

**Bow Lake Wind Farm -
Renewable Energy Approval
Amendment Modification Report**



Prepared for:

**Nodin Kitagan Limited Partnership and
Nodin Kitagan 2 Limited Partnership by
its General Partners Shongwish Nodin
Kitagan GP Corp. and Shongwish Nodin
Kitagan 2 GP Corp**

200, 4723 -1 Street SW
Calgary AB T2G 4Y8

Prepared by:

Stantec Consulting Ltd.

1-70 Southgate Drive
Guelph ON N1G 4P5

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Sign-off Sheet

This document entitled Bow Lake Wind Farm - Renewable Energy Approval Amendment Modification Report was prepared by Stantec Consulting Ltd. for the account of Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership by its General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by _____

(signature)

Rob Nadolny, Project Manager

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Introduction
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1.0 Introduction

1.1 BACKGROUND

Nodin Kitagan Limited Partnership (NKLP) and Nodin Kitagan 2 Limited Partnership, by their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp., respectively, have received a Renewable Energy Approval (REA) to develop, construct and operate the Phase 1 and Phase 2 Bow Lake Wind Farm (the Project) within the unorganized Townships of Smilsky and Peever (the Townships), in the District of Algoma, Ontario.

The Project will generate 58.32 MW (nameplate capacity) of renewable energy through the installation of 36 wind turbines, and will also include 34.5 kV above and below ground electrical collector and communication lines, pad-mounted transformers, crane pads, two permanent meteorological towers, access roads, operations and maintenance building, welfare buildings, a transformer station, construction compounds and laydown yards, and other ancillary facilities.

The REA for the Project was issued on December 16, 2013 under the *Environmental Protection Act* section 47.3(1) (REA No. 8443-9BMG23). NKPL is seeking an amendment to the REA as a result of detailed design considerations.

This report and its attachments provide information regarding the proposed modifications and the potential environmental effects of this change.

1.2 SUMMARY OF PROPOSED MODIFICATIONS

There are two modifications that are addressed in this document: an administrative modification that includes the use of temporary portable generator sets during construction and a backup generator during Project operation; and, a modification to the Project Location to include the addition of a fibre optic communication line.

1.2.1 Auxiliary Power

Minor changes are required to the Construction Plan Report and Design and Operations Report to address the inclusion of the use of temporary portable generator sets during Project construction and the occasional temporary use of a backup generator during Project operation. The use of the temporary portable generator sets and the backup generator do not result in a change to the Project Location as this infrastructure will be located within the existing Project Location footprint. Any changes to the Construction Plan Report and Design and Operations Report have been addressed by issuance of this Modification Report.

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1.2.1.1 Construction

Temporary portable generator sets may be used to electrically commission the turbines prior to connection to the electrical grid. The temporary portable generators are required for approximately one to two days per turbine. Following turbine commissioning, the portable generators will be removed from the site and returned to the owners.

1.2.1.2 Operation

A backup generator will be installed within the footprint of the Project's Transformer Station (TS) and will be operated only under the following parameters:

- In the event of the loss of electrical power from the 115 kV hydro grid which causes the TS to lose station service and result in possible damage to the facility;
- In exercise mode once per month for 10 minutes;
- During scheduled Project maintenance, one per year for approximately eight hours; and,
- During unscheduled TS outage, assumed to be approximately once per year for eight hours.

The operating parameters in which the backup generator will be operated are in accordance with the exemption requirements of Section 7. (1) of O. Reg. 359/09. Given this, noise modeling of the backup generator is not required and no modifications are required to the existing Noise Assessment Report submitted as part of the REA Application.

1.2.2 Modification to the Project Location

Subsequent to the REA Application submission, the need was identified to install a fibre optic line from the Project's transformer station to Highway 17 to facilitate communication to and from the wind project. The fibre optic line will be installed within the road beds of Dump Road, Hogg Dam Road and MacKay Road with no direct disturbance to adjacent natural features. The fibre optic line will also connect to Great Lakes Power's Gartshore Transformer Station (TS) located on MacKay Road. Some sections of these roadbeds were included as part of the Project Location in the REA Application and some sections were not (the fibre optic line is 11.54 km in length, of which 5.88 km is in previously unassessed locations). Therefore, the Project Location has been revised to include the new sections of roadbeds that will be utilized for the installation of the fibre optic line. Only the portions of the revised Project Location associated with the fibre optic line are addressed in this Modification Document. The edge of the roads where the fibre optic line will be installed is the outer limit where site preparation and construction activities will occur. The line will be installed underground within the existing entrance or exit roads to the Gartshore TS for a distance of approximately 50 m from MacKay Road. The revised Project Location showing the fibre optic line is illustrated in Appendix A.

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The addition of the fibre optic line does not result in a change to the Bow Lake Wind Farm's nameplate capacity of 58.32 MW or a change to any other Project infrastructure locations as shown and assessed in the REA Application.

1.2.2.1 Installation Methods

The fibre optic line will be installed within the existing and upgraded road beds of Dump Road, Hogg Dam Road and MacKay Road. A HDPE conduit of approximately 32 mm diameter will be placed in a narrow trench excavated by a backhoe or tracked trenching machine in the road beds at a depth of approximately 60 cm below grade. Crossings of water body culverts in the road beds will be completed by excavating the trench on both sides and below the culvert, then feeding the conduit under the culvert. The culverts will remain secured in-place and will be supported by unexcavated road bed material on each side of the excavated trench. In the unlikely event that this preferred construction method is not feasible, contingency measures may be used in site-specific locations. Contingency measures will be drawn from best management practices and may include jack-and-bore or directional drilling, with mitigation measures as required.

Once the conduit is installed, the fibre optic line will then be pulled through the conduit and connected to the Project TS and the Bell connection point. The trench will be back-filled with excavated material as the installation progresses, compacted to avoid settling or slumping, and graded with clean gravel material. All construction and installation activities will be confined to the road beds.

All construction works will be restricted to the road beds, thereby avoiding any direct impacts to adjacent natural features. Construction works will be short term in duration (estimated less than one week to completion). During the installation of the fibre optic line, it is anticipated that one lane of traffic flow can be maintained during the majority of the installation period, however short closures of the existing roads may be required on certain sections. Public and stakeholder notification and road closure authorization will be managed in accordance with MNR requirements.

Detailed design work is currently underway and will determine the preferred location within the existing and upgraded road beds. Discussions with the MNR will be necessary to determine specific crown land permitting requirements. The installation of the line does not create any new natural heritage or archaeological/cultural heritage impacts.

1.3 RATIONALE FOR PROJECT MODIFICATION

It was determined that a backup generator was needed to ensure the safe operation of the facility and to prevent damage to equipment in the event of a loss of electrical service power to the TS. Temporary generator sets during construction for turbine commissioning are needed to ensure the timely completion of the Project in the absence of back feed power from the electrical grid.



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Regarding the fibre optic line, the need for communication services and the preferred route for the line were determined during the detailed design phase of the Project. The installation of the fibre optic line is required to provide communications to the site including telephone, network and internet access to the Project for construction and operations. During operations, the fibre optic line is required to provide reliable network and internet service to the Project for the site Supervisory Control and Data Acquisition (SCADA) system and for remote monitoring and control of the turbines. In addition, an internet connection is required to fulfill Hydro One grid protection requirements, and IESO requirements for site visibility and centralized forecasting.

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Results of Effects Assessment for the Project Modifications
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2.0 Results of Effects Assessment for the Project Modifications

O. Reg. 359/09 requires that any adverse environmental effects that may result from construction, installation, operation and maintenance activities be described. The term "environment" in O. Reg. 359/09 has the same meaning as in the *Environmental Protection Act*, and includes the natural, physical, cultural, and socio-economic environment.

The modification to the Construction Plan Report and Design and Operations Report related to the use of temporary and backup generators is administrative in nature and therefore is not associated with any environmental effects. The remainder of this section will discuss the modification to the Project Location for the installation of the fibre optic communication line.

For the modification to the Project Location due to the addition of the fibre optic line, a screening was completed to identify any new environmental effects that would require additional mitigation or monitoring measures beyond those outlined in the REA documents. The fibre optic line involves only a minor increase in the size of the Project Location (a 0.2 % increase in the overall size of the Project Location) and in accordance with O. Reg. 359/09 requirements, the additions to the Project Location and corresponding Zone of Investigation will be assessed as part of the Natural Heritage Assessment and Environmental Impacts Study (NHA/EIS), the Water Assessment and Water Body Report, and the Archaeology /Cultural Heritage Reports (see Section 2.1 for details of the amendments to these reports).

Since the construction and installation methods of the fibre optic line will be completed in roughly the same manner as the underground collector lines which have already been assessed as part of the REA Application and the work will be completed within existing road beds, it was determined that no new environmental effects are expected.

The following consultation activities were completed to assess the potential environmental effects of Project modifications:

- Consultation with the Ministry of Natural Resources (MNR) regarding changes to the Natural Heritage Assessment / Environmental Impact Study (NHA/EIS) documents.
- Consultation with the Ministry of Tourism, Culture and Sport (MTCS) regarding the additional Stage 2 archaeological assessments required as a result of the modification, including obtaining written correspondence from the MTCS regarding the submission.

A summary of the consultation undertaken specific to the modification is discussed in Section 3.0.

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2.1 MITIGATIONS MEASURES

Mitigation measures will be the same as those described for the underground collector lines in the REA Application, as the fibre optic line will be installed and maintained in the same manner. However, details related to the proposed mitigation measures are included in the attached technical reports. The proposed modification is minor in nature and will not result in any new impacts on the environment than those considered in the REA Application.

2.2 IMPACTS ON STUDIES/ REA REPORTS

2.2.1 Natural Heritage Assessment and Environmental Impact Study

The NHA/EIS (included in the REA Application) identified natural features within the Project Location and the associated Zone of Investigation around the limits of the Project Location. The Project Location requires minor modification to account for the addition of the fibre optic line, which results in a minor increase in size of the Project Location (a 0.2 % increase in the overall size of the Project Location). Site investigations in support of this modification were completed with the purpose of identifying any additional natural features within the Project Location and Zone of Investigation that were not assessed as part of the NHA/EIS.

It was identified that the following significant features occur within 120 m of the Project Location: Significant Wetlands and Generalized Candidate Significant Wildlife Habitat. However, since the installation and operations of the fibre optic line has similar impacts as the collector lines, the same mitigation measures will be applied as previously identified in the NHA/EIS.

Also, the proposed fibre optic line does not require any additions to the Environmental Effects Monitoring Plan (EEMP) as there are no expected residual impacts to the natural features within 120 m of the proposed fibre optic line route.

Overall, once the protective, mitigation and compensation measures are applied to the environmental features as identified in the REA Application, the construction and operation of the Project is expected to have acceptable net effects on the significant features and functions identified through the Natural Heritage Assessment process.

For a detailed assessment, the addendum to the Natural Heritage Assessment and Environmental Impact Study is provided in Appendix B.

2.2.2 Water Assessment and Water Body Report

The Water Assessment and Water Body Report, January 2013 (included in the REA Application) identified water bodies within the Project Location and the associated Zone of Investigation around the limits of the Project Location. The Project Location requires a minor modification to account for the addition of the fibre optic line, which results in a minor increase in size of the Project Location.



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Water assessments in support of this modification were completed with the purpose of identifying any water bodies that were not considered within the original Water Assessment and Water Body Report.

The Water Assessment and Water Body Report applied a 120 m Zone of Investigation around the limits of the Project Location. Installation of the fibre optic cable will occur entirely within the existing road bed and will not involve installation of any new watercourse crossings; hence, there are no anticipated impacts to the water bodies within the vicinity of the fibre optic line other than potential general construction-related impacts. These potential effects are the same as those presented in the original Bow Lake Wind Farm Water Assessment and Water Body Report, for the installation of the underground collector lines given the similar manner in which the fibre optic line will be installed. No new potential effects have been identified.

Based on the current revised Project layout including the fibre optic line and assuming proper implementation of the proposed environmental mitigation and monitoring measures, the Project activities (including all construction activities) will be in compliance with the *Fisheries Act* and will not result in harmful effects to any water body, fish or fish habitat. No new potential effects and associated mitigation measures have been identified outside of those originally considered in the original Bow Lake Wind Farm Water Assessment and Water Body Report and REA Application.

The predictions of net effects presented in the report assume that, based on the proposed mitigation measures, potential negative effects associated with the installation of the fibre optic cable will be fully mitigated.

For a detailed assessment, the addendum to the Water Assessment and Water Body Report is provided in Appendix C.

2.2.3 Archaeology and Cultural Heritage Studies

A Stage 1 and 2 Archaeological Assessment was conducted for the revised Project Location associated with the fibre optic line installation. As a result of the physical assessment of the archaeological investigation area, no archaeological resources were encountered. Consequently, it was recommended that no further archaeological assessment of the proposed fibre optic cable route is required. In a letter dated October 7, 2013, the MTCS confirmed that they are satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licences.

It was determined that no new Cultural Heritage studies were required for the fibre optic line as it will be located underground within the existing road way and the area of the installation was already considered in the initial Cultural Heritage Assessment, submitted as part of the REA Application.

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For a detailed assessment, the Stage 1 and 2 Archaeological Assessment related to the fibre optic line is provided in Appendix D.

2.2.4 Site Plan

The Site Plan has been updated to reflect the proposed change (addition of a fibre optic line) and is included in Appendix A.

2.2.5 Summary of Impacts/Changes to REA Reports and Studies

As noted, the use of temporary and backup generators is administrative in nature and therefore is not associated with any environmental effects.

The addition of the fibre optic line will involve a minor increase in size of the Project Location. The end result is that the fibre optic line will be sited within the existing road beds of Dump Road, Hogg Dam Road and MacKay Road. The components of the Project Location shown in the REA Application including turbines, collector lines, pad-mounted transformers, crane pads, two permanent meteorological (met) towers, access roads, operations and maintenance building, welfare buildings, a Transformer Station (TS), construction compounds and laydown yards, and other ancillary facilities will remain the same.

The following table provides a list of the REA reports and studies that were reviewed by MOE as part of the REA Application, and notes whether changes to the reports are required due to the modifications proposed. As well, an outline of the specific changes or the justification for no change being required is provided. Any changes to the reports have been addressed by issuance of this Modification Report.

Table 1: Summary of Impacts/Changes to REA Reports & Studies		
REA Reports & Studies	Change (Yes/No)	Discussion of change / Justification for 'no' change
REA REPORTS		
Project Description Report	Yes (minor)	The Site Plan would need to be updated to display the fibre optic line, Appendix A. The following sections of the report would need to be modified to include the fibre optic line, temporary portable generator sets, and backup generator: Sections - 1.1 Project Overview, 2.2 Project Location, 3.0 Project Components. These changes are described in Appendix E.
Construction Plan Report	Yes (minor)	The Site Plan would need to be updated to display the fibre optic line, Appendix A. The following sections of the report would need to be modified to include the fibre optic line and temporary portable generator sets: Sections - 1.0 Overview and 2.0 Construction and Installation Activities. Also, Table 2.1 - Key Construction and Installation Activities would need to be

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Table 1: Summary of Impacts/Changes to REA Reports & Studies		
REA Reports & Studies	Change (Yes/No)	Discussion of change / Justification for 'no' change
		updated. These changes are described in Appendix E.
Design & Operations Report	Yes (minor)	The Site Plan would need to be updated to display the fibre optic line, Appendix A. The following sections of the report would need to be modified to include the fibre optic line and backup generator: Sections - 1.0 Overview and 2.0 Construction and Installation Activities. These changes are described in Appendix E.
Decommissioning Plan Report	Yes (minor)	The following sections of the report would need to be modified to include the fibre optic line: Sections – 1.1 Project Overview, and 3.3 Equipment Dismantling and Removal. These changes are described in Appendix E.
Consultation Report	Yes	There are no specific descriptions of project components within the Consultation Report; therefore no changes will be required. However, additional consultation has been undertaken for the proposed modification to the Project, and is described in Section 3 of this Modification Document.
ADDITIONAL REPORTS		
Turbine Specifications Report	No	There are no changes proposed to the turbines and this report will not require any modifications.
Natural Heritage Assessment Report Records Review, Site Investigation, Evaluation of Significance and Environmental Impact Study	Yes	See the addendum to the Natural Heritage Assessment and Environmental Impact Study (NHA/EIS) documents in Appendix B for a detailed assessment.
Water Assessment Report Records Review, Site Investigation and Environmental Impact Study	Yes	See the addendum to the Water Assessment and Water Body Report documents in Appendix C for a detailed assessment.
Archaeological Assessments and Cultural Heritage Reports	Yes	See the addendum to the Stage 1 and 2 Archaeological Assessment in Appendix D for detailed information and written comments from the Ministry of Tourism, Culture, and Sport (MTCS).
Noise Assessment Report (Appended to the Design and Operations Report)	No	No modification required since the fibre optic line will be underground and is not a source of noise for this project. The operating parameters of the backup generator are in accordance with the exemption provisions of Section 7. (1) of O. Reg. 359/09 and as such, no update to the Noise Assessment Report is required.

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2.3 SUMMARY AND CONCLUSIONS

The proposed modifications related to a backup generator, temporary generator sets and the addition of a fibre optic line have been adequately assessed. Based on the results of the assessment, it has been determined that the modification would not result in new negative environmental effects beyond those identified during the original REA Application.

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Consultation
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3.0 Consultation

Consultation regarding the proposed modification was and will be undertaken with the MNR, MTCS, Crown Land tenure holders and affected businesses in the area. Details are provided in the subsequent sections. Additional consultation activities such as those with Project stakeholders will occur after submission of the Modification Report to the MOE.

3.1 MINISTRY OF NATURAL RESOURCES (MNR)

Regarding the Project Location modification for the fibre optic line, the MNR was advised of the proposed modification through an addendum to the NHA/EIS (Appendix B). Consultation with the MNR will ensure that the MNR is satisfied that the Natural Heritage Assessment requirements of O. Reg. 359/09 have been met.

3.2 MINISTRY OF TOURISM, CULTURE AND SPORT (MTCS)

The MTCS was advised of the proposed Project Location modification through the completion of additional Stage 1 and 2 Archaeological Assessments that were conducted for the fibre optic line (Appendix D). An assessment was completed and submitted to the MTCS. In a letter dated October 7, 2013, the MTCS confirmed that they are satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licences. Correspondence from MTCS regarding the submission is provided in Appendix D.

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Closure
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4.0 Closure

No new mitigation measures or monitoring programs are required beyond those provided in the REA Application as a result of the Project modifications described within this report. Since, the addition of the fibre optic line will include the same installation activities as the previously assessed collector lines, the implementation of protection and mitigation measures identified in the original REA Application can be applied. It has been concluded that the Project modification can be implemented with no new negative environmental effects.

This report has been prepared by Stantec for the sole benefit of NKPL, and may not be used by any third party without the express written consent of NKPL. The data presented in this report are in accordance with Stantec's understanding of the Project as it was presented at the time of reporting.