



White Hill Wind Farm

2012 Annual Emission

Reduction Report

Version 1
18 January 2012

CONFIDENTIAL



White Hill Wind Farm 2012 Annual Emission Reduction Report

1 Background

This report fulfils the reporting obligations set out in the Project Agreement between Meridian and the Crown dated 9 May 2005.

2 The Project

White Hill is located six kilometres south-east of Mossburn in Southland and is sited on an area of mostly forestry land approximately eight kilometres by three kilometres.

It was fully commissioned in October 2007. Twenty-nine 2MW turbines at White Hill generate enough electricity for 30,000 average homes and the wind farm connects directly to the local area network owned by The Power Company and operated by PowerNet.



Key dates during the development and construction of White Hill Wind Farm	
Project announced and public consultation commenced	September 2004
Resource consents granted	December 2004
Karakia and construction commencement ceremonies	March 2006
Emission reductions and electricity generation commence	8 June 2007
Official opening by Prime Minister	8 June 2007



Key dates during the development and construction of White Hill Wind Farm	
Wind farm fully commissioned	1 October 2007

3 Emissions generated – 2012 calendar year

The emissions generated have been assessed using the methodology of Schedule 2 – Methodology for Determining Emission Reductions, of the Project Agreement dated 9 May 2005.

This schedule requires that Meridian records the quantities of petrol and diesel used in the construction of the project, and the quantities of cement, iron, steel and aluminium introduced into the project during the construction and operation of the project.

The White Hill wind farm was operational during the 2012 calendar year. Emissions from sources other than cement, iron, steel and aluminium will be reported in Meridian's GHG Inventory which is prepared on a financial year basis.

Emissions generated – 2012 calendar year (operational emissions)			
Material	Quantity	Emission factor ¹	Emissions generated
Diesel	7,440 litres	0.00271 tCO ₂ e/litre	Not required to be reported
Petrol	0 litres	0.00232 tCO ₂ e/litre	Not required to be reported
Iron and steel imported	0 tonnes	0 tCO ₂ e/tonne	0 tCO ₂ e
Iron and steel produced in New Zealand	0 tonnes	2.01 tCO ₂ e/tonne	0 tCO ₂ e
Aluminium imported	0 tonnes	0 tCO ₂ e/tonne	0 tCO ₂ e
Aluminium produced in New Zealand	0 tonnes	1.62 tCO ₂ e/tonne	0 tCO ₂ e
Cement	0 tonnes	0.46 tCO ₂ e/tonne	0 tCO ₂ e
Total operational emissions generated 2011			0 tCO₂e

4 Electricity exported – 2012 calendar year

This table shows the total electricity exported from White Hill wind farm in 2012 as recorded at the Grid Injection Point by NZX Limited.

¹ Emission factor as prescribed in Schedule 2 of the Project Agreement



Revenue Meter	kWh
Total electricity generated (kWh)	183,766,966

Appendix 1 sets out the generation from each turbine and a combined generation total of 195,971,713 kWh. The total electricity output of the Project as measured by the Revenue Meter is 12,204,747 kWh less than this combined total because the revenue meter output incorporates generation losses. Generation losses include wind farm distribution losses (i.e. cables between turbines), transformer losses, and local service supply at the White Hill substation. This is within expected limits.

There is no other generation that is not part of the project that flows through the above meters.

5 Emission reductions generated – 2012 calendar year

The table below sets out the emission reduction units generated by the project to date. This is calculated using the methodology prescribed in Schedule 2 of the Project Agreement.

Element	Annual Production	Factor	t CO ₂ -e
Total electricity generation (GWh)	183.766966 GWh	625 tCO ₂ /GWh	114,854.4
		Less operational emissions	0
Less other generation not part of the project, recorded by the meters (GWh)	0 GWh		0
		Net emission reductions generated for the 2012 calendar year	114,854.4

6 Emission units claimed – 2012 calendar year

114,854.40 net emission reductions x 0.89² = 102,220 Emission Units claimed.

Meridian claims 102,220 ERUs for the 2012 calendar year.

7 How the generation is measured

The total electricity generated is recorded at the Grid Injection Point by NZX Limited.

² Ratio specified as C in clause 5.1 of the Project Agreement



Appendix 2 contains “a report which verifies the total electricity generated from the Project and injected into the national transmission system in that Year by the person responsible for the reconciliation of electricity injected into and taken from electricity networks in New Zealand or any other person authorised to administer and certify the reconciliation of such data by that person”.

Appendix 3 contains evidence that the metering and recording equipment has been certified as compliant by a reputable, independent quality assurance service provider.

8 Statements

As at 31 December 2012, nothing has, or has the potential, to be an impediment to achieving the agreed emission reductions during the first commitment period.

This report:

- has been prepared using the methodology of Schedule 2 – Methodology for Determining Emission Reductions, of the Project Agreement dated 9 May 2005.
- meets all other requirements of Schedule 4 - Contents for Annual Reports, of the Project Agreement dated 9 May 2005.

Signature:

Name: Ewan Gestro

Position: Commercial Insight Manager

Date: 29 January 2013



9 Unit Transfer Detail

1	Project name:	Project White Hill
2	Date of project agreement:	9 May 2005
3	Name of the project developer/company:	Meridian Energy Limited
4	Project ID:	NZ - 1000002
5	Calendar year for which units are being transferred:	2012
6	Account identifier:	NZ-1024
7	Project Participant (investor): ³	Climate Cent Foundation
8	Quantity of units (refer to section 7 of this report):	102,220
9	Type of units:	ERUs

³ Project Participant (investor) is the party that you have an agreement with to transfer emission reduction units (ERUs).



Appendix 1

Generation for each turbine – 2012
(This data is generated by the Vestas Online database)

Parkunit	Active Prod. Total kWh
WHL12	6,862,286
WHL13	6,672,269
WHL14	6,612,565
WHL15	7,233,624
WHL16	7,258,747
WHL17	7,177,075
WHL21	6,259,821
WHL22	7,146,278
WHL23	6,385,669
WHL24	6,909,489
WHL25	7,496,762
WHL31	6,293,952
WHL32	5,670,484
WHL33	5,989,133
WHL34	5,345,709
WHL41	6,994,576
WHL42	7,418,937
WHL43	7,551,297
WHL44	7,023,648
WHL45	6,937,153
WHL46	7,081,713
WHL47	7,518,715
WHL51	5,473,753
WHL52	6,379,669
WHL53	6,683,271
WHL54	6,354,882
WHL55	7,280,631
WHL56	7,232,439
WHL11	6,727,166
Total	195,971,713



Appendix 2

Letter from NZX Limited confirming net generation from the White Hill wind farm.



09 January 2013

Oliver Mannix
Meridian Energy Limited
P O Box 2128
Christchurch

Dear Oliver,

The White Hills generation for the 2012 calendar year

The reconciliation manager wishes to advise Meridian Energy Limited, that the total generation recorded for the calendar year of 2012 for White Hills was 183,766,966 kWhs. The volume reported is net generation, i.e. injection quantities less any load at White Hills as supplied by Meridian Energy to the reconciliation manager.

If you have any questions regarding this letter please call me on 04 498 0044.

Yours sincerely

Dean Anderson
For and on behalf of
The reconciliation manager

NZX LIMITED, LEVEL 2, NZX CENTRE, 11 CASLE STREET, PO BOX 2050, WELLINGTON, NEW ZEALAND.
Phone +64 4 472 7569 Fax +64 4 496 2813 www.nzx.com



Appendix 3

The metering equipment is certified in accordance with the Electricity Governance Rules 2003.

The certificates for the White Hill meters follow.



**TRANSFIELD
SERVICES**
Meter Test House



CERTIFICATE OF COMPLIANCE

(Component Only)

Certificate Number: TSL 101408M

Reference Number: 34013

Installation Name: White Hills Wind Farm

Equipment Certified: METER: Power Measurement / ION 7650

Serial Number(s): PJ-0611A329-01

Calibration Report No.: CMR12594

Conditions of Issue: Nil

This certifies that the above metering equipment has been calibrated in accordance with the Electricity Governance Rules.

Issue Date: 20/05/2010

Signatory:

Expires: 20/05/2013

Malcolm Heare
for TSL E&F Meter Test House

Electronically Created by: Godfrey Dube on 01/07/2010



Meter Test House



CERTIFICATE OF COMPLIANCE

Certificate Number: TSL 101409

Reference Number: 34013

Installation Name: White Hills Wind Farm

Equipment Certified: Metering Installation

Component Information:

<u>Component:</u>	<u>Serial No.:</u>	<u>Certification No.</u>
METER	PJ-0611A329-01	TSL 101409M
CT	0693106, 0693105, 0693104	34013C
VT	0690324, 0690325, 0690326	34013V

Conditions of Issue: Nil

Installation Category: 6

This certifies that the above metering equipment has been calibrated in accordance with the Electricity Governance Rules.

Issue Date: 20/05/2010

Signatory:

Expires: 20/05/2013

Malcolm Hoare
for TSL E&T Meter Test House

Electronically Created by: Godfrey Dube on
01/07/2010