Municipal District of Pincher Creek No. 9
MUNICIPAL PLANNING COMMISSION
March 6, 2018
6:30 pm
Agenda

1. **Adoption of Agenda**

2. **Minutes**

   a. Minutes of February 6, 2018

3. **In Camera**

4. **Unfinished Business**

5. **Development Permit Applications**

   a. Development Permits Applications No. 2018-12 through 2018-14
   Renewable Energy Services Ltd.
   Category 3 WECS Wind Farm

6. **Development Reports**

   a. Development Officer's Report
      - Report for the month of February 2018

7. **Correspondence**

8. **New Business**

9. **Next Regular Meeting –** April 3, 2018; 6:30 pm

10. **Adjournment**

Meeting Minutes of the
Municipal Planning Commission
February 6, 2018 – 6:30 pm
Municipal District of Pincher Creek No. 9 Administration Building

ATTENDANCE

Commission: Chairman Terry Yagos, Reeve Quentin Stevick, Councillors Brian Hammond, Bev Everts, and Rick Lemire, and Members Dennis Olson and Michael Gerrand

Staff: Chief Administrative Officer Wendy Kay, Director of Development and Community Services Roland Milligan, Planning Advisor Gavin Scott, and Executive Assistant Tara Cryderman

Chairman Terry Yagos called the meeting to order, the time being 6:30 pm.

1. ADOPTION OF AGENDA

Reeve Quentin Stevick 18/001

Moved that the February 6, 2018 Municipal Planning Commission Agenda, be approved as presented.

Carried

2. ADOPTION OF MINUTES

Councillor Brian Hammond 18/002

Moved that the Municipal Planning Commission Minutes of December 5, 2017, be approved as presented.

Carried

3. IN CAMERA

Member Dennis Olson 18/003

Moved that MPC and staff move In-Camera, the time being 6:31 pm.

Carried

Councillor Brian Hammond 18/004

Moved that MPC and staff move out of In-Camera, the time being 6:50 pm.

Carried

4. UNFINISHED BUSINESS

Nil

5. DEVELOPMENT PERMIT APPLICATIONS

a. Development Permit Application No. 2017-61
Barclay Tanner
Lot 11, Block 1, Plan 0614102; NE 21-6-30 W4M
Water Crossing / Landscaping

Member Michael Gerrand 18/005

Moved that the report from the Director of Development and Community Services, regarding Development Permit Application No. 2017-61, for the development of a water crossing, be received;

And that Development Permit Application No. 2017-61, be approved subject to the following Condition(s):

Condition(s):

1. That this development meets the minimum provisions as required in Land Use Bylaw 1140-08.
2. That the applicant provide a report/letter from an independent professional hydrologist or professional engineer confirming the design and construction of the structure.

Carried

b. Development Permit Application No. 2018-07
Chance Sinclair
Lots 7-10, Block 19, Plan 1993N; Hamlet of Pincher Station
Manufactured Home

Reeve Quentin Stevick 18/006

Moved that the report from the Director of Development and Community Services, regarding Development Permit Application No. 2018-07, for the placement of a Singlewide Manufactured Home, be received;

And that Development Permit Application No. 2018-07, be approved subject to the following Condition(s):

Condition(s):

1. That this development meets the minimum provisions as required in Land Use Bylaw 1140-08.
2. That the manufactured home be finished from the floor level to the ground within 90-days of placement. All finish material shall either be factory fabricated or of equivalent quality, so that the design and construction complements the dwelling.
3. That the manufactured home be placed on an engineer approved foundation (e.g. grade beam), basement, or other method of securing the home which satisfies the requirements of the Alberta Safety Codes.

Carried

6. DEVELOPMENT REPORTS

a. Development Officer's Reports

Member Dennis Olson 18/007

Moved that the Development Officer's Reports, for December 2017 and January 2018, be received as information.

Carried

7. CORRESPONDENCE

Nil

8. NEW BUSINESS

No new business was added to the agenda.

9. NEXT MEETING – March 6, 2018; 6:30 pm.

10. ADJOURNMENT

Councillor Brian Hammond 18/008

Moved that the meeting adjourn, the time being 6:58 pm.

Carried

______________________________	______________________________
Chairperson Terry Yagos Municipal Planning Commission	Director of Development and Community Services Roland Milligan Municipal Planning Commission

Discussion

– The following is a re ew of the information supplied by the applicant to meet the requirements outline n Section 53 of the LUB.

WECS Application for Eac Titled Parcel with Turbines

Submitted

LUB REQUIREMENTS F R CATEGORY 3WECS APPLICATIONS

The following requir information was supplied within Section 7.0 of the applicant's Development Permit plication Report *(Enclosure No. 1)*:

An Accurate Site Pla

Section 7.1 (pg) and Appendix D, Project Facility Map, Appendix E, WEC Coordinate an Elevations Table

A Visual Representat of the Wind Farm

Section 7.4 (pg) and Appendix F, Visual Representation

Turbine Specification

Section 7.5 (pg) and Appendix G, Turbine Specifications

Noise Analysis

Section 7.6 (pg) and Appendix H, Noise Impact Assessment

Potential for Shadow flicker Analysis

Section 7.7 (pg) and Appendix I, Shadow Flicker Analysis

Report Regarding An Public Information Meetings

Section 7.8 (pg) and Appendix J, Public Information Package

Impacts to the Local ad System

Section 7.10 (p 8)

Road Use Agre nent will be required.

Post-Construction Re mation Plan

Section 7.11 (p 9)

Decommissioning pla

Section 7.12 (p 9)

PRIOR TO I AKING A DECISION ON A DE ENT APPLICATION FOR A WECS, THE DEVE OPER SHALL PROVIDE COPIE ROPRIATE REPORTS, COMMENT AND REQUESTS FOR APPRO OM THE FOLLOWING:

Transp t Canada

pendix K, Transport Canada L

NAV nada

pendix L, NAV Canada Letter

Albert ulture and Tourism (Formerly A ture and Community Spirit)

pendix M, Historic Resources I sessment Submission

Albert nvironment and Parks (Formerly nvironment)

pendix N, Environment Canad

pendix P, Alberta Environmen ks Referral Report

Albert ransportation

pendix O, Alberta Transportat

Albert ourism, Parks, and Recreation (f

pendix Q, Alberta ATR Email

Albert lectric System Operator (AESO)

pendix R, Interconnection Doc

M.D. o Pincher Creek No. 9 Utility Permi

applications at this time. Utilit will be required for any MD road ssings prior to commencement ction.

STARS

pendix S, STARS Email

SETBACKS

- The pr osed locations for the Turbines n tback requirements of the Land Use Bylaw
- Sectio 3.26 of the LUB states:

At no time hall the modeled sound level of a the wind farm boundary exceed 45dBA un s:

(a) an sement, as approved by the Muni ning Commission, is agreed to by the affe ed land owner and registered on d title

- The ap icant states that the noise analysis that the modeled sound level of the propos wind farm at the project bounda xceed 45dBA. At the time of prepar this report, we were waiting for ion of the Caveat being registered on the aff ed lands.

MINIMUM BLADE CLEARANCE FOR CATEGORY 3 WECS

Section 7.15 (pg. 12) of the Permit Application Document

The bottom of the rotor arc will be 35.65 m above ground (minimum required is 7.5m).

TOWER ACCESS AND SAFETY FOR CATEGORY 3 WECS

Section 7.16 (pg. 12) of the Permit Application Document

Tubular towers with locked doors.

DISTRIBUTION LINES FOR CATEGORY 3 WECS

Section 7.17 (pg. 12) of the Permit Application Document

The applicant is proposing a 34.5kV underground system.

COLOUR AND FINISH FOR CATEGORY 3 WECS

Section 7.18, (pg. 12) of the Permit Application Document

'The WECS will be finished in a non-reflective matte color. No advertising will appear on the towers or the blades.'

ROAD USE AGREEMENT

A Road Use Agreement will be required prior to construction.

ALBERTA UTILITIES COMMISSION APPROVALS ***(Enclosure No. 2)***

Decision 1976-D01-2018, Renewable Energy Services Ltd., McLaughlin Wind Power Plant and Substation, February 23, 2018

Power Plant, Approval 1976-D02-2018

Substation Permit and Licence 1976-D03-2018

Recommendation

That the Municipal Planning Commission review the information submitted with Development Permit Application Nos. 2018-12 through 2018-14, for the McLaughlin Wind Power Plant, and schedule the required public meeting pursuant to Section 53.17 of Land Use By-Law 1140-08, for March 27, 2018 at 7:00 pm in the MD Administration Building.

3. Enclosures

Supporting Documents:

ENCLOSURE No. 1 Permit Application Nos. 2018-12 through 2018-14 and supporting documents

ENCLOSURE No. 2

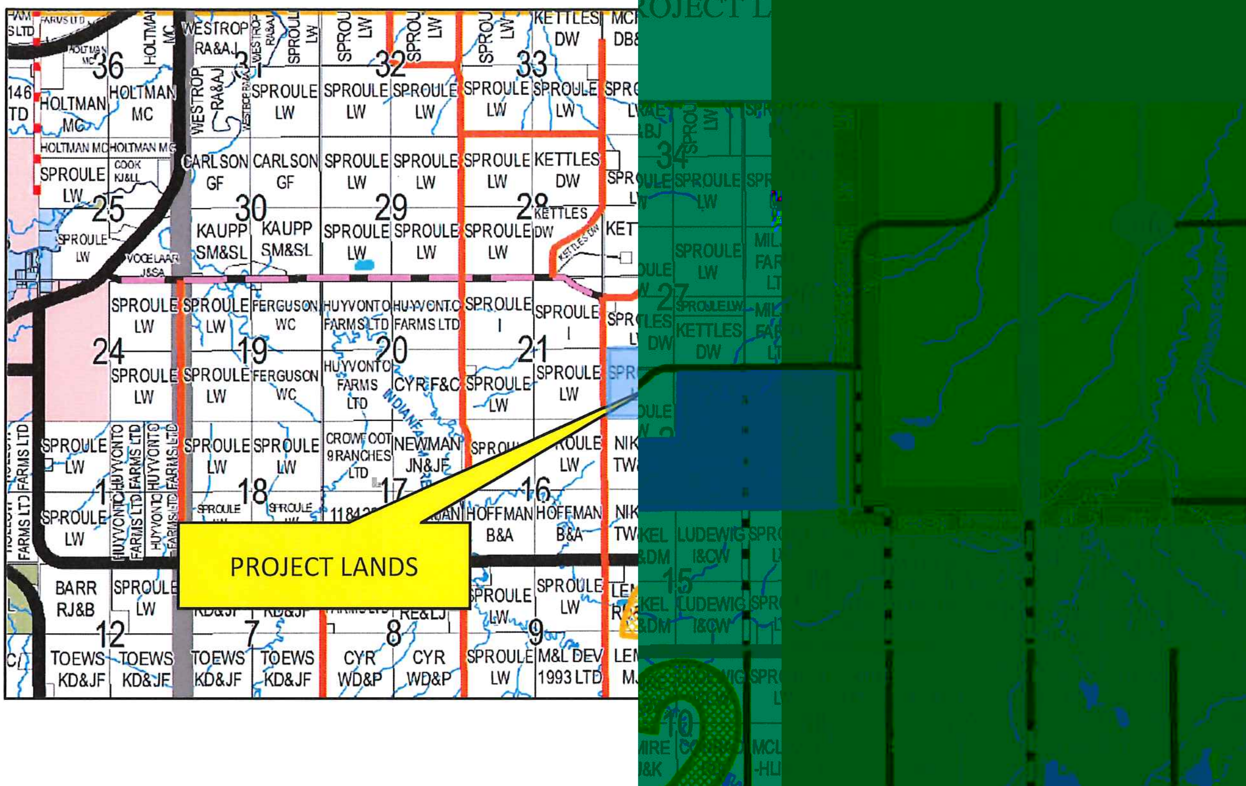
- AUC Decision 1976-D01-2018, Renewable Energy Services Ltd., McLaughlin Wind Power Plant and Substation, February 23, 2018
- AUC Power Plant, Approval 1976-D02-2018
- AUC Substation Permit and Licence 1976-D03-2018

Respectfully Submitted,

Roland Milligan

LOCATION OF P

ROJECT L



January 19, 2018

M.D. of Pincher Creek No.9
PO Box 279,
Pincher Creek, Alberta T0K 1W0

Attention: Mr. Roland Milligan
Director of Development and Community Service

RE: Development Permit Application - McLaughlin Wind Pr

Dear Rolland,

Please find enclosed two hard copies and one electronic copy of
application(s) and supporting documentation for the McLaughlin
have enclosed a cheque in the amount of $1,500 for the applicat

Should you have any questions, please do not hesitate to contac
4441.

Kind Regards,

Peter Archibald
Engineering and Construction Manager

RENEWABLE ENERGY SERVICES LTD.

Renewable Energy Services Limited
75 Akerly Boulevard, Unit 1
Dartmouth, NS B3B 1R7
Direct: (902) 631-4441

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SECTION 3: INFORMATION REQUIREMENTS

All of the following must be attached before the application is considered complete. The Development Officer shall determine completeness and refuse all applications that are incomplete.

LAND USE DISTRICT: WIND FARM INDUSTRIAL

Accurate Site Plan:	☒ Attached
Elevations or Scale:	☒ Attached
Photos or Representations of Proposed WECS:	☒ Attached
Manufacturers Specifications:	☒ Attached
Analysis of Visual Impact:	☒ Attached
Analysis of Noise:	☒ Attached
Report on any Public Consultation:	☒ Attached
Reclamation/Decommissioning Plan:	☒ Attached
Impact on Local Road System:	☒ Attached
Setback and Separation Distance Chart:	☒ Attached
Tower Access and Safety:	☒ Attached
Color and Finish:	☒ Attached

Results of Applicant Circulation to Other Government Levels:

Alberta Utilities Board	☒ Attached
Tranport Canada	☒ Attached
NAV Canada	☒ Attached
Alberta Tourism, Parks, Recreation and Culture	☒ Attached
Alberta Environment	☒ Attached
Alberta Infrastructure and Transportation	☒ Attached
Alberta Sustainable Resources	☒ Attached

SECTION 4: AUTHORIZATION

The information given on this form is full and complete and is, to the best of my knowledge, a true statement of the facts in relation to this application for a Development Permit.

I also consent to an authorized person designated by the municipality to enter upon the subject land and buildings for the purpose of an inspection during the processing of this application.

DATE: 18-January-2018

RENEWABLE ENERGY SERVICES Ltd.
Applicant

FRANK McLAUGHLIN
Registered Owner

Information on this application form will become part of a file which will be considered at a public meeting. Any portion of the application determined to be incomplete by the Development Officer shall be rectified before the application is accepted and a public meeting date is set.

No.9
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development

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Plea erely,

Sinc

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LAND TITLE CERTIFICATE

S

LINC	SHORT LEGAL	TITLE NUMBER
0034 983 171	1113120;1;1	111 282 427

LEGAL DESCRIPTION

DESCRIPTIVE PLAN 1113120
BLOCK 1
LOT 1
EXCEPTING THEREOUT ALL MINES AND MINERALS
AREA: 207.1 HECTARES (511.76 ACRES) MORE OR LESS

ATS REFERENCE: 4;29;6;23
ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9

REFERENCE NUMBER: 911 280 748

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
111 282 427	31/10/2011	DESCRIPTIVE PLAN		

OWNERS

FRANK JAMES MCLAUGHLIN (RANCHER)

PINCHER CREEK
ALBERTA T0K 1W0
(DATA UPDATED BY: CHANGE OF NAME 111291266)
(DATA UPDATED BY: CHANGE OF ADDRESS 111291267)
(DATA UPDATED BY: CHANGE OF ADDRESS 111291377)

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
931 103 747	11/05/1993	UTILITY RIGHT OF WAY GRANTEE - AGT LIMITED. AS TO PORTION OR PLAN:9211955 TAKES PRIORITY OF CAVEAT 911228281 REGISTERED 08/10/91

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

\# 111 282 427

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
071 256 773	25/05/2007	LEASE LESSEE - RENEWABLE ENERGY SERVICES LTD. 30 MEMORY LANE LOWERSACKVILLE NOVA SCOTIA B4C2S3 FOR A TERM OF 025 YEARS COMMENCING ON THE 02 DAY OF NOVEMBER , 2006

TOTAL INSTRUMENTS: 002

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 24 DAY OF JANUARY, 2018 AT 11:59 A.M.

ORDER NUMBER: 34433039

CUSTOMER FILE NUMBER:

END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER, SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

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Date Ap [redacted]

Date Ap [redacted]

Boll [redacted]

Applica [redacted]

Address [redacted]

Owner [redacted]

Address [redacted]

Interest [redacted]

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SECTION 3: INFORMATION REQUIREMENTS

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LAND USE DISTRICT: WIND FARM INDUSTRIAL

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Photos or Representations of Proposed WECS:	☒ Attached
Manufacturers Specifications:	☒ Attached
Analysis of Visual Impact:	☒ Attached
Analysis of Noise:	☒ Attached
Report on any Public Consultation:	☒ Attached
Reclamation/Decommissioning Plan:	☒ Attached
Impact on Local Road System:	☒ Attached
Setback and Separation Distance Chart:	☒ Attached
Tower Access and Safety:	☒ Attached
Color and Finish:	☒ Attached

Results of Applicant Circulation to Other Government Levels:

Alberta Utilities Board	☒ Attached
Tranport Canada	☒ Attached
NAV Canada	☒ Attached
Alberta Tourism, Parks, Recreation and Culture	☒ Attached
Alberta Environment	☒ Attached
Alberta Infrastructure and Transportation	☒ Attached
Alberta Sustainable Resources	☒ Attached

M.D. of PINCHER CREEK

DEVELOPMENT PE
WIND ENERGY C

Municipal District
Pir
Pincher of I
Phone: 403.627.3130 • ek Pincher Creek
Cre x: P.O. Box 279
Fa , AB T0K 1W0
403.627.5070

n Received 2018/01/24
n Accepted 2018/01/24
781.000

RMIT A
ONVER PPLICATION FOR
SION SYSTEMS

Date Applicatio CTION 1: GENERAL INFORMA DEVELOP

Date Applicatio ENEWABLE ENERGY SERVI MENT PERMIT APPLICATION NO. 2018

Roll # kerley Blvd Unit1, Dartmouth PERMIT FEE 2003.14

SE RECEIPT NO. 54

Applicant: R d (if different from above): Ll TION (con 3 473

Address: 37 A CES Ltd npleted by all permit applicants

Owner of Lan plicant (if not the owner): Win NS, B3B 1.

Address: TION 2: PROPOSED DEVELO Telephone: 1 902

Interest of Ap ston Sproule (90) 631-4441

nake application for a Developm d Devel Telephone:
SEC omitted.
oper

RIPTION OF THE PROPOSED DEV MENT (co

I/We hereby m of new WECS: mpleted by all permit applican
information sub

A BRIEF DESC roposed WECS: ent Permit ts)

in accordance with the plans ar sup

Total number f existing, the overall total: LOPMENT nd s porting

Category of P tion of Lands to be Used: Lot 2 IS AS FOLLOWS:

If expansion c Qu 3

Legal Descrip ue of Construction: 15 NA

mmencement Date: Q3 (s)

Estimated Val mpletion Date: Q4 arter Sectio Block(s) Plan

Estimated Co M n SE22-6-29-4

Estimated Co 2018

2020

SECTION 3: INFORMATION R REMENTS

All of the following must be attached before the ap tion is considered complete. The Development Officer shall determine completenes d refuse all applications that are incomplete.

LAND USE DISTRICT: WIND FARM INDUSTRIAL

Accurate Site Plan:	☒ Attached
Elevations or Scale:	☒ Attached
Photos or Representations of Proposed WECS:	☒ Attached
Manufacturers Specifications:	☒ Attached
Analysis of Visual Impact:	☒ Attached
Analysis of Noise:	☒ Attached
Report on any Public Consultation:	☒ Attached
Reclamation/Decommissioning Plan:	☒ Attached
Impact on Local Road System: EQU	☒ Attached
Setback and Separation Distance Chart: plica	☒ Attached
Tower Access and Safety: s ar	☒ Attached
Color and Finish:	☒ Attached

<u>Results of Applicant Circulation to Other Government Le</u>

Alberta Utilities Board	☒ Attached
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Alberta Tourism, Parks, Recreation and Culture	☒ Attached
Alberta Environment	☒ Attached
Alberta Infrastructure and Transportation	☒ Attached
Alberta Sustainable Resources	☒ Attached

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SECTION 4: AUTHORIZATION

The information given on this form is full and complete and is, to the best of my knowledge, a true statement of the facts in relation to this application for a Development Permit.

I also consent to an authorized person designated by the municipality to enter upon the subject land and buildings for the purpose of an inspection during the processing of this application.

DATE: 18-January-2018

RENEWABLE ENERGY SERVICES Ltd.
Applicant

Lloyd Winston Sproule
Registered Owner

Information on this application form will become part of a file which will be considered at a public meeting. Any portion of the application determined to be incomplete by the Development Officer shall be rectified before the application is accepted and a public meeting date is set.

RECEIVED
JAN 29 2018
M.D. OF PINCHER CREEK

January 26, 2018

M.D. of Pincher Creek No.9
PO Box 279, Pincher Creek
Alberta, T0K 1W0

Attention: Mr. Roland Milligan,
Director of Development and Community Services

RE: Landowner Authorization to Apply for Development Permit

Dear Roland,

Please consider this letter as my approval for Renewable Energy Services Limited to apply for a development permit for a wind project on lands identified as NE22-6-29-4 and SE22-6-29-4

Please do not hesitate to contact me if you require any additional information.

Sincerely,

DONALD HAAVARDSRUD
...IZED REPRESENTATIVE

Ll
La
...ule

LAND TITLE CERTIFICATE

S

LINC	SHORT LEGAL	TITLE NUMBER
0020 054 292	4;29;6;22;NE	961 068 055
0020 054 300	4;29;6;22;SE	

LEGAL DESCRIPTION

FIRST
MERIDIAN 4 RANGE 29 TOWNSHIP 6
SECTION 22
QUARTER NORTH EAST
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS
EXCEPTING THEREOUT:

PLAN	NUMBER	HECTARES	ACRES (MORE OR LESS)
ROAD WIDENING	6522 IA	0.417	1.03

EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME
AREA: 64.7 HECTARES (160 ACRES) MORE OR LESS

SECOND
MERIDIAN 4 RANGE 29 TOWNSHIP 6
SECTION 22
QUARTER SOUTH EAST
EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME
AREA: 64.7 HECTARES (160 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9

REFERENCE NUMBER: 121W100

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
961 068 055	01/04/1996	TRANSFER OF LAND		SEE INSTRUMENT

OWNERS

LLOYD WINSTON SPROULE

PINCHER CREEK
ALBERTA T0K 1W0

(CONTINUED)

JANUARY 2018

MCLAUGHLIN WIND PROJECT

DEVELOPMENT PERMIT APPLICATIONS

SUBMITTED BY: RENEWABLE ENERGY SERVICES LIMITED
37 Akerley Blvd., Unit 1, Dartmouth NS B3B 1R7

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Table of Contents

1.0 Company

Renewable Energy Services Limited (RESL) is a Canadian based renewable energy development company headquartered in Sackville, Nova Scotia. Founded in 2000, RESL was an early entrant in the renewable energy business in Canada and has several wind developments in Nova Scotia operating under long-term power purchase agreements. RESL's focus is to explore and develop renewable projects throughout Canada and has a strong development portfolio with a number of projects in several provinces at various stages of engineering and development. RESL has a very strong in-house engineering and management team having extensive experience in the finance, energy and construction sectors. The team is responsible for the design, construction, operation and maintenance of proposed project.

2.0 Project Description

RESL proposes to develop the McLaughlin Wind Farm in the Municipal District of Pincher Creek No. 9 approximately 8 km east of the Town of Pincher Creek. The proposed wind project will consist of eleven (11), 4.2-megawatt (MW) class IIA wind turbines for a total rated capacity of 46.2 MW. Specifically, the wind turbine proposed is the Enercon E-126 E4 with a rotor diameter of 127 meters and a hub height of 99 meters.

The wind turbine foundations are of typical gravity base design consisting of reinforced concrete with the foundation section of the tower embedded in the reinforced concrete. The foundations are approximately 23 meters in diameter and 3.2 meters deep and will be mostly underground. The topsoil will be backfilled to the foundation section and will allow the continuation of agricultural activities up to the base of the tower.

In addition to the turbines, the project will include associated infrastructure including access roads, a substation and underground cable trenches. Individual step up transformers will be placed inside the tower base sections and will raise the voltage from 400 V (low voltage) to 34.5 kV (medium voltage) for the collector system. The turbines will be connected to an underground collector system leading to the substation. At the substation, a single step-up transformer will raise the voltage to 138 kV (high voltage) and be connected to the existing transmission line with a new transmission line (164AL) constructed by AltaLink. The Project is planned to connect via 164AL to the existing AltaLink (TFO) 138 kV 164L transmission line between Goose Lake 103S and Drywood 415S, approximately 120 meters from the proposed McLaughlin Wind Farm.

3.0 Project Area

The Project Area is located north of Highway 507, and is bordered immediately to the north by Township Road 64, to the west by Range Road 293, and to the east by the Pikanii First Nation Reserve 147. The Project Area is approximately 435 hectares comprising of four (4) quarter sections consolidated into a single parcel 23 6-29-4 and the additional quarter sections NE22-6-29-4 and SE22 6-29-4. The sub-station is located on the South West corner of SW22 6-29-4. Within the Project Area, the land has a rolling topography and seasonal streams. There are no large drains in which water remains year-round.

All Project components will be placed in open agricultural fields. Most of these fields are planted each year with crops such as hay. These agricultural activities will continue to be practiced on these lands in conjunction with the Project facilities. It should be noted that although the general Project Area is 435 hectares, the final footprint of the project will only occupy a fraction of this area.

4.0 Rezoning to Wind Farm Industrial

The project lands have been rezoned from Agriculture – A to Wind Farm Industrial. Council gave second and third reading to Bylaw 1178-09 on March 9, 2010 for the portion of the project lands identified as 23-6-29-4 currently owned by Frank McLaughlin.

Furthermore, the additional project lands identified as NE22-6-29-4, SE22 6-29-4 and SW22 6-29-4 owned by Lloyd Sproule have been rezoned from Agriculture – A to Wind Farm Industrial. Council gave second and third reading to Bylaws 1278-17 on 22-August-2017.

A copy of both the approved Bylaws can be found in Appendix A.

5.0 Land Title Consolidation – Internal Boundaries Removed

The portion of project lands owned by Frank McLaughlin originally that consisted of four (4) quarter sections have been consolidated into a single parcel of land by Martin Geomatic Consultants Ltd. The Title was registered on 31-October-2011 and is referenced by Lot 1 Block 1 Plan 1113120. As a result of the consolidation of lands, the internal property boundaries no longer exist inside this portion of the wind farm therefore the setback defined in Section 53.27 of the LUB is not applicable. Refer to Appendix B for copy of the Certificate of Title.

6.0 WECs Application for Each Titled Parcel with Turbines

Development Permit Application(s) for the McLaughlin Wind Farm can be found in Appendix C and include a separate application for seven (7) turbines located on 23 6-29-4 (McLaughlin), two (2) turbines located on NE22 6-29-4 (Sproule) and two (2) turbines located on SE22 6-29-4.

As mentioned in the preceding section, the McLaughlin owned lands were consolidated into a single titled parcel, therefore only one application is required for this portion of the project. Furthermore, it is understood that a development permit is not required for SW22 6-29-4 as only the substation for the project is located on this parcel.

7.0 LUB Application Requirements for Category 3 WEC Applications

The following Sub-sections present the information required to meet the requirements outlined in Section 53 of LUB 1140-08 for each of the three (3) applications in Appendix C.

7.1 Accurate Site Plan / Setback and Constraints Map & Setback Table – 53.21(a)

As per Sub-section 53.21(a) of the LUB, “All development applications shall be accompanied by the exact location of each existing and proposed wind turbine (tower and rotor arc) including setbacks as defined in section 53.24-28 (also to be provided in chart form), all associated substations, collection and

transmission system on or abutting the subject lot or parcel, and contours of the land and access roads for the complete wind farm."
Refer to Appendix D for the following:

1. Accurate Site Plan;
2. Set back Constraints Map illustrating the various setbacks as per LUB 1140-08;
3. Set back table with turbine coordinates and setbacks as defined in Sections 53.24-28.

7.2 Titled Parcels and WEC Location Map – 53.21(b)

As per Sub-section 53.21(b) of the LUB, the development application shall be accompanied by "an accurate plan showing the titled parcels and the location of WECs within each application." Refer to Appendix D for the "Project Overview Map" showing the location of the WEC's for each application identified in Section 6.0 above.

7.3 Digital Database of WEC Coordinates & Elevations – 53.21(c)

As per Sub-section 53.21(c) of the LUB, the development application shall be accompanied by "a digital database listing exact location and base elevation of each wind turbine in a format acceptable to the M.D. (NAD 83 Geographic Coordinates, decimal degrees only)." Please refer to Appendix E for the table of coordinates for each application in Appendix C.

7.4 Visual Representation – 53.21(d)

As per Sub-section 53.21(d) of the LUB, the development application shall be accompanied by "a visual representation depicting the wind farm from:

- no further than 5 km (3.1-miles) away;
- each accessible residence within 2 km (1.2 miles) of the wind farm boundaries;
- any significant sites as determined by MPC.

Visual representation shall include:

- scale elevations,
- photographs and/or digital information of the proposed WECS showing total height, tower height, rotor diameter, colour and the landscape,
- and photographs and/or digital information modeled on ideal visual conditions."

Please refer to Appendix F for the visual simulations as per 53.21(d).

7.5 Turbine Specifications – 53.21(e)

As per Sub-section 53.21(e) of the LUB, the development application shall be accompanied by "the turbine specifications indicating:

- the WECS maximum rated output in kilowatts;
- safety features and sound characteristics;

- type of tower;
- dimensions of tower and rotor.

Please refer to Appendix G for the turbine specifications as per 53.21(e).

7.6 Noise Analysis – 53.21(f)(1)

As per Sub-section 53.21(f) (1) of the LUB, the development application shall be accompanied by "the following analyses:

1. the potential for noise at the following:

    - the site of the tower,
    - the boundary of the development,
    - at any habitable or occupied residence within 2 km (1.2 miles) of any turbine."

    AL-Pro Wind Energy Consulting Canada Inc. was retained by Renewable Energy Services Ltd to prepare a Noise Impact Assessment (NIA) of the proposed McLaughlin Wind Farm in accordance with the Alberta Utilities Commission (AUC) Rule 012 and the Municipal District of Pincher Creek No. 9 Land Use Bylaw. The NIA was also prepared in accordance with general requirements from Health Canada's Wind Farm Fact Sheet (Health Canada, 2006) related to wind energy projects. The purpose of this NIA is to assess and mitigate possible noise impacts before the proposed Project is constructed or operational. Specifically, the objectives of this report are to:

    - Determine the permissible sound level (PSL) at receptors; Calculate the predicted sound level from the proposed Project at several noise receptor locations, within 1.5 km of the proposed wind farm per the AUC regulations or within 2 km of the proposed wind farm per the Municipal District of Pincher Creek no. 9;
    - Compare the predicted sound level from the proposed Project with the PSL of the AUC; and
    - Demonstrate compliance of the proposed Project with AUC Rule 012, Municipal District of Pincher Creek no. 9, and Health Canada guidelines.

    The NIA also provides information on the noise sources, the prediction method and the parameters used for the assessment.

    To comply with the Municipal District of Pincher Creek No. 9 Bylaw, several locations were modeled, including at the site of the tower, at the boundary of the development, and at receptors within area 2 km radius of a wind turbine. In some instances, the 45.0 dBA PSL at the proposed Project boundary is likely to be exceeded; however, a wind farm development caveat is currently registered on the title of the affected lands with the MPC.

    When modeled according to the ISO 9613 standard and the conditions specified in AUC Rule 012, the predicted sound level produced by the McLaughlin Wind Farm, combined with a 35.0 dBA ambient sound level and the Kettles Hill Wind Farm was found to be within the permissible sound level of 40.0 dBA at the noise receptors found within the 2.0 km study area.

Please refer to Appendix H for the LUB 1140-08 Compliance Predicted Cumulative Nighttime Sound Levels Map and Noise Impact Assessment.

7.7 Potential for Shadow / Flicker Analysis – 53.21(f)(2)

As per Sub-section 53.21(f) (2) of the LUB, the development application shall be accompanied by “the following analyses:

2. the potential for shadow or flicker at the following:

    - the boundary of the development,
    - at any habitable or occupied residence within 2 km (1.2 miles) of any turbine”

Renewable Energy Services Ltd requested that AL-Pro GmbH perform an assessment of the shadow flicker effects near the proposed McLaughlin Wind Farm Project. The Land Use Bylaw 1140-08 of the Municipal District of Pincher Creek No. 9 requires the following analysis with respect to wind farm shadow flicker be submitted with the application per section 53.21 (f)(2) of the Bylaw:

- The boundary of the development;
- At any habitable or occupied residence within 2.0 km (1.2 miles) of any turbine.

The purpose of this shadow flicker analysis is to assess shadow flicker occurrence these locations and propose mitigation measures if necessary before the proposed Project is constructed or operational.

Specifically, the objectives of this report are to:

- Determine the permissible shadow flicker duration at receptors;
- Calculate the predicted shadow flicker duration from the proposed Project at several receptor locations and boundary of development, within 2.0 km of the proposed wind farm per the Municipal District of Pincher Creek No. 9.

An analysis has been conducted to determine the duration of shadow flicker experienced at receptors near the McLaughlin Wind Farm. Dwellings within 2 km of the wind farm are predicted to experience marginal amounts of shadow flicker. Detailed results of the study can be found in Appendix I.

7.8 Report Regarding Public Information Meetings – 53.21(g)

As per Sub-section 53.21(f) of the LUB, the development application shall be accompanied by “a report regarding any public information meetings or other process conducted by the developer.”

The consultation program for the McLaughlin Wind Farm Project involved identifying stakeholders and holding meetings, an open house event and organizing discussions with local authorities, the public, First Nations and regulatory agencies. These activities are generally aimed at informing the different stakeholders of the Project and at giving them the opportunity to raise issues and concerns. Stakeholders, consultation activities and issues raised are detailed below.

The Participant Involvement Program (PIP) began very early in the development stages of the Project. The consultation process involved identifying and informing the different stakeholders of the Project and giving them the opportunity to raise issues and voice their concerns. The stakeholders identified (but not limited to) are the public, First Nations, local authorities, and regulatory agencies. As a requirement of the PIP, it was necessary the PIP include persons whose rights may be directly and adversely affected by the nature and extent of a proposed application.

The public stakeholders for the project include the landowners affected by the Project, adjacent landowners and nearby residents within the MD of Pincher Creek. For power plant developments, Renewable Energy Services Limited (RESL) provided public notification to all occupants, residents and landowners within 2000 meters measured from the edge of the proposed power plant site boundary. Additionally, RESL provided personal consultation to all occupants, residents, and landowners within 800 meters measured from the edge of the proposed power plant site boundary.

On November 19, 2009 notification was sent and phone calls were placed to the following authorities:

- Manager of Electric Facilities of the AUC
- EIT Facilities group of the AUC
- Alberta Environment (AENV)
- Alberta Sustainable Resource Development (ASRD) Fish and Wildlife Division
- Alberta Culture & Community Spirit (ACCS) Historic Resource Management Branch
- Alberta Transportation
- Alberta Tourism, Parks & Recreation
- STARS Air Ambulance
- Transport Canada Aerodromes and Air Navigation
- NAV Canada
- MD Pincher Creek

On November 20, 2009, a Notification of Public Meeting was posted in the Pincher Creek Echo and on the Pincher Creek Echo webpage and on November 24, 2009 RESL and Helimax (consultant) organized and held an Open House 1.

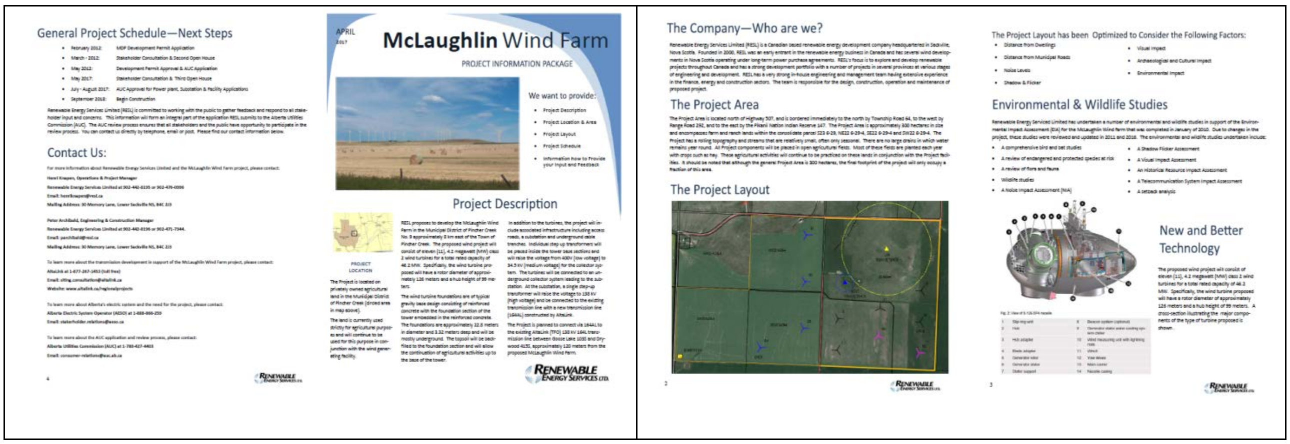
On December 9th, 2011, a field visit of the project lands was arranged with traditional members of the Pikanii First Nation. One representative of RESL and one representative of Lifeways of Canada (Dr. Barney Reeves) along with Elder Margaret Plain Eagle accompanied by younger traditionalists visited the site and observed a number of cairns and lithic scatters. The proposed layout was shown to them and they were advised that all archaeological sites would be avoided in the layout and during construction.

It should be noted that the project area comparatively small and the surrounding area is relatively unpopulated and that no residents were found within 800 meters of the project boundary. Additionally, a total of 23 residents/landowners (with 9 residents within the MDP and 3 residents on the Pikanii First Nations lands) were found within 2000 meters of the project boundary.

On March 16th, 2012, an updated PSIP was hand delivered to the residents and landowners within 2 km of the project boundaries and expanded to those just outside the 2-km limit. This increased the number of residents / landowners notified including the residents living on the Pikanii First Nations lands.

On 14th and the 21st of March 2012, a Notice of Public Information Session was posted in the Pincher Creek Echo and on March 26th, 2012, RESL in Partnership with AltaLink, organized and held an Open House 2 from 6 to 9 pm at the Heritage Inn & Convention Center to provide the updated project details to the open house held in November 2009. The open house was to give the local community and stakeholders an opportunity to review the revised information and express any concerns they may have.

On April 24th, 2017, an updated PSIP with the revised layout (as agreed with A&P) and new technology was mailed to the residents and landowners within 2 km of the project boundaries.



On 3rd and the 11th of May 2017, a Notice of Public Information Session was posted in the Pincher Creek Echo and on May 11th, 2017, RESL organized and held an Open House 3 from 2 to 5 pm at the Heritage Inn & Convention Center to provide the project details. The open house was to give the local community and stakeholders an opportunity to review the information and express any concerns they may have.


Public Notices

NOTICE OF PUBLIC INFORMATION SESSION

Pincher Creek, Alberta

McLaughlin Wind Farm Project

Renewable Energy Services Limited (RESL), a Canadian based renewable energy development company, proposes to develop up to 46.2 megawatts (MW) of wind energy within the Municipal District of Pincher Creek No.9. The proposed project will consist of 11 wind turbine generators (WTG) and is located approximately 8 km east of the Town of Pincher Creek.

RESL is organizing this Open House event to present background information on the project and to provide an update to the previous Open Houses held in November 2009 and March of 2012.

The Open House is an opportunity for the local community and stakeholders to get timely information on the project and to address any concerns with the project. We encourage the public to attend and to provide comments throughout the project development phase to ensure that concerns are adequately addressed. The public consultation process is an important element of the project development.

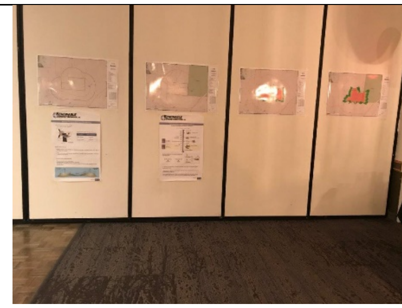
Your support and input is important to us!

Date: Thursday, May 11th, 2017
Location: Heritage Inn & Convention Center, 919 Waterton Avenue, Pincher Creek
Time: 2:00 pm to 5:00 pm

For Additional Information, please contact:
Peter Archibald -
Engineering & Construction Manager
Phone: 902-631-4441 Direct
Email: parchibald@resl.ca

RESL presented visual material such as maps, information boards, visual simulations, noise and shadow flicker assessments in addition to a slideshow presentation of the construction and erection of past projects. Additionally, a video from the manufacturer was shown to demonstrate the type of machine proposed for the project. Handouts / flyers containing general project information were also made available. Attendees were asked to sign an attendance sheet and encouraged to provide feedback and complete comment forms prior to leaving the open house. During the consultation process, a variety of commonly asked questions and no concerns were raised.






It is important to note, that even though comment / feedback forms were available and attendees to the open house were encouraged to fill them out, none were received from the open house event held by RESL during the consultation period.

During the last Open House held on May 11th, 2017 only twelve (12) individuals signed in at the event, two (2) of which were members of the Municipal Council of Pincher Creek and two (2) local Electrical subcontractors. No member of the Pikanii First Nations attended the Open House. Again, although all attendees were invited to fill in a comment form, none were completed.

Additionally, no issues/comments were voiced during the open house and RESL is not aware of any other stakeholder concerns at the present time.

Many discussions have taken place with several stakeholders and agencies during the development of the Project. The public consultation process began in 2009 and continued throughout the development and permitting process until May of 2017. The first open house was held November 24th, 2009, the second, to discuss the Project changes, on the 26th of March 2012 and the last, to discuss the Project changes, on May 11th, 2017. Most people have shown very strong support for the Project.

Refer to Appendix J: *"Participant Involvement Information"*

7.9 First Nations Consultation

Refer to Section 7.8 above.

7.10 Impacts to the Local Road System – 53.21(h)

Access roads leading to the turbine, from existing public roads, will be required during both the construction and operation phases of the project. Construction access roads will be approximately 6-12 meters wide dependent upon available crane type with a minimum road centerline radius of 30 meters. Following the construction phase, the access roads width will be reduced to become permanent maintenance access roads; these roads will have a width of approximately 6 meters. The excess road surface used during the construction phase will be refurbished to its original state once construction is completed.

Wherever possible, RESL will use existing roadways and farm lanes, and to reach the construction sites. Where possible, the access roads will be planned in parallel with property boundaries to reduce disruption to drainage tiles and farm operations. The location of the access roads will be determined based upon turbine location, equipment accessibility to adjacent sites, and landowner consultations.

At the landowner's discretion, the topsoil needed to be removed will either be stockpiled or discarded. The subsoil will also be removed and used to in-fill any hollows, on-site or other. Based on the geotechnical conditions of the soil within the project area, earthmoving, to a depth of approximately 1m will be assumed.

7.11 Post-construction Reclamation Plan – 53.21(i)

Site Reclamation is planned for the turbine and rotor assembly areas, as well as alongside access roads. Salvaged subsoil will be replaced and capped with topsoil and salvaged organic material, including woody debris and remnants from past agricultural crops. If required, an erosion control seed mix, consisting of fast-growing agronomic species will be applied as required in areas of erosion risk.

The primary goal of the reclamation strategy for the McLaughlin Wind Farm is to restore equivalent ecosystem status (site series and structural stage attributes) on all disturbed sites. This will help ensure that a variety of appropriate and functional ecosystems is represented within the Project Area, thereby mitigating Project effects to the largest degree possible. The approach to meeting this goal is largely based on information on predevelopment site conditions, site restoration, and reclamation strategies that are designed to minimize Project disturbance and support effective reclamation.

These restoration and reclamation strategies include re-contouring to compliment natural drainage patterns, general soil handling plans and replacement activities, and re-vegetation prescriptions. Specific reclamation strategies have been developed for all Project components, including: turbine clearing areas; transmission rights-of-way; Project roads; turbine foundation; crane pads; and substation. In all cases, the foremost priority will be stabilization of disturbed areas to minimize potential for soil movement through mass wasting or surface erosion. This will be achieved through the application of various re-vegetation strategies and techniques specific to the characteristics of each site. The secondary objective is to restore ecosystem attributes and associated vegetation communities that reflect pre-disturbance conditions to the largest degree possible. Underground cabling will remain in place as it will not interfere with regular farming activities such as ploughing.

7.12 Decommissioning Plan – 53.21(j)

According to laws and regulations in effect, the decommissioning of the McLaughlin Wind Farm will require the dismantling of the components making up the wind farm, such as the turbines, their concrete foundations, the substation and the overhead electrical network. It is anticipated that the concrete foundations would be removed to a depth of at least 1 m, as the depths of the remaining portion will not interfere with normal farming activities. Similarly, the underground cabling will not be removed as it will not interfere with normal farming activities.

Prior to decommissioning, the input of the landowner will be considered as to the extent of decommissioning that will be undertaken on his land. The future owner or lease holder of the lands affected by distribution lines and underground cabling will be consulted prior to decommissioning. The McLaughlin Wind Farm will be decommissioned in accordance with provincial/federal decommissioning laws and regulations that will apply at the time of decommissioning. The Project is presently planned for 25 years, but could be refurbished in the future with updated technology, and thereby continue to produce energy.

7.13 Required Approvals – 53.22

The following Sub-sections present the approvals required to meet the requirements for the Development Permit.

7.13.1 Transport Canada

Refer to Appendix K for Transport Canada Clearance Letter.

7.13.2 NAV Canada

Refer to Appendix L for NAV Canada Clearance Letter.

7.13.3 Alberta Culture & Community Spirit (ACCS)

Refer to Appendix M for copy of HRIA submission.

7.13.4 Alberta Environment

Refer to Appendix N for project comments. No EIA or approval needed.

7.13.5 Alberta Transportation

The wind turbines as sited are outside the 800-meter referral distance and as such do not require a permit from the Department. Nonetheless, we have requested an opinion from the Department on two occasions and await a response. Refer to Appendix O for project comments.

7.13.6 Alberta Sustainable Resource Development - now Alberta Environment and Parks (AEP)

Refer to Appendix P for the GLGH EIA Update Report and the ASRD Sign-off Letter.

7.13.7 Alberta Tourism, Parks, and Recreation

Refer to Appendix Q for project comments.

Furthermore, with respect to the South Saskatchewan Regional Plan (SSRD), the proposed project is located entirely on private land, with the primary land use being cultivation. It is understood that “Planning on private lands is primarily governed by the Municipal Government Act (MGA) and instruments made under its authority such as the Subdivision and Development Regulation. Private landowners make decisions about how to use and manage their land consistent with existing provincial legislation and municipal bylaws. The SSRP does not change this or alter private property rights.” Furthermore, “Municipal governments under Part 17, Planning and Development of the MGA, with few exceptions (such as Sections 618 and 619) are delegated with the responsibility and authority for local land-use planning and development on all lands within their boundaries. This includes the creation of municipal development plans, area structure plans and land-use bylaws. This delegated authority remains with municipalities. Municipal planning and development decisions will, however, have to be in alignment with the regional plan to achieve the regional outcomes established in the plan."

(SSRD, Page 3) With respect to Municipal planning requirements associated with the project, we understand current planning documents do not include the SSRD requirements at this time. However, as the project is a renewable energy project, located on private, and primarily cultivated land, and is deemed a moderate risk by AEP, the protection of environmental systems, biodiversity, and land use, the project fits within the outcomes and strategic directions for the SSRD.

Many unique facets of the project support objectives in the plan. The project uses the latest technology and with the use of 4.2 MW wind turbines minimizes the required number of wind turbines in comparison to neighboring operating plans. There will now be 11 x E-126 EP4 wind turbines as opposed to 20 x E-92 wind turbines of less capacity minimizing land impact. The technology chosen has a higher power yield providing more renewable energy from the site than older technologies. The unique characteristics of the E-126 EP4 wind turbine allow operation in very high winds (where older technology shuts down), using "ENERCON Storm Control technology" providing more renewable energy than older technology.

Additionally, due to the smaller windfarm footprint there is less impact on land and more space left for other uses of the site. The proposed wind farm is on cultivated land ensuring less impact on native grasslands and avoiding water courses and wildlife habitat. AEP has given the project approval and approved of the proposed mitigation plans. The project is located immediately adjacent to operating wind farms localizing impact. The compact nature of the site minimizes land disturbance. No transmission expansion is required and by utilizing surplus transmission capacity, more renewable energy is provided to the region with minimal impact. For these reasons, feel the project meets the intention and spirit of regional land use plan. It is important to note the project is not within a conservation area or provincial recreation area established in the applicable regional land use plan.

Currently there are no management frameworks in place under the South Saskatchewan land use plan that are applicable to the project. For example, the SS region air quality management framework and surface water quality management frameworks in effect would not be applicable as neither air nor surface water quality is affected by the Project. Furthermore, the project is located outside conservation areas and protected areas.

7.13.8 Alberta Electric System Operator (AESO)

Refer to Appendix R for AESO Interconnection Agreement

7.13.9 M.D. of Pincher Creek No. 9 Utility Permits

Permit(s) will be a requirement prior to any utility being placed within an MDP right-of-way. Crossing of all MDP roads with underground or overhead utilities will require Utility Permits issued by the MDP.

7.13.10 STARS

Refer to Appendix S for STARS Clearance Letter.

7.13.11 M.D. Pincher Creek No. 9 Road Use Agreements

All use of MDP roads will require consultation and authorization (Road Use Agreements) with the MDP.

7.14 Setbacks for Category 3 WECs

The minimum setbacks as outlined in Sections 53.24, 53.25, and 53.28 are shown on the constraints map located in Appendix D. Section 53.27 does not apply due to the land parcel consolidation resulting in the removal of the internal boundaries for the McLaughlin lands. Refer to Appendix B.

The noise analysis located in Appendix H indicates that the modeled sound level of the proposed wind farm at the project boundaries will exceed 45dBA. As such, referring to 53.26(a), a wind farm development caveat is currently registered on the title of the affected lands with the MPC. Please refer to the Noise ISO-Contour Map located in Appendix H for a graphical representation.

Referring to the Titled Parcels Map located in Appendix B, the affected titles and land owners identified are:

- SE26 6-29-4 MILJOY FARMS
- SW26 6-29-4 MILJOY FARMS
- SE27 6-29-4 KETTLES, DW
- NE22 6-29-4 SPROULE, LW
- SE22 6-29-4 SPROULE, LW
- NE15 6-29-4 LUDWIG, I & CW
- NW14 6-29-4 SPROULE, LW
- NE14 6-29-4 SPROULE, LW

Additionally, referring to 53.26 (b), one of the boundaries exceeded is adjacent to the Piikani Reservation. In this case, the affected land owner is the crown or an agent of the crown where there is no municipal or provincial jurisdiction thus 53.26 will not apply. However, RESL has adjusted the proposed micrositing of the wind farm to ensure that the requirements outlined by Health Canada and conditions specified in AUC Rule 12 are met at the receptors located on reservation lands that are adjacent to the project boundary.

7.15 Minimum Blade Clearance for Category 3 WECs – 53.30

The minimum blade clearance for the proposed WECs is 35.65 meters. Refer to Appendix G for elevation drawings for the Enercon E-126 m, 127-meter rotor diameter and 99-meter hub height.

7.16 Tower Access and Safety for Category 3 WECs – 53.31(e)

The towers are tubular steel towers with locked door access. Refer to Appendix G -Turbine Specifications.

7.17 Distribution Lines for Category 3 WECs – 53.32

The electrical collector system will be a 34.5 kV underground system. Location shown on the site plan located in Appendix D.

7.18 Color and Finish for Category 3 WECs

The WECs will be finished in a white non-reflective matte color. No advertising will appear on the towers or the blades.

Appendix A – Wind Farm Industrial (WFI) Approval

ADMINISTRAT
P.O. BO
PINCHER CRE
T0K 1
PHONE 627-3130
E-MAIL: info@mdpin
www.mdpincher

November 21, 2011

Frank James Mclaughlin
P.O. Box 2979
Pincher Creek, AB T0K 1W0

Dear Mr. Mclaughlin:

Re: Redesignation of lands
West ½ of Section 23 Township 6 Range 29 West of the 4th Meridian and
That portion of the East ½ of Section 23 Township 6 Range 29 West of the 4th Mer
Lying west of the municipal road allowance dividing the Peigan Reserve

Firstly, we apologize for the lateness of this letter.

Please be advised that your application to have the above mentioned lands redesignated fr
Agriculture – A to Wind Farm Industrial – WFI has been approved.

Council gave second and third reading to Bylaw 1178-09 in March 2010. A copy of Bylaw
1178-09 with Schedule A has been enclosed for your reference.

Should you have any questions or comments regarding this re-designation, please do not h
to contact us.

Regards,

Roland Milligan
Development Officer

Enclosure

cc: Peter Archibald, RENL

Municipal District of Pincher Creek No. 9
in the Province of Alberta

BY-LAW NO. 1178-09

A BY-LAW OF THE MUNICIPAL DISTRICT OF PINCHER CREEK IN THE PROVINCE OF ALBERTA, TO AMEND BY-LAW NO.1140-08, BEING THE LAND USE BY-LAW.

WHEREAS the Council of the Municipal District of Pincher Creek is in receipt of a request to amend the land use designation of lands legally described as:

West ½ of Section 23 Township 6 Range 29 West of the 4th Meridian; and
That portion of the East ½ of Section 23 Township 6 Range 29 West of the 4th Meridian lying west of the municipal road allowance dividing the Peigan Reserve;

And as shown [illegible]

[illegible]

1. [illegible]

2. [illegible]

3. [illegible]

4. [illegible]

[illegible]


SE27 6-29-4
SW26 6-29-4
SE26 6-29-4
NE22 6-29-4
SE22 6-29-4
PEIGAN INDIAN RESERVE 147
NE15 6-29-4
NW14 6-29-4
NE14 6-29-4
NW13 6-29-4
LAND USE DISTRICT REDESIGNATION
SCHEDULE 'A'
FROM: AGRICULTURE 'A'
TO: WIND FARM INDUSTRIAL 'WFI'
ALL SEC 23, TWP 6, RGE 29, W 4 M &

September 19, 2017

Sent Via Email: parchibald@resl.ca

Peter Archibald
Renewable Energy Services Ltd.
30 Memory Lane
Sackville, NS B4C 2J3

Dear Mr. Archibald:

Re: Redesignation Bylaw No. 1278-17
Amendment to Land Use Bylaw, Agriculture to Wind Farm Industrial

This letter is to inform you that proposed Bylaw No. 1278-17 was presented to the Counc of e Municipal District of Pincher Creek No. 9 (the MD) on August 22, 2017.

At the above meeting, Council gave second and the third and final reading to the amen ng bylaw. The redesignation came into effect after third reading. A copy of the bylaw is attached.

Please do not hesitate to contact us if further information is required.

Regards

Roland Milligan
Director of Development and Community Services

Cc: Lloyd Sproule

Appendix B – Consolidated Land Title Certification

FL

C

CER TIT

CERTIFIED COPY

CERTIFICATE OF TITLE

ORT

1512

LINC SHORT LEGAL

0034 33 171 11

ME OF THIS CERTIFICATION

AT THE TIME OF THIS CERTIFICATION

LEGAL 20;1;2

TITLE NUMBER: 111 282

DESCRIPTIVE

DATE: 31/10/2

IS THE O... DESCRIPTIVE PLAN 1113120

OF AND IN ... INTERESTS

DESCRIPT

BLOCK 1

LOT 1

EXCEPTING THEREOUT ALL MINES AND MINERALS

TO THE ENCUMBRANCES, LIENS AND INTERESTS

OR ENDORSED HEREON, OR WHICH MAY BE

SUBJECT TO

WRITTEN ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
747	11/05/1993	UTILITY RIGHT OF WAY ... TAKES PRIORITY ... AS TO PORTION OF ... NOTIFIED BY MEMORANDUM ... OF LAND ... AFTER ... MAY BE MADE IN THE ...
931 103		RIGHTS & INTERESTS ... REGISTERED 08/... 10/9
257	09/12/1996	CAVEAT RE: LEASE CAVEATOR - WILL... ... LTD. 125 810 ... 37-21 AVE ... ALBERTA ... CAVEAT 211955 ... CAVEAT 911229281
961 293		
773	25/05/2007	LEASE - MINERAL ... GREGORY LANE ... EDWARD CARR ... BEDSACKVILLE NOVA SCOTIA B4C ... FOR A TERM OF ... YEARS ... ENERGY SERVICES LTD.
071 256		

CONTINUED

CERTIFICATE OF TITLE

TITLE NUMBER: 111 282 427

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 31 DAY OF OCTOBER ,2011

REGISTRAR OF LAND TITLES

SUPPLEMENTARY INFORMATION

MUNICIPALITY: MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9
REFERENCE NUMBER:
911 280 748
AREA:
207.1 HECTARES (511.76 ACRES) MORE OR LESS
ATS REFERENCE:
4;29;6;23
TOTAL INSTRUMENTS: 003

Appendix C – Development Permit Applications

Municipal District of Pincher Creek
P.O. Box 279
Pincher Creek, AB T0K 1W0
Phone: 403.627.3130 • Fax: 403.627.5070

DEVELOPMENT PERMIT APPLICATION FOR WIND ENERGY CONVERSION SYSTEMS

DEVELOPMENT PERMIT APPLICATION NO. ____________

Date Application Received _______________ **PERMIT FEE** ____________

Date Application Accepted _______________ **RECEIPT NO.** ____________

SECTION 1: GENERAL INFORMATION (completed by all permit applicants)

Applicant: RENEWABLE ENERGY SERVICES Ltd.

Address: 37 Akerley Blvd Unit1,Dartmouth,NS,B3B1R7 Telephone: 1(902)631-4441

Owner of Land (if different from above): Frank McLaughlin

Address: ______ Telephone: (403)

Interest of Applicant (if not the owner): Wind Developer

SECTION 2: PROPOSED DEVELOPMENT (completed by all permit applicants)

I/We hereby make application for a Development Permit in accordance with the plans and supporting information submitted.

A BRIEF DESCRIPTION OF THE PROPOSED DEVELOPMENT IS AS FOLLOWS:

Total number of new WECS: 7

Category of Proposed WECS: 3

If expansion of existing, the overall total: NA

Legal Description of Lands to be Used: Lot(s) 1 Block(s) 1 Plan 113120

Quarter Section 23 6-29-4

Estimated Value of Construction: 75 M

Estimated Commencement Date: Q3 2018

Estimated Completion Date: Q4 2020

SECTION 3: INFORMATION REQUIREMENTS

All of the following must be attached before the application is considered complete. The Development Officer shall determine completeness and refuse all applications that are incomplete.

LAND USE DISTRICT: WIND FARM INDUSTRIAL

Accurate Site Plan:	☒ Attached
Elevations or Scale:	☒ Attached
Photos or Representations of Proposed WECS:	☒ Attached
Manufacturers Specifications:	☒ Attached
Analysis of Visual Impact:	☒ Attached
Analysis of Noise:	☒ Attached
Report on any Public Consultation:	☒ Attached
Reclamation/Decommissioning Plan:	☒ Attached
Impact on Local Road System:	☒ Attached
Setback and Separation Distance Chart:	☒ Attached
Tower Access and Safety:	☒ Attached
Color and Finish:	☒ Attached

Results of Applicant Circulation to Other Government Levels:

Alberta Utilities Board	☒ Attached
Tranport Canada	☒ Attached
NAV Canada	☒ Attached
Alberta Tourism, Parks, Recreation and Culture	☒ Attached
Alberta Environment	☒ Attached
Alberta Infrastructure and Transportation	☒ Attached
Alberta Sustainable Resources	☒ Attached

SECTION 4: AUTHORIZATION

The information given on this form is full and complete and is, to the best of my knowledge, a true statement of the facts in relation to this application for a Development Permit.

I also consent to an authorized person designated by the municipality to enter upon the subject land and buildings for the purpose of an inspection during the processing of this application.

DATE: 18-January-2018

RENEWABLE ENERGY SERVICES Ltd.
Applicant

FRANK McLAUGHLIN
Registered Owner

Information on this application form will become part of a file which will be considered at a public meeting. Any portion of the application determined to be incomplete by the Development Officer shall be rectified before the application is accepted and a public meeting date is set.

Municipal District of Pincher Creek
P.O. Box 279
Pincher Creek, AB T0K 1W0
Phone: 403.627.3130 • Fax: 403.627.5070

DEVELOPMENT PERMIT APPLICATION FOR WIND ENERGY CONVERSION SYSTEMS

DEVELOPMENT PERMIT APPLICATION NO. ____________

Date Application Received _______________ **PERMIT FEE** ____________

Date Application Accepted _______________ **RECEIPT NO.** ____________

SECTION 1: GENERAL INFORMATION (completed by all permit applicants)

Applicant: RENEWABLE ENERGY SERVICES Ltd.

Address: 37 Akerley Blvd Unit1,Dartmouth,NS,B3B1R7 Telephone: 1(902)631-4441

Owner of Land (if different from above): Lloyd Winston Sproule

Address: __ Telephone: ____________

Interest of Applicant (if not the owner): Wind Developer

SECTION 2: PROPOSED DEVELOPMENT (completed by all permit applicants)

I/We hereby make application for a Development Permit in accordance with the plans and supporting information submitted.

A BRIEF DESCRIPTION OF THE PROPOSED DEVELOPMENT IS AS FOLLOWS:

Total number of new WECS: 2

Category of Proposed WECS: 3

If expansion of existing, the overall total: NA

Legal Description of Lands to be Used: Lot(s)____________ Block(s) ___________ Plan __________

Quarter Section NE22-6-29-4

Estimated Value of Construction: 15 M

Estimated Commencement Date: Q3 2018

Estimated Completion Date: Q4 2020

SECTION 3: INFORMATION REQUIREMENTS

All of the following must be attached before the application is considered complete. The Development Officer shall determine completeness and refuse all applications that are incomplete.

LAND USE DISTRICT: WIND FARM INDUSTRIAL

Accurate Site Plan:	☒ Attached
Elevations or Scale:	☒ Attached
Photos or Representations of Proposed WECS:	☒ Attached
Manufacturers Specifications:	☒ Attached
Analysis of Visual Impact:	☒ Attached
Analysis of Noise:	☒ Attached
Report on any Public Consultation:	☒ Attached
Reclamation/Decommissioning Plan:	☒ Attached
Impact on Local Road System:	☒ Attached
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Alberta Sustainable Resources	☒ Attached

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DATE: 18-January-2018

RENEWABLE ENERGY SERVICES Ltd.
Applicant

Lloyd Winston Sproule
Registered Owner

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Municipal District of Pincher Creek
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DEVELOPMENT PERMIT APPLICATION FOR WIND ENERGY CONVERSION SYSTEMS

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Applicant: RENEWABLE ENERGY SERVICES Ltd.

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Address: _ ____ Telephone: ____________

Interest of Applicant (if not the owner): Wind Developer

SECTION 2: PROPOSED DEVELOPMENT (completed by all permit applicants)

I/We hereby make application for a Development Permit in accordance with the plans and supporting information submitted.

A BRIEF DESCRIPTION OF THE PROPOSED DEVELOPMENT IS AS FOLLOWS:

Total number of new WECS: 2

Category of Proposed WECS: 3

If expansion of existing, the overall total: NA

Legal Description of Lands to be Used: Lot(s)___________ Block(s) __________ Plan _________

Quarter Section SE22-6-29-4

Estimated Value of Construction: 15 M

Estimated Commencement Date: Q3 2018

Estimated Completion Date: Q4 2020

SECTION 3: INFORMATION REQUIREMENTS

All of the following must be attached before the application is considered complete. The Development Officer shall determine completeness and refuse all applications that are incomplete.

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Elevations or Scale:	☒ Attached
Photos or Representations of Proposed WECS:	☒ Attached
Manufacturers Specifications:	☒ Attached
Analysis of Visual Impact:	☒ Attached
Analysis of Noise:	☒ Attached
Report on any Public Consultation:	☒ Attached
Reclamation/Decommissioning Plan:	☒ Attached
Impact on Local Road System:	☒ Attached
Setback and Separation Distance Chart:	☒ Attached
Tower Access and Safety:	☒ Attached
Color and Finish:	☒ Attached

Results of Applicant Circulation to Other Government Levels:

Alberta Utilities Board	☒ Attached
Tranport Canada	☒ Attached
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DATE: 18-January-2018

RENEWABLE ENERGY SERVICES Ltd.
Applicant

Lloyd Winston Sproule
Registered Owner

Information on this application form will become part of a file which will be considered at a public meeting. Any portion of the application determined to be incomplete by the Development Officer shall be rectified before the application is accepted and a public meeting date is set.

Appendix D -Site Plan / Constraints Map / Project Overview Map / Setback Distance Table

Turbine	UTM (NAD83) Zone 12		Geographic (NAD83) Zone 12		Elevation (agl)	Compliant with Section 53.24		Compliant with Section 53.28	
Identifier	Easting	Northing	Lat.	Long.	(m)	Distance (m)	(Y/N)	Distance (m)	(Y/N)
1	296396	5484820	49.481838° N	113.811050° W	1167	179.92	Y	180.48	Y
3	296408	5485159	49.484888° N	113.811059° W	1182	180.48	Y	519.13	Y
11	296878	5485275	49.486087° N	113.804638° W	1182	646.12	Y	652.18	Y
16 CRCE	297325	5485124	49.484880° N	113.798396° W	1175	1110.16	Y	187.87	Y
18	297337	5485463	49.487930° N	113.798404° W	1180	768.37	Y	200.50	Y
M1	296860	5484972	49.483359° N	113.804730° W	1172	638.82	Y	349.84	Y
M2	297312	5484784	49.481821° N	113.798401° W	1169	1097.18	Y	200.19	Y

Turbine	UTM (NAD83) Zone 12		Geographic (NAD83) Zone 12		Elevation (agl)	Compliant with Section 53.24		Compliant with Section 53.27		Compliant with Section 53.28	
Identifier	Easting	Northing	Lat.	Long.	(m)	Distance (m)	(Y/N)	Distance (m)	(Y/N)	Distance (m)	(Y/N)
S1	296050	5486069	49.492943° N	113.816465° W	1204	189.29	Y	610.69	Y	193.68	Y
S2	296034	5485562	49.488383° N	113.816424° W	1197	187.36	Y	103.44	Y	614.91	Y
S3	296021	5485055	49.483823° N	113.816342° W	1177	182.47	Y	393.68	Y	400.71	Y
S4 CRCE	295544	5484852	49.481839° N	113.822815° W	1165	651.61	Y	623.34	Y	181.21	Y

Appendix E – Turbine Coordinates (NAD 83 – Decimal Degrees)

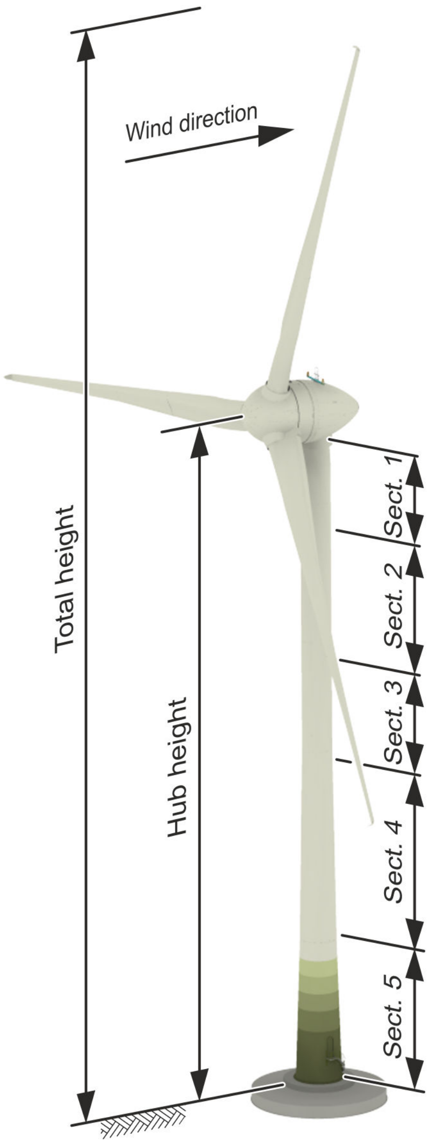
McLaughlin Lands - WEC Coordinates and Elevations					
Turbine Identifier	UTM (NAD83) Zone 12		Geographic (NAD83) Zone 12		
	Easting	Northing	Lat.	Long.	Elevation (m)
1	296396	5484820	49.481838° N	113.811050° W	1167
3	296408	5485159	49.484888° N	113.811059° W	1182
11	296878	5485275	49.486087° N	113.804638° W	1182
16 CRCE	297325	5485124	49.484880° N	113.798396° W	1175
18	297337	5485463	49.487930° N	113.798404° W	1180
M1	296860	5484972	49.483359° N	113.804730° W	1172
M2	297312	5484784	49.481821° N	113.798401° W	1169

* Verified 15-Dec-2016. Refer to MAP RES121216 R1

Sproule Lands - WEC Coordinates and Elevations					
Turbine Identifier	UTM (NAD83) Zone 12		Geographic (NAD83) Zone 12		
	Easting	Northing	Lat.	Long.	Elevation (m)
S1	296050	5486069	49.492943° N	113.816465° W	1204
S2	296034	5485562	49.488383° N	113.816424° W	1197
S3	296021	5485055	49.483823° N	113.816342° W	1177
S4 CRCE	295544	5484852	49.481839° N	113.822815° W	1165
SUBSTATION	294724	5484788	49.480988° N	113.834088° W	1165

Appendix F – Visual Simulations

Appendix G – Turbine Specifications / Elevation Drawings



Tab. 1: Heights, wind zones, type

Parameter	Value
Total height above ground level	162.65 m
Hub height above ground level	99.15 m
Hub height above foundation top edge	99.00 m
Tower height above foundation top edge	95.70 m
Wind zone (DIBt 2012)	WZ 4 GK I, GK II
WTC (IEC 61400-1:2010)	II A
Type	Steel tower
Number of steel sections	5

WZ: Windzone (wind zone)
GK: Geländekategorie (terrain category)
WTC: Wind Turbine Class

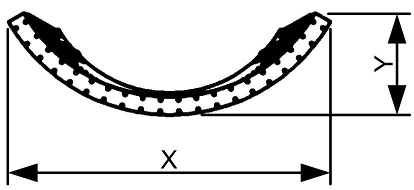
Tab. 2: Dimensions and weights

	Length	Diameter		Mass
	l in m	D_{top} in m	D_{bottom} in m	m in t
Steel section 1	10.88	4.00/ 4.25[1]	4.28	42
Steel section 2	20.44	4.28	4.29	64
Steel section 3	15.96	4.29	4.30	62
Steel section 4	28.00	4.30	5.20	163
Steel section 5	20.44	5.20	6.50/ 6.79[1]	146
Foundation basket	2.10	6.88[2]	6.86[1]	15
Total tower mass				477

The length of steel section 5 includes the load ring.

[1] Outer flange diameter

[2] Outer load ring diameter



Tab. 3: Maximum values of divided steel sections

	Division	Dimensions		Mass
		X in m	Y in m	m in t
Steel section 4	3/3	4.50	1.43	51
Steel section 5	3/3	5.88	1.86	47

Technical data E-126 EP4

General	
Manufacturer	ENERCON GmbH Dreekamp 5 D-26605 Aurich
Type designation	E-126 EP4
Nominal power	4200 kW
Hub heights	approx. 135 m and approx. 144 m
Rotor diameter	127 m
IEC wind class (ed. 3)	IIA
Extreme wind speed at hub height (10-min. mean)	42.5 m/s
	Corresponds to a load equivalent of approx. 59.5 m/s (3-sec. gust)
Annual average wind speed at hub height	8.5 m/s

Rotor with pitch control	
Type	Upwind rotor with active pitch control
Rotational direction	Clockwise (downwind)
Number of rotor blades	3
Rotor blade length	59.7 m (segmented blade)
Swept area	12668 m^2
Rotor blade material	GRP/epoxy resin/wood
Lowest power feed speed to nominal speed	~ 3 - 11.6 rpm
Tip speed	Up to ~ 77 m/s
Power reduction wind speed	28 - 34 m/s (with optional ENERCON storm control)
Conical angle	0°
Rotor axis angle	5°
Pitch control	One independent electrical pitch system per rotor blade with dedicated emergency power supply

ENERCON
ENERGY FOR THE WORLD

Drive train with generator	
WEC concept	Gearless; variable speed; full-scale converter
Hub	Rigid
Bearing	Double-row tapered/cylindrical roller bearing
Generator	Direct-drive ENERCON annular generator
Grid feed	ENERCON inverters with high frequency IGBT switching and sinusoidal current
IP Code/insulation class	IP 23/F

Brake system	
Aerodynamic brake	Three independent pitch systems with emergency power supply
Rotor brake	Electromechanical
Rotor lock	Latching every 5°

Yaw control	
Type	Electrical with yaw motors
Control system	Active via yaw gears

Control system	
Type	Microprocessor
Grid feed	ENERCON inverter
Remote monitoring system	ENERCON SCADA
Uninterruptible power supply (UPS)	Integrated

Tower variants			
Hub height	**Total height**	**Design**	**Wind class**
approx. 135 m	198.5 m	Precast concrete tower with steel section	IEC IIA
approx. 144 m	207.5 m	Precast concrete tower with steel section	IEC IIA

Appendix H – Noise ISO Contour Map / Noise Analysis Report

Akkreditiert nach
DIN EN ISO/IEC 17025:2005

Zertifiziert nach
ISO 9001: 2008

Mitglied im Windgutachterbeirat des Bundesverbandes Windenergie

Report No. SG-070617-947-1-KS

Noise Impact Assessment and Evaluation with AUC Rule 012

for the Proposed

McLaughlin

Wind Project

(Alberta, Canada)

Provided by

AL-PRO GmbH & Co. KG
Dipl. Inf. Carsten Albrecht
Dorfstraße 100
D – 26532 Großheide

Client:

Renewable Energy Services Limited
30 Memory Lane
Lower Sackville, NS
B4C 2J3

Großheide, June 7, 2017

The following report was prepared for the proposed McLaughlin Wind Project located in Alberta, Canada. AL-PRO Wind Energy Consulting Canada Inc. (AL-PRO) was contracted to prepare this report in December of 2016. The analysis and presentation of the results have been prepared with the best available knowledge and are presented with impartiality.

The calculations are based on the DIN ISO 9613-2 [1] standard and were implemented using WindPRO [9] software develeoped by EMD in Denmark.

This document has been produced using data and information relating to dates and periods referred to in the text of this document. This document does not imply that any information is not subject to change. Except and to the extent that checking or verification of information or data is expressly agreed within the written scope of its services, AL-PRO shall not be responsible in any way in connection with erroneous information or data provided to it by the Customer or any third party, or for the effects of any such erroneous information or data whether or not contained or referred to in this document.

New Glasgow, Nova Scotia, June 7, 2017.

calculated:

Dr. Raimund Pauen

written by:

Kirk Schmidt

Responsible/examined contents:

ALV Optimieren Rechnen Planen
Windgutachten / Potenzialstudien / Immissionsprognosen
Dorfstr. 100 Tel. +49 4936 6986-0

Dr. Raimund Pauen
(technical manager)

hardcopy reviewed by:

Kirk Schmidt

Table of Contents

List of Tables

1 Overview of results

The objective of this report is to determine the cumulative noise impact of the proposed McLaughlin Wind Farm on local dwellings and determine compliance with the Alberta Utilities Commission (AUC) Rule 012 [2]. The proposed wind farm will consist of 11 Enercon E-126 Turbines with a hub height of 99 m. The wind turbines will be equipped with trailing edge serrations (TES) on the rotor blades. The wind farm will connect to a transmission line through a single, high voltage transformer.

The Kettles Hill Wind Farm is located approximately 500 m north of the proposed wind farm and consists of 35 Vestas V80-1.8 MW turbines and two step-up transformers. There are no other energy-related facilities located within 3 km of the proposed project.

The proposed and existing wind turbines were modeled using sound power levels the "full" or operating "mode 0s". Additionally, the transformers were modeled using worst case operating conditions.

All modeled receptors had cumulative sound levels that did not exceed the PSL defined in the AUC Rule 012.

Based on these model inputs, the proposed McLaughlin Wind Farm is compliant with the AUC Rule 012.

Comments:

1. Compliance with AUC Rule 012 was based on the project area being typed as Dwelling Density Class 1 without any further adjustments which resulted in a maximum nighttime permissible sound power level of 40 dBA. This includes the 35 dBA ambient sound level required by AUC Rule 012.

2 Introduction

Renewable Energy Services Ltd. is currently in the planning stages for developing the McLaughlin Wind Farm Project. The project will consist of 11, Enercon E-126 turbines located approximately 8.5 km east of Pincher Creek, Alberta. The project is located south of the existing Kettles Hill Wind Farm and is within the Municipal District of Pincher Creek No. 9. The project area is bounded by Township Road 64 in the north, Range Road 291 in the east, Highway 507 to the south and Range Road 293 in the west (Appendix A). The proposed wind farm is rated at 46.2 MW at full power

The following report summarizes the results of the sound analysis completed to determine compliance with the Alberta Utilities Commission (AUC) Rule 012 for noise control. Rule 012 specifies that noise from a new, proposed energy facility will not exceed the permissible sound levels when measured cumulatively with existing facilities. In this case, the Kettles Hill Wind Farm is located approximately 500 m north of the proposed facility and therefore, sound emissions from the existing wind farm were included in the modeling to establish the expected cumulative sound levels.

2.1 Objectives

- Forecast the cumulative noise impacts of the proposed McLaughlin Wind Farm and the existing Kettles Hill Wind Farm on nearby receptors.
- Determine if the proposed wind farm meets existing AUC Rule 012 requirements for wind projects

3 Sound Analysis

The modeling of noise and the attenuation is based on the DIN-ISO 9613-2: Attenuation of sound during propagation-outdoors [1]. Possible reductions in sound levels as a result of local obstacles such as trees, forests, buildings, fences, etc. as well as meteorological corrections are ignored This provides a conservative approach and actual sound pressure levels at receptor points may be lower than calculated

The sound pressure level at immission points where calculated according to the following mathematical relationships:

$$L_{AT}(DW) = L_{WA} + D_C - A \qquad (1)$$

where:

L_{AT}(DW) = sound pressure level (dBA) at the immission point (A-weighted)

L_{WA} = sound pressure level (dBA) at the point source (A-weighted)

D_C = is the directivity correction [dB[A]] without directivity (0 dB), but considering the reflection at the bottom.

A = attenuation that occurs during propagation from the point source to the receiver as determined from the following types of dampening:

$$A = A_{div} + A_{atm} + A_{gr} + A_{bar} + A_{misc} \qquad (2)$$

where:

A_{div}: attenuation due to geometric divergence:

$$A_{div} = 20 \cdot \lg\left(\frac{d}{1m}\right) + 11\, db\,(A) \qquad (3)$$

d: distance between source and receiver (m)

A_{atm}: attenuation due to atmospheric absorption

$$A_{atm} = \frac{\alpha \cdot d}{1000} \qquad (4)$$

where:

α: atmospheric attenuation coefficient for each octave band in the mid band frequency shown in Table 3-1.

Table 3-1: Atmospheric Attentuation Coefficient for Octave Bands of Noise

Temp	Relative Humidity	Atmospheric attenuation coefficient (dB/km)							
		Nominal Midband Frequency (Hz)							
^{0}C	%	63	125	250	500	1000	2000	4000	8000
10	70	0.1	0.4	1.0	1.9	3.7	9.7	32.8	117

A_{gr}: Ground effect

$$A_{gr} = A_s + A_r + A_m \quad (5)$$

A_s: component attenuations for the source region

A_r: component attenuations for the receiver region

A_m: component attenuations for the middle region

A_{bar}: attenuation for barriers

A_{misc}: attenuation due to miscellaneous other effects such as foliage, industrial complexes and buildings.

4 Site description and database

4.1 Proposed Wind Farm

Table 4-1 summarizes the proposed turbine positions and the physical turbine specifications used for the analysis.. The turbine positions were provided by the client.

Table 4-1: Proposed Turbine and Substation Coordinates and Specifications

Turbine ID	Type	Rotor Diam (m)	Rated Power (kW)	Hub Height (m)	Operating Mode	Easting*	Northing*	Ground Elevation (m)
T1	E-126 EP4	126	4,200	99.0	Full	296,396	5,484,818	1,172
T3	E-126 EP4	126	4,200	99.0	Full	296,408	5,485,159	1,186
T11	E-126 EP4	126	4,200	99.0	Full	296,878	5,485,275	1,186
16 CRCE	E-126 EP4	126	4,200	99.0	Full	297,325	5,485,124	1,175
T18	E-126 EP4	126	4,200	99.0	Full	297,337	5,485,463	1,184
M1	E-126 EP4	126	4,200	99.0	Full	296,860	5,484,972	1,176
M2	E-126 EP4	126	4,200	99.0	Full	297,312	5,484,784	1,170
S1	E-126 EP4	126	4,200	99.0	Full	296,050	5,486,069	1,199
S2	E-126 EP4	126	4,200	99.0	Full	296,034	5,485,562	1,204
S3	E-126 EP4	126	4,200	99.0				

Table 4-2: Proposed Turbine and Substation Coordinates and Specifications

Turbine ID	Type	Rotor Diam (m)	Rated Power (kW)	Hub Height (m)	Operating Mode	Easting*	Northing*	Ground Elevation (m)
T1	V80 1.8	80	1,800	67	Full	294,844	5,486,682	1,154
T2	V80 1.8	80	1,800	67	Full	295,373	5,486,430	1,232
T3	V80 1.8	80	1,800	67	Full	295,355	5,486,562	1,238
T4	V80 1.8	80	1,800	67	Full	295,423	5,486,677	1,227
T5	V80 1.8	80	1,800	67	Full	295,423	5,486,810	1,225
T6	V80 1.8	80	1,800	67	Full	295,736	5,487,290	1,218
T7	V80 1.8	80	1,800	67	Full	295,788	5,487,430	1,226
T8	V80 1.8	80	1,800	67	Full	295,829	5,487,576	1,236
T9	V80 1.8	80	1,800	67	Full	295,869	5,487,720	1,241
T10	V80 1.8	80	1,800	67	Full	295,895	5,487,849	1,245
T11	V80 1.8	80	1,800	67	Full	295,876	5,487,976	1,244
T12	V80 1.8	80	1,800	67	Full	296,259	5,488,027	1,242
T13	V80 1.8	80	1,800	67	Full	296,252	5,488,180	1,247
T14	V80 1.8	80	1,800	67	Full	295,901	5,488,401	1,202
T15	V80 1.8	80	1,800	67	Full	295,849	5,488,587	1,193
T16	V80 1.8	80	1,800	67	Full	295,487	5,488,879	1,180
T17	V80 1.8	80	1,800	67	Full	295,409	5,489,034	1,175
T18	V80 1.8	80	1,800	67	Full	295,318	5,489,276	1,150
T19	V80 1.8	80	1,800	67	Full	295,201	5,489,457	1,139
T21	V80 1.8	80	1,800	67	Full	295,931	5,488,988	1,175
T22	V80 1.8	80	1,800	67	Full	295,857	5,489,130	1,169
T23	V80 1.8	80	1,800	67	Full	295,820	5,489,298	1,155
T24	V80 1.8	80	1,800	67	Full	295,733	5,489,474	1,144
T27	V80 1.8	80	1,800	67	Full	297,530	5,488,510	1,194
T28	V80 1.8	80	1,800	67	Full	297,565	5,488,959	1,206
T29	V80 1.8	80	1,800	67	Full	297,609	5,489,106	1,192
T30	V80 1.8	80	1,800	67	Full	297,609	5,489,298	1,181
T31	V80 1.8	80	1,800	67	Full	297,614	5,489,514	1,175
T32	V80 1.8	80	1,800	67	Full	297,617	5,489,646	1,173
T33	V80 1.8	80	1,800	67	Full	297,567	5,489,769	1,174
T34	V80 1.8	80	1,800	67	Full	297,622	5,489,892	1,180
T35	V80 1.8	80	1,800	67	Full	297,640	5,490,026	1,178
T36	V80 1.8	80	1,800	67	Full	297,482	5,488,829	1,201
T37	V80 1.8	80	1,800	67	Full	294,846	5,486,831	1,221
T38	V80 1.8	80	1,800	67	Full	295,356	5,487,052	1,230
Substation	138/25 kV	na	na	3.5	Full	295,729	5,488,629	1,190

,

,

4.3 Receptors

Dwellings located in close proximity of the proposed wind farm and substation were provided by the client and are the same coordinates modeled in a previous noise impact assessment [3]. As the area in the vicinity of the proposed wind farm is characterized as rural agricultural land, the population and dwelling density is relatively low. Only one dwelling is located within 1.5 km of a turbine (or substation), therefore the next closest receptors were also included in the analysis. The spatial location of the 9 receptor dwellings are shown on the Map included in Appendix A and the dwelling coordinates are shown in Table 4

Table 4-4: Octave Band Sound Power Levels Extracted From Report, Acoustic noise measurement according to IEC 61400-11 ed. 3.0 on the Wind Energy Converter of Type Enercon E126 EP4 1270003 Mode: E-126 EP4 4200 kW – BM 0s – Rev 2.0, 2017-04-20 [4].

Wind Speed @ 10 m (m/s)	Sound Power Level (dBA)	Sound Power Level (dB) per Octave							
		63	125	250	500	1000	2000	4000	8000
10	104.6	88.0	91.9	92.8	96.1	98.8	99.6	95.5	82.6

4.4.2 McLaughlin Substation Transformer

The proposed McLaughlin Wind Farm will include a single high voltage step-up transformer which will be located east of Range Road 293. The proposed equipment (138/34.5 kV, rated 25 MVA ONAN) will comply with existing CSA [5] and IEEE [6] sound standards for transformers. In a Noise Impact Assessment completed in 2014 for a previous wind farm layout for the site [3], a worst case scenario based on the maximum admissible sound power level of 100 dBA which included a 5 dBA tonal penalty operating was utilized. As the transformer specifications have not changed, the same values have been used for this study. The representative octave based sound profile for a typical high voltage transformer is shown in Table 4-5 and were input into the model at a 3.5 m height agl.

Table 4-5: Overall and Octave Band Sound Power Levels for the McLaughlin Substation Transformer.

Sound Power Level (dBA)	Sound Power Level (dB) per Octave							
	63	125	250	500	1000	2000	4000	8000
100.0	76.5	88.5	91.0	96.4	93.6	89.8	84.6	75.5

4.4.3 Vestas V80-1.8 MW, Full operating mode O

The Kettles Hill Wind Farm consists of 35 Vestas turbines. The published sound emission curves for these turbines are presented in Appendix B. The sound power level reaches a maximum of 104.4 dBA at a 77 m hub height at a 10 m agl wind speed of 8 m/s and higher [7]. Representative octave sound power level data is shown in Table 5 and was used in the model.

Table 4-6: Representative Octave Level Sound Power Curve Derived From the General Specification V80-

5 Analysis Results

The sound analysis was completed using WindPRO 3.1.617 [9] which provides a comprehensive suite of wind farm design and modeling software. The sound model is based on the *ISO 9613-2 – Attenuation of sound during propagation outdoors, Part 2*. [1]. This international standard provides a conservative estimate of sound propagation and subsequent environmental attenuation as a result of ground porosity, atmospheric attenuation and geometric spreading using the relationships outlined in Section 3. A conservative modeling approach was utilized for this project by using the General Model with a ground attenuation of 0.7. This assumes the earth's surface between the turbine and the receptor is a mixed ground surface which represents summertime vegetative conditions as defined in AUC Rule 012. The ISO 9613-2 standard assumes an ambient air temperature of 10^{o} C and 70% relative humidity which are ideal for atmospheric sound transfer. A meteorological coefficient can be assigned to the model to simulate sound damping due to unique meteorological conditions and noise propagation in the upwind direction.

To maintain a conservative approach, no meteorological coefficient was applied to the model. Additionally, the modeling assumed that all receptors are downwind of the wind turbine, which contributes to the conservative nature of the analysis. No barriers or vegetative screens were included in the model which also contributes to the conservative nature of the analysis.

The model ground elevation data was derived from AltaLIS published DEM data. The raw data was converted to a 10 m by 10 m surface grid from which 10 m contours were extracted. The extracted 10 m contour data were used as a model inputs and to calculate point source elevations.

The predicted cumulative sound pressure levels were calculated for each receptor and the various inputs described in section 4. The sound emissions of the proposed McLaughlin Wind Farm were calculated to determine the incremental impact on each receptor. Table 5-1 shows the sound impact of the proposed wind farm on the modeled receptors. Predicted sound levels from the prosed wind farm range from 25.0 to 31.2 dBA and the dwellings range from 1,499 to 1,974 m from the closest wind turbine or substation. Detailed turbine and transformer specific sound level contributions are shown for each receptor in Appendix E.

The uncertainty associated with the measured sound data for the proposed Enercon E-126 turbines reported in [4] is 1.1 dBA. Table 5-3 shows the impact of including the uncertainty associated with the measured sound levels for the proposed E-126 turbines.

Table 5-1: Predicted Sound Levels at Receptors for the McLaughlin Wind Farm (E-126 EP4, TES Turbines and Substation).

Receptor ID	Description	Easting* (m)	Northing*	Distance to Nearest WTG (m)	Closest ID	Predicted Sound Level (dBA L_{eq})
NR01	Dwelling	293,932	5,486,304	1,710	Substation	27.4
NR04	Dwelling	296,320	5,483,321	1,499	T1	31.2
NR05	Dwelling	294,642	5,483,147	1,643	Substation	27.4
NR06	Dwelling	294,698	5,482,956	1,832	Substation	26.7
NR09	Dwelling	297,701	5,487,230	1,804	T18	28.6
NR10	Dwelling	297,761	5,487,262	1,848	T18	28.3
NR11	Dwelling	297,674	5,487,390	1,956	T18	27.9
NR12	Dwelling	294,074	5,486,652	1,974	Substation	27.0
NR13	Dwelling	293,039	5,485,315	1,765	Substation	25.0

* UTM, NAD83, Zone 12

Table 5-2: Predicted Sound Levels Including Ambient, Existing and Proposed Wind Farms for Each Receptor.

	Sound Level (dBA L_{eq})				Rule 012 Compliance
Receptor ID	Ambient Sound Level	Kettles Hill Contribution	McLaughlin Contribution	Cumulative	
NR01	35.0	35.2	27.4	38.4	Yes
NR04	35.0	24.6	31.2	36.8	Yes
NR05	35.0	24.0	27.4	36.0	Yes
NR06	35.0	23.5	26.7	35.9	Yes
NR09	35.0	34.8	28.6	38.4	Yes
NR10	35.0	34.7	28.3	38.3	Yes
NR11	35.0	35.6	27.9	38.7	Yes
NR12	35.0	37.4	27.0	39.6	Yes
NR13	35.0	27.8	25.0	36.1	Yes

Table 5-3: Predicted Sounds Levels Including Ambient, Existing and Proposed (with uncertainty) Wind Farms for Each Receptor

Receptor ID	Sound Level (dBA L_{eq})						Rule 012 Compliance
	Ambient Sound Level	Kettles Hill Contribution	McLaughlin Wind Farm				
			Contribution	Uncertainty	Sum	Total	
NR01	35.0	35.2	27.4	1.1	28.5	38.5	Yes
NR04	35.0	24.6	31.2	1.1	32.3	37.1	Yes
NR05	35.0	24.0	27.4	1.1	28.5	36.2	Yes
NR06	35.0	23.5	26.7	1.1	27.8	36.0	Yes
NR09	35.0	34.8	28.6	1.1	29.7	38.5	Yes
NR10	35.0	34.7	28.3	1.1	29.4	38.4	Yes
NR11	35.0	35.6	27.9	1.1	29.0	38.8	Yes
NR12	35.0	37.4	27.0	1.1	28.1	39.7	Yes
NR13	35.0	27.8	25.0	1.1	26.1	36.2	Yes

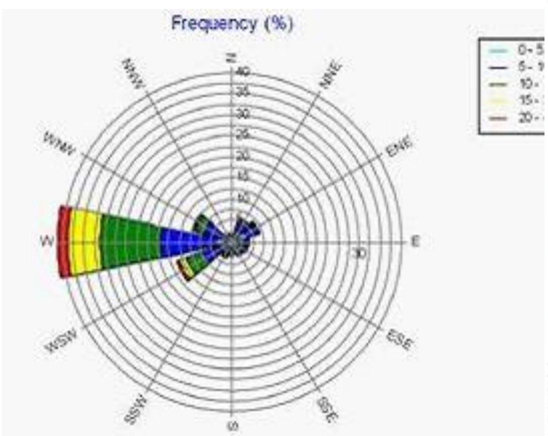
The results range from 36.0 to 39.7 dBA for the receptors which are below the AUC Rule 012 limit of 40 dBA.

Table 5-4 shows the impact of adding the calculated uncertainty [Appendix C] of 2.0 dBA to the existing Vestas V80 turbines at Kettles Hill. In this scenario, receptor sound levels range from 36.1 to 41.0 dBA. Receptor NR12 exceeds the permissible sound level in this case, however, the conservative nature of the model imputs and assumptions make these results unlike due to the following points:

1) Noise emission’s from wind turbines are typically based on calculated or measured values. Calculated sound power levels are distributed by turbine manufacturer’s when measured results are not available or have not been commissioned. Measured sound power ratings are based on in situ sound measurements and follow specific protocols described in IEC 61400 -11 ed 3.0 [8]. The sound power levels of the existing V-80 turbines are based on calculated levels that reach a maximum of 104.4 dBA and have an uncertainty of 2.0 dBA. By their very nature, calculated sound power levels are conservative and typically are higher than measured levels for the same turbine model.
2) The distance beteen receptor NR12 and the closest component of the proposed wind farm (substation property boundary) is 1.974 km. This receptor is located outside of the 1.5 km, 40 dBA threshold distance described in AUV Rule 012.
3) The sound modeling is based on a worst case scenario which includes the assumption that all receptors are downwind of the sound source. The measured wind rose for the Mclaughlin Wind Farm (Figure 5-1) shows the dominance of

west north west, west and west south west wind flows. Collectively, the wind at the site originated from these directions for more than 64% of the time over a three year measurement period. The effect of wind direction on sound propagation is primarily impacted by the the vertical increase in atmospheric wind speed. The wind speed velocity gradient (and subsequent changes in sound velocity) causes sound waves to be bent downward downwind from a sound source. In contrast, the same effect causes upwind sound waves to be bent upward, away from the ground which forms a "*shadow zone*" into which very little sound penetrates.

Receptor NR12 is located upwind of both the existing and proposed wind farm and therefore the actual sound levels from the wind farms are expected to be lower than the modeled results shown in Table 5-4.



Weibull Data

Sector	Current site A- parameter [m/s]	Wind speed [m/s]	k- parameter	Frequency [%]
0 N	5.60	5.05	1.502	2.5
1 NNE	7.24	6.41	2.041	5.6
2 ENE	5.73	5.08	2.053	6.8
3 E	4.63	4.13	1.697	3.9
4 ESE	4.65	4.18	1.549	3.8
5 SSE	4.56	4.08	1.678	3.4
6 S	4.50	4.02	1.639	2.8
7 SSW	6.82	6.26	1.342	3.9
8 WSW	11.38	10.08	2.018	13.8
9 W	13.04	11.56	2.432	41.2
10 WNW	8.93	7.92	1.971	9.8
11 NNW	5.23	4.76	1.412	2.4
All	9.75	8.70	1.705	100.0

Figure 5-1: Measured Wind Rose for the McLauglin Wind Farm

For the reasons described above, the sound levels modeled and shown in Table 5-4 are unlikely and therefore the exceedance of the 40 dBA threshold is not considered to be realistic. The values are presented to provide the reader with an understanding of the conservative nature of the sound modeling completed in this analysis.

Table 5-4: Predicted Sound Levels Including Ambient, Existing (with uncertainty) and Proposed (with uncertainty) Wind Farms for Each Receptor.

Receptor ID	Sound Level (dBA L_{eq})								Rule 012 Compliance
	Ambient Sound Level	Kettles Hill			McLaughlin Wind Farm			Total	
		Contribution	Uncertainty	Sum	Contribution	Uncertainty	Sum		
NR01	35.0	35.2	2.0	37.2	27.4	1.1	28.5	39.6	Yes
NR04	35.0	24.6	2.0	26.6	31.2	1.1	32.3	37.3	Yes
NR05	35.0	24.0	2.0	26.0	27.4	1.1	28.5	36.3	Yes
NR06	35.0	23.5	2.0	25.5	26.7	1.1	27.8	36.1	Yes
NR09	35.0	34.8	2.0	36.8	28.6	1.1	29.7	39.5	Yes
NR10	35.0	34.7	2.0	36.7	28.3	1.1	29.4	39.4	Yes
NR11	35.0	35.6	2.0	37.6	27.9	1.1	29.0	39.8	Yes
NR12	35.0	37.4	2.0	39.4	27.0	1.1	28.1	41.0	No
NR13	35.0	27.8	2.0	29.8	25.0	1.1	26.1	36.6	Yes

5.1 Evaluation and recommendation

The proposed and existing wind turbines were modeled using sound power levels for the "full" or operating "mode 0s". Additionally, the transformers were modeled using worst case operating conditions.

All modeled receptors had cumulative sound levels that did not exceed the PSL defined in the AUC Rule 012.

Based on these model inputs, the proposed McLaughlin Wind Farm is compliant with the AUC Rule 012.

Comments:

1. Compliance with AUC Rule 012 was based on the project area being typed as Dwelling Density Class 1 without any further adjustments which resulted in a maximum nighttime permissible sound power level of 40 dBA. This includes the 35 dBA ambient sound level required by AUC Rule 012.

6 References

6.1 Bibliography

[1] International Organization for Standardization (1996). ISO 9613-2: Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation.

[2] Alberta Utility Commission (AUC) Rule 012: Noise Control. April 1, 2013, 2013. 65 p.

[3] McLaughlin Wind Power Project, Alberta. Noise Impact Assessment, Renewable Energy Services Limited, Document 800247-CAMO-R-01, Sept 2014

[4] Moeller Operating Engineering, Report Acoustic Noise Measurement according to IEC 61400-11 ed. 3.0 on a Wind Energy Converter of Type Enercon-E-126 EP4-1270003, Mode: E-126 EP4 4200 kW- BM 0s – Rev. 2.0, Site: Husum. Report No. MOE-17-PL-0023-AK-BR-0001-A, April 20, 2017, 68 p.

[5] CAN/CSA Power Transformers and Reactors, 1990. Document CSA C88-M90. 91 p.

[6] IEEE Std C57.12.90 - Test Code for Liquid-Immersed Distribution, Power, and Regulating.

[7] Vestas. General Specification V80-1.8 MW OptiSlip 60 Hz Wind Turbine, Item No. 944411.R8. 2005-12-21.

[8] International Electrotechnical Commission (IEC), IEC 61400-11: 2012 ed. 3.0; Wind turbines - acoustic noise measurement techniques, Geneva: IEC, 2012 - 11

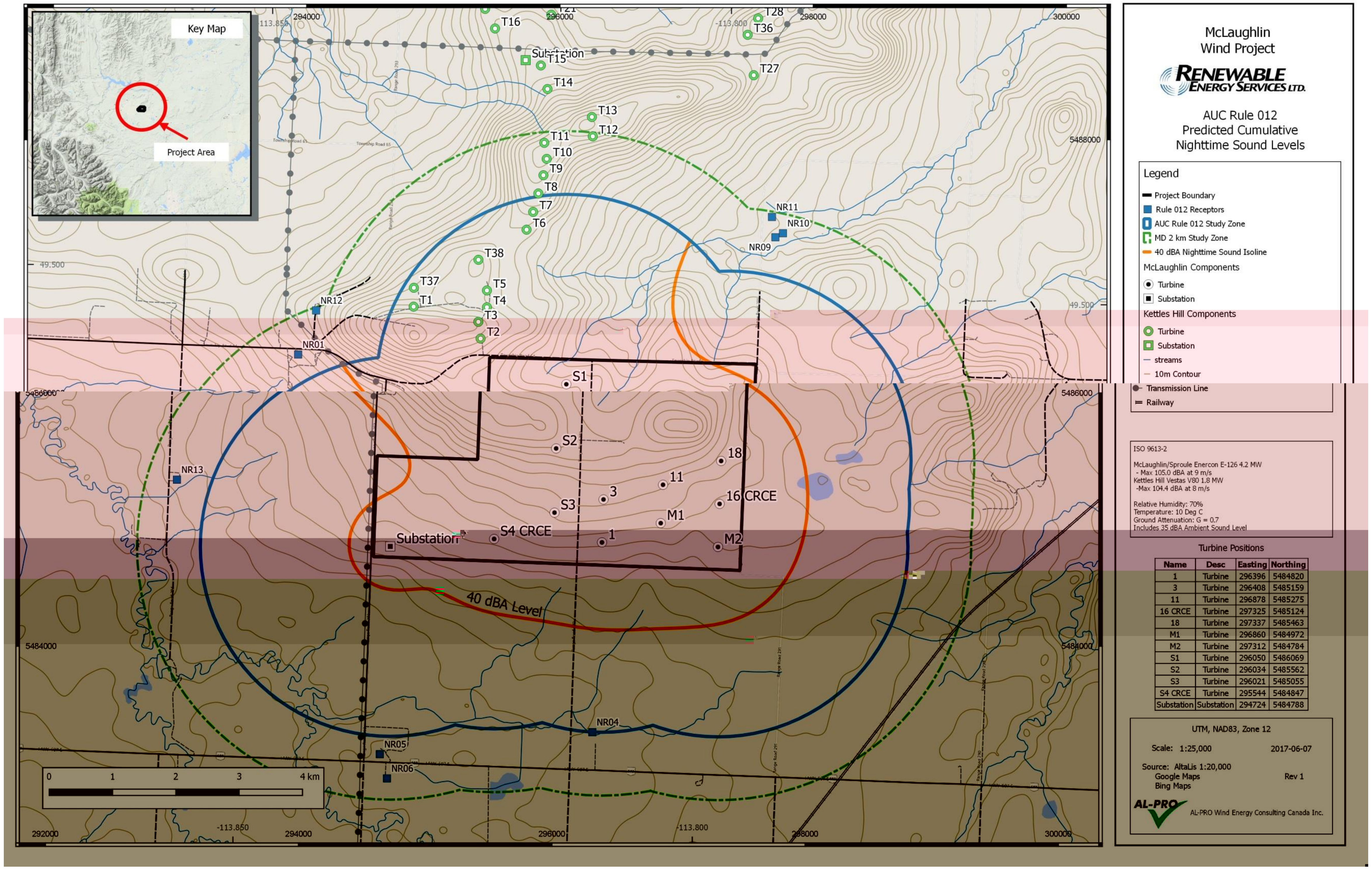
6.2 Software Utilized

[9] WindPRO, Version 3.1.617 Nov 2016, EMD International A/S, Denmark.

[10] Microsoft Office Excel 2010, Microsoft Corporation

[11] Microsoft Office Word 2010, Microsoft Corporation

Appendix A, Project Map



Name	Desc	Easting	Northing
1	Turbine	296396	5484820
3	Turbine	296408	5485159
11	Turbine	296878	5485275
16 CRCE	Turbine	297325	5485124
18	Turbine	297337	5485463
M1	Turbine	296860	5484972
M2	Turbine	297312	5484784
S1	Turbine	296050	5486069
S2	Turbine	296034	5485562
S3	Turbine	296021	5485055
S4 CRCE	Turbine	295544	5484847
Substation	Substation	294724	5484788

Appendix B, Enercon E-126 EP4, 0s, Octave Sound Levels

99 m Hub Height

Report MOE-17-PL-0023-AK-BR-0001-A
ENERCON - E-126 EP4 - 1270003

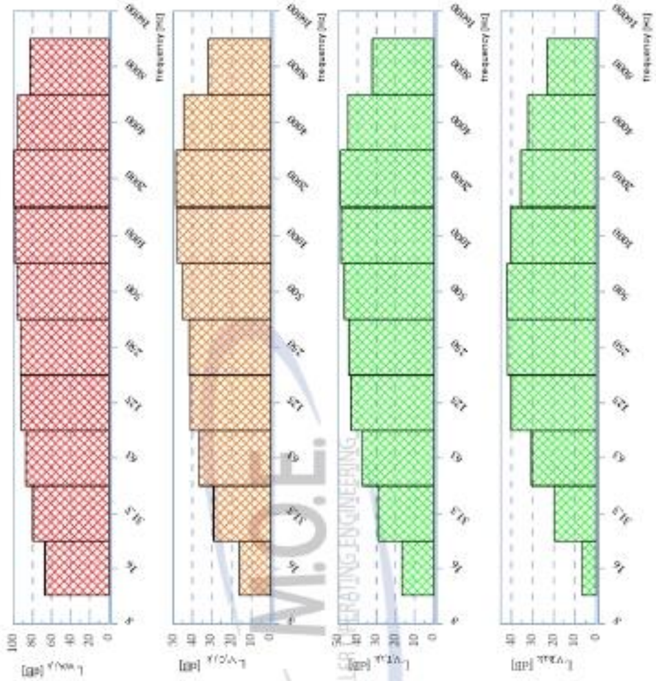
M.O.E.
MOELLER OPERATING ENGINEERING

11.28 Octave analysis at reference height (max. sound power level) {BIN 10 m/s}

Manufacturer: Enercon | Serialnumber: 1270003 | Rated power: 4200 kW | Site: Husum | In charge: Andreas Kaschwich (M. Eng.)
Type of WTC: E-126 EP4 | Date of measur.: 2017-03-21 | WTC-mode: E-126 EP4 4200 kW - BM 0s | Project: 17-PL-0023 | Standard: IEC 61400-11 Ed.3.0

Octave analysis at reference height (10 m) {wind speed 10 m/s}

Freq. [Hz]	$L_{WA,i,k}$ [dB]	$L_{V,T,i,k}$ [dB]	$L_{V,B,i,k}$ [dB]	$L_{V,C,i,k}$ [dB]	$u_{c,i,k}$ [dB]
16.0	67.1	16.6	6.5	16.2	1.1
31.5	79.8	29.4	19.8	28.9	1.0
63.0	87.3	37.4	30.5	36.1	1.1
125.0	91.9	43.6	40.1	41.0	1.7
250.0	92.8	44.3	41.7	41.9	1.8
500.0	96.1	46.9	42.0	45.2	1.8
1000.0	98.8	48.6	40.2	47.9	1.0
2000.0	99.6	48.9	35.6	48.7	0.9
4000.0	95.5	44.8	32.1	44.6	0.9
8000.0	82.6	32.3	23.2	31.7	1.3
Σ	104.6	51.6	47.6	53.7	



Date of analysis: 28.04.2017 | Used measurement system: AMS 2 | Number of analysis: 1 | VERSION (DIA-data): 11.4.4.4005.20060928 | VERSION M.O.E AST/STIK: REV_0001

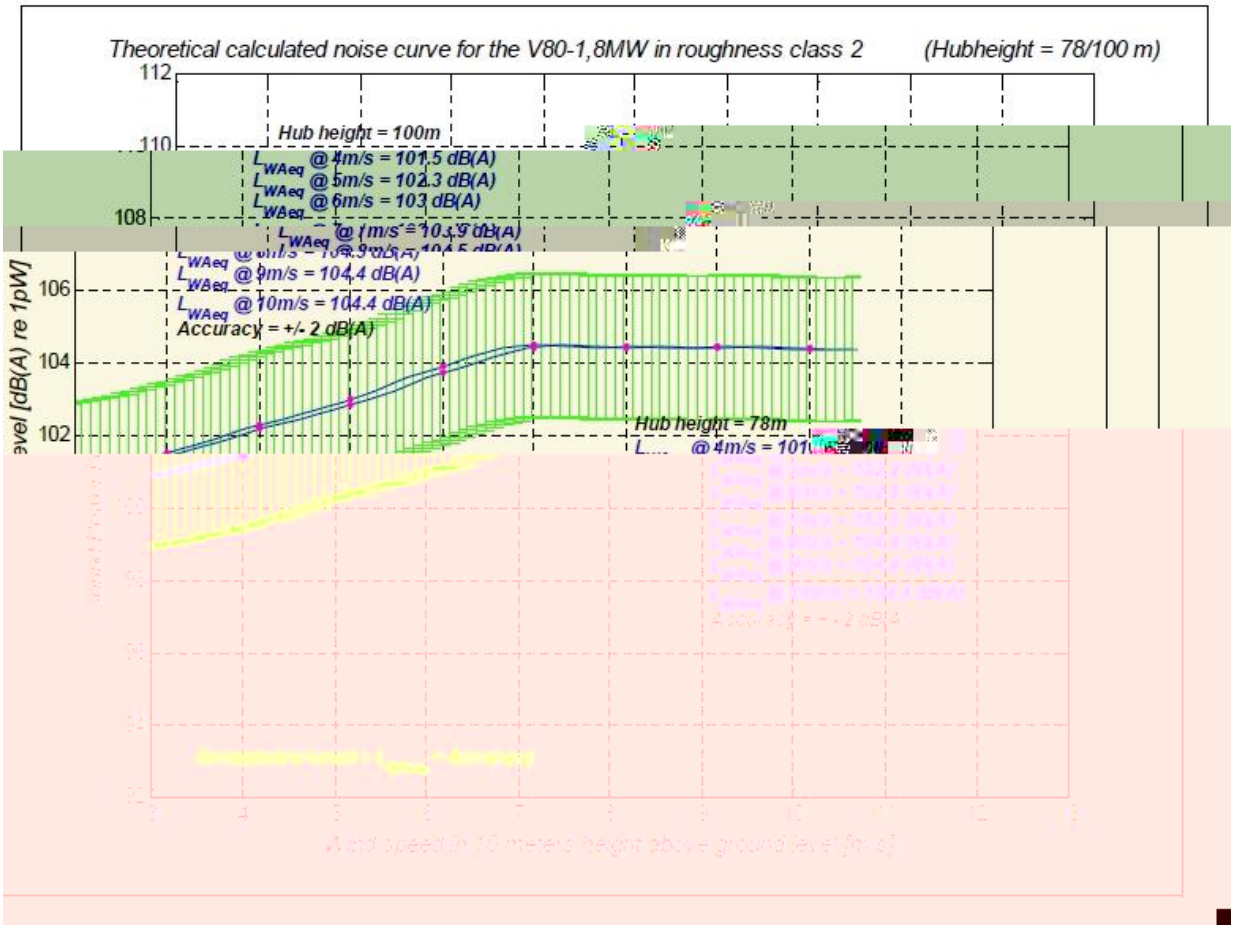
M.O.E. GmbH - www.moe-service.com | Page 49 of 68

Appendix C, Vestas V80 – 1.8 MW Calculated Noise Curve

Item no.:944411.R8	Date:	2005-12-21
General Specification V80-1.8 MW OptiSlip® 60Hz Wind Turbine	Class:	I
	Type:	Gen. spec.

6.2 Noise Curves V80 – 1.8MW, IEC Class I

All noise curves are calculated at 8 m/s at a height of 10-m [33 ft.].



Appendix D, Main Results

McLaughlin Wind Farm

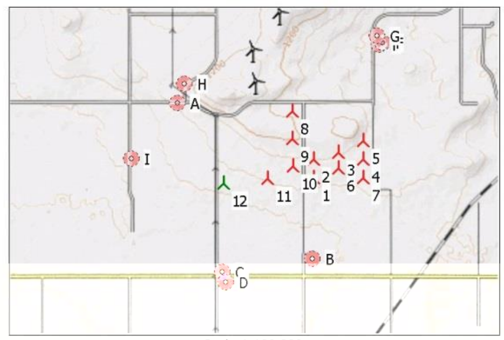
Project:
McLaughlin_Sproule

Licensed user:
AL-PRO GmbH & Co.KG
Dorfstraße 100
DE-26532 Großheide
+49 (0) 4936 6986-0
Kirk Schmidt / kirk.schmidt@al-pro.ca
Calculated:
31/05/2017 11:32 AM/3.1.617

DECIBEL - Main Result

Calculation: New Turbines TES Measured - Rule 12 Receptors

Noise calculation model:
ISO 9613-2 General
Wind speed:
10.0 m/s
Ground attenuation:
General, fixed, Ground factor: 0.7
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Fixed penalty added to source noise of WTGs with pure tones: 5.0 dB(A)
Height above ground level, when no value in NSA object:
1.5 m Allow override of model height with height from NSA object
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)



Scale 1:100,000
New WTG   Noise sensitive area

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	Wind speed	LwA,ref	Pure tones
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	
1	296,396	5,484,818	1,171.4	T1	No	ENERCON	E-126 EP4 99m-4,200	4,200	127.0	99.0	USER	Measured Sound	[illegible]	[illegible]	[illegible]

Project:
McLaughlin_Sproule

Licensed user:
AL-PRO GmbH & Co.KG
Dorfstraße 100
DE-26532 Großheide
+49 (0) 4936 6986-0
Kirk Schmidt / kirk.schmidt@al-pro.ca
Calculated:
31/05/2017 11:32 AM/3.1.617

DECIBEL - Main Result

Calculation: New Turbines TES Measured - Rule 12 Receptors

...continued from previous page

WTG	A	B	C	D	E	F	G	H	I
9	2229	2259	2787	2929	2358	2423	2456	2243	3005
10	2434	1760	2354	2481	2748	2810	2861	2518	2993
11	2173	1712	1924	2072	3214	3278	3317	2328	2548
12	1710	2168	1643	1832	3850	3917	3934	1974	1765

SG-070617-974-1-KS

Kettles Hill Wind Farm

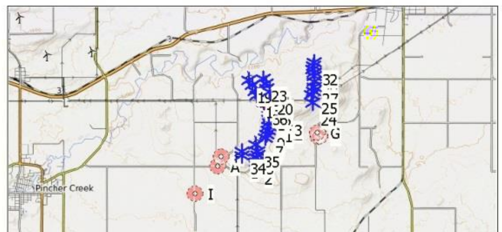
Project:
McLaughlin_Sproule

Licensed user:
AL-PRO GmbH & Co.KG
Dorfstraße 100
DE-26532 Großheide
+49 (0) 4936 6986-0
Kirk Schmidt / kirk.schmidt@al-pro.ca
Calculated:
31/05/2017 11:31 AM/3.1.617

DECIBEL - Main Result

Calculation: Existing Turbines Octave_Rule 12 Receptors

Noise calculation model:
ISO 9613-2 General
Wind speed:
10.0 m/s
Ground attenuation:
General, fixed, Ground factor: 0.7
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Fixed penalty added to source noise of WTGs with pure tones: 5.0 dB(A)
Height above ground level, when no value in NSA object:



Project:
McLaughlin_Sproule

Licensed user:
AL-PRO GmbH & Co.KG
Dorfstraße 100
DE-26532 Großheide
+49 (0) 4936 6986-0
Kirk Schmidt / kirk.schmidt@al-pro.ca
Calculated:
31/05/2017 11:31 AM/3.1.617

DECIBEL - Main Result

Calculation: Existing Turbines Octave_Rule 12 Receptors

...continued from previous page

Noise sensitive area						**Sound level**
No.	Name	Easting	Northing	Z [m]	Imission height [m]	From WTGs [dB(A)]
D	NR06	294,698	5,482,956	1,135.0	1.5	23.50
E	NR09	297,701	5,487,230	1,133.4	1.5	34.80
F	NR10	297,761	5,487,262	1,132.6	1.5	34.71
G	NR11	297,674	5,487,390	1,135.9	1.5	35.55
H	NR12	294,074	5,486,652	1,189.7	1.5	37.42
I	NR13	293,039	5,485,315	1,131.6	1.5	27.80

Distances (m)

WTG	A	B	C	D	E	F	G	H	I
1	987	3671	3541	3729	2909	2974	2917	771	2264
2	1446	3250	3363	3539	2462	2529	2493	1318	2587
3	1446	3382	3489	3665	2439	2506	2462	1284	2630
4	1537	3474	3615	3791	2344	2410	2361	1349	2746
5	1575	3602	3745	3922	2316	2381	2325	1358	2814
6	2056	4012	4285	4457	1966	2025	1941	1780	3343
7	2171	4143	4434	4605	1923	1980	1886	1882	3468
8	2284	4283	4585	4756	1904	1957	1854	1983	3591
9	2399	4422	4735	4906	1896	1947	1835	2089	3714
10	2498	4548	4866	5037	1909	1956	1837	2179	3818
11	2564	4676	4984	5156	1972	2016	1891	2236	3890
12	2895	4706	5141	5306	1648	1686	1552	2582	4210
13	2984	4859	5284	5450	1733	1766	1627	2661	4305
14	2877	5097	5403	5576	2147	2181	2041	2529	4209
15	2981	5287	5572	5747	2296	2326	2183	2626	4313
16	3008	5620	5794	5975	2761	2790	2646	2637	4324
17	3104	5785	5937	6119	2917	2945	2799	2731	4410
18	3279	6039	6166	6350	3141	3166	3018	2904	4570
19	3399	6237	6335	6520	3348	3372	3223	3023	4672
20	3347	5680	5982	6157	2495	2516	2365	2984	4675
21	3419	5827	6105	6282	2648	2667	2516	3053	4743
22	3540	5998	6263	6440	2795	2813	2660	3170	4858
23	3646	6181	6420	6600	2985	3001	2848	3274	4955
24	4220	5328	6091	6234	1291	1269	1129	3924	5512
25	4500	5774	6506	6652	1734	1708	1573	4184	5811
26	4623	5927	6657	6804	1878	1850	1717	4303	5938
27	4742	6114	6829	6978	2070	2042	1909	4416	6062
28	4885	6327	7026	7177	2286	2257	2125	4552	6210
29	4975	6457	7148	7299	2417	2388	2257	4639	6302
30	5022	6567	7239	7392	2543	2514	2381	4682	6351
31	5147	6699	7374	7527	2663	2634	2503	4805	6477
32	5254	6834	7504	7658	2797	2767	2636	4909	6585
33	4356	5629	6352	6499	1614	1592	1452	4044	5665
34	1055	3807	3690	3878	2883	2947	2883	792	2359
35	1609	3854	3970	4149	2352	2414	2343	1343	2896
36	2939	5341	5589	5766	2418	2449	2306	2578	4268

Appendix E, Detailed Results

McLaughlin Wind Farm

Project:
McLaughlin_Sproule

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Raimund Pauen / raimund.pauen@al-pro.de
Calculated:
31/05/2017 11:32/3.1.617

DECIBEL - Detailed results

Calculation: New Turbines TES Measured - Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

Assumptions

Cmet: Meteorological correction

Calculation Results

Noise sensitive area: A NR01

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,877	2,879	**15.33**	104.6	0.00	80.19	-	-	0.00	0.00	-
2	2,728	2,730	**16.00**	104.6	0.00	79.72	-	-	0.00	0.00	-
3	3,121	3,123	**14.37**	104.6	0.00	80.89	-	-	0.00	0.00	-
4	3,592	3,594	**12.84**	104.6	0.00	82.11	-	-	0.00	0.00	-
5	3,507	3,509	**13.10**	104.6	0.00	81.90	-	-	0.00	0.00	-
6	3,217	3,218	**14.04**	104.6	0.00	81.15	-	-	0.00	0.00	-
7	3,706	3,707	**12.50**	104.6	0.00	82.38	-	-	0.00	0.00	-
8	[illegible]	2,135	**19.10**	104.6	0.00	77.59	-	-	0.00	0.00	-
9	2,229	2,233	**18.53**	104.6	0.00	77.98	-	-	0.00	0.00	-
10	2,434	2,436	**17.44**	104.6	0.00	78.73	-	-	0.00	0.00	-
11	2,173	2,175	**18.86**	104.6	0.00	77.75	-	-	0.00	0.00	-
12	1,710	1,710	**18.68**	100.0	0.00	75.66	-	-	0.00	0.00	-

Sum 27.35

- Data undefined due to calculation with octave data

Noise sensitive area: B NR04

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	1,499	1,504	**23.47**	104.6	0.00	74.55	-	-	0.00	0.00	-
2	1,840	1,846	**20.92**	104.6	0.00	76.32	-	-	0.00	0.00	-
3	2,032	2,037	**19.69**	104.6	0.00	77.18	-	-	0.00	0.00	-
4	2,064	2,068	**19.50**	104.6	0.00	77.31	-	-	0.00	0.00	-
5	2,371	2,375	**17.76**	104.6	0.00	78.51	-	-	0.00	0.00	-
6	1,737	1,742	**21.65**	104.6	0.00	75.82	-	-	0.00	0.00	-
7	1,768	1,772	**21.43**	104.6	0.00	75.97	-	-	0.00	0.00	-
8	2,761	2,766	**15.84**	104.6	0.00	79.84	-	-	0.00	0.00	-
9	2,259	2,265	**18.35**	104.6	0.00	78.10	-	-	0.00	0.00	-
10	1,760	1,765	**21.48**	104.6	0.00	75.93	-	-	0.00	0.00	-
11	1,712	1,716	**21.83**	104.6	0.00	75.69	-	-	0.00	0.00	-
12	2,168	2,168	**15.69**	100.0	0.00	77.72	-	-	0.00	0.00	-

Sum 31.17

- Data undefined due to calculation with octave data

Noise sensitive area: C NR05

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,423	2,426	**17.49**	104.6	0.00	78.70	-	-	0.00	0.00	-
2	2,677	2,681	**16.23**	104.6	0.00	79.57	-	-	0.00	0.00	-
3	3,087	3,090	**14.48**	104.6	0.00	80.80	-	-	0.00	0.00	-
4	3,333	3,336	**13.65**	104.6	0.00	81.46	-	-	0.00	0.00	-
5	3,553	3,556	**12.95**	104.6	0.00	82.02	-	-	0.00	0.00	-
6	2,872	2,876	**15.35**	104.6	0.00	80.17	-	-	0.00	0.00	-
7	3,132	3,135	**14.33**	104.6	0.00	80.92	-	-	0.00	0.00	-
8	3,244	3,248	**13.94**	104.6	0.00	81.23	-	-	0.00	0.00	-
9	2,787	2,792	**15.72**	104.6	0.00	79.92	-	-	0.00	0.00	-
10	2,354	2,359	**17.84**	104.6	0.00	78.45	-	-	0.00	0.00	-
11	1,924	1,929	**20.37**	104.6	0.00	76.71	-	-	0.00	0.00	-
12	1,643	1,643	**19.17**	100.0	0.00	75.31	-	-	0.00	0.00	-

Sum 27.36

- Data undefined due to calculation with octave data

windPRO

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Calculated:
31/05/2017 11:32/3.1.617

DECIBEL - Detailed results

Calculation: New Turbines TES Measured - Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

Noise sensitive area: D NR06

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,520	2,524	**16.99**	104.6	0.00	79.04	-	-	0.00	0.00	-
2	2,789	2,793	**15.72**	104.6	0.00	79.92	-	-	0.00	0.00	-
3	3,183	3,186	**14.15**	104.6	0.00	81.07	-	-	0.00	0.00	-
4	3,406	3,409	**13.41**	104.6	0.00	81.65	-	-	0.00	0.00	-
5	3,640	3,643	**12.69**	104.6	0.00	82.23	-	-	0.00	0.00	-
6	2,956	2,959	**14.99**	104.6	0.00	80.42	-	-	0.00	0.00	-
7	3,190	3,193	**14.13**	104.6	0.00	81.08	-	-	0.00	0.00	-
8	3,394	3,398	**13.45**	104.6	0.00	81.62	-	-	0.00	0.00	-
9	2,929	2,933	**15.10**	104.6	0.00	80.35	-	-	0.00	0.00	-
10	2,481	2,485	**17.19**	104.6	0.00	78.91	-	-	0.00	0.00	-
11	2,072	2,076	**19.45**	104.6	0.00	77.34	-	-	0.00	0.00	-
12	1,832	1,832	**17.83**	100.0	0.00	76.26	-	-	0.00	0.00	-

Sum 26.69

- Data undefined due to calculation with octave data

Noise sensitive area: E NR09

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,742	2,746	**15.93**	104.6	0.00	79.77	-	-	0.00	0.00	-
2	2,441	2,446	**17.39**	104.6	0.00	78.77	-	-	0.00	0.00	-
3	2,121	2,126	**19.15**	104.6	0.00	77.55	-	-	0.00	0.00	-
4	2,139	2,144	**19.05**	104.6	0.00	77.62	-	-	0.00	0.00	-
5	1,804	1,810	**21.17**	104.6	0.00	76.15	-	-	0.00	0.00	-
6	2,410	2,414	**17.55**	104.6	0.00	78.65	-	-	0.00	0.00	-
7	2,477	2,480	**17.21**	104.6	0.00	78.89	-	-	0.00	0.00	-
8	2,018	2,025	**19.76**	104.6	0.00	77.13	-	-	0.00	0.00	-
9	2,358	2,364	**17.81**	104.6	0.00	78.47	-	-	0.00	0.00	-
10	2,748	2,752	**15.90**	104.6	0.00	79.79	-	-	0.00	0.00	-
11	3,214	3,217	**14.04**	104.6	0.00	81.15	-	-	0.00	0.00	-
12	3,850	3,851	**7.83**	100.0	0.00	82.71	-	-	0.00	0.00	-

Sum 28.59

- Data undefined due to calculation with octave data

Noise sensitive area: F NR10

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,799	2,803	**15.67**	104.6	0.00	79.95	-	-	0.00	0.00	-
2	2,501	2,505	**17.08**	104.6	0.00	78.98	-	-	0.00	0.00	-
3	2,174	2,180	**18.84**	104.6	0.00	77.77	-	-	0.00	0.00	-
4	2,182	2,186	**18.80**	104.6	0.00	77.79	-	-	0.00	0.00	-
5	1,848	1,854	**20.87**	104.6	0.00	76.36	-	-	0.00	0.00	-
6	2,461	2,465	**17.29**	104.6	0.00	78.84	-	-	0.00	0.00	-
7	2,518	2,522	**17.00**	104.6	0.00	79.03	-	-	0.00	0.00	-
8	2,086	2,092	**19.35**	104.6	0.00	77.41	-	-	0.00	0.00	-
9	2,423	2,429	**17.47**	104.6	[illegible]	[illegible]	-	-	0.00	0.00	-
10	2,810	2,814	**15.62**	104.6	0.00	79.99	-	-	0.00	0.00	-
11	3,278	3,281	**13.83**	104.6	0.00	81.32	-	-	0.00	0.00	-
12	3,917	3,917	**7.58**	100.0	0.00	82.86	-	-	0.00	0.00	-

Sum 28.29

- Data undefined due to calculation with octave data

Noise sensitive area: G NR11

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,872	2,875	**15.35**	104.6	0.00	80.17	-	-	0.00	0.00	-
2	2,565	2,569	**16.77**	104.6	0.00	79.20	-	-	0.00	0.00	-
3	2,260	2,265	**18.36**	104.6	0.00	78.10	-	-	0.00	0.00	-
4	2,293	2,297	**18.18**	104.6	0.00	78.22	-	-	0.00	0.00	-

To be continued on next page...

Project:
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Calculated:
31/05/2017 11:32/3.1.617

DECIBEL - Detailed results

Calculation: New Turbines TES Measured - Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

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WTG — **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
5	1,95[illegible]	1,962	**20.16**	104.6	0.00	76.85	-	-	0.00	0.00	-
6	2,551	2,555	**16.84**	104.6	0.00	79.15	-	-	0.00	0.00	-
7	2,631	2,634	**16.45**	104.6	0.00	79.41	-	-	0.00	0.00	-
8	2,093	2,100	**19.31**	104.6	0.00	77.44	-	-	0.00	0.00	-
9	2,456	2,461	**17.31**	104.6	0.00	78.82	-	-	0.00	0.00	-
10	2,861	2,864	**15.40**	104.6	0.00	80.14	-	-	0.00	0.00	-
11	3,317	3,320	**13.70**	104.6	0.00	81.42	-	-	0.00	0.00	-
12	3,934	3,934	**7.52**	100.0	0.00	82.90	-	-	0.00	0.00	-

Sum 27.89

- Data undefined due to calculation with octave data

Noise sensitive area: H NR12

WTG — **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,959	2,960	**14.99**	104.6	0.00	80.43	-	-	0.00	0.00	-
2	2,771	2,772	**15.81**	104.6	0.00	79.86	-	-	0.00	0.00	-
3	3,124	3,125	**14.36**	104.6	0.00	80.90	-	-	0.00	0.00	-
4	3,592	3,593	**12.84**	104.6	0.00	82.11	-	-	0.00	0.00	-
5	3,473	3,474	**13.21**	104.6	0.00	81.82	-	-	0.00	0.00	-
6	3,253	3,254	**13.92**	104.6	0.00	81.25	-	-	0.00	0.00	-
7	3,738	3,739	**12.41**	104.6	0.00	82.46	-	-	0.00	0.00	-
8	2,060	2,063	**19.53**	104.6	0.00	77.29	-	-	0.00	0.00	-
9	2,243	2,245	**18.46**	104.6	0.00	78.03	-	-	0.00	0.00	-
10	2,518	2,520	**17.01**	104.6	0.00	79.03	-	-	0.00	0.00	-
11	2,328	2,329	**18.00**	104.6	0.00	78.34	-	-	0.00	0.00	-
12	1,974	1,974	**16.89**	100.0	0.00	76.91	-	-	0.00	0.00	-

Sum 27.00

- Data undefined due to calculation with octave data

Noise sensitive area: I NR13

WTG — **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	3,394	3,396	**13.45**	104.6	0.00	81.62	-	-	0.00	0.00	-
2	3,373	3,376	**13.52**	104.6	0.00	81.57	-	-	0.00	0.00	-
3	3,839	3,842	**12.12**	104.6	0.00	82.69	-	-	0.00	0.00	-
4	4,290	4,293	**10.93**	104.6	0.00	83.65	-	-	0.00	0.00	-
5	4,301	4,303	**10.90**	104.6	0.00	83.68	-	-	0.00	0.00	-
6	3,836	3,839	**12.13**	104.6	0.00	82.68	-	-	0.00	0.00	-
7	4,306	4,308	**10.89**	104.6	0.00	83.69	-	-	0.00	0.00	-
8	3,104	3,108	**14.42**	104.6	0.00	80.85	-	-	0.00	0.00	-
9	3,005	3,010	**14.77**	104.6	0.00	80.57	-	-	0.00	0.00	-
10	2,993	2,997	**14.83**	104.6	0.00	80.53	-	-	0.00	0.00	-
11	2,548	2,552	**16.85**	104.6	0.00	79.14	-	-	0.00	0.00	-
12	1,765	1,766	**18.29**	100.0	0.00	75.94	-	-	0.00	0.00	-

Sum 25.03

- Data undefined due to calculation with octave data

Kettles Hill

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31/05/2017 11:31/3.1.617

DECIBEL - Detailed results

Calculation: Existing Turbines Octave_Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

Assumptions
Cmet: Meteorological correction

Calculation Results

Noise sensitive area: A NR01

WTG — **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	987	996	**28.62**	104.4	0.00	70.96	-	-	0.00	0.00	-
2	1,446	1,452	**24.10**	104.4	0.00	74.24	-	-	0.00	0.00	-
3	1,446	1,452	**24.09**	104.4	0.00	74.24	-	-	0.00	0.00	-
4	1,537	1,542	**23.36**	104.4	0.00	74.76	-	-	0.00	0.00	-
5	1,575	1,579	**23.06**	104.4	0.00	74.97	-	-	0.00	0.00	-
6	2,056	2,059	**19.70**	104.4	0.00	77.27	-	-	0.00	0.00	-
7	2,171	2,174	**19.04**	104.4	0.00	77.75	-	-	0.00	0.00	-
8	2,284	2,288	**18.43**	104.4	0.00	78.19	-	-	0.00	0.00	-
9	2,399	2,403	**17.82**	104.4	0.00	78.62	-	-	0.00	0.00	-
10	2,498	2,502	**17.32**	104.4	0.00	78.97	-	-	0.00	0.00	-
11	2,564	2,568	**17.00**	104.4	0.00	79.19	-	-	0.00	0.00	-
12	2,895	2,899	**15.47**	104.4	0.00	80.24	-	-	0.00	0.00	-
13	2,984	2,987	[illegible]	104.4	0.00	80.50	-	-	0.00	0.00	-
14	2,877	2,878	**15.56**	104.4	0.00	80.18	-	-	0.00	0.00	-
15	2,981	2,982	**15.10**	104.4	0.00	80.49	-	-	0.00	0.00	-
16	3,008	3,009	**14.99**	104.4	0.00	80.57	-	-	0.00	0.00	-
17	3,104	3,105	**14.58**	104.4	0.00	80.84	-	-	0.00	0.00	-
18	3,279	3,280	**13.87**	104.4	0.00	81.32	-	-	0.00	0.00	-
19	3,399	3,399	**13.40**	104.4	0.00	81.63	-	-	0.00	0.00	-
20	3,347	3,347	**13.60**	104.4	0.00	81.49	-	-	0.00	0.00	-
21	3,419	3,420	**13.32**	104.4	0.00	81.68	-	-	0.00	0.00	-
22	3,540	3,540	**12.86**	104.4	0.00	81.98	-	-	0.00	0.00	-
23	3,646	3,646	**12.47**	104.4	0.00	82.24	-	-	0.00	0.00	-
24	4,220	4,221	**10.51**	104.4	0.00	83.51	-	-	0.00	0.00	-
25	4,500	4,501	**9.64**	104.4	0.00	84.07	-	-	0.00	0.00	-
26	4,623	4,624	**9.27**	104.4	0.00	84.30	-	-	0.00	0.00	-
27	4,742	4,742	**8.93**	104.4	0.00	84.52	-	-	0.00	0.00	-
28	4,885	4,885	**8.52**	104.4	0.00	84.78	-	-	0.00	0.00	-
29	4,975	4,975	**8.28**	104.4	0.00	84.94	-	-	0.00	0.00	-
30	5,022	5,022	**8.15**	104.4	0.00	85.02	-	-	0.00	0.00	-
31	5,147	5,147	**7.81**	104.4	0.00	85.23	-	-	0.00	[illegible]	[illegible]

SG-070617

Project:
McLaughlin_Sproule

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Calculated:
31/05/2017 11:31/3.1.617

DECIBEL - Detailed results

Calculation: Existing Turbines Octave_Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

...continued from previous page

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
35	3,970	3,973	**11.32**	104.4	0.00	82.98	-	-	0.00	0.00	-
36	5,589	5,589	**0.36**	98.0	0.00	85.95	-	-	0.00	0.00	-

Sum 24.03

- Data undefined due to calculation with octave data

Noise sensitive area: D NR06

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	3,729	3,732	**12.16**	104.4	0.00	82.44	-	-	0.00	0.00	-
2	3,539	3,543	**12.85**	104.4	0.00	81.99	-	-	0.00	0.00	-
3	3,665	3,669	**12.39**	104.4	0.00	82.29	-	-	0.00	0.00	-
4	3,791	3,794	**11.94**	104.4	0.00	82.58	-	-	0.00	0.00	-
5	3,922	3,925	**11.49**	104.4	0.00	82.88	-	-	0.00	0.00	-
6	4,457	4,459	**9.77**	104.4	0.00	83.98	-	-	0.00	0.00	-
7	4,605	4,608	**9.32**	104.4	0.00	84.27	-	-	0.00	0.00	-
8	4,756	4,759	**8.88**	104.4	0.00	84.55	-	-	0.00	0.00	-
9	4,906	4,909	**8.46**	104.4	0.00	84.82	-	-	0.00	0.00	-
10	5,037	5,040	**8.10**	104.4	0.00	85.05	-	-	0.00	0.00	-
11	5,156	5,159	**7.78**	104.4	0.00	85.25	-	-	0.00	0.00	-
12	5,306	5,309	**7.39**	104.4	0.00	85.50	-	-	0.00	0.00	-
13	5,450	5,453	**7.02**	104.4	0.00	85.73	-	-	0.00	0.00	-
14	5,576	5,578	**6.71**	104.4	0.00	85.93	-	-	0.00	0.00	-
15	5,747	5,749	**6.30**	104.4	0.00	86.19	-	-	0.00	0.00	-
16	5,975	5,976	**5.77**	104.4	0.00	86.53	-	-	0.00	0.00	-
17	6,119	6,120	**5.44**	104.4	0.00	86.74	-	-	0.00	0.00	-
18	6,350	6,351	**4.94**	104.4	0.00	87.06	-	-	0.00	0.00	-
19	6,520	6,521	**4.58**	104.4	0.00	87.29	-	-	0.00	0.00	-
20	6,157	6,158	**5.36**	104.4	0.00	86.79	-	-	0.00	0.00	-
21	6,282	6,283	**5.09**	104.4	0.00	86.96	-	-	0.00	0.00	-
22	6,440	6,441	**4.75**	104.4	0.00	87.18	-	-	0.00	0.00	-
23	6,600	6,600	**4.41**	104.4	0.00	87.39	-	-	0.00	0.00	-
24	6,234	6,236	**5.19**	104.4	0.00	86.90	-	-	0.00	0.00	-
25	6,652	6,654	**4.30**	104.4	0.00	87.46	-	-	0.00	0.00	-
26	6,804	6,805	**4.00**	104.4	0.00	87.66	-	-	0.00	0.00	-
27	6,978	6,979	**3.65**	104.4	0.00	87.88	-	-	0.00	0.00	-
28	7,177	7,178	**3.27**	104.4	0.00	88.12	-	-	0.00	0.00	-
29	7,299	7,300	**3.04**	104.4	0.00	88.27	-	-	0.00	0.00	-
30	7,392	7,393	**2.87**	104.4	0.00	88.38	-	-	0.00	0.00	-
31	7,527	7,528	**2.63**	104.4	0.00	88.53	-	-	0.00	0.00	-
32	7,658	7,658	**2.39**	104.4	0.00	88.68	-	-	0.00	0.00	-
33	6,499	6,501	**4.62**	104.4	0.00	87.26	-	-	0.00	0.00	-
34	3,878	3,881	**11.64**	104.4	0.00	82.78	-	-	0.00	0.00	-
35	4,149	4,152	**10.73**	104.4	0.00	83.36	-	-	0.00	0.00	-
36	5,766	5,766	**-0.11**	98.0	0.00	86.22	-	-	0.00	0.00	-

Sum 23.50

- Data undefined due to calculation with octave data

Noise sensitive area: E NR09

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,909	2,914	**15.40**	104.4	0.00	80.29	-	-	0.00	0.00	-
2	2,462	2,467	**17.50**	104.4	0.00	78.84	-	-	0.00	0.00	-
3	2,439	2,445	**17.61**	104.4	0.00	78.77	-	-	0.00	0.00	-
4	2,344	2,350	**18.10**	104.4	0.00	78.42	-	-	0.00	0.00	-
5	2,316	2,322	**18.25**	104.4	0.00	78.32	-	-	0.00	0.00	-
6	1,966	1,972	**20.25**	104.4	0.00	76.90	-	-	0.00	0.00	-
7	1,923	1,930	**20.53**	104.4	0.00	76.71	-	-	0.00	0.00	-
8	1,904	1,911	**20.65**	104.4	0.00	76.63	-	-	0.00	0.00	-
9	1,896	1,904	**20.70**	104.4	0.00	76.59	-	-	0.00	0.00	-
10	1,909	1,917	**20.61**	104.4	0.00	76.65	-	-	0.00	0.00	-

To be continued on next page...

Project:
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Calculated:
31/05/2017 11:31/3.1.617

DECIBEL - Detailed results

Calculation: Existing Turbines Octave_Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

...continued from previous page

WTG — **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
11	1,972	1,979	**20.20**	104.4	0.00	76.93	-	-	0.00	0.00	-
12	1,648	1,657	**22.46**	104.4	0.00	75.39	-	-	0.00	0.00	-
13	1,733	1,742	**21.83**	104.4	0.00	75.82	-	-	0.00	0.00	-
14	2,147	2,152	**19.17**	104.4	0.00	77.66	-	-	0.00	0.00	-
15	2,296	2,299	**18.36**	104.4	0.00	78.23	-	-	0.00	0.00	-
16	2,761	2,763	**16.08**	104.4	0.00	79.83	-	-	0.00	0.00	-
17	2,917	2,919	**15.38**	104.4	0.00	80.30	-	-	0.00	0.00	-
18	3,141	3,142	**14.43**	104.4	0.00	80.94	-	-	0.00	0.00	-
19	3,348	3,349	**[illegible].59**	104.4	0.00	81.50	-	-	0.00	0.00	-
20	2,495	2,497	**17.35**	104.4	0.00	78.95	-	-	0.00	0.00	-
21	2,648	2,650	**16.61**	104.4	0.00	79.46	-	-	0.00	0.00	-
22	2,795	2,797	**15.92**	104.4	0.00	79.93	-	-	0.00	0.00	-
23	2,985	2,986	**15.09**	104.4	0.00	80.50	-	-	0.00	0.00	-
24	1,291	1,298	**25.47**	104.4	0.00	73.26	-	-	0.00	0.00	-
25	1,734	1,740	**21.85**	104.4	0.00	75.81	-	-	0.00	0.00	-
26	1,878	1,882	**20.85**	104.4	0.00	76.49	-	-	0.00	0.00	-
27	2,070	2,073	**19.61**	104.4	0.00	77.33	-	-	0.00	0.00	-
28	2,286	2,288	**18.42**	104.4	0.00	78.19	-	-	0.00	0.00	-
29	2,417	2,420	**17.74**	104.4	0.00	78.68	-	-	0.00	0.00	-
30	2,543	2,545	**17.11**	104.4	0.00	79.11	-	-	0.00	0.00	-
31	2,663	2,666	**16.53**	104.4	0.00	79.52	-	-	0.00	0.00	-
32	2,797	2,799	**15.91**	104.4	0.00	79.94	-	-	0.00	0.00	-
33	1,614	1,619	**22.75**	104.4	0.00	75.19	-	-	0.00	0.00	-
34	2,883	2,887	**15.52**	104.4	0.00	80.21	-	-	0.00	0.00	-
35	2,352	2,357	**18.06**	104.4	0.00	78.45	-	-	0.00	0.00	-
36	2,418	2,419	**12.27**	98.0	0.00	78.67	-	-	0.00	0.00	-

Sum 34.80

- Data undefined due to calculation with octave data

Noise sensitive area: F NR10

WTG — **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,974	2,979	**15.12**	104.4	0.00	80.48	-	-	0.00	0.00	-
2	2,529	2,534	**17.16**	104.4	0.00	79.08	-	-	0.00	0.00	-
3	2,506	2,512	**17.27**	104.4	0.00	79.00	-	-	0.00	0.00	-
4	2,410	2,415	**17.76**	104.4	0.00	78.66	-	-	0.00	0.00	-
5	2,381	2,387	**17.91**	104.4	0.00	78.56	-	-	0.00	0.00	-
6	2,025	2,031	**19.87**	104.4	0.00	77.15	-	-	0.00	0.00	-
7	1,980	1,986	**20.16**	104.4	0.00	76.96	-	-	0.00	0.00	-
8	1,957	1,965	**20.30**	104.4	0.00	76.87	-	-	0.00	0.00	-
9	1,947	1,954	**20.37**	104.4	0.00	76.82	-	-	0.00	0.00	-
10	1,956	1,964	**20.30**	104.4	0.00	76.86	-	-	0.00	0.00	-
11	2,016	2,023	**19.92**	104.4	0.00	77.12	-	-	0.00	0.00	-
12	1,686	1,695	**22.18**	104.4	0.00	75.58	-	-	0.00	0.00	-
13	1,766	1,775	**21.59**	104.4	0.00	75.99	-	-	0.00	0.00	-
14	2,181	2,185	**18.98**	104.4	0.00	77.79	-	-	0.00	0.00	-
15	2,326	2,330	**18.20**	104.4	0.00	78.35	-	-	0.00	0.00	-
16	2,790	2,793	**15.94**	104.4	0.00	79.92	-	-	0.00	0.00	-
17	2,945	2,947	**15.26**	104.4	0.00	80.39	-	-	0.00	0.00	-
18	3,166	3,167	**14.32**	104.4	0.00	81.01	-	-	0.00	0.00	-
19	3,372	3,373	**13.50**	104.4	0.00	81.56	-	-	0.00	0.00	-
20	2,516	2,518	**17.25**	104.4	0.00	79.02	-	-	0.00	0.00	-
21	2,667	2,669	**16.51**	104.4	0.00	79.53	-	-	0.00	0.00	-
22	2,813	2,814	**15.84**	104.4	0.00	79.99	-	-	0.00	0.00	-
23	3,001	3,002	**15.02**	104.4	0.00	80.55	-	-	0.00	0.00	-
24	1,269	1,276	**25.67**	104.4	0.00	73.11	-	-	0.00	0.00	-
25	1,708	1,714	**22.04**	104.4	0.00	75.68	-	-	0.00	0.00	-
26	1,850	1,854	**21.04**	104.4	0.00	76.36	-	-	0.00	0.00	-
27	2,042	2,045	**19.78**	104.4	0.00	77.21	-	-	0.00	0.00	-
28	2,257	2,259	**18.58**	104.4	0.00	78.08	-	-	0.00	0.00	-
29	2,388	2,391	**17.89**	104.4	0.00	78.57	-	-	0.00	0.00	-
30	2,514	2,517	**17.25**	104.4	0.00	79.02	-	-	0.00	0.00	-

To be continued on next page...

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Calculated:
31/05/2017 11:31/3.1.617

DECIBEL - Detailed results

Calculation: Existing Turbines Octave_Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

...continued from previous page

WTG No.	Distance [m]	Sound distance [m]	Wind speed: 10.0 m/s Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
31	2,634	2,636	**16.67**	104.4	0.00	79.42	-	-	0.00	0.00	-
32	2,767	2,769	**16.05**	104.4	0.00	79.85	-	-	0.00	0.00	-
33	1,592	1,597	**22.92**	104.4	0.00	75.07	-	-	0.00	0.00	-
34	2,947	2,951	**15.24**	104.4	0.00	80.40	-	-	0.00	0.00	-
35	2,414	2,420	**17.74**	104.4	0.00	78.68	-	-	0.00	0.00	-
36	2,449	2,450	**12.10**	98.0	0.00	78.78	-	-	0.00	0.00	-

Sum 34.71

- Data undefined due to calculation with octave data

Noise sensitive area: G NR11

WTG No.	Distance [m]	Sound distance [m]	Wind speed: 10.0 m/s Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,917	2,922	**15.36**	104.4	0.00	80.31	-	-	0.00	0.00	-

3	**17.34**	104.4	0.00	78.95	-	-	0.00	0.00	-
3	**17.49**	104.4	0.00	78.85	-	-	0.00	0.00	-
5	**18.01**	104.4	0.00	78.48	-	-	0.00	0.00	-
)	**18.20**	104.4	0.00	78.35	-	-	0.00	0.00	-
5	**20.42**	104.4	0.00	76.78	-	-	0.00	0.00	-
3	**20.78**	104.4	0.00	76.54	-	-	0.00	0.00	-
2	**20.99**	104.4	0.00	76.40	-	-	0.00	0.00	-
3	**21.12**	104.4	0.00	76.31	-	-	0.00	0.00	-

.10	104.4	0.00	76.32	-	-	0.00	0.00	-
.74	104.4	0.00	76.57	-	-	0.00	0.00	-
.20	104.4	0.00	74.87	-	-	0.00	0.00	-
.62	104.4	0.00	75.28	-	-	0.00	0.00	-
.78	104.4	0.00	77.21	-	-	0.00	0.00	-
.98	104.4	0.00	77.79	-	-	0.00	0.00	-
.61	104.4	0.00	79.46	-	-	0.00	0.00	-
.91	104.4	0.00	79.95	-	-	0.00	0.00	-
.94	104.4	0.00	80.60	-	-	0.00	0.00	-
.09	104.4	0.00	81.17	-	-	0.00	0.00	-
.01	104.4	0.00	78.48	-	-	0.00	0.00	-
.25	104.4	0.00	79.02	-	-	0.00	0.00	-
.55	104.4	0.00	79.50	-	-	0.00	0.00	-
.69	104.4	0.00	80.09	-	-	0.00	0.00	-
.06	104.4	0.00	72.11	-	-	0.00	0.00	-
.06	104.4	0.00	74.97	-	-	0.00	0.00	-
.98	104.4	0.00	75.72	-	-	0.00	0.00	-
.65	104.4	0.00	76.63	-	-	0.00	0.00	-
.31	104.4	0.00	77.56	-	-	0.00	0.00	-
.58	104.4	0.00	78.08	-	-	0.00	0.00	-
.92	104.4	0.00	78.54	-	-	0.00	0.00	-
.31	104.4	0.00	78.98	-	-	0.00	0.00	-
.66	104.4	0.00	79.43	-	-	0.00	0.00	-
.05	104.4	0.00	74.27	-	-	0.00	0.00	-
.52	104.4	0.00	80.21	-	-	0.00	0.00	-
.11	104.4	0.00	78.41	-	-	0.00	0.00	-
.89	98.0	0.00	78.26	-	-	0.00	0.00	-

2	2,493		2,4
3	2,462		2,4
4	2,361		2,3
5	2,325		2,3
6	1,941		1,9
7	1,886		1,8
8	1,854		1,8
9	1,835		1,8
10	1,837	1,846	**2**
11	1,891	1,899	**2**
12	1,552	1,561	**2**
13	1,627	1,636	**2**
14	2,041	2,045	**1**
15	2,183	2,186	**1**
16	2,646	2,648	**1**
17	2,799	2,801	**1**
18	3,018	3,019	**1**
19	3,223	3,224	**1**
20	2,365	2,367	**1**
21	2,516	2,518	**1**
22	2,660	2,662	**1**
23	2,848	2,849	**1**
24	1,129	1,136	**2**
25	1,573	1,579	**2**
26	1,717	1,722	**2**
27	1,909	1,912	**2**
28	2,125	2,127	**1**
29	2,257	2,259	**1**
30	2,381	2,384	**1**
31	2,503	2,505	**1**
32	2,636	2,638	**1**
33	1,452	1,458	**2**
34	2,883	2,887	**1**
35	2,343	2,348	**1**
36	2,306	2,307	**1**

Sum 35.55

- Data undefined due to calculation with octave data

2

peed: 10.0 m/s

ted)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
5	104.4	0.00	68.82	-	-	0.00	0.00	-
4	104.4	0.00	73.43	-	-	0.00	0.00	-
5	104.4	0.00	73.21	-	-	0.00	0.00	-
6	104.4	0.00	73.63	-	-	0.00	0.00	-
8	104.4	0.00	73.68	-	-	0.00	0.00	-
4	104.4	0.00	76.02	-	-	0.00	-

Noise sensitive area: H NR1

WTG No.	Distance [m]	Sound distance [m]	Wind Calcul [dB(
1	771	778	**31.**
2	1,318	1,322	**25.**
3	1,284	1,289	**25.**
4	1,349	1,353	**24.**
5	1,358	1,362	**24.**
6	1,780	1,783	**21.**

To be continued on next page...

Project:
McLaughlin_Sproule

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Raimund Pauen / raimund.pauen@al-pro.de
Calculated:
31/05/2017 11:31/3.1.617

DECIBEL - Detailed results

Calculation: Existing Turbines Octave_Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

...continued from previous page

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
7	1,882	1,885	**20.83**	104.4	0.00	76.51	-	-	0.00	0.00	-
8	1,983	1,987	**20.16**	104.4	0.00	76.96	-	-	0.00	0.00	-
9	2,089	2,092	**19.51**	104.4	0.00	77.41	-	-	0.00	0.00	-
10	2,179	2,183	**19.00**	104.4	0.00	77.78	-	-	0.00	0.00	-
11	2,236	2,239	**18.69**	104.4	0.00	78.00	-	-	0.00	0.00	-
12	2,582	2,584	**16.92**	104.4	0.00	79.25	-	-	0.00	0.00	-
13	2,661	2,663	**16.54**	104.4	0.00	79.51	-	-	0.00	0.00	-
14	2,529	2,530	**17.18**	104.4	0.00	79.06	-	-	0.00	0.00	-
15	2,626	2,627	**16.72**	104.4	0.00	79.39	-	-	0.00	0.00	-
16	2,637	2,638	**16.66**	104.4	0.00	79.43	-	-	0.00	0.00	-
17	2,731	2,731	**16.23**	104.4	0.00	79.73	-	-	0.00	0.00	-
18	2,904	2,904	**15.44**	104.4	0.00	80.26	-	-	0.00	0.00	-
19	3,023	3,023	**14.93**	104.4	0.00	80.61	-	-	0.00	0.00	-
20	2,984	2,985	**15.09**	104.4	0.00	80.50	-	-	0.00	0.00	-
21	3,053	3,053	**14.80**	104.4	0.00	80.69	-	-	0.00	0.00	-
22	3,170	3,170	**14.31**	104.4	0.00	81.02	-	-	0.00	0.00	-
23	3,274	3,274	**13.89**	104.4	0.00	81.30	-	-	0.00	0.00	-
24	3,924	3,924	**11.49**	104.4	0.00	82.88	-	-	0.00	0.00	-
25	4,184	4,185	**10.62**	104.4	0.00	83.43	-	-	0.00	0.00	-
26	4,303	4,304	**10.25**	104.4	0.00	83.68	-	-	0.00	0.00	-
27	4,416	4,416	**9.90**	104.4	0.00	83.90	-	-	0.00	0.00	-
28	4,552	4,552	**9.49**	104.4	0.00	84.16	-	-	0.00	0.00	-
29	4,639	4,639	**9.23**	104.4	0.00	84.33	-	-	0.00	0.00	-
30	4,682	4,682	**9.10**	104.4	0.00	84.41	-	-	0.00	0.00	-
31	4,805	4,805	**8.75**	104.4	0.00	84.63	-	-	0.00	0.00	-
32	4,909	4,909	**8.46**	104.4	0.00	84.82	-	-	0.00	0.00	-
33	4,044	4,045	**11.08**	104.4	0.00	83.14	-	-	0.00	0.00	-
34	792	798	**31.16**	104.4	0.00	69.04	-	-	0.00	0.00	-
35	1,343	1,347	**25.01**	104.4	0.00	73.59	-	-	0.00	0.00	-
36	2,578	2,578	**11.42**	98.0	0.00	79.23	-	-	0.00	0.00	-

Sum 37.42

- Data undefined due to calculation with octave data

Noise sensitive area: I NR13

WTG **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	2,264	2,270	**18.52**	104.4	0.00	78.12	-	-	0.00	0.00	-
2	2,587	2,592	**16.88**	104.4	0.00	79.27	-	-	0.00	0.00	-
3	2,630	2,636	**16.67**	104.4	0.00	79.42	-	-	0.00	0.00	-
4	2,746	2,750	**16.13**	104.4	0.00	79.79	-	-	0.00	0.00	-
5	2,814	2,818	**15.82**	104.4	0.00	80.00	-	-	0.00	0.00	-
6	3,343	3,346	**13.60**	104.4	0.00	81.49	-	-	0.00	0.00	-
7	3,468	3,472	**13.12**	104.4	0.00	81.81	-	-	0.00	0.00	-
8	3,591	3,595	**12.66**	104.4	0.00	82.11	-	-	0.00	0.00	-
9	3,714	3,718	**12.21**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	**11.84**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	**11.59**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	**10.53**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	**10.23**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	**10.54**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	**10.21**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	**10.18**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	**9.91**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	**9.43**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	**9.13**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	**9.12**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	**8.92**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	**8.60**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	**8.33**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	**6.87**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	**6.15**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	**5.85**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Project:
McLaughlin_Sproule

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Calculated:
31/05/2017 11:31/3.1.617

DECIBEL - Detailed results

Calculation: Existing Turbines Octave_Rule 12 Receptors **Noise calculation model:** ISO 9613-2 General 10.0 m/s

...continued from previous page

WTG | **Wind speed: 10.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
27	6,062	6,063	**5.57**	104.4	0.00	86.65	-	-	0.00	0.00	-
28	6,210	6,211	**5.24**	104.4	0.00	86.86	-	-	0.00	0.00	-
29	6,302	6,303	**5.04**	104.4	0.00	86.99	-	-	0.00	0.00	-
30	6,351	6,352	**4.93**	104.4	0.00	87.06	-	-	0.00	0.00	-
31	6,477	6,478	**4.67**	104.4	0.00	87.23	-	-	0.00	0.00	-
32	6,[illegible]85	6,586	**4.44**	104.4	0.00	87.37	-	-	0.00	0.00	-
33	5,665	5,666	**6.50**	104.4	0.00	86.07	-	-	0.00	0.00	-
34	2,359	2,364	**18.03**	104.4	0.00	78.47	-	-	0.00	0.00	-
35	2,896	2,900	**15.46**	104.4	0.00	80.25	-	-	0.00	0.00	-
36	4,268	4,269	**4.34**	98.0	0.00	83.61	-	-	0.00	0.00	-

Sum 27.80

- Data undefined due to calculation with octave data

Appendix F, Model Assumptions

McLaughlin Wind Farm

Project:
McLaughlin_Sproule

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Kirk Schmidt / kirk.schmidt@al-pro.ca
Calculated:
31/05/2017 11:32 AM/3.1.617

DECIBEL - Assumptions for noise calculation

Calculation: New Turbines TES Measured - Rule 12 Receptors
Noise calculation model:
ISO 9613-2 General
Wind speed:
10.0 m/s
Ground attenuation:
General, fixed, Ground factor: 0.7
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Fixed penalty added to source noise of WTGs with pure tones: 5.0 dB(A)
Height above ground level, when no value in NSA object:
1.5 m Allow override of model height with height from NSA object
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)
Octave data required
Air absorption

63	125	250	500	1,000	2,000	4,000	8,000
[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]
0.1	0.4	1.0	1.9	3.7	9.7	32.8	117.0

WTG: ENERCON E-126 EP4 99m 4200 127.0 !O!
Noise: Measured Sound

Source	Source/Date	Creator	Edited
MOE-17-PL-0023-AK-BR-0001-A	20/04/2017	USER	29/05/2017 12:21 PM

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data 63 [dB]	125 [dB]	250 [dB]	500 [dB]	1000 [dB]	2000 [dB]	4000 [dB]	8000 [dB]
From Windcat	99.0	10.0	104.6	No	88.0	91.9	92.8	96.1	98.8	99.6	95.5	82.6

WTG: MS Transformer 138 1.0 !-!
Noise: New Worst Case CSA

Source	Source/Date	Creator	Edited
User	17/01/2017	USER	03/05/2017 5:09 PM

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data 63 [dB]	125 [dB]	250 [dB]	500 [dB]	1000 [dB]	2000 [dB]	4000 [dB]	8000 [dB]
From Windcat	3.5	10.0	100.0	No	76.4	88.5	91.0	96.4	93.6	89.8	84.6	75.5

NSA: NR01-A
No noise demand

No distance demand

NSA: NR04-B
No noise demand

No distance demand

NSA: NR05-C
No noise demand

No distance demand

NSA: NR06-D
No noise demand

No distance demand

Project:
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Kirk Schmidt / kirk.schmidt@al-pro.ca
Calculated:
31/05/2017 11:32 AM/3.1.617

DECIBEL - Assumptions for noise calculation

Calculation: New Turbines TES Measured - Rule 12 Receptors

NSA: NR09-E
No noise demand

No distance demand

NSA: NR10-F
No noise demand

No distance demand

NSA: NR11-G
No noise demand

No distance demand

NSA: NR12-H
No noise demand

No distance demand

NSA: NR13-I
No noise demand

No distance demand

Kettles Hill Wind Farm

Project:
McLaughlin_Sproule

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Calculated:
31/05/2017 11:31 AM/3.1.617

DECIBEL - Assumptions for noise calculation

Calculation: Existing Turbines Octave_Rule 12 Receptors

Noise calculation model:
ISO 9613-2 General
Wind speed:
10.0 m/s
Ground attenuation:
General, fixed, Ground factor: 0.7
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Fixed penalty added to source noise of WTGs with pure tones: 5.0 dB(A)
Height above ground level, when no value in NSA object:
1.5 m Allow override of model height with height from NSA object
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)
Octave data required
Air absorption

63	125	250	500	1,000	2,000	4,000	8,000
[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]
0.1	0.4	1.0	1.9	3.7	9.7	32.8	117.0

WTG: VESTAS V80-1.8MW 60Hz 1800 80.0 !O!
Noise: V80 @ 8 m/s

Source	Source/Date	Creator	Edited
800247	26/04/2017	USER	26/04/2017 3:10 PM

					Octave data							
Status	Hub height	Wind speed	LwA,ref	Pure tones	63	125	250	500	1000	2000	4000	8000
	[m]	[m/s]	[dB(A)]		[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
From Windcat	67.0	10.0	104.4	No	82.2	90.3	95.8	99.2	98.4	97.6	92.4	75.3

WTG: KH Transformers 138 1.0 !-!
Noise: Kettle Hills Transformers

Source	Source/Date	Creator	Edited
800247-CAMO-R-01-E	17/01/2017	USER	10/05/2017 3:34 PM

					Octave data							
Status	Hub height	Wind speed	LwA,ref	Pure tones	63	125	250	500	1000	2000	4000	8000
	[m]	[m/s]	[dB(A)]		[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
ExtraPolated	3.5	10.0	98.0	No	74.5	86.5	89.0	94.4	91.6	87.8	82.6	73.5

NSA: NR01-A
No noise demand

No distance demand

NSA: NR04-B
No noise demand

No distance demand

NSA: NR05-C
No noise demand

No distance demand

NSA: NR06-D
No noise demand

No distance demand

Project:
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Kirk Schmidt / kirk.schmidt@al-pro.ca
Calculated:
31/05/2017 11:31 AM/3.1.617

DECIBEL - Assumptions for noise calculation

Calculation: Existing Turbines Octave_Rule 12 Receptors

NSA: NR09-E
No noise demand

No distance demand

NSA: NR10-F
No noise demand

No distance demand

NSA: NR11-G
No noise demand

No distance demand

NSA: NR12-H
No noise demand

No distance demand

NSA: NR13-I
No noise demand

No distance demand

Appendix I – Shadow / Flicker Analysis

AL-PRO

ZDH ZERT
DIN EN ISO 9001
REG.-NR. Q1 0116050

ISO 9001: 2008

Mitglied im Windgutachterbeirat des Bundesverbandes Windenergie

Report Number: SH-110417-947-2-1-KS

Shadow Impact Assessment

for the Proposed

McLaughlin

Wind Farm

(Alberta, Canada)

Provided by

AL-PRO GmbH & Co. KG
Dipl. Inf. Carsten Albrecht
Dorfstraße 100

D – 26532 Großheide

Client:

Renewable Energy Services Limited
30 Memory Lane
Lower Sackville,NS
B4C 2J3

New Glasgow, November 4, 2017

The following report was prepared for the proposed McLaughlin Wind Farm located in Alberta, Canada. AL-PRO GmbH & Co. KG (AL-PRO) was contracted to prepare this report in October of 2017. The analysis and presentation of the results have been prepared with the best available knowledge and are presented with impartiality.

The calculations were completed using WindPRO [2] software develeoped by EMD in Denmark.

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New Glasgow, Nova Scotia, November 4, 2017.

written by:

Kirk Schmidt

Analysis by:

Kirk Schmidt

Table of Contents

List of Tables

1 Introduction

Renewable Energy Services Ltd. (RESL) contracted AL-PRO Gmbh & Co. KG to complete a shadow flicker assessment of the proposed McLaughlin Wind Farm. Recent developments have prompted RESL to change the wind farm design and configuration which required this updated shadow flicker analysis and report.

The project area is located approximately 9 km east of the Town of Pincher Creek Alberta, north of Highway 507, south of Township Road 64 and east of Range Road 292. The eastern boundary is adjacent to the Piikani Nation Reserve. The terrain is primarily ariable farmland and is gently rolling. The area is populated with farms and homes at relatively low densities.

The proposed wind farm will consist of 11, Enercon E-126 wind turbines which will have a capacity of 46.2 MW. The turbines will have a hub height of 99 m and a rotor diameter of 127 m.

This analysis has been completed to meet the requirements of the Municipal District of Pincher Creek No. 9, Land Use Bylaw 1140-08. Section 53.21, paragraph (f)(2) [1] requires the potential for shadow flicker be determined for:

- The boundary of the development; and
- At any habitable or occupied residence within 2 km of any turbine.

The purpose of this analysis is to determine if shadiow flicker will impact these locations and suggest possible mitigation measures, if required during the planning stages of the project.

The specific objectives are to:

- Determine the impact of the proposed Mclaughlin Wind Farm on receptors within 2.0 km of of the turbines, and;
- Determine if these impacts exceed permissbale levels.

The standard maximum threshold value used for shadow flicker assessment across Canada is a maximum of 30 minutes a day and a maximum of 30 hours per year.

1.1 Shadow Flicker

Shadow flicker caused by wind turbines is defined as alternating changes in light intensity due to the moving blade shadows cast on the ground and objects (including through windows of residences). The effects of shadow flicker are more prevalent when the sun is low in the sky but a few degrees above the horizon at either sunrise or sunset. The shadow flicker footprint is largest during the winter solstice (December 21st) and is smallest during the summer solstice (June 21) when the suns arc through the sky is higher.

The shadow flicker assessment was completed by AL-PRO and involves the completion of a modeling exercise which utilizes the turbine specifications for the McLaughlin Wind Project to determine potential shadow flicker associated with the development. The potential shadow flicker at multiple shadow receptors surrounding the Project Area was also calculated.

The shadow flicker analysis was completed using WindPro 3.1.617 which provides a comprehensive suite of wind farm design and modeling software. Typically, the shadow flicker analysis is based on a worst case scenario which assumes that:

- The sun shines 100% of the time when it is above the horizon;
- The turbine rotor is always perpendicular to the sun;
- Shadow flicker starts as the sun moves above 3 degrees of the horizon;
- The shadows dissipate at a maximum distance from the blade as a result of atmospheric conditions and light diffusion;
- No obstructions are present that may obscure shadows;
- Receptor windows are oriented toward the turbines, meaning shadow flicker from all sides are considered; and;
- The rotor blades are always spinning.

2 Methodology

2.1 Shadow Flicker

The calculation of shadow flicker is based on geometric model which considers the daily sun path, topographic elevation changes in the study site, turbine height, rotor diameter and blade width to detemine the shadow impacts on the surrounding area. .

The maximum blade width has a direct impact on the distance that shadows can be detected. In the case of the E-126, the maximum shadow distance has been calculated at 2,110 m. Beyond this distance, the rotor blades will cover less than 20% of the area of the sun. Beyonf this limit, no “visible” shadow will occur any more.

2.2 Software

The shadow analysis was completed using WindPro 3.1.617 which provides a comprehensive suite of wind farm design and modeling software [2]. For this analysis, the shadow module was utilized.

3 Analysis Results

Individual receptor results are presented in Table 1. All the dwellings modeled are expected to receive less than the permissable 30 minutes per day and less than 30 hours per year.

A total of three receptors are expected to receive limited

Three receptors, SR09, SR10 and SR11 are expected to experience a maximum of 15 minutes of shadow flicker per day and a maximum of 8 hours and 32 minutes per year. This is assuming the worst case scenario and actual impacts are expected to be much less. These impacts are below the maximum 30 minutes per day and 30 hours per year threshold limits.

4 Conclusions

An analysis has been completed to determine the shadow flicker impacts on dwellings within 2 km of the proposed McLaughlin Wind Farm. The current wind farm layout consists of 11, Enercon E-126 turbines with a rotor diameter of 127 m and a hub height of 99 m.

The results indicate that the wind farm will have a minimal impact in terms of shadow flicker on nearby dwellings and that only 3 dwellings will be impacted.

Overall, the analysis indicates that the project is in compliance with the existing Bylaw [1].

5 References

5.1 Bibliography

[1] Municipal District of Pincher Creek No. 9. Land Use Bylaw No. 1140-08. March 2008. Consolidated to Bylaw No. 1269-16 March 2017. 227 p.

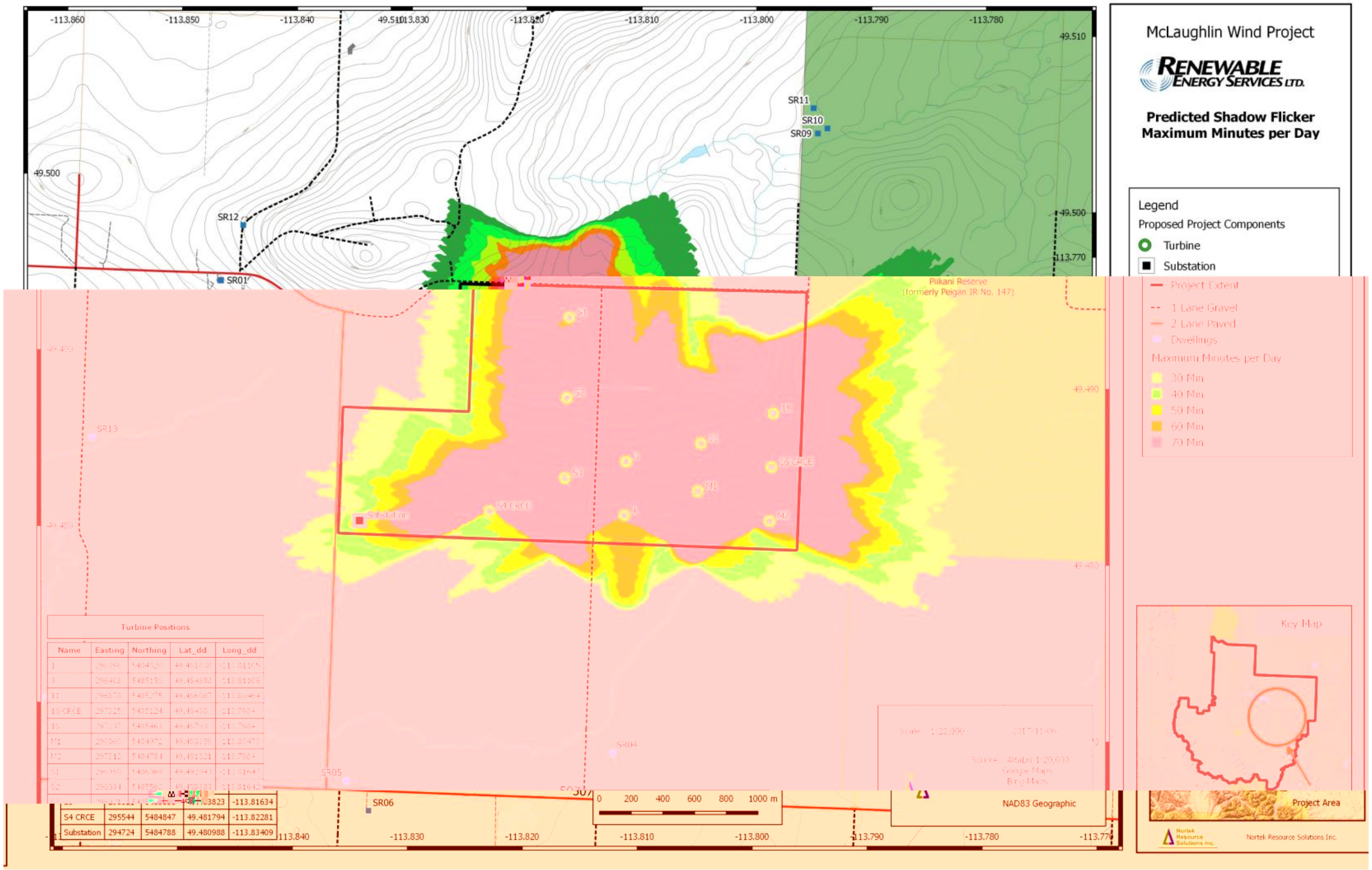
5.2 Software Utilized

[2] WindPRO, Version 3.1.617 Nov 2016, EMD International A/S, Denmark.

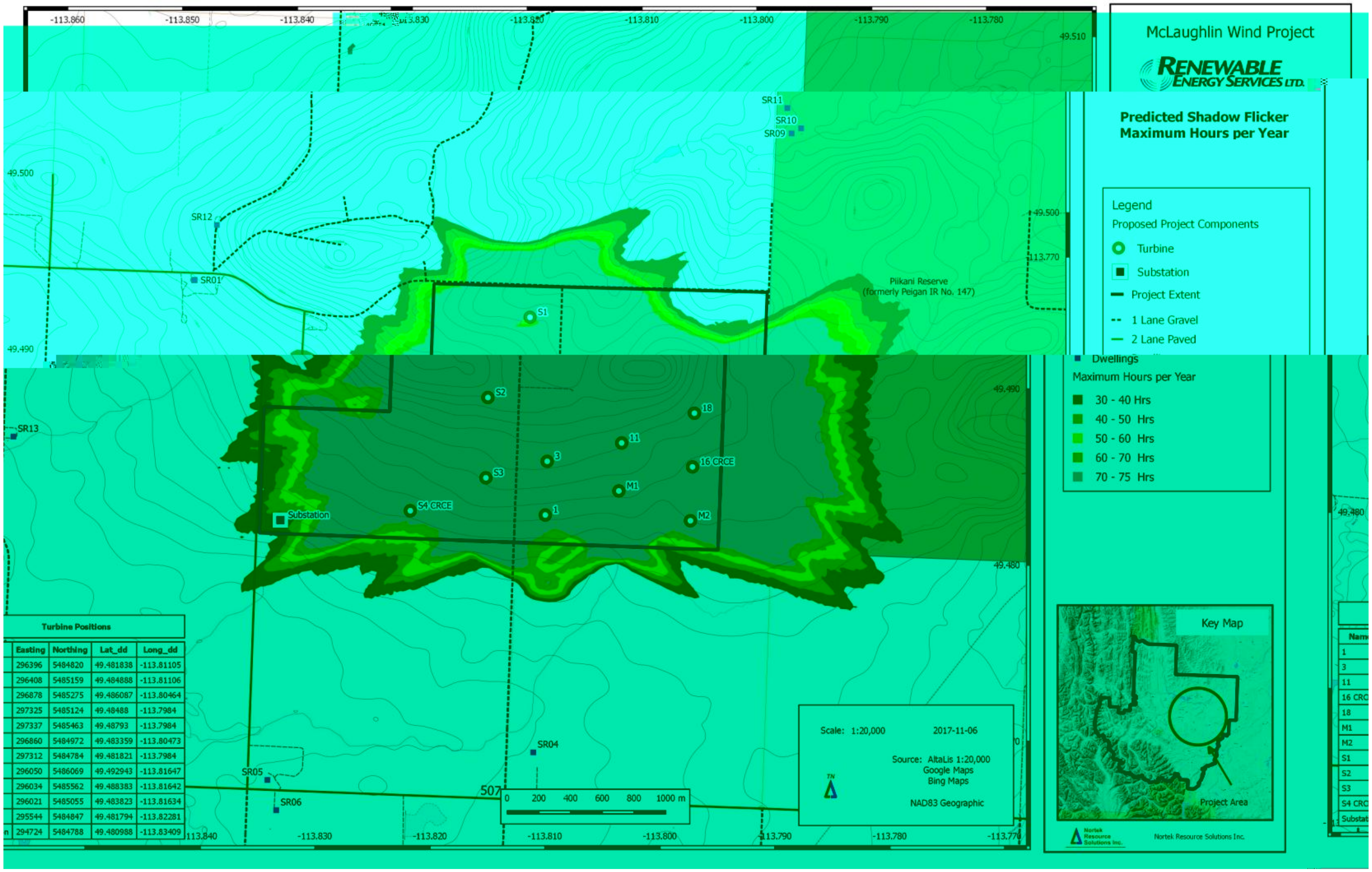
[3] Microsoft Office Excel 2010, Microsoft Corporation

[4] Microsoft Office Word 2010, Microsoft Corporation

Appendix A, Maximum Minutes per Day Map



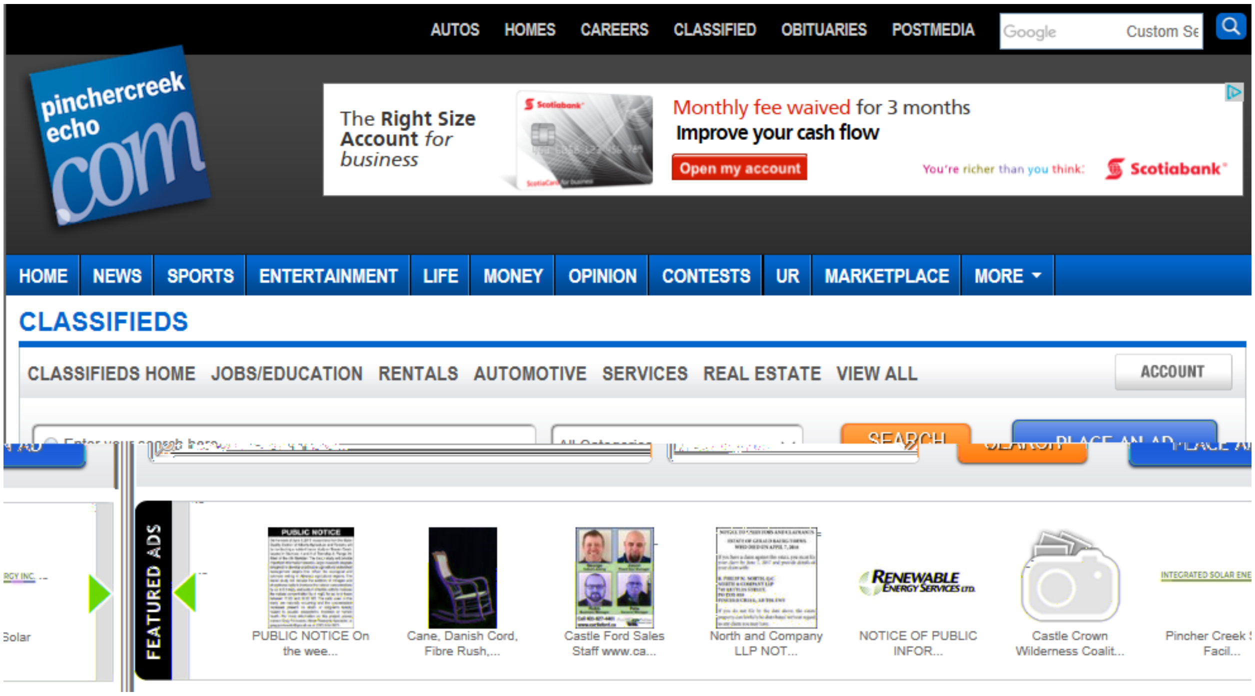
Appendix B, Maximum Hours per Year Map



Appendix C, Proposed Turbine Coordinates and Elevations

Turbine ID	UTM, NAD83, Zone 12		WGS84		Base Elev (m)
	Easting	Northing	Lat dd	Long dd	
1	296396	5484820	49.481838	-113.81105	1172
3	296408	5485159	49.484888	-113.81106	1186
11	296878	5485275	49.486087	-113.80464	1185
16 CRCE	297325	5485124	49.48488	-113.7984	1174
18	297337	5485463	49.48793	-113.7984	1184
M1	296860	5484972	49.483359	-113.80473	1176
M2	297312	5484784	49.481821	-113.7984	1170
S1	296050	5486069	49.492943	-113.81647	1202
S2	296034	5485562	49.488383	-113.81642	1205
S3	296021	5485055	49.483823	-113.81634	1181
S4 CRCE	295544	5484847	49.481794	-113.82281	1166
Substation	294724	5484788	49.480988	-113.83409	1154

Appendix J – 2017 Open House & Mail-out Information



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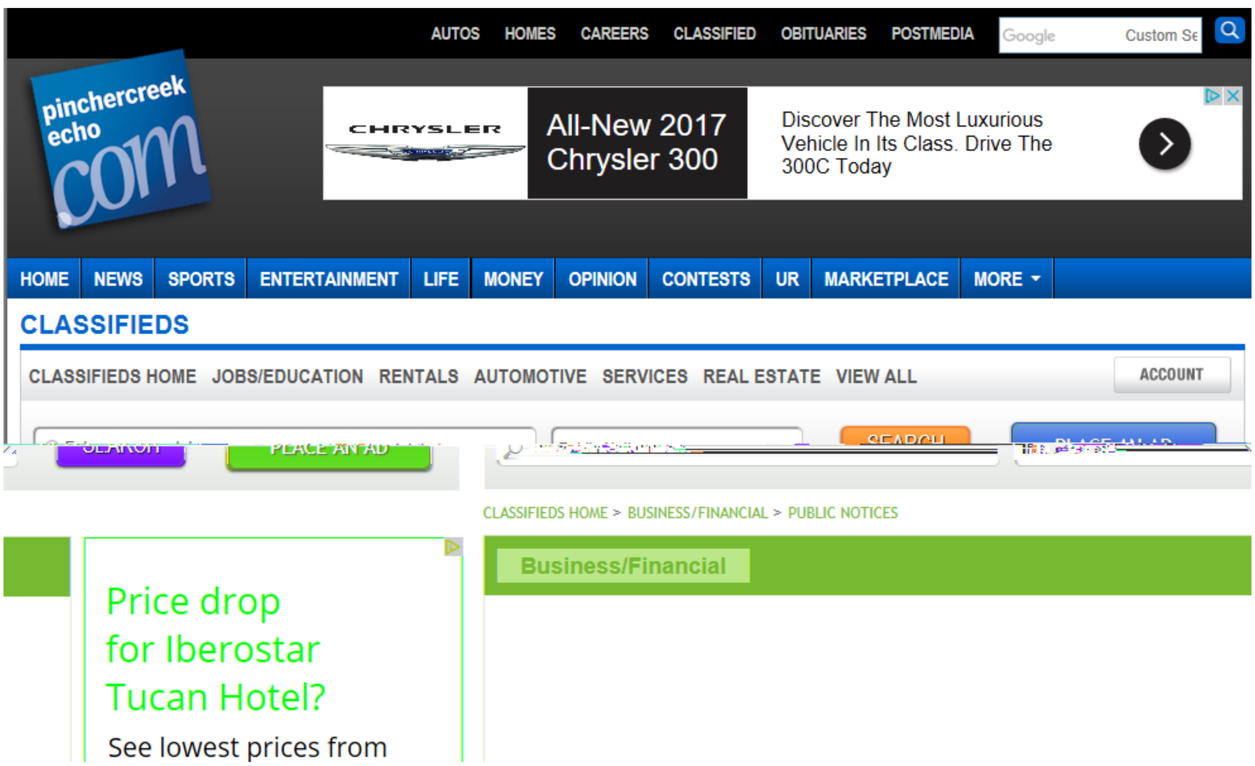
Castle Ford Sales Staff www.ca...

North and Company LLP NOT...

NOTICE OF PUBLIC INFOR...

Castle Crown Wilderness Coalit...

Pincher Creek Facil...



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Puzzle Answers

S	C	A	B				F	P	L			C	B	S
T	H	R	E	E			E	R	A		C	A	L	I
P	I	E	R	S			M	A	S		A	F	A	R
	C	A	G	E	D		M	I	A		S	E	B	E
					E	N	E	R	G	I	E	S		
F	O	R	E	C	L	O	S	I	N	G				
C	O	M	P	E	E	R		E	A	U				
C	H	A	I	R						A	I	D	E	S
				I	C	H		P	I	N	N	A	C	E
				S	O	U	T	H	D	A	K	O	T	A
		O	V	E	R	R	O	D	E					
A	L	A	E		A	L	B		S	A	B	E	R	
S	I	K	A		C	I	A			A	I	L	E	D
K	A	E	L		L	N	G			R	A	B	B	I
S	O	N			E	G	O				S	A	S	S

5	1	6	4	9	8	7	3	2
8	7	3	1	6	2	5	9	4
4	9	2	3	7	5	1	6	8
1	4	9	8	3	7	6	2	5
2	5	8	6	4	1	9	7	3
3	6	7	2	5	9	8	4	1
9	3	4	5	1	6	2	8	7
6	8	5	7	2	3	4	1	9
7	2	1	9	8	4	3	5	6

Public Notices Public Notices

INTEGRATED SOLAR ENERGY INC.

Pincher Creek Solar Facility

NOTICE OF A PUBLIC MEETING

Integrated Solar Energy Inc. (ISE), a private Alberta based renewable energy company, is proposing to develop the **Pincher Creek Solar Facility** (the Facility), a photovoltaic (PV) solar power facility to generate 30 MWac of clean energy within the Municipal District of Pincher Creek No.9. The Facility will consist of 105,000 solar panels and is located approximately 8km east of the Town of Pincher Creek.

The Facility site is on approximately 160 acres of privately owned land and is being proposed in accordance with the requirements of the Alberta Utility Commission and municipal, provincial and federal regulations.

This Open House is an opportunity for the local community to get timely information on the Facility and raise any concerns with ISE. The Facility layout and its location, visual simulations and the next steps to be followed will also be presented.

Date: **Thursday, May 11th, 2017**
Location: **Heritage Inn & Convention Center**
919 Waterton Avenue,

Public Notices Public Notices

NOTICE OF A PENDING CLASS ACTION AGAINST MCRAE HOLDINGS LTD.

A Class Action has been commenced against McRae Holdings Ltd. (**McRae**) on behalf of all Alberta farmers who have experienced poor crops as a result of improper recommendations or services provided by McRae.

OVERVIEW OF THE LAWSUIT

McRae provides soil analysis and fertilizer recommendations, supplies fertilizer and applies fertilizer for farmers across Alberta. In 2016, an Alberta farmer became concerned about poor growth of grass and alfalfa on its lands that had been fertilized by McRae. The farmer engaged independent agronomists who conducted field reviews along with soil and crop sampling. Their laboratory results led them to conclude that McRae did not supply and apply an appropriate blend or an appropriate amount of fertilizer to the farmer's lands. The blend of fertilizer supplied and applied by McRae did not contain enough nitrogen and did contain potassium and sulfur that were unnecessary.

A class action has been commenced against McRae to recover losses suffered by individual land owners in Alberta for poor crop yields caused by McRae's failure to recommend, supply, and apply the proper fertilizer (the **Class Action**).

ARE YOU A POTENTIAL CLASS MEMBER?

This Notice is directed to anyone who engaged McRae to conduct soil analysis and provide fertilizer recommendations or to supply and/or apply the appropriate fertilizer blend to their lands in 2015 or 2016. If you experienced poor crop quality as a result of services provided by McRae you are a potential class member and may be able to benefit from the Class Action. Please contact legal counsel for the Class Action to provide information about your situation and to learn about how you might benefit from the Class Action. You will not be asked to pay any legal fees, only to provide information.

CLASS COUNSEL

Legal Counsel for the Class Action is:

Burnet, Duckworth & Palmer LLP
2400, 525 - 8th Ave SW
Calgary, Alberta T2P 1G1
Telephone: (403) 260-0171
Fax: (403) 260-0332
Lawyers: Grant Vogeli, Q.C.
Email: lgv@bdplaw.com

Public Notices Public Notices

RENEWABLE ENERGY SERVICES LTD.

NOTICE OF PUBLIC INFORMATION SESSION

Pincher Creek, Alberta

McLaughlin Wind Farm Project

Renewable Energy Services Limited (RESL), a Canadian based renewable energy development company, proposes to develop up to 46.2 megawatts (MW) of wind energy within the Municipal District of Pincher Creek No.9. The proposed project will consist of 11 wind turbine generators (WTG) and is located approximately 8 km east of the Town of Pincher Creek.

RESL is organizing this Open House event to present background information on the project and to provide an update to the previous Open Houses held in November 2009 and March of 2012.

The Open House is an opportunity for the local community and stakeholders to get timely information on the project and to address any concerns with the project. We encourage the public to attend and to provide comments throughout the project development phase to ensure that concerns are adequately addressed. The public consultation process is an important element of the project development.

Your support and input is important to us!

Date: **Thursday, May 11th, 2017**
Location: **Heritage Inn & Convention Center**
919 Waterton Avenue,
Pincher Creek
Time: **2:00 pm to 5:00 pm**

For Additional Information, please contact:
Peter Archibald -
Engineering & Construction Manager
Phone: 902-631-4441 Direct
Email: parchibald@resl.ca

General Project Schedule—Next Steps

- February 2012: MDP Development Permit Application
- March - 2012: Stakeholder Consultation & Second Open House
- May 2012: Development Permit Approval & AUC Application
- May 2017: Stakeholder Consultation & Third Open House
- July - August 2017: AUC Approval for Power plant, Substation & Facility Applications
- September 2018: Begin Construction

Renewable Energy Services Limited (RESL) is committed to working with the public to gather feedback and respond to all stakeholder input and concerns. This information will form an integral part of the application RESL submits to the Alberta Utilities Commission (AUC). The AUC review process ensures that all stakeholders and the public have opportunity to participate in the review process. You can contact us directly by telephone, email or post. Please find our contact information below.

Contact Us:

For more information about Renewable Energy Services Limited and the McLaughlin Wind Farm project, please contact:

Henri Knapen, Operations & Project Manager

Renewable Energy Services Limited at 902-442-8195 or 902-476-0996

Email: henriknapen@resl.ca

Mailing Address: 30 Memory Lane, Lower Sackville NS, B4C 2J3

Peter Archibald, Engineering & Construction Manager

Renewable Energy Services Limited at 902-442-8196 or 902-471-7344.

Email: parchibald@resl.ca

Mailing Address: 30 Memory Lane, Lower Sackville NS, B4C 2J3

To learn more about the transmission development in support of the McLaughlin Wind Farm project, please contact:

AltaLink at 1-877-267-1453 (toll free)

Email: siting.consultation@altalink.ca

Website: www.altalink.ca/regionalprojects

To learn more about Alberta's electric system and the need for the project, please contact:

Alberta Electric System Operator (AESO) at 1-888-866-259

Email: stakerholder.relations@aeso.ca

To learn more about the AUC application and review process, please contact:

Alberta Utilities Commission (AUC) at 1-780-427-4403

Email: consumer-relations@auc.ab.ca

APRIL
2017

McLaughlin Wind Farm

PROJECT INFOR
e want to provide:

- Project Description
- Project Location & Area
- Project Layout
- Project Schedule
- Information how to Provide your Input and Feedback

Project Description

PROJECT LOCATION

The Project is located on privately owned agricultural land in the Municipal District of Pincher Creek (circled area in map above).

The land is currently used strictly for agricultural purposes and will continue to be used for this purpose in conjunction with the wind generating facility.

RESL proposes to develop the McLaughlin Wind Farm in the Municipal District of Pincher Creek No. 9 approximately 8 km east of the Town of Pincher Creek. The proposed wind project will consist of eleven (11), 4.2 megawatt (MW) class 2 wind turbines for a total rated capacity of 46.2 MW. Specifically, the wind turbine proposed will have a rotor diameter of approximately 126 meters and a hub height of 99 meters.

The wind turbine foundations are of typical gravity base design consisting of reinforced concrete with the foundation section of the tower embedded in the reinforced concrete. The foundations are approximately 22.8 meters in diameter and 3.32 meters deep and will be mostly underground. The topsoil will be backfilled to the foundation section and will allow the continuation of agricultural activities up to the base of the tower.

In addition to the turbines, the project will include associated infrastructure including access roads, a substation and underground cable trenches. Individual step up transformers will be placed inside the tower base sections and will raise the voltage from 400V (low voltage) to 34.5 kV (medium voltage) for the collector system. The turbines will be connected to an underground collector system leading to the substation. At the substation, a single step-up transformer will raise the voltage to 138 kV (high voltage) and be connected to the existing transmission line with a new transmission line (164AL) constructed by AltaLink.

The Project is planned to connect via 164AL to the existing AltaLink (TFO) 138 kV 164L transmission line between Goose Lake 103S and Drywood 415S, approximately 120 meters from the proposed McLaughlin Wind Farm.

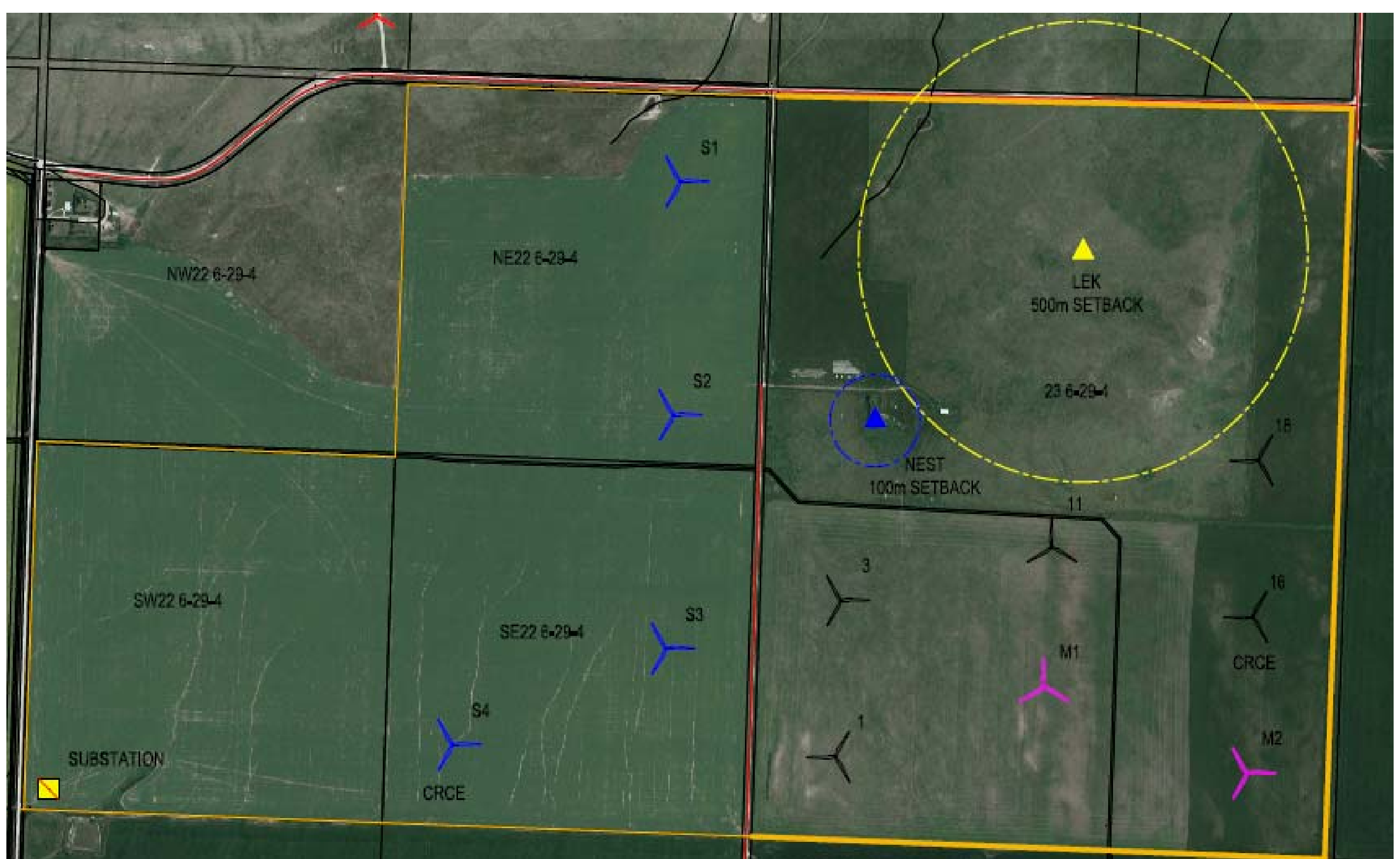
The Company—Who are we?

Renewable Energy Services Limited (RESL) is a Canadian based renewable energy development company headquartered in Sackville, Nova Scotia. Founded in 2000, RESL was an early entrant in the renewable energy business in Canada and has several wind developments in Nova Scotia operating under long-term power purchase agreements. RESL's focus is to explore and develop renewable projects throughout Canada and has a strong development portfolio with a number of projects in several provinces at various stages of engineering and development. RESL has a very strong in-house engineering and management team having extensive experience in the finance, energy and construction sectors. The team is responsible for the design, construction, operation and maintenance of proposed project.

The Project Area

The Project Area is located north of Highway 507, and is bordered immediately to the north by Township Road 64, to the west by Range Road 292, and to the east by the Pikanii Nation Indian Reserve 147. The Project Area is approximately 300 hectares in size and encompasses farm and ranch lands within the consolidate parcel S23 6-29, NE22 6-29-4, SE22 6-29-4 and SW22 6-29-4. The Project has a rolling topography and streams that are relatively small, often only seasonal. There are no large drains in which water remains year round. All Project components will be placed in open agricultural fields. Most of these fields are planted each year with crops such as hay. These agricultural activities will continue to be practiced on these lands in conjunction with the Project facilities. It should be noted that although the general Project Area is 300 hectares, the final footprint of the project will only occupy a fraction of this area.

The Project Layout



The Project Layout has been Optimized to Consider the Following Factors:

- Distance from Dwellings
- Distance from Municipal Roads
- Noise Levels
- Shadow & Flicker
- Visual Impact
- Archaeological and Cultural Impact
- Environmental Impact

Environmental & Wildlife Studies

Renewable Energy Serviced Limited has undertaken a number of environmental and wildlife studies in support of the Environmental Impact Assessment (EIA) for the McLaughlin Wind farm that was completed in January of 2010. Due to changes in the project, these studies were reviewed and updated in 2011 and 2016. The environmental and wildlife studies undertaken include:

- A comprehensive bird and bat studies
- A review of endangered and protected species at risk
- A review of flora and fauna
- Wildlife studies
- A Noise Impact Assessment (NIA)
- A Shadow Flicker Assessment
- A Visual Impact Assessment
- An Historical Resource Impact Assessment
- A Telecommunication System Impact Assessment
- A setback analysis

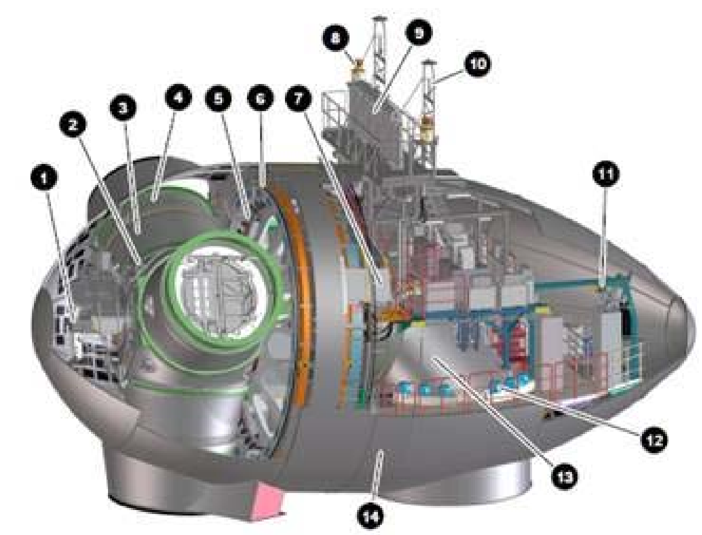
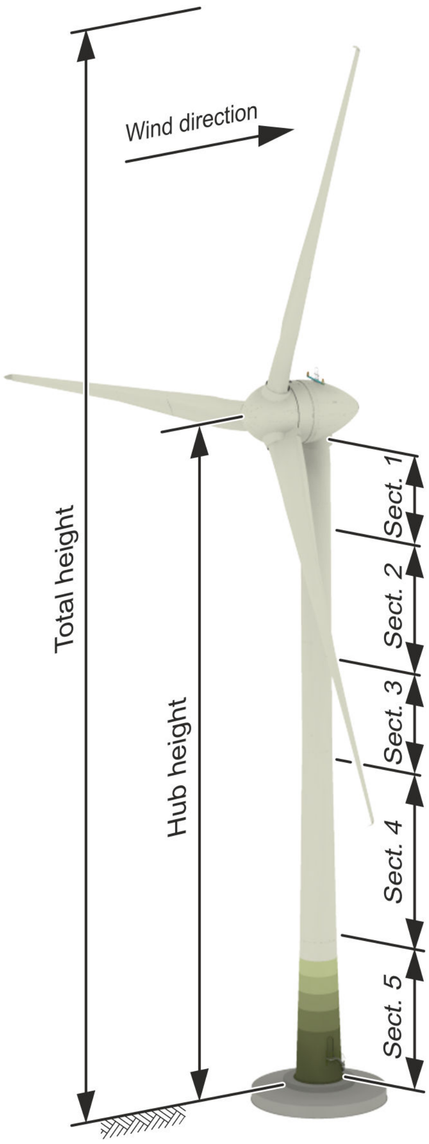


Fig. 2: View of E-126 EP4 nacelle

1	Slip ring unit	8	Beacon system (optional)
2	Hub	9	Generator stator water cooling system chiller
3	Hub adapter	10	Wind measuring unit with lightning rods
4	Blade adapter	11	Winch
5	Generator rotor	12	Yaw drives
6	Generator stator	13	Main carrier
7	Stator support	14	Nacelle casing

New and Better Technology

The proposed wind project will consist of eleven (11), 4.2 megawatt (MW) class 2 wind turbines for a total rated capacity of 46.2 MW. Specifically, the wind turbine proposed will have a rotor diameter of approximately 126 meters and a hub height of 99 meters. A cross-section illustrating the major components of the type of turbine proposed is shown .



Tab. 1: Heights, wind zones, type

Parameter	Value
Total height above ground level	162.65 m
Hub height above ground level	99.15 m
Hub height above foundation top edge	99.00 m
Tower height above foundation top edge	95.70 m
Wind zone (DIBt 2012)	WZ 4 GK I, GK II
WTC (IEC 61400-1:2010)	II A
Type	Steel tower
Number of steel sections	5

WZ: Windzone (wind zone)
GK: Geländekategorie (terrain category)
WTC: Wind Turbine Class

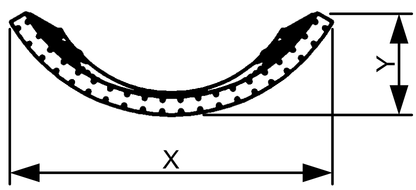
Tab. 2: Dimensions and weights

	Length	Diameter		Mass
	l in m	D_{top} in m	D_{bottom} in m	*m* in t
Steel section 1	10.88	4.00/ 4.25[1]	4.28	42
Steel section 2	20.44	4.28	4.29	64
Steel section 3	15.96	4.29	4.30	62
Steel section 4	28.00	4.30	5.20	163
Steel section 5	20.44	5.20	6.50/ 6.79[1]	146
Foundation basket	2.10	6.88[2]	6.86[1]	15
Total tower mass				477

The length of steel section 5 includes the load ring.

[1] Outer flange diameter

[2] Outer load ring diameter



Tab. 3: Maximum values of divided steel sections

	Division	Dimensions		Mass
		X in m	*Y* in m	*m* in t
Steel section 4	3/3	4.50	1.43	51
Steel section 5	3/3	5.88	1.86	47

MacLaughlin Wind Farm
COMMENT FORM

1. In general, was this Open House helpful to understand the Environmental Assessment for the proposed Project?

   Yes □ Partly □ No □

1.1 Please rate the information provided at this Open House – the quality was:

   Excellent □ Very Good □ Good □ Adequate □ Poor □

1.2 Was the information adequate for your level of interest?

   More than adequate □ Adequate □ Less than adequate □

1.3 Is there a particular subject you would like to see more information on? If so, what is that subject?

   ____

2. If you asked questions about the Project to the staff present at the Open House, did you get satisfying responses? Please rate the supplementary information they provided.

   Excellent □ Very Good □ Good □ Adequate □ Poor □ Didn't speak to anyone □

3. After receiving this information, how do you feel about the Project?

   Strong Support □ Modestly Support □ Neutral □ Modestly Oppose □ Strongly Oppose □

3.1. Can you explain why you hold this position?

   ____

   ____

   ____

   ____

4. In your opinion, what are the most positive aspects of the Project?

____

5. Do you have any comments or concerns about the Project or about specific potential impacts? If so, could you please indicate what they are?

6. In your opinion, what could be done to improve the project and/or better mitigate any potential impacts?

7. Do you have any other questions you would like answered concerning the Project and the Environmental Assessment? If it is the case, please provide your contact information and one of our team will be in touch with you as soon as possible.

Questions:

Contact:

Name: ______________________________

Telephone # or Address: ______________________________

E-mail: ______________________________

Thank you for attending
this Open House for the MacLaughlin Wind Farm

NOTICE OF PUBLIC INFORMATION SESSION

Pincher Creek, Alberta

McLaughlin Wind Farm Project

Renewable Energy Services Limited (RESL), a Canadian based renewable energy development company, proposes to develop up to 46.2 megawatts (MW) of wind energy within the Municipal District of Pincher Creek No.9. The proposed project will consist of 11 wind turbine generators (WTG) and is located approximately 8 km east of the Town of Pincher Creek.

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Your support and input is important to us!

Date: Thursday, May 11th, 2017
Location: Heritage Inn & Convention Center
919 Waterton Avenue, Pincher Creek
Time: 2:00 pm to 5:00 pm

RENEWABLE ENERGY SERVICES LTD.

McLaughlin Wind Farm
Sign-In Sheet (Open House 11-05-2017)

NAME	ADDRESS
Joe Dion	
MARTY JURGENS	
Sharon Robe	
Scott Osborn	
Lee Hollina	
RITELIN	
G. Marc	
Ron Ha	
MarieZ	
Fred M	

Appendix K – Transport Canada Clearance Letter

Transport Canada / Transports Canada

Transport Canada number 2017-641

Applicant number

AERONAUTICAL ASSESSMENT FORM FOR OBSTACLE EVALUATION

SECTION 1

Owner's Name	Contact Person
Renewable Energy Services Limited	Peter Archibald

Address: 30 Memory Lane

City	Province	Postal Code
Lower Sackville	Nova Scotia	B4C 2J3

Telephone number (999-999-9999)	Fax number (999-999-9999)	Email Address
902-631-4441	902-864-2704	parchibald@resl.ca

SECTION 2

Applicant's Name	Contact Person
Renewable Energy Services Limited	Peter Archibald

Address: 30 Memory Lane

City	Province	Postal Code
Lower Sackville	Nova Scotia	B4C 2J3

Telephone number (999-999-9999)	Fax number (999-999-9999)	Email Address
902-631-4441	902-864-2704	parchibald@resl.ca

SECTION 3

Description of Proposal (or as attached)

The proposed wind turbine(s) consist of a tubular steel tower, nacelle and reinforced fiberglass blades. The hub height is 99 meters and rotor diameter is 127 meters. The overall height is with an overall height of the turbine is 162 meters.

Be advised, all the turbines will be equipped with obstruction lighting and marking as per Standard 621.

Remote Monitoring System - warning or fault messages from the beacon lights on the turbines equipped with lighting are automatically forwarded via the wind farm SCADA system monitored 24/7 by ENERCON Service. Messages can also be sent via SMS, fax or e-mail. Items that can be monitored are: failure of power supply, failure of light fixtures, malfunction of twilight switch, battery charger and battery faults.

SECTION 4

Nearest Community	Province
Pincher Creek	Alberta

SECTION 5	SECTION 6
Nearest Aerodrome	Have you contacted the aerodrome?
Airfield near Pincher / Calgary International	◯ Yes ✓ No

SECTION 7	SECTION 8
Notice of	Duration
✓ New Construction ◯ Change to existing structure	✓ Permanent ◯ Temporary

SECTION 9

Proposed Construction Date Beginning (yyyy-mm-dd)

2018-06-01

SECTION 10

Temporary Structure

From date (yyyy-mm-dd) ____________ To date (yyyy-mm-dd) ____________

Canada

Transport Canada number
2017-641

SECTION 11

Geographic Coordinates ☑ NAD83 ☐ NAD27 ☐ WGS84 N Latitude deg ____ min ____ sec ____

For multiple structures in a grouping, submit geographical coordinates on a seperate spreadsheet (e.g. windfarms, transmission lines) W Longitude deg ____ min ____ sec ____

SECTION 12

Marking and Lighting Proposed (refer to Standard 621)

- ☐ Red lights and paint
- ☐ Red and M.I. white lights
- ☐ White M.I. lights
- ☐ Red and H.I. white lights
- ☐ White H.I. lights
- ☐ No painting
- ☐ No lighting
- ☐ Paint marking only
- ☑ Other (provide description): CL-864 Medium red flashing (20-40 fpm)

SECTION 13

Monitoring to Standard 621, article 4.7

[redacted]

[redacted]

[redacted]

X X

[redacted]

As per applicant all turbines in the wind farm will be lighted and marked as per the Standard 621.

[redacted]

Marilyn King 2017-09-19

[redacted]

Appendix L – NAV Canada Clearance Letter

Construction Start Notification

File Information

NC File No	TC File No	Proponent File No
17-1654		McLaughlin Wind Farm

To: **NAV CANADA, Land Use**
1601 Tom Roberts Ave.
Ottawa, ON K1V 1E5
E-mail: landuse@navcanada.ca
Fax: 613-248-4094

From: Mr. Peter Archibald
Renewable Energy Services Limited
30 Memory Lane
Sackville, NS
B4C 2J3

Site Information:

Nearest town:	Pincher Creek, AB	
Latitude (N)	See attached spreadsheet	
Longitude (W)	See attached spreadsheet	
Ground (above sea level)	See attached spreadsheet	**ft**
Structure Height (above ground level)	See attached spreadsheet	**ft**
Total Height (above sea level)	See attached spreadsheet	**ft**

Construction Timeline

In the interest of aviation safety, NAV CANADA must be notified at least 10 days in advance of the start of construction. Please enter the construction start date (and end date if required) in the space provided below along with any lighting and marking information (as required by Transport Canada).

Construction start date:
(permanent structures)

Construction dates/times: **From:** **To:**
(temporary structures or cranes)

Daily Usage Times – Indicate date/times for which the crane will be in operation up to the maximum height

Structure Lighting and/or Marking

All objects, regardless of their height, that have been assessed by Transport Canada as constituting a hazard to air navigation require marking and/or lighting in accordance with the CARs (Canadian Aviation Regulations) and should be marked and/or lighted to meet the standards specified in CAR 621.

Structure will have temporary lighting during construction: **Yes** ☐ **No** ☐

If no, please provide anticipated date for permanent lighting system to be operational:

Structure will have permanent lighting upon completion: **Yes** ☐ **No** ☐

Structure will be marked upon completion: **Yes** ☐ **No** ☐

I hereby certify that the location, height/elevation, construction dates, as well as lighting and marking information contained herein to be true and accurate.

Name	**Signature**
Title	**Date**

OFFICE USE ONLY:

AIS Office: Edmonton FIR **Advise AIS:** Yes

NOTAM: Yes

August 15, 2017

August 15, 2017

Your file
McLaughlin Wind Farm
Our file
17-1654

Mr. Peter Archibald
Renewable Energy Services Limited
30 Memory Lane
Sackville, NS
B4C 2J3

RE: Wind Farm: 11 Wind Turbines - Pincher Creek, AB
(See attached spreadsheet)

Mr. Archibald,

NAV CANADA has evaluated the captioned proposal and has no objection to the project as submitted provided that the following condition is met:

- In the interest of aviation safety, it is incumbent on NAV CANADA to maintain up-to-date aeronautical publications and issue NOTAM as required. To assist us in that end, we ask that you notify us at least 10 business days prior to the start of construction. This notification requirement can be satisfactorily met by returning a completed, signed copy of the attached form by e-mail at landuse@navcanada.ca or fax at 613-248-4094.

Please note that our evaluation has found the following impact on the instrument procedures at Pincher Creek airport (CZPC):

- NDB Runway 25 Approach: Raise Minimum Descent Altitude (MDA) to 4840 feet from 4760 feet (impact by multiple turbines)

The nature and magnitude of electronic interference to NAV CANADA ground-based navigation aids, including RADAR, due to wind turbines depends on the location, configuration, number, and size of turbines; all turbines must be considered together for analysis. The interference of wind turbines to certain navigation aids is cumulative and while initial turbines may be approved, continued development may not always be possible.

In the event that you should decide not to proceed with this project or if the structure is dismantled, please advise us accordingly so that we may formally close the file.

If you have any questions, contact the Land Use Department by telephone at 1-866-577-0247 or e-mail at landuse@navcanada.ca.

NAV CANADA's land use evaluation is valid for a period of 12 months. Our assessment is limited to the impact of the proposed physical structure on the air navigation system and installations; it neither constitutes nor replaces any approvals or permits required by Transport Canada, Industry Canada, other Federal Government departments, Provincial or Municipal land use authorities or any other agency from which approval is required. Industry Canada addresses any spectrum management issues that may arise from your proposal and consults with NAV CANADA engineering as deemed necessary.

Yours truly,

Gheorghe Adamache | NAV CANADA
Manager - AIM IFP Service Delivery

cc NOPR - Northern and Prairie Region, Transport Canada
Pincher Creek Airport - CZPC

Appendix M – HRIA Submission / Archaeological Site Map

Historic Resources Application

Application Number: 012649580
Revision Number: 01
Submitted Date: Oct 23, 2017
Status: In Screening
HRM Project Number: 4940 - - *(if known)*

***Project Category:** Transmission Lines and Electrical Power Generation (4940)

Application Purpose:

***Purpose:**

- [x] Requesting HRA Approval / Requirements
- [ ] Amendment to Project Submitted Previously
- [ ] Notification of Change within Previously Approved Footprint
- [ ] Update to Project Name and/or Ownership
- [ ] Requesting Response to Baseline Study
- [ ] Submission of Historic Resource Avoidance Plan
- [ ] Regulatory Authority Seeking Direction
- [ ] Other

Other Application Purpose:

***Lands Affected:**

- [x] All New Lands
- [ ] Additional Lands
- [ ] No New Lands

Application Purpose Comments:

Development Information

***Project Type:**

- [x] **Transmission Line**
- [ ] **Distribution Line**
- [ ] **Power Plant**
- [x] **Substation (new)**
- [ ] **Substation (modification to existing)**
- [ ] **Telecommunications Tower**
- [ ] **Transmission Upgrades**
- [ ] **Decommissioning**
- [ ] **Other**

Other Project Type Description:

GIS Shapefiles are attached (yes/no) no
Approximate Project Area (ha) 1.0
Maximum depth of disturbance (m) 1 to 2 m
Aboriginal Consultation Office FNC Number
Other Reference Number

***Project Identifier:** McLaughlin Wind Project
Project Name

***Anticipated commencement of land development:** 3rd Quarter 2018
***Anticipated termination of land development:** 2nd Quarter 2019

Key Contact

Title:
First Name: Neil
Initials:
Last Name: Mirau
Affiliation: Arrow Archaeology Limited
Email: neil@arrowarchaeology.com
Work Number: (403) 345-2812
Cell Number: (403) 330-8376
Fax Number: (403) 345-2817
Applicant Ref. #:

***Address:** 2315 - 20 Street
***City:** Coaldale,
***Province/State:** AB ***Country:** Canada
***Postal Code/Zip:** T1M 1G5

Proponent

- [ ] **The Proponent is the same as the Key Contact.**

Please complete the details below, if the Proponent is not the same as the Key Contact.

Company Name:	Renewable Energy Services Ltd.			**Address:**	30 Memory Lane
Contact Title:					
Contact First Name:	Henri	**Initials:**		**City:**	Lower Sackville
Contact Last Name:	Knappen			**Province/State:**	NS **Country:** Canada
Contact Position:				**Postal Code/Zip:**	B4C 2J3
Phone Number:	(902) 442-8195				
Fax Number:	( ) -				
Email:	henriknappen@resl.ca				
CC Email:	Robert@mcallumenvironmental.com				

*Proposed Development Area

MER	RGE	TWP	SEC	LSD List
4	29	6	21	1
4	29	6	22	4

Listed Lands Affected

MER	RGE	TWP	SEC	LSD	HRV	Category

*Attachments

Illustrative material is required prior to submittal of the application. If available, also supply Justification and Action Matrix documents.

	Upload/Created Date	Type	Description
View	Oct 23, 2017	Illustrative Material	project map showing recorded historical resources and substation location
View	Oct 23, 2017	Illustrative Material	substation location map

Emails

Description	Sent	From

Additional Information

Comments:

This is an application for a substation, transmission line connection and underground fibre optic cable connector. Note the transmission line and fibre optic cable are limited to a short distance from the substation to the existing transmission line, ca. 100 m west of the western boundary of the substation. A HRIA for a portion of this windfarm located in native grassland was completed in 2011 under permit 2011-259. That report included a proposed substation location, however this application is for a substation in another section. There are two quarter sections listed in this application to include a small area of transmission line connection and fibre optic cable in SE 21-6-29 W4, but the substation itself is entirely located in SW 22-6-29 W4. Note although there is no HRV designation for either area and the project footprint is entirely in disturbed ditch, a developed road allowance and a cultivated field. A historical resources application for approval is required under AUC rules and therefore the applicant would like to receive this outcome of this review as soon as possible. Thanks for your help.

- ☐ **An Archaeological Permit application has been submitted and studies are pending - requesting HRA Requirements.**
- ☐ **An Archaeological Permit Report is being submitted in conjunction with this application.**

  If so, provide the Permit Number:

Historic Resources Application

Application Number: 012675233
Revision Number: 01
Submitted Date: Nov 3, 2017
Status: In Screening
HRM Project Number: 4941 - - *(if known)*

***Project Category:** Alternative Power (4941)

Application Purpose:

***Purpose:**

- [x] Requesting HRA Approval / Requirements
- [x] Amendment to Project Submitted Previously
- [ ] Notification of Change within Previously Approved Footprint
- [ ] Update to Project Name and/or Ownership
- [ ] Requesting Response to Baseline Study
- [ ] Submission of Historic Resource Avoidance Plan
- [ ] Regulatory Authority Seeking Direction
- [ ] Other

Other Application Purpose:

***Lands Affected:**

- [x] All New Lands
- [x] Additional Lands
- [ ] No New Lands

Application Purpose Comments:

Development Information

***Project Type:**

- [x] **Wind Power**
- [ ] **Solar Power**
- [ ] **Other**

Other Project Type Description:

GIS Shapefiles are attached (yes/no) yes
Approximate Project Area (ha)
Maximum depth of disturbance (m) 2+
Aboriginal Consultation Office FNC Number
Other Reference Number

***Project Identifier:** McLaughlin Wind Project
Project Name

***Anticipated commencement of land development:** 3rd Quarter 2018
***Anticipated termination of land development:** 2nd Quarter 2019

Key Contact

Title:
First Name: Neil
Initials:
Last Name: Mirau
Affiliation: Arrow Archaeology Limited
Email: neil@ar[illegible]aeology.com
Work Number: (403) 345-2812
Cell Number: (403) 330-8376
Fax Number: (403) 345-2817
Applicant Ref. #:

***Address:** 2315 - 20 Street
***City:** Coaldale,
***Province/State:** AB ***Country:** Canada
***Postal Code/Zip:** T1M 1G5

Proponent

- [ ] **The Proponent is the same as the Key Contact.**

Please complete the details below, if the Proponent is not the same as the Key Contact.

Company Name: Renewable Energy Services Ltd.
Address: 30 Memory Lane
Contact Title:

Contact First Name:	Henri	**Initials:**	
Contact Last Name:	Knappen		
Contact Position:			
Phone Number:	(902) 442-8195		
Fax Number:	( ) -		
Email:	henriknappen@resl.ca		
CC Email:	Robert@mcallumenvironmental.com		

City:	Lower Sackville
Province/State:	NS **Country:** Canada
Postal Code/Zip:	B4C 2J3

*Proposed Development Area

MER	RGE	TWP	SEC	LSD List
4	29	6	22	1,2,3,4,8,9,16
4	29	6	23	1-9

Listed Lands Affected

MER	RGE	TWP	SEC	LSD	HRV	Category
4	29	6	22	8	5	a
4	29	6	22	9	5	a
4	29	6	22	16	5	a
4	29	6	23	5	5	a
4	29	6	23	6	5	a
4	29	6	23	7	5	a
4	29	6	23	8	5	a
4	29	6	23	9	5	a

*Attachments

Illustrative material is required prior to submittal of the application. If available, also supply Justification and Action Matrix documents.

	Upload/Created Date	Type	Description
View	Nov 3, 2017	GIS Data File	shape fle
View	Nov 3, 2017	Illustrative Material	map of revised layout
View	Nov 3, 2017	Illustrative Material	structure locations map

Emails

Description	Sent	From

Additional Information

Comments:

This is an application for a revised layout to this project that was subject to an application for Historical Resources Act clearance in 2011. A HRIA (2011-259) was conducted for the then known area of the project (N 1/2 23-6-29 W4). We do not have the original HRM reference number. This application is for a revised layout that includes additional lands as listed here. A substation related to this project and associated transmission/connector lines was recently applied for under application category transmission and generation category and this application is under the renewables category, but the applications are parts of the same project. The 2011-259 recorded an archaeological sites in the NE 1/4 of 23-6-29 W4, but this site will be avoided and most of this revised project footprint is located in cultivation.

- [ ] **An Archaeological Permit application has been submitted and studies are pending - requesting HRA Requirements.**
- [ ] **An Archaeological Permit Report is being submitted in conjunction with this application.**

  If so, provide the Permit Number:
- [ ] **A Palaeontological Permit application has been submitted and studies are pending - requesting HRA Requirements.**
- [ ] **A Palaeontological Permit Report is being submitted in conjunction with this application.**

Appendix N – Environment Canada

Peter Archibald

From: Peter Archibald <parchibald@resl.ca>
Sent: November 3, 2017 1:22 PM
To: 'Henri Knapen'
Cc: 'larry leblanc'
Subject: FW: McLaughlin Wind Farm - Pincher Creek, AB

From: Peter Archibald [mailto:parchibald@resl.ca]
Sent: October 26, 2017 3:31 PM
To: Radars Météo / Weather Radars (EC)
Subject: McLaughlin Wind Farm - Pincher Creek, AB

Peter Archibald
Engineering & Construction Manager
(902) 631-4441 direct
(902) 442-8196 office
(902) 864-2704 fax

RENEWABLE ENERGY SERVICES LTD.

30 Memory Lane,
Lower Sackville, NS B4C 2J3

Appendix O – Alberta Transportation Clearance Letter

TRANS Development Lethbridge [mailto:trans.developmentlethbridge@gov.ab.ca]
January 18, 2018 6:26 PM
Peter Archibald (parchibald@resl.ca) <parchibald@resl.ca>
John Thomas <John.Thomas@gov.ab.ca>; Darren S Davis <Darren.S.Davis@gov.ab.ca>; Rick Lemire <Rick.Lemire@gov.ab.ca>; Jack Houtekamer <Jack.Houtekamer@gov.ab.ca>; Roland Milligan <AdminDirDev@mdpinchercreek.ab.ca>; tcryderman@mdpinchercreek.ab.ca
FW: McLaughlin Wind Farm

Good Afternoon Peter,

A permit from Alberta Transportation ________________ for the proposed development.
The proposed development is well removed from the provincial highway (in this case Highway 507) and is located outside the control lines and access to the highway is via the local road system.
Strictly from Alberta Transportation's point of view would not have any appreciable impact on the provincial highway network.
Thank you for the referral and opportunity to comment.

Leah Olsen
Development/Planning Technologist
Delivery Services   Southern Region
Alberta Transportation
Government of Alberta

Tel 403-388-3105
Cell 403-308-2601
Fax 403-382-4057
leah.olsen@gov.ab.ca

511 Alberta - Alberta's Official Road Reports
Go to 511.alberta.ca and follow @511Alberta

Alberta Government

From: Peter Archibald [mailto:parchibald@resl.ca]
Sent: Tuesday, January 16, 2018 8:03 AM
To: TRANS Development Lethbridge
Cc: Bonny.Chabay@gov.ab.ca
Subject: McLaughlin Wind Farm

Good Morning,

I am writing with respect to our proposed wind farm near Pincher Creek. We communicated with the Department some time ago concerning the Project we were undertaking and at that time were given email confirmation that our Project was outside the 800-meter referral distance and that a permit was not required.

After several delays to the project, we are now back on track with our development. However, due to changes with required to satisfy the AEP, we have increased project area and decreased the number of turbines as shown on the attached map. As such, due to these changes, I am seeking to verify if Alberta Transportation requires any additional information or if there have been any changes to this requirement.

Also, I am seeking confirmation that our proposed project would not have any appreciable impact on the provincial highway system. Please find attached the updated project information to include the Project overview map with scale and coordinates and elevations for each wind turbine. The closest wind turbine, labelled S4 CRCE is 951 meters from the 293.

Thank you in advance for your assistance.

Kind Regards,

Peter.

Peter Archibald
Engineering & Construction Manager
(902) 631-4441 direct
(902) 442-8196 office

RENEWABLE ENERGY SERVICES LTD.

Appendix P – Alberta Environment and Parks (AEP) Referral Report

In summary[1]:

AEP-WM has determined the unmitigated mortality risk of the McLaughlin Wind Power Project is high based on the results of the pre-assessment bird and bat wildlife surveys. However with the commitment by the company for post construction monitoring and implementation of appropriate post-construction mitigation this risk has been significantly reduced to Moderate.

AEP-WM has determined that the risk to wildlife habitat, breeding and key features for Species At Risk is Low, based on the projects overall location and siting coupled with the company's commitment to avoid native grassland during construction and avoidance of key wildlife features.

Alberta Environment and Parks - Wildlife Management has determined the McLaughlin Wind Power Project as proposed, based on the wildlife assessment data provided by the proponent and mitigation commitments, the project poses a Moderate risk to wildlife and wildlife habitat.

AEP-Wildlife Management District: Crowsnest Pass District, South Saskatchewan Region

Signature: Maria Didkowsky Date: March 28th, 2017

Printed Name: Maria Didkowsky, Wildlife Biologist

B. Project Details

Project Name: McLaughlin Wind Power Project

Company name: Renewable Energy Services Ltd.

AUC Proceeding #: 1976

Location of Project: Section: 22, 23 TWP: 6 RGE: 29 Meridian: 4

Project Details: Area: 2.12 km2 Turbines #: 11 Maximum Height: 158.7 m

Maximum Blade Length: 59.7 m

---

[1] The review undertaken by this office was restricted to reviewing the information provided in the Environmental Evaluation report completed for McLaughlin Wind Power Project and applying the wildlife standards and best management practices for the construction and operation of the wind facility. This office undertook no independent onsite assessment. This referral report is not intended to relieve any party from any liability if there are detrimental effects to wildlife or wildlife habitat during construction or operation that were not identified and mitigated for in the Environmental Evaluation report submitted.

Turbine Type: Enercon E126 EP4 with a hub height of 99m and rotor diameter of 127 meters.

Megawatts: 46

Table 1 Turbine Locations: Coordinates and Elevation

Turbine Identifier	Easting	Northing	Lat.	Long.	Elevation (m)
1	296396	5484820	49.481838° N	113.811050° W	1167
3	296408	5485159	49.484888° N	113.811059° W	1182
11	296878	5485275	49.486087° N	113.804638° W	1182
16 CRCE	297325	5485124	49.484880° N	113.798396° W	1175
18	297337	5485463	49.487930° N	113.798404° W	1180
M1	296860	5484972	49.483359° N	113.804730° W	1172
M2	297312	5484784	49.481821° N	113.798401° W	1169
S1	296050	5486069	49.492943° N	113.816465° W	1204
S2	296034	5485562	49.488383° N	113.816424° W	1197
S3	296021	5485055	49.483823° N	113.816342° W	1177
S4 CRCE	295544	5484847	49.481794° N	113.822812° W	1165
SUBSTATION	294724	5484788	49.480988° N	113.834088° W	1165

C. *Wildlife Issues Related to Wind Energy*:

Habitat Loss, Disturbance and Avoidance:

Wind Energy facilities may result in the direct loss of habitat for wildlife. Negative effects may include, but are not limited to; habitat fragmentation, site abandonment, loss of movement corridors, and loss of foraging/breeding/brood rearing habitat. AEP – WM identified the potential negative effects of siting wind energy facilities in areas of native grasslands on wildlife, in particular on species at risk. AEP – WM recommends siting the wind energy facility and associated infrastructure on cultivated or other previously disturbed lands to significantly reduce most of the negative effects on wildlife habitat.

Direct Wildlife Impacts:

AEP – WM identified concerns over the potential of negative effects on wildlife and their associated habitat caused by wind turbines or related infrastructure including access roads, and collection lines. This may include direct and indirect negative effects on the house, nest or den of a prescribed wildlife species. AEP-WM recommends that predevelopment wildlife surveys, as per the *Wildlife Guidelines for Alberta Wind Energy Projects,* be conducted prior to applying for the McLaughlin Wind Power Project to the Alberta Utilities Commission. If a species of management concern is identified, AEP – WM recommends that areas immediately adjacent to key wildlife habitats be avoided by appropriate setbacks and timing restrictions as outlined in the:-
Recommended Land Use Guidelines for Protection of Selected Wildlife Species and Habitat within Grassland and Parkland Natural Regions of Alberta

Wildlife Mortality Concerns

Bird and bat mortalities have been documented at a number of wind energy facilities in North America. There is an increased risk of mortality for birds and bats during migration. Wind energy projects that are built within migration routes present a large hazard and an increased mortality risk. AEP-WM recommends siting wind energy facilities away from migration routes for birds and bats and away from the nest, house, or den of specific species at risk. AEP-WM requires that 3 years of post-construction monitoring be completed at all wind energy facilities as per the *Wildlife Directives for Alberta Wind Projects (January 2017).* This monitoring is to determine risk of the facility for wildlife and if mortality rates are determined to be high then post-construction mitigation methods must be implemented.

D. Industry Submission of Wildlife Monitoring Program (submission to *Fisheries and Wildlife Management Information system*-FWMIS)

Research License #: N/A

Pre-assessment survey data submitted within 2 years of application: Surveys were completed in 2015 and 2016

a) Spring Migration Surveys for Raptors and Songbirds: Surveys were completed between mid-March and mid-May, with a total of five rounds of surveys in 2016.
b) Fall migration bird surveys: Surveys completed between Aug -Oct, with a total of 5 rounds of surveys completed in 2015.
c) Three breeding bird counts completed on May 17th, June 23rd and July 5th, 2016.
d) Sharp-tailed grouse survey, April 1st, 2016 plus re-visit during breeding bird counts.
e) Wildlife surveys, including Richardson Ground Squirrel surveys, 2016
f) Incidental amphibian observations, 2016
g) Two rare plant surveys were conducted during seasonally appropriate survey periods, June 10th and August 20th, 2016
h) Winter wildlife surveys, including raptors: Surveys were conducted between mid-December and mid-March, with a total of three rounds of surveys completed in 2015-2016.
i) Bat surveys 2015: August 2nd- September 10th, 2015.

Surveys are considered current within 2 years of the last survey date. AEP-WM recommends that Raptor Nest surveys and Sharp-tailed grouse surveys are maintained as current until construction is complete, to ensure data is current and adequately defines the risk of the proposed project for

Table 2 Potentially Present Sensitive and Keystone Species

SPECIES	ALBERTA GENERAL STATUS	Alberta Wildlife Act	FEDERAL STATUS (COSEWIC)
Ferruginous Hawk	At Risk	Endangered	Threatened
Prairie Falcon	Sensitive	Species of Special Concern	Not at Risk
Swainson's Hawk	Sensitive	N/A	N/A
Northern Harrier	Sensitive	N/A	N/A
American Kestrel	Sensitive	N/A	N/A
Short-eared Owl	May be at Risk	N/A	Special Concern
Sharp-tailed Grouse	Sensitive	N/A	N/A
Golden Eagle	Sensitive	N/A	Not at Risk
Sprague's Pipit	Sensitive	Special Concern	Threatened
Long-billed Curlew	Sensitive	Special Concern	Special Concern
Chestnut-collared Longspur	Sensitive	Threatened (in process)	Threatened
Brewer's Sparrow	Sensitive	N/A	N/A
Baird's Sparrow	Sensitive	N/A	Special Concern
Great Blue Heron	Sensitive	N/A	N/A
Sora	Sensitive	N/A	N/A
American Badger	Sensitive	N/A	Special Concern

H

In

Reference:

Huso, M. 2011. An estimator of wildlife fatality, Environmetrics. 22: 318-329

Government of Alberta

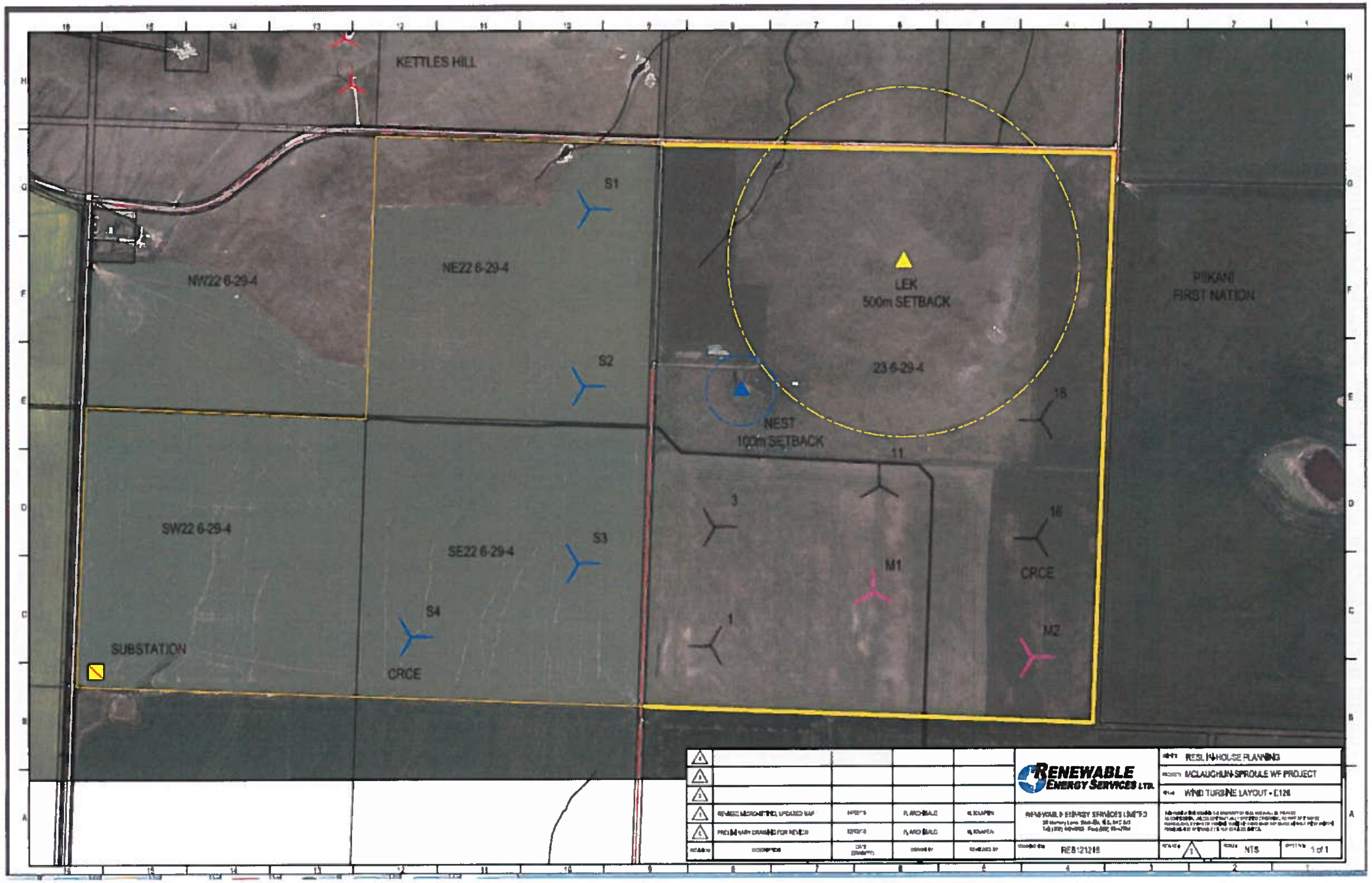


Figure 1 McLaughlin Wind Power Project proposed turbine siting in relation to recommended wildlife setbacks (buffers) in the *Wildlife Directives for Alberta Wind Projects (January 2017).*

Appendix Q – Alberta Tourism, Parks & Recreation Correspondence

From:	Deborah Johnstone
To:	parchibald@resl.ca
Subject:	McLaughlin Wind Farm
Date:	August-23-10 12:10:23 PM

Peter,

Alberta Tourism, Parks and Recreation has reviewed the EIS for this project and we have no concerns. This project does not affect any of our Parks and Protected Area sites.

Regards,

Deborah Johnstone **B.Ed**
deborah.johnstone@gov.ab.ca
Land Use Technologist
Land Management Branch
Parks Division
Tourism, Parks & Recreation
2nd Floor, Oxbridge Place
9820 - 106 Street, Edmonton T5K 2J6
(780)644-5357 fax:(780)427-1178
http://tpr.alberta.ca/parks/managing/managinguse.asp#commercial

Appendix R – AESO Interconnection Documents

ELECTRIC
SYSTEM
OPERATOR

Renewable Energy Services Limited
McLaughlin Wind Aggregated Generation Facility Connection

Functional Specification

(Project Number 1500)

Issued to

AltaLink Management Ltd. (as the **legal owner** of the **transmission facility**), and to

Renewable Energy Services Ltd. (as the **market participant**)

March 9, 2015

Revision R1

APEGA
Permit-to-Practice 13/3/15
P-8200

PROFESSIONAL ENGINEER
YAO YU HUANG
March 9/2015
R1
ALBERTA

	Name	Signature	Date
Author	Yaoyu Huang, P. Eng.		March 9 /2015
Checked – Technical Resource Manager	Kamran Majeed, P. Eng.	Kamran Majeed	Mar. 9, 2015
Approved – Director, Engineering	Dan Shield, P. Eng.		13/3/15
Approved – VP, Transmission Project Delivery	Greg Retzer		MARCH 13, 2015

aeso
ALBERTA

REVISION HISTORY

Rev. #	Description	Author	Date
R0B0	For Comments	Henry Ng	October 7, 2014
R0B1	For Comments	Henry Ng	Nov 18, 2014
R0	For Issuance	Henry Ng	Jan 12, 2015
R1	Update the 5.3 Modeling Data Requirements revision. Updated the Section 2 Interpretation and Variances (AltaLink request for exemption on the communication availability from ISO Rule 502.3.) For Issuance	Yaoyu Huang	March 9, 2015

TABLE OF CONTENTS

1. PURPOSE

(1) The purpose of this document ("Functional Specification") is to set out the technical specifications and requirements and approved variances issued by the AESO to the **legal owner** of the **transmission facility**, AltaLink Management Ltd., and the **market participant**, Renewable Energy Services Ltd., related to the design, construction, development and commissioning of certain new or modified facilities ("Project") that have been proposed for or are related to a physical facilities connection with the **interconnected electric system** ("Purpose").

(2) This Functional Specification is issued for the Purpose only, and the **legal owner** of the **transmission facility** and the **market participant** must comply with the Functional Specification provisions.

(3) The AESO is not responsible for any facilities designed by or for any third party, or installed on a third party's behalf, to accomplish the connection of the Project facilities.

(4) This Functional Specification includes:

- (i) certain specific engineering, technical and functional requirements for the project;
- (ii) the requirements to comply with **ISO Rules**, including OPPs, **reliability standards**, technical standards, and **ISO Tariff** provisions, (the "Authoritative Documents");
- (iii) the electrical system environment in which the connecting facilities must be designed and operate; and
- (iv) any approved variances from requirements set out in any applicable AESO **Authoritative Documents**.

2 INTERPRETATION AND VARIANCES

(1) Subject to subsection (2), any revision or variance to any of the Functional Specification provisions by the **legal owner** of the **transmission facility** or the **market participant** is prohibited.

(2) The **legal owner** of the **transmission facility** or the **market participant** may make application in writing to the AESO requesting a variance to this Functional Specification, and the AESO may in writing approve of the variance after the AESO has completed an analysis of the implications to the **interconnected electric system** with respect to the requested variance.

(3) If the protection communication requirement between Drywood 415S and McLaughlin 423S or Goose Lake 103S and McLaughlin 423S does not meet the subsection (23) of AESO Rule Section 502.3 Interconnected Electric System Protection Requirements, then on the loss of communication between the above mentioned substations monitored at McLaughlin 423S, the communication failure trip (COMM_FAIL) must trip 138 kV breaker at McLaughlin 423S.

(4) Words or phrases appearing in bold have the meanings set out in the Authoritative Document Consolidated Glossary.

3. PROJECT OVERVIEW

Proposed Facility Additions

In accordance with the AESO Terms and Conditions of Service, which are part of the ISO Tariff, Renewable Energy Services Ltd. (the **market participant**) filed a System Access Service Request (SASR) on Nov. 18, 2013 for the connection of the McLaughlin Wind Aggregated Generating Facility ("WAGF").

The collector station for the proposed McLaughlin WAGF will be located near the 138 kV line 164L. The Maximum Authorized Real Power of the proposed WAGF will be 47 MW as measured at the collector bus. Refer to Appendices 8.1 and 8.2 for the schematic of the existing area transmission system and the proposed connection.

Following is a summary of the major transmission components of the proposed facilities for the WAGF:

Market Participant Owned Facilities:

- Construction of a new 138/34.5 kV collector substation to be designated as McLaughlin 423S.

The Legal Owner of the Transmission Facility Owned Facilities:

- Construction of a new 138 kV transmission line to be designated as 164AL from McLaughlin 423S to be connected to the existing 138 kV line 164L
- Connection of 164AL to 164L with a new T-tap
- Installation of new and/or modification to existing protection, control, communication and SCADA facilities in the project area.

The requested in service date for the proposed transmission facilities and the McLaughlin 423S is July 2017.

4. FORECAST OF FUTURE DEVELOPMENT IN THE PROJECT AREA

The AESO has identified the need for transmission system reinforcement in southern Alberta in the *Southern Alberta Transmission Reinforcement* ("SATR") *Needs Identification Document* ("NID"). As part of the SATR project, the proposed transmission facilities in southern Alberta will alleviate the system constraints caused by load growth and wind generation connection proposed in that region. The NID is posted on AESO's website www.aeso.ca.

5. SCOPE OF WORK

5.1 General

(1) The **legal owner** of the **transmission facility** and the **market participant** must complete all engineering, design, land or land-use acquisition, siting, public consultation, applicable regulatory approvals and permits, material procurement, construction, commissioning, and associated permitting requirements for the **project** facilities.

(2) The **legal owner** of the **transmission facility** and the **market participant** must coordinate with each other as required on all project facility design details, including protection and control, grounding, insulation, **point of connection**, and site layout.

(3) The **legal owner** of the **transmission facility** and the **market participant** must develop joint operating procedures (JOP) and any connection agreements as required such that all connecting **transmission facilities** will operate safely and reliably.

(4) The **legal owner** of the **transmission facility** and the **market participant** must deliver to the AESO all final design and as-built Project facility information and records in the format and content required by the AESO, to enable the AESO to update and maintain its transmission technical records and system models.

(5) The **legal owner** of the **transmission facility** and the **market participant** must submit the project information and records referred to in subsection (4) above, under the professional stamp and signature of a registered professional engineer in Alberta who assumes responsibility for the preparation and accuracy of the content of the information and records.

(6) The **legal owner** of the **transmission facility** and the **market participant** must ensure that all Project facilities have been inspected by qualified personnel in accordance with industry standards and practices, so that the project facilities are declared to be:

(a) safe for operation prior to **energization**; and

(b) in compliance with this Functional Specification, and any **Authoritative Documents** for which the Project must comply

(7) No Project facilities are to be energized until an energization authorization has been issued by the AESO in accordance with the **ISO Rules**.

5.2 Compliance with AESO Authoritative Documents

The **legal owner** of the **transmission facility** and the **market participant** must comply with the **Authoritative Documents** provisions which are applicable to the Project and which requirements must be satisfied and incorporated in to the design, construction, development and operation of the connecting facilities and other connection Project work, including but not limited to, these provisions contained herein:

- AESO Operating Policies and Procedures
- AESO Alberta Reliability Standards
- Independent System Operator (ISO) Rules including but not limited to:
  - Section 502.1, Wind Aggregated Generating Facilities Technical Requirements (effective July 2, 2014);
  - Section 502.2, Bulk Transmission Line Technical Requirements (effective January 1, 2012);
  - Section 502.3, Interconnected Electric System Protection Requirements (effective December 31, 2012);
  - Section 502.4, Automated Dispatch and Messaging System and Voice Communication Systems Requirements (effective July 2, 2014);
  - Section 502.8, SCADA Technical and Operating Requirements (effective December 23, 2014);
  - Section 502.9, Synchrophasor Measurement Unit Technical Requirements (effective February 28, 2013);
  - Section 505.3, Coordinating Synchronization, commissioning, WECC Testing and Ancillary Services Testing (effective December 31, 2012);
  - Section 505.4, Coordinating Operational Testing (effective December 31, 2012); and
  - Section 9.1, Transmission Facility Projects

- AESO Generation and Load Interconnection Standard (dated September 19, 2006)[1];
- Information Document ID# 2011-007R, Wind Power Forecasting (effective June 23, 2011);
- Information Document ID#2012-001R, Aggregated Generating Facility Design Criterion (effective February 14, 2012);
- Information Document ID#2012-012R, Coordinating Synchronization, Commissioning, WECC Testing, Ancillary Services Testing, or Operational Testing (effective June 26, 2014);
- Wind Power Ramp Up Management (Section 304.3, Division 304 – Routine Operations, Part 300, System Reliability and Operations, ISO Rules, effective January 8, 2013)

5.3 Modeling Data Requirements

All modeling data is to be provided per the following information document:

- Transmission Modelling Data Requirements (dated February 6, 2014);

5.4 Wind Power Forecasting

All forecasting data is to be provided per the following information document:

Information Document 2011-007R Wind Power Forecasting (dated June 23, 2011)

5.5 Substation Equipment Specifications

All new transmission equipment must meet the following minimum specifications:

- Temperature rating of -50ºC for all outdoor equipment.
- Equipment nominal and maximum continuous operating voltage ratings as indicated in Table 1.
- Minimum continuous equipment current ratings as indicated in Table 2.
- Maximum Fault Level: 31.5 kA at 138 kV.

Table 1: Equipment Nominal and Maximum Continuous Operating Voltages (kV)

Voltage Level	138 kV
Nominal	138
Maximum	150

Note: Typical transmission operating voltages can be found in ID 2010-007RS.

Table 2: Minimum Continuous Equipment Current Ratings (A) [4, 5]

Component	138 kV
Main Bus[1]	1,200
Cross Bus[2]	600
Line Termination[3]	600

[1] The AESO considers this standard to remain in effect notwithstanding the statement in clause 1.5 in the standard. Efforts to revise the standard are currently underway through an industry work group.

- Install new and/or modify existing 138 kV line protection system for 164L as required to account for three terminal line configuration with the new additions in this Specification.
- The 138 kV circuit breaker(s) associated with 164L shall have sync-check relaying functionality.
- Install all other required protection equipment as per ISO Rules, Section 502.3; Interconnected Electric System Protection Requirements (effective December 31, 2012) for the safe and reliable operation of the AIES in and around the project area.

Communication Requirements

- Update the existing communication system for the new configuration including the teleprotection among substations McLaughlin 423S, Goose Lake 103S and Drywood 415S.
- Upgrade the existing voice and radio communications as required to facilitate the ISO Rule 502.4.

5.6.4 Development at Drywood 415S

Protection Requirements

- Install new and/or modify existing 138 kV line protection system for 164L as required to account for three terminal line configuration with the new additions in this Specification.
- The 138 kV circuit breaker(s) associated with 164L shall have sync-check relaying functionality.
- Install all other required protection equipment as per ISO Rules, Section 502.3; Interconnected Electric System Protection Requirements (effective December 31, 2012) for the safe and reliable operation of the AIES in and around the project area.

Communication Requirements

- Update the existing communication system for the new configuration including the teleprotection among substations McLaughlin 423S, Goose Lake 103S and Drywood 415S.
- Upgrade the existing communications as required to facilitate the ISO Rule 502.4.

5.7 SCOPE OF WORK FOR THE MARKET PARTICIPANT

5.7.1 General Requirements

- Complete all site preparation, fencing, foundations, grounding, support structures, termination structures, cabling, bus work, station service, control building, etc., as required.
- Complete a protection coordination study and coordinate with AltaLink to install protection systems suitable for the AIES and the WAGF operations, and to enable the operation of the protection system on 164L being installed, owned and operated by AltaLink.

-

- Coordinate with AltaLink to install new communication facilities for teleprotection among substations McLaughlin 423S, Goose Lake 103S and Drywood 415S.
- Install communication systems that comply with the ISO Rules, Section 502.4.

Revenue Metering Requirements

- The location of the revenue metering point shall be on the 138 kV side of the transmission system step-up transformer. All new Point of Demand and Point of Supply metering points shall be established in accordance with the AESO's Measurement System Standard as described in Section 5.2 of this Specification.

6. TRANSMISSION SYSTEM OPERATING CHARACTERISTICS

The following sections provide the characteristics of the electrical environment in which the facilities outlined in the Specification will operate. TFOs and **market participant**s shall incorporate these characteristics into their facility designs and operating procedures as deemed appropriate.

6.1 SHORT CIRCUIT CURRENT LEVELS

The following short circuit current levels in Tables 3, 4 and 5 have been developed by the AESO based on information provided by the TFOs and Generation Facility Owners operating in the adjacent areas. Available fault current levels will continue to increase as generation, transmission, and system inter-ties are added to the ATS. Although future values have been provided it is the facility owner's responsibility to regularly verify the fault levels and review their equipment ratings for adequacy. Any future upgrades are the responsibility of the facility owner.

The following assumptions were incorporated into AESO short circuit models:

- All expected ATS generation is dispatched.
- All transmission elements are in service.
- The proposed facility is connected as per this document.
- $V_{base} = V_{bus}$, $MVA_{base} = 100$

Table 3: Estimated 2017SP Maximum Short Circuit Current Levels (Pre- connection)

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage	Pre-Fault Voltage (pu)	3-Φ Fault (kA)	1-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	Zero Sequence Thevenin Source Impedance (R0+jX0)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
Peigan 59S	240	244.4	1.018	12.57	8.21	1.776+ j11.238	0.003084+ j0.019510	7.540+ j28.507	0.013089+ j0.049491
Peigan 59S	138	139	1.007	7.74	6.32	1.563+ j10.393	0.008206+ j0.054572	2.987+ j17.273	0.015686+ j0.090699
Pincher Creek 396S	138	142.3	1.031	10.77	8.71	1.054+ j7.650	0.005535+ j0.040171	2.171+ j12.989	0.011401+ j0.068203
Drywood 415S	138	140.9	1.021	3.89	2.63	6.714+ j20.079	0.035257+ j0.105436	13.311+ j49.720	0.069896+ j0.261079

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage	Pre-Fault Voltage (pu)	3-Φ Fault (kA)	1-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	Zero Sequence Thevenin Source Impedance (R0+jX0)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
Goose Lake 103S	138	142.3	1.031	10.99	8.95	0.982+ j7.501	0.005156+ j0.039386	2.035+ j12.546	0.010686+ j0.065877
Goose Lake 103S	240	243.9	1.016	11.01	7.64	1.875+ j12.825	0.003255+ j0.022265	5.712+ j29.411	0.009917+ j0.051061

Table 4: Estimated 2017SP Maximum Short Circuit Current Levels (Post-Connection)

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage	Pre-Fault Voltage (pu)	3-Φ Fault (kA)	1-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	Zero Sequence Thevenin Source Impedance (R0+jX0)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
Peigan 59S	240	243.4	1.014	12.53	8.19	1.778+ j11.229	0.003088+ j0.019496	7.528+ j28.471	0.013069+ j0.049428
Peigan 59S	138	139.2	1.009	7.72	6.3	1.578+ j10.442	0.008285+ j0.054828	3.037+ j17.431	0.015946+ j0.091532
Pincher Creek 396S	138	141.7	1.027	10.71	8.67	1.057+ j7.659	0.005548+ j0.040218	2.173+ j12.999	0.011411+ j0.068256
Drywood 415S	138	140.2	1.016	3.88	2.63	6.691+ j20.020	0.035133+ j0.105124	13.248+ j49.469	0.069564+ j0.259764
Goose Lake 103S	138	141.7	1.027	10.94	8.91	0.984+ j7.510	0.005169+ j0.039433	2.037+ j12.556	0.010695+ j0.065930
Goose Lake 103S	240	243.1	1.013	10.97	7.62	1.878+ j12.827	0.003261+ j0.022269	5.716+ j29.416	0.009923+ j0.051070
McLaughlin 423S	138	141.4	1.025	6.03	4.16	3.602+ j13.234	0.018912+ j0.069492	7.545+ j31.305	0.039620+ j0.164380

Table 5: Estimated 2024WP Maximum Short Circuit Current Levels

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage	Pre-Fault Voltage (pu)	3-Φ Fault (kA)	1-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	Zero Sequence Thevenin Source Impedance (R0+jX0)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
Peigan 59S	240	247.2	1.03	13.96	9.38	1.755+ j10.072	0.003046+ j0.017486	6.839+ j24.403	0.011873+ j0.042366
Peigan 59S	138	142.4	1.032	8.05	6.69	1.555+ j10.089	0.008164+ j0.052976	2.868+ j16.232	0.015060+ j0.085233

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage	Pre-Fault Voltage (pu)	3-Φ Fault (kA)	1-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	Zero Sequence Thevenin Source Impedance (R0+jX0)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
Pincher Creek 396S	138	143.5	1.04	11.46	9.81	0.907+ j7.174	0.004761+ j0.037669	1.638+ j10.750	0.008599+ j0.056448
Drywood 415S	138	143.7	1.041	3.98	2.91	6.087+ j19.911	0.031964+ j0.104554	8.559+ j43.202	0.044944+ j0.226854
Goose Lake 103S	138	143.5	1.04	11.72	10.14	0.835+ j7.023	0.004382+ j0.036878	1.493+ j10.278	0.007838+ j0.053971
Goose Lake 103S	240	248.1	1.034	13.29	9.95	1.612+ j10.655	0.002799+ j0.018497	4.269+ j21.284	0.007411+ j0.036951
McLaughlin 423S	138	143.5	1.04	6.26	4.48	3.348+ j12.801	0.017583+ j0.067216	6.371+ j28.378	0.033453+ j0.149015

6.2 Voltage Levels

Area Planned Operating Voltage Range

Table 6 provides the planned operating voltage range in the area of the proposed facility.

Table 6: Planned Operating Voltage Range

Operating Voltage	Level (kV)	Duration
Minimum	124	Continuous
Nominal	138	Continuous
Maximum	150	Continuous

Operating Voltage Requirements

The **market participant** has agreed that the following line to line voltages will be used to determine/apply the voltage ride-through, voltage regulation and reactive power capability of the WAGF:

- Voltage at the Point of Connection: 138 kV
- Voltage at the collector bus: 34.5 kV

Operating Voltage Unbalance Level

The WAGF must not increase the voltage unbalance on the transmission system as measured at the Point of Connection to more than one and half percent (1.5%).

6.3 Insulation Levels

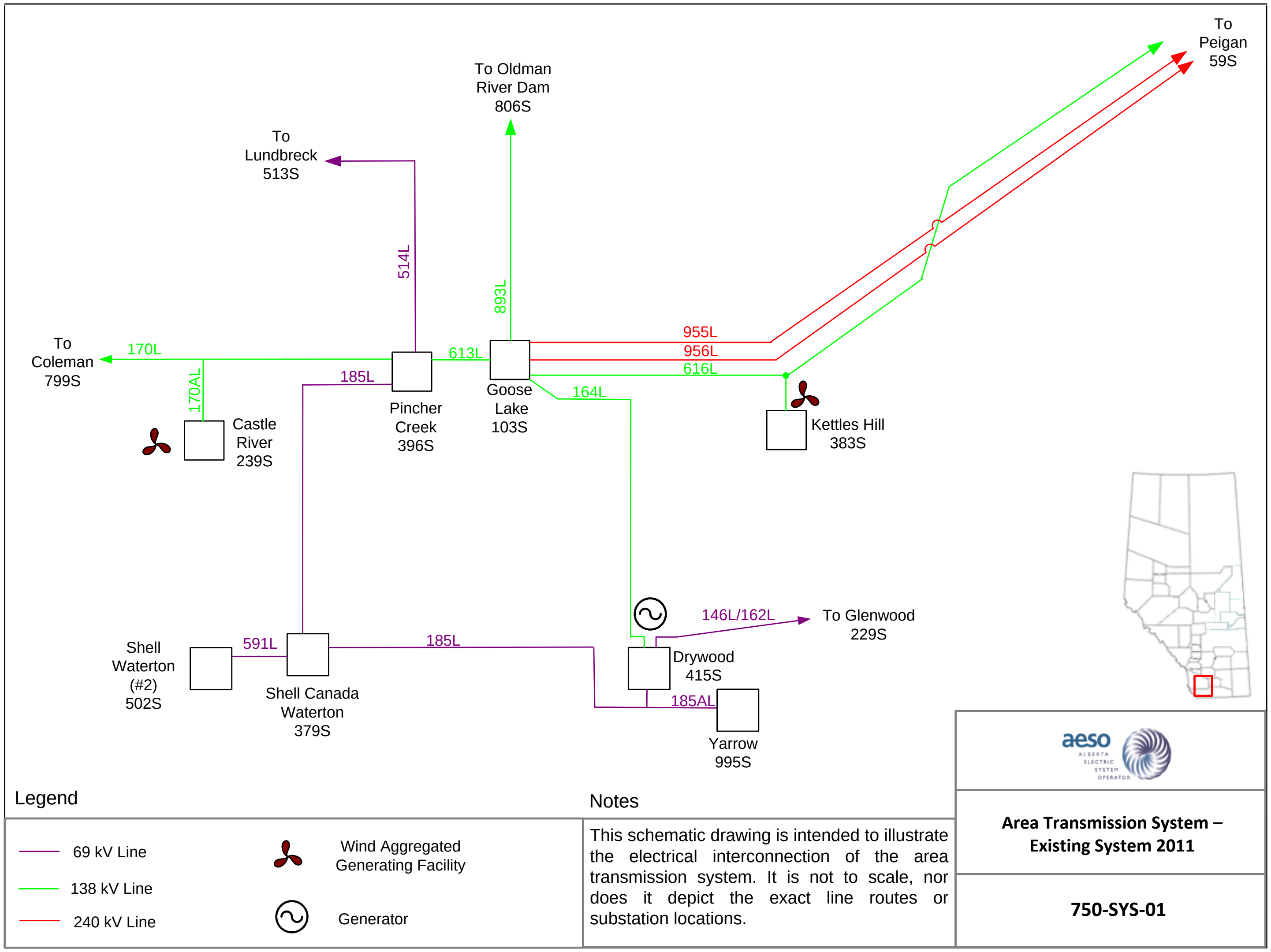
Table 7 provides the minimum required Basic Insulation Levels (“BIL”) for the ATS. Station equipment with lower BIL levels can be used provided protection and coordination can be maintained with judicious insulation design and use of appropriate surge arresting equipment.

Table 7: BIL Levels (kV)

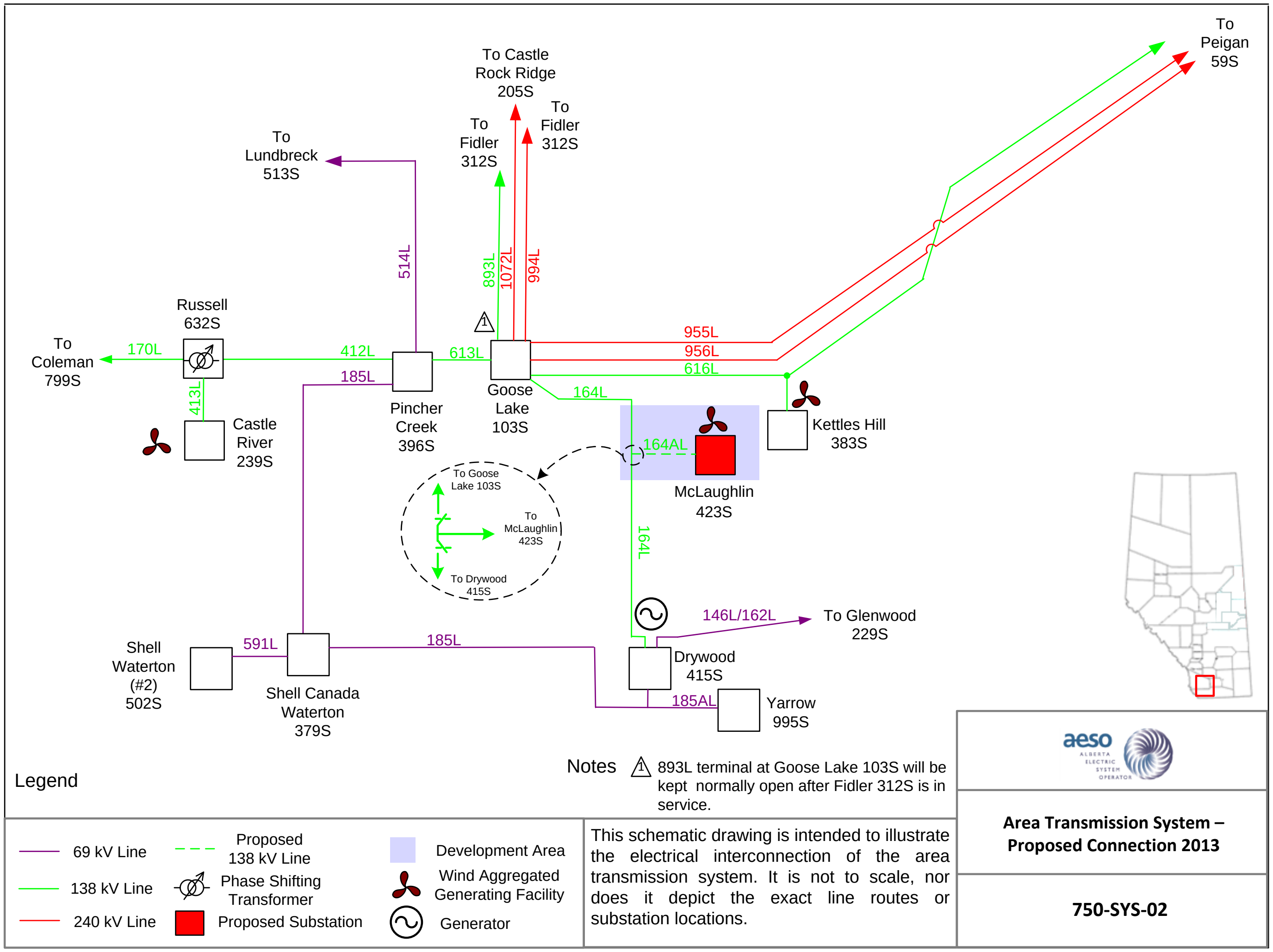
Nomina

8. APPENDICES

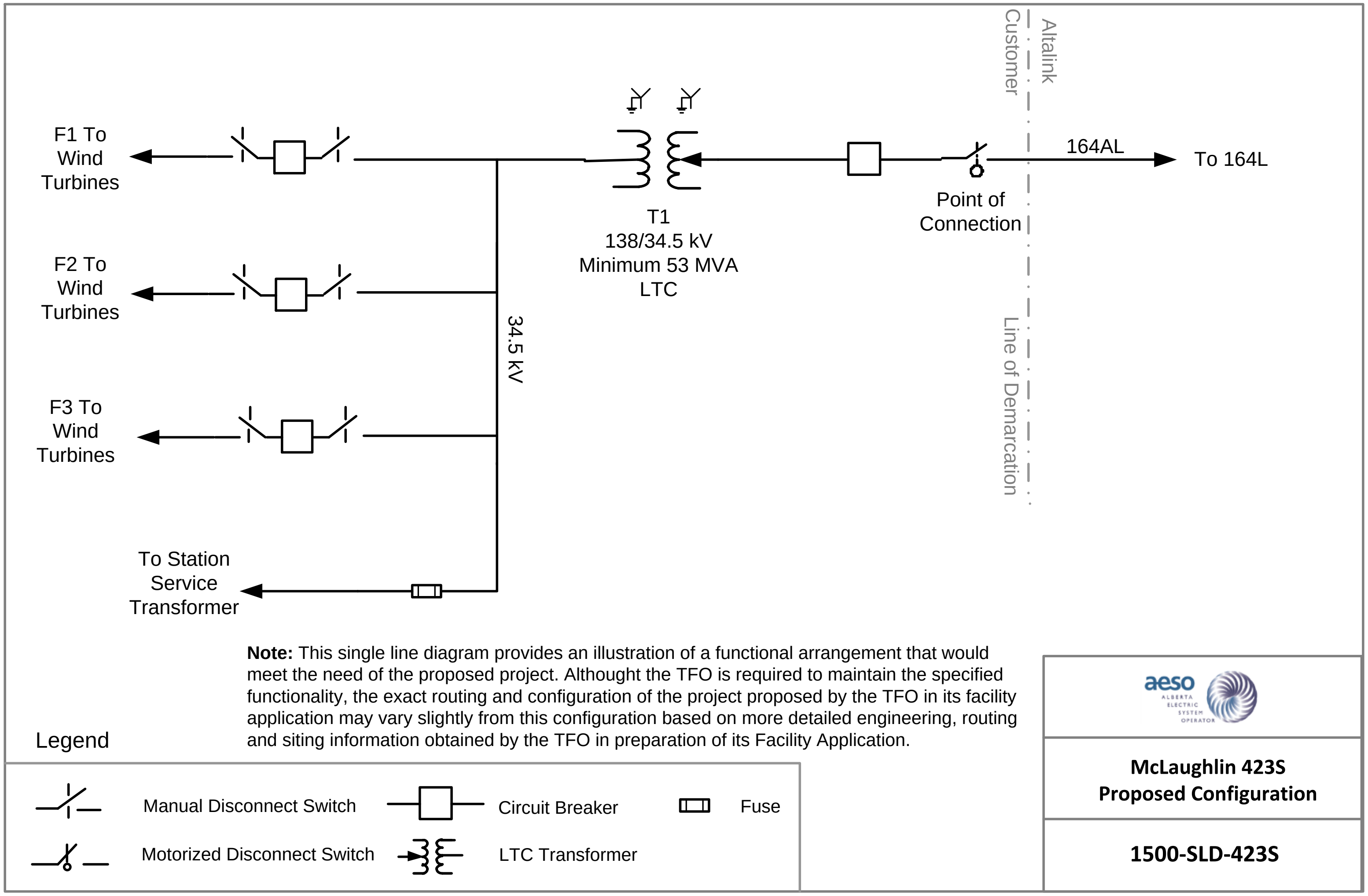
8.1 Single Line Diagrams - Area Transmission System – Existing System 2014



8.2 Area Transmission System – Proposed Connection

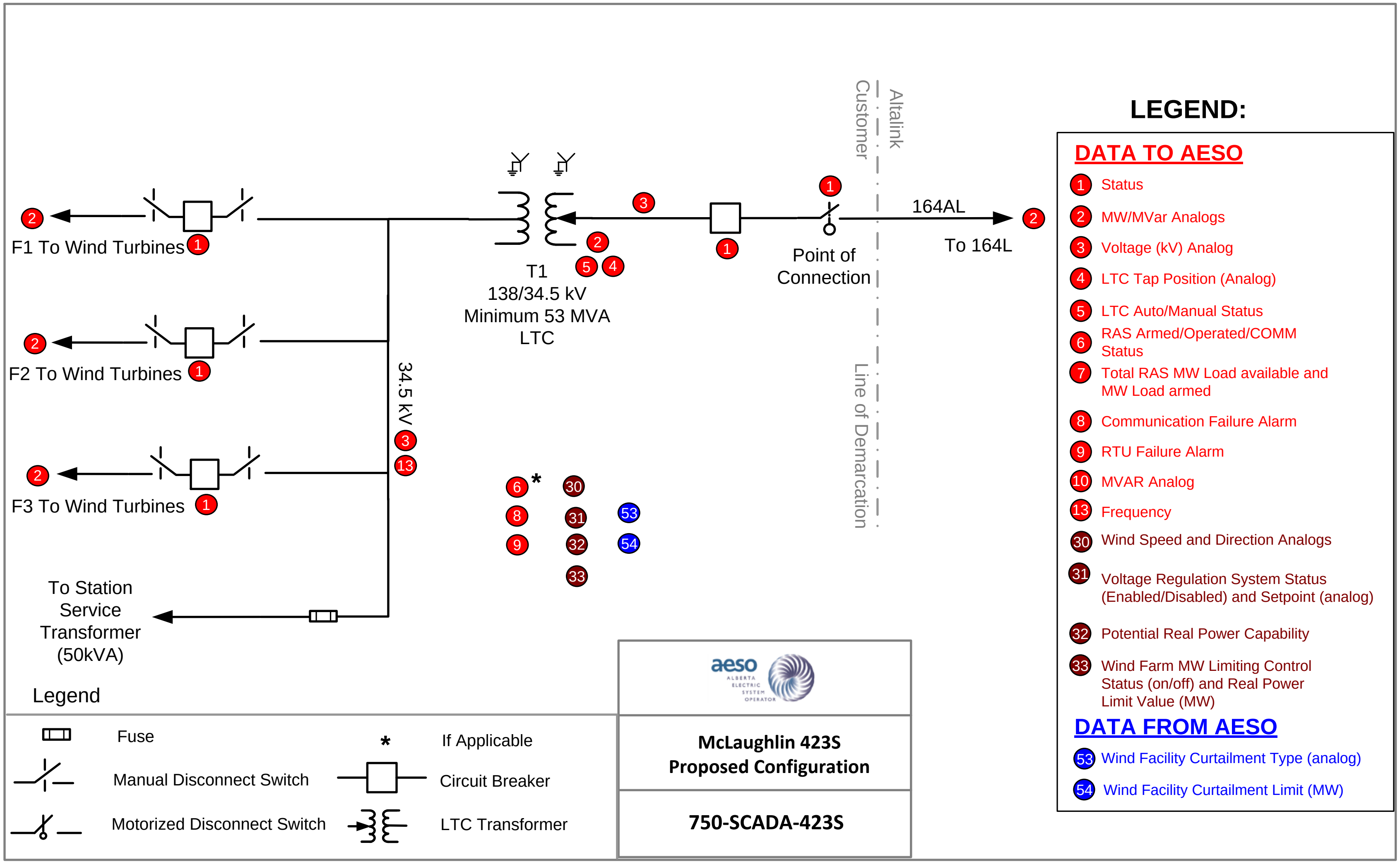


8.3 McLaughlin 423S Substation – Proposed Configuration



8.4 SCADA Information Requirement

8.4.1 SCADA Point Diagram - McLaughlin 423S



8.4.2 SCADA Point Table

Facility / Location	Device	Element	Indication	Update Rate/Mode	Notes
McLaughlin 423S	Breaker		Status	On Event	Breaker for 164AL line
	Breaker		Status	On Event	F1 Circuit Breaker
	Breaker		Status	On Event	F2 Circuit Breaker
	Breaker		Status	On Event	F3 Circuit Breaker
	MOS		Status	On Event	Upstream of 138 kV breaker
	Bus		kV	30s	138kV bus voltage.
	Bus		kV	30s	34.5 kV bus voltage.
	Frequency	Frequency	Hz	30s	Substation Frequency
	Feeder	F1	MW	30s	MW flow out from Turbines to collector bus
	Feeder	F1	MVAr	30s	MVAR flow out from Turbines to collector bus
	Feeder	F2	MW	30s	MW flow out from Turbines to collector bus
	Feeder	F2	MVAr	30s	MVAR flow out from Turbines to collector bus
	Feeder	F3	MW	30s	MW flow out from Turbines to collector bus
	Feeder	F3	MVAr	30s	MVAR flow out from Turbines to collector bus
	Transformer	T1	MW	30s	MW of 138/34.5 kV Transformer at the high side
	Transformer	T1	MVAr	30s	MVAr of 138/34.5 kV Transformer at the high side
	Transformer	T1	TAP	30s	Tap position in analog form

McLaughlin 423S (continued)	Transformer	T1	Control Mode	On Event	Auto/Manual tap controller mode status
	Line	164AL	MW	30s	Outgoing MW from this station
	Line	164AL	MVAr	30s	Outgoing MVAr from this station
	Wind Farm Facility	Potential Real Power Capability	MW	30s	Real power that would have been produced at the point of connection without wind aggregated generating facilities curtailment and based on real time meteorological conditions at each available wind turbine generator;
	Wind Farm Facility	Real Power Limit	Status	On Event	On/Off status for the wind power limiting control system at the wind aggregated generating facilities
	Wind Farm Facility	Real Power Limit	MW	30s	MW limit used in the power limiting control system at the wind aggregated generating facilities
	Wind Farm Voltage Regulator	AVR	Status	On Event	Voltage regulation Enabled/Disabled status(one status point per regulator)
	Wind Farm Voltage Regulator	AVR	Voltage	30s	Voltage regulation setpoint, one analog per controlling device
	Wind monitoring device	Meteorological Data	speed (km/h)	30s	Wind Speed in km/h at hub height
	Wind monitoring device	Meteorological Data	direction (degrees)	30s	Wind direction in degrees from true north at hub height, e.g. East is 90, West is 270.
	Communications	Communications Failure	Alarm	On Event	Ganged alarm indicating that 1 or more devices supplying data is in alarm.
	Communications	RTU Failure	Alarm	On Event	AESO Internal notification that site is non-responsive
From AESO	AGF	Wind Curtailment type	Analog	On Event	Analog control indicating the type of curtailment the facility is under
	AGF	Wind Curtailment limit	Analog	On Event	Analog control indicating the curtailment limit in MW

December 23, 2015

Renewable Energy Services Ltd.
30 Memory Lane,
Lower Sackville, Nova Scotia
B4C 2J3

Attention: Henri Knapen – Operation & Project Manager

Dear Mr. Knapen,

Re: 1500 - Renewable Energy Services Ltd., ("RESL") Renewable Energy Services WAGF (the "Project") – Acknowledgement of Gate 3 Completion

This letter provides AESO's acknowledgement that RESL has met all of the requirements for the Project set out under Stage 3 of the Connection Process. The completion date for Gate 3 has been set at December 11, 2015.

Please note that the timeframe for Stage 4 of the Connection Process commenced on December 14, 2015. In accordance with the Connection Queue Business Practices ("Queue Practices") implemented on September 1, 2010, the timeframe to complete Stage 4 is dependent on the time required by the AUC to review and approve the Needs Information Document and Facility Application for the Project. Please be advised that payment of the Construction Contribution and Generator System Contribution is required in accordance with the current ISO Tariff effective July 1, 2014 once Permit and License is issued by the AUC for the Project or the AESO will cancel the System Access Service Request (SASR) for the Project and the Project will be removed from the Project List and Connection Queue.

Should you have any questions or concerns in this regard, please contact me directly at doug.walker@aeso.ca or 403-539-2934.

Yours truly,

Doug Walker
Project Manager

cc: Leanna Wysiecki - Senior Account Rep., AltaLink Management Ltd.

2500, 330-5th Avenue SW, Calgary, Alberta T2P 0L4 Phone: 403-539-2450 Fax: 403-539-2949
www.aeso.ca www.poweringalberta.com

Appendix S – STARS Clearance Letter

Peter Archibald

From:	Peter Archibald <parchibald@resl.ca>
Sent:	September 26, 2017 4:53 PM
To:	'Henri Knapen'
Cc:	lpl@resl.ca
Subject:	FW: McLaughlin Wind farm

Jennifer Thiel
Aviation Base Manager - Calgary

STARS
1441 Aviation Pk NE
Calgary, AB
T2E 8M7
Phone: 403-516-2766
Cell: 403-863-1433
Email: jthiel@stars.ca

From: Khawaja, Fatima
Sent: Friday, September 22, 2017 11:43 AM
To: Thiel, Jennifer
Subject: FW: McLaughlin Wind farm

AUC

Calgary Office
400, 425 First Street S.W.
Calgary, Alberta

Edmonton Office
Tenth Floor, 10055 106 Street
Edmonton, Alberta

[redacted]

Power Plant
Approval 1976-D02-2018

Appendix 1 to Decision 1976-D01-2018	February 23, 2018
Renewable Energy Services Ltd. 46.2-MW McLaughlin Wind Power Plant	Proceeding 1976 Application 1608592

Renewable Energy Services Ltd. (RESL), by Application 1608592, registered on June 27, 2012, and amended on September 18, 2017, applied to the Alberta Utilities Commission for approval to construct and operate a 46.2-megawatt (MW) wind power plant, designated as the McLaughlin Wind Power Plant, in the Pincher Creek, Alberta, area.

Pursuant to Section 11 of the *Hydro and Electric Energy Act*, the Commission approved the application in Decision 1976-D01-2018,[1] and granted an approval to RESL to construct and operate the power plant, subject to the provisions of the *Hydro and Electric Energy Act* and the *Alberta Utilities Commission Act*, any regulations made under the acts, any orders made under the acts, the Commission rules made pursuant to the *Alberta Utilities Commission Act*, and the following terms and conditions:

1. The power plant shall be located within sections 22 and 23 of Township 6, Range 29, west of the Fourth Meridian, and as further described in the application.

2. The power plant shall consist of 11 ENERCON E-126 EP4 wind turbine generators, each rated at 4.2 MW, with a total generating capability of 46.2 MW, and as further described in the application.

3. Each wind turbine supporting structure shall be installed with its centre at the longitude and latitude coordinates specified in the application.[2] If the support structure has to be located more than 50 metres from the specified coordinates, RESL must apply to the Commission for an amendment to this approval prior to construction.

4. The power plant shall also consist of a 34.5-kilovolt collector system as described in the application. The collector system is to be used solely for collecting the electric energy generated by each turbine and transmitting that electric energy to the McLaughlin 423S Substation.[3]

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[1] Decision 1976-D01-2018: Renewable Energy Services Ltd. – McLaughlin Wind Power Project, Proceeding 1976, Applications 1608592 and 1976-A001, February 23, 2018.

[2] Exhibit 1976-X0072.

[3] Substation Permit and Licence 1976-D03-2018, Proceeding 1976, Application 1976-A001, February 23, 2018.

5. RESL shall submit a construction progress report to the Commission, in writing, once every six months, pursuant to Section 3 of the *Hydro and Electric Energy Regulation*. The first progress report shall be filed with the Commission six months from the date of issuance of this approval.

6. Within 60 days prior to the commencement of construction, RESL shall file a letter with the AUC confirming that the applicable wildlife field surveys remain current and will remain current (i.e., no more than two years old) until the proposed project is commissioned.

7. RESL shall implement any additional mitigation measures recommended by AEP WM should any new wildlife features or issues be identified during completion of updated wildlife surveys. Prior to construction, RESL shall submit a letter to the Commission confirming that it has consulted with AEP WM regarding additional mitigation measures. The letter from RESL shall identify any additional mitigation measure(s) recommended by AEP WM and confirm whether RESL has implemented the mitigation measure(s). If RESL elects not to implement any mitigation measure recommended by AEP WM, the Commission will determine whether further process is required.

8. RESL shall complete a minimum of three years of post-construction bird and bat mortality surveys, and submit the results of the surveys annually to AEP WM.

9. RESL shall submit a letter to the Commission annually summarizing its notification and consultation efforts with AEP WM and identify any AEP WM recommended mitigation measures or directions resulting from post-construction bird and bat mortality surveys and monitoring. If RESL elects not to implement any mitigation measure recommended by AEP WM it must notify the Commission and the Commission will determine whether further process is required.

10. Unless otherwise authorized by the Commission, construction of the power plant shall be completed by December 31, 2020.

11. RESL shall notify the Commission within 30 days of completing the power plant.

12. RESL shall obtain Commission approval prior to making any substantive changes to the power plant or substantially varying the design or specifications of the power plant from what was stated in the application or what the Commission has approved.

13. RESL shall comply with current applicable reclamation standards at the time of decommissioning. If no legislative requirements pertaining to reclamation are in place at the time of decommissioning, the applicant will submit a reclamation plan to the Commission for approval.

14. This approval is not transferable unless approved by the Commission.

The Commission may cancel or suspend this approval, in whole or in part, in accordance with Section 41 of the *Hydro and Electric Energy Act*, or may review this approval, in whole or in part upon its own motion, or upon an application by an interested party, in accordance with Section 10 of the *Alberta Utilities Commission Act*.

Alberta Utilities Commission

(original signed by)

Joanne Phillips
Panel Chair

AUC
Alberta Utilities Commission

www.auc.ab.ca

Calgary Office
400, 425 First Street S.W.
Calgary, Alberta
T2P 3L8

Edmonton Office
Tenth Floor, 10055 106 Street
Edmonton, Alberta
T5J 2Y2

Substation
Permit and Licence 1976-D03-2018

Appendix 2 to Decision 1976-D01-2018	February 23, 2018
Renewable Energy Services Ltd. New McLaughlin 423S Substation	Proceeding 1976 Application 1976-A001

Renewable Energy Services Ltd. (RESL), by Application 1976-A001, registered on June 27, 2012, and amended on September 18, 2017, applied to the Alberta Utilities Commission for approval to construct and operate a substation designated as the McLaughlin 423S Substation in the Pincher Creek, Alberta, area.

The Commission, pursuant to sections 14, 15 and 19 of the *Hydro and Electric Energy Act*, approved the application in Decision 1976-D01-2018[1] and granted to RESL a permit to construct and a licence to operate the substation, subject to the provisions of the *Hydro and Electric Energy Act* and the *Alberta Utilities Commission Act*, any regulations made under the acts, any orders made under the acts, the Commission rules made pursuant to the *Alberta Utilities Commission Act*, and the following terms and conditions:

1. The substation shall be wholly located in the southwest quarter of Section 22, Township 6, Range 29, west of the Fourth Meridian.

2. Specifications of the substation shall include the following:

   a) 138/34.5-kilovolt (kV), 50/67/83-megavolt-ampere (MVA) transformer
   b) one 138-kV circuit breaker
   c) three 34.5-kV circuit breakers
   d) an enclosure surrounded by a chain-link fence and other substation equipment as described in the application

3. RESL shall file with the Commission within 30 days of completing the substation, the energization certificate(s) for the substation issued by the Alberta Electric System Operator and/or RESL to confirm that the substation has been completed and is being operated in accordance with the provisions of this permit and licence.

[1] Decision 1976-D01-2018: Renewable Energy Services Ltd. – McLaughlin Wind Power Plant and Substation, Proceeding 1976, Applications 1608592 and 1976-A001, February 23, 2018.

4. Unless otherwise authorized by the Commission, construction of the substation shall be completed by December 31, 2020.

The Commission may cancel or suspend this permit and licence, in whole or in part, in accordance with Section 41 of the *Hydro and Electric Energy Act* or may review this permit and licence, in whole or in part, upon its own motion or upon an application by an interested party, in accordance with Section 10 of the *Alberta Utilities Commission Act*.

Alberta Utilities Commission

(original signed by)

Joanne Phillips
Panel Chair

Alberta Utilities Commission

Renewable Energy Services Ltd.

McLaughlin Wind Power Plant and Substation

February 23, 2018

Alberta Utilities Commission
Decision 1976-D01-2018
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Proceeding 1976
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Alberta Utilities Commission
Calgary, Alberta

Renewable Energy Services Ltd. **Decision 1976-D01-2018**
McLaughlin Wind Power Plant and Substation **Proceeding 1976**

1 Decision summary

1. In this decision, the Alberta Utilities Commission must decide whether to approve an application from Renewable Energy Services Ltd. (RESL) to construct and operate the McLaughlin Wind Power Project (proposed project). The proposed project would be located approximately eight kilometres east of the town of Pincher Creek, Alberta. After consideration of the record of the proceeding, and for the reasons outlined in this decision, the Commission finds that approval of the proposed project is in the public interest having regard to the social, economic, and other effects of the proposed project, including its effect on the environment.

2 Introduction

2. On June 26, 2012, RESL filed two applications with the Commission, seeking approval to construct and operate the proposed project, pursuant to sections 11, 14 and 15 of the *Hydro and Electric Energy Act*. The power plant application was registered as Application 1608592 and the substation application was registered as Application 1976-A001. The applications were combined and assigned as Proceeding 1976.

3. As discussed in detail below, for much of the time since 2012 the Commission has held the applications in abeyance to allow RESL time to complete the Commission's application requirements set out in Rule 007: *Rules Respecting Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments* and to amend the proposed project. On September 18, 2017, RESL filed final application amendments.

4. The proposed project site is located approximately eight kilometres east of the town of Pincher Creek, Alberta, and approximately two kilometres southeast of the existing Kettles Hill wind power plant.[1]

5. The proposed project consists of the following components:

- a 46.2-megawatt (MW) power plant consisting of 11 wind turbine generators (wind turbines)
- a new 138/34.5-kilovolt (kV) substation, designated as McLaughlin 423S Substation
- a 34.5-kV collector system
- access roads to each wind turbine and the substation

[1] Power Plant Approval U2007-192, Application 1516549, July 31, 2007.

6. The proposed power plant consists of 11 ENERCON E-126 EP4 wind turbine generators, each rated at 4.2 MW, for a total installed capacity of 46.2 MW. Each of the three-bladed wind turbines has a hub height of 99 metres and a rotor diameter of 127 metres.[2] The wind turbines would be constructed on privately-owned land located in Section 23, Township 6, Range 29, west of the Fourth Meridian and in the east half of Section 22, Township 6, Range 29, west of the Fourth Meridian. The proposed power plant also includes roads to access each wind turbine which can be reached by way of Range Road 292.[3]

7. The proposed 34.5-kV collector system consists of underground distribution lines to collect and transmit electric power from each wind turbine to the proposed substation. The collector system is considered part of the proposed power plant.

8. The purpose of the proposed substation is to raise the 34.5-kV collector system voltage to a 138-kV transmission system voltage to facilitate interconnection of the proposed power plant to the Alberta Interconnected Electric System (AIES). The major equipment at the substation includes:

- one 138/34.5-kV, 50/67/83-megavolt ampere (MVA) transformer
- one 138-kV circuit breaker
- three 34.5-kV feeder breakers

9. The proposed substation would be located in the southwest quarter of Section 22, Township 6, Range 29, west of the Fourth Meridian. Construction of an approximately 80-metre long access road running east from Range Road 293 to the proposed substation would also be required.

10. RESL stated that it chose the final site for the proposed substation to minimize the length of overhead transmission line necessary to connect the substation to the AIES and to minimize the impact on viewpoints from adjacent properties.

11. The proposed substation would connect to the AIES via a new transmission line that would tap into existing transmission line 164L owned by AltaLink Management Ltd. The Commission will consider the application for approval of the construction and connection of the new transmission line in Proceeding 21169 pending the decision in this proceeding.

12. RESL did not provide the estimated cost of the substation because, as a market participant choice facility, all costs will be incurred by RESL.

13. The expected completion date for the proposed project is December 31, 2020.[4]

[2] Exhibit 1976-X0051, RESL’s Responses to AUC letter dated April 21, 2017 (AMENDED APPLICATION), PP15 and PP16.
[3] Exhibit 1976-X0095, Appendix G: Revised Site Plan.
[4] Exhibit 1976-X0114, RESL's Responses to AUC Information Request Round 7, RESL-AUC-2018JAN10-0087.

3 Application review process

14. A brief review of the history and evolution of the applications provides context for the discussion that follows.

15. Soon after the initial filing of the applications in 2012, the Commission issued three rounds of information requests to RESL to clarify details of the applications.

16. On February 2, 2013, the Commission issued a notice of applications to all landowners, occupants, and residents within 2,000 metres of the originally proposed project area. No submissions were received by the March 7, 2013, deadline.

17. On March 28, 2013, the Commission ruled that to process the applications further, RESL would need to submit a revised noise impact assessment (NIA). A copy of the ruling is attached as Appendix A.

18. On September 29, 2014, RESL filed an amendment to the proposed project. The amendment included changing the model of wind turbine generator, the location of the proposed substation, and the proposed project's in-service date. RESL also submitted a revised NIA in support of its application amendment as required by Rule 007.

19. On October 28, 2014, and January 6, 2015, the Commission issued information requests to RESL to clarify details of the amended applications and the revised NIA. In accordance with the timelines established by the AUC, RESL submitted information responses on November 18, 2014, and January 22, 2015.

20. On February 12, 2015, the Commission ruled that the requirement in Rule 007 for an applicant to file a Renewable Energy Referral Report (referral report) from Alberta Environment and Parks Wildlife Management (AEP WM) (formerly Alberta Environment and Sustainable Resource Development or ESRD), had not been met. Specifically, given the amendment of the applications on September 29, 2014, there was no longer a current AEP WM referral report for the proposed project. As a result, the Commission placed the applications in abeyance until RESL submitted an updated AEP WM referral report.[5] A copy of the ruling is attached as Appendix B.

21. On two occasions, RESL asked the Commission to continue processing its applications notwithstanding the absence of an updated AEP WM referral report. The Commission considered RESL's requests and issued two rulings dated August 10, 2015, and February 24, 2017. For the reasons set out in those rulings (attached as Appendix C and Appendix D, respectively), the Commission denied RESL's requests and held that the applications would not be processed until an up-to-date AEP WM referral report was filed.

22. The applications remained in abeyance from February 12, 2015, to April 7, 2017, when RESL submitted an updated AEP WM referral report.

23. As part of its April 7, 2017 submission, RESL informed the Commission of further amendments to the proposed project. Those amendments included changing the wind turbine model, reducing the number of wind turbines, and altering the wind turbine layout. RESL further

[5] Exhibit 1976-X0013.

advised that it was finalizing a noise study report for the new wind turbine layout, arranging an open house, waiting for an evaluation from NAV CANADA and waiting for approval from Transport Canada.

24. On April 21, 2017, the Commission issued a process letter advising RESL that it would resume processing the applications once Rule 007 requirements were satisfied, given that a number of supporting documents had to be updated to reflect the project amendments.

25. On September 18 and 19, 2017, RESL submitted its amended applications including updated project details, updated project maps, an updated NIA, and a summary of its updated participant involvement program.

26. On October 20, 2017, the Commission issued a notice of application amendments to all landowners, occupants, and residents within 2000 metres of the amended project area. No submissions were received in response to the notice.

27. On October 20, 2017, the Commission also issued an information request to RESL for clarification of details in the amended applications. On November 6, 2017, RESL submitted its information response.

28. On November 14, 2017, the Commission sent a copy of the notice of application amendments to a landowner who was not included in the original mail out. No response submission was received.

29. The Commission issued further information requests to RESL on December 5, 2017, and January 10, 2018. On December 15, 2017, and January 24, 2018, RESL submitted its information responses to the AUC.

30. As no submissions were received in response to the notice of application amendments, the Commission determined that its decision or order would not directly and adversely affect the rights of a person pursuant to Section 9 of the *Alberta Utilities Commission Act* and on that basis, an oral hearing was not required.

31. The Commission considers the record for the proceeding closed on January 24, 2018, upon the filing of RESL’s last information response.

4 Discussion

32. In support of its applications, RESL submitted that the proposed project is in-line with the climate change, clean air and energy policies of the provincial and the federal governments because the proposed project would reduce the need for fossil-fuel based generation. RESL also stated that the proposed project would benefit the local economy as RESL anticipated that it would inject approximately $25 million into the local communities through the purchase of construction materials, the potential upgrade of roads, and employment opportunities. RESL estimated that 30 to 40 workers, on average, would participate in the construction of the proposed project, should it be approved.

33. RESL also provided the details of approvals for the proposed project granted by other agencies. Specifically, RESL noted a development permit from the Municipal District of Pincher Creek for the proposed project. The proposed project lands were re-designated from "Agriculture – A" to "Wind Farm Industrial – WFI" by the municipal district.[6] RESL confirmed that it had consulted with the municipal district regarding the proposed project amendments[7] and that the development permit has been extended to March 7, 2020.[8]

34. RESL submitted an approval obtained from Transport Canada for the proposed project[9] and provided a letter from NAV CANADA[10], emails from Environment Canada[11] and emails from Alberta Transportation.[12] The letter and emails indicated that RESL had received no objections to the proposed project.

35. RESL identified that it had contracted Lifeways of Canada Limited (Lifeways) to do a historical resource impact assessment on the four quarters of land where the original wind turbine layout was proposed.[13] The assessment found one site of regional significance located in the northeast quarter of Section 23, Township 6, Range 29, west of the Fourth Meridian. Lifeways did not recommend any mitigation measures as it did not anticipate any direct impacts to the site.

36. RESL received *Historical Resources Act* clearance for the originally proposed project in 2012. RESL confirmed that it had applied to Alberta Culture and Tourism for *Historical Resources Act* clearance for the amended project and did not expect any issues since the expanded project lands were on cultivated land.[14]

37. RESL explained that it conducted a participant involvement program to inform stakeholders of the proposed project and provide an opportunity for stakeholders to raise concerns. The program consisted of information packages, personal consultations and public information sessions. The original participant involvement program in 2012 consisted of project information packages hand delivered to residents and landowners within two kilometres of the proposed project boundary, and public information sessions.

38. The main concerns raised through the participant involvement program in 2012 were about the noise levels of the wind turbines, visual impacts on nearby houses and property value impacts. RESL stated that most of the concerns were raised by joint landowners Margo and Alex Russell (the Russells) who

39. RESL consulted with the Russells and committed to plant a shelterbelt of trees on their property to help minimize noise and visual impact concerns. With this commitment, RESL concluded that it had addressed all of the Russells' concerns.

40. RESL indicated that the archeological impact concerns of the Piikani First Nation member had been previously addressed with an elder from the Piikani First Nation through a field visit of the originally proposed project lands on December 9, 2011.

41. On April 24, 2017, RESL mailed an updated project information package to notify residents and landowners within two kilometres of the final proposed project site. The package provided details on the final model of wind turbine, locations of the 11 wind turbines, the expected project schedule, and contact information for RESL. RESL held a public open house on May 11, 2017, and stated that no concerns were voiced during the open house.

42. RESL stated that no concerns were raised about the proposed project amendments and it was not aware of any outstanding stakeholder concerns.[15]

4.1 Potential impacts

43. The applications and supporting documents detailed the potential social and environmental (including noise) impacts of the proposed project, as well as the mitigation measures that RESL proposed to implement to minimize those impacts.

4.1.1 Social

44. RESL stated that the potential social impacts of the proposed project include residential, visual, health, agricultural and commercial impacts.

45. RESL stated that the area surrounding the proposed project is relatively uninhabited, with only a few dwellings. There are no dwellings within the proposed project site. Access to the proposed project area would be via small paved and unpaved municipal roads that stem from larger municipal roads leading to and from the town of Pincher Creek.

46. RESL stated that while visual impacts of wind energy projects are often raised as an issue, public opinion on aesthetics of wind turbines is divided; some see them as beautiful structures while others feel that they disrupt natural landscapes. RESL asserted that the location of the turbines, the size of the proposed project and the surrounding visual setting are key elements in determining the significance of a visual effect.

47. RESL asserted that the visual effects of the proposed project will not be significant because there will be a low degree of visibility of the wind turbines due to separation distances from dwellings being greater than 1.2 kilometres. As well, rolling topography and man-made structures are expected to block views of the wind turbines in some locations. RESL acknowledged that the wind turbines will be visible from open areas such as from roads running parallel to agricultural fields and from some dwellings. RESL provided visual simulations of the proposed project from five different viewpoints.[16]

[15] Exhibit 1976-X0051, RESL's Responses to AUC letter dated April 21, 2017 (AMENDED APPLICATION), PP20.
[16] Exhibits 1976-X0062 to 1976-X0066.

48. RESL also provided information on the potential for the proposed wind turbines to cause shadow flicker. Shadow flicker is the alternating light intensity produced by a wind turbine as the rotating blade casts shadows on the ground and stationary objects, such as the window of a residence. No flicker occurs when the wind turbine is not rotating or when clouds or fog obscure the sun. To assess if shadow flicker would impact dwellings within two kilometres of any proposed wind turbine, RESL contracted AL-PRO Gmbh & Co. KG (AL-PRO) to complete a shadow flicker assessment for the proposed project.[17]

49. AL-PRO's assessment, using modelling software, found that six of the nine dwellings are not expected to experience any shadow flicker. The model predicted that the other three dwellings could experience up to 15 minutes per day and between 5.3 and 8.3 hours per year of shadow flicker. However, AL-PRO asserted that the results represent a worst-case scenario and that actual impacts, which would vary from year to year, are expected to be much lower than estimated.

50. Frequencies below 20 hertz are commonly referred to as infrasound. Concerning the potential for health impacts, RESL asserted that there is no scientific evidence that infrasound from wind turbines has an impact on human health. To support its assertion, RESL cited a number of studies by organizations and independent researchers on page 96 of the Environmental Impact Statement.[18]

51. RESL stated that farming is the main land use in the proposed project area and the privately owned land where the proposed wind turbines and substation would be located is dominated by agricultural uses, including a combination of cropland (mainly hay), and pasture. RESL expects agricultural activities to continue on these lands in conjunction with the proposed project.

52. Construction activities associated with the proposed project are not expected to increase traffic volume significantly. RESL stated it would inform local and regional authorities of its transportation plan to avoid any unexpected congestion problems. RESL also explained that unpaved municipal roads used to access the proposed project area would be upgraded, if necessary, to comply with standards for wind energy project construction. After construction, all municipal roads used for the proposed project would be inspected and repaired if damaged.

53. RESL identified that the potential impacts of the proposed project on commercial operations include impacts on communication and navigation systems. A buried fibre optic cable is located in the southwestern portion of the proposed project area. RESL confirmed that Telus Communications has been informed of the proposed project, including the amendments, and has no concerns.

54. RESL contracted Nortek Resource Solutions Inc. to determine if the proposed project might impact existing radio, telecommunication and radar systems. The assessment[19] found that the proposed project was outside of the recommended consultation zone for all systems except over-the-air television reception. The assessment indicated that a number of small localities and the town of Pincher Creek are located within the recommended 15-kilometre consultation zone. The assessment stated "the project proponents are committed to mitigating confirmed negative

[17] Exhibit 1976-X0102, Appendix N: Shadow Flicker Impact Assessment.
[18] Exhibit 0009.00.RESL-1976, Environment Impact Assessment Volume 1 (Federal 2010).
[19] Exhibit 1976-X0101, Appendix M: Electromagnetic Interference Report.

impacts if they occur as a result of developing the proposed wind project. RESL will develop a mitigation policy and procedure as part of their project planning process."

4.1.2 Environment

55. RESL retained Bear Tracks Environmental Services and McCallum Environmental Ltd. to conduct field surveys which included fall migration surveys, spring migration surveys, winter wildlife surveys and a wildlife assessment and rare plant survey.[20] RESL also retained Anatum Ecological Consulting Ltd. to complete a bat pre-construction assessment.[21] The resulting reports are on the record of the proceeding.

56. As stated above, a revised AEP WM referral report, dated March 27, 2017, was filed to support the amended application.[22] AEP WM identified the proposed project site as having a moderate risk to wildlife and wildlife habitat with concerns primarily related to the results of the pre-assessment bird and bat wildlife surveys. RESL committed to a post-construction monitoring program to determine the effect of the operation of the proposed project on birds and bats to mitigate the risks to wildlife. Specifically, RESL committed to conduct post-construction monitoring for three years, and include carcass searches with searcher efficiency trials, coupled with carcass persistence trials at all 11 wind turbines. Results of the post-construction monitoring program would be submitted to AEP WM on an annual basis.[23]

57. RESL submitted that all pre-development wildlife surveys had been conducted, and AEP WM's referral report and subsequent correspondence confirm that the pre-construction wildlife monitoring meets AEP WM's requirements. With respect to direct wildlife impacts, RESL indicated that the proposed project will maintain all setback requirements identified by AEP WM. RESL confirmed that in the event of delays to the proposed project, it will work with AEP WM and update any studies if necessary.[24]

58. RESL prepared a project-specific environmental protection plan that itemizes and describes the mitigation measures that it will take to eliminate or reduce the potential environmental effect of the proposed project.[25] AEP WM found that the mitigation measures identified met the current policy of minimizing disturbance on native grasslands.[26] RESL stated that the proposed project would comply with the *Principles for Minimizing Surface Disturbance in Native Prairie and Parkland Areas* by siting wind turbines and all associated infrastructure on cultivated lands.[27]

59. While the proposed project is located within the boundaries of the South Saskatchewan Regional Plan, it is located entirely on private land. RESL submitted that the South Saskatchewan Regional Plan does not prescribe how to use and manage private land and is therefore not applicable to the proposed project. However, given that the proposed project is a

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20 Exhibit 1976-X0103 – Exhibit 1976-X106, Environment Study Reports.
21 Exhibit 1976-X0033, McLaughlin 2015 Bat Pre-Construction Assessment Report.
22 Exhibit 1976-X0047, McLaughlin_AEP revised referral_28March2017.
23 Exhibit 1976-X0115, Appendix A: Updated Environmental Protection Plan, page 16.
24 Exhibit 1976-X0047, McLaughlin_AEP revised referral_28March2017, page 5.
25 Exhibit 1976-X0115, Appendix A: Updated Environmental Protection Plan.
26 Exhibit 1976-X0047, McLaughlin_AEP revised referral_28March2017, page 5.
27 Exhibit 1976-X0107, Appendix P: Environment Update, page 2.

renewable energy project, RESL stated that it will align with the objectives outlined in the South Saskatchewan Regional Plan.[28]

4.1.2.1 Noise

60. Given that an NIA is required for every change in wind turbine technology or modification of the wind turbine layout, four NIAs are on the record of this proceeding. RESL filed the first NIA with its original project application on June 27, 2012, completed by GL Garrad Hassan Canada Inc. (GL GH). On September 29, 2014, RESL submitted a second NIA based on its amended project, also completed by GL GH. Because RESL filed further application amendments on September 18, 2017, RESL filed a third NIA, completed by AL-PRO Wind Energy Consulting Canada Inc. (AL-PRO). In response to information requests, RESL filed a fourth NIA for receptor NR12, completed by AL-PRO, on December 14, 2017.

61. Only the NIAs applicable to the proposed project are discussed in this decision. These are the NIA filed on September 18, 2017, (2017 NIA)[29] and the NIA submitted for receptor NR12 (NIA for NR12).[30]

62. The 2017 NIA identified the proposed project's 11 ENERCON E-126 EP4 wind turbines and, among other things, stated that the wind turbines would be equipped with trailing edge serrations on the rotor blades. The turbine manufacturer provided sound data for the proposed wind turbines. All proposed wind turbines were modelled as operating in Mode 0s (full operation mode) with a maximum sound power level of 104.6 dBA occurring at a wind speed of 10 metres per second (m/s) measured at a height of 10 metres above ground.

63. The 2017 NIA includes the proposed substation, as well as the existing Kettles Hill wind power plant (Kettles Hill Wind Farm), which is located approximately 500 metres north of the proposed project, and consists of 35 Vestas V80-1.8 MW wind turbines and two step-up transformers.

64. The 2017 NIA states that the applicable permissible sound levels are 50 dBA L_{eq} daytime and 40 dBA L_{eq} nighttime at all receptor locations in the study area. The 2017 NIA also identifies the predicted cumulative sound levels of the proposed project under three scenarios at nine receptor locations. Those receptor locations represent dwellings within 2.0 km of the proposed project.

65. The first of those scenarios, presented in Table 5-2 of the 2017 NIA, shows predicted cumulative sound levels with no uncertainty added to either the proposed project or the existing Kettles Hill Wind Farm. The second scenario, presented in Table 5-3 of the 2017 NIA, shows the predicted cumulative sound levels with an uncertainty value of 1.1 dBA added to the sound levels for the proposed project. This uncertainty value was taken from an acoustic noise measurement report on the ENERCON E-126 EP4 wind turbine. In each of the first and second scenarios, the cumulative sound levels are predicted to be below the daytime and nighttime permissible sound level at all receptor locations assessed.

66. The third scenario, presented in Table 5-4 of the 2017 NIA, shows the predicted cumulative sound levels with an uncertainty value of 1.1 dBA added to the sound level of the

[28] Exhibit 1976-X0086, RESL's Responses to AUC Information Request Round 6 (November 6, 2017).
[29] Exhibit 1976-X0070, Noise Impact Assessment, June 2017.
[30] Exhibit 1976-X0116, Noise Impact Assessment on Receptor NR12.

proposed project and an uncertainty value added to the sound level value of the existing Kettles Hill Wind Farm. The uncertainty value for the Kettles Hill Wind Farm was taken from the noise curve diagram for the Vestas V80-1.8 MW wind turbines, which indicated the accuracy of the sound power level for these wind turbines is +/- 2 dBA on the calculated noise values.

67. In the third scenario, the cumulative sound level was predicted to meet the daytime and nighttime permissible sound levels at all of the receptor locations assessed except at receptor location NR12. The cumulative sound level at receptor location NR12 was predicted to exceed the nighttime permissible sound level by a margin of 1.0 dBA. For reference, Table 5-4 of the 2017 NIA is reproduced below:

Table 1. Predicted sounds levels including ambient, existing (with uncertainty) and proposed (with uncertainty) wind farms for each receptor[31]

Receptor	Ambient sound level (dBA)	Kettles Hill contribution, including 2.0 dBA uncertainty	McLaughlin contribution, including 1.1 dBA uncertainty	Cumulative nighttime sound level (dBA)	Nighttime PSL[32] (dBA)	Rule 012 Compliance
NR01	35.0	37.2	28.5	39.6	40	Yes
NR04	35.0	26.6	32.3	37.3	40	Yes
NR05	35.0	26.0	28.5	36.3	40	Yes
NR06	35.0	25.5	27.8	36.1	40	Yes
NR09	35.0	36.8	29.7	39.5	40	Yes
NR10	35.0	36.7	29.4	39.4	40	Yes
NR11	35.0	37.6	29.0	39.8	40	Yes
NR12	35.0	39.4	28.1	41.0	40	NO
NR13	35.0	29.8	26.1	36.6	40	Yes

68. Regarding the third scenario, RESL explained that in the 2017 NIA, AL-PRO incorporated uncertainty values for both the existing Kettles Hill Wind Farm and the proposed project to ensure a conservative or worst-case result was generated. The model also assumed that receptor NR12 is downwind of the existing wind turbines which resulted in a predicted sound level that is higher than what is expected since receptor NR12 is actually upwind.

69. In response to round six information requests from the Commission concerning the exceedance of the nighttime permissible sound level at receptor NR12 in scenario three, if the actual sound impacts are a concern to residents, RESL stated that it would implement a post-construction sound monitoring program to verify the measured sound pressure level at the complaint receptor. If the measured levels exceed the nighttime permissible sound level, sound reduction operating modes would be used in some of the wind turbines to comply with Rule 012: *Noise Control*.

70. The Commission clarified in round seven information requests to RESL that RESL must demonstrate compliance with the permissible sound level at all potentially affected dwellings

31 Exhibit 1976-X0070, Noise Impact Assessment, June 2017.
32 Permissible sound level.

"whether they are located inside or outside the 1.5 kilometre boundary around the facility property."[33]

71. In response to the Commission's round seven information requests, RESL commissioned AL-PRO to complete a detailed NIA to address the potential cumulative noise impacts on receptor NR12. AL-PRO stated the objectives of the NIA for NR12 were to clarify the noise impacts at receptor NR12 from the proposed project, to validate compliance with Rule 012 and to recommend mitigation measures to ensure compliance with the nighttime permissible sound level (40 dBA) specified in Rule 012.

72. The NIA for NR12 assumed the existing Kettles Hill Wind Farm did not exceed the permissible sound level of 40 dBA nighttime at receptor NR12. The maximum sound level generated by the Kettles Hill Wind Farm was thus assumed to be 38.3 dBA.[34] The NIA for NR12 stated that this differed from the 2017 NIA, where the noise impact of the Kettles Hill Wind Farm wind turbines and substation were modelled individually based on manufacturer data. RESL used this different approach in the NIA for NR12 after ENMAX Power Services Corporation (ENMAX Power), owner of the Kettles Hill Wind Farm, declined to share information on the modelled sound power levels and their impacts on respective receptors for each individual Kettles Hill Wind Farm wind turbine.

73. The NIA for NR12 explained that the proposed project wind turbines have two reduced operating modes (Mode Is and Mode IIs) designed to reduce the sound power level and in the NIA for NR12, operating Mode IIs was selected with a maximum sound power level of 103.2 dBA. The results of the NIA for NR12 indicated that the worst-case cumulative sound level at receptor NR12 was 40.1 dBA. The modelling approach used in the NIA for NR12 resulted in a lower sound level at receptor NR12 than the previous 2017 NIA which reported a cumulative sound level of 41.0 dBA at this receptor location.

74. The Commission asked a further round of information requests, round eight, to RESL requesting clarification of details of the NIA for NR12 and further information with respect to the noise mitigation plan that RESL was committing to implement.[35]

75. RESL responded by stating that it had reviewed Example 3 of Rule 012 and had applied the methodology demonstrated in that example to consider the cumulative noise effects at receptor NR12. As such, RESL determined that "there is no net increase in noise level at NR12."[36] RESL stated that "by applying the no net increase of 0.4 dBA which results in a maximum threshold of value of 40.4 dBA, all scenarios [in the NIA for NR12] are compliant with AUC Rule 012."[37]

76. In its information request response, RESL provided an additional cumulative sound level assessment (Table 5.2b) that was conducted with the wind turbines operating in full operation mode (Mode 0s). Table 5.2b indicated that the worst-case cumulative sound level at receptor NR12 was 40.2 dBA. RESL stated that this demonstrated that, with the application of no net

33 Exhibit 1976-X0114, RESL's Response to AUC Information Request Round 7, PDF page 4.
34 40 dBA (nighttime permissible sound level) – 35 dBA (ambient sound level) = 38.3 dBA (maximum Kettles Hill Wind Farm sound level contribution).
35 Exhibit 1976-X0120, AUC Information Request – Round 8.
36 Exhibit 1976-X0122, RESL's Responses to AUC Information Request Round 8, PDF page 4.
37 Exhibit 1976-X0122, RESL's Responses to AUC Information Request Round 8, PDF page 4.

increase, the proposed project would still be in compliance with Rule 012 when operating in full operation mode. For comparison, RESL reproduced the results of the NIA for NR12 (Table 5.2a), which assessed the proposed project turbines operating in a reduced operation mode (Mode IIs). For reference, a portion of Table 5.2a and Table 5.2b are compared below.

Table 2. Comparison of cumulative noise impacts on receptor NR12 in different operating modes (Scenario 10 – Maximum sound level contribution from Kettles Hill Wind Farm)

Cumulative sound level assessment	Ambient sound level (dBA)	Kettles Hill contribution, assuming compliance with PSL (dBA)	McLaughlin contribution, including 1.1 dBA uncertainty (dBA)	Cumulative sound level (dBA)
Table 5.2b, McLaughlin Wind Project Operating in Mode 0s (full operation mode)	35.0	38.3	27.4	40.2
Table 5.2a, McLaughlin Wind Project Operating in Mode IIs (reduced operation mode)	35.0	38.3	26.2	40.1

77. RESL concluded that the results of Tables 5.2a and 5.2b demonstrate that both operating modes of the proposed wind turbines (Mode 0s and IIs) are compliant with Rule 012 because they result in no net increase to the existing sound level at receptor NR12.

78. With respect to the noise mitigation plan outlined in the NIA for NR12, RESL stated that as no net increase in noise level had been calculated at receptor NR12, it was unnecessary to operate the wind turbines in a reduced operating mode. RESL also stated that, in light of the assessment demonstrating there would be no net increase in the sound level at receptor NR12 from the proposed project, and due to the conservative nature of the noise modelling, a post-construction comprehensive sound level survey at receptor NR12 should not be required unless there is a noise complaint.

5 Findings

79. In considering the applications, the Commission reviewed the *Hydro and Electric Energy Act*, the pertinent provisions of which are found in subsections. 2(a), 2(b), 2(c), 11 and 19(1).

80. The Commission has also considered:

(a) Whether the applications meet all the requirements of Rule 007 and Rule 012.

(b) Whether the approval of the proposed project is in the public interest having regard to the social and economic effects of the development and the effects of the development on the environment, in accordance with Section 17 of the *Alberta Utilities Commission Act*.

81. Section 17 of the *Alberta Utilities Commission Act* states:

> **17(1)** Where the Commission conducts a hearing or other proceeding on an application to construct or operate a … power plant …under the *Hydro and Electric Energy Act* …, it shall, in addition to any other matters it may or must consider in conducting the hearing or other proceeding, give consideration to whether construction or operation of the proposed …power plant… is in the public interest, having regard to the social and economic effects of the … plant… and the effects of the … plant… on the environment.

82. In Decision 2001-111,[38] the Commission's predecessor, the Alberta Energy and Utilities Board, described how it considers the public interest in relation to an application for a power plant:

> The determination of whether a project is in the public interest requires the Board to assess and balance the negative and beneficial impacts of the specific project before it. Benefits to the public as well as negative impacts on the public must be acknowledged in this analysis. The existence of regulatory standards and guidelines and a proponent's adherence to these standards are important elements in deciding whether potential adverse impacts are acceptable. Where such thresholds do not exist, the Board must be satisfied that reasonable mitigative measures are in place to address the impacts. In many cases, the Board may also approve an application subject to specific conditions that are designed to enhance the effectiveness of mitigative plans. The conditions become an essential part of the approval, and breach of them may result in suspension or rescission of the approval.
>
> In the Board's view, the public interest will be largely met if applications are shown to be in compliance with existing provincial health, environmental, and other regulatory standards in addition to the public benefits outweighing negative impacts.[39]

83. The Commission considers that this approach to assessing whether a proposed project is in the public interest is consistent with the purpose and intent of the statutory scheme and it continues to provide an effective framework for the assessment of wind energy projects.

84. As indicated above, applications to the Commission for the construction and operation of power plants and substations, must comply with the Commission's Rule 007. The Commission must be further satisfied that the proposed project is in the public interest having regard to the social and economic effects of the development and the effects of the development on the environment. This includes consideration of whether an applicant has the approvals required under any applicable provincial or federal legislation and/or has proposed reasonable mitigation measures to address any potential impacts of the proposed project. The applicant must also meet the requirements set out in Rule 012. The Commissions findings in relation to each of these requirements are detailed below.

85. Under Rule 007, an applicant must provide information that includes technical and functional specifications, information on public consultation, and environmental and land-use information including an NIA. The Commission finds that RESL has complied with the application requirements set out in Rule 007.

86. The Commission accepts the participant involvement program conducted by RESL and expects RESL to fulfill the commitment made to the Russells.[40] The Commission finds that there are no outstanding public or industry objections or concerns, as there were no objections filed in response to the Commission's notice of application amendments.

87. The Commission notes that there are no dwellings within the proposed project area and the nearest dwelling to any of the wind turbines is located 1200 metres away. The Commission

38 Decision 2001-111: EPCOR Generation Inc. and EPCOR Power Development Corporation – 490-MW Genesee Power Plant Expansion, Application No. 2001173, December 21, 2001.

39 Decision 2001-111, page 4.

40 Exhibit 1976-X0086, RESL's Responses to AUC Information Request Round 6, PDF page 10.

considers that visual impacts have been minimized as much as possible because the collector lines will be located underground. The Commission finds that there is no evidence on the record that the proposed project will have an impact on human health. To the extent that potential social impacts have been identified, the Commission is satisfied that any such impacts can be reasonably mitigated through the commitments made by RESL on the record of this proceeding and the Commission has relied on those commitments and representations in its assessment of whether the proposed project is in the public interest.

88. Regarding approvals required by provincial and federal legislation, the Commission regards compliance with the regulatory requirements administered by other public or government departments or agencies to be an important consideration when deciding if potential adverse impacts are acceptable and approval of a project is in the public interest. The Commission notes evidence of the permit and approval for the proposed project granted by the Municipal District of Pincher Creek and Transport Canada, respectively, were filed on the record of this proceeding. RESL also filed a letter from NAV CANADA and emails from Environment Canada and Alberta Transportation indicating that there were no objections to the proposed project.

89. The Commission has also considered that Alberta Culture and Tourism had previously approved the prior version of the proposed project in four of the seven quarter sections where the proposed project will be located and that RESL has submitted an application for the three sections that were added as a result of the proposed project amendment. In its application, RESL confirmed that the proposed project requires an approval from Alberta Culture and Tourism under the *Historical Resources Act* in order to operate. The Commission notes that RESL must comply with any avoidance or mitigation requirement identified by Alberta Culture and Tourism to receive approval under the *Historical Resources Act*.

90. As well, the Commission accepts Lifeways recommendation that no measures are required for historical resource impact mitigation. No direct impacts to the identified site of regional significance are expected to occur since the proposed wind turbines, collector lines, and access roads will all be located south of the identified site.

91. As to the proposed project's environmental impacts, the Commission notes that the siting of the proposed project on cultivated lands reduces the potential for adverse environmental impact because the lands have been previously disturbed. Nevertheless, the potential for adverse environmental effects from construction and operation of the proposed project can be reasonably mitigated in part through the implementation of the mitigation measures outlined in the Environmental Protection Plan[41] and the commitments and representations made by RESL on the record of this proceeding on which the Commission has relied.

92. In addition, the Commission finds that the imposition of certain conditions is warranted to protect the environment should the Commission approve the proposed project. As such, the Commission would impose conditions requiring RESL to maintain current wildlife field surveys until the proposed project is commissioned; to implement mitigation measures recommended by AEP WM; to complete a minimum of three years of post-construction bird and bat mortality surveys and submit the survey results to AEP WM annually; and to submit annual summaries to the Commission summarizing its consultation efforts with AEP WM and identifying any AEP WM recommended mitigation measures.

[41] Exhibit 1976-X0115, Appendix A: Updated Environmental Protection Plan.

93. If the location of any wind turbine supporting structure has to be relocated more than 50 metres from the coordinates stated in the amended application, RESL must re-apply to the Commission for approval to relocate the structure prior to construction. Additionally, for any relocation within 50 metres of a supporting structure that further impacts a feature to which AEP WM setbacks or Alberta Culture and Tourism avoidance or mitigation requirements apply, RESL must immediately consult with the appropriate agency and implement any additional mitigation measures specified.

94. The purpose of Rule 012 is to ensure that noise from a proposed facility, measured cumulatively with noise from other energy-related facilities, does not exceed the permissible sound levels calculated in accordance with the rule. As part of a power plant application, Rule 007 requires an applicant to provide an NIA, in accordance with the current Rule 012.

95. The purpose of an NIA is to predict the expected sound level emanating from a facility as measured 15 metres from the most impacted dwelling(s). It also identifies what the permissible sound level is and how it was calculated. The permissible sound level is the maximum daytime or nighttime sound level, as determined in Table 1 of Rule 012, at a point 15 metres from the dwelling(s), in the direction of the facility. As mentioned earlier in this decision, for the proposed project, the permissible sound level values are 50 dBA L_{eq} daytime and 40 dBA L_{eq} nighttime. For the reasons that follow, the Commission accepts the NIAs submitted in support of the proposed project.

96. The Commission accepts the cumulative sound level assessment in Table 5-4 of the 2017 NIA which indicates that, with the exception of receptor NR12, the daytime and nighttime permissible sound level requirements will be met at all of the receptor locations assessed with the wind turbines operating in full operation mode (Mode 0s).

97. With respect to receptor NR12, the Commission accepts the NIA for NR12 and the cumulative sound level assessment provided in Table 5.2b in response to the Commission's round eight information request[42]. That assessment demonstrates compliance at receptor NR12 on the basis that there is no net increase to the existing sound level resulting from the proposed project. This result was determined by adding the noise contribution of the proposed project, in full operation mode, to the existing Kettles Hill Wind Farm noise contribution, assuming that the existing Kettles Hill Wind Farm complies with the permissible sound level of 40 dBA L_{eq} nighttime. The resulting value was then compared to the nighttime permissible sound level.

98. The Commission considers this a reasonable methodology. Rule 012, states that where there is no noise data available for an existing energy-related facility, the existing energy-related facility may be assumed to be compliant with the permissible sound level so that it meets a noise level of 40 dBA L_{eq}. The Commission accepts RESL's evidence that ENMAX Power refused to provide RESL with updated noise information for the facility and there is no other noise information concerning the existing Kettles Hill Wind Farm on the record. The assumption that the Kettles Hill Wind Farm is in compliance with the permissible sound level is therefore reasonable in the circumstances of this proceeding.

99. As a result, Table 5.2b reasonably relies on that assumption and as previously noted, it demonstrates that with the proposed project operating in full operation mode, the cumulative sound level at NR12 is predicted to be 40.2 dBA L_{eq} nighttime. Pursuant to Rule 012, "no net

[42] Exhibit 1976-X0122, RESL's Response to AUC Information Request Round 8, PDF page 6.

increase" in noise level exists where the total noise impact, including that from the proposed facility, will not result in an increase over the permissible sound level of more than 0.4 dB (i.e., will not exceed 40.4 dBA). As the predicted cumulative sound level at receptor NR12 is 40.2 dBA L_{eq} nighttime the Commission finds that the proposed project demonstrates no net increase in noise level at receptor NR12.

100. As previously stated, the Commission accepts the cumulative sound level assessment provided in Table 5.2b. It indicates that with the proposed project operating in full operation mode there will be no net increase in noise level at receptor NR12 and as such, the proposed project is predicted to be in compliance with the permissible sound level requirements of Rule 012. In view of the foregoing, there is no reasonable basis to require RESL to operate its proposed wind turbines in a reduced operating mode. The Commission finds that the noise mitigation plan proposed in the NIA for NR12 is not required.

101. As noted above, the Commission finds that the proposed project, including receptor NR12, is in compliance with the permissible sound level requirements of Rule 012. However, the Commission notes RESL's commitment to complete a post-construction comprehensive sound level survey to verify that the measured sound levels at receptor NR12 comply with the permissible sound levels of Rule 012[43] in the event that the actual sound levels are a concern to the residents of the dwelling associated with receptor NR12. In the case of a complaint, RESL must notify the Commission. At that time, a new proceeding will be created to consider the complaint and the results of the post-construction noise survey. The Commission's decision in that proceeding may include directions to implement noise mitigation measures.

102. For the reasons discussed, the Commission finds that approval of the proposed project is in the public interest, in accordance with Section 17 of the *Alberta Utilities Commission Act*.

103. The Commission's decision to approve the proposed project is subject to the following conditions:

(a) Within 60 days prior to the commencement of construction, RESL shall file a letter with the AUC confirming that the applicable wildlife field surveys remain current and will remain current (i.e., no more than two years old) until the proposed project is commissioned.

(b) RESL shall implement any additional mitigation measures recommended by AEP WM should any new wildlife features or issues be identified during completion of updated wildlife surveys. Prior to construction, RESL shall submit a letter to the Commission confirming that it has consulted with AEP WM regarding additional mitigation measures. The letter from RESL shall identify any additional mitigation measure(s) recommended by AEP WM and confirm whether RESL has implemented the mitigation measure(s). If RESL elects not to implement any mitigation measure recommended by AEP WM, the Commission will determine whether further process is required.

(c) RESL shall complete a minimum of three years of post-construction bird and bat mortality surveys, and submit the results of the surveys annually to AEP WM.

[43] Exhibit 1976-X0086, RESL's Responses to AUC Information Request Round 6, PDF page 21.

(d) RESL shall submit a letter to the Commission annually summarizing its notification and consultation efforts with AEP WM and identify any AEP WM recommended mitigation measures or directions resulting from post-construction bird and bat mortality surveys and monitoring. If RESL elects not to implement any mitigation measure recommended by AEP WM it must notify the Commission and the Commission will determine whether further process is required.

104. In approving the proposed project the Commission has considered and relied upon the commitments made by RESL in relation to the project, including those discussed in paragraphs 54, 91 and 101. The Commission expects RESL to follow through on all commitments made during this proceeding. Should the Commission receive a complaint that RESL has not adhered to its commitments, the Commission may initiate a review in accordance with Rule 016: *Review of a Commission Decision*.

6 Decision

105. Pursuant to Section 11 of the *Hydro and Electric Energy Act*, the Commission approves the power plant application, as amended on September 18, 2017, and grants Renewable Energy Services Ltd. the power plant approval set out in Appendix 1 – Approval 1976-D02-2018 to construct and operate the McLaughlin Wind Power Plant.

106. Pursuant to sections 14, 15 and 19 of the *Hydro and Electric Energy Act*, the Commission approves the substation application, as amended on September 18, 2017, and grants Renewable Energy Services Ltd. the substation permit and licence set out in Appendix 2 – Permit and Licence 1976-D03-2018 to construct and operate the McLaughlin 423S Substation.

107. The appendices will be distributed separately.

Dated on February 23, 2018.

Alberta Utilities Commission

(original signed by)

Joanne Phillips
Panel Chair

(original signed by)

Tracee Collins
Commission Member

(original signed by)

Carolyn Hutniak
Commission Member

Appendix A – Ruling of March 28, 2013

Appendix A - Ruling
of March 28 2013.pdf

(consists of 4 pages)

Appendix B – Ruling of February 12, 2015

Appendix B - Ruling
of February 12 2015.p

(consists of 2 pages)

Appendix C – Ruling of August 10, 2015

Appendix C - Ruling
of August 10 2015.pd

(consists of 2 pages)

Appendix D – Ruling of February 24, 2017

Appendix D - Ruling of February 24 2017.p

(consists of 2 pages)

Appendix E – Summary of Commission directions

This section is provided for the convenience of readers. In the event of any difference between the directions in this section and those in the main body of the decision, the wording in the main body of the decision shall prevail.

1. Within 60 days prior to the commencement of construction, RESL shall file a letter with the AUC confirming that the applicable wildlife field surveys remain current and will remain current (i.e., no more than two years old) until the proposed project is commissioned. ....Paragraph 103(a)

   This direction will be a condition of Power Plant Approval 1976-D02-2018.

2. RESL shall implement any additional mitigation measures recommended by AEP WM should any new wildlife features or issues be identified during completion of updated wildlife surveys. Prior to construction, RESL shall submit a letter to the Commission confirming that it has consulted with AEP WM regarding additional mitigation measures. The letter from RESL shall identify any additional mitigation measure(s) recommended by AEP WM and confirm whether RESL has implemented the mitigation measure(s). If RESL elects not to implement any mitigation measure recommended by AEP WM, the Commission will determine whether further process is required.. .... Paragraph 103(b)

   This direction will be a condition of Power Plant Approval 1976-D02-2018.

3. RESL shall complete a minimum of three years of post-construction bird and bat mortality surveys, and submit the results of the surveys annually to AEP WM...Paragraph 103(c)

   This direction will be a condition of Power Plant Approval 1976-D02-2018.

4. RESL shall submit a letter to the Commission annually summarizing its notification and consultation efforts with AEP WM and identify any AEP WM recommended mitigation measures or directions resulting from post-construction bird and bat mortality surveys and monitoring. If RESL elects not to implement any mitigation measure recommended by AEP WM it must notify the Commission and the Commission will determine whether further process is required.. Paragraph 103(d)

   This direction will be a condition of Power Plant Approval 1976-D02-2018.

Alberta Utilities Commission

Fifth Avenue Place, Fourth Floor, 425 First Street S.W.
Calgary, Alberta, Canada T2P 3L8
Phone 403-592-8845 Fax 403-592-4406
www.auc.ab.ca

March 28, 2013

To: All interested parties

McLaughlin Wind Power Project Application Noise Impact Assessment
Application No. 1608592
Proceeding ID No. 1976

Commission ruling regarding cumulative noise impacts

Introduction and background

1. Renewable Energy Services Ltd. (RESL or the applicant) filed an application with the Alberta Utilities Commission (AUC or the Commission) to construct and operate a wind power plant, referred to as the McLaughlin Wind Aggregated Generating Facility, and the associated McLaughlin 423S substation in the Pincher Creek area on June 26, 2012.

2. On September 5, 2012, the Commission issued its first set of information requests to the applicant and RESL provided its response on September 26, 2012. The Commission went on to issue a second round of information requests on October 19, 2012, and a response was provided by the applicant on November 2, 2012. A third round of information requests was issued by the Commission on December 20, 2012. RESL provided its response on January 11, 2013.

3. A notice of application was issued by the Commission on February 13, 2013.

4. The Commission has reviewed the application and the three rounds of information request responses provided in support of the application and has asked me to inform you of its ruling with respect to cumulative noise impacts.

Discussion of issues

5. A noise impact assessment, dated June 8, 2012, was submitted with the application and identified six dwellings within two kilometres of the proposed project. It identified one dwelling (NR04) within 1.5 kilometres and five dwellings (NR02, NR08, NR09, NR10 and NR11) at a distance between 1.5 and two kilometres of the proposed project. The noise impact assessment predicted the nighttime cumulative sound level of the proposed project, the existing ENMAX Kettles Hill wind farm and the assumed ambient sound at all dwellings within two kilometres of the proposed project. The predicted nighttime cumulative sound level values ranged from 38.4 dBA to 41.0 dBA. The noise impact assessment went on to state that the calculated value at the most impacted dwelling from the proposed McLaughlin Wind Power Project is 41.0 dBA, at Sound Receptor NR02, which is located approxima [1]

[1] Exhibit 0002.00.RESL-1976, Noise Impact Assessment, page 8.

6. The noise impact assessment concluded that the cumulative noise impact was within the nighttime PSL of 40.0 dBA L_{eq} at the dwelling located within 1.5 kilometres of the proposed project (NR04).

7. In its first set of information requests, the Commission asked the applicant to provide a table for dwelling locations NR02, NR04, NR08, NR09, NR10 and NR11 that included the nighttime and daytime permissible sound levels, the assumed nighttime and daytime ambient sound levels, the predicted sound level contribution of the Kettles Hill Wind Power Project, the predicted sound level contribution of the proposed McLaughlin facilities and the predicted nighttime cumulative sound level. The Commission asked RESL whether the predicted nighttime cumulative sound level indicated non-compliance with the PSL at any dwelling location and if it did, to identify noise control measures the applicant would implement in order to ensure compliance. The Commission also asked RESL to describe the wind turbine noise reduction features that could be implemented if sound levels exceeded the PSL at any dwelling location.

8. Although RESL provided a table that included cumulative nighttime sound levels for all confirmed dwelling locations, it did not include the nighttime or daytime PSL for the dwellings beyond 1.5 kilometres of the proposed project. The applicant reasoned that no PSL is applicable to dwellings outside 1.5 kilometres of the proposed project. In terms of wind turbine noise reduction features, RESL stated that the proposed wind turbine, Sinovel SL3000-105, is able to operate in a noise reduction mode by controlling the rotational speed of the turbine. In its response, RESL also confirmed that dwelling NR08 was removed from the noise impact assessment after it received information that the building was not a dwelling as defined in AUC Rule 012: *Noise Control* (AUC Rule 012).

9. In its follow up to the first round of requests, the Commission clarified that the four dwellings located beyond 1.5 kilometres of the proposed project (NR02, NR09, NR10 and NR11) appeared to be the most impacted dwellings, and therefore, must be in compliance with the PSL. The Commission asked RESL to confirm whether these dwellings were in compliance and if not, to clearly identify the noise control measures it would implement to ensure compliance.

10. The applicant responded by providing the predicted nighttime cumulative sound level impacts at the four receptor locations. These can be summarized as follows:

Receptor	dBA
NR02	41.0
NR09	40.2
NR10	40.1
NR11	40.1

11. RESL stated that the sound levels were predicted using CadnaA software and that the software is inherently conservative. RESL indicated that if it received noise-related complaints, it would implement a sound-monitoring program. If the measured sound level was verified to exceed the PSL, sound reducing techniques such as nacelle insulation or de-rating of the turbine would be considered.

12. In its final set of information requests, the Commission requested RESL to further evaluate the cumulative noise impacts of the project, specifically with respect to the four dwellings identified in paragraph 9. If the predicted sound levels exceeded the PSL at any dwelling location, the Commission asked RESL to provide the predicted cumulative noise level of the project after implementation of its proposed noise attenuation measures and confirm that the predicted cumulative noise impacts did not exceed the PSL at any dwelling location.

13. RESL responded that the version of AUC Rule 012 applicable to the McLaughlin wind farm was the version issued on March 29, 2011(2011 AUC Rule 012). The applicant referred to Section 1.3 of 2011 AUC Rule 012 which states facility must meet the PSL determined in accordance with Section 2.

14. Section 2(1) of 2011 AUC Rule 012 reads as follows:

> The PSL is determined for the nearest or most impacted dwelling within 1.5 kilometres (km) from the boundary of the facility property and is the value assigned to that dwelling, or if there are no dwellings within 1.5 km from the facility property, then the PSL of 40 dBA is applicable at 1.5 km from the facility property. The PSL is based on summertime conditions.[2]

15. The applicant stated that there is one dwelling within 1.5 kilometres of the proposed project and that dwelling is within the allowable PSL. The applicant further indicated that the project was designed to comply with the 1.5 kilometre boundary identified in Section 2(1) and that no PSL applies beyond that boundary.

Commission ruling

16. The Commission agrees that 2011 AUC Rule 012 is applicable to the McLaughlin Wind Power Project application filed on June 26, 2012, in accordance with Section 1.2(3) of the current version of the rule.

17. With respect to the issue of cumulative noise impacts, the Commission finds that the PSL identified in 2011 AUC Rule 012 is applicable to all potentially affected dwelling locations in accordance with the provisions below.

18. Section 3.4(1) of 2011 AUC Rule 012 states that the cumulative noise level including the assumed ASL, existing and proposed energy-related facilities, and the predicted noise from . This provision requires an applicant to comply with the PSL and does not specify a boundary in regard to the evaluation of cumulative noise levels.

19. With respect to wind turbines in particular, excerpts of Section 3.7 of 2011 AUC Rule 012 read as follows:

> (2) When selecting the locations of wind turbines, licensees must limit noise levels at *any* dwelling to the PSL determined in accordance with Section 2
>
> (3) The model must also include cumulative effects of adjacent wind turbines, adjacent energy-related facilities and proposed facilities. The predicted noise

2 Section 2(1) of AUC Rule 012: *Noise Control*, March 29, 2011.

> levels must be compared to the PSL (predicted noise level from wind turbines, existing energy-related facilities, proposed facilities and assumed ASL) [emphasis added].[3]

20. In addition to the above section, the solution to Example 3 of Appendix 6 of 2011 AUC Rule 012 specifies
1500 m distance or if there is potential for cumulative effects to occur at dwellings beyond the

21. The Commission observes that dwellings NR02, NR09, NR10 and NR11 appear to be the most impacted dwellings with respect to noise. Based on the provisions and the example identified above, the Commission finds that in evaluating cumulative noise impacts, the applicant must demonstrate compliance with the PSL at all potentially affected dwelling locations whether they are located inside or outside the 1.5 kilometre boundary around the facility property.

22. In this application, cumulative noise impacts occur at dwellings located beyond 1.5 kilometres of the proposed project. Currently, the applicant has not demonstrated that the predicted cumulative sound level is in compliance with the nighttime PSL of 40 dBA L_{eq} at dwellings NR02, NR09, NR10 and NR11 (determined in accordance with Table 1 of 2011 AUC Rule 012). For the Commission to continue processing the application, RESL must submit a revised noise impact assessment identifying the predicted cumulative sound level at all dwellings, including NR02, NR09, NR10 and NR11, and compare this to the PSL prescribed in 2011 AUC Rule 012 (40 dBA L_{eq} during the nighttime and 50 dBA L_{eq} during the daytime).

23. If the predicted sound level(s) exceeds the PSL at any dwelling location, RESL must identify and provide the specific attenuation measures it is committed to implement in order to demonstrate compliance with the PSL. This should include the noise reduction value of the proposed attenuation measures, as well as additional information that the attenuation measures will result in a predicted cumulative sound level that meets the PSL.

24. The Commission will continue its review of the application when it receives a revised noise impact assessment in accordance with the above requirements.

25. Should you have any questions, please contact me by email at shailaz.dhalla@auc.ab.ca or by telephone at 403-592-4476.

Yours truly,

Shailaz Dhalla
Commission Counsel

[3] Section 3.7 of AUC Rule 012: *Noise Control*, March 29, 2011.

February 12, 2015

Henri Knapen
Renewable Energy Services Ltd.
30 Memory Lane
Lower Sackville, Nova Scotia B4C 2J3

Dear Mr. Knapen:

McLaughlin Wind Power Project
Renewable Energy Services Ltd.
Proceeding 1976
Application 1608592

Commission ruling on application processing

Introduction and background

1. Renewable Energy Services Ltd. (RESL) filed an application with the Alberta Utilities Commission (Exhibit 0068.00.RESL-1976) to construct and operate a wind power plant, referred to as the McLaughlin Wind Aggregated Generating Facility, and the associated McLaughlin 423S substation in the Pincher Creek area on June 26, 2012.

2. On March 28, 2013 the Commission ruled that for the Commission to continue processing the application, RESL would need to submit a revised noise impact assessment.

3. On September 29, 2014 RESL submitted a revised noise impact assessment which indicated that the application was being amended. The amendment included changing the model of wind turbine generator, the location of the substation, and the in-service date for the project.

4. On October 28, 2014 and January 6, 2015 the Commission issued information requests to RESL to clarify details of the amended application and revised noise impact assessment. Accordingly, RESL submitted information responses on November 18, 2014 and January 22, 2015.

5. The Commission has reviewed the amended application and the two rounds of information request responses provided in support of the amended application and has asked me to inform you of its ruling with respect to further processing of the application.

Discussion of issues

6. As per PP9 of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Development,* the Commission requires sign-off from Alberta Environment and Sustainable Resource Development (ESRD) prior to processing wind power plant applications.

7. The original application included a sign-off letter from Alberta Sustainable Resource Development dated October 26, 2011 (Exhibit 0063.00.RESL-1976). However, as noted in the information request of October 28, 2014, the letter stated “SRD considers the reports, turbine locations, and associated mitigation measures current for this defined project for a period of two years. Any deviations to the reported siting or mitigation measures requires further review to ensure elements of wildlife and habitat are protected.”

8. The two year period set out in the ESRD letter has expired. In its information responses, RESL indicated that the project is currently under review by ESRD. RESL expects a response from ESRD in the near future and intends to submit the updated sign-off letter to the Commission upon receipt.

Commission ruling

9. In order for an application to be deemed complete the requirements of Rule 007 must be met. The Commission finds that requirement PP9 of Rule 007 has not been met, given the application was amended on September 29, 2014 and that there is currently no ESRD sign-off for the project. As a result, the Commission has determined that it cannot continue to process the application at this time. Upon receipt of a current sign-off from ESRD, the Commission will continue to process the application.

Sincerely yours,

Shari L. Boyd
Commission counsel

AUC
Alberta Utilities Commission
1915 100 YEARS of service to Alberta 2015

August 10, 2015

Henri Knapen
Renewable Energy Services Ltd.
30 Memory Lane
Lower Sackville, Nova Scotia B4C 2J3

Dear Mr. Knapen:

McLaughlin Wind Power Project
Renewable Energy Services Ltd.
Proceeding 1976

Commission ruling on application processing

1. In this ruling, the Alberta Utilities Commission must decide whether to grant a request to continue processing the above-referenced application.

2. The Commission asked me to write to you to provide its ruling and reasons for its ruling.

Background

3. Renewable Energy Services Ltd. (RESL) filed an application with the Commission to construct and operate a wind power plant, referred to as the McLaughlin Wind Aggregated Generating Facility, and the associated McLaughlin 423S substation in the Pincher Creek area on June 26, 2012.

4. The original application included a sign-off letter from Alberta Sustainable Resource Development (SRD) dated October 26, 2011 (Exhibit 0063.00.RESL-1976). However, as noted in the information request of October 28, 2014, the letter stated, "SRD considers the reports, turbine locations, and associated mitigation measures current for this defined project for a period of two years. Any deviations to the reported siting or mitigation measures requires further review to ensure elements of wildlife and habitat are protected."

5. The two-year period set out in the SRD letter has expired. In its information responses, RESL indicated that the project is currently under review by SRD and added that it expected a response from SRD in the near future.

6. On February 12, 2015, the Commission issued a ruling indicating, that in order for an application to be deemed complete the requirements of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments* must be met. The Commission found that requirement PP9 of Rule 007 has not been met, given the application was amended on September 29, 2014, and that there was no current sign-off for the

project from Alberta Environment and Sustainable Resource Development (ESRD). As a result, the Commission determined that it could not continue to process the application at that time. The Commission stated in its February 12, 2015 letter that upon receipt of a current sign-off from ESRD, it would continue to process the application.

7. On July 15, 2015, the Commission received a request to continue processing the application from RESL. RESL indicated that the supplemental biological studies required to be submitted in support of its application to Alberta Environment and Parks (AEP), formerly ESRD, were not yet complete, however, it would be commencing in August 2015. As the studies were not yet complete, RESL was unable to submit an AEP sign-off letter.

8. RESL also requested that the Commission confirm if it had fulfilled the requirements of AUC information requests RESL-AUC-2015JAN06-058 to RESL-AUC-2015JAN06-063.

Ruling

9. Rule 007 contains the requirements for power plant applications including wind generation. As stated in the Commission's ruling of February 12, 2015, in order for an application to be deemed complete the requirements of Rule 007 must be met. Therefore, the Commission denies the request to resume processing the application until all Rule 007 requirements are complete. Once the applicable studies are complete and an AEP sign-off letter is submitted on the record of the proceeding, the AUC will continue to process the application and issue any further information requests if necessary.

[redacted]tion requests 58 through 63 are

[redacted]38BT p339 Tmrt thobe m-9(c)4(ompl)-3(e)4(te

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February 24, 2017

Henri Knapen
Renewable Energy Services Ltd.
30 Memory Lane
Lower Sackville, Nova Scotia B4C 2J3

Dear Mr. Knapen:

Renewable Energy Services Ltd.
McLaughlin Wind Power Project
Proceeding 1976
Application 1608592-1

Commission ruling on application processing

1. In this ruling, the Alberta Utilities Commission must decide whether to grant a request to continue processing the above-referenced application. The request was submitted by Renewable Energy Services Ltd. (RESL) on January 24, 2017.

2. The Commission asked me to write to you to provide its ruling and reasons for its ruling.

Background

3. RESL filed an application with the Commission to construct and operate a wind power plant, referred to as the McLaughlin Wind Aggregated Generating Facility, and the associated McLaughlin 423S Substation (the proposed project) in the Pincher Creek area on June 26, 2012.

4. The original application included a sign-off letter from Alberta Sustainable Resource Development (SRD) dated October 26, 2011 (Exhibit 0063.00.RESL-1976). However, the letter stated, iated mitigation measures current for this defined project for a period of two years. Any deviations to the reported siting or mitigation measures require further review to ensure elements of wildlife and habitat are The two-year period set out in the SRD letter has expired.

5. On February 12, 2015, and again on August 10, 2015, the Commission issued rulings indicating that in order for the application to be deemed complete the requirements of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments* must be met. In both rulings, the Commission found that requirement PP9 of Rule 007 has not been met, given the application was amended on September 29, 2014, and that there was no current sign-off for the proposed project from Alberta Environment and Sustainable Resource Development, now Alberta Environment and Parks (AEP). As a result, the Commission determined that it could not continue to process the application.

6. On January 24, 2017, the Commission received a request to continue processing the application from RESL. request included a referral report from AEP as an attachment. The AEP report found wildlife habitat. its response to AEP, which indicated that RESL was willing to amend the proposed project by changing the layout of the turbines and the collector line layout, in an attempt to mitigate AEP concerns. No response from AEP on the proposed amendments was included and no AEP sign-off letter was submitted. Instead, RESL suggested that the Commission rmine the effectiveness of the additional mitigation proposed and whether or not it meets the objectives of AEP- [1]

Ruling

7. For the reasons that follow, the Commission denies RESL s request to continue to process the application at this time. Rule 007 sets out the requirements for power plant applications including wind generation. As stated in both of in order for an application to be deemed complete the requirements of Rule 007 must be met. An AEP sign-off letter is one such Rule 007 requirement. Once all current Rule 007 requirements are filed, the Commission will continue to process the application and issue further information requests if necessary.

8. The Commission wishes to advise RESL that it does not co-ordinate applications with AEP.

9. The Commission would also like to remind RESL that all correspondence that it intends to rely on must be filed o or copied to AUC staff are not considered part of the public record. For example, documents referred to in

because they we .

10. If you have any questions, please contact the undersigned by telephone at 403-592-4499 or by email at shanelle.sinclair@auc.ab.ca.

Sincerely yours,

Shanelle Sinclair
Commission Counsel

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[1] Exhibit 1976-X0028, Letter to AUC on Application status, PDF page 3.

DIRECTOR OF DEVELOPMENT AND COMMUNITY SERVICES REPORT
February 2018

Development / Community Services Activities includes:

- February 6 — MPC and SA Orientation
- February 6 — WECS Review
- February 6 — Subdivision Authority Meeting
- February 6 — Municipal Planning Commission Meeting
- February 12-16 — Vacation
- February 20-22 — Governance Review
- February 24 — Director of Emergency Management at EOC for Winter Storm Event
- February 27 — Council Committee Meeting
- February 27 — Council Meeting

PLANNING DEPARTMENT STATISTICS

Development Permits Issued by the Director for February 2018

No.	Applicant	Division	Legal Address	Development
2018-08	Phillip and Isabelle Gavey	3	Lot 11, Block 7, Plan 0813924; Hamlet of Beaver Mines	Modular Home
2018-10	Jenkins Lazy U Ranch	2	SW 15-5-28 W4M	Manufactured Home
2018-11	Russell Domolewski	2	Lot 1, Block 1, Plan 0815617; NW 22-5-29 W4M	Residential Additions

Development Permits Issued by Municipal Planning Commission for February 2018

No.	Applicant	Division	Legal Address	Development
2017-61	Barclay Tanner	3	Lot 11, Block 1, Plan 0614102; NE 21-6-30 W4M	Water Crossing / Landscaping
2018-07	Chance Sinclair	4	Lots 7-10, Block 19, Plan 1993N; Hamlet of Pincher Station	Manufactured Home

Development Statistics to Date

DESCRIPTION	February 2018	2018 to Date	February 2017	2016	2015
Dev Permits Issued	5 3-DO / 2-MPC	11 9-DO / 2-MPC	2 0-DO / 2-MPC	64 40–DO /24–MPC	70 54–DO /16–MPC
Dev Applications Accepted	4	15	1	66	78
Utility Permits Issued	4	5	0	25	31
Subdivision Applications Approved	1	2	0	12	12
Rezoning Applications Approved	0	0	0	1	1
Compliance Cert	0	1	0	27	21

RECOMMENDATION:

That the report for the period ending February 26, 2018, be received as information.

Prepared by: Roland Milligan, Director of Development and Community Services Date: February 26, 2018

Reviewed by: Wendy Kay, CAO Date:

Submitted to: Municipal Planning Commission Date: March 6, 2018