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October 19, 2012

Via Email
Original via Mail

Ms. Erica Hamilton
Commission Secretary
BC Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

Re: *FortisBC Inc. Application for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project – Erratum 2*

FortisBC Inc. (FortisBC or the Company) notes that the response to BCUC Information Request No. 1 Question 40.1 as filed on October 5, 2012 included an incorrect attachment. As such, FortisBC submits the following erratum which provides the correct attachment to the response. Replacement pages are attached.

Sincerely,

A handwritten signature in black ink, appearing to be "DS", with a horizontal line underneath.

Dennis Swanson
Director, Regulatory Affairs

cc: Registered Interveners

Preliminary AMI Project Plan

This preliminary project plan considers the following:

- Project Scope (What is to be done?)
- Authorization (Who's authority?)
- Integrated Management Plan (How is it done?), and
- Resource Estimates (What time and dollars are needed?)

The Integrated Management Plan, inclusive of the MS Project AMI Project plan (attached), generates the detailed schedule of activities from which to base the AMI CPCN proposal.

The objective of the project plan is to convert the costs of the project into customer benefits while balancing the cost of resources against the utilization of those resources. The project plan achieves this objective by a) logically staging, ordering and timing work, and b) whenever possible employing concurrent action.

It must be noted that a) the preliminary project plan continues to be developed, and b) the finalization of the project plan is dependent upon the receipt of a positive decision from the BCUC, and will not take place until the initial Define/Design Phase of project implementation.

Thereafter the project plan will continue to be subject to amendment as the implementation proceeds.

Project Scope:

Definition of detailed project requirements were determined by a broad cross-section of representatives throughout the Company, resulting in the development of twenty-four business Use Cases to identify, clarify and organize functional, process, and business requirements for the AMI system.

The Use Cases identify the following high priority functional requirements:

- A communication path between the endpoints (meters and other possible smart grid applications) and the utility (LAN and WAN);
- A communications network with multiple communications channels to support multiple endpoints (meters and other DA devices);
- A Network Management System for network health management;
- The communications network must support a wide variety of WAN solutions;
- Reliability, adaptability and fail-over design through-out the communications system;
- Home Area Network (HAN) capability with the HAN module in the meter;
- Meter, HAN, and network device time synchronization;
- Automatic reporting of endpoint data to the utility;
- The capability to push information (for example: pricing information and firmware upgrades) from the utility out to both the endpoints and network devices;

- Interval data at least on an hourly basis for both billing and network balancing purposes;
- A data management system capable of being integrated into pre-existing company systems;
- Scalability;
- Validation, Editing and Estimation (VEE) capability built into MDMS;
- Robust MDMS reporting tools;
- Customer presentment tools;
- Auditing capabilities;
- Support for gas and water data;
- Outage, event and alarm notification;
- Exception management tools (both automated and manual), including:
 - Voltage alarm (Hi / Low) management
 - Tamper alarm management
- Remote disconnect/reconnect capability; and
- Security of data integral throughout the system.

The scope requirements identified through the Use Case exercise (as above) inform the development and assessment of the RFPs for the MDMS and Advanced Meter Infrastructure Hardware vendors. The system that fulfills the requirements above was identified through two independent RFP processes, and consists of:

- The replacement of most existing meters with advanced meters communicating through a 900 MHz mesh network.
- The meters include HAN capability, remote disconnect/reconnect, and other capabilities as described in the functional requirements.
- The design, development and deployment of a LAN that collects the required information from the advanced meters, concentrates that data at a variety of collector sites, and retransmits the data to the utility using a variety of WAN options. The number and location of collectors, and the type of WAN communications link to the collectors are still preliminary.
- The design, development and deployment of an economical WAN solution portfolio that bridges the communications path between the collectors and the utility.
- The integration of new software (MDMS, HES, and communications system management) to collect, manage and transmit AMI data.
- The design, development, and deployment of a customer web portal

Further detailed project scoping is still required with respect to software and network technologies as described further in the Scope Management Plan, below.

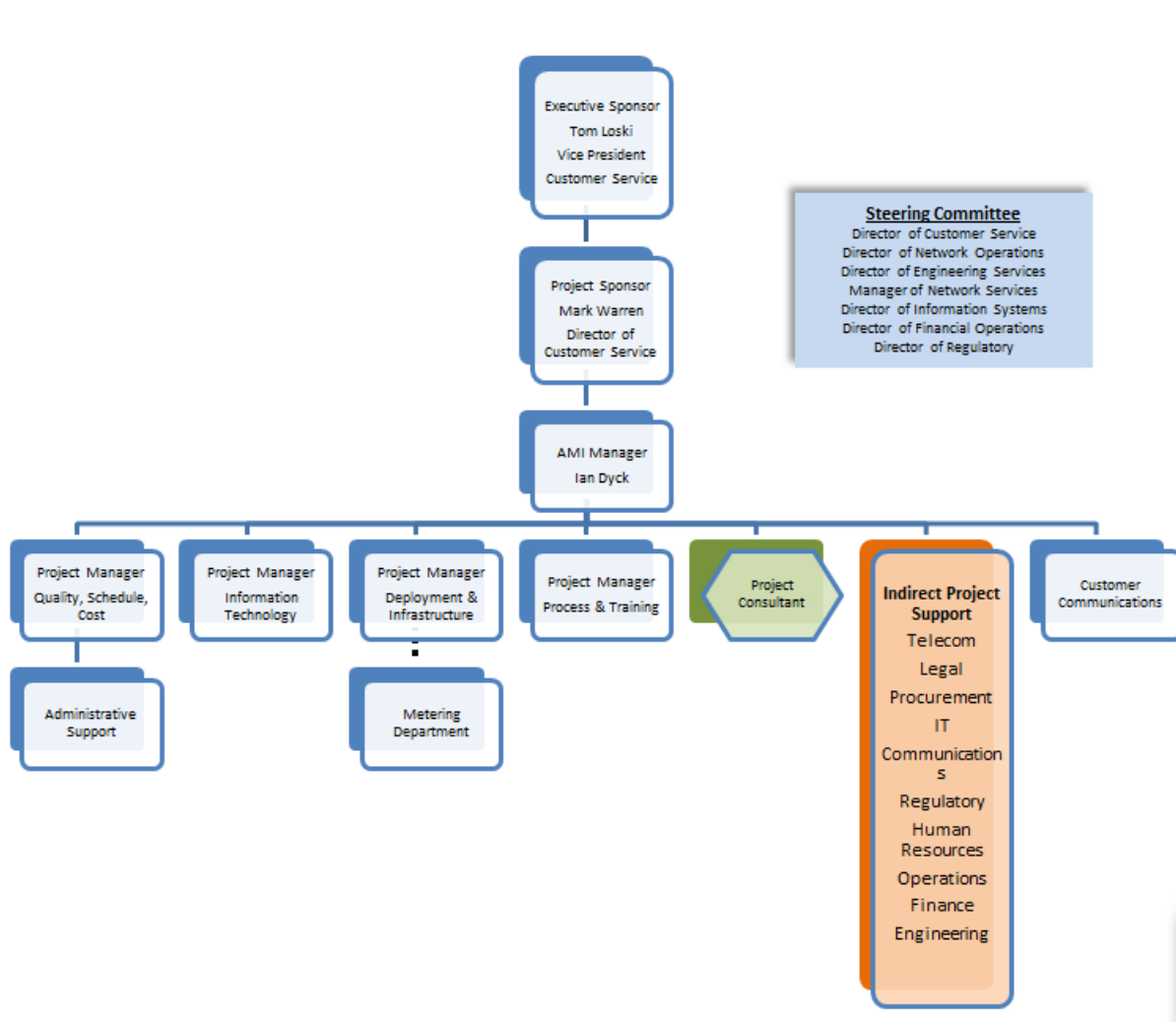
Authorization:

All internal executive and Board of Directors approvals necessary for the proposed project have been obtained.

The CPCN application will be directed to the British Columbia Utilities Commission in order to obtain regulatory approval.

Any applicable licencing requirements (such as for the WAN) will be identified during the initial Define/Design phase of the project implementation and incorporated into the project plan.

The proposed project management organization chart, below, describes the project team structure.



Key decisions regarding project scope, schedule and cost will be reviewed by the Project Sponsor and Steering Committee.

The Project Sponsor is accountable to ensure that the Project deliverables meet the objectives of the Project.

The Steering Committee includes representatives from all major aspects of FortisBC operations. They act as the primary internal stakeholders for the AMI Project, and are accountable for:

- Providing on-going strategic guidance and support for the Project;
- Providing business knowledge to the Project team;
- Reviewing Project status;
- Reviewing escalated issues (strategic, regulatory and organizational) for resolution;
- Reviewing and approving budget, project milestones and scope changes;
- Reviewing and approving Project communication plan;
- Committing resources to Project;
- Authorizing all changes to the initial scope, objectives, resources, plan and budget for the Project; and
- Formally accepting the completed Project.

Integrated Management Plan:

The Integrated Management Plan portion of FortisBC's AMI Project Plan continues to develop, including the following components:

- Scope Management Plan
- Schedule (Time) Management Plan
- Cost (Budget) Management Plan
- Quality Management Plan
- Human Resource Management Plan
- Communication Management Plan
- Risk Management Plan

Scope Management Plan

This subsection encompasses two stages. The first was the higher level scope identification, described above. The second stage refines scope with regards to software and network technologies, detailing the integration and configuration of back office software and will finalize planning for both the physical implementation work of installing the communications network and AMI meters. The second stage, otherwise known as the Define/Design Phase of the proposed project will take approximately four months after receipt of BCUC approval of the proposed project. Specifically, the Define/Design scoping stage will address:

- Finalizing the RF Network Design
 - The service territory is broken into reasonably sized sub-divisions (regions) allowing for allocation of a reasonable number of resources to deploy the communications network over the given time frame. This takes into account the

fact that RF network deployment involves three steps at each network device location:

- Site survey (ensuring that the preliminary sites selected are viable locations in terms of both RF and physical characteristics)
 - Make ready work (ensuring that the site is physically ready to accept the network device), and
 - Deployment.
- Finalizing the WAN Design
 - Design of the WAN is subject to the final RF network design in that individual network device locations will define the type of WAN options available
 - Ensure that all necessary hardware is identified and ordered
 - Ensure that all necessary licences are obtained.
 - Finalizing the AMI Meter Deployment Design
 - AMI meter deployment timing is subject to both the final RF network design and final WAN design
 - Utilizing the same regional sub-division of the Company's service territory as in the final RF network design, above, AMI meter deployment is finalized. This considers:
 - Existing manual meter reading routes will be eliminated as implementation to each regional sub-division of the service territory is complete. For clarity, it is the Company's intent to gain meter reading operational benefits on a regional basis as opposed to waiting for the entire AMI system to be in place.
 - Deployments-per-day. The final AMI meter deployment design must balance the cost of meter deployment with the speed of meter deployment, taking into account all of the required steps involved in the meter exchange process at each individual meter deployment. It is expected that, on average, the Company will be able to deploy approximately 600 AMI meters per day.
 - Geography
 - Time of year. It is the intent to, if practicable, deploy into the more challenging terrain during spring/summer thereby limiting potentially unnecessary project delays related to weather.

- Finalizing the IT Work Plan Design, including IT architecture design and data integration design. The business and technical requirements are finalized at this stage, and includes the:
 - Installation plan for MDMS/HES software purchased from Itron, and the configuration of both
 - Integration design of new AMI software with pre-existing FortisBC systems
 - Installation plan and integration design for system security
 - Design of the customer web portal
- Finalizing the Test Plan Design
 - This will encompass test plan designs for:
 - back office completion
 - regional acceptance
 - system completion
 - IHD operationalization
 - Web portal
- Finalizing Process Design
 - Re-design existing internal processes as required in order to maximize the value of the AMI system
 - Develop training modules for various stages of deployment and in order to operationalize the AMI system

Schedule (Time) Management Plan

The attached MS Project AMI Project Plan illustrates the preliminary project plan, which exists in order to govern the logical ordering and timing of work in a manner that balances resource availability against the cost of those resources.

The proposed preliminary project plan can be divided into four discrete areas of work. They are:

1. Scope Management (Define/Design) as discussed above,
2. Deploy the software,
3. Deploy the communications network (both LAN and WAN),
4. Deploy AMI meters.

The order of these areas of work is important since it means that appropriate infrastructure is in place prior to the deployment of AMI meters. This ensures that:

- the software is largely functional prior to network and meter deployment, allowing software testing to begin with field data quickly;
- network functionality and connectivity can be tested and verified prior to meter deployment;
- meter functionality can be verified immediately after the deployment of each meter; and
- benefits can be realized shortly after the most significant project expense is incurred: the purchase and deployment of meters.

Software Deployment

Building the backoffice will take approximately eighteen to twenty one months and encompasses two segments:

- The AMI system backoffice
 - New Itron-supplied software (MDMS/HES) and integration of those with existing FortisBC systems inclusive of system security
- The customer web portal

The first segment – the AMI system backoffice – will require approximately one year, with component testing commencing after the initial six months and full integration testing complete by the end of the year. With the backoffice functional, as regions of the service territory are completely implemented, customer benefits will begin to be realized, on a regional basis.

After the system backoffice is complete and “stood up”, resources will be reassigned to the customer web portal which will be ready for acceptance testing after a further six months with field testing immediately thereafter.

Communications Network Deployment

The communications network physical deployment is not dependent upon the backoffice build and requires different resources, therefore it is planned to happen concurrent to the backoffice build, taking approximately one year to complete.

Communications network maximum functionality is accomplished in two stages:

- Primary deployment, and
- Network optimization

Utilizing the regional sub-divisions developed during the Define/Design stage, the communications network primary deployment will occur on a regional basis. Each region’s network deployment will follow these steps:

- Site survey
- Make ready work
- WAN deployment
- Network device deployment

Regional deployment allows for the maximum utilization of resources required for each of the steps noted above. For example, site survey work can proceed from Region 1 to Region 2 at the same time as “make ready work” is commencing in Region 1.

Network optimization will also occur on a regional basis, but requires full back office functionality and AMI meter deployment to be complete and therefore will not commence until Region 1 is implemented (approximately one year after project commencement) and complete in the final quarter of the proposed project schedule.

Meter Deployment

AMI meter deployment is dependent upon both the backoffice build and the communications network deployment.

In order to ensure that the backoffice and RF mesh works as required, the project plan calls for the deployment of 1000 meters in advance of general regional deployment. This is known as the 1000 Meter Test group, and covers all of the stages noted above for network deployment through to and including deployment of AMI meters. The 1000 Meter Test group is planned to be a subset of Region 1, and will allow for field testing of all activities planned for general deployment, as well as “live” testing of the backoffice and the communications network. The 1000 Meter Test group implementation will occur:

- Site surveys; concurrent with the initial stages of the backoffice work
- Make ready work; concurrent with site survey work
- WAN; immediately after make ready work is complete
- Network device deployment; immediately after the WAN is available for the 1000 Meter Test group
- AMI meter deployment; immediately after the communications network is in place, timed to be complete concurrent to the time that the backoffice is ready for testing to commence.

Region 1 network device deployment will be complete approximately nine months after project commencement, followed immediately by AMI meter deployment.. General AMI meter deployment will proceed after Region 1 has been tested and accepted. No meters

will be deployed into a region until the communications network is deployed and functional.

As noted above, the customer benefits gained from reduced operational costs attributed to manual meter reading, disconnect/reconnects, contact centre, and the theft reduction benefits will begin accruing on a regional basis, as each region is complete.

Cost (Budget) Management Plan

The majority of budget items have been contracted at either fixed unit price or fixed fee, subject to the Company's confirmation to Itron by August 1, 2013 that the project will proceed. Timings for payments are subject to the plan design finalization that will occur during the Define/Design stage elaborated upon above.

Further, the Company intends to finalize its Cost Management Plan, incorporating the line item cost oversight and control that is present in all FortisBC projects, upon receipt of a positive BCUC decision on the application.

Quality Management Plan

The planned phased and regionalized nature of the Company's implementation allows for complete end-to-end testing of the AMI system as subsets of the system are complete. Testing will occur at and for:

- Communications Network Deployment plan and procedures, and the meter exchange process
 - Via the 1000 meter test group
- Backoffice completion
 - utilizing the 1000 meter test group
- The regional RF network and AMI meter functionality
 - On a region by region basis
 - Region 1 will undergo complete end-to-end system testing to ensure system performance prior to general AMI meter deployment. Region 1 implementation must be complete prior to either IHD or customer web portal field testing
 - At system completion
- IHD functionality; system and field testing
- Customer web portal; system and field testing

Human Resource Management Plan

While project labour is largely contracted, there remain two aspects to the project HR Management Plan:

- FortisBC project management; and
- Existing manual meter reading staff

While Company resources are already designated for the project, they cannot actually commence work (which entails project expenditures that have to be authorized via the CPCN approval process) until the application for the CPCN is authorized. FortisBC resources will be formally assigned and prepared for the project immediately after receipt of a BCUC approval of the application for a CPCN for the project.

The AMI Project Manager, the Manager, QSC and the PM Process & Training will be involved in all facets of the work. The PM IT and IT resources will focus upon the backoffice, while the PM Deployment/Infrastructure and operations/engineering resources will focus upon the physical implementation.

The AMI Talent Transition Plan is directed at the existing manual meter reading staff. The proposed AMI project intends to eliminate manual meter reading in Regions as those Regions are fully implemented to. The focus of this segment of the HR Management Plan is to prepare existing meter reading staff for transition to the post-AMI implementation state.

Communication Management Plan

The Communications Plan covers internal and external communications.

Objectives of the communication plan include:

- Communicate the benefits of AMI to customers, stakeholders and employees;
- Provide accurate information about advanced meters, dispelling any misunderstanding; and
- Create and sustain a positive environment during the implementation of the proposed project

It is recognized that communications will need to be extensive and comprehensive. Focus will be on advising customers what they can expect during implementation, and how they can take advantage of the new information provided by advancing metering.

The Communications plan will employ the following mediums:

- News releases;
- Advertising (radio & print);
- Web site;
- Direct mail to customers;
- Bill inserts &/or Powerlines;

- Door hangers; and
- Post installation communication packages.

Risk Management Plan

The contract with Itron ensures that cost certainty has been obtained on major project elements, and eliminated risk in many cases. However, the proposed AMI project is complex and there remain risks to be considered. Potential risks and appropriate response to each have been identified, and are included in the table below.

Risk Category	Risk Trigger	Mitigation / Response Strategy	Contingency
Schedule	The Project does not meet set milestones in the project schedule.	FortisBC has selected Itron Canada as its vendor for MDMS, communications network devices and deployment, and meters and their deployment. Elimination of the need to manage multiple vendors reduces project schedule risk. Internally, the steering team ensures continued internal support and resources throughout the AMI Project thereby mitigating schedule risk from internal sources.	Financial penalties are incorporated within the contract to incent the vendor to stay on schedule.
Cost	Project costs increase over the planned budget.	FortisBC has selected a single vendor for MDMS, communications network devices and deployment, and meters and their deployment. All major cost elements (meters, communications devices, software applications) are provided on a fixed-price or fixed-unit-price basis. 64% of the contracted price was fixed at contract signing, with the remaining 36% to be fixed during the define/design stage of project implementation. Where estimates have been used, an appropriate contingency has been added to the project cost.	Cost contingencies provided for: <ul style="list-style-type: none"> - MDMS - Meter and communication network devices - Professional services - Meter deployment Overall Project contingency is 6.4%
Scope	Change requests are received.	A detailed change control process has been implemented as an integral part of the project management process. Significant changes must be signed off by AMI steering team.	Change requests may be denied.
Performance / Quality	Failures in integration work OR AMI system components not performing as required during the design phase of the Project.	FortisBC has set out a testing schedule at all major milestones and has also ensured that there are proper testing phases in place for the vendor such as functional testing during integration activities and factory acceptance testing of the AMI equipment.	Warranties related to equipment, software and all aspects of system performance are included in the contract.

Resource Estimates

Cost and labour resource estimates for the AMI project are provided for three areas:

- Project implementation capital cost
- Sustaining capital
- Ongoing new O&M

A significant portion of project labour will be provided under contract, with FortisBC monitoring cost, scope and schedule to ensure that staffing resources are appropriate. To underscore the importance of this oversight, the project team includes a Manager; Quality, Schedule, Cost (QSC) specific to this task.

FortisBC Schedule Proposed_v2bds IED 09212012.mpp

ID	Task Name	Duration	Start	Finish	Half 2, 2013					Half 1, 2014					Half 2, 2014					Half 1, 2015					Half 2, 2015					Half 1, 2016				
					J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1	AMI Project Implementation	620 days	Tue 06/08/13	Mon 21/12/15	0%																													
2	Management Support	596 days	Tue 03/09/13	Tue 15/12/15	0%																													
213	Project RampUP Prep	39 days	Tue 06/08/13	Fri 27/09/13	0%																													
214	Project Planning	45 days	Mon 30/09/13	Fri 29/11/13	0%																													
215	Design: BSR/TAD	45 days	Mon 30/09/13	Fri 29/11/13	0%																													
216	Solutions Capability Training>	5 days	Mon 30/09/13	Fri 04/10/13	0%																													
217	Solution Requirements Workshops & Document	10 days	Mon 07/10/13	Fri 18/10/13	0%																													
218	Data Integration Design	30 days	Mon 21/10/13	Fri 29/11/13	0%																													
219	System Architecture, Environments & Design	30 days	Mon 21/10/13	Fri 29/11/13	0%																													
220	Test Plan Design	30 days	Mon 21/10/13	Fri 29/11/13	0%																													
221	Design: Project Plan	45 days	Mon 30/09/13	Fri 29/11/13	0%																													
222	WAN Design	15 days	Mon 11/11/13	Fri 29/11/13	0%																													
223	RF Network Deployment Design	15 days	Mon 21/10/13	Fri 08/11/13	0%																													
224	Meter Deployment Design	15 days	Mon 30/09/13	Fri 18/10/13	0%																													
225	Itron Prof Services // Notice to Proceed	20 days	Fri 29/11/13	Fri 27/12/13	0%																													
226	BSR/TAD: Itron quote on Prof Services	0 days	Fri 29/11/13	Fri 29/11/13	0%																													
227	FortisBC review/acceptance of Itron's Prof Services quote	20 days	Mon 02/12/13	Fri 27/12/13	0%																													
228	Notice to Proceed	0 days	Fri 27/12/13	Fri 27/12/13	0%																													
229	Finalization of detailed project plan	0 days	Mon 30/12/13	Mon 30/12/13	0%																													
230	procure/install new system server hardware	45 days	Mon 30/12/13	Fri 28/02/14	0%																													
231	BackOffice Build	200 days	Mon 03/03/14	Fri 05/12/14	0%																													
232	Install Hardware and Prepare Environments	10 days	Mon 03/03/14	Fri 14/03/14	0%																													
233	Install & Configure Software	20 days	Mon 17/03/14	Fri 11/04/14	0%																													

Critical		Manual Task		Baseline Milestone		External Tasks	
Critical Split		Start-only		Milestone		External Milestone	
Critical Progress		Finish-only		Summary Progress		Inactive Task	
Task		Duration-only		Summary		Inactive Milestone	
Split		Baseline		Manual Summary		Inactive Summary	
Task Progress		Baseline Split		Project Summary		Deadline	

