

# **Verification Report for the Capricorn Ridge 4 Wind Farm Project Coke and Sterling Counties, Texas**

**Voluntary Carbon Standard 2007.1**

**October 19, 2010**

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Voluntary Carbon Standard Version 2007  
 19 February 2007

<b>Name of Verification Company:</b>	<b>Date of the issue:</b>
First Environment, Inc.	October 19, 2010
<b>Report Title:</b>	<b>Approved by:</b>
Verification Report for the Capricorn Ridge 4 Wind Farm Project	James Wintergreen
<b>Client:</b>	<b>Project Title:</b>
NextEra Energy Resources	Capricorn Ridge 4 Wind Farm Project
<b>Summary:</b>	
<p>NextEra Energy Resources is the owner and operator of the Cap Ridge IV Wind Farm (the Project), located approximately five miles east of Sterling City, Texas in Coke and Sterling Counties. The verification process consists of the independent third-party assessment of the project design and emission reduction assertion against the criteria stated in the Voluntary Carbon Standard 2007.1 (VCS) and approved CDM Methodology ACM0002 (Version 9).</p> <p>The Project claims emission reductions of 108,208 metric tons of carbon dioxide equivalents for the verification period of January 1, 2010 through June 30, 2010. First Environment is reasonably assured that the Capricorn Ridge 4 Wind Farm Project meets all relevant VCS requirements and correctly applies the CDM Methodology ACM0002 (Version 9).</p>	
<b>Work carried out by:</b>	<b>Number of pages:</b>
Michael Carim Jeff Daley	7

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## 1. Introduction

This report is provided to NextEra Energy Resources (NextEra) as a deliverable of the Voluntary Carbon Standard 2007.1 (VCS) project verification process for the Capricorn Ridge 4 Wind Farm Project (the Project). The Project consists of 75 1.5 MW wind turbines that deliver electricity to the Electricity Reliability Council of Texas (ERCOT) power pool. This report covers the verification of emission reductions for the period of January 1, 2010 through June 30, 2010. First Environment, Inc. (First Environment) conducted the verification from July to October 2010.

### 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 misstatement or omissions.

### 1.2 Scope and Criteria

NextEra owns and operates the Capricorn Ridge 4 Wind Farm Project (the Project) located in Sterling and Coke Counties, Texas. The Project creates emission reductions, expressed as metric tons of carbon dioxide equivalents (CO<sub>2</sub>e), resulting from the displacement of grid electricity generated from fossil fuels, and are submitted for verification as part of the Voluntary Carbon Standard (VCS) 2007.1 project registration process.

The Project's emissions reductions have been quantified in accordance with the CDM methodology ACM0002, "*Consolidated baseline methodology for grid-connected electricity generation from renewable sources*", Version 9. First Environment conducted the validation of the Project's approach as outlined in the final VCS Project Description (VCS PD) dated May 19, 2010 and approved it in a validation report submitted to NextEra on May 19, 2010. First Environment used the VCS 2007.1, validated VCS PD, and the CDM methodology AM0002 (Version 9) as the basis for this verification. The verification covers the time period of January 1, 2010 through June 30, 2010. Any misstatement of greater than five percent of the project's GHG assertion is considered material. Qualitative non-conformities with VCS and the validated VCS PD are also considered material during the verification process.

### 1.3 VCS Project Description

The Project is located about five miles east of Sterling City and Coke Counties, Texas at latitude 31.900878 and longitude -100.817413. Project activity consists of the expansion and installation of 75 1.5 MW wind turbines with a total capacity of 112.5 MW. The project utilizes wind energy to create power for export to the ERCOT grid, resulting in the displacement of fossil fuel-derived electricity. This activity results in a net reduction of CO<sub>2</sub> emissions.

The VCS PD provides additional details regarding the site and its operations.

## 1.4 Level of Assurance

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

## 2. Methodology

To review the Project's Greenhouse Gas (GHG) information, the following verification process was used:

- conflict of interest review;
- selection of Audit Team;
- initial interaction with NextEra contacts;
- review of the VCS PD;
- development of the verification and sampling plan;
- site visit focusing on control procedures around data collection;
- review and evaluation of raw data and calculations for period under review;
- follow-up interaction with project personnel 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 emission sources and reductions, 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.

Michael Carim – Lead Verifier  
Jeff Daley – Verifier  
Jay Wintergreen – Internal Reviewer

### ***Audit Kickoff***

The verification assessment was initiated with a kick-off conference call on July 1, 2010 between First Environment and the NextEra contact, Tina Reine. The communication focused on confirming the verification scope, objectives, criteria, schedule, and the data required for the verification.

### ***Project Design Document Review***

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

### ***Development of the Verification Plan***

The 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. NextEra was afforded the opportunity to comment on key elements of the plan for verification. Based on items discussed and agreed upon with NextEra, 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, established project deliverables, and presented a data-sampling plan designed to review all project elements in areas of high risk, inaccuracy, or non-conformance. The plan was provided to NextEra on July 2, 2010.

### ***Site Visit***

First Environment performed a site visit in September 2009 as part of the validation process for the Project. Because NextEra was able to confirm that no changes have occurred to operations or data collection and management systems since the site visit, a subsequent site visit for this reporting period was deemed unnecessary.

### ***Emissions Reduction Data and Calculation Assessment***

This assessment used information and insights gained during the previous steps to evaluate the collected data and reported emissions reduction quantities, and identify if either contained material or immaterial misstatements.

### ***Corrective Actions and Supplemental Information***

The Audit Team did not issue any requests for clarification, or corrective action. Minor calculation errors were identified during the verification process; however, misstatements had an immaterial impact on overall reported emission reductions and therefore did not require corrective action.

### ***Verification Reporting***

Verification reporting, represented by this report, documents the verification process and identifies its findings and results. Verification reporting consists of this report and separate deed of representation to be submitted to VCSA.

## **3. Verification Findings**

### **3.1 Remaining Issues, Including Any Material Discrepancy, From Previous Validation**

There are no remaining issues or material misstatements from the validation stage.

### **3.2 Project Implementation**

The project is implemented according to the description provided in the validated VCS PD and became operational on May 20, 2008. The Project's start date was confirmed during the validation stage. The Project is a new addition that is metered separately from the existing

phases of the wind farm. The Project is completely operational and implementation of the project activity was confirmed on site. No data and/or variables presented in the monitoring report differ from those stated in the validated VCS PD.

NextEra owns and operates the Capricorn Ridge 4 Wind Farm Project and has demonstrated right of use to emission reduction credits from the project activity. NextEra also owns the rights to Renewable Energy Credits (REC's) generated from the Capricorn Ridge 4 Wind Farm Project. First Environment reviewed evidence to confirm that any REC's generated during the reporting period have been permanently retired. This review is performed to ensure that no double counting of RECs and carbon credits occurred for the emission reductions associated with electricity sent to the grid.

### **3.3 Completeness of Monitoring**

The Audit Team discussed the following topics with site staff during the site visit in September 2009 performed during the validation of the VCS PD and confirmed them again during this verification:

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

The information gathered during these discussions was used to assess the Project's 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 parameters that are monitored and reported are the quantity of electricity generated and exported to the grid and purchased electricity consumed by the project. Purchased electricity is monitored through utility invoices. The quantity of electricity generated by the Project supplied to the grid is monitored electronically in real-time by a revenue meter located at the Lower Colorado River Authority (LCRA) Divide Substation at the point of interconnection with the grid. The revenue meter is owned and maintained by LCRA. Data is reported both to the grid operator, Electricity Reliability Council of Texas (ERCOT), and to NextEra. The Project also has a backup meter located at the Project substation.

The metering equipment at the point of interconnection is required to be maintained and calibrated in accordance with good utility practice and ERCOT requirements. The main and back-up metering equipment at the substation are calibrated and checked periodically by a qualified third party for accuracy so that the metering equipment shall have sufficient accuracy, and any error resulting from such equipment shall not exceed 0.5 percent of full-scale rating. First Environment reviewed evidence of calibration of the revenue meter to confirm that it was maintained in accordance with standard operating procedures.

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

### **3.4 Accuracy of Emission Reduction Calculations**

Emission reductions are calculated ex-post using the approach indicated in ACM0002 and the validated VCS PD.

Emission reduction calculations for the reporting period were reviewed to ensure accuracy in the formulas used and the raw data and default factors used as inputs. The formulas were tested and found to be consistent with the calculations described in ACM0002 and the validated VCS PD.

Baseline emissions were quantified from the displacement of fossil-fired grid electricity and calculated from the quantity of power generated multiplied by an emission factor. The emission factor for displaced grid electricity is determined using the *“Tool to calculate the emission factor for an electricity system.”* A combined margin emission factor is calculated in the VCS PD using a weighted-average of the operating and build margin emission factors. Per the validated VCS PD, the build margin is calculated ex-ante and is fixed for the Project’s crediting period. The operating margin is calculated ex-post and is assessed during each verification for changes. The operating margin is determined from the US EPA’s eGrid database. Because there have been no updates to the database since project validation, the operating margin, and subsequently the combined margin, are not revised for this reporting period.

Project emissions were subtracted from total emission reductions. Project emissions for NextEra consisted of purchased electricity from the grid (ERCOT) for several activities including turbine start up, offices, an operation and maintenance building, and substation back-up power. Utility invoices report consumption for the entire Capricorn Ridge facility. The total quantity of electricity consumed by the Project is determined by pro-rating the total on the invoice by the Project’s fraction of the total nameplate capacity of the facility. This calculation is described in detail in the Monitoring Report developed by Next Era. Project emissions are quantified by multiplying activity data collected from utility invoices by an appropriate emission factor.

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 VCS PD. The Audit Team reviewed emission reduction calculations to ensure accuracy in the formulas used and the raw data and default factors used as inputs. Documentation of the raw data used in the calculations, including electricity generated by the project and utility invoices for purchased electricity, were compared with the values used in the final calculations and tested for transcription or mathematical errors. Emission reduction 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 VCS PD. The Audit Team noted minor calculation errors, but they had an immaterial impact on the overall GHG emissions reduction assertion.

### **3.5 Quality of Evidence to Determine Emission Reductions**

NextEra provided adequate documentation for the emissions reduction calculations as well as its management systems around the data collection process. Evidence included calibration records, utility invoices for purchased electricity, and electronic data from ERCOT documenting the quantity of power exported to the grid.

As an additional quality control, the amount of electricity generated by the project logged in the ERCOT tracking system is compared with the quantity recorded by NextEra. For the current reporting period, the difference was less than one percent.

Evidence provided is consistent with the requirements of ACM0002 and the validated PD and meets generally accepted evidentiary standards for best practice in GHG accounting.

### 3.6 Management and Operational System

NextEra has adequate management and operational systems in place with respect to monitoring and reporting, as determined through observation during the initial site visit and desktop review of project documentation. No opportunities for improvement were identified during this verification for the Project.

## 4. 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 Voluntary Carbon Standard 2007.1, CDM Methodology ACM0002 (Version 9), and validated PD;
- *Verification criteria:* Voluntary Carbon Standard 2007.1, CDM Methodology AM0002 (Version 9), and validated PD;
- *Definition of materiality:* Misstatements of more than five percent of the GHG reduction assertion and qualitative non-conformities with the validated VCS PD are considered material;
- *Scope, including:*
  - *Boundaries of the assertion Capricorn Ridge 4 Wind Farm Project:* offices, an operations and maintenance building, and substation;
  - *The physical infrastructure, facilities, and activities within the assertion:* Capricorn Ridge 4 Wind Farm;
  - *GHG sources, sinks, and reservoirs included within the assertion:* Displaced fossil fuel grid electricity, and offset carbon dioxide emissions expressed as carbon dioxide-equivalents; and
  - *The time period for the assertion:* January 1, 2010 through June 30, 2010.

Based on the assessment performed and the evidence reviewed, First Environment concludes, with a reasonable level of assurance, that the emissions reductions of the Project resulting from the avoidance of carbon dioxide emissions from fossil-fuel generated electricity for the period of January 1 through June 30, 2010 are:

- consistent with the validated PD of May 2010;
- in conformance with the Voluntary Carbon Standard 2007.1 and the CDM Methodology ACM0002;
- without material discrepancy; and
- meeting the minimum level of accuracy of at least 95 percent.

Verified results show:

<b>Reporting Period: January 1, 2010 – June 30, 2010</b>	
Baseline Emissions (tCO <sub>2</sub> -e)	108,320
Project Emissions (tCO <sub>2</sub> -e)	112
Emissions Reductions (tCO <sub>2</sub> -e)	<b>108,208</b>

## 5. Lead Verifier Signature

A handwritten signature in blue ink, appearing to read 'M. M. Carim', written over a faint, light blue grid background.

Michael M. Carim  
Associate

## 6. Internal Reviewer Signature

A handwritten signature in black ink, appearing to read 'James Wintergreen', written over a faint, light blue grid background.

James Wintergreen  
Senior Associate