



Meridian Energy  
Att. Ms Anna Broadhurst  
Level 5, 15 Allen Street  
Wellington  
New Zealand

DNV CERTIFICATION PTY LTD  
DNV Industry  
Sydney  
Level 7, 124 Walker Street  
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Australia

Your ref.:

Our ref.:  
ZAAAU980UDDIN090318-1

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18/03/2009

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**Amendment 1 Voluntary Emission Reductions Verification Opinion  
Meridian Energy: White Hill Project for the period 1 January 2007 to 31 December 2007 (DNV  
reference ZAAAU980DAWES080409-1 dated 9 April 2008).**

DNV Certification and the Project Participant (Meridian Energy) agree to amend the Voluntary Emission Reductions Verification Opinion (ZAAAU980DAWES080409-1 dated 9 April 2008) in relation to the Verification Opinion Meridian Energy: White Hill Project for the period 1 January 2007 to 31 December 2007.

## 1 SCOPE

You have engaged us to conduct audit procedures associated with verification of the Voluntary Emission Reductions (VERs) achieved by the White Hill Wind Farm project for the calendar year 2007. The project is located in the South Island of New Zealand and supplies electricity directly to the New Zealand electricity grid. The project has been established and meets the requirements of the New Zealand Projects to Reduce Emissions (PRE) arrangements, and so has approval as a JI project. The VERs presented for verification were created during the 2007 calendar year.

We have conducted sufficient verification procedures to enable us to express an opinion on the following matters:

1. The number of VERs proposed to be verified in respect of the period 1 January 2007 to 31 December 2007 have been calculated in all material respects:
  - Based on accurate and reliable generation records and other relevant supporting documentation; and
  - In a manner consistent with the methodology determined in the White Hill Project Design Document (PDD, December 2005).

## 2 VERIFICATION PROCEDURES

Meridian's management is responsible for operation of the project. energy market services is the Half Hour Data Administrator for the project and is responsible for collection and reporting of the electrical energy sent out to the grid to Meridian and the NZ electrical market regulator. We have not conducted any audit procedures with respect to the internal control environment of Meridian Energy taken as a whole. As such, no assurance is given on any internal controls not associated with the creation of VERs.

Our verification has been conducted in accordance with International Standard on Assurance Engagements 3000 *Assurance Engagements other than Audits or Reviews of Historical Information* and adopting the International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual* to provide potential purchasers of VERs



with reasonable assurance that the VERs have been calculated in a manner consistent with the White Hill PDD (December 2005). Accordingly, we have conducted such tests and procedures as we considered appropriate including:

- Review of the White Hill Wind Farm 2007 Annual Emission Reduction Report;
- Review of the energy data claimed as being the 2007 Net Sent Out generation (provided by the independent Half Hour Data Administrator, energy market services limited) from the project by comparison with individual turbine generation records and the plans from the PDD (December 2005);
- Consideration as to whether the estimate of project construction and operation emissions is reasonable;
- Discussions with the relevant Meridian Energy personnel; and
- Observation and review of relevant documentation.

We have not performed audit procedures on other information contained in the White Hill PDD (December 2005).

We adopted and customized a checklist developed by the Ministry for the Environment, on behalf of the Crown.

### **3 VERIFICATION FINDINGS**

#### **3.1 Data arrangements**

Our verification comprised a desktop review of the information contained in the Meridian Energy White Hill Wind Farm 2007 Annual Emission Reduction Report conducted on 8 April 2008 and which found no material discrepancies in the arrangements as documented.

We confirmed that the individual turbine generation data was reasonable based on the planned arrangements from the PDD (December 2005) and the Half Hour Data Administrator records of Net Sent Out generation. The Net Sent Out generation for the period 1 January 2007 – 31 December 2007 was recorded as 75.845 GWh.

We considered the information used to develop the estimate of construction and operational emissions. In accordance with the PRE Agreement, embodied and actual emissions from the construction activity are to be taken to account in the first claims for abatement from the project. We noted that Meridian included international emission sources, which is not a requirement of the New Zealand PRE Agreement, and so increased the initial construction and operational emission from 5891 t CO<sub>2</sub>-e to 15 507 t CO<sub>2</sub>-e. This is a material emission source for the first abatement claim, but is not recurrent. It is in excess of the requirements of the approved CDM methodology applicable at the time of determination, ACM0002 version 01. We note that abatement from the displacement of grid electricity commenced in mid-2007, and that the emissions from construction and operation activities were incurred during 2006 and 2007. Based on our professional judgement and after comparison with similar projects, we consider the estimate to be reasonable.

We also confirmed that the carbon emission factor (CEF) for NZ grid electricity used in the calculation of VERs was the same as the factor previously determined for use by the New Zealand Government in the reporting of emission abatement for PRE projects as a long run average emission factor. This factor is 625 t CO<sub>2</sub>-e/GWh (White Hill PDD, p10).



### **3.2 Creation of 2007 VERs**

A completed VER calculation is included in the Annual Report. The information in the calculation table was able to be cross checked against the energy market services report of 15 January 2008 and the grid CEF from the White Hill PDD (December 2005). In accordance with the PRE project agreement and the PDD (December 2005) emissions embodied in construction materials were subtracted from the abatement calculated from the displacement of grid electricity. Meridian Energy included international emissions sources, which is in excess of the requirements of the PRE Agreement. The claim for creation of 31 895 tonnes CO<sub>2</sub>-e VERs (net of construction and operational emissions, and noting that some project emissions were from 2006) during the period 1 January 2007 – 31 December 2007 was found, in all material respects, to be fairly stated. A copy of the Annual Report is attached to this report.

### **3.3 Inherent Limitations**

Because of the inherent limitations in any internal control structure it is possible that fraud, error, or non-compliance with laws and regulations may occur and not be detected. Further, the verification was not designed to detect all weaknesses or errors in internal controls so far as they relate to the requirements set out above as the verification has not been performed continuously throughout the period and the procedures performed on the relevant internal controls were on a test basis. Any projection of the evaluation of control procedures to future periods is subject to the risk that the procedures may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

The verification opinion expressed in this report has been formed on the above basis.

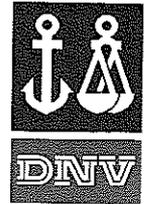
### **3.4 Disclaimer**

This report has been prepared for Meridian Energy. We disclaim any assumption of responsibility for any reliance on this report to any person other than Meridian Energy, or for any purpose other than that for which it was prepared.

## **4 VERIFICATION OPINION – CREATION OF VRS**

In our opinion:

1. The 31 895 tonnes CO<sub>2</sub>-e VERs proposed to be created in respect of the Meridian Energy White Hill Wind Farm for the period 1 January 2007 – 31 December 2007 have been fairly stated and calculated and are:
  - Based on accurate and reliable generation records and other relevant supporting documentation (including Sustainable Development Indicators and the approved Monitoring Plan); and
  - Have been calculated in a manner consistent with the methodology determined in the White Hill Gold Standard compliant Project Design Document (PDD, December 2005).
2. Our opinion, following the reasonable assurance verification undertaken at DNV Sydney Office of the GHG assertions included in the White Hill Wind Farm 2007 Annual Report and the subsequent review of associated documents is that the following matter is fairly presented, in all material aspects, in accordance with the PRE requirements:
  - The White Hill Wind Energy Project 2007 Annual Report includes the information detailed in Schedule 4 of the Project Agreement;



- The recording and calculation of the emission reductions for the year uses the relevant emission factors set out in Schedule 2
- Construction emissions calculations uses (a) the emission factors set out in Schedule 2, and (b) the records of the quantities of materials, fuels, electricity purchased etc. relevant to emissions during construction;
- Metering and recording equipment installed has been certified by an independent reputable quality assured service provider;
- Any other (electricity, heat) generation, not part of the project, that flows through these meters has been indentified, measured and subtracted from the gross total;
- Records of emissions as a result of the operation of the project are fairly stated;
- Any significant changes to the PRE project and its baseline scenario
- Within the context of verification, any other requirement relating to the PRE project Agreement.

Yours faithfully  
for DNV CERTIFICATION PTY LTD

A handwritten signature in black ink, appearing to read 'Noim Uddin', is positioned above the printed name.

Noim Uddin  
Deputy Climate Change Manager

Attachment 1: White Hill Wind Farm 2007 Annual Emission Reduction Report

**Projects to Reduce Emissions  
Meridian Energy White Hill Wind  
Power Project  
2007 Annual Report  
Independent Verification Report**

**Project verified:** *White Hill Wind Power Project  
Judy Ryan  
Climate Change Adviser  
Phone +64 4 382 7516  
Fax +64 4 381 1201  
Email: [Judy.Ryan@MeridianEnergy.co.nz](mailto:Judy.Ryan@MeridianEnergy.co.nz)*

**Independent verifier:** *Noim Uddin  
DNV Certification Pty Ltd*

**Date of verification:** *23/12/2008*

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| <b>PRE Project Information</b>  |   |
|---|---|
| <b>Name of Project: White Hill Wind Power Project</b>                               |   |
| <b>Project Site Address: 80 km north of Invercargill, South Island, New Zealand</b> |   |
| <b>Name of Project Participant: Meridian Energy Limited</b>                         |   |
| <b>Name of Project contact: Judy Ryan</b>   | <b>Telephone:</b><br>64 4 382 7516  |
| <b>Postal Address:</b> Level 1, 33 Customhouse Quay, Wellington                     | <b>Email:</b><br><a href="mailto:Judy.Ryan@MeridianEnergy.co.nz">Judy.Ryan@MeridianEnergy.co.nz</a> |
| <b>Street Address:</b> PO Box 10-840, Wellington                                    | <b>Fax:</b> 64 4 381 1201   |
| <b>Verifier Information</b>   |   |
| <b>Name of Company:</b><br>DNV Certification Pty Ltd                                | <b>Telephone:</b><br>61-02-9922-1966 Ext 517<br>61-(0)-418-200-513                                  |
| <b>Name of Lead Verifier:</b><br>Noim Uddin   | <b>Fax:</b><br>61-02-9929-8792  |
| <b>Email:</b> noim.uddin@dnv.com  | <b>Date(s) of Verification:</b><br>22-23/12/2008  |
| <b>Verification Team Members: Yngve Amundsen (Peer Reviewer)</b>                    |   |
| <b>PRE Annual Report Verified</b>   |   |
| <b>Annual Report 2007</b>   |   |

PRE Programme Independent Verification Report for *White Hill Wind Energy Project 2007 Annual Report*

Prepared by *Noim Uddin, DNV Certification Pty Ltd* on 23/01/2009

## 1 Verification Statement

To:

*Judy Ryan  
Climate Change Adviser  
White Hill Wind Energy Project  
Level 1, 33 Customhouse Quay,  
Wellington*

### 1.1 Introduction

DNV Certification Pty Ltd has been engaged by the Ministry for the Environment to undertake a verification of the Participant's Projects to Reduce Emissions ("PRE Project") 2007 Annual Report (2007 Annual Report). The verification has been planned and performed in accordance with the Verification Plan dated 18/12/2008 and our contract dated 01/12/2008.

We have reviewed the nature of the 2007 Annual Report and have concluded that we are able to conduct a reasonable assurance verification of the criteria items directly related to operation of the project and limited assurance verification of the scope items which describe competence of the Project Participant and the interaction of the project with local regulatory authorities. We have indicated the relevant scope items in the Scope of Verification below.

### 1.2 Objective

The objective of the verification engagement is to form an opinion as to whether the 2007 Annual Report is prepared in accordance with the PRE Project Agreement between the Crown and the Project Participant ("Project Agreement") and is free from material discrepancy.

### 1.3 Criteria

DNV Certification Pty Ltd conducted sufficient verification procedures to enable us to express a reasonable assurance verification opinion on the following matters that, in all material respects:

1. The 2007 Annual Report includes the information detailed in Schedule 4 of the Project Agreement.
2. The recording and calculation of the emission reductions for the year uses the relevant (e.g., electricity) emission factors set out in Schedule 2 (or elsewhere as defined with another applicable Agreement).
3. Construction emissions calculation uses (a) the emission factors set out in Schedule 2, and (b) the records of the quantities of materials, fuels, electricity purchased etc. relevant to emissions during construction.
4. Metering and recording equipment installed have been certified by an independent reputable quality assured service provider.
5. In relation to any other (electricity, heat) generation, not part of the project, that flows through these meters have been identified, measured and subtracted from the gross total.

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6. Records of emissions as a result of the operation of the PRE Project are fairly stated.
7. The participant has justified and documented any significant changes to the PRE Project and its baseline scenario that lead to material change in the project's emissions, removals and emission reductions since the previous verification, and which affect the projects ability to conform to the principles, and requirements of the PRE project.
8. Within the context of verification, any other requirement relating to the PRE project Agreement.

DNV Certification Pty Ltd conducted sufficient verification procedures to enable us to express a limited assurance verification opinion on the following matter that, in all material respects:

1. The participant has adequate understanding of the principles and requirements of the PRE programme and is competent to conform to those principles and requirements.
2. Compliance with the regulatory requirements of local and central government agencies.

### **1.4 Verification scope**

The scope of verification of the 2007 Annual Report is as follows:

#### **1.4.1 Greenhouse Gas (GHG) project and baseline scenarios relevant to the Project**

The relevant project and baseline scenarios are as follows

1. baseline scenario: supply of electricity from the national grid (based on fossil fuel); and
2. project scenario: generation of CO<sub>2</sub> free electricity from renewable wind resources.

#### **1.4.2 Physical infrastructure, activities, technologies and processes of the GHG project**

The elements of the project subject to verification are as follows:

1. physical infrastructure: wind turbines, metering and transmission network, and associated infrastructure, etc;
2. project activities: electricity generation from wind turbines and supply to the national grid;
3. technologies: wind turbine for electricity generation; and
4. processes: metering of generated electricity and electricity transmission network.

#### **1.4.3 GHG sources, sinks and/or reservoirs included within the Project boundary**

Project GHG sources, sinks and reservoirs within the PRE Project boundary are:

PRE Programme Independent Verification Report for *White Hill Wind Energy Project 2007 Annual Report* 4

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1. GHG sources: any fossil fuel consumption within project boundary, e.g. any stand-by diesel generator, construction and transportation related to construction.

### **1.4.4 Types of GHGs included within the project boundary**

The GHG species included within the Project Agreement are:

1. CO<sub>2</sub> in respect to switching fossil-based electricity from the grid.

### **1.4.5 Time period of the Annual Report**

The verification is of all project activities carried out during the period 1 January 2007 to 31 December 2007.

## **1.5 Verification Principles**

DNV Certification Pty Ltd conducted the verification in accordance with ISO14064-3 and ISO14065 and its contract with the Crown and the verification principles under clause 7 of the Project Agreement.

## **1.6 Project Participant's Responsibilities**

The Project Participant is responsible for preparing the 2007 Annual Report and maintaining an effective internal control environment and data management system, including control procedures supporting the inputs into this documentation, in accordance with accepted good practice.

## **1.7 Verifier Responsibilities**

The verification has been conducted in accordance with ISO14064-3 and ISO14065 in order to provide a reasonable and limited level of assurance as described in the Scope of Work above to the Crown. As such DNV Certification Pty Ltd has undertaken the following procedures that we considered appropriate to be able to provide a reasonable and limited level of assurance.

## **1.8 Verification Procedures**

Our verification has been conducted in accordance with ISO14064-3 and ISO14065 to provide reasonable assurance that the greenhouse gas assertions and other information contained in the 2007 Annual Report is free from material misstatement. Accordingly, we have conducted such tests and procedures as we considered appropriate including:

- Teleconferencing with White Hill Wind Farm personnel, to review any changes with regard to installation, on-site control procedures, and physical connection to the local network owned by The Power Company and operated by PowerNet.
- Review of key documents, including:
  - Projects to Reduce Emissions Agreement with the Crown.
  - Project Agreement Amendment 1.
  - 2007 Annual Report.
  - Report from Energy Market Services.

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- Calibration and maintenance of metering.
- Observation and review of relevant documentation.

The results of the verification procedures undertaken are set out in the appended Attachment 1 – Verification Checklist.

DNV Certification Pty Ltd confirms that it is not aware of any actual or perceived conflict of interest in having completed this engagement.

### **1.9 Independent Review**

DNV Certification has completed an independent review, undertaken by competent personnel who did not participate in the verification, to:

- confirm that all verification activities have been undertaken; and
- conclude whether or not the assertions in the 2007 Annual Report are free from material discrepancy, and whether the verification activities provide a reasonable level of assurance and a limited level of assurance for the scope items nominated above.

In making this verification statement, we confirm that:

- DNV is currently accredited as a Designated Operational Entity (DOE) by the Conference of Parties as per the Ministry for the Environment requirements.
- This verification has been conducted in accordance with the requirements of ISO 14064-3.
- The findings and conclusions documented in this report are guided by professional judgment and supported by verification records held by us.

### **1.10 Inherent Limitations**

Because of the inherent limitations in any internal control environment and data management system, it is possible that fraud, error, or non-compliance with the Project Agreement may occur and may not be detected. Further, the verification was not designed to detect all weakness or errors in the internal control environment and data management system so far as they relate to the scope set out above, as the verification has not been performed continuously throughout the period and the procedures performed on the relevant internal information and data management system were on a test basis. Any extrapolation from this verification to future periods is subject to the risk that the procedures may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

DNV Certification Pty Ltd did not conduct any verification procedures with respect to the internal control environment and data management system of the project participant as a whole. As such, no assurance is provided on any internal control environment and data management system not associated with the 2007 Annual Report.

The verification opinion expressed in this Report has been formed on the above basis.

## **1.11 Verification Opinion**

### **1.11.1 Unqualified opinion**

Our opinion, following the reasonable assurance verification undertaken at DNV Sydney Office of the GHG assertions included in the White Hill Wind Farm 2007 Annual Report and the subsequent review of associated documents is that the following matters are fairly presented, in all material aspects, in accordance with the PRE requirements:

1. the 2007 Annual Report includes the information detailed in Schedule 4 of the Project Agreement;
2. the recording and calculation of the emission reductions for the year uses the relevant emission factors set out in Schedule 2;
3. the construction emissions calculation uses (a) the emission factors set out in Schedule 2, and (b) the records of the quantities of materials, fuels, electricity purchased etc. relevant to emissions during construction;
4. metering and recording equipment installed has been certified by an independent reputable quality assured service provider;
5. any other (electricity, heat) generation, not part of the project, that flows through these meters has been indentified, measured and subtracted from the gross total;
6. records of emissions as a result of the operation of the project are fairly stated;
7. any significant changes to the PRE project and its baseline scenario; and
8. within the context of verification, any other requirement relating to the PRE Project Agreement.

## **1.12 Limited Assurance Verification Opinion**

### **1.12.1 Unqualified opinion**

In our opinion, nothing came to our attention during the limited assurance verification of the 2007 Annual Report and review of associated documents to indicate that the assertion that the regulatory requirements of local and central government agencies have been met to indicate is not, in all material aspects, in accordance with the following PRE Guidance requirements:

1. the project participant has adequate understanding of the principles and requirements of the PRE programme and is competent to conform to those principles and requirements; and
2. compliance with the regulatory requirements of local and central government agencies.

## **1.13 Suggestions**

No suggestions are made.

**1.14 Limitations on use**

This Verification Statement has been prepared for the Crown solely for use in relation to the PRE programme. DNV Certification disclaims any liability for reliance upon this Report by any other party or for any other purpose other than for which it was prepared.

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|--|--|
| <b>Name of Lead Verifier:</b>            | Noim Uddin   |
| <b>Position:</b>                         | Lead Climate Change Verifier   |
| <b>Company and Location:</b>             | DNV Certification Pty Ltd, Sydney  |
| <b>Signature of Lead Verifier:</b>       |   |
| <b>Date:</b>                             | 30 January 2009  |
| <b>Name of Independent Reviewer</b>      | Yngve Amundsen   |
| <b>Signature of Independent Reviewer</b> |  |
| <b>Date:</b>                             | 2 April 2009   |

Attachment 1 – Verification Procedures and Findings