

REGISTERED EMISSION  
REDUCTION/REMOVAL (RER)  
VERIFICATION REPORT

KETTLES HILL WIND ENERGY PROJECT

BASELINE EMISSIONS MANAGEMENT INC.

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# 1. Project Description

## 1.1 Overview

As a result of the implementation of the Kettles Hill Wind Energy Project, indirect emission reductions of carbon dioxide, methane and nitrous oxide have been achieved. In summation, these emission reductions total 5,838 tonnes of CO<sub>2</sub>e for the period from March 1, to December 31, 2006. These emission reductions are surplus to those transferred to Environment Canada from this project under the PERRL program<sup>1</sup>.

## 1.2 Description

The Kettles Hill Wind Energy Project is being completed near Pincher Creek, Alberta. This project began with the installation of five 1.8 MW wind turbines in early 2006, to be followed up by an additional thirty 1.8 MW wind turbines to be installed by the end of 2006. Emission reductions are created through the provision of emissions free power to the Alberta power grid, offsetting the need for coal and natural gas electricity generating capacity. This results indirect emission reductions of carbon dioxide, methane and nitrous oxide which would otherwise have resulted from the electricity generation.

The Kettles Hill wind energy project is EcoLogo certified under the Environmental Choice Program from Environment Canada. The certification is held in good standing under Kettles Hill Wind Energy Inc. EcoLogo certification provides the mechanism for creating one renewable energy certificate (REC) for each megawatt-hour of renewable energy produced at the renewable energy facility.

## 1.3 Project Contact Information

Contact information for this project is:

Keith Driver, M.Sc., P.Eng, MBA  
Vice President, Operations  
Baseline Emissions Management Inc.  
Suite 610, 700 - 6th Avenue SW  
Calgary, Alberta T2P 0T8  
Tel. 403.262.3026 ext. 3  
Fax. 403.750.7601  
Email. [keith@baselineemissions.com](mailto:keith@baselineemissions.com)  
Web. [www.baselineemissions.com](http://www.baselineemissions.com)

# 2. Measurement and Calculation

The project boundaries include site of the Kettles Hill Wind Energy Project. Electricity metering and connectivity to the Alberta provincial power grid occurs at the project boundary. Electricity produced as part of the project is generated at a zero-emissions

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<sup>1</sup> Environment Canada PERRL Program, [www.ec.gc.ca/perrl](http://www.ec.gc.ca/perrl)

level from wind and is used to offset generation from fossil fuel sources linked to the same grid. The quantification of the electricity produced at the facility is governed under the terms of the EcoLogo certification of the site under the Environmental Choice Program.

The baseline condition is the generation of energy to supply the Alberta provincial power grid. The effective emissions rate per MWh of electricity is provided under the *Transition Principles* published by Alberta Environment<sup>2</sup>; relevant to new coal fired power facilities in Alberta. Further, this factor has been accepted by the Environmental Choice Program<sup>3</sup> for converting renewable energy credits to greenhouse gas emission reductions in Alberta. The emissions rate, 0.417 tonnes of CO<sub>2</sub>e per MWh, is set as the equivalent for combined cycle natural gas electricity generation. This emissions rate accounts for the carbon dioxide, methane and nitrous oxide emissions.

Calculation of the project impact relies on the application of the following formula:

$\text{Emission Reductions} = \sum \text{Electricity Produced}_{\text{Year X}} * \text{Emissions Factor}$
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Where:

$\sum \text{Electricity Produced}_{\text{Year X}}$  = Sum of electricity produced in the given year as measure following the requirements of the EcoLogo certification for renewable wind energy projects under the Environmental Choice Program in MWh.

Emissions Factor = 0.417 tonnes of CO<sub>2</sub>e per MWh as per *Transition Principles* and Environmental Choice Program

Applying this calculation methodology, the emission reductions associated with the implementation and operation of the Kettles Hill Wind Energy Project for 2006 are summarized in the following table.

Table 1: Summary of Emission Reductions

Period	Electricity Produced	Emissions Factor	Emission Reductions
January 1, 2006 to December 31, 2006	14,000 MWh	0.417 tonnes of CO <sub>2</sub> e per MWh	5,838 tonnes of CO <sub>2</sub> e

The calculation methodology recognizes consistency and relevance by tying in to other certification programs relevant to the generation of renewable energy from wind. Applying the emissions factor from the *Transition Principles* and Environmental Choice Program provides the conservativeness as this factor is approximately 50% of the average grid emissions intensity for Alberta as published in the most recent Environment

<sup>2</sup> Alberta Environment, [http://www3.gov.ab.ca/env/media/news/releases/transition\\_principles\\_backgrounder.pdf](http://www3.gov.ab.ca/env/media/news/releases/transition_principles_backgrounder.pdf), March 2004

<sup>3</sup> Environmental Choice Program, [www.environmentalchoice.com](http://www.environmentalchoice.com)

Canada national inventory of greenhouse gas emissions. By drawing upon the results of the Environmental Choice Program assessment of the quantity of electricity produced during the year, there is an assurance of accuracy, completeness, and transparency.

Emissions associated with the construction and assembly of the equipment at the facility are not considered as these have been shown in other work completed for Natural Resources Canada to be immaterial.

### **3. Verification Statement**

The emission reductions considered under this report have been internally verified against the values reported to the Environmental Choice Program for electricity production at the Kettles Hill Wind Energy Project. The calculation is transparent and thus requires no further verification at this point.

The emission reductions verified in this report are surplus to those transferred to Environment Canada from this project under the PERRL program.

### **4. Agreement of Facts**

Baseline Emissions Management agrees with facts outlined in this verification report.