

VERIFICATION REPORT FOR THE PRAIRIEWINDS ND1 (PWND1) EMISSIONS REDUCTION PROJECT MINOT, NORTH DAKOTA



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Summary:

The PrairieWinds North Dakota Emissions Reduction Project (the Project) is a wind power project located near Minot, North Dakota owned by PrairieWinds North Dakota (PWND1), a North Dakota Corporation that delivers electricity to the Midwest Reliability Organization (MRO) regional electric grid. The Project displaces electricity generated from fossil fuels, resulting in a net reduction of CO₂ emissions. PWND1 owns the Project and its parent company, Basin Electric Power Cooperative (BEPC), operates it pursuant a Construction, Operations and Management Agreement.

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, 4 October 2012, v3.3; 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 corrective action requests which were addressed sufficiently by Element Markets, LLC. The Project claims emission reductions of 346,210 metric tonnes CO₂e for the period of January 1 through December 31, 2012. First Environment, Inc. is reasonably assured that the Project meets all relevant VCS program requirements and correctly applies the CDM Methodology ACM0002 (Version 12.1.0) and the validated PD.

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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 PrairieWinds North Dakota Emissions Reduction Project (the Project). This report covers the verification of greenhouse gas (GHG) emission reductions from the displacement of fossil fuel generated electricity during the period January 1 through December 31, 2012. First Environment, Inc. (First Environment) conducted the verification from October 2012 to April 2013.

During the verification process, Element Markets acted as the project advisor for the project proponent, Basin Electric Power Cooperative (BEPC). 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 specific scope metrics for the verification are outlined in the table below:

Reporting Period	• January 1 – December 31, 2012
Emission Sources Verified	• Emissions reductions (expressed in units of carbon dioxide equivalents (CO₂e)) resulting from the displacement of electricity generated from fossil fuels
Definition of Materiality	• Misstatements of greater than five percent of the Project's GHG assertion • Qualitative non-conformities with Standards of Verification described below

The following table outlines the guidance and protocols used to conduct this verification:

Standards of Verification	• VCS Standard: VCS Version 3, 4 October 2012, v3.3 (VCS Standard) • Validated VCS Project Description (validated PD), December 14, 2011 • Approved Clean Development Mechanism (CDM) methodology ACM0002, Consolidated baseline methodology for grid-connected electricity generation from renewable sources, Version 12.1.0 (ACM0002)
Verification Process	• VCS Standard • VCS Program Guide, Version 3, 4 October 2012, v3.4 • ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions, 2006

The Monitoring Report, dated March 20, 2013, Version 2 titled “*Prairie Winds ND1 (PWND1) Emissions Reduction Project*” was also reviewed to inform the verification assessment.

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 Project is a wind energy power generation project located near Minot, North Dakota that delivers electricity to the Midwest Reliability Organization (MRO) regional electric grid. The Project became operational on December 30, 2009 and consists of 77 General Electric 1.5 megawatt (MW) wind turbines with a total nameplate capacity 115.5 MWs. Each turbine is owned by PWND1 and operated by BEPC pursuant to a Construction, Operations, and Management Agreement. The Project delivers electricity to the grid, displacing traditional fossil fuel sources and resulting in a net reduction in CO₂e emissions.

The validated PD provides additional details regarding the project activity.

2 VALIDATION PROCESS, FINDINGS, AND CONCLUSION

2.1 Validation Process

The validation process consisted of an assessment of the Project’s implementation, as described in the Monitoring Report and from discussions with Element Markets, against the validation criteria. The validation criteria considered in the assessment of any deviations included the approved CDM methodology ACM0002 v12.1.0 and the VCS Standard. First Environment reviewed justification for the deviation, including supporting documentation, in order to confirm that it was consistent with the underlying methodology and did not negatively impact the conservativeness or accuracy of the emission reductions.

2.2 Validation Findings

2.2.1 Gap Validation

Not Applicable

2.2.2 Methodology Deviations

No methodology deviations were identified during the current verification.

2.2.3 Project Description Deviations

The following project description deviation was identified in the Monitoring Report and approved for the Project during the current verification:

- The validated VCS PD states that the Project activity revenue meter will be maintained according to the Interconnection Agreement with the Western Area Power Administration (WAPA), which requires meter testing every three years. The revenue meter was not calibrated at the three year testing interval identified in the Interconnection Agreement. First Environment approved this deviation as the meter was subsequently tested for calibration accuracy on February 20, 2013, roughly two months past the three year time interval. Furthermore, the calibration accuracy test report indicated that the meter was reading within the required accuracy thresholds, which are well below the five percent materiality threshold defined for verification.

2.2.4 New Project Activity Instances

Not Applicable

2.2.5 New Project Activity Instances

Not Applicable

2.3 Validation Conclusion

No methodology deviations were assessed during the current verification period. The project description deviations described in Section 2.2.3 did not impact the applicability of the methodology, additionality, or the appropriateness of the baseline scenario, and the Project remained in compliance with ACM0002 and VCS requirements. In addition, Element Markets provided an appropriate description and justification of this deviation in the Monitoring Report.

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 energy operations:

Jeff Daley – Lead Verifier
Ross MacWhinney – Verifier
Iris Caldwell – Internal Reviewer

Audit Kick-off

The verification audit was initiated with a kick-off conference call on October 30, 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 validated 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 November 7, 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 corrective action during the verification process. The 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
Neha Dhanik – Element Markets

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 a request for corrective action and clarification during the verification process. Element Markets' response was sufficient to resolve the request. The corrective action requests and the responses provided are summarized in the tables below:

ID	Corrective Action Request	Participant Response	Verification Conclusion
CAR No. 1	The following discrepancies are identified in the Monitoring Report: a. The title page contains a number of blank items, b. The most current version of the Monitoring Report template is not applied, c. Section 1.8 incorrectly states the version of the applicable methodology, d. Section 4.1 (baseline emissions) is blank, Section 4.2 (project emissions) contains discussion of baseline emissions, e. Throughout the Monitoring Report the amount of MWh's generated throughout the reporting period is not consistent with records provided.	All of the identified Monitoring Report discrepancies have been addressed.	Response is acceptable

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The Project is implemented according to the description provided in the validated PD, except where noted above in Section 2.2.3. The Project became operational on December 30, 2009. The 10-year Project crediting period began on January 1, 2011 and ends on December 31, 2020. 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, except where noted above in Section 2.2.3.

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 14, 2013 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 14, 2013 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 the 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. Only a portion of the total MWh's generated by the Project were used for the purposes of creating VCUs and the associated MWh's were retired in the MRETS tracking system. The remaining portion of MWh's produced were not retired in the MRETS tracking system as the project proponent kept these MWh's for use in the renewable energy market as RECs. The portion of MWh's not retired in the MRETS system will not be eligible for VCU creation in the future. First Environment reviewed a report from the MRETS tracking system confirming that the appropriate number of RECs (corresponding to the total number of VCU's claimed) 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 Nelson Tap Substation at the point of interconnection with the grid. The revenue meter is owned and maintained by PWND1. The meter continuously measures power generated by the Project. Production data recorded by the meter is aggregated daily and reported in a MV90 report which identifies kilowatt hours (kWh) generation. WAPA also performs independent meter readings on a monthly basis and reports the total number of 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 the initial meter test report from December 22, 2009. The meter is tested in accordance to the requirements of the interconnection agreement, WAPA requirements, and ANSI C57.13. However, the meter was not maintained consistent with testing interval identified in the interconnection agreement, and WAPA requirements which stipulate the meter shall be tested every three years. As described in Section 2.2.3 above, the meter was subsequently tested on February 20, 2013, which demonstrated that the meter was operating accurately. First Environment found that the project description deviation associated with the missed meter testing event was appropriately described and justified.

The data collection and recordkeeping procedures were found to be consistent with those outlined in the monitoring plan described by the validated 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 or verification processes.

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. First Environment reviewed the emission reduction calculations for the verification period 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 ($EG_{\text{facility}, y}$) from the MRET's database was checked for quality control against hourly data from the revenue meter (MV90 reports) and aggregated annually. The portion of electricity generated, and used for VCU creation, during the verification period was multiplied by the CO₂ emissions factor for the grid electricity displaced by the project activity ($EF_{\text{grid}, \text{CM}, y}$). 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:*
 - o *Boundaries of the assertion:* Prairie Wind North 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 MRO regional grid;
 - o *The physical infrastructure, facilities, and activities within the assertion:* wind power generation operations;

- o *GHG sources, sinks, and reservoirs included within the assertion:* CO₂ emission reductions expressed as carbon dioxide-equivalents; and
- o *The time period for the assertion:* January 1 through December 31, 2012.

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 January 1 through December 31, 2012 are:

- consistent with the validated PD of December 14, 2011;
- in conformance with the VCS Standard and the CDM methodology ACM0002 (Version 12.1.0);
- without material discrepancy; and meeting the minimum level of accuracy of at least 95 percent.

Verified GHG emission reductions or removals from January 1 through December 31, 2012:

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	346,210
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	346,210

6 LEAD AUDITOR SIGNATURE



Jeff Daley
Environmental Specialist

7 INTERNAL REVIEWER SIGNATURE



Iris Caldwell, P.E.
Senior Engineer