

**Projects to Reduce Emissions
Rotokawa Geothermal Project
(Mighty River Power Limited)
2010 Annual Report
Independent Verification Report**

Project verified:

*Rotokawa Geothermal Project
Mighty River Power Limited
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Independent verifier:

*Noim Uddin
DNV Australia*

Date of verification:

16-17/03/2011

PRE Project Information	
Name of Project: Rotokawa Geothermal Project	
Project Site Address: Taupo, New Zealand	
Name of Project Participant: Mighty River Power Limited	
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Verification Team Members: Noel Peters (DNV Sydney)	
PRE Annual Report Verified	
Annual Report 2010	

1 Verification Statement

To:

Catherine Schofield
Senior Analyst, Funds Management
Ministry for the Environment
PO Box 10362
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1.1 Introduction

DNV Australia has been engaged by the Ministry for the Environment on behalf of the Crown to undertake a verification of Mighty River Power's *Projects to Reduce Emissions (PRE Project) Rotokawa Geothermal Project 2010 Annual Report (2010 Annual Report)*. The verification has been planned and performed in accordance with the Verification Plan of 01/03/2011 and our contract of 08/02/2011.

We have reviewed the nature of the 2010 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 2010 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 Australia 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 2010 Annual Report includes the information detailed in Schedule 4 of the Project Agreement and has used correct template as per the Ministry for the Environment guidelines;
2. The recording and calculation of the emission reductions for the year uses the relevant emission factors and adopts the calculation of net emission reduction method as set out in Schedule 2 of the Project Agreement;
3. The calculation behind the Emission Units claimed for 2010, uses the net emission reduction and the request ratio ("C") set out in clause 5.1 of the Project Agreement;
4. Project emissions calculation (using the emissions factors set out in Schedule 2) (a) emissions due quantities of petrol and diesel used in the project (during construction and operation), emissions due to introducing cement, iron, steel and aluminium as materials (b) emissions due to purchased electricity as auxiliary power, and (c) emissions due to non condensable gases (only CO₂ according to Schedule 2) in the geothermal steam.

5. Metering (electricity, quantity of steam discharged from the geothermal wells, pressure and temperature of the steam, non condensable gases) equipment installed has been certified by independent reputable quality assured service provider(s).
6. Recording of electricity supply to the grid by accredited Half Hour Data Administrator or sales revenue invoices, recording of steam discharged from the geothermal wells, recording of pressure and temperature of the steam, recording of non condensable gases.
7. Any other (electricity, heat, steam) generation, not part of the project, that flows through these meters has been identified, measured and subtracted;
8. Any significant changes to the PRE project and its baseline scenario.
9. Within the context of verification, any other requirement relating to the PRE project Agreement.

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

10. 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
11. Compliance with the regulatory requirements of local and central government agencies (including any requirement of environmental monitoring and reporting).

1.4 Verification scope

The scope of verification of the 2010 Annual Report is as follows:

1.4.1 GHG project and baseline scenarios relevant to the Project

The relevant project and baseline scenarios are as follows:

1. baseline scenario: *business as usual electricity generation in New Zealand without electricity supply from Rotokawa Geothermal Project; and*
2. project scenario: *electricity generation from Rotokawa Geothermal Project as additional.*

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: *rated capacity of the electricity generation unit, construction of the steam collection facility, construction of the electricity generation facility, electricity supply network to the grid;*
2. Project activities: *generation of electricity by using steam from geothermal facility;*
3. Technologies: *steam-to-electricity conversion systems (steam turbine and generator); and*

4. Processes: *quality of steam (pressure and temperature), monitoring of steam flow, monitoring of non condensable gas (fraction of CO₂), supplying of electricity to the electricity grid, maintenance of metering, calibration and data archiving.*

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

Project GHG sources within the Project boundary are:

1. CO₂e emission in respect of the electricity output
2. CO₂ emission in respect of the exhaust steam
3. CO₂e emission in respect of the quantities of construction materials, fossil fuels and electricity used in, purchased by, or introduced into the project.

1.4.4 Types of GHGs included within the project boundary

The GHG species included within the Project Agreement are:

1. CO₂
2. CH₄, N₂O, SF₆ and PFCs – not applicable to this project activity.

1.4.5 Time period of the Annual Report

The verification is of all project activities in the period *1 January 2010 to 31 December 2010*.

1.5 Verification Principles

DNV Australia conducted the verification in accordance with ISO 14065 and our contract with the *Crown* and the verification principles under clause 7 of the Project Agreement.

1.6 Project Participant's Responsibilities

Mighty River Power Ltd is responsible for preparing the *2010* 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 verification scope. As such *DNV Australia* 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 *2010* Annual Report are free from material misstatement. Accordingly, we have conducted such tests and procedures as we considered appropriate to be able to provide reasonable assurance including:

- On-site visit at the Rotokawa (Nga Awa Purua) Geothermal Power Plant to examine the geothermal steam collection facility, reinjection operation, PRE Programme Independent Verification Report for *Rotokawa (Nga Awa Purua) Geothermal 2010* 5 Annual Report

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operation of steam turbine and generation of electricity, electricity metering, record keeping procedure, consumption of any other fossil fuels and electricity during operation, maintenance of the facility, and resource consent compliance.

- Interviews with operational, management and record keeping personnel responsible for maintenance, operation, management and reporting at the facility.
- Review of key documents, including:
 - Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004.
 - Project Agreement Amendment 1 dated 10 June 2005.
 - Project Agreement Amendment 2 dated 18 February 2008.
 - 2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version dated 15 February 2011).
- Random sample testing of source data, including:
 - Electricity generation.
 - Non condensable gas – CO₂
 - Any other fossil fuel consumption (diesel and petrol).
 - Introduction of any construction materials.
- Confirmation that the calculation methodology is in compliance with Schedule 2 of the Project Agreement.
- Discussions with the relevant Ministry for the Environment personnel.
- Observation and review of relevant documentations.

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

Mighty River Power's personnel have overall responsibility for the project including maintenance and operational data management.

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

1.9 Independent Review

DNV Australia 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 2010 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 Australia did not conduct any verification procedures with respect to the internal control environment and data management system of the Mighty River Power Limited as a whole. As such, no assurance is provided on any internal control environment and data management system not associated with the 2010 *Annual Report*.

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

1.11 Verification Opinion

Our opinion, following the reasonable assurance verification undertaken at the *Rotokawa (Nga Awa Purua) Geothermal Power Plant site, Taupo* of the GHG assertions included in the 2010 *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 2010 Annual Report includes the information detailed in Schedule 4 of the Project Agreement and has used the correct template as per the Ministry for the Environment guidelines;*
2. *the recording and calculation of the emission reductions for the year using the relevant emission factors and adopting the calculation of net emission reduction method as set out in Schedule 2 of the Project Agreement;*
3. *the calculation behind the Emission Reduction Units claimed for 2010, using the net emission reduction and the request ratio ("C") set out in clause 5.1 of the Project Agreement;*
4. *project emissions calculation (using the emissions factors set out in Schedule 2) (a) emissions due to quantities of petrol and diesel used in the project (during construction and operation), emissions due to introducing cement, iron, steel and aluminium as materials (b) emissions due to purchased electricity as auxiliary power, and (c) emissions due to non condensable gases (only CO₂ according to Schedule 2) in the geothermal steam;*

5. *metering (electricity, quantity of steam discharged from the geothermal wells, pressure and temperature of the steam, non condensable gases) equipment installed has been certified by independent reputable quality assured service provider(s);*
6. *recording of electricity supply to the grid by an accredited Half Hour Data Administrator or sales revenue invoices, recording of steam discharged from the geothermal wells, recording of pressure and temperature of the steam, recording of non condensable gases;*
7. *any other (electricity, heat steam) generation, not part of the project, that flows through these meters is identified, measured and subtracted;*
8. *any significant changes to the PRE Project and its baseline scenario; and*
9. *within the context of verification, any other requirement relating to the Project Agreement.*

1.12 Limited Assurance Verification Opinion

In our opinion, nothing came to our attention during the limited assurance verification undertaken at *Rotokawa (Nga Awa Purua) Geothermal Power Plant site at Taupo* of the 2010 Annual Report and subsequent review of associated documents to indicate that the assertion that the regulatory requirements of local and central government agencies have been met is not, in all material aspects, in accordance with the PRE Guidance requirements.

1. *The Project Participant has adequate understanding of the principles and requirements of the PRE programme and is competent to perform those principles and requirements; and*
2. *Compliance with the regulatory requirements of local and central government agencies (including any requirement of environmental monitoring or reporting).*



1.13 Suggestions

No suggestion is made for this verification.

1.14 Limitations on use

This Verification Statement has been prepared for the *Crown* solely for use in relation to the *Projects to Reduce Emissions* programme. *DNV Australia* 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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Name of Lead Verifier:	Noim Uddin
Position:	Lead Climate Change Verifier
Company and Location:	DNV Australia, Sydney
Signature of Lead Verifier:	
Date:	13/04/2011
Name of Independent Reviewer	Noel Peters
Signature of Independent Reviewer	
Date:	04/04/2011

Attachment 1 – Verification Procedures and Findings

2 Attachment 1 – verification procedures and findings

Attachment 1 is a record of the verification procedures conducted in accordance with ISO 14064-3 and ISO 14065 and of the verification findings. The checklist is not a comprehensive description of all the verification procedures performed or all verification evidence obtained during the verification process, but is a fair presentation of the procedures and findings in sufficient detail to enable all findings (both positive and negative) to be verified.

Criteria Item 1 verified	The 2010 Annual Report includes the information detailed in Schedule 4 of the Project Agreement.		
Description of requirement	That all of the information detailed in Schedule 4 of the Project Agreement for inclusion in the Annual Report has been included and is fairly stated.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Cross check of Annual Report information with the requirements documented in Schedule 4 of the Project Agreement.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	The 2010 Annual Report is in compliance with Schedule 4 of the Project Agreement.
Findings	<p>The 2010 Annual Report has been completed according to the Schedule 4 of the Project Agreement.</p> <p>The 2010 Annual Report was sighted during this review and the required items checked against Schedule 4 of the Project Agreement (Contents of Annual Reports), these being:</p> <ul style="list-style-type: none"> • Total electricity supplied from the Rotokawa (Nga Awa 		

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	<p>Purua) Geothermal: 997.60 GWh.</p> <ul style="list-style-type: none">• Calculation of tonnes CO₂-e emission reductions of 409 991 tonnes CO₂-e calculated in accordance to the methodology from Schedule 2 of the Project Agreement.
Conclusion	<p>All of the information detailed in Schedule 4 of the Project Agreement has been included and is fairly stated in the 2010 Annual Report.</p>

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Criteria Item 2 verified	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 as otherwise defined).		
Description of requirement	That the emission factors used in the Annual Report are the same as those in Schedule 2 (or as otherwise defined) of the Project Agreement, and that the mathematical calculation of emission reductions using the emission factors and project activity parameters are fairly stated.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Cross check of emission factors used in the emission reduction calculation with the emission factors in Schedule 2 (or as otherwise defined) of the Project Agreement.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	The relevant emission factors have been correctly applied in accordance with Schedule 2 – Measurement of Emission Reductions.
	Emission factors not included in Schedule 2 are from properly authorised sources or are based on test results from properly accredited laboratories.	Not applicable	Not applicable as no emission factors were used other than in Schedule 2.
Confirmation that the measurement of project activity parameters has	Projects to Reduce Emissions Agreement with the Crown dated 29	All project activity parameters are monitored and	

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	<p>been properly undertaken.</p>	<p>March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p> <p>Electricity generation from Rotokawa (Nga Awa Purua) Geothermal Power Plant during 2010 from Mighty River Power Ltd as Half Hour Data Administrator (dated 12 January 2011)</p> <p>Electricity import by Rotokawa (Nga Awa Purua) Geothermal Power Plant during 2010 from Mighty River Power Ltd as Half Hour Data Administrator (dated 12 January 2011)</p> <p>Screenshot of RIMbase inventory maintained by Mighty River Power Ltd (dated 1 April 2011):</p> <ul style="list-style-type: none"> Consumption of diesel and petrol during 	<p>reported properly.</p> <p>The Rotokawa (Nga Awa Purua) Geothermal Power Plant generates electricity by using geothermal steam. The steam is sent to the turbine after it has been separated from the water. As it passes through the turbine blades it causes the turbine to spin, which in turn spins the generator, creating electricity.</p> <p>A total of 997.60 GWh of electricity delivered from Rotokawa (Nga Awa Purua) Geothermal Power Plant during the period 01/01/2010 to 31/12/2010 has been measured by the Half Hour Data Administrator Mighty River Power Ltd.</p> <p>A total of 0.88 GWh of electricity is imported by Rotokawa Geothermal Power Plant during the period 01/01/2010 to 31/12/2010 has been measured by the Half Hour Data Administrator Mighty River Power Ltd.</p> <p>A total of 588,417.47 litres of diesel was consumed during the construction</p>
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		<p>construction of the Rotokawa Geothermal, from Construction Contractor as inventory is maintained by Mighty River Power Ltd</p> <ul style="list-style-type: none"> • Consumption of diesel and petrol during operation of Rotokawa Geothermal Power Plant, inventory of diesel purchase is maintained by Mighty River Power Ltd • Introduction of construction materials (steel and iron, aluminium and cement) from Construction Contractor as inventory is maintained by Mighty River Power Ltd <p>Operational control documents of Rotokawa (Nga Awa Purua) Geothermal Power Plant (16 March 2011):</p> <p>Quantity of CO₂ content in the geothermal steam, from GNS Science Wairakei Analytical Laboratory assessment Reports</p> <p>Quantity of steam</p>	<p>and operation of the Rotokawa Geothermal Project during 2010, according to data sourced from RIMbase maintained by Mighty River Power Ltd.</p> <p>Approximately 36177 litres of petrol consumption has been recorded due to the operation of the Rotokawa Geothermal Plant during 2010, according to data sourced from Construction Contractor Fuji Electric Systems Ltd.</p> <p>A total of 611.60 tonnes of steel and iron was introduced during construction of the Rotokawa Geothermal Project during 2010, according to data sourced from RIMbase maintained by Mighty River Power Ltd.</p> <p>A total of 21 tonnes of aluminium was introduced during construction of the Rotokawa Geothermal Project, during 2010 according to data sourced from Fuji Electric Systems Ltd.</p> <p>A total of 1009.30</p>
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		<p>used is measured by three venturi meters located at the inlets of High Pressure (HP), Intermediate Pressure (IP) and Low Pressure (LP) turbines</p>	<p>tonnes of cement was introduced during construction of the Rotokawa Geothermal Project during 2010, according to data sourced from RIMbase maintained by Mighty River Power Ltd.</p> <p>Records of the total construction materials introduced and fossil fuel consumed during operation of Rotokawa (Nga Awa Purua) Geothermal Power Plant are in the opinion of the verifier reasonable for this type of construction activity.</p> <p>Mighty River Power Ltd performs checks of the quantity of CO₂ in geothermal steam on monthly basis. The amount of CO₂ (mmoles of CO₂ per 100 moles of H₂O) present in geothermal steam is measured by GNS Science Wairakei Analytical Laboratory.</p> <p>Average monthly concentration of CO₂ in steam (tCO₂e/tonne steam) has been estimated by Mighty River Power</p>
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			<p>Ltd.</p> <p>The total quantity of HP, IP and LP steam supplied to the HP turbine, IP turbine and LP turbine are measured by venturi meters and aggregated every half hour.</p> <p>Steam data collected during January and February 2010 was not used to calculate the monthly average tonne CO₂ emission per tonne of steam. This is because the steam samples taken were not under normal plant operating conditions.</p> <p>Instead, the weighted average tonne CO₂ emission per tonne of steam was calculated during the period March 2010 to December 2010. The weighted average tonne CO₂ emission per tonne of steam was calculated to be 0.0189 tCO₂e/tonne steam. This emission factor was applied for the period January 2010 to February 2010 to obtain an estimation of the total emissions</p>
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			<p>from steam.</p> <p>This is, in the opinion of the verifier, a reasonable conservative approach.</p>
	<p>Confirmation that the measured project activity parameters have been accurately transcribed to the Annual Report.</p>	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>The measured project activity parameters have been accurately transcribed in the 2010 Annual Report.</p>
	<p>Confirmation by alternate or check calculation that the determination of emission reductions is fairly stated.</p>	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised</p>	<p>The total emission reductions calculation was checked and found to be fairly stated.</p>

		version) dated 1 April 2011	
Findings	The emission factors used in the Annual Report are:		
	Item		Emission factor
	Electricity		600 tonnes CO ₂ -e /GWh
	Diesel		0.002617 tonnes CO ₂ -e/litre
	Petrol		0.002298 tonnes CO ₂ -e/litre
	Cement		0.48 tonnes CO ₂ -e/tonne
	Steel and iron		1.95 tonnes CO ₂ -e/tonne
	Aluminium		1.74 tonnes CO ₂ -e/tonne
	The mathematical calculation of emission reductions is in accordance with Schedule 2 and fairly stated. The emission factors and project activity parameters are correctly applied.		
Conclusion	The relevant emission factors have been correctly applied in accordance with Schedule 2 – Methodology for Determining Emission Reductions.		
	The mathematical calculation of emission reductions using the emission factors and project activity parameters are fairly stated.		

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Criteria Item 3 verified	The calculation behind the Emission Units claimed for 2010 uses the net emission reduction and the request ratio ("C") set out in clause 5.1 of the Project Agreement.		
Description of requirement	That the calculation of Emission Units properly uses the net emission reduction calculated for the year 2010 taking due account of the request ratio ("C") set in Clause 5.1 of the Project Agreement.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Confirm that the calculation takes proper account of the request ratio.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	The correct request ratio (C=1.0) has been used to estimate the 2010 emission unit claims.
	Confirm that the calculation of Emission units is based on net emission reductions.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p>	The calculation of the emission units is based on net emission reductions.

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		<p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	
<p>Findings</p>	<p>Request ratio (C=1.0) has been applied correctly.</p> <p>The calculation behind the Emission Units claimed for 2010 uses the net emission reduction.</p>		
<p>Conclusion</p>	<p>Request ratio (C=1.0) was used as defined in the Project Agreement. The calculation behind the Emission Units claimed for 2010 uses the net emission reduction.</p>		

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Criteria Item 4 verified	If applicable: the construction emissions calculations uses (a) the emission factors set out in Schedule 2 (or as defined elsewhere), and (b) the records of the quantities of materials, fuels, electricity purchased etc. relevant to emissions during construction.		
Description of requirement	That calculation of construction emissions uses the emission factors set out in Schedule 2 (or as defined elsewhere) and measured quantities of construction materials, accurately transcribed to the Annual Report.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Confirm that the calculation uses the correct emission factors.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>Commissioning of the project activity continued during 2010 reporting period.</p> <p>Emissions due to the introduction of cement, aluminium and iron and steel as construction materials have been estimated. The calculation of construction emissions used the emission factors set out in Schedule 2.</p> <p>Emissions due to the use of diesel and petrol have been estimated. The calculation of emissions due to the use of diesel used the emission factors set out in Schedule 2.</p> <p>Emissions due to the purchase of electricity have been estimated. The calculation of emissions due to</p>

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			the purchase of electricity used the emission factors set out in Schedule 2.
	Confirmation that all appropriate construction materials have been included.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>Iron and steel, aluminium and cement have been used as construction materials.</p> <p>This is, in the opinion of the verifier, reasonable for this type of construction.</p>
	Review of the record keeping arrangements to confirm that the measured quantities of construction materials are a fair presentation of actual usage.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>Data sourced from the construction contractor and maintained by Mighty River Power Ltd's inventory RIMbase were used to estimate the use of iron and steel and aluminium.</p> <p>Data sourced from the construction contractor and maintained by Mighty River Power Ltd's inventory RIMbase were used to estimate use of cement.</p> <p>In the opinion of the verifier the</p>

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		<p>Screenshot of RIMbase inventory maintained by Mighty River Power Ltd dated 1 April 2011</p>	<p>record keeping arrangements and estimates are reasonable for this type of construction.</p>
	<p>The exercise of professional judgement in relation to whether the claimed quantity of construction materials was reasonable.</p>	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p> <p>Screenshot of RIMbase inventory maintained by Mighty River Power Ltd dated 1 April 2011</p>	<p>A total of 611.60 tonnes of steel and iron was introduced during construction of the Rotokawa Geothermal Project activity during 2010.</p> <p>A total of 21.00 tonnes of aluminium was introduced during construction of the Rotokawa Geothermal Project activity during 2010.</p> <p>A total of 1009.30 tonnes of cement was introduced during construction of the Rotokawa Geothermal Project activity during 2010.</p> <p>The totals of construction materials introduced in the Rotokawa Geothermal Project activity are in the opinion of the verifier reasonable for this type of construction activity.</p>

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	<p>Alternate calculations and cross checks to confirm that the calculation of construction emissions is fairly presented.</p>	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>Alternate check calculations were performed and it can be confirmed that the calculation of construction emissions is fairly presented.</p>												
<p>Findings</p>	<p>Construction and commissioning of the project activity continued during 2010 reporting period. Iron and steel, and aluminium and cement have been introduced as construction materials. This is, in the opinion of the verifier, reasonable for this type of construction.</p> <p>The following construction emission factors were used according to Schedule 2 of the Project Agreement:</p> <table border="1" data-bbox="555 1207 1326 1400"> <thead> <tr> <th>Material</th> <th>Emission factor</th> </tr> </thead> <tbody> <tr> <td>Cement</td> <td>0.48 tonnes CO₂-e/tonne</td> </tr> <tr> <td>Iron and steel</td> <td>1.95 tonnes CO₂-e/tonne</td> </tr> <tr> <td>Aluminium</td> <td>1.74 tonnes CO₂-e/tonne</td> </tr> </tbody> </table> <p>The mathematical calculation of emission reductions is in accordance with Schedule 2 and fairly stated. The emission factors and project activity parameters are correctly applied.</p> <p>Major construction works of Rotokawa (Nga Awa Purua) Geothermal power plants were completed during 2008 and 2009. 2010 Annual Report includes construction emissions from 2008 and 2009 PRE Annual Reports which were accepted by MfE.</p> <p>Following construction emissions from 2008 and 2009 has been reported in 2010 Annual Report:</p> <table border="1" data-bbox="555 1820 1326 1866"> <thead> <tr> <th>PRE Annual Report</th> <th>Emissions t CO₂-e</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>			Material	Emission factor	Cement	0.48 tonnes CO ₂ -e/tonne	Iron and steel	1.95 tonnes CO ₂ -e/tonne	Aluminium	1.74 tonnes CO ₂ -e/tonne	PRE Annual Report	Emissions t CO ₂ -e		
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Cement	0.48 tonnes CO ₂ -e/tonne														
Iron and steel	1.95 tonnes CO ₂ -e/tonne														
Aluminium	1.74 tonnes CO ₂ -e/tonne														
PRE Annual Report	Emissions t CO ₂ -e														

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	2009	30 736.0
	2008	26 018.5
	<p>Total construction emissions during 2008 and 2009 are estimated 56 754.5 t CO₂-e, which is in the opinion of verifier reasonable for this kind of construction. Appropriate emissions factors have been used to estimate construction emissions during 2008 and 2009 as per Schedule 2 of the Project Agreement.</p>	
Conclusion	<p>This is, in the opinion of the verifier, reasonable for a geothermal-based power generation facility.</p>	

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Criteria Item 5 verified	Metering and recording equipment installed has been certified by an independent reputable quality assured service provider.		
Description of requirement	That the metering and recording equipment installed has been certified by an independent reputable quality assured service provider.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Examination of calibration and maintenance certificates to ensure that they are current.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p> <p>Following calibration certificates were checked:</p> <p>Rotokawa Geothermal Project Nga Awa Purua – 11kV Revenue Meter, Power Logic, ION 8600 ('ION') Calibration Report by AccuCal (CAL-2009-255), 10/09/2009 (valid</p>	<p>Calibration certificates of revenue meter 'ION' and check meter 'Nexus' were examined and certificates were found to be valid for the 2010 reporting period.</p> <p>Calibration certificates of HP, IP and LP steam supply flow meters (venturi meters) were found to be valid for the 2010 reporting period.</p> <p>Institute of Geological and Nuclear Sciences (GNS) Waikerakei Analytical Laboratory is an Accredited Laboratory under International Accreditation New Zealand.</p>

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		<p>till 10/09/2012).</p> <p>Rotokawa Geothermal Project Nga Awa Purua – 11kV Check, Nexus 1262 ('Nexus') Calibration Report by AccuCal (CAL- 2009-256), 11/09/2009 (valid till 11/09/2012)</p> <p>Rotokawa Geothermal HP Steam Flow Meter (91J302006 910 XJEJA110A-426) Test Certificate by Fuji Electric Systems Co. Ltd, dated 08/01/2010</p> <p>Rotokawa Geothermal IP Steam Flow Meter (91J302007 910 XJEJA110A-425) Test Certificate by Fuji Electric Systems Co. Ltd, dated 08/01/2010</p> <p>Rotokawa Geothermal LP Steam Flow Meter (91J301997 910 XJEJA110A-425) Test Certificate by Fuji Electric Systems Co. Ltd, dated 08/01/2010</p> <p>Certificate of Accreditation, Institute of Geological and Nuclear Sciences (GNS), Chemical Testing Laboratory, dated 17 August 2001</p>	
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	<p>Examination of installed instruments to confirm that the installed instruments are those covered by the calibration certificates.</p>	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p> <p>Following calibration certificates were checked:</p> <p>Rotokawa Geothermal Project (Nga Awa Purua – 11kV Revenue Meter, Power Logic, ION 8600) Calibration Report by AccuCal (CAL-2009-255), 10/09/2009 (valid till 10/09/2012)</p> <p>Rotokawa Geothermal Project (Nga Awa Purua – 11kV Check, Nexus 1262) Calibration Report by AccuCal (CAL-2009-256), 11/09/2009 (valid till 11/09/2012)</p> <p>Rotokawa Geothermal HP</p>	<p>The installed revenue meter and check meter were examined during the site visit and it was found that the installed meters are covered by the calibration certificates.</p> <p>HP, IP and LP steam supply flow, meters were examined during site visit and it was found that the installed instruments are covered by the calibration certificates.</p>
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		<p>Steam Flow Meter (91J302006 910 XJEJA110A-426) Test Certificate by Fuji Electric Systems Co. Ltd, dated 08/01/2010.</p> <p>Rotokawa Geothermal IP Steam Flow Meter (91J302007 910 XJEJA110A-425) Test Certificate by Fuji Electric Systems Co. Ltd, dated 08/01/2010</p> <p>Rotokawa Geothermal LP Steam Flow Meter (91J301997 910 XJEJA110A-425) Test Certificate by Fuji Electric Systems Co. Ltd, dated 08/01/2010</p>	
	<p>Confirmation that the calibration agency is appropriately qualified and accredited for the instruments which have been calibrated</p>	<p>Agency Accreditation scope</p>	<p>AccuCal is registered with the Electricity Commission as a class A approved test house.</p> <p>The calibration test is performed by AccuCal according to the Australian National Standards of Measurement.</p> <p>Institute of Geological and Nuclear Sciences (GNS), Chemical Testing Laboratory, is an Accredited Laboratory under International Accreditation New Zealand.</p>

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Findings	<p>The metering and recording equipment was found to be appropriate for its purpose and appeared to be in good operating condition.</p> <p>Calibration of the revenue meter and check meter were completed by AccuCal.</p> <p>AccuCal is an appropriately qualified and accredited agency to perform calibration tests for the revenue meters installed at Rotokawa (Nga Awa Purua) Geothermal Power Plant.</p>
Conclusion	<p>Metering and recording equipment installed have been certified by an independent reputable quality assured service provider.</p> <p>Copies of all calibration certificates are maintained by Mighty River Power Ltd.</p>

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Criteria Item 6 verified	Any other (electricity, heat) generation, not part of the project, that flows through these meters is identified, measured and subtracted from the gross total.		
Description of requirement	That any other (electricity, heat) generation, not part of the project, that flows through these meters is identified, measured and subtracted from the gross total and fairly stated.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Review of the process and instrumentation diagram and electricity metering diagram of the project to confirm the presence or absence of other energy flows through the project metering installation.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p> <p>Nga Awa Purua Geothermal Power Plant, Relay and Instrument Diagram (Generation Main Circuit), NAP-FE-ER-DG-1001, WA 48132, 27 June 2007, Fuji Electric Systems Co. Ltd.</p> <p>Nga Awa Purua Steam-Flow Measurement Points, Nga Awa Purua – Steam</p>	<p>Rotokawa (Nga Awa Purua) Geothermal Power Plant generates electricity by using geothermal steam.</p> <p>Rotokawa (Nga Awa Purua) Geothermal imports electricity from the national grid (which is not part of the project) which flows through the revenue meter.</p> <p>There is no additional energy (electricity or gas) flowing through the project metering installation other than imported electricity as identified in the project boundary.</p> <p>The electricity meter is not shared with any other electricity generation facility.</p> <p>No other pipeline except the HP, IP, LP steam supply lines are connected to turbine.</p>

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		Metering, Mighty River Power Ltd.	
	Consideration of the nature and design of the project.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>Rotokawa (Nga Awa Purua) Geothermal Power Plant generates electricity by using geothermal steam.</p>
	Review of the record keeping process to confirm that the metered data is accurately measured and recorded.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>Not applicable as:</p> <p>There is no additional energy (electricity or gas) flowing through the project metering installation other than imported electricity as identified in the project boundary.</p> <p>The electricity meter is not shared with any other electricity generation facility.</p> <p>No other pipeline except the HP, IP, LP steam supply lines are connected to turbine.</p>

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	<p>Review of the metering arrangements to confirm that the measurements of other energy flows truly represent those flows.</p>	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p> <p>Nga Awa Purua Geothermal Power Plant, Relay and Instrument Diagram (Generation Main Circuit), NAP-FE-ER-DG-1001, WA 48132, 27 June 2007, Fuji Electric Systems Co. Ltd</p> <p>Nga Awa Purua Steam-Flow Measurement Points, Nga Awa Purua – Steam Metering, Mighty River Power Ltd</p>	<p>Not applicable as:</p> <p>There is no additional energy (electricity or gas) flow through the project metering installation other than imported electricity as identified in the project boundary.</p> <p>The electricity meter is not shared with any other electricity generation facility.</p> <p>No other pipeline except the HP, IP, LP steam supply lines are connected to turbine.</p>
	<p>Review of the energy calculation methodology to confirm that any other energy flows has been correctly subtracted and that the final result truly reflects the net energy flow</p>	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1</p>	<p>Not applicable as:</p> <p>There is no additional energy (electricity or gas) flowing through the project metering installation other than imported electricity as</p>

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	<p>attributable to the project.</p>	<p>dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>identified in the project boundary.</p> <p>The electricity meter is not shared with any other electricity generation facility.</p> <p>A total of 0.88 GWh of electricity is imported by Rotokawa (Nga Awa Purua) Geothermal Power Plant during 01/01/2010 to 31/12/2010.</p>
Findings	<p>The net electricity export amount (996.72 GWh) truly reflects the net electricity supply attributable to the project activity.</p>		
Conclusion	<p>The total electricity imported by Rotokawa (Nga Awa Purua) Geothermal Power Plant was measured by a revenue meter which does not share any other electricity flow.</p>		

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Criteria Item 7 verified	If applicable, the record of emissions as a result of the operation of the project is fairly stated		
Description of requirement	That the record of emissions as a result of operation of the project is fairly stated.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Confirm that the calculation uses the correct emission factors.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	All emissions factors used (emission due to operation of the Rotokawa (Nga Awa Purua) Geothermal Power Plant) in the emission reduction calculation are sourced from Schedule 2 of the Project Agreement.
	Confirmation that all appropriate operational activities have been included.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1</p>	<p>The following operational activities were required to be monitored according to the Schedule 2 of the Project Agreement:</p> <ul style="list-style-type: none"> Quantities of diesel and petrol used during

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		<p>dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>operation of the project activity.</p> <ul style="list-style-type: none"> • Quantities of cement, aluminium and iron and steel as construction materials introduced or used during operation of the project activity. • Meter and record the quantity of electricity purchased. • Amount of CO₂ in geothermal steam.
	<p>Review of the record keeping arrangements to confirm that the measured quantities of operational materials are a fair presentation of actual usage.</p>	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>Diesel and petrol used during the operation of the Rotokawa (Nga Awa Purua) Geothermal Power Plant was recorded by contractors and maintained by Mighty River Power Ltd.</p> <p>Rotokawa (Nga Awa Purua) Geothermal imports electricity from the national grid. A total of 0.88 GWh of electricity was imported from the national grid. This has been measured by the revenue meter and data has been provided by Half Hour Data Administrator Mighty River Power Ltd.</p>

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			The molecular weight of CO ₂ present in the geothermal steam was determined by the Wairakei Analytical Laboratory. The amount of CO ₂ (tonnes) in steam has been calculated by Mighty River Power Ltd.
	The exercise of professional judgement in relation to whether the claimed quantity of operational materials was reasonable.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008.</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	All monitoring of project operational data (diesel and petrol use, electricity purchase and amount of CO ₂ in geothermal steam) records are kept electronically. In the opinion of the verifier the data is a fair presentation of the actual requirement of diesel and petrol use, electricity purchase and presence of CO ₂ in geothermal steams.
	Alternate calculations and cross checks to confirm that the calculation of operation emissions is fairly presented.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project</p>	<p>Cross checking of sample raw data with the emission reduction calculation methodology was performed.</p> <p>The verifier found that the calculation</p>

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		<p>Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008.</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>of operation emissions is fairly presented.</p>
Findings	<p>All operational activities were duly included in the emission reduction calculation. The record keeping arrangement was found to be satisfactory.</p>		
Conclusion	<p>The record of emissions as a result of the operation of the project is fairly stated.</p>		

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Criteria Item 8 verified	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.		
Description of requirement	Identify any additional requirements related to the PRE Project Agreement which require verification and verify those requirements		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Rotokawa (Nga Awa Purua) Geothermal Power Plant installed capacity and use of geothermal steam.	<p>On-site visit 16-17 March 2011</p> <p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p> <p>Nameplate Capacities of Turbine and Generator</p> <p>Resource Consent 116565 (File No. 60 24</p>	<p>Rotokawa (Nga Awa Purua) Geothermal Power Plant with a capacity of 130 MW has been built as an additional renewable electricity generation facility using geothermal steam according to the Project Agreement and Amendments to the Project Agreement. This capacity was confirmed from the nameplate capacity of the turbine and generator during the on-site inspection.</p> <p>Rotokawa (Nga Awa Purua) Geothermal Power Plant used an average of 60 879 tonnes of geothermal steam per day during 2010 as evidenced from Rotokawa Steamfield Data 2010, which is around 85% of the maximum consented amount (70 500 tonnes per day).</p>

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		<p>47RC, dated 23/01/2008), Environment Waikato</p> <p>Rotokawa Steamfield Data 2010 (dated 16 March 2011), from Alex Lawson</p>	
<p>Findings</p>	<p>Rotokawa (Nga Awa Purua) Geothermal Power Plant has been built according to the Project Agreement.</p> <p>Rotokawa (Nga Awa Purua) Geothermal Power Plant uses geothermal steam below the consent level.</p>		
<p>Conclusion</p>	<p>Currently there are no changes to the PRE project and its baseline remains same.</p>		

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Criteria Item 9 verified	Within the context of verification, any other requirement relating to the PRE project Agreement.		
Description of requirement	Identify any additional requirements related to the PRE Project Agreement which require verification and verify those requirements		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Rotokawa (Nga Awa Purua) Geothermal Power Plant project has been built according to the Project Agreement and Amendments.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>Rotokawa (Nga Awa Purua) Geothermal Power Plant has been built according to Clause 6 of the Project Agreement Amendment 2 dated 18 February 2008.</p> <p>All PRE project Agreement requirements have been met.</p>
Findings	All requirements under the PRE Project Agreement are met.		
Conclusion	There are no other requirements relating to the PRE Project Agreement that have not been met.		

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Criteria Item 10 verified	The participant has adequate understanding of the principles and requirements of the PRE programme and is competent to conform to those principles and requirements.		
Description of requirement	Identify any additional requirements related to the PRE Project Agreement which require verification and verify those requirements		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Meeting and interviewing Rotokawa (Nga Awa Purua) Geothermal Power Plant project activity personnel, monitoring personnel and management representative.	<p>Projects to Reduce Emissions Agreement with the Crown dated 29 March 2004</p> <p>Project Agreement Amendment 1 dated 10 June 2005</p> <p>Project Agreement Amendment 2 dated 18 February 2008</p> <p>2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011</p>	<p>During the on-site visit interviews were held with the following Mighty River power Ltd personnel:</p> <ul style="list-style-type: none"> • Aaron Smith, Carbon Analyst • Alex Lawson, Geothermal Technician (Maintenance) • Alan Ofsoski, Contract Manager <p>Aaron Smith has been responsible for Mighty River Power Ltd's carbon business. Aaron has been responsible for the monitoring and reconciliation of the monitored parameters, reporting and compliance under PRE requirements. He has a good understanding of carbon credit management, geothermal power plant monitoring and controls.</p> <p>Alex Lawson has been responsible for the operation and</p>

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			<p>monitoring of the project activity since its inception. He has a very good understanding of geothermal power plant operation, monitoring, controls and requirements for conforming to resource consent requirements.</p> <p>Alan Ofsoski has been responsible for the overall inventory management of Rotokawa (Nga Awa Purua) Geothermal Project (operation and maintenance). He has a comprehensive understanding of PRE reporting requirements.</p> <p>All project personnel are competent to conform to the PRE requirements.</p>
Findings	Project personnel and monitoring personnel have a deep understanding of the PRE project and its requirement.		
Conclusion	It is the opinion of the verifier that the participant has an adequate understanding of the principles and requirements of the PRE programme and is competent to conform to those principles and requirements.		

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Criteria Item 11 verified	Compliance with the regulatory requirements of local and central government agencies.		
Description of requirement	That nothing came to the notice of the verifier to indicate that the project was not compliant with the regulatory requirements of local and central government agencies.		
Verification procedures	Verification item	Information Source/Evidence	Comments
	Review compliance conditions made within the Resource Consent or other regulatory approvals.	<p>The following major resource consent certificates issued by the Environment Waikato were examined and found valid:</p> <p>Resource Consent No 116565 dated 23/01/2008 (ground Water take)</p> <p>Resource Consent No 116566 dated 23/01/2008 (discharge permit – discharge to land)</p> <p>Resource Consent No 116567 dated 23/01/2008 (discharge permit – discharge to air)</p>	Resource Consents ground water take, discharge permits – discharge to land and air, have been granted to Rotokawa Joint Venture Limited (Mighty River Power Ltd) to construct Rotokawa (Nga Awa Purua) Geothermal Power Plant by the Environment Waikato and are valid for 35 years until 23 January 2043.
	Review correspondence between the local authorities and the project operator to evaluate compliance with	The following documents were evidenced as monitoring of resource consent:	Rotokawa Annual Report and monitoring of air discharge and reservoir indicate that Resource Consent Nos.

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	requirements.	<p>Rotokawa Annual Report July 2009-June 2010, Mighty River Power Ltd</p> <p>Monitoring of Air Discharge, Mighty River Power Ltd</p> <p>Rotokawa Reservoir Monitoring, December 2010, Century Drilling & Energy Services (NZ) Limited</p>	116567 and 116565 are in compliance.
	Review the activities at the site to confirm that the project arrangements are generally compliant with regulatory requirements.	<p>On-site visit 16-17 March 2011</p> <p>Resource Consent No 116565 dated 23/01/2008 (ground Water take)</p> <p>Resource Consent No 116566 dated 23/01/2008 (discharge permit – discharge to land)</p> <p>Resource Consent No 116567 dated 23/01/2008 (discharge permit – discharge to air)</p>	There were no observations made during the site visit to indicate that the project arrangements were not compliant with regulatory requirements as specified in the Resource Consents.
	Confirm that project monitoring includes relevant regulatory and compliance conditions.	<p>On-site visit 16-17 March 2011</p> <p>Resource Consent No 116565 dated 23/01/2008 (ground Water</p>	<p>Mighty River Power Ltd personnel have confirmed that the Project meets the following requirements:</p> <p>Resource Consent No 116565 – the rate</p>

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		take) Resource Consent No 116566 dated 23/01/2008 (discharge permit – discharge to land) Resource Consent No 116567 dated 23/01/2008 (discharge permit – discharge to air)	of geothermal water take up to a maximum 70 500 tonnes per day. Resource Consent No 116567 – the rate of air discharge per day In the opinion of the verifier that Mighty River Power Ltd maintains monitoring relevant regulatory and compliance conditions.
Findings	There were no observations made during the site visit to indicate that the project arrangements are not compliant with regulatory requirements as specified in the Resource Consents.		
Conclusion	Mighty River Power Ltd's Rotokawa (Nga Awa Purua) Geothermal Power Plant as a PRE Project is in compliance with the general regulatory requirements of the regional government.		

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3 Documents Reviewed	4 Please include author, date prepared and date reviewed by Verifier
2010 Annual Report to be submitted to the Ministry for the Environment, New Zealand (revised version) dated 1 April 2011.	Aaron Smith, prepared on 1 April 2011, verified in March/April 2011
2009 Annual Report submitted to the Ministry for the Environment, New Zealand (6 December 2010)	Aaron Smith, prepared on 6 December 2010, verified in March 2011
2009 Annual Report submitted to the Ministry for the Environment, New Zealand (16 April 2009)	John Gary, prepared on 16 April 2009, verified in March 2011
Projects to Reduce Emissions Agreement with the Crown	The Crown, dated 29 March 2004, verified in March 2011
Project Agreement Amendment 1	The Crown, dated 10 June 2005, verified in March 2011
Project Agreement Amendment 2	The Crown, dated 18 February 2010, verified in March 2011

5 Site Visit location	6 Address, date of visit, personnel interviewed
Rotokawa (Nga Awa Purua) Geothermal Power Plant	<p>Address: Taupo</p> <p>Date of visit: 16-17 March 2011</p> <p>Personnel interviewed:</p> <ul style="list-style-type: none"> • Aaron Smith, Mighty River Power Ltd. • Alex Lawson, Mighty River Power Ltd • Alan Ofoski, Mighty River Power Ltd (via teleconference) • Catherine Schofield, Senior Analyst, Funds Management, Ministry for the Environment. • Firuza Mukhamedjanova, Analyst, Funds Management, Ministry for the Environment