



Te Apiti Wind Farm

2012 Annual Emission Reduction Report

Version 1
17 January 2013

CONFIDENTIAL



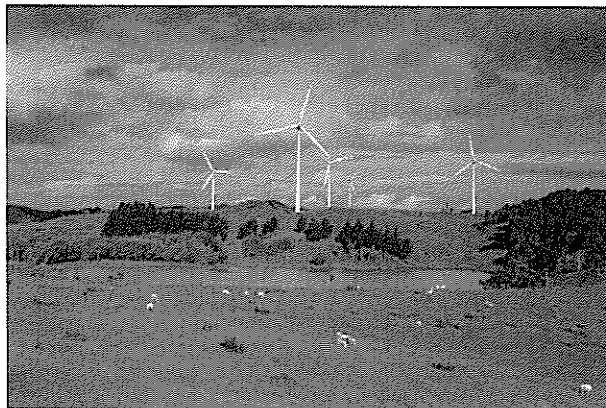
Te Apiti Wind Farm 2012 Annual Emission Reduction Report

1 Background

This report fulfils the reporting obligations set out in the 2003 Project Agreement between Meridian and the Crown.

2 The project

The 90 MW Te Apiti wind farm is located on Saddle Road north of the Manawatu Gorge. It is situated across 1,150 ha of farmland owned by four separate land owners including Meridian. The 55 turbines each have a capacity of 1.65 MW. The generation output is fed directly into the national grid. The electricity generated from the site is sufficient to generate electricity for approximately 45,000 average homes.



Key dates during the development and construction of Te Apiti Wind Farm	
Project announced and public consultation commenced	8 May 2003
Resource consent applications lodged	20 June 2003
Resource consents granted with no appeals	4 September 2003
Karakia and construction commencement ceremonies	7 November 2003
First turbine erected	27 May 2004
First power	July 2004
Full power	November 2004
Official opening by Prime Minister	9 December 2004



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 PRE 2 Project Agreements.

Emissions generated on-site at Te Apiti Wind Farm in 2012 comprise 12.2542 tCO₂e from diesel and petrol used in vehicles for site operation and maintenance.

Emissions generated – 2012 calendar year (operational emissions)			
Material	Quantity	Emission factor¹	Emissions generated
Diesel	3,700 litres	0.00271 tCO ₂ e/litre	10.0270 tCO ₂ e
Petrol	960 litres	0.00232 tCO ₂ e/litre	2.2272 tCO ₂ e
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 2012			12.2542 tCO₂e

4 Electricity exported – 2012 calendar year

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

Revenue Meter	kWh
Total electricity exported 2012² (kWh)	305,834,115
Total eligible generation 2012² (kWh)	305,834,115
Total eligible generation 2011² (kWh)	292,387,157
Total eligible generation 2010² (kWh)	272,824,901
Total eligible generation 2009² (kWh)	317,892,555
Total eligible generation 2008² (kWh)	305,114,802

¹ Emission factor as prescribed in Schedule 2

² As required in Section 7.1 b i of the Project Agreement.



Total eligible generation to date over the commitment period (kWh)²	1,494,053,530
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Appendix 1 sets out the generation from each turbine and a combined generation total of 315,488,897 kWh. The total electricity output of the Project as measured by the Revenue Meter is 9,654,782 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, transmission losses, and local service supply at the Te Apiti substation. This is within expected limits.

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

Meridian expects to generate the full amount of Eligible Generation during the commitment period.

5 Emission reductions generated – 2012 calendar year

The table below sets out the emission reductions generated by the project for the 2012 calendar year.

Element	Annual Production	Factor	t CO ₂ -e
Total electricity generation (GWh)	305.834115 GWh	440 tCO ₂ /GWh ³	134,567.011
		Less operational emissions	12.2542
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	134,444.469

Appendix 2 shows the emission reductions that will be reported to the Dutch Government based on the emission reduction calculation methodologies of the ERUPT 3 Contract.

6 Emission Units claimed

Meridian claimed Nil ERUs for the 2011 calendar year in January 2012 as set out in clause 6.1 of the Project Agreement.

³ Crown's risk weighted emission factor



Meridian claims 47,898 ERUs for the 2012 calendar year as set out in clause 6.1 of the Project Agreement.

How the generation is measured

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

Appendix 3 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 4 contains evidence that the metering and recording equipment has been certified as compliant by a reputable, independent quality assurance service provider.

7 Purchasers of Emission Reduction Units (ERUs)

As required in the Project Agreement⁴, a summary of all sales contracts for Kyoto Compliant Emission Units and the rights to any additional emissions abatements that Meridian has entered into since the Effective Date and up to the end of 2012 relating to the emissions abatement brought about by the Te Apiti wind farm during the commitment period follows.

Summary of sales contracts			
Vintage Year	Purchaser	Type and number of units	Delivery schedule
2008 - 2012	SenterNovem through ERUPT3 (delivery address TBA)	530,000 ERUs	5 equal tranches of 106,000 units from 2009 - 2013

⁴ Project Agreement Section 7.1 b vi



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 in accordance with the Project Agreement dated 17 December 2003.
- Has been prepared using the methodology of Schedule 2 – Measurement of Emission Reductions (except where detailed in this report) of the Projects to Reduce Emissions Project Agreements.

Signature:

Name:

Ewan Gestro

Position:

Commercial Insight Manager

Date:

29 January 2012



TRANSFIELD
SERVICES
Meter Test House



CERTIFICATE OF COMPLIANCE

(Component Only)

Certificate Number: TSL 102607M

Reference Number: 14971

Installation Name: Te Apiti Wind Farm
Meridian's Te Apiti Wind Farm
Palmerston North

Equipment Certified: METER: Schneider Electric/ION7650

Serial Number(s): MJ-1011A112-02

Calibration Report No.: CMR13180

Conditions of Issue: Nil

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

Issue Date: 24/05/2012

Signatory:

Expires: 24/05/2015

Malcolm Hoare
for TSL E&T Meter Test House

Electronically Created by: Godfrey Dube on
21/08/2012

TSL E and T Meter Test House, Brunner Street, PO Box 16-219, Christchurch (03 349 0873)



Meter Test House



CERTIFICATE OF COMPLIANCE

Certificate Number: TSL 102608

Reference Number: 14971

Installation Name: Te Apiti Wind Farm
Meridian's Te Apiti Wind Farm
Palmerston North

Equipment Certified: Metering Installation

Component Information:

<u>Component</u>	<u>Serial No.:</u>	<u>Certification No.</u>
METER	MI-1011A112-02	TSL 102607M
CT	709960, 1, 2.	14971C
VT	404520, 21, 22.	14971V

Conditions of Issue: Refer to Meter Test House Database - Installation Record "comments" section.
Installation Category: 6

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

Issue Date: 07/08/2012
Expires: 23/06/2014

Signatory:

Malcolm Hoare
for TSL E&T Meter Test House
Electronically Created by: Godfrey Dube on
21/08/2012

TSL E and T Meter Test House, Brunner Street, PO Box 18-210, Christchurch (03 349 0873)



Appendix 4

Metering equipment certification



14 January 2013

Oliver Mannix
Meridian Energy Limited
P O Box 2128
Christchurch

Dear Oliver,

The Te Apiti 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 Te Apiti was 305,834,115 kWhs. The volume reported is net generation, i.e. injection quantities less any load at Te Apiti as supplied by Meridian Energy to the reconciliation manager.

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

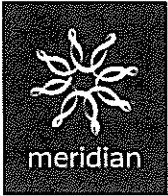
Yours sincerely

Dean Anderson
For and on behalf of
The reconciliation manager



Appendix 3

Report from NZX Limited confirming net generation from Te Apiti wind farm.



Appendix 2

Emission Reduction Calculations for ERUPT.

Electricity and emission reduction units generated based on Electricity Emission Factor as per validated PDD	
2012 calendar year	
Total electricity generation	305,834,115GWh
2012 Electricity Emission Factor as per the validated PDD	591 tCO ₂ /GWh
Gross emission reductions generated	180,747.962 tCO ₂
Less total emissions	12.2542 tCO ₂
Total emission reductions generated	180,736 tCO₂
Emission reduction units claimed from New Zealand Government for 2012 calendar year	47,898 ERUs



Appendix 1

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

Parkunit	Actual Output (WTG counter) kWh		
TAP01	6,127,869	TAP30	5,403,686
TAP02	6,183,980	TAP31	6,248,272
TAP03	6,186,918	TAP32	6,308,150
TAP04	5,355,185	TAP33	5,978,990
TAP05	5,915,128	TAP34	5,737,623
TAP06	6,834,017	TAP35	6,096,095
TAP07	6,531,362	TAP36	6,655,824
TAP08	5,044,927	TAP37	7,228,780
TAP09	5,751,644	TAP38	5,633,547
TAP10	5,714,754	TAP39	5,390,616
TAP11	6,407,824	TAP40	4,939,839
TAP12	5,986,810	TAP41	4,574,649
TAP13	6,412,462	TAP42	5,135,900
TAP14	6,034,978	TAP43	5,911,059
TAP15	5,910,424	TAP44	5,599,474
TAP16	5,268,710	TAP45	5,922,223
TAP17	6,250,558	TAP46	6,027,513
TAP18	5,837,320	TAP47	5,696,336
TAP19	6,765,159	TAP48	5,692,894
TAP20	7,296,850	TAP49	5,538,411
TAP21	5,629,167	TAP50	5,946,381
TAP22	4,617,408	TAP51	5,223,331
TAP23	4,443,212	TAP52	5,491,241
TAP24	4,315,318	TAP53	5,057,992
TAP25	5,365,759	TAP54	4,917,307
TAP26	5,400,821	TAP55	5,335,337
TAP27	5,155,598	Total	315,488,897
TAP28	5,803,697		
TAP29	5,249,568		



9 Unit Transfer Details

1	Project name:	Te Apiti Wind Farm
2	Name of the project developer:	Meridian Energy Limited
3	Project ID:	NZ - 1000001
4	Calendar year for which units are being transferred:	2012
5	Participant's account identifier:	NZ-1024
6	Quantity of units:	47,898
7	Type of units:	ERUs