) "Contact information" means information to enable an individual at a place of business to be contacted and includes the name, position name or title, business telephone number, business address, business email or business fax number of the individual;
   (c) "Personal information" means recorded information about an identifiable individual, other than contact information, collected, created or otherwise acquired by the Contractor as a result of the Agreement or any previous agreement between BC Hydro and the Contractor dealing with the same subject matter as the Agreement.

Purpose

2. The purpose of this Schedule is to:
   (a) Enable BC Hydro to comply with its statutory obligations under the Act with respect to personal information; and
   (b) Ensure that, as a service provider, the Contractor is aware of and complies with its statutory obligations under the Act with respect to personal information.

Collection of personal information

3. Unless the Agreement otherwise specifies or BC Hydro otherwise directs in writing, the Contractor may only collect or create personal information that is necessary for the performance of the Contractor's obligations, or the exercise of the Contractor's rights, under the Agreement.
4. Unless the Agreement otherwise specifies or BC Hydro, the individual whose personal information is at issue, or that individual's lawful representative otherwise directs in writing, the Contractor must collect personal information directly from the individual the information is about.
5. Unless the Agreement otherwise specifies or BC Hydro otherwise directs in writing, the Contractor must tell an individual from whom the Contractor collects personal information:
   (a) The purpose for collecting it;
   (b) The legal authority for collecting it; and
   (c) The title, business address and business telephone number of the person designated by BC Hydro to answer questions about the Contractor's collection of personal information.

Accuracy of personal information

6. The Contractor must make every reasonable effort to ensure the accuracy and completeness of any personal information to be used by the Contractor or BC Hydro to make a decision that directly affects the individual the information is about.

Requests for access to personal information

7. If the Contractor receives a request for access to personal information from a person other than BC Hydro, the individual whose personal information has been requested, or that individual's lawful representative, the Contractor must promptly advise the person to make the request to BC Hydro unless the Agreement expressly requires the Contractor to provide such access and, if BC Hydro has advised the Contractor of the name or title and contact information of an official of BC Hydro to whom such requests are to be made, the Contractor must also promptly provide that official's name or title and contact information to the person making the request.

Correction of personal information

8. Within 5 business days of receiving a written direction from BC Hydro to correct or annotate any personal information, the Contractor must annotate or correct the information in accordance with the direction.
9. When issuing a written direction under section 8, BC Hydro must advise the Contractor of the date the correction request to which the direction relates was received by BC Hydro in order that the Contractor may comply with section 10.
10. Within 5 business days of correcting or annotating any personal information under section 8, the Contractor must provide the corrected or annotated information to any party to whom, within one year prior to the date the correction request was made to BC Hydro the Contractor disclosed the information being corrected or annotated.
11. If the Contractor receives a request for correction of personal information from a person other than BC Hydro, the individual whose personal information has been requested, or that individual's lawful representative, the Contractor must promptly advise the person to make the request to BC Hydro and, if BC Hydro has advised the Contractor of the name or title and contact information of an official of BC Hydro to whom such requests are to be made, the Contractor must also promptly provide that official's name or title and contact information to the person making the request.

Protection of personal information

12. The Contractor must protect personal information by making reasonable security arrangements against such risks as unauthorized access, collection, use, disclosure or disposal, including any expressly set out in the Agreement.

Storage and access to personal information

13. Unless BC Hydro otherwise directs in writing, the Contractor must not store personal information outside Canada or permit access to personal information from outside Canada.

Retention of personal information

14. Unless the Agreement otherwise specifies, the Contractor must retain personal information until directed by BC Hydro in writing to dispose of it or deliver it as specified in the direction.

Use of personal information

15. Unless BC Hydro otherwise directs in writing, the Contractor may only use personal information if that use is:
    (a) For the performance of the Contractor's obligations, or the exercise of the Contractor's rights, under the Agreement; and
    (b) In accordance with section 13.

Disclosure of personal information

16. Unless the Agreement otherwise specifies or BC Hydro, the individual whose personal information is at issue, or that individual's lawful representative otherwise directs in writing, the Contractor must not disclose personal information inside or outside Canada to any person other than BC Hydro, the individual whose personal information is at issue, or that individual's lawful representative or an entity that can legitimately compel disclosure under the laws of British Columbia. BC Hydro will not unreasonably withhold such direction.

17. NOT USED.

Inspection of personal information

18. In addition to any other rights of inspection BC Hydro may have under the Agreement or under statute, BC Hydro may, at any reasonable time and on reasonable notice to the Contractor, enter on the Contractor's premises to inspect any personal information in the possession of the Contractor or any of the Contractor's information management policies or practices relevant to its management of personal information or its compliance with this Schedule and the Contractor must permit, and provide reasonable assistance to, any such inspection.

Compliance with the Act and directions

19. The Contractor must in relation to personal information comply with:

(a) The requirements of the Act applicable to the Contractor as a service provider, including any applicable order of the commissioner under the Act; and
(b) Any direction given by BC Hydro under this Schedule.

20. The Contractor acknowledges that it is familiar with the requirements of the Act governing personal information that are applicable to it as a service provider.

Notice of non compliance

21. If for any reason the Contractor does not comply, or anticipates that it will be unable to comply, with a provision in this Schedule in any respect, the Contractor must immediately notify BC Hydro of the particulars of the non-compliance or anticipated non-compliance and what steps it proposes to take to address, or prevent recurrence of, the non-compliance or anticipated non-compliance.

Termination of Agreement

22. In addition to any other rights of termination which BC Hydro may have under the Agreement or otherwise at law, BC Hydro may, subject to any provisions in the Agreement establishing mandatory cure periods for defaults by the Contractor, terminate the Agreement by giving written notice of such termination to the Contractor, upon any failure of the Contractor to comply with this Schedule in a material respect.

Interpretation

23. In this Schedule, references to sections by number are to sections of this Schedule unless otherwise specified in this Schedule.
24. Any reference to the "Contractor" in this Schedule includes any subcontractor or agent retained by the Contractor to perform obligations under the Agreement and the Contractor must ensure that any such subcontractors and agents comply with this Schedule.
25. The obligations of the Contractor in this Schedule will survive the termination of the Agreement.
26. If a provision of the Agreement (including any direction given by BC Hydro under this Schedule) conflicts with a requirement of the Act or an applicable order of the commissioner under the Act, the conflicting provision of the Agreement (or direction) will be inoperative to the extent of the conflict.

27. The Contractor must comply with the provisions of this Schedule despite any conflicting provision of this Agreement or the law of any jurisdiction outside Canada.

APPENDIX L – PREFERRED PROPONENT SECURITY DEPOSIT

[Note: The Preferred Proponent Security Deposit should be a Letter of Credit substantially in the following form, issued by a Canadian chartered bank acceptable to the Authority in its discretion and be callable at the bank's counters in Vancouver, British Columbia.]

TO: **British Columbia Hydro and Power Authority**
9100 Glenlyon Parkway, Burnaby V5J 5J8
<>
(the **Beneficiary**)

RE: PREFERRED PROPONENT SECURITY DEPOSIT

IRREVOCABLE LETTER OF CREDIT NO:_____

Dear Sirs:

At the request of our client, _____ (the **Customer**), we hereby issue in your favour our irrevocable letter of credit No. _____ (**Letter of Credit**) for a sum not exceeding in the aggregate Five Hundred Thousand Canadian Dollars (CDN $500,000) effective immediately.

This bank shall immediately pay to you under this Letter of Credit any amount or amounts claimed, not exceeding in the aggregate the sum of CDN $500,000 upon your written demand(s) for payment being made upon us at our counter during normal business hours, <> **[Note: insert address of Bank in Vancouver, British Columbia],** Canada referencing this irrevocable Letter of Credit No. _____ dated _____.

Partial drawings are permitted.

This Letter of Credit is issued subject to Uniform Customs and Practice for Documentary Credits, 2007 Revision, ICC Publication No. 600.
Drawings up to the full amount of the Letter of Credit may be made where the drawing is accompanied by a certificate executed by an authorized signatory of the Beneficiary stating that:

(a) the person signing the certificate is an authorized signatory of the Beneficiary; and

(b) the Beneficiary is entitled to draw upon this Letter of Credit.

Any drawings made under this Letter of Credit must be accompanied by the original or certified copy of this Letter of Credit, together with an original certificate complying with the conditions set out above.

We shall honour your written demand(s) for payment on presentation without enquiring whether you have a legitimate claim between yourself and our said Customer.

All banking charges are for the account of the Customer.

This Letter of Credit shall remain in full force and effect and, unless renewed, will expire at the close of business on _____ [insert 180 days after the Financial Submittal Closing Time]

Notice of non-renewal will be provided to the Beneficiary in writing by registered mail by not later than 30 days before the expiry date.

_____ _____
Authorized Signatory Authorized Signatory

APPENDIX M – PROPOSAL DECLARATION FORM

1. ***This Proposal Declaration should be executed by the Proponent and each member of the Proponent Team, excluding Key Individuals.***
2. ***By executing this Proposal Declaration, you agree to the provisions of the RFP and this Proposal Declaration.***

[RFP Proponent's Letterhead]

British Columbia Hydro and Power Authority

9100 Glenlyon Parkway,

Burnaby V5J 5J8

Attention: Xavier Serrano, Contact Person

Capitalized terms have the definitions given them in the RFP.

In consideration of BC Hydro's agreement to consider Proposals in accordance with the terms of the RFP, the Proponent hereby agrees and acknowledges that:

1. Proposal

(a) this Proposal Declaration Form has been duly authorized and validly executed;

(b) the Proponent is bound by all statements and representations in its Proposal;

(c) its Proposal strictly conforms with the RFP and that any failure to strictly conform with the RFP may, in the sole and absolute discretion of BC Hydro, be cause for rejection of its Proposal;

(d) its Proposal is in all respects a fair Proposal made without collusion or fraud;

(e) BC Hydro reserves the right to verify information in its Proposal and conduct any background investigations including criminal record investigations, verification of the Proposal, credit inquiries, litigation searches, bankruptcy registrations and taxpayer information investigations or other investigations on all or any of the Proponent Team members, and by submitting a Proposal, the Proponent agrees that they consent to the conduct of all or any of those investigations by BC Hydro.

2. Acknowledgements with Respect to the RFP

(a) the Proponent has received, read, examined and understood the entire RFP including all of the terms and conditions, all documents listed in the RFP "Table of Contents", and any and all Addenda;

(b) the Proponent has provided a price proposal that does not exceed the affordability criteria as defined in the RFP;

(c) the Proponent agrees to be bound by the entire RFP including all of the terms and conditions, all documents listed in the RFP "Table of Contents", and any and all Addenda;

(d) the Proponent's representative identified below is fully authorized to represent the Proponent in any and all matters related to its Proposal, including but not limited to providing clarifications and additional information that may be requested in association with the RFP;

(e) the Proponent has disclosed all relevant relationships, in accordance with the instructions and format outlined in the Relationship Disclosure Form; and

(f) the Proponent confirms that its Initial Proposal is based substantially on the terms of the Initial Revised Draft Contract and acknowledges that the terms of this Contract may be modified by BC Hydro in preparing the Final Draft Contract as provided for in section 4.3.9 of the RFP.

3. Proponent Team consists of:

Name	Address	Key Individual

PROPONENT REPRESENTATIVE

Name	Name of Employer
Address	E-mail Address
Name of Authorized Signatory	Telephone
Signature	Fax Number

APPENDIX N: PROPOSED PERSONNEL AND SUBCONTRACTORS

This form should be completed and submitted by December 1, 2010 at 11:00:00AM PST via e-mail to Xavier Serrano

The Proponent declares that:

1. The Proponent intends to put forward the following individuals and sub-contractors as part of their Proposal delivery team:

Name of Individual	Company

PROPONENT REPRESENTATIVE

Name

Signature

Date

APPENDIX O: UPDATES TO APPENDIX N

This form should be completed and submitted with the Final Proposal package.

The Proponent declares that:

- The following individuals and sub-contractors have been added or removed as part of their Proposal delivery team since submitting Appendix N:

Name of Individual	Company	Added / Removed

APPENDIX P – GUARANTOR DECLARATION FORM

1. ***This Guarantor Declaration should be executed by the Guarantor.***
2. ***By executing this Guarantor Declaration, you agree to the provisions of the RFP and this Guarantor Declaration.***

[RFP Proponent's Letterhead]

British Columbia Hydro and Power Authority

9100 Glenlyon Parkway,

Burnaby V5J 5J8

Attention: Xavier Serrano, Contact Person

Capitalized terms have the definitions given them in the RFP.

In consideration of BC Hydro's agreement to consider Proposals in accordance with the terms of the RFP, the Guarantor hereby agrees and acknowledges that:

1. Proposal

(a) this Guarantor Declaration Form has been duly authorized and validly executed;

(b) the Guarantor is familiar with all aspects of the Proposal and is bound by all statements and representations in the Proposal;

(c) the Guarantor has contributed to the Proposal without collusion or fraud;

(d) BC Hydro reserves the right to verify information in its Proposal and conduct any background investigations including criminal record investigations, verification of the Proposal, credit inquiries, litigation searches, bankruptcy registrations and taxpayer information investigations or other investigations on the Guarantor, and by submitting a Proposal, the Guarantor agrees that they consent to the conduct of all or any of those investigations by BC Hydro.

2. Acknowledgements with Respect to the RFP

(a) the Guarantor has received, read, examined and understood the entire RFP including all of the terms and conditions, all documents listed in the RFP "Table of Contents", and any and all Addenda;

(b) the Guarantor agrees to be bound by the entire RFP including all of the terms and conditions, all documents listed in the RFP "Table of Contents", and any and all Addenda;

(c) the Guarantor's representative identified below is fully authorized to represent the Guarantor in any and all matters related to its Guarantee, including but not limited to

providing clarifications and additional information that may be requested in association with the RFP;

(d) the Guarantor has disclosed all relevant relationships, in accordance with the instructions and format outlined in the Relationship Disclosure Form; and

(e) the Guarantor confirms accepting the terms of, and have no further comments on, the Final Draft Contract (including Appendix 15b), and that this agreement is acceptable without modification (save as contemplated therein) for purposes of guaranteeing the Project as contemplated in this letter.

GUARANTOR REPRESENTATIVE

Name	Name of Employer
Address	E-mail Address
Name of Authorized Signatory	Telephone
Signature	Fax Number

APPENDIX Q – BC HYDRO WRITTEN PERMISSIONS

For Team Members who are not your affiliates and your and their respective employees, please include in this Appendix in the form of a PDF, each written approval obtained from BC Hydro as required through Section 11.7 of the RFP.

APPENDIX R - DUE DILIGENCE QUESTIONNAIRE

1. Indicate planned or anticipated ownership changes of a material nature, if any, affecting Proponent or any Subsidiary or division.

2. Have there been any material asset or equity (shares or similar) acquisitions or dispositions in the last year? Are there any planned acquisitions or dispositions by Proponent that might affect parts of the Proponent's organization supporting the Project in any way?

3. Is there any planned or anticipated corporate reorganization or restructuring by Proponent that might affect parts of the Proponent's organization supporting the Project in any way?

4. List all material third party commitments made by Proponent, and all anticipated market trends, events or uncertainties, that are reasonably expected to have a material impact (positive or negative) on Proponent's business, financial condition or results of operations, as these apply to the Project services.

5. Has Proponent received notice from any regulatory authority (including any securities, tax, trade, anti-trust, privacy, or labour or workplace) indicating that it is in violation of any laws regulating its business operations, or is under investigation for possible violations of any laws regulating its business operations or subject to an external audit or other form of compliance review? In Canada and globally?

6. Is Proponent subject to any judgment, order or requirement of any court or governmental authority, or involved in any litigation or dispute, which could reasonably be expected to have a material impact on Proponent and its ability to carry out its business or perform its SMI obligations? In Canada and globally?

7. In the last 5 years has Proponent terminated or changed its auditors or engaged in any material disputes or disagreements over accounting policies and practices? If so, describe the background.

8. Please list any lawsuits, arbitrations, other formal dispute proceedings, and written claims, involving Proponent, or any of its affiliates, and having a potential claim value of $10,000,000 or more, and broken down by following categories:

    - customers
    - suppliers (goods, services, know how)
    - unions/employees/workplace
    - regulatory authorities
    - other

9. Is the management of Proponent aware of any actual, or alleged, alleged defaults or breaches of supplier contracts?