VERIFICATION REPORT FOR THE CROW LAKE WIND EMISSIONS REDUCTION PROJECT CHAMBERLAIN, SOUTH DAKOTA

Document Prepared By First Environment, Inc.

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Summary:

The Crow Lake Wind Emissions Reduction Project (the Project) is a wind power project located east of Chamberlain, South Dakota that delivers electricity to the Midwest Reliability Organization (MRO) regional electric grid. The Project consists of 108 1.5MW wind turbines and displaces electricity generated from fossil fuels, resulting in a net reduction of CO_2 emissions. Prairie Winds SD1, Inc. (PWSD1) owns 100 turbines which are operated by Basin Electric Power Cooperative (BEPC) pursuant to an Operations and Management Agreement; the Mitchell Technical Institute owns one turbine, and a consortium of over 600 landowners that are part of South Dakota Wind Partners owns the remaining seven turbines.

The verification process consists of the independent third-party assessment of the implementation of the project and emission reduction assertion against the criteria stated in the Verified Carbon Standard (VCS) Standard, 1 February 2012, v3.2; the approved Clean Development Mechanism (CDM) Methodology ACM0002 (Version 12.1.0); and the validated Project Description (PD).

During the verification process, First Environment issued clarification requests, all of which were addressed sufficiently by Element Markets, LLC. The project claims emission reductions of 414,075 metric tonnes CO2e for the verification period from February 1 through December 31, 2011. First Environment, Inc. is reasonably assured that the Project meets all relevant requirements in the VCS Standard, 1 February 2012, v3.2 and correctly applies the CDM Methodology ACM0002 (Version 12.1.0) and the validated PD.

Table of Contents

1 Introduction 1
1.1 Objective 1
1.2 Scope and Criteria 1
1.3 Level of assurance 1
1.4 Summary Description of the Project 1
2 Validation Process, Findings, and Conclusion 2
2.1 Validation Process 2
2.2 Validation Findings 2
2.3 Gap Validation 2
2.4 Methodology Deviations 2
2.5 New Project Activity Instances 2
2.6 Validation Conclusion 2
3 Verification Process 2
3.1 Method and Criteria 2
3.2 Document Review 4
3.3 Interviews 4
3.4 Site Inspections 4
3.5 Resolution of Any Material Discrepancy 4
4 Verification Findings 5
4.1 Project Implementation Status 5
4.2 Accuracy of GHG Emission Reduction or Removal Calculations 6
4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals 7
4.4 Management and Operational System 7
5 Verification conclusion 7
6 Lead Auditor Signature 8
7 Internal Reviewer Signature 8

1 INTRODUCTION

This report is provided to Element Markets, LLC (Element Markets) as a deliverable of the Verified Carbon Standard (VCS) project verification process for the Crow Lake Wind Emissions Reduction Project (the Project) located east of Chamberlain, South Dakota. This report covers the verification of greenhouse gas (GHG) emission reductions from the displacement of electricity generated from fossil fuels over the period of February 1 through December 31, 2011. First Environment, Inc. (First Environment) conducted the verification from January to March 2012.

During the verification process, Element Markets acted as the project advisor for the project proponents, Basin Electric Power Cooperative (BEPC), Mitchell Technical Institute (MTI), and South Dakota Wind Partners (SDWP). As such, First Environment communicated directly with Element Markets regarding all verification activities.

1.1 Objective

The purpose of this verification was, through review of appropriate evidence, to establish that:

- the Project conforms to the requirements of the verification criteria discussed in Section 1.2; and
- the data reported are accurate, complete, consistent, transparent, and free of material error or omission.

1.2 Scope and Criteria

The Project creates emission reductions, expressed in metric tonnes of carbon dioxide equivalents (CO_2e), resulting from the displacement of electricity generated from fossil fuels. Emission reductions are submitted for verification as part of the VCS project registration process.

The Project's emission reductions have been quantified in accordance with the Clean Development Mechanism (CDM) Methodology ACM0002, *Consolidated baseline methodology for grid-connected electricity generation from renewable sources*, Version 12.1.0 (ACM0002). First Environment used the VCS Standard, 1 February 2012, v3.2 (VCS Standard); the CDM Methodology ACM0002; and the validated Project Description (PD) as the basis for this verification. The verification covers the time period from February 1, 2011 through December 31, 2011. Any misstatement greater than five percent of the Project's GHG assertion is considered material. Qualitative non-conformities with the VCS Standard, the CDM Methodology ACM0002, and the validated PD are also considered material during the verification process.

1.3 Level of assurance

First Environment, Inc. (First Environment) and Element Markets have agreed that a reasonable level of assurance be applied for the Project.

1.4 Summary Description of the Project

The Crow Lake Wind Emissions Reduction Project (the Project) is a wind power project located east of Chamberlain, South Dakota that delivers electricity to the Midwest Reliability Organization (MRO) regional electric grid. The Project displaces electricity produced from fossil fuels, resulting in a net reduction of CO_2 emissions. Basin Electric Power Cooperative (BEPC) incorporated a subsidiary, Prairie Winds SD1, Inc. (PWSD1) who owns 100 turbines of the project. The Mitchell Technical Institute (MTI) owns one turbine, and a consortium of over 600 landowners that are part of South Dakota Wind Partners (SDWP) owns the remaining seven turbines. PWSD1 developed the site and granted operational control to BEPC pursuant to an operations and maintenance agreement.

The VCS PD provides additional details regarding the project activity.

2 VALIDATION PROCESS, FINDINGS, AND CONCLUSION

2.1 Validation Process

Not Applicable

2.2 Validation Findings

2.3 Gap Validation

Not Applicable

2.4 Methodology Deviations

Not Applicable

2.5 New Project Activity Instances

Not Applicable

2.6 Validation Conclusion

Not Applicable

3 VERIFICATION PROCESS

3.1 Method and Criteria

To review the Project's GHG information, the following verification process was used:

- conflict of interest review;
- selection of Audit Team;
- kick-off meeting with Element Markets;
- review of the validated PD;
- development of the verification plan and sampling plan;
- site visit;
- desktop review and evaluation of raw data, calculations, and supporting documentation for the period under review;
- follow-up interaction with Element Markets for corrective action or supplemental data as needed; and
- final statement and report development.

The verification process was utilized to gain an understanding of the Project's GHG emission sources and reductions and to evaluate and verify the collection and handling of data, the calculations that lead to the results, and the means for reporting the associated data and results.

Conflict of Interest Review

Prior to beginning any verification project, First Environment conducts an evaluation to identify any potential conflicts of interest associated with the project. No potential conflicts were found for this project.

Audit Team

First Environment's Audit Team consisted of the following individuals who were selected based on their verification experience, as well as familiarity with renewable power operations:

Jeff Daley – Lead Verifier
Iris Caldwell - Verifier
Mary Pat Campbell - Verifier
Natali Ganfer – Verifier
James Wintergreen – Internal Reviewer

Audit Kick-off

The verification audit was initiated with a kick-off conference call on January 10, 2012 between First Environment and Element Markets. The communication focused on confirming the verification scope, objectives, criteria, schedule, and the data required for the verification.

Project Description Review

The Audit Team reviewed the PD as a basis for developing the verification plan.

Development of the Verification Plan

The Audit Team formally documented its verification plan as well as determined the data-sampling plan. The verification plan was developed based on discussion of key elements of the verification process during the kick-off meeting. Element Markets was afforded the opportunity to comment on key elements of the plan for verification. Based on items discussed and agreed upon with Element Markets, the plan identified the First Environment team members, project level of assurance, materiality threshold, and standards of evaluation and reporting for the verification. It also provided an outline of the verification process and established project deliverables. A separate sampling plan was designed to review all project elements in areas of high risk of inaccuracy or non-conformance. The initial verification and sampling plans were provided to Element Markets on January 10, 2012.

Site Visit

First Environment performed a site visit in September 2011 as part of the validation process for the Project. The site visit included review of site operations, data collection processes, and information management systems, as well as interviews with key project personnel. During the kick-off meeting, Element Markets confirmed that no significant operational or monitoring changes had occurred since the previous site visit; therefore, a repeat site visit for this verification period was deemed unnecessary.

Desktop Review

The Audit Team performed a desktop review of the monitoring report, GHG emission reduction assertion, and supporting documentation, as further described in Section 3.2 below.

Corrective Actions and Supplemental Information

The Audit Team issued requests for supplemental information and clarification during the verification process. The clarification and corrective action requests and the responses provided by Element Markets are summarized in Section 3.5.

Verification Reporting

Verification reporting documents the verification process and identifies its findings and results. Verification reporting consists of this report and a separate deed of representation to be submitted to the VCS Association.

3.2 Document Review

During the verification process, First Environment reviewed the Project's monitoring report, GHG emission reduction assertion, and supporting documentation for the current verification period to ensure consistency with the validated PD and ACM0002. Discrepancies between project documentation and the verification criteria were considered material and identified for corrective action. Monitoring deviations required appropriate justification from Element Markets. Additionally, First Environment assessed the GHG emission reduction assertion and underlying monitoring data to determine if either contained material or immaterial misstatements. The results of these reviews are discussed in greater detail below.

3.3 Interviews

Through the course of verification activities, First Environment interviewed the following project personnel to inform the verification process:

Gauri Potdar – Element Markets

Jason Doerr – BEPC

Aaron Ramsdell - BEPC

3.4 Site Inspections

No site inspections were performed during the current verification process.

3.5 Resolution of Any Material Discrepancy

The Audit Team issued requests for clarification during the verification process. Element Markets' responses were sufficient to resolve all requests. The clarification requests and the responses provided are summarized in the tables below:

ID	Clarification Request	Participant Response	Verification Conclusion
CR No. 1	Please clarify how the meter tests provided meet the relevant American National Standards Institute (ANSI) standards for electricity meter testing and calibration.	Element Markets clarified that the Western Area Power Administration (WAPA) regional policy quotes directly the relevant ANSI standard ANSIC57.13. Per direction from Element Markets, FE confirmed that the WAPA meter policy references the correct ANSI standard.	Response is acceptable.

ID	Clarification Request	Participant Response	Verification Conclusion
CR No. 2	The Interconnection agreement indicates that WAPA is responsible for meter testing and calibration per applicable ANSI standards. Please clarify the difference between "testing" and "calibration" requirements and whether the test reports provided meet both of these requirements.	Element Markets clarified that the report supplied is a Meter Calibration Test Sheet, used to test the calibration of the meter. If and when the calibration test is shown to exceed the range of acceptable deviation then the meter is either replaced or repaired and retested until the acceptable range is reached. The requirements are accuracy requirements that are satisfied using calibration testing.	Response is acceptable.
CR No. 3	Please clarify how the test reports provided demonstrate conformance with the accuracy requirements at the loads stipulated by the WAPA policy.	Element Markets clarified what the labels and test conditions are on the meter test report. From the explanation, it is clear that three out of the four required test conditions were tested and found to be within required accuracy thresholds. It was further clarified that the fourth test condition power factor of 1, and Load of 50% is only tested if the power factor of 0.5, and Load of 100% condition is outside accuracy thereshold. An engineer from WAPA confirmed that this is common practice in the electricity industry.	Response is acceptable.
CR No. 4	Please clarify in the monitoring report the records retention policy for records generated during the verification period.	Element Markets revised the Monitoring Report to include the records retention policy (2 years beyond the 10 year crediting period)	Response is acceptable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The Project is implemented according to the description provided in the validated PD. The Project became operational on February 1, 2011. The 10-year Project crediting period began on February 1, 2011 and ends on January 31, 2021. First Environment previously confirmed the Project's start date and crediting period during validation. No data and/or variables presented in the monitoring report differ from those stated in the validated PD.

First Environment confirmed during the validation process that GHG emission reduction credits had not been registered under another GHG program. Additionally, BEPC provided an attestation dated January 26, 2012 indicating that GHG emission reduction credits for the current verification period will only be registered with the VCS program.

The Project is eligible to receive renewable energy certificates (RECs); however, the attestation from January 26, 2012 provided by BEPC states that RECs will not be claimed for environmental attributes that are claimed as Verified Carbon Units (VCU's). The Project is listed in Midwest Renewable Energy Tracking System (MRETS). A third party, WAPA, reports the number of megawatt-hours (MWh) generated by the project to the MRETS system. To avoid double counting, the RECs generated during the verification period – each representing one MWh of production - were retired in the MRETS system. The retirement is permanent and cannot be reversed once such a designation is made. First Environment witnessed the retirement of the RECs in MRETS system during a webinar on February 28, 2012. Additionally, Element Markets provided a report from the MRETS tracking system confirming that the applicable number of RECs had been placed into a retirement account.

First Environment confirmed through interviews with project personnel that no operational or management changes had occurred since the previous site visit. The following topics were discussed with project personnel during the previous validation site visit and re-confirmed during the current verification process:

- the data collection process used to generate reports, and
- internal documents and protocols that set guidelines for the data collection process.

The information gathered during these discussions and review was used to assess the Project's data management systems and its controls for sources of potential errors and omissions. The primary aspects of the Project's monitoring plan are described below.

The primary parameter that is monitored and reported is the quantity of electricity generated and exported to the grid. The quantity of electricity generated by the Project and supplied to the grid is monitored continuously by a revenue grade meter (JEMStar) located at the Wessington Springs Substation at the point of interconnection with the grid. The revenue meter is owned and maintained by PWSD1. The meter continuously measures power generated by the project. Production data recorded by the meter is aggregated hourly and reported in an MV90 report which identifies kilowatt hours (kWh) generation. WAPA also performs independent meter readings on a monthly basis and reports the total number of megawatt hours (MWh) generated by the Project to the MRETS tracking system. The data reported to MRETS is what is used for the purpose of quantifying emission reductions.

The metering equipment at the point of interconnection is required to be maintained and calibrated in accordance with the interconnection agreement, the WAPA Regional Metering Policy, and the relevant American National Standards Institute (ANSI) Standard, ANSI C57.13. First Environment reviewed a meter test report from December 22, 2009 and supporting documentation demonstrating that the meter was operating accurately and maintained consistent with interconnection agreement, WAPA requirements, and ANSI C57.13.

The data collection and recordkeeping procedures were found to be consistent with those outlined in the monitoring plan described by the PD and meet the requirements of the ACM0002.

No methodology deviations were previously validated for the Project. Furthermore, there were no remaining issues or material discrepancies from the previous validation process.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

Emission reductions are calculated ex post using the approach indicated in ACM0002 and the validated PD. Emission reduction calculations for the verification period were reviewed to ensure accuracy in the formulas used and the raw data used as inputs. The formulas were tested and found to be consistent with the calculations described in ACM0002 and the validated PD.

Monthly project monitoring data for net quantity of electricity generated ($EG_{m,y}$) from the MRETs database was checked for quality control against hourly data from the revenue meter (MV90 reports) and aggregated annually. The total electricity generated during the verification period was multiplied by the CO_2 emissions factor for the grid displaced electricity due to project activity ($EF_{grid,CM,y}$). The grid

displaced electricity emission factor was previously calculated and approved during validation and is fixed for the length of the crediting period

Consistent with the validated PD, the Project does not combust any fuels to operate since it is not a hydro or geothermal project. Therefore, no project emissions were subtracted from the baseline emissions.

The verification process focused on the evaluation of quantification spreadsheets to ensure that they were consistent with the formulas and equations described in ACM0002 and the validated PD. Copies of the power generation raw data used in the calculations were compared with the values used in the final calculations and tested for transcription or mathematical errors. The calculations for the entire period were reviewed as well to determine whether they were free of material misstatement. All calculation methods and emission factors used to determine emission reductions were consistent with those outlined in the validated PD. No material misstatements were observed.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

Element Markets provided adequate documentation for the emission reduction calculations as well as its management systems around the data collection process. Specifically, First Environment was provided a monitoring report prepared in accordance with the VCS program template, transparent calculation spreadsheets, calibration records, and electronic data associated with electricity generated, and operating hours. The evidence provided was consistent with the requirements of ACM0002 and the validated PD and meets generally accepted evidentiary standards for best practice in GHG accounting.

4.4 Management and Operational System

Element Markets has adequate management and operational systems in place with respect to monitoring and reporting, as determined through observation during the validation site visit and the current desktop review of project documentation.

5 VERIFICATION CONCLUSION

First Environment was retained to provide verification services for the Project's GHG emission reductions assertion based on the following fundamentals:

- *Level of assurance:* Reasonable assurance.
- *Objectives of verification:* To assure project conformance with the VCS Standard, the CDM Methodology ACM0002, and the validated PD.
- *Verification criteria*: VCS Standard, the CDM methodology ACM0002, and the validated PD.
- *Definition of materiality:* Misstatements of more than five percent of the GHG assertion and qualitative non-conformities with the verification criteria are considered material.
- *Scope, including:*
    - *Boundaries of the assertion:* Crow Lake Wind South Dakota plant area; for the purpose of calculating the combined margin emission factor, the project boundary also includes the grid-connected power plants in the Midwest Reliability Organization (MRO) regional grid;
    - *The physical infrastructure, facilities, and activities within the assertion:* wind power generation operations;
    - *GHG sources, sinks, and reservoirs included within the assertion:* CO_2 emission reductions expressed as carbon dioxide-equivalents; and
    - *The time period for the assertion:* February 1, 2011 through December 31, 2011.

Based on the assessments performed and the historical evidence collected, First Environment concludes with a reasonable level of assurance that the emissions reductions of the Project resulting from the displacement of electricity generated with fossil fuels for the period of February 1 through December 31, 2011 are:

- consistent with the validated PD of January 3, 2012;
- in conformance with the VCS Standard and the CDM methodology ACM0002 (Version 12.1.0); and
- without material discrepancy; and meeting the minimum level of accuracy of at least 95 percent.

Verified GHG emission reductions or removals from February 1, 2011 through December 31, 2011:

GHG Emission Reductions or Removals	tCO_2e
Baseline Emissions	414,075
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	414,075

6 LEAD AUDITOR SIGNATURE

Jeff Daley
Environmental Specialist

7 INTERNAL REVIEWER SIGNATURE

James Wintergreen
Senior Associate