



NaturEner

2016

Application to Amend the Previously Approved Wild Rose 1 Wind Power Project



NaturEner Wild Rose 1 Energy Inc.

Submitted: September 6, 2016



NaturEner

WILD ROSE 1 WIND POWER PROJECT

**Application to the Alberta Utilities Commission for the Amendment of the Wild Rose 1
Wind Power Project**

Submitted to:

Alberta Utilities Commission

400, 425 - 1 Street SW

Calgary, AB T2P 3L8

SIGNATURE PAGE

The NaturEner Wild Rose 1 Energy Inc. office is located in Calgary, Alberta at:

NaturEner Energy Canada Inc.
909-17th Avenue SW, Suite 400
Calgary, Alberta T2T 0A4

Inquiries, questions and correspondence relating to this application or the Wild Rose 1 Wind Power Plant should be sent to our office and directed to the attention of:

Greg Copeland
VP Wind Energy Development, NaturEner USA & Canada
Office Phone: 403-705-1716 (Canada)
Fax Number: 877-288-1480
E-mail: gcopeland@naturener.ca

Signature of Owner/Operator:

I certify that this document and all attachments were prepared under my supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the persons who manage the system, or those directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete.

Per:



Date: September 6, 2016

Greg Copeland
VP Wind Energy Development

ATTACHMENTS

PP3	Attachment PP3.1	Draft Power Plant Approval
	Attachment PP3.2	Draft Substation Approval
PP5	Attachment PP5.1	Cypress County, Planning Department
	Attachment PP5.2	Cypress County, Public Works Department
	Attachment PP5.3	EDA
PP6	Attachment PP6.1	Forty-Mile Gas Co-op
	Attachment PP6.2	Telus
PP7	Attachment PP7.1	Transport Canada Approval
	Attachment PP7.2	NAV Canada Approval
PP8	Attachment PP8.1	Assessment from Environment and Climate Change Canada
PP9	Attachment PP9.1	Alberta Transport Approval
PP10	Attachment PP10.1	WR1 Golder Evaluation 2016
	Attachment PP10.2	Original WR1 EIS
	Attachment PP10.3	WR1 Golder Evaluation 2010
	Attachment PP10.4	WR1 Golder Evaluation 2013
	Attachment PP10.5	WR1 Mitigation Proposal 2013
	Attachment PP10.6	AEP – FWD Approval
	Attachment PP10.7	Comparative Visual Simulations
PP11	Attachment PP11.1	Confirmation of Submission of Request for Updated <i>HRA</i> Approval
PP14	Attachment PP14.1	Coordinates and Land Locations of Turbines
	Attachment PP14.2	Comparative Layout Map
PP19	Attachment PP19.1	Stakeholder List



	Attachment PP19.2	Information Package Mailing – within 2000m
	Attachment PP19.3	Information Package Mailing – outside 2000m
	Attachment PP19.4	Information Session Invitation
	Attachment PP19.5	Information Session Presentation
PP21	Attachment PP21.1	Mailing labels
PP27	Attachment PP27.1	Noise Impact Assessment
	Attachment PP27.2	Radio Communications and Radar Systems Inventory and Preliminary Impact Assessment.
PP28	Attachment 28.1	Siemens Technical Specifications
PP32	Attachment PP32.1	Photo mosaic of equipment components
PP33	Attachment PP33.1	Site Boundary and Land Ownership
	Attachment PP33.2	Site Boundary and Energy Facilities
PP34	Attachment PP34.1	Map for Public Notice
PP38	Attachment PP38.1	AEP (Operations)
PP39	Attachment PP39.1	Single Line Diagram
	Attachment PP39.2	Layout Map showing approved Interconnection
PP42	Attachment PP42.1	Photo mosaic showing project and external infrastructure
	Attachment PP42.2	Map showing site boundary and residences
	Attachment PP42.3	Map showing major land use/vegetation
	Attachment PP42.4	Map showing soil parent material texture
	Attachment PP42.5	Map showing soil subgroups
	Attachment PP42.6	Map showing topography

LIST OF TABLES

TABLE PP10.1: APPROVAL OF OTHER GOVERNMENT DEPARTMENTS/AGENCIES.....13
TABLE PP13.1: LEGAL LAND DESCRIPTION OF PROPOSED POWER PLANT SITE15
TABLE PP14.1: LISTING OF CURRENT AND PROPOSED AMENDED TURBINE LOCATIONS16
TABLE PP27.1: COMPARISON OF PREDICTED SOUND LEVELS AT RECEPTORS USING ALSTOM TURBINES AND PERMITTED LAYOUT AND USING SIEMENS TURBINES AND PROPOSED LAYOUT25
TABLE PP28.1: TECHNICAL OVERVIEW OF ALSTOM TURBINE VERSUS SIEMENS TURBINE27

CONTENTS

SIGNATURE PAGE	II
ATTACHMENTS	III
LIST OF TABLES	V
CONTENTS	VI
EXECUTIVE SUMMARY	1
BACKGROUND	1
NEED FOR CHANGES	2
SUMMARY OF CHANGES	3
APPLICATION APPROVALS REQUESTED.....	4
RULE 007 INFORMATION REQUIREMENTS	5
PP1) IDENTIFY THE SECTIONS OF THE HYDRO AND ELECTRIC ENERGY ACT UNDER WHICH THE APPLICATION IS MADE.	5
PP2) IDENTIFY ANY OTHER ACTS (E.G. ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT, WATER ACT, AND WILDLIFE ACT) THAT MAY AFFECT THE PROJECT.	5
PP3) STATE THE APPROVALS THAT ARE BEING APPLIED FOR FROM THE COMMISSION, AND PROVIDE A DRAFT OF THE APPROVAL BEING REQUESTED.	5
PP4) PROVIDE A LIST OF EXISTING APPROVALS FOR FACILITIES DIRECTLY AFFECTED BY THIS PROJECT, IF ANY.	6
PP5) PROVIDE DETAILS AND OUTCOME OF CONSULTATION WITH LOCAL JURISDICTIONS (E.G., MUNICIPAL DISTRICTS, COUNTIES).....	6
PP6) PROVIDE A LIST OF PARTIES THAT MAY BE AFFECTED BY THE PROJECT, CONFIRM THAT THESE PARTIES HAVE NO CONCERNS REGARDING THE APPLICATION, AND INDICATE WHICH OTHER AGREEMENTS ARE NECESSARY TO CARRY OUT THE PROJECT.	7
PP7) FOR WIND POWER PLANTS, PROVIDE A COPY OF APPROVAL FROM TRANSPORT CANADA FOR ANY STRUCTURES 20 METRES OR TALLER AND AN EVALUATION FROM NAV CANADA.....	9
PP8) FOR WIND POWER PLANTS, PROVIDE A COPY OF AN ASSESSMENT FROM ENVIRONMENT CANADA REGARDING THE POTENTIAL FOR INTERFERENCE WITH WEATHER RADARS. FOR ASSESSMENTS IN WHICH ENVIRONMENT CANADA HAS IDENTIFIED THE POTENTIAL FOR SIGNIFICANT INTERFERENCE WITH A WEATHER RADAR, ALSO PROVIDE A COPY OF A MITIGATION AGREEMENT TO BE CONCLUDED WITH ENVIRONMENT CANADA PRIOR TO OPERATION OF THE WIND POWER PLANT. NO WIND POWER PLANT WILL BE PERMITTED WITHIN A FIVE-KILOMETRE RADIUS, OR AS OTHERWISE AGREED TO BY ENVIRONMENT CANADA, OF A FEDERAL WEATHER RADAR STATION DUE TO THE SIGNIFICANT INTERFERENCE TO ENVIRONMENT CANADA’S ABILITY TO ACCURATELY FORECAST THE WEATHER.	9
PP9) PROVIDE A COPY OF THE APPROVAL FROM ALBERTA TRANSPORTATION IF A WIND POWER PLANT THAT IS WITHIN 300 METRES OF A NUMBERED HIGHWAY IS BEING APPLIED FOR.	9
PP10) CONFIRM THAT AN APPLICATION TO AEP HAS BEEN MADE, IF APPLICABLE, AND LIST ALL OTHER GOVERNMENT DEPARTMENTS AND AGENCIES FROM WHICH APPROVAL IS REQUIRED.....	9
PP11) WITH RESPECT TO NEW FACILITIES OR ALTERATIONS THAT MAY HAVE HISTORICAL, ARCHAEOLOGICAL OR PALEONTOLOGICAL IMPACTS, CONFIRM THAT A HISTORICAL RESOURCES ACT APPROVAL HAS BEEN OBTAINED OR IS BEING APPLIED FOR. IF A HISTORICAL ASSESSMENT IS REQUIRED, BRIEFLY DESCRIBE ANY HISTORICAL, ARCHAEOLOGICAL OR PALEONTOLOGICAL SITES CLOSE TO THE POWER PLANT SITE. PLEASE ENSURE THAT ANY SUMMARY PROVIDED PROTECTS THE CONFIDENTIAL LOCATION OF ANY HISTORICAL, ARCHEOLOGICAL OR PALEONTOLOGICAL RESOURCES.	13
PP12) PROVIDE THE ISO ASSIGNED ASSET IDENTIFICATION CODE, IF AVAILABLE.....	14
PP13) PROVIDE THE LEGAL DESCRIPTION OF THE PROPOSED POWER PLANT SITE (LEGAL SUBDIVISION [LSD], SECTION, TOWNSHIP, RANGE, MERIDIAN AND/OR PLAN, BLOCK, LOT, MUNICIPAL ADDRESS FOR URBAN PARCELS) AND CONNECTION POINT, IF APPLICABLE.	14
PP14) PROVIDE THE LONGITUDE AND LATITUDE COORDINATES FOR THE CENTRE 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 METRES FROM THE COORDINATES STATED IN THE APPLICATION, THE POWER PLANT PROPONENT MUST REAPPLY TO THE COMMISSION FOR APPROVAL TO RELOCATE THE STRUCTURE PRIOR TO CONSTRUCTION. FOR MOVEMENT OF LESS THAN 50 METERS, THE APPLICANT IS NOT REQUIRED TO REAPPLY UNLESS THERE IS AN ADVERSE IMPACT ON THE PERMISSIBLE SOUND LEVEL OR WILDLIFE SETBACK DISTANCES.....	15
PP15) DESCRIBE THE NUMBER OF GENERATING UNITS AND THE TOTAL CAPACITY (KILOVOLT-AMPERE [kVA], OR MEGAVOLT-AMPERE [MVA]) FOR THE PROJECT.	17



PP16) DESCRIBE THE EXISTING ENVIRONMENTAL AND LAND USE CONDITIONS IN THE LOCAL STUDY AREA, AND DISCUSS POTENTIAL SITING AND LAND USE ISSUES. ALSO, DESCRIBE THE REGIONAL SETTING OF THE DEVELOPMENT INCLUDING REGIONAL LAND USE PLANS IN FORCE (E.G., THE LOWER ATHABASCA REGIONAL PLAN). IF APPLICABLE, INCLUDE MAPS SHOWING IMPORTANT ENVIRONMENTAL FEATURES AND SENSITIVE AREAS IN THE LOCAL STUDY AREA.....17

PP17) AT A LEVEL OF DETAIL COMMENSURATE WITH THE SIZE AND TYPE OF POTENTIAL EFFECT(S) OF THE PROJECT, COMPLETE AND SUBMIT AN ENVIRONMENTAL EVALUATION OF THE PROJECT AND PROVIDE A SIGN-OFF FROM AEP ADDRESSING THE ENVIRONMENTAL ASPECTS OF THE PROJECT THAT AEP IS SATISFIED WITH.17

PP18) IF THE PROJECT SITE OCCURS WITHIN THE PLAN BOUNDARIES OF A REGIONAL LAND USE PLAN IN FORCE:.....20

PP19) DESCRIBE THE PARTICIPANT INVOLVEMENT INFORMATION.21

PP20) LIST ALL OCCUPANTS, RESIDENTS AND LANDOWNERS ON LANDS WITHIN THE APPROPRIATE NOTIFICATION RADIUS AS DETERMINED USING APPENDIX A1– PARTICIPANT INVOLVEMENT PROGRAM GUIDELINES, AS WELL AS OTHER INTERESTED PERSONS THAT WERE CONSULTED AS PART OF THE PARTICIPANT INVOLVEMENT PROGRAM. IF THERE ARE POPULATED AREAS JUST OUTSIDE THE MINIMUM NOTIFICATION DISTANCE, APPLICANTS SHOULD CONSIDER INCLUDING THOSE AREAS IN THE PARTICIPANT INVOLVEMENT PROGRAM.23

PP21) SUPPLY A LIST OF MAILING ADDRESSES, WITH CORRESPONDING LAND LOCATIONS AND TWO SETS OF PRINTED MAILING LABELS OF THOSE PARTIES MENTIONED IN PP20, ABOVE.23

PP22) IDENTIFY ANY PERSONS WHO EXPRESSED CONCERNS ABOUT THE PROJECT AND THE SPECIFICS OF THEIR CONCERNS.23

PP23) SUMMARIZE DISCUSSIONS HELD WITH POTENTIALLY DIRECTLY AND ADVERSELY AFFECTED PERSONS.23

PP24) IF POTENTIALLY DIRECTLY AND ADVERSELY AFFECTED PERSONS RAISED ANY CONCERNS, DESCRIBE HOW THESE CONCERNS WERE DEALT WITH OR ARE BEING DEALT WITH.24

PP25) FOR THOSE POTENTIALLY DIRECTLY AND ADVERSELY AFFECTED PERSONS IDENTIFIED ABOVE, INCLUDE A CONFIRMATION OF RESOLUTION OF THE CONCERNS, IF APPLICABLE.....24

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 OF THE OIL AND GAS CONSERVATION REGULATIONS.25

PP27) PROVIDE A NOISE IMPACT ASSESSMENT, IN ACCORDANCE WITH THE CURRENT RULE 012.....25

PP28) FOR AN APPLICATION WHERE NO CHANGES TO THE MAJOR COMPONENTS OF THE POWER GENERATING EQUIPMENT ARE CONTEMPLATED AFTER FILING THE APPLICATION, PROVIDE DETAILS OF THE POWER GENERATING EQUIPMENT AND ASSOCIATED FACILITIES, SUCH AS MAKE, MODEL AND NOMINAL CAPABILITY.26

PP29) FOR AN APPLICATION WHERE VENDORS WHICH ARE TO SUPPLY THE MAJOR COMPONENTS OF THE POWER GENERATING EQUIPMENT HAVE NOT BEEN SELECTED, PROVIDE THE NOMINAL CAPABILITY OF THE APPLIED-FOR POWER PLANT AND THE DESIGN AND MAXIMUM OPERATING PARAMETERS, AND CHARACTERISTICS SPECIFIED FOR THE POWER GENERATING EQUIPMENT AND ASSOCIATED FACILITIES.29

PP32) PROVIDE A LEGIBLE PLANT SITE DRAWING SHOWING ALL MAJOR EQUIPMENT COMPONENTS.29

PP33) PROVIDE A LEGIBLE MAP SHOWING THE POWER PLANT SITE BOUNDARIES AND LAND OWNERSHIP, INCLUDING ANY RESIDENCES AND DWELLINGS WITHIN THE APPROPRIATE NOTIFICATION RADIUS AS DETERMINED USING APPENDIX A1–PARTICIPANT INVOLVEMENT PROGRAM GUIDELINES, AS WELL AS ANY ADDITIONAL ENERGY-RELATED FACILITIES WITHIN THE PROJECT AREA.....29

PP34) PROVIDE A LEGIBLE MAP OF THE PROJECT AREA SUITABLE FOR USE IN A PUBLIC NOTICE.29

PP35) SUPPLY THE EXPECTED IN-SERVICE DATES, AND DESCRIBE RAMIFICATIONS IF THE APPROVAL DATE CANNOT BE MET.....29

PP38) PROVIDE THE FEDERAL ENVIRONMENTAL ASSESSMENT OR PROVINCIAL ENVIRONMENTAL IMPACT ASSESSMENT AS AN APPENDIX TO THE APPLICATION, IF ONE WAS REQUIRED BY A FEDERAL OR PROVINCIAL AUTHORITY.30

PP39) IF THE POWER PLANT IS TO BE CONNECTED TO THE TRANSMISSION SYSTEM OF THE ALBERTA INTERCONNECTED ELECTRIC SYSTEM, IRRESPECTIVE OF VOLTAGE LEVEL, PROVIDE THE FOLLOWING INFORMATION: LAND USE, EXISTING RIGHTS-OF-WAY, AND SUPERFICIAL AND MINEABLE RESOURCES).....30

PP40) IF THE POWER PLANT IS TO BE CONNECTED AT DISTRIBUTION VOLTAGE LEVEL TO THE ALBERTA INTERCONNECTED ELECTRIC SYSTEM (GENERALLY LESS THAN 69 kV), THE APPLICANT MUST PROVIDE A STATEMENT FROM THE DISTRIBUTION FACILITY OWNER INDICATING THAT IT IS WILLING TO CONNECT THE GENERATING FACILITIES.30

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 ELECTRIC UTILITIES ACT IS REQUIRED.....30

PP42) FOR A WIND POWER PLANT 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, AND SUPERFICIAL AND MINEABLE RESOURCES)31

EXECUTIVE SUMMARY

Background

NaturEner Wild Rose 1 Energy Inc. ("**NaturEner**") submits this amendment application to the Alberta Utilities Commission ("**AUC**" or the "**Commission**") for NaturEner's previously approved Wild Rose 1 Wind Power Plant (the "**Project**"). The Project is located approximately 45 kilometres ("**km**") southeast of the City of Medicine Hat and 20 km south of the Town of Irvine, in Cypress County, Alberta. This amendment application is hereinafter referred to as the "**Application**."

The Project area is defined by the land area consisting of the legal land description described in Table PP13.1 and shown on the map "*Site Boundary and Residence*," (included in this Application as Attachment PP42.2) and also shown on the map "*Project Location*" (included in this Application as Attachment PP34.1) (the "**Project Area**").¹ The perimeter of the Project Area is hereinafter called the "**Project Area Boundary**."

The AUC approved NaturEner's application to construct and operate the Project pursuant to Approval No. U2010-372,² as amended by Approval No. U2013-420³ and Approval 20890-D02-2015⁴ (the "**Project Permit**"). The AUC also approved NaturEner's application to construct and operate the associated Wild Rose 1 substation (the "**Substation**"), pursuant to Permit and Licence No. U2010-373,⁵ as amended by Permit and Licence No. U2013-421⁶ and Permit and Licence 20890-D03-2015⁷ (the "**Substation Permit**").

The changes requested in this Application are required to allow for a proposed change from the currently approved Alstom ECO-110 3.0 MW turbine (the "**Alstom Turbine**") to the 3.2 MW Siemens SWT 3.2-113 turbine (the "**Siemens Turbine**"). NaturEner requires

¹ Specifically, the Project Area consists of the following lands:

- a) Section 1, NE ¼ Section 2, SE ¼ Section 11, Section 12, and E ½ Section 13, Township 10, Range 2, west of the Fourth Meridian;
- b) E ½ Section 5, N ½ Section 7, S ½ & NE ¼ Section 17, W ½ & SE ¼ Section 18, and SW ¼ Section 19, Township 10, Range 1, west of the Fourth Meridian;
- c) N ½ of NW ¼ Section 13, N ½ & SE ¼ Section 23, S ½ Section 26, and all of Section 24, 25, & 36, Township 9, Range 2, west of the Fourth Meridian; and
- d) W ½ Section 17, N ½ Section 18, Section 19, S ½ & NW ¼ Section 30, N ½ & SW ¼ Section 31, and N ½ Section 32, Township 9, Range 1, west of the Fourth Meridian.

² Power Plant Approval No. U2010-372, Appendix 1 to Decision 2010-498, NaturEner Energy Canada Inc. – 204 MW Wild Rose 1 Wind Power Plant, Application No. 1604580, Proceeding ID No. 268, October 19, 2010.

³ Power Plant Approval No. U2013-420, Appendix 1 to Decision 2013-348, NaturEner Wild Rose 1 Energy Inc. – Amendment to Wild Rose 1 Wind Power Plant, Application No. 1609685, Proceeding ID No. 2665, September 13, 2013.

⁴ Power Plant Approval 20890-D02-2015, Appendix 1 to Decision 20890-D01-2015, NaturEner Wild Rose 1 Wind Energy Inc. – Wild Rose 1 Wind Power Plant Time Extension, Application No. 20890-A001, Proceeding 20890, December 21, 2015.

⁵ Substation Permit and Licence No. U2010-373, Appendix 2 to Decision 2010-498, NaturEner Energy Canada Inc. – New Wild Rose 1 Substation, Application No. 1604580, Proceeding ID No. 268, October 19, 2010.

⁶ Substation Permit and Licence No. U2013-421, Appendix 2 to Decision 2013-348, NaturEner Wild Rose 1 Energy Inc. – Wild Rose 1 Substation, Application No. 1609685, Proceeding ID No. 2665, September 13, 2013.

⁷ Substation Permit and Licence 20890-D03-2015, Appendix 2 to Decision 20890-D01-2015, NaturEner Wild Rose 1 Wind Energy Inc. – Wild Rose 1 Wind Power Plant Time Extension, Application No. 20890-A001, Proceeding 20890, December 21, 2015.



no amendment to the Substation Permit, other than a time extension of the completion date thereof.

NaturEner attempted, to the absolute extent possible, to keep the turbine locations proposed herein (the “**Proposed Layout**”) the same as the turbine locations already approved under the Project Permit (the “**Permitted Layout**”). Of the 70 turbines in the Permitted Layout, only 13 turbine locations were affected by the proposed changes. Under the Proposed Layout, two locations are removed and two locations are moved less than 50 metres. NaturEner requires approval of amendments to *only* nine of the 70 locations cited in the Project Permit to accommodate its new Proposed Layout.

This Application is brought under sections 11 and 15 of the *Hydro and Electric Energy Act*⁸ and Section 17 of the *Alberta Utilities Commission Act*.⁹

This Application was prepared in accordance with *AUC Rule 007: Rules Respecting Applications for Power Plants, Substations, Transmission Lines and Industrial System Designations* (“**Rule 007**”)¹⁰ and, in particular, the information requirements for wind power plant applications and amendments set out in Sections 3.2 and 3.4 of Rule 007.

Need for Changes

Earlier this year, the Alberta Government requested that the Alberta Electric System Operator (“**AESO**”) develop and implement the Alberta Government’s announced Renewable Electricity Plan (the “**REP**”) as part of the Alberta Government’s Climate Leadership Plan.

Since the announcement of the REP, NaturEner has been reviewing the Project’s development and design plans to ensure that the Project is in the best possible position to be successful in the upcoming REP selection process. The company which was to supply the permitted Alstom Turbine was acquired by a third-party, which triggered decisions about the availability of that permitted turbine for the Project, and ultimately made the Project not viable to competitively participate in the upcoming REP selection process.

After a thorough selection process, NaturEner entered into an agreement with Siemens Canada Ltd. (“**Siemens**”). Siemens has agreed to supply the Siemens Turbine for the Project, subject to certain conditions, including regulatory approval.

The REP’s objective is to add more renewable electricity generation capacity to the Alberta system.

This resulting change in turbines is essential for NaturEner to contract, commission and connect the Project to begin operating within a time period commensurate with expected requirements under the REP.

⁸ *Hydro and Electric Energy Act*, RSA 2000, c H-16 [**HEEA**].

⁹ *Alberta Utilities Commission Act*, SA 2007, c A-37.2 [**AUCA**].

¹⁰ Current version of Rule 007, as amended effective February 1, 2016.



Public Interest

The changes requested herein are desirable and in the public interest, for the reasons set out in previous AUC decisions¹¹ for the Project, and because it will enable the Project's participation in the REP.

Approval of the Project amendments is further in the public interest, because the Project:

- Is in alignment with Alberta's provincial policy direction related to renewable energy;
- Is being developed in an environmentally responsible manner;
- Enables support for the rural strategies in the area of the Project that help build capacity and result in being advantaged by new economic opportunities;
- Enables economic growth as a key to future prosperity in Alberta and the region within which the Project is approved;
- Aligns with creating opportunities for the responsible development of the renewable energy industry of the region within which the Project is located;
- Enables creating value-added opportunities that enhance the sustainability of Alberta's electricity industry and the local community within which the Project will be located;
- Aligns with promoting new investment in renewable energy; and
- Supports Alberta's commitment to greener energy production and economic development.

Summary of Changes

The changes or the outcomes resulting from the proposed replacement of the previously approved Alstom Turbine with the Siemens Turbine include:¹²

- A 3% reduction in the total number of turbines required for the Project from 70 to 68;
- A 15% decrease in the number of turbines located on native pasture;
- No substantial change in the Project's visual impact as the change in turbine size is offset by the reduction in the total number of turbines;

¹¹ See generally AUC Decision 2010-498, *supra* note 2; AUC Decision 2013-348, *supra* note 3.

¹² These changes are more specifically described in this Application at PP10 (summary of changes and environmental impacts), PP14 (details of changes to turbine locations), and PP27 (details regarding noise impacts).



- Reduced adverse environmental effects for soil quality, native pasture, listed plants, surface hydrology, wetlands, and bird and bat species;
- The predicted sound level produced by the Project, combined with ambient sound levels, being lower than the permissible night time sound level of 40 dBA at all noise receptors in the area conservatively considered without adjustments;
- A purposefully minimized change in layout, whereby 87% of the turbine locations for the Proposed Layout remain within 50 metres or less of the turbine locations under the Permitted Layout;¹³
- No change in the Project Area from the previously approved Project area for the Permitted Layout (the “**Approved Project Area**”); and
- An increase in the utilization of the Project Area’s specific wind regime, resulting in an increase in the projected annual energy production and the nameplate rated capacity of the Project from 210 MW to 217.6 MW.

Relative to the Permitted Layout, the Proposed Layout:

- Requires narrower crane paths and reduced ground disturbance during construction, due to the Siemens Turbine nacelle’s reduced size and weight; and
- Results in an 18% decrease in the total disturbed land area during construction and a 2% decrease in the total disturbed land area during operations.

Application Approvals Requested

NaturEner respectfully requests the AUC:

- (a) Approve the proposed changes to the Project as set out in this Application; and
- (b) Approve a time extension to complete construction under the Project Permit (as amended by any approval of the Application) and the Substation Permit from July 17, 2017 to March 31, 2019.

¹³ See Attachment PP14.2 for a comparative layout map showing the proposed locations of the 68 Siemens Turbines relative to the previously approved locations of the 70 Alstom Turbines.



RULE 007 INFORMATION REQUIREMENTS

PP1) Identify the sections of the Hydro and Electric Energy Act under which the application is made.

NaturEner makes this application for amendment of the Project Permit pursuant to Sections 11 and 15 of the *HEEA*.¹⁴

NaturEner makes this application for a time extension to complete construction included in the Substation Permit under Section 18.2 of the *Hydro and Electric Energy Regulation*.¹⁵ Since there is no proposed change to the location, configuration, design specification, or layout of the Substation, NaturEner requires no amendment to the Substation Permit, other than a time extension of the completion date thereof (the “**Substation Permit Extension**”).¹⁶

PP2) Identify any other acts (e.g. Environmental Protection and Enhancement Act, Water Act, and Wildlife Act) that may affect the project.

Other legislation that may apply to the Project include:

- *Electric Utilities Act, SA 2003, c E-5.1;*
- *Municipal Government Act, RSA 2000, c M-26;*
- *Wildlife Act, RSA 2000, c W-10;*
- *Historical Resources Act, RSA 2000, c H-9;*
- *Public Highways Development Act, RSA 2000, c P-38;*
- *Migratory Birds Convention Act, SC 1994, c 22;*
- *Species At Risk Act, SC 2002, c 29;*
- *Aeronautics Act, RSC 1985, c A-2;*
- *Environmental Protection and Enhancement Act, R.S.A. 2000, c E-12;*
- *Safety Codes Act, RSA 2000, c S-1;*
- *Alberta Utilities Commission Act, SA 2007, c A-37.2;*
- *Water Act, RSA 2000, c W-3;*
- *Radiocommunication Act, RSC 1985, c R-2; and*
- *Department of Fisheries and Oceans Act, RSC, 1985, c F-15.*

PP3) State the approvals that are being applied for from the Commission, and provide a draft of the approval being requested.

NaturEner is applying for approval from the AUC, to construct and operate the Project, its collector system and the ancillary facilities necessary for the operation of the Project.

¹⁴ *HEEA, supra note 8.*

¹⁵ *Hydro and Electric Energy Regulation, Alta Reg 409/1983, s 18.2 [HEER].*

¹⁶ The Substation Permit Extension is a minor alteration. The requested Substation Permit Extension does not directly and adversely affect any person and does not have any adverse environmental impact. The requested Substation Permit Extension is therefore excluded from the application of Section 14 of the *HEEA* pursuant to Section 18.2 of the *HEER*.



NaturEner respectfully requests the AUC approve its proposed changes set out in this Application, including:

- (a) Changing the turbines from the Alstom Turbines to the Siemens Turbines;
- (b) Reducing the number of turbines from 70 to 68;
- (c) Changing the nameplate rated capacity from 210 MW to 217.6 MW;¹⁷
- (d) Amending the Permitted Layout to the Proposed Layout; and
- (e) Extension of the construction deadline in the Project Permit (as may be amended by any approval of this Application) and the Substation Permit from July 17, 2017 to March 31, 2019.

A draft power plant approval is provided as Attachment PP3.1.

A draft substation approval is provided as Attachment PP3.2.

PP4) Provide a list of existing approvals for facilities directly affected by this project, if any.

No existing facilities are directly affected by the Project.

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

All land jurisdictions previously consulted with were again consulted as part of NaturEner's participant involvement program ("**PIP**").

NaturEner mailed an information package that enclosed stakeholder update information (the "**Information Package**") during May, 2016 to Alberta Parks/Cypress Hills Interprovincial Park ("**Alberta Parks**") and made attempts to contact Alberta Parks by telephone and email. NaturEner has not received any concerns about the proposed amendments from Alberta Parks. When NaturEner directly consulted with Alberta Parks representatives in 2013, they were pleased with the reduction of the number of visible structures earlier applied for and approved under the Project Permit.

NaturEner mailed the Information Package to Elkwater Water Co-op Ltd. ("**Elkwater Co-op**") and directly consulted with a representative of Elkwater Co-op. NaturEner confirms that the Elkwater Co-op representative expressed no concerns about the proposed amendments.

The Project Area is completely within the Cypress County Municipal District ("**Cypress County**") and does not encroach upon any other local municipal district.

¹⁷ The Project Permit contemplates a Project with a 217.6 MW nameplate rated capacity. The Project has an approved interconnection for 210 MW. In order to accommodate for internal Project electrical line losses and for at least one turbine to be available for maintenance at all times, the AESO allows for the nameplate rated capacity of a wind generation project to exceed the approved interconnection capacity rating by 10% or 10 MW, whichever is less. Thus, the Project nameplate rated capacity of 217.6 MW is within the Project's interconnection approval.



NaturEner has consulted with Cypress County and the Economic Development Alliance of Southeast Alberta (“**EDA**”) regarding the proposed amendments to the Project. Cypress County and the EDA have been supportive of the Project throughout its development.

Cypress County has reviewed the proposed amendments to the Project and has indicated that it does not have concerns.

Included with this Application as Attachment PP5.1 is Cypress County Planning Department’s letter of support/non-objection.

Also included with this Application as Attachment PP5.2 is Cypress County Public Works Department’s letter of support/non-objection.

The EDA is also supportive of the proposed amendments to the Project. Included with this Application as Attachment PP5.3 is EDA’s letter of support.

All previously consulted government, non-government organizations or agencies were notified and/or consulted as part of the PIP. In addition, Environment and Climate Change Canada was consulted.¹⁸

The same group of organizations and agencies consulted for the Permitted Layout Area, using the Alstom Turbines, was consulted for the Proposed Layout using the Siemens Turbines and raised no concerns.

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

The proposed changes set out in the Application do not affect the size of the Project Area.¹⁹ The lands affected by the proposed changes continue to be owned by the same landowner group. As a benefit, the slight increase in the nameplate rated capacity of the Project means that the Project will generate additional energy, resulting in higher payments to the Project landowners.

While ownership of land remains with the same landowners, the selection of a new turbine did require changes to the overall layout of the Project to make optimal use of the wind resources and ensure Project viability. Other changes to the overall layout of the Project were precipitated by the identification of new wildlife features with recommended setback distances, during additional 2016 wildlife surveys.

Other than the turbine changes noted above (i.e. changing to the Siemens Turbine from the Alstom Turbine and reducing the number of turbines), the associated electrical facilities and substation remain the same as that approved in the Project Permit and Substation Permit except for the specific number of turbines tied to each of the underground feeder circuits.

¹⁸ As required under Rule 007, *supra* note 10, Section 3.2, PP8 (see PP8 below).

¹⁹ See Attachment PP10.1, WR1 Golder Evaluation 2016 at page 2, defined and described under PP10, *infra* note 27.



The following companies own or operate infrastructure (e.g. pipelines, cables, roads, telecommunication systems) within the Project Area. Below is a list of parties that may be affected by the Project (“**Affected Parties**”):

- Elkwater Water Co-op (buried water pipelines);
- Cypress County (County roads) (See PP5 above);
- Forty-Mile Gas Co-op (buried gas pipelines);
- Telus (buried communication lines and microwave signals transmitted from towers); and
- Fortis Alberta (overhead electrical distribution lines).

NaturEner has consulted with all of these parties. Included with this Application are letters of non-objection or support from:

- (a) Forty-Mile Gas Co-op, included as Attachment PP6.1; and
- (b) Telus, included as Attachment PP6.2.

NaturEner mailed the Information Package to Elkwater Water Co-op Ltd. (“**Elkwater Co-op**”) in May 2016. On June 24, NaturEner directly consulted with a representative of Elkwater Co-op. NaturEner confirms that the Elkwater Co-op representative expressed no concerns about the proposed amendments.

In May 2016, NaturEner mailed the Information Package to Fortis Alberta Inc. (“**Fortis**”). NaturEner emailed the Information Package to Fortis on June 24 and followed up by telephone and email on June 30. On July 27 NaturEner consulted with a Fortis representative who reviewed the proposed changes. NaturEner already had *Electric Utilities Act* Section 101 sign-off from Fortis with respect to the Project. Fortis has no objection to the proposed changes, provided NaturEner continues to develop the Project in accordance with the current agreements in place with Fortis.

No Affected Parties have outstanding concerns regarding the proposed changes to the Project set out in this Application.

Prior to construction, NaturEner will coordinate with the aforementioned organizations to secure the appropriate right-of-way easement crossing agreements. NaturEner will also coordinate with Cypress County to secure the appropriate development permits.

The PIP with respect to local landowners is discussed under PP19 below.



PP7) For wind power plants, provide a copy of approval from Transport Canada for any structures 20 metres or taller and an evaluation from NAV Canada.

Approval from Transport Canada reflecting the Proposed Layout and the Siemens Turbines is included with this Application as Attachment PP7.1. Transport Canada approval was received on June 7, 2016.

Approval from NAV Canada for the Proposed Layout and the Siemens Turbines is included with this Application as Attachment PP7.2. NAV Canada approval was received on July 3, 2016.

PP8) For wind power plants, provide a copy of an assessment from Environment Canada regarding the potential for interference with weather radars. For assessments in which Environment Canada has identified the potential for significant interference with a weather radar, also provide a copy of a mitigation agreement to be concluded with Environment Canada prior to operation of the wind power plant. No wind power plant will be permitted within a five-kilometre radius, or as otherwise agreed to by Environment Canada, of a federal weather radar station due to the significant interference to Environment Canada's ability to accurately forecast the weather.

Approval from Environment & Climate Change Canada for the Proposed Layout and the Siemens Turbines is included with this Application as Attachment PP8.1. Environment & Climate Change Canada approval was received on June 10, 2016.

PP9) Provide a copy of the approval from Alberta Transportation if a wind power plant that is within 300 metres of a numbered highway is being applied for.

Approval from Alberta Transportation for the Proposed Layout and the Siemens Turbines is included with this Application as Attachment PP9.1. Updated Alberta Transportation approval was received on July 11, 2016.

PP10) Confirm that an application to AEP has been made, if applicable, and list all other government departments and agencies from which approval is required.

All relevant government and non-government organizations and agencies previously consulted with were again consulted. All government departments and agencies from which approval is required, is set out and addressed within this Application.

a) AEP

NaturEner engaged Golder Associates Ltd. ("**Golder**") to prepare an "Evaluation of Changes Technical Memorandum" in connection with the proposed changes to the Project (the "**WR1 Golder Evaluation 2016**"). The WR1 Golder Evaluation 2016 provides a concise description of the proposed changes and includes an assessment of the residual effects, in accordance with the *Wildlife Guidelines for Alberta Wind Projects* (ASRD 2011a) and the *Recommended Land Use Guidelines for Protection of Selected Wildlife Species and Habitat with Grassland and*

Parkland Natural Resources (collectively, the “**Wildlife and Land Use Guidelines**”).

NaturEner initially submitted the WR1 Golder Evaluation 2016 to the AEP on July 15, 2016. An addendum was provided to AEP on August 4, 2016 (the “**WR1 Golder Evaluation 2016 Addendum**”) to address a question raised by the AEP during their review of the WR1 Golder Evaluation 2016. After additional consultation with AEP, the final WR1 Golder Evaluation 2016 was submitted to the AEP on August 18, 2016 (the “**Final WR1 Golder Evaluation 2016**”).²⁰

The WR1 Golder Evaluation 2016 Addendum and the Final WR1 Golder Evaluation 2016 are still collectively herein referred to as the **WR1 Golder Evaluation 2016**.

The WR1 Golder Evaluation 2016 is included in this Application as Attachment 10.1.

The WR1 Golder Evaluation 2016 succinctly summarizes the Proposed Layout and how the changes are consistent with, or differ from, any effects that were predicted for the Permitted Layout. The WR1 Golder Evaluation 2016 also refers the reader to the following previously submitted environmental assessments and documents related to the Project:

- (a) the Environmental Impact Statement prepared for the original project application (the “**Original WR1 EIS**”),²¹ included in this Application as Attachment 10.2;
- (b) the Environmental Impact Statement for the Wild Rose 1 Project Extension, prepared by Golder in 2010 (the “**WR1 Golder Evaluation 2010**”),²² included in this Application as Attachment 10.3;
- (c) the 2013 “Evaluation of Changes” document (the “**WR1 Golder Evaluation 2013**”),²³ included in this Application as Attachment 10.4; and
- (d) the 2013 Native Pasture Mitigation Proposal (the “**WR1 Mitigation Proposal 2013**”),²⁴ included in this Application as Attachment 10.5.

²⁰ “Golder Evaluation of Changes for the Wild Rose 1 Wind Power Project Due to a Change in Turbine Model and Turbine Layout,” a Technical Memorandum prepared by Golder Associates Ltd., dated August 18, 2016 (redacted) [**WR1 Golder Evaluation 2016**].

²¹ “Environmental Impact Statement for the Wild Rose 1 Wind Power Project,” 2007, prepared by West WindEau Inc., as amended by “Addendum to the Environmental Impact Statement,” January 2009, prepared by Golder Associates Ltd [**Original WR1 EIS**].

²² “Environmental Impact Statement – Wild Rose 1 Wind Power Project Extension,” December 2009, prepared by Golder Associates Ltd. [**WR1 Golder Evaluation 2010**]. The Original WR1 EIS together with the WR1 Golder Evaluation 2010 formed part of the amended power plant and substation application filed with the AUC as Application 1604580, Proceeding 268, see file name 8a_50_0051.pdf & 8 b_51_0052.PDF; see also AUC Approval Decision 2010-498 *supra* note 2.

²³ “Evaluation of Changes for the Wild Rose 1 Wind Power Project Due to a Change in Turbine Supplier and Turbine Layout,” prepared by Golder Associates Ltd., April 22, 2013 (updated June 2013) (redacted) [**WR1 Golder Evaluation 2013**].

²⁴ “Wild Rose 1 Wind Power Project Native Pasture Mitigation Proposal,” prepared by Golder Associates Ltd., April 23, 2013.



The WR1 Golder Evaluation 2013 and WR1 Mitigation Proposal 2013 were prepared in connection with the previously approved amendment to the Project.²⁵

With respect to AEP – FWD, NaturEner consulted extensively with the Medicine Hat regional office regarding the amendments requested herein. The AEP – FWD provided its sign-off on the proposed changes set out in the WR1 Golder Evaluation 2016 in a letter dated August 26, 2016 (the “**AEP Sign-off**”). The AEP Sign-off is included in this Application as Attachment PP10.6.

Overall, based on the findings of the various wildlife surveys conducted since those detailed within the WR1 Golder Evaluation 2010, wildlife use of the Project Area appears to remain consistent. The constraints that affect development within the Project Area, including three northern leopard frog breeding sites, one sharp-tailed grouse lek, one ferruginous hawk nest, two red-tailed hawk nests and one Swainson’s hawk nest have been incorporated by NaturEner into the design of the Proposed Layout. As a result, no proposed turbine locations occur within any of the AEP recommended setbacks for these nest and breeding sites.

The Project Area for the Proposed Layout does not change from the Approved Project Area.²⁶

A list of turbines proposed to be relocated is provided in this Application as Attachment PP14.1. A photo mosaic “*Wind Turbine Layout Air Photo Mosaic*” showing proposed turbine locations, access roads, crane paths, and collector systems within the Project Area Boundary is included in the Application as Attachment PP42.1 (the “**Air Photo Mosaic**”). The Air Photo Mosaic also shows existing residences, infrastructure (county roads, gas wells, gas lines, communication lines, water lines, power distribution lines, etc.), water-bodies and existing rights of ways in and around the Project Area.

The predicted residual effects of the environmental assessment considered the location of the Project Area, the Proposed Layout, scheduling of construction, method of construction and the mitigation measures to be applied. The Project Area is located within the same study area as the Approved Project Area described in the WR1 Golder Evaluation 2010. The Proposed Layout will be constructed using the same techniques and the same time frame as was planned for the Permitted Layout. The Proposed Layout will also use the same mitigation strategies and commitments as was outlined for the Permitted Layout.

The majority of conclusions reached in the WR1 Golder Evaluation 2010 and the WR1 Golder Evaluation 2013 regarding the likely residual adverse effects of the Permitted Layout on the identified Valued Ecosystem Components (“**VECs**”) remain unchanged for the Proposed Layout.²⁷

²⁵ AUC Decision 2013-348, *supra* note 3.

²⁶ WR1 Golder Evaluation 2016, *supra* note at page 2.

²⁷ WR1 Golder Evaluation 2016, *supra* note at page 20.



Lower adverse effects are predicted for the Proposed Layout, as compared to the Permitted Layout, for the Soil Quality VEC, Native Pasture VEC and Listed Plants VEC.²⁸

Minimal increases in adverse residual effects are expected for the Bird and Bat Species VEC, due to a minimal increase in the rotor-swept area for the Proposed Layout which are offset by the reduction in the number of turbines on native pasture.²⁹

The differences between the Proposed Layout and the Permitted Layout will result in changes that are positive (i.e. reduced habitat loss) and adverse (i.e. minimal increase in rotor-swept area) for the Listed Wildlife Species VEC; these differences are not significant.³⁰

With respect to visual impacts, although the Siemens Turbine has a slightly taller hub height and a slightly larger rotor diameter than the Alstom Turbine, the visual impact is relatively the same. [Attachment PP10.7](#) provides a visual comparative simulation for the Alstom Turbines (approved under the Permitted Layout).³¹

Follow-up measures will consist of monitoring to assess the accuracy of predictions made in both the WR1 Golder Evaluation 2010 and the WR1 Golder Evaluation 2016. Follow-up programs will occur for site reclamation (soil quality and land use), and post-construction monitoring plans will be conducted to assess effects on birds and bats during the first two years of operation, as developed in consultation with AEP.

Project activities during construction, operations and decommissioning phases detailed in the WR1 Golder Evaluation 2010 will remain the same. There will, however, be reduced impact for the Project infrastructure (e.g. access roads, turbine footprint, etc.), based on the smaller base and smaller crane being required for erecting the Siemens Turbines.

b) Other Government Departments/Agencies

The same group of organizations and agencies consulted for the Permitted Layout were consulted for the Proposed Layout.

No additional government, non-government organizations or agencies were required to be added to the PIP, except for the addition of Environment and Climate Change Canada (as stated in PP5).

Table PP10.1 below sets out other government departments and agencies from which approval is required, along with the status of such required approvals.

²⁸ *Ibid* at pages 20-22.

²⁹ *Ibid* at page 20.

³⁰ *Ibid* at pages 20-21.

³¹ In accordance with the Project Permit, *supra* note 4.



Table PP10.1: Approval of Other Government Departments/Agencies

Government Department/Agency	Status of Required Approval
Transport Canada Aeronautical Approval	Approved. See Attachment PP7.1 .
NavCanada Land Use Approval	Approved. See Attachment PP7.2 .
Environment and Climate Change Canada	Approved. See Attachment PP8.1 .
Alberta Culture and Tourism HRIA Clearance	See PP11 below.
AEP – FWD	Approved. See Attachment PP10.6
AEP – Environmental Ops	See Attachment PP38.1 .
Alberta Transportation	Approved. See Attachment PP9.1 .
Cypress County	No change in land use is required. NaturEner will apply for Cypress County development permits within 90 days of the start of construction. See Attachments PP5.1 & PP5.2

NaturEner has advised the AESO of the proposed change to the Siemens Turbines and associated increase in nameplate rated capacity of the Project to 217.6 MW. NaturEner confirms that the AESO representatives have expressed no concerns with the proposed amendments as the Siemens Turbine technology will comply with all AESO Rules and their interconnection requirements.

NaturEner has advised the local transmission facility operator AltaLink Management Ltd. (“AltaLink”) of the proposed change to the Siemens Turbines and associated increase in the nameplate rated capacity of the Project to 217.6 MW. NaturEner confirms that AltaLink representatives have expressed no concerns about the proposed amendments and have submitted a Project Change Proposal to the AESO to revise the In Service Date for the interconnection (the “ISD”) and to acknowledge the proposed change in turbines for the Project.

PP11) With respect to new facilities or alterations that may have historical, archaeological or paleontological impacts, confirm that a Historical Resources Act approval has been obtained or is being applied for. If a historical assessment is required, briefly describe any historical, archaeological or paleontological sites close to the power plant site. Please ensure that any summary provided protects the confidential location of any historical, archeological or paleontological resources.

NaturEner submitted a request to Alberta Culture and Tourism (“ACT”) for an updated *Historical Resources Act*³² approval letter.

NaturEner engaged an archaeologist from Golder to evaluate the proposed changes and make recommendations with respect to the necessity and scope of

³² *Historical Resources Act*, RSA 2000, c H-9 [HRA].



any Historical Resources Impact Assessment (“**HRIA**”) that might be required under Section 37 of the *HRA*.

Although the Proposed Layout for the Project has changed since conditional *HRA* approval was granted in 2010³³ and 2013,³⁴ most of these changes occur in lands that were previously assessed or are previously disturbed by agricultural activities. In fact, the changes in turbine locations in the Proposed Layout primarily moved proposed developments further away from previously recorded sites. As well, the majority of the Proposed Layout is located within lands that are cultivated, tame pasture (previously disturbed) or were assessed under previous permits.

The Golder archaeologist’s evaluation and recommendations (the “**Statement of Justification**”) were included in the request for an updated *HRA* approval letter. The Statement of Justification recommends that no additional *HRIA* work be required based on the level of field work performed previously in the areas of the Proposed Layout.

Based on the recommendations set out in the Statement of Justification, on July 27, 2016, NaturEner submitted a request for an updated *HRA* approval letter from ACT for the Proposed Layout. The approval letter from ACT is expected to be received by September, 2016. A confirmation of the submission of the updated *HRA* approval letter request is included in this Application as Attachment PP11.1.

PP12) Provide the ISO assigned asset identification code, if available.

The AESO has not yet assigned an asset identification code to the Project. NaturEner will confirm the AESO assigned asset identification code with the AUC once available.

PP13) Provide the legal description of the proposed power plant site (legal subdivision [LSD], Section, Township, Range, Meridian and/or Plan, Block, Lot, municipal address for urban parcels) and connection point, if applicable.

The legal description of the proposed power plant site is provided in Table PP13.1 below.

The Project’s connection point remains at the NE (LSD-9) Sec-36 Twp-009 Rge-02 Mer-W4 and requires no change.

³³ 2010 *HRIA* for NaturEner Wild Rose 1 Wind Power Project: final report (ASA Permit 09-251). Consultant’s report on file with the Archaeological Survey of Alberta, Edmonton.

³⁴ 2013 Historical resources impact assessment for NaturEner Wild Rose 1 Wind Power Project: final report (ASA Permit 13-047). Consultant’s report on file with the Archaeological Survey of Alberta, Edmonton.



Table PP13.1: Legal Land Description of Proposed Power Plant Site

Township	Sections and Subsections
Twp 10 Rge 2 W4M	E½ 13, all of 12, SE11, NE2, all of 1
Twp 10 Rge 1 W4M	SW19, W½ & SE 18, S½ & NE 17, N½ 7, E½ 5
Twp 9 Rge 2 W4M	All of 36, 25, 24, S½ 26, N½ & SE 23, N½ of NW13
Twp 9 Rge 1 W4M	N½ & SW 31, N½ 32, S½ & NW 30, all of 19, N½ 18, W½ 17

PP14) Provide the longitude and latitude coordinates for the centre 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 metres from the coordinates stated in the application, the power plant proponent must reapply to the Commission for approval to relocate the structure prior to construction. For movement of less than 50 meters, the applicant is not required to reapply unless there is an adverse impact on the permissible sound level or wildlife setback distances.

The legal land description as well as longitude and latitude coordinates for each of the Siemens Turbines is provided in Attachment PP14.1.

NaturEner attempted, to the absolute extent possible, to keep the turbine locations in the Proposed Layout the same as those already approved in the Permitted Layout. Of the 70 turbines in the Permitted Layout, only 13 turbine locations were affected by the proposed changes. Under the Proposed Layout, two locations are removed and two locations are moved less than 50 metres. NaturEner requires approval of amendments to *only* nine of the 70 locations cited in the Project Permit to accommodate its new Proposed Layout as follows:

- (a) NaturEner requests re-location of three turbines onto nearby cultivated cropland, rather than on the previously approved native/tame pasture locations;
- (b) NaturEner requests re-location of three turbines from previously approved native pasture locations onto nearby native pasture locations to allow for a wildlife setback of new avian nests found in the vicinity; and
- (c) NaturEner requests moving three turbine locations greater than 50 metres from the Permitted Layout in order to allow for a further wildlife setback and/or optimize and accommodate for turbine efficiency and wake effect.

The nine requested turbine location changes under the Proposed Layout are between 121 and 3,001 metres from the previous turbine locations approved in the Permitted Layout and from and to the locations identified in Table PP14.1 below.



Table PP14.1: Listing of Current and Proposed Amended Turbine Locations

Turbine Number	Permit Layout with Alstom Turbine			Proposed Layout with Siemens Turbine				
	Land Use Type	Easting (NAD 83)	Northing	Land Use Type	Easting	Northing	Change in Location	Reason for Change
T18	native pasture	559799	5512031	native pasture	559671	5511814	moved approx. 252 metres	to avoid wildlife setback
T29	native pasture	561603	5511065	cultivated	562572	5511318	moved approx. 1,001 metres	to accommodate amended layout and moved to cultivated land to avoid adverse effect on native pasture
T38	native pasture	562112	5510623					removed
T50	native pasture	563375	5510815	native pasture	562837	5510654	moved approx. 562 metres	to avoid wildlife setback
T51	native pasture	563209	5511057	native pasture	562472	5510977	moved approx. 741 metres	to avoid wildlife setback
T52	cultivated	563017	5511531	cultivated	563166	5511736	moved approx. 253 metres	to accommodate amended layout
T53	cultivated	562852	5512542	cultivated	562847	5512526	moved approx. 17 metres	to avoid wildlife setback
T54	cultivated	561999	5514786	cultivated	562018	5514827	moved approx. 45 metres	to avoid wildlife setback
T56	cultivated	563222	5511867	cultivated	563187	5512107	moved approx. 243 metres	to accommodate amended layout
T58	tame pasture	564659	5515047	cultivated	561749	5514312	moved approx. 3,001 metres	to avoid wildlife setback; also moved from tame pasture to cultivated
T68	native pasture	560800	5516188	cultivated	561130	5515451	moved approx. 808 metres	to accommodate amended layout and move to cultivated land to avoid adverse effect on native pasture



Turbine Number	Permit Layout with Alstom Turbine			Proposed Layout with Siemens Turbine				
	Land Use Type	Easting (NAD 83)	Northing	Land Use Type	Easting	Northing	Change in Location	Reason for Change
T78	cultivated	564688	5515995	cultivated	564568	5516011	moved approx. 121 metres	to avoid wildlife setback
T79	tame pasture	564600	5516481					removed

Other than these nine location changes and two turbine removals, NaturEner does not require amendments to any other approved turbine locations identified in the Permitted Layout.

A layout map showing the relative locations of the Alstom Turbines in the Permitted Layout and the proposed locations of the Siemens Turbines in the Proposed Layout is included as [Attachment PP14.2](#).

PP15) Describe the number of generating units and the total capacity (kilovolt-ampere [kVA], or megavolt-ampere [MVA]) for the project.

The Application is for approval of 68 Siemens Turbines.

The total capacity applied for the Project is 241.78 MVA.

PP16) Describe the existing environmental and land use conditions in the local study area, and discuss potential siting and land use issues. Also, describe the regional setting of the development including regional land use plans in force (e.g., the Lower Athabasca Regional Plan). If applicable, include maps showing important environmental features and sensitive areas in the local study area.

The Project falls within the white area of the South Saskatchewan Regional Plan 2014-2024 (the “SSRP”) and is located on private lands. The local study area is not significantly affected by the requested amendment as the Project Area remains unchanged under the Proposed Layout as noted at page 4 in the WR1 Golder Evaluation 2016.

PP17) At a level of detail commensurate with the size and type of potential effect(s) of the project, complete and submit an environmental evaluation of the project and provide a sign-off from AEP addressing the environmental aspects of the project that AEP is satisfied with.

The WR1 Golder Evaluation 2016, the WR1 Golder Evaluation 2013, the WR1 Mitigation Proposal 2013, the Original WR1 EIS, and the WR1 Golder Evaluation 2010 (collectively, the “EIS”) describe and predict the Project’s:

- (a) effects on the environment; and



- (b) the measures to avoid or mitigate the Project's predicted adverse environmental effects and any monitoring proposed to evaluate the efficacy of those measures.

The EIS:

- describes the present (pre-construction) environmental conditions in the local study area,³⁵ including:
 - a detailed description of the existing environment at pp 28-51 of the Original WR1 EIS and at pp 18-28 of the WR1 Golder Evaluation 2010;
 - changes to the conditions described in the Original WR1 EIS due to changes in the proposed layout at pp 4-25 of the WR1 Golder Evaluation 2013;
 - changes to the conditions described in WR1 Golder Evaluation 2013 due to changes in the Proposed Layout set out in this Application at pp 3-25 of the WR1 Golder Evaluation 2016; and
 - the fact that the local study area is not significantly affected by the requested amendment as the Project Area remains unchanged under the Proposed Layout at p 4 of the WR1 Golder Evaluation 2016;
- identifies and describes the Project activities and infrastructure that may adversely affect the environment including:
 - the potential adverse effects resulting from access road construction, crane path construction, turbine site construction; and underground collection system installation at p 9 of the WR1 Golder Evaluation 2016; and
 - the effects on specific VECs that may result due to the construction and/or operation of the Project at pp 16-25 of the WR1 Golder Evaluation 2016;
- identifies what specific ecosystem components (i.e., terrain and soils, surface water bodies and hydrology, groundwater, wetlands, vegetation species and communities, wildlife species and habitat, aquatic species and habitat, air quality and environmentally sensitive areas) within the local study area may be adversely affected by the Project at p 16 of the WR1 Golder Evaluation 2016;³⁶
- describes in the WR1 Golder Evaluation 2016 the potential adverse effects of the Project on the ecosystem components during the life of the Project, including the effects to:

³⁵ "local study area" as defined on page 8 of the Government of Alberta's Glossary of Environmental Assessment Terms and Acronyms Used in Alberta Updated February 2010.

³⁶ For a summary of the VECs selected by Golder for its evaluation of the proposed changes as well as rationales for assessing them further, as it relates to AEP's review (i.e. in consideration of the Wildlife and Land Use Guidelines) see WR1 Golder Evaluation 2016 at 16: "Table 9: Valued Ecosystem Components Selection Table and Rationale for Further Evaluation."



- soil quality at p18;
- surface hydrology at p18;
- native pasture at pp 18-19;
- listed plant species at p 19;
- bird and bat species at pp 20; and
- listed wildlife species at pp 20-21;
- describes the mitigation measures that NaturEner proposes to implement during the life of the Project to reduce these potential adverse effects at:
 - p 6 of the WR1 Golder Evaluation 2016;³⁷ and
 - pp 1-6 of the WR1 Mitigation Proposal 2013;
- describes the predicted residual adverse effects of the Project and their significance³⁸ after implementation of the proposed mitigation at:
 - pp 20-22 of the WR1 Golder Evaluation 2016, which describes the predicted change in residual effects due to the changes proposed in this Application; and
 - pp 20-23 of the WR1 Golder Evaluation 2013;
- describes the monitoring activities NaturEner proposes to implement during the life of the Project to verify the effectiveness of the proposed mitigation at:
 - pp 1-6 of the WR1 Mitigation Proposal 2013;
 - pp 129-131 of the Original WR1 EIS;
 - p 70 of the WR1 Golder Evaluation 2010;
 - p 23 of the WR1 Golder Evaluation 2013; and
 - p 22 of the WR1 Golder Evaluation 2016;
- describes the methodology used to identify, evaluate and rate the adverse environmental effects and determine their significance, along with an explanation of the scientific rationale for choosing this methodology at pp 19-27 of the Original WR1 EIS and pp 16-17 of the WR1 Golder Evaluation 2010.

The sign-off from AEP addressing the environmental aspects of the Project that AEP is satisfied with, is enclosed as Attachment PP10.6.

³⁷ The total mitigation required for the Project under the Proposed Layout is expected to be less than the 211.49 ha of total mitigation lands calculated in the Mitigation Plan 2013 previously approved by the AUC in decision 2013-348 (*supra* note 3). Therefore, the proposed mitigation measures set out in the Mitigation Plan 2013 are anticipated to be more than adequate with respect to the Proposed Layout.

³⁸ "significance" as defined on page 12 of the Government of Alberta's Glossary of Environmental Assessment Terms and Acronyms Used in Alberta Updated February 2010.



PP18) If the project site occurs within the plan boundaries of a regional land use plan in force:

- i. Confirm that the proposed project is being developed in accordance with the applicable regional land use plan.**
 - ii. Confirm if the proposed project is in a conservation area or provincial recreation area established in the applicable regional land use plan. Provide submissions describing how the activity may be considered incidental to a previously-approved activity.**
 - iii. Indicate what, if any, management frameworks in place under the applicable regional land use plan are applicable to the project, the reason why any management frameworks are not applicable to the project, and summarize discussions held with AEP and any other government department required to be consulted under the management frameworks regarding the project and its impacts in terms of the management frameworks. Include details on any actions or mitigation measures recommended as a result of the discussions and describe how these actions or mitigation measures will be incorporated into the project.**
- i. The Project is located on private land and is being developed in accordance with the strategic plan and implementation plan of the SSRP.

The Project:

- (a) Is in alignment with the provincial policy direction related to renewable energy;
 - (b) Is being developed in an environmentally responsible manner;
 - (c) Enables support for rural strategies that help build capacity and being advantaged by new economic opportunities;
 - (d) Enables economic growth as a key to future prosperity in the region;
 - (e) Aligns with creating opportunities for the responsible development of the region's renewable energy industry in support of Alberta's commitment to greener energy production and economic development;
 - (f) Enables creating value-added opportunities that enhance the sustainability of Alberta's electricity industry and the local community; and
 - (g) Align with promoting new investment in renewable energy.
- ii. The Project is not in an established conservation or provincial recreation area.
- iii. The following two management frameworks are in place under the SSRP:



- (a) Air Quality Management Framework Limits and Triggers; and
- (b) Surface Water Quality Management Framework Limits and Triggers.

There will be no discharge affecting air quality and no discharges to surface waters during either construction or operation. Neither of these management frameworks is applicable to the Project.

PP19) Describe the participant involvement information.

Based on the proposed change in turbine and the Proposed Layout, NaturEner confirms there are no potentially adversely affected parties with any outstanding concerns. NaturEner has updated all relevant stakeholders who were included in previous participant involvement programs related to the Project in its PIP about the proposed changes.

NaturEner maintains an updated list of stakeholders (the “**Stakeholder List**”) comprised of:

- (a) All occupants, residents and landowners within or up to 2,000 m of the Project Area Boundary;
- (b) All other interested persons who have previously expressed an interest in the Project but who are beyond 2,000 m of the Project Area Boundary.

In addition, NaturEner requested a land company in Medicine Hat to search all land titles up to 2,000 metres outside the Project Area Boundary and all land titles within the Project Area. The land company provided NaturEner with a summary of landowners, residents, occupants and title interests. NaturEner compared the land title summary with its stakeholder lists and made corrections, additions and changes as needed. Accordingly, NaturEner’s PIP considered all potentially applicable land title changes, since approval of the Project Permit and the Substation Permit.

The Stakeholder List is included with the Application as Attachment PP19.1.

Consultation for the Project has been ongoing since 2006. The most recent round of consultation included:

- (a) the mailing of the Information Package to Stakeholders on May 16, 2016 (the “**Information Mailing**”);
- (b) the holding of an information session on June 15, 2016 (the “**Information Session**”); and
- (c) direct consultation performed by phone or in person with all landowners and residents living within the Project Area or within 800 m of the Project Area Boundary (the “**Direct Consultations**”).



The Information Mailing

For the Information Mailing part of the PIP, the Information Package was mailed on May 16, 2016 to:

- (a) all occupants, residents, and landowners within or up to 2,000 metres from the Project Area Boundary (a copy of which is included in the Application as Attachment PP19.2), and
- (b) all other interested persons who have previously expressed an interest in the Project but who are beyond 2,000 m of the Project Area Boundary (a copy of which is included in the Application as Attachment PP19.3).

NaturEner has also mailed the Information Package and sent follow up e-mails to all stakeholders who have previously received communication about the Project; including, Henry Binder, Paul von Huene, Nature Alberta (formerly Federation of Alberta Naturalists), SP Cattle Company Ltd., Alberta Wilderness Association and Grasslands Naturalists.

The Information Session

On May 27, 2016, NaturEner mailed Information Session invitations to all landowners, residents and occupants within 2,000 m of the Project Area Boundary. That invitation is included in the Application as Attachment PP19.4.

The Information Session was held on Wednesday, June 15, 2016. Twelve people attended. The comments received were positive and supportive of the Project. Five out of the six Project landowners were in attendance. There was a great deal of enthusiasm for the Project. The panels presented at the Information Session are set out in Attachment PP 19.5 "*Information Session Presentation*".

Direct Consultations

NaturEner further confirms that, following the Information Mailing, NaturEner conducted the Direct Consultations, which consisted of direct face-to-face or telephone consultation with all landowners and residents within 800 m of the Project Area Boundary, as required and outlined in AUC Rule 007.³⁹

Feedback from all consultations was documented on consultation forms. Any concerns were discussed and resolved during the time of consultation. NaturEner is not aware of any outstanding concerns raised during these Direct Consultations.

³⁹ Rule 007, *supra* note 10, Appendix A-1.



PP20) List all occupants, residents and landowners on lands within the appropriate notification radius as determined using Appendix A1– Participant involvement program guidelines, as well as other interested persons that were consulted as part of the participant involvement program. If there are populated areas just outside the minimum notification distance, applicants should consider including those areas in the participant involvement program.

See PP19 and Attachment PP19.1 for List of Stakeholders, including setting out the appropriate notification radius category for each party on the list.

PP21) Supply a list of mailing addresses, with corresponding land locations and two sets of printed mailing labels of those parties mentioned in PP20, above.

The list of mailing addresses is enclosed with this Application as Attachment PP21.1.

The land locations are addressed in Attachment PP19.1.

Two sets of printed mailing labels will be delivered to the AUC by courier.

PP22) Identify any persons who expressed concerns about the project and the specifics of their concerns.

See PP23 below and Attachment PP19.1.

PP23) Summarize discussions held with potentially directly and adversely affected persons.

Many discussions have been held with a variety of people and agencies during the development of the Project (prior to receipt from the AUC of the Project Permit and since). Throughout the Project's development, and currently, the vast majority of people have shown and continue to show strong support for the Project.

Questions were raised by three stakeholders during the most recent consultation period at the Information Session.

The following is a summary of the questions raised during the consultation period at the Information Session and the steps taken by NaturEner to address these questions:

- (a) **Project Landowner - Hutterian Brethren Church of Elkwater ("Elkwater")** – Representatives of Elkwater expressed a concern about the two turbines located east of the Elkwater Colony. NaturEner explained that the two turbines in question were already permitted turbine locations but that NaturEner would be willing to explore further options. Representatives attended the Information Session and advised NaturEner that there was no need to explore further options and that they no longer had an issue regarding the two turbines.



- (b) **Project Landowner – Robert Ziegenhagel of Double Deuce Ranch Ltd.**
– One turbine was removed from the lands owned by Double Deuce Ranch Ltd. Of interest to Mr. Ziegenhagel was the interplay between wildlife setbacks, noise setbacks, wind resource assessment and the Project turbine layout. Mr. Ziegenhagel was disappointed to be losing a turbine. He had no further concerns other than to ask NaturEner to build the Project soon.

- (c) **S&P Cattle Company Ltd. (Preston Manning)** – NaturEner mailed Mr. Manning the Information Package on May 16, 2016. On June 7, 2016 NaturEner also emailed the Information Package to Mr. Manning and asked for comments. Mr. Manning responded by email on June 22, 2016. His comments included a request to refresh his memory on the history of the Project and general questions regarding benefits of the Project, environmental impacts, mitigating the impacts, and some non-Project questions about the wind power market (price of electricity produced, incorporation of costs of mitigation into the cost of coal and gas generated energy and how this could add to the price of electricity projected by the Project). NaturEner responded by email on June 22, 2016. Mr. Manning did not reply to the email. NaturEner is not aware of any other concerns from Mr. Manning.

With respect to First Nations, NaturEner mailed the Information Package to the Blood, Piikani, Siksika and Stoney Nakoda First Nations. Although the Project is entirely on private lands and quite a distance from the Reserves of each of the First Nations, they had previously been consulted with respect to the Project's interconnection. NaturEner did not receive any response from the Blood, Siksika and Piikani First Nations. NaturEner received a response from the Stoney Nakoda First Nation requesting information. NaturEner responded with information about the Project, its location, and a summary of previous correspondence and consultation with Stoney Nakoda First Nation. The Project is located outside of the recognized traditional territory of the Stoney Nakoda First Nation, as defined by Treaty 7. The Stoney Nakoda First Nation has not raised any further questions and NaturEner is not aware of any concerns from Stoney Nakoda First Nation.

NaturEner received no other follow up or feedback in response to its PIP. NaturEner is not aware of any other outstanding stakeholder concerns with the proposed turbine and layout changes.

PP24) If potentially directly and adversely affected persons raised any concerns, describe how these concerns were dealt with or are being dealt with.

There were no unresolved concerns raised by potentially directly and adversely affected persons other than as already set out herein and as has been fully addressed by NaturEner.

PP25) For those potentially directly and adversely affected persons identified above, include a confirmation of resolution of the concerns, if applicable.

Not applicable.



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 of the Oil and Gas Conservation Regulations.

Not applicable. The Project will not be located within an oil and gas facility.

PP27) Provide a noise impact assessment, in accordance with the current Rule 012.

A Noise Impact Assessment (“NIA”) was conducted for the Project, using the methods and criteria described in AUC Rule 012: *Noise Control*.

The NIA is attached to this Application as Attachment PP27.1.

Noise modeling was completed for the 68 Siemens Turbines in the Proposed Layout configuration. Table PP27.1 presents the comparison of the predicted sound levels at all the receptors using the Alstom Turbines and the Permitted Layout and using the Siemens Turbines and the Proposed Layout.

The NIA concludes that the predicted sound level produced by the Project, combined with ambient sound levels, is lower than the permissible sound level of 40 dBA at all noise receptors in the area. In addition, the NIA also shows that the predicted sound level produced by the Project, combined with ambient sound levels, is less than 39dBA at all noise receptors.

The associated octave band data for normal operation mode is included in the NIA for the Siemens Turbines.

NaturEner intends to operate the Siemens Turbines in normal operation mode and, accordingly, the NIA was conducted using the worst-case broadband sound power level of 106.0 dBA (normal operation mode with a hub height wind speed of 11 m/s). An operation strategy other than normal operation mode and/or hub height wind speeds lower than 11 m/s should generate less noise than the levels indicated in the NIA.

Table PP27.1: Comparison of Predicted Sound Levels at Receptors using Alstom Turbines and Permitted Layout and using Siemens Turbines and Proposed Layout

Receptor ID	Land Owner	Alstom Turbines and Permitted Layout Predicted Sound Level (dBA)	Siemens Turbines and Proposed Layout Predicted Sound Level (dBA)
NR001	Flaig	38.5	abandoned
NR003	Ziegenhagel	37.9	38.4
NR004	Good	35.9	36.3
NR004A	Good	36.0	36.5
NR004B	Good Rental	36.1	36.5
NR006A	Elkwater Colony	38.0	38.6
NR006B	HB of Elkwater	See Comment 1	38.7
NR006C	HB of Elkwater	See Comment 1	38.5
NR006D	HB of Elkwater	See Comment 1	38.6
NR006E	HB of Elkwater	See Comment 1	38.8
NR006F	HB of Elkwater	See Comment 1	38.6
NR006G	HB of Elkwater	See Comment 1	38.8
NR006H	HB of Elkwater	See Comment 1	38.5



NR006I	HB of Elkwater	See Comment 1	38.7
NR006J	HB of Elkwater	See Comment 1	38.8
NR007	Elkwater Colony Rental #2	37.8	37.6
NR009	H & E Ziegenhagel	36.2	36.4
NR010	Janke North	36.7	36.8
NR011	Janke South	36.5	36.7
NR012	Reesor Ranch West	37.7	37.7
NR013	Freimark	37.0	37.5
NR014	Lutz	36.7	37.2
NR015	HBE Residence #3	Comment 2	36.6
NR016	Reesor Residence	Comment 2	35.7
NR017	Brost	Comment 2	35.7
NR018	Hiller	Comment 2	36.0
NR020	Elkwater Colony Rental #3	Comment 2	36.3

Comment 1: The current NIA predicts the noise levels to each of the receptors of the residential clusters at the Elkwater Colony. The previous NIA for the Permitted Layout predicted the noise levels to the receptor closest to the Project.

Comment 2: These receptors were not included in the NIA for the Permitted Layout because they are approximately 2,000 m from Project Area Boundary. They were conservatively included in the NIA prepared for the Proposed Layout.

In addition to the NIA, NaturEner encloses a radio communications and radar systems inventory and preliminary impact assessment as Attachment 27.2.

PP28) For an application where no changes to the major components of the power generating equipment are contemplated after filing the application, provide details of the power generating equipment and associated facilities, such as make, model and nominal capability.

The Project, as currently permitted, consists of 70 Alstom Turbines, for a total Project nameplate rated capacity of 210 MW. NaturEner is proposing to replace the 70 Alstom Turbines with 68 Siemens Turbines for a total Project nameplate rated capacity of 217.6 MW.⁴⁰

Because the Siemens Turbine has a higher nameplate rated capacity (3.2 MW) and better efficiency, a smaller number of turbines are required to produce more energy.

Apart from the differences in size and height, the Alstom Turbine and the Siemens Turbine use similar generating technology. Both models are variable speed wind turbines but the Alstom Turbine uses double-fed induction generators (“DFIG”) and back-to-back AC/DC/AC converters in the rotor circuit, while the Siemens Turbine uses permanent magnet generators (“PMG”) with a full power converter in a direct-drive configuration which provides enhanced capabilities for interconnection to the AIES.

⁴⁰ The AUC Permit contemplates a Project with a 210 MW nameplate rated capacity. The Project has an approved interconnection for 210 MW. In order to accommodate for internal Project electrical line losses and for at least one turbine to be available for maintenance at all times, the AESO allows for the nameplate rated capacity of a wind generation project to exceed the approved interconnection capacity rating by 10% or 10 MW, whichever is less. Thus, the Project nameplate rated capacity of 217.6 MW is within the Project’s interconnection approval.



Further, the Siemens Turbine generates electricity at 690VAC and requires a pad mounted step-up transformer outside each tower for the required collector system voltage. The medium voltage switchgears, which protect the wind turbines against over-currents, short circuits and ground faults, will be installed inside the base section of the Siemens Turbines, similar to the design of the Alstom Turbines. The biggest differences between the turbines include two fundamental characteristics (*Business Proprietary Information*):

- (a) the Alstom Turbine is equipped with a power transformer in a lateral housing in the nacelle, whereas the Siemens Turbine uses pad-mount transformers near the base of the turbine. The main function of the power transformer is to step-up the turbine generator voltage to the wind farm internal collector system voltage.
- (b) the Alstom Turbine uses a geared drive train configuration, whereas the Siemens Turbine is a state-of-the-art direct-drive unit that eliminates the need for a gear reduction unit (transmission) in the nacelle, thus reducing the overall noise generation levels for comparably rated generators.

Removing this additional equipment from the nacelle allows the nacelle for the Siemens Turbine to be lighter and smaller than the Alstom Turbine, requiring a smaller lifting crane, smaller lifting crane footprint, and a narrower crane path to move the lifting crane into position during erection, thus reducing the overall surface disturbance during construction.

A comparison of the mechanical and electrical characteristics of the Alstom Turbine and the Siemens Turbine is outlined in Table PP28.1 below. Additional information and specifications regarding the Siemens Turbine is included in the Siemens Technical Description – SWT – 3.2 – 113 IEC IIA, included with this Application as Attachment PP28.1.

Table PP28.1: Technical Overview of Alstom Turbine versus Siemens Turbine

Technical Specifications	Alstom Turbine	Siemens Turbine <i>(Business Proprietary Information)</i>
Turbine Model	Alstom ECO110 - 3.0 MW	Siemens 3.2 MW SWT 3.2-113
Turbine Nominal Capacity	3.0 MW / 3.37 MVA	3.2 MW/3.56 MVA
Type	Horizontal axis wind turbine with variable rotor speed	
Rotor Diameter	109.8 m	113 m
Rotor-swept-height	35.1 to 144.9 m	36 to 149 m
Rotor-swept area per turbine	9,469 m ²	10,029 m ²
Cumulative rotor-swept area	662,830 m ²	681,972 m ²
Power Regulation	Pitch control with variable speed	
Hub Height	90 m	92.5 m
Operating Range Rotational Speed	7.7 - 13.6 rpm	6.5 – 15.1 rpm
Cut-In Wind Speed	3.0 m/s	3.0 m/s
Rated (Nominal Power) Wind Speed	11.5 m/s	13 m/s
Cut-Out Wind Speed	25 m/s	32 m/s
Gearbox	Three-stages, 2 planetary / 1 helicoidally	None
Generator	6 poles, Double-Fed Induction Generator (DFIG)	Synchronized Permanent Magnet Generator (PMG)



Technical Specifications	Alstom Turbine	Siemens Turbine <i>(Business Proprietary Information)</i>
Rated Voltages	Stator (Grid Voltage) 1,000 V, Rotor \leq 760 V	Stator (Grid Voltage) 690 V, Rotor \leq 760 V
Frequency	60 Hz	
Converter	Back-to-back AC-DC-AC converter, based in IGBT technology, in the rotor circuit	Full-scale converter
Power Control Capabilities	Active power control capabilities. Reactive power control capabilities in the range from 0.93 lagging to 0.93 leading for nominal voltage \pm 10%.	Active power control capabilities. Reactive power control capabilities in the range from 0.9 lagging to 0.9 leading for nominal voltage \pm 10%.
Low Voltage Ride Through Capability	LVRT capability as per ISO Rules 502.1 - Wind Aggregated Generating Facilities - Technical Requirements	
Braking System	Aerodynamic brake - full feathering	
Yaw System	Four (4) motors and planetary type gear reducers.	Ten (10) motors and planetary type gear reducers.
Tower Design	4-section steel tower	4-section steel tower
Transformer	Contained within nacelle of turbine	Pad-Mounted located near base of turbine

Other than the turbine changes noted above (i.e. changing to the Siemens Turbine and reducing the number of turbines), the associated electrical facilities noted below remain exactly the same as that approved in the Project Permit other than the number of turbines tied to each of the underground feeder circuits.

The 34.5 kV underground collector system will consist of a total of nine underground feeders which will terminate at the Project's 240 - 34.5 kV step-up substation. The underground cable utilized for the collector system layout will be rated 35 kV, 345 mils of insulation, XLPE insulation type, aluminum conductor with a copper concentric neutral. Cable sizes to be utilized throughout the collection system will include 1,250 kCM AL, 1,000 kCM AL, 500 kCM AL, #4/0 AWG AL and #1/0 AWG AL.

Also installed in a common trench with the collector cable will be a #4/0 Bare CU or Copper Clad Steel ground cable and a fiber optic cable buried in an inner ducting for interconnection for the wind turbines communication system. The underground power cables to be utilized for the collector system will be buried at a minimum depth of 990 mm (3 feet 3 inches) in 610 mm (2-foot) wide trenches.

The wind turbine grounding system will consist of two rings around the perimeter of the turbine foundation and turbine pedestal, each consisting of #4/0 AWG Bare copper or Copper Clad Steel conductor. The grounding system will be designed to limit the resistance for each wind turbine to 10 ohms as well as supply adequate step and touch potentials for the safety of personnel.

The Project substation will consist of two 240 - 34.5 kV transformers (Y-grounded/Y-grounded) 69/92/115 MVA at 65° C with a Delta buried tertiary. In addition, the Project substation will include two 240 kV outdoor type SF6 circuit breakers and four and five 34.5 kV outdoor type SF6 feeder breakers connected to each transformer, respectively, for a total of nine feeder breakers. Protective relaying will include primary and back up transformer differential protection, 34.5 kV bus differential protection, and over-current protection for each of the nine feeder circuits.



PP29) For an application where vendors which are to supply the major components of the power generating equipment have not been selected, provide the nominal capability of the applied-for power plant and the design and maximum operating parameters, and characteristics specified for the power generating equipment and associated facilities.

Not applicable as NaturEner has selected the vendor to supply the Siemens Turbines.

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

Major equipment components are shown on the photo mosaic included with this Application as [Attachment PP32.1](#). This shows the Project site plans, including proposed turbine locations, access roads, collector system and substation.

PP33) Provide a legible map showing the power plant site boundaries and land ownership, including any residences and dwellings within the appropriate notification radius as determined using Appendix A1–Participant involvement program guidelines, as well as any additional energy-related facilities within the project area.

A map showing landownership and residences within 2,000 m of the Project Area Boundary, “*Site Boundary and Land Ownership*” is included with this Application as [Attachment 33.1](#).

A map showing energy-related facilities within 2,000 m of the Project Area Boundary, “*Site Boundary and Energy Facilities*” is included with this Application as [Attachment 33.2](#).

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

A map of the Project Area for public notice is included with this Application as [Attachment PP34.1](#).

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

The expected in-service date is based on the timing of the upcoming REP selection process, the agreed-upon turbine delivery schedule, the timeframe within which AltaLink has indicated completion of the local interconnection, Project landowner commitments, as well as commitments made to parties providing financing and ongoing construction planning work for the Project.

Project construction activities are currently planned to commence prior to the end of 2016. The interconnection transmission work is expected to continue until the third quarter of 2018 and Project construction activities are expected to continue through the first quarter of 2019. The expected in-service date is March 31, 2019.

If the Project is not approved in a timely manner it will negatively impact the Project's potential success in the REP, affect the timing of procurement of long-



lead equipment, and potentially delay the planned construction schedule due to seasonal restrictions.

PP38) Provide the federal environmental assessment or provincial environmental impact assessment as an appendix to the application, if one was required by a federal or provincial authority.

Not applicable. NaturEner has confirmed with AEP (Operations) that an environmental impact assessment is not required.

An updated letter from AEP (Operations) confirming that an environmental impact assessment is not required is included in this Application as Attachment 38.1.

PP39) If the power plant is to be connected to the transmission system of the Alberta Interconnected Electric System, irrespective of voltage level, provide the following information: land use, existing rights-of-way, and superficial and mineable resources)

An electric single-line diagram obtained from the ISO or sanctioned by the ISO showing the transmission development plan for the Interconnection.

Enclosed as Attachment PP39.1 is an electrical single-line diagram sanctioned by the AESO,⁴¹ showing the approved interconnection plan.

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 Alberta Interconnected Electric System.

Enclosed as Attachment PP39.2 is a map showing the approved interconnection line route and land locations for facilities that are approved to be used to interconnect the power plant to the Alberta Interconnected Electric System.

PP40) If the power plant is to be connected at distribution voltage level to the Alberta Interconnected Electric System (generally less than 69 kV), the applicant must provide a statement from the distribution facility owner indicating that it is willing to connect the generating facilities.

Not applicable. The Project will not be connected at distribution voltage level.

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 Electric Utilities Act is required.

Not applicable. No municipal or subsidiary of a municipality will hold an interest in the Project.

⁴¹ AESO is the Independent System Operator ("ISO"), as that term is defined in the *Electric Utilities Act*, SA 2003 c E-51, for the Province of Alberta including the Project Area.



PP42) For a wind power plant 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, and superficial and mineable resources)

Included with this Application are maps and/or air photo mosaics upon which the proposed collector power line routes have been imposed and showing:

- the Proposed Layout, access roads, crane paths, collector systems, residences, existing infrastructures (county roads, gas wells, gas lines, communication lines, water lines, power distribution lines, etc.), waterbodies and existing rights of ways, "*Wind Turbine Layout Air Mosaic Map*" as Attachment PP42.1;
- the Proposed Layout, residences and landowner names, "*Site Boundary and Residence*" as Attachment PP42.2;
- Major land use, vegetation, and access roads, "*Turbine Layout and Land Use*" as Attachment PP42.3;
- Soil parent material texture, "*Turbine Layout and Soil Parent Material Texture*" as Attachment PP42.4;
- Soil subgroups, "*Turbine Layout and Soil Subgroups*" as Attachment PP42.5; and
- Wind turbine locations and the local topography, "*Turbine Layout and Topography*" as Attachment PP42.6.

A map upon which proposed collector power line routes have been imposed and showing landowner names is included earlier with this Application as Attachment PP33.1.