

**ALBERTA UTILITIES COMMISSION
FACILITIES APPLICATION
(AUC RULE 007)
FOR THE PROPOSED
1646658 ALBERTA LTD.
BULL CREEK WIND PROJECT AND
ASSOCIATED SUBSTATION**

**Submitted by:
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EXECUTIVE SUMMARY

1646658 Alberta Ltd., a wholly owned subsidiary of BluEarth Renewables Inc. (hereinafter referred to as “BluEarth”), is bringing an application to construct and operate:

- a) the Bull Creek wind project, a 115 MW wind power plant consisting of 46 2.5 MW wind turbines, a collector system, and the ancillary facilities necessary for operation thereof (the “BCWP”); and
- b) the associated Bull Creek 280S substation to house step-up transformation from 34.5 kV to 144 kV, and its related ancillary facilities (the “Substation”).

The BCWP, to be located in east-central Alberta, north of the community of Provost and over a contiguous area of approximately 3,560 hectares and the associated Substation, is hereinafter collectively referred to as the “Project”.

At peak, the Project would generate enough renewable energy to power 115 - 120 schools and will help Alberta meet its future needs for clean renewable energy.

The Project was first advanced by Windlab Developments Canada (“Windlab”). In 2008, Windlab commenced analyzing the wind resource, conducting environmental studies and commenced initial consultation steps to assess landowner interest. Further public consultation progressed in 2010. BluEarth purchased the Project in late 2011.

The power generated from the Project will be sold to the Alberta School Boards (“School Boards”) and used to power many of Alberta’s schools and educational facilities through a long term power purchase agreement (the “PPA”).

Wind power is the ideal source of energy to meet the needs of the School Boards. Wind power has long-term cost predictability (there is no fuel-price risk) and the production cycle aligns well with the School Board’s energy consumption – higher wind production matches day time and winter time consumption.

Since 2005 some School Boards have undertaken a pilot power purchasing strategy to reduce exposure to volatile energy costs by fixing these costs through long-term PPAs. Because volatile energy prices can quickly cause budgetary imbalances, it can necessitate requiring the reduction of core educational services in order to balance budgetary deficits. The pilot project has already yielded the benefit to School Boards of avoiding between \$20 and \$30 million in higher energy costs. For this reason, the School Boards are undertaking to expand this beneficial contracting strategy, which would be made possible upon the approval of this application and construction and operation of the Project.

The School Boards ran a formal competitive process to select a wind development partner. Nine proposals were submitted and seven companies from across North America were interviewed and evaluated against selection criteria, before BluEarth was selected as a partner. The School Boards Commodities Purchasing Consortium (the “School Board Consortium”) has executed a Letter of Intent (“LOI”) with BluEarth and is working with BluEarth to finalize a PPA.

BluEarth has extensive Canadian experience and success as a renewable energy team. The BluEarth management team is composed of the members of the previous management team of Canadian Hydro Developers, who have lead the successful development of some of Canada’s largest wind projects.

The partnership between the School Boards and BluEarth has the potential to result in significant cost savings to the School Boards by enabling them to limit their exposure to price volatility by capitalizing on the long term predictability of wind energy costs. These costs savings will, in turn, keep School Board dollars in Alberta’s classrooms, where they belong.

Table 1 Overview Project Schedule

Project Activity	Date
Public Consultation	2008 - Ongoing
File Alberta Utilities Commission Application	May 2012
Municipal Zoning & Development Permit Process	May to September 2012
Project Construction	January to December 2013
Commercial Wind Power Operations	December 2013

COMBINED POWER PLANT AND SUBSTATION APPLICATION

This application addresses the combined information requirements outlined within the Alberta Utilities Commission (“AUC”) Rule 007 *Applications of for Power Plants, Substations, Transmission Lines and Industrial System Designations*, and specifically those required under Section 3 (*Power Plant Applications 1 Megawatt (MW) or Greater*) (hereinafter “PP” requirements) and Section 7 (*Transmission Line / Substation Applications*) (hereinafter “TS” requirements).

Many of the Rule 007 Section 3 and 7 information requirements overlap. For the ease of review we address firstly the PP requirements as sequentially listed under Section 3 of Rule 007, including any of the overlapping Section 7 of Rule 007 TS requirements. We thereafter address the remaining TS information requirements, as sequentially listed under Section 7 of Rule 007 only to the extent the TS requirements were not already addressed as part of the PP requirements.

PP1 & TS1) Identify the sections of the HEE Act under which the application is made.

BluEarth brings this Application under Sections 11, 14 and 15 of the *Hydro and Electric Energy Act*, R.S.A. 2000, c. H-16 (the “*HEEA*”), as amended.

PP2 & TS2) Identify any other acts, for example, *Environmental Protection and Enhancement Act (EPE Act)* that may affect your project.

The following provincial and federal statutes may affect the Project:

- *Electric Utilities Act*, S.A. 2003, c. E-5.1;
- *Municipal Government Act*, R.S.A. 2000, c. M-26;
- *Wildlife Act*, R.S.A. 2000, c. W-10;
- *Historical Resources Act*, R.S.A. 2000, c. H-9;
- *Public Highways Development Act*, R.S.A. 2000, c. P-38;
- *Migratory Birds Convention Act*, S.C. 1994, c. 22;
- *Species At Risk Act*, S.C. 2002, c. 29;
- *Aeronautics Act*, R.S.C. 1985, c. A-2;
- *Radiocommunication Act*, R.S.C. 1985, c. R-2;
- *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12;
- *Safety Codes Act*, R.S.A. 2000, c. S-1;
- *Alberta Utilities Commission Act*, 2007, c. A-37.2; and

- *Water Act*, R.S.A. 2000, c. W-3.

PP3 & TS3) State the approvals that you are applying for from the Commission.

BluEarth applies for the following approvals:

- pursuant to Section 11 of the *HEEA*, an order approving the construction and operation of the BCWP; and
- pursuant to Sections 14 and 15 of the *HEEA*, a permit to construct and license to operate the Substation.

In support of this power plant and substation application, BluEarth relies on the information provided herein and in the appendices to this application.

PP4 & TS4) PP4) Provide a list of existing approvals for facilities directly affected by this project, if any. TS4) Where existing facilities are being altered, state the existing order/authority (i.e., approvals, permits, and licenses) for each facility

There are no known existing approvals for facilities directly affected by the Project.

PP5 & TS5) Provide details and outcome of consultation with local jurisdictions (e.g., municipal districts, counties).

The Municipal District (“MD”) of Wainwright and the MD of Provost were consulted with throughout the planning stages of the proposed Project.

The previous owner of the Project first held meetings with MD Wainwright and Provost on May 4, 2011. These meetings served as an introduction of the previous Project owner, Windlab, the Project, and its process and proposed schedule.

The discussions and perception of the Project at the meeting with the MD of Wainwright were very positive and the Project development in the area was welcomed. The MD of Wainwright passed a bylaw (Bylaw #1491) in 2010 outlining requirements for development permit application for wind projects. Re-zoning of land is not required by the MD of Wainwright.

The MD of Provost proposed to implement a more formal process around development applications for wind project development. In order to complete this, the MD of Provost held public meetings and passed a formal re-zoning process for “Wind Energy Conservation Systems” (“WECS”) as a bylaw amendment in March 2011. The MD of Provost’s land use bylaw now outlines the specific application requirements for wind project development, including public engagement.

Following BluEarth’s acquisition of the Project, BluEarth held introductory meetings with both the MD of Wainwright and the MD of Provost on January 17, 2012. BluEarth provided updates on the Project acquisition to the relevant MD’s, the anticipated Project schedule and the agreement with the School Boards Consortium. Both MDs continued to be positive about the Project development and appreciated the update and progress made.

Representatives from both the MD of Wainwright and the MD of Provost attended the BluEarth Open Houses on February 29, 2012 and March 1, 2012, respectively.

BluEarth is consulting with both MDs on an ongoing basis, and in addition, concurrently with this application, is in the process of making an application for re-zoning and subsequent development permit application to the MD of Provost. A development permit will also be applied for with the MD of Wainwright. (Attachment 1 and 2)

PP6 & TS6) Provide a list of parties that may be affected by your project, confirm that these parties have no concerns regarding your application, and indicate which other agreements are necessary to carry out your project.

Notification and consultation with landowners, residents and occupants are covered under PP17&TS11, PP18&TS12, PP20&TS14, PP21&TS15, PP22&TS16 and PP23&TS17.

In order to assess the potential impacts for Telecommunication stakeholders that may be affected by the Project an assessment of potential impact on existing telecommunication facilities was completed. It was concluded that there are no anticipated effects on surrounding telecommunication facilities. The report is included in Attachment 15.

Industry stakeholders were provided notification packages by mail and/or e-mail. The following industry stakeholders were directly consulted as their land holdings or facilities are within the Project area or 800 m of its boundary. Please see PP17 & TS11 for Participant Involvement Program (“PIP”) details. The following is a summary of the industry consultation:

AltaLink Management Ltd. (“AltaLink”)	Consultation and negotiation ongoing with regards to interconnection. No concerns to date.
BP Oil and Gas Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Black Shire Energy Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Canadian Natural Resources Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Cenovus Energy Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Devon Canada Corp.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
EchoEx Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Enerplus Corporation	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
EOG Resources Canada Inc.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
FortisAlberta Inc.	No concerns. Facility coordination agreement is currently being executed.
Freehold Resources Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Harvest Operations Corp.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Husky Oil Operations Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Natural Gas Co-Op 52 Ltd.	No Concern.
Pacific Potash Corp.	No Concern.
PennWest Petroleum Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Talisman Energy Inc.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
TAQA North Ltd.	No Concern. Should facilities cross or be in proximity, agreement shall be requested prior to construction.
Telus	No Concern.

PP7) Provide a copy of your approvals from Transport Canada for any structures 20 metres (m) or taller.

Transport Canada permit 2012-139 was received on March 29, 2012 and a copy can be found in Attachment 3A.

PP8) Provide a copy of your approval from Alberta Transportation if a wind power plant that is within 300 m of a numbered highway is being applying for.

Not applicable.

PP9) Confirm that an application to AENV has been made, if applicable, and list all other government departments and agencies from which approval is required. For wind power applications Alberta Sustainable Resource Development (ASRD) – Fish and Wildlife Division must be included on the referral list. The Commission requires a sign-off from ASRD prior to processing any new wind power applications

An application to Alberta Environment (“AENV”) is not applicable. All required permits, such as *Water Act* Approval & Notifications shall be applied for as required by AENV at the appropriate time. Please see Attachment 4B for AENV consultation. BluEarth undertakes to continue to inform AENV of any progress related to the Project.

BluEarth requires approvals from:

- Transport Canada (Aeronautical Obstruction Clearance & Lighting Direction);
- NAV Canada (Land Use Proposal Submission); and
- Alberta Culture and Community Spirit (ACCS) (clearance under the Alberta *Heritage Resources Act*).

Please see Attachment 3A, 3B and 5 for the relevant documentation.

BluEarth consulted with ASRD Senior Area Wildlife Biologist (Vermilion), Mr. David Moore on an ongoing basis throughout the Project planning process. Mr. Moore was provided a copy of the Bull Creek Wind Power Project Environmental Evaluation dated April 2012 prepared by Golder Associates (the “EE”) (Attachment 6). BluEarth and Mr. Moore, along with Mr. Pat Porter (ASRD Public Lands) completed a site tour on May 17, 2012 to view the Project. Mr. Moore

communicated that he was satisfied with the Project and had no further questions or concerns with regards to the Project and provided “sign-off” on the Project on June 5, 2012 (Attachment 4B).

PP10 & TS39) Confirm that a *Historic Resources Act* clearance is being applied for. If a historical and/or archaeological impact assessment is required, submit a summary describing any historical or archaeological sites and parks affected by your proposal.

The Historical Resources Management Branch (“HRMB”) of Alberta Culture and Community Spirit (“ACCS”) issued Windlab a ‘Schedule A’, detailing the requirements for the completion of a Historical Resources Impact Assessment (“HRIA”), for the Project, on September 16, 2010 (Attachment 5). Following the submission of the HRIA, the HRMB issued Windlab a ‘Schedule B’ and “conditional *Historic Resources Act* clearance” for the Project, on August 25, 2011 (Attachment 5) which also sets out a summary describing all historical or archaeological sites. BluEarth confirms that no park would be affected by any approval of the Application. BluEarth confirmed that it has designed the layout of the Project to avoid the historical resources identified within the HRIA, and therefore anticipates that an unconditional *Historic Resources Act* clearance will be granted following HRMB review.

PP11) Provide the ISO-assigned asset identification code, if available.

The Alberta Electric System Operator (“AESO”) assigned asset identification code is RP-05-789.

PP12) Provide the legal description of the proposed power plant site (Legal Subdivision [LSD], Section, Township, Range, Meridian) and connection point, if applicable.

The legal land description of the turbines is provided in Table 2.

Table 2 Legal Land Locations of Project Components

Turbine #	LSD	Section	Township	Range	Meridian
1	5	13	41	2	4
2	3	13	41	2	4
3	6	19	41	1	4
4	15	18	41	1	4
5	7	18	41	1	4
6	2	18	41	1	4
7	9	18	41	1	4
8	4	20	41	1	4
9	13	17	41	1	4
10	3	17	41	1	4
11	11	17	41	1	4
12	2	20	41	1	4
13	10	5	41	1	4
14	16	8	41	1	4
15	10	8	41	1	4
16	1	8	41	1	4
17	15	5	41	1	4
18	12	4	41	1	4
19	5	9	41	1	4
20	11	4	41	1	4
21	2	9	41	1	4
22	15	4	41	1	4
23	15	9	41	1	4
24	7	9	41	1	4
26	15	21	41	1	4
27	9	9	41	1	4
30	16	21	41	1	4
31	16	9	41	1	4
33	14	22	41	1	4
34	4	10	41	1	4
35	5	10	41	1	4
36	13	10	41	1	4
37	6	22	41	1	4
38	13	3	41	1	4
39	3	15	41	1	4
41	11	15	41	1	4
42	7	15	41	1	4
43	7	2	41	1	4
44	2	11	41	1	4

Table 2 Legal Land Locations of Project Components (continued)

Turbine #	LSD	Section	Township	Range	Meridian
45	8	11	41	1	4
46	9	2	41	1	4
47	3	12	41	1	4
48	6	12	41	1	4
49	11	12	41	1	4
51	7	12	41	1	4
52	1	12	41	1	4

PP13) For wind power plant applications, provide the longitude and latitude coordinates for the center of each structure supporting a wind-powered generator. If after approval is granted, the location of any supporting structure has to be relocated more than 50 m from the coordinates stated in the application, the power plant proponent must re-apply to the Commission for approval to relocate the structure prior to construction.

The latitude and longitude coordinates (and UTM coordinates) for the turbines are provided in Table 3.

Table 3 Coordinates of Turbines (UTM NAD 83; Zone 12)

Turbine	Geographic		UTM NAD 83, Zone 12	
	Latitude (°)	Longitude (°)	Easting	Northing
1	-110.170451	52.527258	556277	5820007
2	-110.163243	52.524343	556770	5819689
3	-110.142466	52.539696	558159	5821413
4	-110.134598	52.534183	558700	5820806
5	-110.133509	52.527281	558783	5820039
6	-110.134573	52.524176	558715	5819693
7	-110.128148	52.530817	559142	5820437
8	-110.122491	52.538893	559515	5821340
9	-110.119148	52.534516	559747	5820856
10	-110.115591	52.524586	560002	5819754
11	-110.116861	52.531055	559907	5820473
12	-110.110555	52.538216	560325	5821275
13	-110.107842	52.501143	560560	5817153
14	-110.106687	52.518304	560615	5819063
15	-110.107582	52.515607	560558	5818762

Table 3 Coordinates of Turbines (UTM NAD 83; Zone 12) (continued)

Turbine	Geographic		UTM NAD 83, Zone 12	
	Latitude (°)	Longitude (°)	Easting	Northing
16	-110.10353	52.509858	560841	5818126
17	-110.10929	52.505026	560457	5817584
18	-110.098125	52.501151	561220	5817162
19	-110.095151	52.511424	561407	5818307
20	-110.09266	52.503138	561588	5817388
21	-110.083159	52.508789	562225	5818025
22	-110.086281	52.50495	562018	5817595
23	-110.086182	52.518877	562005	5819144
24	-110.083661	52.511981	562186	5818379
26	-110.086475	52.547976	561945	5822381
27	-110.082852	52.515612	562236	5818784
30	-110.080019	52.548931	562381	5822492
31	-110.079637	52.519029	562449	5819167
33	-110.069289	52.547705	563110	5822365
34	-110.07377	52.510004	562860	5818168
35	-110.072532	52.512462	562941	5818442
36	-110.072244	52.519726	562950	5819251
37	-110.067613	52.541545	563233	5821682
38	-110.07206	52.504705	562984	5817580
39	-110.068606	52.522898	563192	5819607
41	-110.067912	52.530596	563228	5820463
42	-110.061932	52.527043	563639	5820074
43	-110.037473	52.497798	565342	5816843
44	-110.035521	52.509049	565458	5818096
45	-110.033638	52.511949	565581	5818420
46	-110.031653	52.501169	565732	5817223
47	-110.02049	52.50866	566478	5818066
48	-110.022795	52.512364	566316	5818476
49	-110.022058	52.516221	566360	5818906
51	-110.013656	52.512477	566936	5818497
52	-110.007683	52.508545	567348	5818065

PP14) Describe the project site and the regional setting of the development.

Detailed information on the Project site and regional setting is provided in the EE (Attachment 6). In general, the Project site and regional setting is characterized by the existing land-use and infrastructure.

Located in the Parkland Natural Region and the Central Parkland Natural Subregion (Natural Regions Committee 2006), the existing land-use within the Project area is primarily agriculture and includes: cultivated cropland (agricultural species and associated weed species), tame pasture (hayland), modified pasture, upland native pasture and wetlands. Regionally, besides those land-uses listed above, small lakes (e.g., Leane, Killarney, Dillberry) also exist.

Existing infrastructure includes rural residences/farmyards, oil and gas facilities, electrical distribution and transmission lines, electrical substation, and communication facilities.

PP15) Describe the number of generating units and the total capacity (kilovoltampere [kVA], or megavoltampere [MVA]) for the project.

The BCWP will consist of 46 General Electric Wind turbines each rated at 2.5 MW and 0.9 power factor for a total project capacity of 115 MW (128 MVA or 128,000kVA). See PP28 for more details on the generating equipment and Attachment 16 for Wind Turbine Systems Interconnection Data.

PP16) Provide a general overview of environmental impacts (such as noise, visual, emissions, land disturbances, surface water).

A general overview of potential environmental effects has been provided within the EE (Attachment 6). The evaluation focussed on environmental components including: land use, designated areas, wetlands, soils and terrain, vegetation and wildlife. Following an evaluation of residual effects (those occurring following the application of mitigation), the predicted levels of importance of the residual effects were then determined as per the definitions in Table 4. The level of importance of the residual effects (those occurring following the application of mitigation) are predicted to be minimal to medium, depending of the ecosystem component in question.

Table 4 Level of Importance of Residual Effects

Level	Definition
high	Potential effect could threaten sustainability of the resource and should be considered a management concern. Research, monitoring and/or recovery initiatives should be considered.
medium	Potential effect could result in a decline in resource to lower-than-baseline but stable levels in the study area after project closure and into the foreseeable future. Regional management actions such as research, monitoring and/or recovery initiatives may be required.
low	Potential effect may result in a slight decline in resource in study area during the life of the project. Research, monitoring, and/or recovery initiatives would not normally be required.
minimal	Potential effect may result in a slight decline in resource in study area during construction phase, but the resource should return to baseline levels.

Source: NRCan (2003).

A Noise Impact Assessment (“NIA”) is provided in Attachment 10. The NIA studied the baseline and cumulative effects of the project for noise receptors in accordance with AUC Rule 012. Cumulative noise levels, including the Project during operation, are predicted to meet the requirements of AUC Rule 012 PSL limits of 50 dBA (day) and 40 dBA (night) for all receptors with the proposed mitigation outlined in the NIA in place.

Representative photomontages of the BCWP, that were displayed during the February 29 and March 1, 2012 open-house events, are provided in Attachment 7.

There will be no emissions from the operating BCWP.

PP17 & TS11) Describe the participant involvement information. (See Appendix A – Participant Involvement Program Requirements).

The participant involvement program (“PIP”) was developed in accordance with the requirements provided in Appendix A of AUC Rule 007 as follows:

- BluEarth notified all occupants, residents and landowners within 800 m from the boundary of the proposed Substation;

- BluEarth notified all occupants, residents and landowners within 2000 m radius from the edge of the proposed BCWP site boundary;
- BluEarth conducted personal consultations with occupants, residents and landowners that would be on or directly adjacent to the proposed Substation site location; and
- BluEarth conducted personal consultations with occupants, residents and landowners that would be within 800 m from the edge of the proposed BCWP site boundary.

BluEarth implemented the PIP to:

- a) Distribute project-specific information in order to inform stakeholders of the details of the Project with information that is clear and all technical details are presented in a manner that the public is able to comprehend;
- b) Provide stakeholders with opportunities and conduit to ask questions and express concerns about the Project and have those questions and concerns addressed in an honest and timely manner; and
- c) Based on those stakeholder questions and/or concerns, discuss options and measures to mitigate the concerns.

Based on a land titles search of the Project area and information gathered from consultation, and discussions with land owners, a total of 147 stakeholders were notified of the Project, including landowners, renters, occupants, interested parties and residences with 56 of the 147 being personally consulted with in accordance with AUC Rule 007.

Summary of the PIP Activities:

2008-2009

Consultation for the Project began with informal landowner discussions and meetings in 2008 and 2009.

Consultation with ASRD was initiated the Fall of 2008 to determine the scope of the environmental surveys for the Project.

2010-2011

A follow up meeting with ASRD was held in March, 2010 to present the results of the surveys, including the wildlife report set out in the EE (Attachment 6).

Formal consultation for the Project was initiated in July 2010 with the publication of a Notice of an Open House for the Project.

Notices of the Open Houses were issued in the Provost News and in the Star News (Attachment 8A).

The Provost News	July 14, 2010 July 21, 2010
The Star News (Wainwright)	July 13, 2010 July 20, 2010

A first Open House was held on July 20, 2010. The previous project owner, Windlab communicated information about the Project, specifically the wind resource, initial results from environmental surveys and an initial preliminary layout.

Landowner engagement continued through the process of signing land option agreements.

Meetings with the MDs of Wainwright and Provost were entertained in May, 2011. The Project was well received and the meetings served the MDs to inform the previous project owner, Windlab, about their re-zoning and development permit processes.

January 2012

A BluEarth introductory letter was sent out on January 15, 2012 to the project landowners. The letter contained information about the Project acquisition by BluEarth and an update on the Project and proposed schedule.

On January 17, 2012 BluEarth made a presentation regarding the Project acquisition by BluEarth to the council of the MD of Wainwright and provided an update on the Project and proposed schedule. The meeting of BluEarth Representatives with the Wainwright council was covered in the Star News on January 27, 2012 (Attachment 8D).

Further BluEarth representatives met on January 17, 2012 with the MD of Provost to information on the acquisition of the Project by BluEarth and an update of the Project and proposed schedule. The meeting was further used to coordinate on the re-zoning process in Provost.

February 2012

A notification mailing to all stakeholders within 2 km of the Project area was mailed on February 10, 2012. The mailing included information on the Project scope, the arrangement with the School Boards, an anticipated Project schedule, the AUC’s brochure *Public Involvement In Needs or Facilities Applications*, as well as the dates and locations for the planned Open Houses on February 29 and March 1, 2012. The mailing further included a Project map showing turbine locations and the approximate location of the Project electric collector system and Substation. BluEarth contact details and a link to the company’s Project website were provided. (Mailing materials can be found in Attachment 8C).

Notices of the Open Houses were issued in the Eastern Central Alberta (“ECA”) Review, the Provost News, in the Star News and in the Wainwright Edge (Attachment 8A).

The Provost News	February 15, 2012 February 22, 2012
The Edge (Wainwright)	February 17, 2012 February 24, 2012
The Star (Wainwright)	February 14, 2012 February 21, 2012
ECA Review (Coronation)	February 23, 2012

March 2012

The Public Open Houses were held on February 29, 2012 in Wainwright, and on March 1, 2012 in Provost. Material presented at the Open Houses included detailed Project maps showing environmental constraints and municipal as well as provincial setback requirements for the layout design, information on the noise modeling, additional environmental considerations, as well as the proposed Project development and construction schedules, and the most recent peer reviewed journal papers/studies with regards to health effects of wind turbines were provided. Further maps were showing the turbine layout that considered all setback requirements, constraints and landowner feedback provided to date, access roads, collector system, and the Substation location. Representatives from BluEarth, from BluEarth’s environmental and noise consultant Golder

Associates, and representatives from the School Boards were present to answer questions and discuss concerns. (see Attachment 8B for Open House materials).

Landowners, residents and occupants within 800 m of the Project boundaries were consulted through either face to face or telephone conversations throughout March and April 2012. These stakeholder meetings were to confirm receipt and review of the notification package sent out on February 10, 2012 and to further discuss the Project details, including facility placement, proposed schedule, the AUC consultation process and address individual questions and concerns about the Project.

April 2012

BluEarth was successful in contacting all stakeholders within 800 m of the Project boundaries. Those stakeholders who declined in-person or telephone consultation were corresponded with in writing in order to address any concerns raised. All stakeholders were provided contact details for BluEarth and informed that BluEarth continues to be available to address any further questions and concerns related to the Project.

A Project update and notification letter identifying the final layout was sent out to all stakeholders on April 19, 2012 (notification mailing material can be found in Attachment 8C prior to the AUC filing. This notification package included an update on the Project schedule, maps showing the turbine, collector line and Substation locations and the AUC brochure *Public Involvement in Facility Applications to the AUC*, including the intended filing date with the AUC.

BluEarth maintains a website (www.blueearthrenewables.com/bullcreekwind) with Project information as well as general project updates, as they become available. Key project contacts are listed on the website.

BluEarth is committed to ongoing consultation and has communicated this on several occasions to the stakeholders.

In addition, BluEarth received an e-mail from Carmen Krogh, from Ontario Canada, on February 23, 2012 related to general information about adverse health effects that some parties consider may be caused by industrial wind turbines. The e-mail included several attachments. The e-mail

and attachments are hereinafter referred to as the “February 23, 2012 E-mail”. The February 23, 2012 E-mail is attached hereto as Attachment 8F.

PP18 & TS12) List all occupants, residents, and landowners on lands within 2,000 m of the project area, as well as other interested persons that were consulted as part of the participant involvement program. If there are populated areas just outside the 2,000 m limit, applicants should consider including those areas in the participant involvement program.

Please see Attachment 9B (alphabetical) and 9C (by land description) for list of all parties.

PP19 & TS13) Supply a list of mailing addresses, with corresponding land locations and 2 sets of printed mailing labels of those parties mentioned in PP18 above.

Please see Attachment 9A for mailing labels associated with PP18 & TS 12.

PP20 & TS14) Identify any persons who expressed concerns about the project and the specifics of their concerns.

Please see consultation table in Attachment 8E.

PP21 & TS15) Summarize discussions held with potentially directly and adversely affected persons.

Landowners, residents and occupants within 800m of the BCWP boundary and Substation boundary were consulted. The following is a summary of items that were raised by stakeholders during consultation.

Turbine Locations

Question: Some stakeholders inquired as to process of selecting the wind turbine locations.

Response Provided: Tower locations are primarily a function of regulatory setbacks and environmental constraints. For example, various provincial and municipal government requirements prescribe setbacks from environmental features such as wetlands and sensitive wildlife habitats, and from physical features like homes, property lines, pipelines and wells, roads and road right-of-ways. Other technical factors, including sound levels, topography, and

separation between turbines further restrict where turbines can be placed. Consideration of all of these constraints significantly limits the land base eligible for turbines placement. Within the bounds of unconstrained areas, the final wind turbine locations are selected in consultation with the landowner. (A constraint map was provided to stakeholders and contained in Attachment 8C.

Noise

Concern: Some stakeholders were concerned about the potential increase in audible noise due to the proposed wind turbines.

Response Provided: The Project will be compliant with AUC Rule 012 – Noise Control, which prescribes that the cumulative noise level from both existing and proposed facilities is not permitted to be greater than 40 dBA at night-time at any residence. This noise limit is consistent with the night-time noise guideline of 40 dBA that the World Health Organization Europe recommends for the protection of public health from community noise.

Electromagnetic Fields (“EMF”)

Concern: Some stakeholders were concerned about the potential effects of EMF from the turbines and the collector system.

Response Provided: EMF are invisible forces that surround electrical equipment, power cords, and wires that carry electricity. You cannot see or feel EMF’s. EMF around wind farms can originate from the grid connection lines, wind turbines, electrical transformers, and underground cables.

- grid connection (overhead) lines are similar to other power lines and generate low levels of EMF comparable to those from household appliances;
- turbine generators are located inside the nacelle, 85 m above the ground, resulting in little or no EMF at ground level;
- padmount transformers (at the base of each wind turbine) generate some EMF but this is negligible 10 to 15 feet from the transformer (less than that of an average household hair dryer); and

- underground collector cables generate little or no EMF at ground surface due to the screening of the cables.

Research has shown that EMFs from electrical devices and power lines can cause weak electrical currents to flow through the human body. However these currents are much smaller than those produced naturally by your brain, nerves and heart, and are not associated with any known health risks.

Environmental Effects

Concern: Some stakeholders were concerned that there would be an adverse effect to the environment.

Response Provided: Wind turbines have been in operation around the world for over 30 years, and their interaction with the natural environment is very well studied and understood. Wind energy has a small terrestrial footprint, emits no pollution to our air or water, and has one of the lowest environmental effects of any form of energy generation today. BluEarth's goal is to ensure that the Project results in the most minimal amount of environmental effects as possible, and that the Project benefits the local community.

To minimize the potential environmental effects of this Project, BluEarth ensured informing itself of the local conditions and undertaking a rigorous environmental evaluation. Studies of wetlands, vegetation, and wildlife (including birds and bats) were conducted over a period of three (3) years.

BluEarth is committed to avoiding or mitigating environmental effects wherever possible, and to meeting or exceeding all applicable environmental guidelines and regulations. Monitoring of potential environmental effects will continue during Project's operation. The level of importance of the residual effects (those occurring following the application of mitigation) are predicted to be minimal to medium, depending on the ecosystem component in question.

Mitigation measures have been developed and implemented to ensure minimal environmental effects from the Project. (For further details, please see the EE, Attachment 6).

Life Span and Maintenance

Question: How long will the turbines last, and how often is maintenance required?

Response Provided: The commercial life span of the turbines is approximately 25 years, although this lifespan can be extended with proper care and maintenance.

The turbines will be subject to an annual maintenance program, conducted through the warmer months when winds are generally lower, in order to prepare the wind turbines for operation through the windy winter season. Project operations staff will work in pairs, accessing each turbine in 1-tonne service trucks.

Visual Impact

Question: What will the wind farm look like?

Response: BluEarth presented photo simulations of the Project from several view points in the region to show the expected visual change to the landscape. (Attachment 7).

Health

Concern: Are there any adverse health effects from wind turbines?

Response provided: BluEarth recognizes that some people are concerned with potential health effects of wind turbines. There are no peer-reviewed scientific studies that demonstrate a direct causal link between people living in proximity to modern wind turbines, the noise they emit and a physiological change in health.¹

PP22 & TS16) If potentially directly and adversely affected persons raised any concerns, describe how they were dealt with or are being dealt with.

Please refer to consultation table in Attachment 8E for PP20 & TS 14 and the general discussions summarized in PP 21 & TS15.

¹ Knopper and Olsson: Health Effects and Wind Turbines: A review of the literature. *Environmental Health* 2011 10:78.

PP23 & TS17) For those potentially directly and adversely affected persons identified above, include a confirmation of resolution of the concerns, if applicable.

Please refer to the above sections PP20 and PP22 for discussion of stakeholder feedback and resolution of concerns.

PP24) Describe the existing land use.

Existing land use within the Project is provided in the Section 3.0 of the EE (Attachment 6). In brief, the most common land use types within the Project area are agricultural crops, treed areas, native pasture, tame pasture (hayland), modified pasture, wetlands, farmyards, disturbed areas and dugouts, in that order.

PP25) Discuss potential siting and land-use issues.

The selection of the BCWP site was based on a number of factors, including:

- preliminary wind resource assessment;
- review of terrain and topography;
- access to transmission; and
- land owner interests.

After the proposed BCWP site was found suitable for a wind power development, wind turbine layout was undertaken, taking into consideration the following factors:

- results from wind profile studies and meteorological data;
- MD of Provost and MD of Wainwright land use bylaws;
- potential concerns of nearby residents and landowners;
- site access;
- existing land use;
- environmental and historical resources overview information (e.g., wildlife habitat, vegetation communities, location of historical resources);
- results from preliminary noise assessment; and
- interconnection considerations.

Once all the constraints were considered, the remaining limited area was considered. The wind turbine locations were finalized within the constraints from the above factors and in further consultation with the landowners. Throughout the siting process several revisions to the layout were completed taking into consideration the compilation of constraints and landowners' requests. All potential siting and land-use issues that were identified have been avoided or will be mitigated where appropriate. Final routing of collector systems and access roads was determined using the same process with input from landowners throughout. BluEarth is not aware of any siting issues with respect to the Project at this time.

PP26) If the power plant is to be located within an oil and gas facility, confirm the power plant will comply with the standards outlined in Sections 8.090 and 8.170 of the *Oil and Gas Conservation Regulations*.

The BCWP is not located within an oil and gas facility.

PP27 & TS34) Provide a noise impact assessment, in accordance with the current *Rule 012 Noise Control*.

A NIA of the BCWP facility and Substation was conducted to meet the requirements of the April 1, 2012 version of the AUC *Rule 012: Noise Control (Rule 012)*, and provided in Attachment 10. For the assessment of noise resulting from the Project, 42 noise sensitive receptors as defined by the AUC were considered, within a 2 km distance of Project components (Noise Study Area). This encompasses the 1.5 km distance boundary set in AUC Rule 012, plus an additional 0.5 km based on the distance that was used for public consultation regarding the Project in accordance with AUC Rule 007. BluEarth will provide that noise levels from the Project will remain below the allowable limits as set out by the AUC by conducting post-construction noise monitoring and mitigation if/as deemed necessary.

PP28 & TS7) PP28) Provide details of your power generating equipment and associated facilities, such as make, model, and nominal capacity; and, TS7). Provide a description of the proposed project.

The BCWP will consist of 46 General Electric model 2.5-103 wind turbines. The 2.5-103 wind turbine is a horizontal axis, upwind, three bladed machine with active pitch and yaw controls and a variable speed double fed induction generator (“DFIG”). The DFIG’s along with the associated converter equipment within the turbine have the ability to meet the AESO Low Voltage Ride

Through and reactive power requirements. Some of the key parameters of the 2.5-103 wind turbines are as follows as outlined in the table below. More detailed information is contained in Attachment 16A and 16B.

Nominal Power Output	2.5 MW
Nominal Power Demand	50 kW (Maximum load at calm wind periods)
Rated Power Factor	0.9 lag to 0.9 lead
Hub Height	85 meters
Rotor Diameter	103 meters
Generator	Doubly Fed Induction Generator (DFIG)
Rotor RPM	5 – 15 revolutions per minute
Tower	Tubular Steel
Braking	Mechanical and Aerodynamic Full Feathering
IEC Class	IEC 61400-1 = TC IIIa
V ref	IEC 61400-1 Maximum Extreme 3s Operating Gust = 37.5 m/s
Operating Temperature	-30 deg C to + 40 deg C

Additional Equipment Required for the Project include:

Padmount Electrical Transformers: Used to increase the voltage of the wind turbines from 690 V to 34.5 kV for further collection and delivery to the Substation. The padmount transformers are oil filled air cooled units that are installed on a precast concrete vault immediately adjacent to the wind turbine.

Collector System: A 34.5 kV medium voltage network of overhead conductors and underground cables that connect the wind turbines to the Substation. The 34.5 kV overhead collector system consists of single circuit and double circuit, 3 phase, overhead aluminum conductors, wooden poles and associated hardware and is approximately 8.5 km in length (see Attachment 11A for cross-sections). The collector will be constructed using single structures only, each carrying one or two circuits along with a fibre optic communication cable. The poles will be typically about 15 m high and spaced approximately 40 m apart. The underground cables will be arranged in a trefoil configuration and where possible will be installed using a plow which requires no excavation of soil. Where plowing is not practicable due to soil conditions, the underground cables will be installed in a trench excavated by an excavator. Depending on soil conditions, most underground cables will be installed with sand bedding to protect the cables from

mechanical damage. (see Attachment 11B for cross-sections). A map showing collector alignments is provided in Attachment 11C for reference.

Substation: Used to increase the voltage of the collector system from 34.5 kV to 138 kV for connection to the AIES. The Substation main components consist of 2 - 34.5 kV/138 kV power transformers, high voltage circuit breakers and associated disconnect switches, medium voltage circuit breakers and associated disconnect switches, instrument transformers, grounding transformers, capacitor banks, revenue metering equipment, protection/control and telemetry equipment, and battery banks.

Control System: A centralized computer based system is used to control and monitor the generating equipment including such parameters as active and reactive power output, terminal voltage, frequency control, ramp rates and also operational and safety alarms and shutdowns. Please see Attachment 16 for Turbine Generation Interconnection data in accordance with AESO Wind Aggregated Generating Facilities Technical Requirement.

PP29) Present the estimated power plant heat rates, efficiency, and details of cooling system.

Due to the nature of the wind turbines and the technology being used, plant heat rates are not applicable and no cooling system is required.

PP30) State the fuel requirements of the power plant, including type, source, method of handling, transportation, and environmental effects.

The wind turbines require no fuel to produce power.

PP31) State the projected annual electric energy production.

The estimated net annual energy production as metered at the BCWP 138 kV bus, inclusive of all losses, based on an installed capacity of 115 MW, is approximately 375 GWh/year.

PP32) Provide a legible plant site drawing showing all major equipment components.

A plant site map is provided in Attachment 11D, which shows the proposed locations of the BCWP turbines, Substation, met mast, interconnection to the AIES and access routing.

PP33) Provide a legible map showing the power plant site boundaries and land ownership, as well as any residences and dwellings within 2,000 m of the boundaries.

Maps of the BCWP and surrounding area are provided in Attachment 11E.

PP34 & TS30) Provide a legible map of the project area suitable for use in a public notice.

A map of the Project, suitable for use in a public notice is provided in Attachment 11F.

PP35 & TS9) Supply the expected in-service dates, and describe ramifications if the approval date cannot be met.

The expected in-service date for the Project is December 31, 2013. A LOI regarding the provision and purchase of power produced by the Project has been signed between BluEarth and the School Boards Consortium. BluEarth is in the process of finalizing a PPA with the School Boards for the supply of power commencing on January 1, 2014. This date coincides with the expiry of a current power supply agreement held by the School Boards.

Should there be any delay to the in-service date, the School Boards will need to arrange other power supply provisions, including interim hedging arrangements to mitigate cost and budget adjustments arising from exposure to spot market electricity prices should they chose to avoid such exposure. This would be highly inefficient given the sizable transaction costs associated with such a short term arrangement based on the potentially higher market electricity price compared to electricity from the Project. Power procurement under the known terms of the PPA (as opposed to on the spot market) is an important cost saving mechanism that provides critical predictability to the School Boards, assisting them in balancing their budgets.

The Project and the arrangement with the School Boards create great financial, social and environmental benefits for Albertans associated with the alignment of:

- long term power cost savings;

- expanded renewable energy development and the "greening" of Alberta's electricity supplies;
- curriculum enhancement and ownership of action on environmental stewardship for Alberta's schools and students; and
- leadership and innovation within Alberta's deregulated electricity market.

Any delay in the anticipated in-service date would delay these benefits to the community and the School Boards.

Any anticipated approval delay would also result in further schedule delays, which in turn would cause higher construction costs, such as:

- the need to construct in poor weather conditions in order to meet the in-service date of the PPA (for example the need for heating and hoarding in order to complete turbine foundation works due to cold-season construction, or the need to have crews on standby due to wind turbine erection during the winter when higher winds limit the number of safe working days); and
- impacts on the timing of key equipment deliveries, requiring that (potentially large) components be placed into storage, orders cancelled, and/or components delayed until the next delivery cycle.

In summary, the ramifications to the Project and the School Boards if there is a prolonged regulatory process and/or the in service date cannot be met are:

1. As a purchaser of power, the School Boards would be exposed fully to the merchant market resulting in financial risk and potential negative budgetary impacts;
2. The realization of the significant social, environmental, and educational benefits arising from the Project would be delayed; and
3. Project delays could result in significantly increased construction costs.

Table 5 Proposed Project Construction Schedule

Project Activity	Date
Permit and License Issued	January 2013
Access Construction	February to June 2013
Collector System Construction	March to August 2013
Turbine Foundation Construction	March to August 2013

Substation Construction	May to October 2013
Turbine Supply and Erection	June to November 2013
Commissioning	November to December 2013
Commercial Wind Power Operations	December 2013

PP36) Indicate the plant’s emission rates, in kilograms per megawatt-hour (kg/MWh), of nitrogen oxides (NO_x), sulphur dioxide (SO₂), and primary particulate matter, and state whether the emissions will comply with the current Alberta Source Emission Standards.

The operating BCWP will not produce emissions.

PP37) State whether the proposed plant will comply with the *Alberta Ambient Air Quality Guidelines* for ground-level concentrations of pollutants.

The *Alberta Ambient Air Quality Guidelines* are not applicable since the BCWP will not produce emissions.

PP38) Provide the EIA as an appendix to your application, if one has been conducted.

Wind power projects are not subject to an environmental impact assessment (“EIA”) under the *Alberta Environmental Protection and Enhancement Act* (“EPEA”). Currently there is no trigger to conduct a *Canadian Environmental Assessment Act* (“CEAA”) Environmental Impact Statement (“EIS”). Under the guidance of ASRD and applicable environmental guidelines BluEarth has completed an EE for the project. A general overview of environmental impacts is provided in PP16) with greater detail provided within the EE (Attachment 6).

PP39) If the power plant is to be connected to the Alberta Interconnected Electric System (AIES), irrespective of voltage level, provide the following information:

- an electrical single-line diagram obtained from the ISO or sanctioned by the ISO showing the transmission development plan for the interconnection, and
- a map with one or more conceptual layouts showing possible routes and general land locations for facilities that would be used to interconnect the power plant to the AIES.

See Attachment 14 “AESO Functional Specification” which contains single-line diagrams detailing the interconnection. The interconnection facilities will consist of one or two spans of 138 kV conductor between the AltaLink Hayter 277S substation.

As the Substation is sited directly adjacent to the Transmission Facility Owner’s (“TFO”) substation for interconnection, there should be no additional requirements to assess transmission interconnection routing. The transmission facilities that are required to interconnect the BCWP to the AIES will be addressed in a separate facilities application to be filed by AltaLink.

PP40) If the power plant is to be connected at distribution voltage level (generally less than 69 kV), you must provide a statement from the Distribution Facility Owner (DFO) indicating that it is willing to connect your generating facilities.

The BCWP is planned to be connected at a transmission voltage level of 240 kV directly to the AIES. According to the *EUA* s. 101(2)(b) Fortis, as the electric distribution service provider in the area, has provided permission to enter into a direct arrangement with the AESO for the BCWP load requirements. (Attachment 17).

PP41) For a municipality or a subsidiary of a municipality to hold an interest in a generating unit, documentation confirming compliance with Section 95 of the *EU Act* is required.

Not applicable.

PP42) For a wind power application, provide legible maps and/or air photo mosaics upon which the proposed collector power line route or routes have been imposed and showing the residences, landowner names, and major land-use and resource features (e.g., vegetation, topography, soil type, existing land use, existing rights-of-way, existing or potential archaeological sites, and superficial and minable resources).

Maps that provide the requested information are set out in Attachment 11. Please note that due to the confidentiality associated with archaeological and historical resource sites, the precise location of these features cannot be shared with the public, as per the confidentiality requirements of Alberta Culture and Community Spirit as provided in Attachment 5.

TS8) Provide a copy of the ISO Direct Assignment letter pursuant to the *EU Act*.

The AESO issued to AltaLink, on June 17, 2011, three Direct Assign Letters for the Project, as follows:

- Direction for submission of a Transmission Facility Proposal to the AUC;
- Direction for assistance in the preparation of the AESO’s Needs Identification Document; and
- Direction for preparation of a Proposal to Provide Services.

The AESO intends to supersede these Direction Letters to reflect recent changes to project assumptions, scope, and schedule. Upon receipt of same, BluEarth will provide these Direction Letters to the AUC.

TS10) Describe any transmission line routing alternatives to the proposal and compare the relative impacts (environmental, social, and economic) of these alternatives with the proposal.

Not applicable. The transmission facilities that are required to interconnect the Project to the AIES will be addressed in a separate facilities application to be filed by AltaLink.

TS18) Describe the design and operating voltage of the transmission line and/or substations.

The 138 kV transmission line to be constructed, owned and operated by AltaLink will be designed according to the scope of work detailed in Attachment 14, “AESO Functional Specification”.

The Substation will be used to increase the voltage of the collector system from 34.5 kV to 138 kV for connection to the AIES. The power generated by the wind turbines is collected on four (4) 34.5 kV collector system feeders that connect to two (2) 34.5 kV buses within the Substation. Each of the two (2) 34.5 kV substation buses are connected to an associated power transformer. The two (2) power transformers are connected together via a 138 kV bus and then connected to the AIES through AltaLink Hayter 277S substation. The Substation is designed such that if one power transformer or associated equipment is out of service, the four (4) collector

feeders can be connected to a single power transformer through a bus tie switch that would otherwise be operated normally open. The Substation transmission equipment will be designed according to the substation equipment specifications detailed in section 5.3 of Attachment 14, “AESO Functional Specification”.

TS19) Provide the continuous and maximum ratings of the transmission line for the various operating conditions as stipulated by ISO and the expected transmission line losses. Describe changes, if any, proposed by the TFO.

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink. Notwithstanding the AltaLink transmission line design, the transmission line losses will be negligible as the Substation will be constructed directly adjacent to the existing Hayter 277S, and the two (2) substations will be connected by a fixed bus connection, or one (1) or two (2) spans of transmission line.

TS20) If ISO requires the TFO, who has been directly assigned for the proposed project, to determine the choice of conductors, describe conductor size and arrangement selected and the basis for conductor selection.

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink. Notwithstanding the AltaLink design of the transmission line, Attachment 14 “AESO Functional Specification” section 5.4.1.3 outlines the transmission line design parameters.

TS21) Describe the proposed transmission line structure type, including height and spacing; if more than one type of structure is proposed, state where each type will be used.

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink. Notwithstanding the AltaLink design, the transmission line may consist of a solid bus or one (1) or two (2) spans of overhead conductor to connect the Substation to Hayter 277S.

TS22) State the right-of-way width and the basis for determining the width.

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink. Notwithstanding the AltaLink design, there

should be no requirement for a transmission line right-of-way as the Substation will be built directly adjacent (share a common boundary) to the Hayter 277S substation.

TS23) Describe all major substation equipment being applied for and list the final major equipment in the substation.

The Substation main components consist of:

- (2) 138 / 34.5 kV 62 MVA power transformers c/w load tap changer (LTC);
- (1) 138 kV SF6 circuit breakers;
- (3) 138 kV motorized disconnect switches;
- (4) 34.5 kV vacuum circuit breakers;
- (2) 34.5 kV motorized disconnect switches;
- (8) 34.5 kV manual disconnect switches;
- 138 kV & 34.5 kV relay instrument transformers;
- 138 kV & 34.5 kV surge arrestors;
- 34.5 kV grounding transformers;
- 34.5 kV capacitor banks;
- 138 kV revenue metering instrument transformers; and
- Control Building containing the following:
 - Protection relays;
 - SCADA and telemetry equipment;
 - 125 Vdc battery backup power supply;
 - Revenue meter; and
 - Power Measurement Unit (PMU).

TS24) Describe the switching and protection features of the proposed transmission facilities.

The Substation will be automated such that all circuit breakers, including 138 kV and 34.5 kV breakers, will be able to be switched locally at the Substation or remotely over a secure VPN connection. All circuit breakers will open automatically upon a fault or deviation from required grid parameters. No circuit breakers will have an auto-reclose function.

The major projection features of the Substation will consist of A and B line protection, bus and transformer differential schemes, along with breaker fail and backup overcurrent protection features. Also, teleprotection will be implemented between Hayter 277S and the Substation to facilitate any transfer of protection signals between BCWP and AltaLink.

TS25) Describe the electrical interaction of proposed lines with other facilities, such as pipelines, telephone, radio, and television transmission facilities, and other surface structures.

Not applicable.

TS26) Describe the changes to existing facilities that would be required to accommodate the proposed facilities.

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink.

TS27) Provide a legible map defining the study area and state the reason for the chosen area.

The study area and subsequent location chosen for the Substation were chosen to minimize disturbance through the use of existing disturbed areas. The Substation is located directly adjacent to the existing AltaLink Hayter 277S substation. This location also reduces the requirement for an additional transmission line required by AltaLink for project grid connection. Maps are provided in Attachment 11.

TS28) Provide legible maps and drawings of the proposed facilities showing the preferred transmission line route and any alternative routes; right-of-way widths; location of the transmission line on the right-of-way; location of the transmission line relative to property lines; and mile (kilometre) points along each transmission line route.

The transmission line, to be designed and operated by AltaLink, will be covered under a separate Facilities Application to be submitted by AltaLink. Notwithstanding the AltaLink design, there is no requirement for alternate routes or for detailing the right-of-way as the Substation will be built directly adjacent to the Hayter 277S substation.

TS29) Provide legible maps and/or air photo mosaics upon which the proposed transmission line route or routes have been imposed and showing the residences, landowner names, and major land use and resource features (e.g., vegetation, topography, soil type, existing land use, existing rights-of-way, existing or potential archaeological sites, and superficial and mineable resources).

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink. Notwithstanding the AltaLink design, the transmission line may consist of a solid bus or (1) or (2) spans of overhead conductor to connect the Substation to Hayter 277S.

TS31) Provide an electric single-line diagram or switching map showing new facilities in place in the system. In the case of a substation, provide an electric single-line diagram and a substation layout, including major items of equipment and the fenced boundaries of the substation.

See Attachment 12 for the Substation single-line diagram, Attachment 13 for the Substation layout, and Attachment 14 “AESO Functional Specification” for the transmission system single-line diagram.

TS32) Discuss the construction schedule, equipment and method of construction, and method of eventual right-of-way maintenance.

The construction of the Substation is integrated into the general construction schedule for the Project as shown in Table 5. Industry standard construction methods (e.g., site preparation such as grading and leveling) and equipment (e.g., graders and picker trucks) will be utilized for Substation construction. Right-of-way maintenance for the Substation may consist of weed control, requirements for any potential soil erosion and general access/pad maintenance such as snow plowing when conditions require.

TS33) Provide the most up-to-date functional specifications when the application is filed and the final functional specification before construction begins.

See Attachment 14 “AESO Functional Specification”.

TS35) For right-of-way clearing and maintenance, provide a copy of the Conservation and Reclamation Plan, as required by AENV (if applicable).

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink. Notwithstanding the AltaLink design, the transmission line may consist of a solid bus or (1) or (2) spans of overhead conductor that will not require a right-of-way.

TS36) Landscape plan - indicate those areas that require screening or landscaping, and the measures to be used.

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink.

TS37) Aesthetics- indicate those areas that have been identified as significant viewpoints and describe the measures proposed to minimize the impact of towers and rights-of-way within the view area.

The proposed Substation will be directly adjacent to AltaLink's existing Hayter 277S. The siting of the proposed Substation directly adjacent to the existing AltaLink substation provides the least amount of impact from any significant viewpoint.

TS38) Tower location—indicate the flexibility available in locating towers to reduce the inconvenience to residents and their day-to-day activities.

Not applicable, as this part of the application is in reference to a substation only.

TS40) For proposed route(s) and possible alternatives that will result in significant environmental impacts:

- i) Describe the environmental evaluation of the study area, identifying the environmental factors leading to the selection of the proposed route(s).**
- ii) Show the major land-use and resource features (e.g., agriculture, residences, recreation, forestry, fish, wildlife, and visual and sensitive areas) for each route in a table in the correct units (by kilometre, total number, etc.). Provide supporting written discussion showing the significance of impacts upon each major land-use and resource feature for each route.**
- iii) Present an overall comparison of the environmental impacts and costs associated with the alternative routes and proposed route and identify the environmentally preferred route.**
- iv) Summarize any discussions held with municipalities to ensure compatibility of the proposed facility with various municipal services if a**

proposed transmission line passes through or immediately adjacent to an urban centre.

Not applicable, as this part of the application is in reference to a substation only.

TS41) Provide a detailed cost breakdown of all alternatives on a common basis with an accuracy tolerance within plus 20% minus 10%. This cost breakdown must be provided in the format shown in Appendix B1. Where identifiable, include costs to be borne by persons other than the applicant and the applicant's customer(s) in the comparison. This information requirement may not be applicable to merchant line applications.

The transmission line to be designed and operated by AltaLink will be covered under a separate Facilities Application to be submitted by AltaLink. The Substation covered under this application is a merchant facility.

ATTACHMENT 1

CONSULTATION WITH MD OF PROVOST

ATTACHMENT 2

CONSULTATION WITH MD OF WAINWRIGHT

ATTACHMENT 3

TRANSPORT CANADA APPROVAL AND NAV CANADA (LAND USE PROPOSAL SUBMISSION)

- 3A – Transport Canada Approval
- 3B – NAV Canada (Land Use Proposal Submission)

ATTACHMENT 4

ASRD AND ALBERTA ENVIRONMENT CONSULTATION

- 4A - ASRD Sign-Off
- 4B - Alberta Environment Consultation

ATTACHMENT 5

**ALBERTA CULTURE AND COMMUNITY SPIRIT – *HISTORICAL RESOURCES ACT*
CONDITIONAL CLEARANCE**

ATTACHMENT 6
ENVIRONMENTAL EVALUATION

ATTACHMENT 7
PHOTOMONTAGES

ATTACHMENT 8

PARTICIPANT INVOLVEMENT PROGRAM

- 8A – Open House Advertisements
- 8B – Open House Poster Boards
- 8C – Stakeholder mailouts
- 8D – Project Article, Star News
- 8E – PIP Outcomes & Shadow Flicker (PP20/TS14, PP22/TS16 & PP23/TS17)
- 8F – February 23, 2012 E-mail from Carmen Krogh

ATTACHMENT 9

MAILING LIST AND LABELS

- 9A – Mailing Labels
- 9B – Mailing List by Alphabet
- 9C – Mailing List by Land Location

ATTACHMENT 10
NOISE IMPACT ASSESSMENT

ATTACHMENT 11

MAPS AND FIGURES

- 11A – Typical Overhead Collector
- 11B- Typical Underground Collector
- 11C – Collector Alignments
- 11D – Project Layout
- 11E – Project Area Ownership
- 11F – Public notice map
- 11G – Historical Resource Values
- 11H – Landcover
- 11I – Potential Aggregates
- 11J – Soil Series

ATTACHMENT 12

BULL CREEK SINGLE LINE DIAGRAM

ATTACHMENT 13

BULL CREEK 280S SUBSTATION LAYOUT

ATTACHMENT 14

AESO FUNCTIONAL SPECIFICATION

ATTACHMENT 15

**ASSESSMENT OF POTENTIAL IMPACTS ON EXISTING RADIOCOMMUNICATION
FACILITIES**

ATTACHMENT 16

WIND TURBINE GRID INTERCONNECTION DATA AND CONFIRMATION FROM GE

- 16A – Wind Turbine Grid Interconnection Data
- 16B – Confirmation from GE

APPENDIX 17

FORTIS S. 101 SIGN-OFF