VALIDATION REPORT

CHACABUQUITO HYDROELECTRIC POWER PROJECT

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DET NORSKE VERITAS

VALIDATION REPORT

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Approved by: Michael Lehmann Technical Director	Organisational unit: DNV Certification, International Climate Change Services
Client: WB Prototype Carbon Fund	Client ref.: Fernando Cubillos

DET NORSKE VERITAS
CERTIFICATION AS
Veritasveien 1
1322 Høvik
Norway
Tel: +47-6757 9900
Fax: +47-6757 99qq
http://www.dnv.com

Summary:
Det Norske Veritas Certification AS (DNV) has performed a validation of the Chacabuquito hydroelectric power project on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board. This validation report summarizes the findings of the validation.

The validation consisted of the following three phases: i) a desk review of the project design, baseline and monitoring plan, ii) follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

In summary, it is DNV's opinion that the project, as described in the project design document of February 2007 meets all relevant UNFCCC requirements for the CDM all related host country criteria and correctly applies the approved baseline and monitoring methodology AM0026 (version 02). Hence, DNV requests the registration of the Chacabuquito hydroelectric power project as a CDM project activity.

Report No.: 2005-1686	Subject Group: Environment	
Report title: Chacabuquito hydroelectric power project		
Work carried out by: Soumik Biswas, Einar Telnes, Ole Andreas Flagstad		
Work verified by: Michael Lehmann		
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Abbreviations

CAR	Corrective Action Request
CDEC-SIC	Economic Dispatch Center in the Central Interconnected System
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH_4	Methane
CL	Clarification request
CNE	National Energy Commission
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
HGV	Hidroeléctrica Guardia Vieja
IBRD	International Bank for Reconstruction and Development
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

The World Bank Carbon Finance Unit has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the Chacabuquito hydroelectric power project. This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consists of the following personnel:

Mr. Soumik Biswas	DNV Certification India	GHG auditor
Mr. Ole Andreas Flagstad	DNV Certification Oslo	GHG auditor
Mr. Einar Telnes	DNV Certification Oslo	CDM validator, Sector expert
Mr. Michael Lehmann	DNV Certification Oslo	Technical reviewer

1.1 Validation Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AM0026. The validation team has, based on the recommendations in the Validation and Verification Manual /5/ employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

1.3 Description of Proposed CDM Project

The Chacabuquito hydroelectric power project consists of a run-of-river power plant with 26 MW capacity that utilizes the waters of the Aconcagua river. It produces an average annual generation of 175 GWh gross (160 GWh net and 0.77 plant factor (load factor)). The project connects to the 5th Region's grid at a 110 kV sub-system within the Central Interconnected System (SIC) of Chile and energy is delivered to industrial and residential consumers in the area.

The project is being developed by Hidroeléctrica Guardia Vieja (HGV), a subsidiary of Grupo Matte. The project uses well-proven technologies for run-of-river power generation. The design

consists of a diversion weir, a system of channels and tunnels, a penstock and a powerhouse with four turbine-generator kits.

The project is projected to result in 560 000 tCO_2e of emission reductions over the 7 years of its first crediting period.

2 METHODOLOGY

The validation consisted of the following three phases:

I a desk review of the project design, baseline and monitoring plan
II follow-up interviews with project stakeholders
III the resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /5/. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

The completed validation protocol for the Chacabuquito hydroelectric power project is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of validation protocol criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;
ii) validation protocol requirements have not been met; or
iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term Clarification may be used where additional information is needed to fully clarify an issue.

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
Requirement	***Reference***	***Conclusion***	***Cross reference***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.*

Validation Protocol Table 2: Requirement Checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	*Gives reference to documents where the answer to the checklist question or item is found.*	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below).A request for **Clarification (CL)** is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification			
Draft report corrective action requests and requests for clarifications	***Ref. to Table 2***	***Summary of project participants' response***	***Final conclusion***
If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	*Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification Request is explained.*	*The responses given by the project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1 Validation protocol tables

2.1 Review of Documents

The PDD /1/ dated 29 November 2005, and the final version dated 28 February 2007 (version 3.1), and additional background documents related to the project design and baseline were assessed during the validation. In addition was information gathered from recent assessments of other Chilean hydropower projects used to conclude on some of the issues raised during the validation.

DNV already carried out a preliminary validation of the project in October 2001 and assessed the project's PDD of October 2001, the baseline study of September 2001 and the monitoring and verification plan of September 2001.

2.2 Follow-up Interviews

During the course of the validation, DNV has carried out several telephone interviews with representatives of the project participants and other stakehoolders.

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified for DNV's positive conclusion on the project design. In summary, DNV has identified one CAR and five CLs. The project participants have provided information as a response to these, which has enabled DNV to close out all of these satisfactorily.

To guarantee the transparency of the validation process, the concerns raised and the responses given are documented in the validation protocol in Appendix A.

2.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the project design documentation dated 28 February 2007.

3.1 Participation Requirements

The project participants are Hidroelectrica Guardia Vieja S.A, International Bank for Reconstruction and Development (IBRD) as the trustee for the Prototype Carbon Fund (PCF) and the Netherlands. Both the Host Party Chile and the Annex-I Party the Netherlands meet the requirements for participating in CDM projects. The DNA of Chile (CONAMA) approved the

project and authorised Hidroelectrica Guardia Vieja S.A to participate in this proposed CDM project activity. The Government of the Netherlands has authorised IBRD for participating in the same.

An affirmation has been provided by the Ministry of Economic Affairs of the Netherlands that any public funding used to participate in the Prototype Carbon Fund does not result in a diversion of official development assistance.

3.2 Project Design

The project uses a simple layout and well proven technologies. It consists of a diversion weir, a system of channels (11 km) and tunnels (3 km), a pressure penstock, water fall of 137 m, a powerhouse and a high voltage line, and upgrade of existing transmission system. 21.5 m^3/sec of water flow will be taken from the upstream Los Quilos plant through a series of canals and tunnels over a distance of approximately 10 km to a 440 m long and 137 meter head penstock to the 26 MW Chacabuquito power house. From the power house, the 21.5 m^3/sec will be discharged back to Rio Aconcagua at Chacabuquito to meet the project's water right requirement to supply 18 m^3/sec of water to a downstream existing hydro plant and to satisfy irrigation users' needs.

The expected lifetime of the project is 30 years. The project started operation in July 2002. A renewable crediting period of 7 years starting from 01 July 2002 is selected.

All necessary permits are in place and have been verified.

The methodology AM 0026, version 2, is applicable to the proposed project activity as the electricity capacity additions are a run-of-river hydro power plant and the project is connected to the interconnected grids of the Republic of Chile .

3.3 Baseline Determination

The project uses version 2 of the approved baseline methodology AM0026 "Methodology for zero emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid" /6/. This methodology has been developed taking into consideration this particular project itself and hence it is applicable to the project.

In accordance with AM00026 the baseline for the project is that electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM). The operating margin (OM) and build margin (BM) emission coefficient for the project will be determined annually *ex-post* from the dispatch data obtained from the Economic Dispatch Center in the Central Interconnected System (CDEC-SIC) and data by the National Energy Commission (CNE).

3.4 Additionality

As required by AM0026, the five steps of the "Tool for demonstration and assessment of additionality" have been applied to demonstrate the additionality of the project:

Step 0: The project started operation in July 1st 2002. Prior to the start of construction the project proponents submitted the project to PCF seeking for additional funding from emission reductions generated from the project and in February 2002 an ERPA was signed. DNV was already involved in the early phases of the project and did a pre-validation of the project in September/October 2001. Hence, DNV can confirm that the project considered carbon finance at an early stage.

Step 1: The alternatives to the project were established by running an optimisation model by the CNE. This model does not predict any run-of-river hydro project for future expansions. Future expansion is mainly based on natural gas fired power plants. The final version of the PDD provides the necessary official data substantiating this.

Step 2: An investment analysis is selected to demonstrate the additionality of the project. For this, a cost analysis model is run once with the baseline situation predicted by the expansion plan and once including the project situation. The model predicts a higher cost of production with the project situation.

Step 4: Run of the river hydro plants are not a common practice in Chile. It is confirmed that prior to Chacabuquito only one other run-of-river hydro plant was developed in the country.

Step 5: CDM registration of the project will make the project economically viable by providing economy from the emission trading.

3.5 Monitoring Plan

The project applies the approved monitoring methodology AM0026, version 2. The emission reductions will be calculated from the amount of electricity generated by the project and the combined margin emission coefficient of the SIC grid. To calculate the emission coefficient the following key parameters will be monitored and updated from dispatch data:

- Actual amount of electricity delivered to the grid by individual power plants on an hourly basis
- Dispatch order of power plants
- Fuel usage in individual power plants.

Data required to monitor and calculate the above parameters will also be collected and archived accordingly. Details of the data to be collected, the frequency of data recording, format and storage type are described. Algorithms and formulae used are clearly presented.

Detailed monitoring procedures, including procedures for QA/QC of monitoring reports are described.

3.6 Calculation of GHG Emissions

The project uses a projected operating margin of 600 t CO_2/GWh and a build margin of 350 t CO_2/GWh. This gives a projected combined margin of 475 t CO_2/GWh. The project is estimated to deliver approximately170-175 GWh per year. Hence, the project estimates to reduce GHG emissions by approximately 80 000 t CO_2e per year and a total of 560 000 t CO_2 in the first 7 years of crediting period. The exact amount will be calculated *ex-post* from the actual electricity generation by the project and the dispatch data analysis obtained for the particular year.

3.7 Environmental Impacts

It has been verified that the Chilean authority deems the Environmental Impact of the project insignificant. In October 2000, the project completed an Environmental Impact Assessment. The report recommends a number of measures to mitigate environmental impacts during the construction and implementation phases. These measures have been addressed adequately. An executive summary of the EIA has been provided /4/.

3.8 Comments by Local Stakeholders

A local stakeholder process has been performed by inviting relevant local stakeholders via adequate communication channels to comment on the project design and the environmental impacts of the project. The project sponsors also carried out direct consultations with all directly affected people or institutions.

The main concern of the community was related to the construction and location of bridges and the Vizcachas downstream irragation reservoir. All concerns where addressed by the project developer. Consultation and negotiations with downstream water users (Asociacion de Usuarios del Rio Aconcagua, and Asociacion de Regantes) concerning the need for a unified water outlet for irrigation control purposes resulted in an agreement to build a new reservoir downstream the Chacabuquito power plant for irrigation purposes. Hidroelectrica Guardia Vieja S.A. covered the cost of construction and maintenance of this reservoir. Individual agreements with affected property owners resulted in several reroutes for the canals.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD of 29 November 2005 was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 30-11-2005 to 29-12-2005. No comments were received on this invitation.

Also a version of the PDD in which the project applied the approved consolidated baseline and monitoring methodology ACM0002 was published for comments by Parties, stakeholders and NGOs during 12 September and 11 October 2006. No comments were received on this invitation.

5 VALIDATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a validation of the Chacabuquito hydroelectric power project. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism (CDM) and relevant Chilean criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfillment of stated criteria

The project participants are Hidroelectrica Guardia Vieja S.A, International Bank for Reconstruction and Development (IBRD) as the trustee for the Prototype Carbon Fund (PCF) and the Netherlands. Both the Host Party Chile and the Annex-I Party the Netherlands meet the requirements for participating in CDM projects.

By promoting renewable energy, the project is in line with the current sustainable development priorities of Chile and in the Letter of Approval, dated 09 October 2003, from the Chilean DNA confirms that the project assists Chile in achieving sustainable development.

The project will be a renewable electricity generation project activity and will consist of one run-of-river hydroelectric power plant. The power plant will provide local electricity generation and distribution, providing site-specific reliability, transmission and distribution to the SIC Chilean grid. The total installed capacity of the project is 26 MW.

The project correctly applies the approved baseline methodology AM0026 (version 02) "Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid". The baseline methodology has been applied correctly and the assumptions made for the selected baseline scenario are sound. It is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions attributable to the project are additional to any that would occur in the absence of the project activity.

By displacing fossil fuel-based electricity with the estimated electricity to be generated from a renewable source, the project will result in emission reductions that will be real, measurable and will give long-term benefits to the mitigation of climate change. The project estimates to reduce GHG emissions by approximately 80 000 t CO2e per year and a total of 560 000 t CO2 in the first 7 years of crediting period. The emission reductions forecast has been checked and is deemed likely that the stated amount will be achieved given that the project will be implemented as designed with the given baseline. The final numbers of CER's will be dependent on the annual update baseline emission factor calculated from the operating margin data provided by CDEC-SIC and CDEC. The monitoring methodology has also been applied correctly.

Local stakeholders' comments have been invited through sufficient means. All comments received are taken into account. An approved Environmental Impact Study is also available for the project. Public stakeholders' inputs have also been invited via the UNFCCC web-site. No comments have been received.

*In summary, it is DNV's opinion that the Chacabuquito h*ydroelectric power project *as described in the revised project design document of February 2007, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the*

baseline and monitoring methodology \AM0026 (version 02). Hence, DNV requests the registration of the Chacabuquito hydroelectric power project as CDM project activity.

6 REFERENCES

Documents provided by the project proponent that relate directly to the project:

/1/ Project design Document: Chacabuquito hydroelectric power project, Version 1, 29 November 2005 and version 3.1 of 28 February 2007

/2/ Letter of Approval by the DNA of Chile, 9 October 2003

/3/ Letter of Approval by the DNA of the Netherlands, 27 April 2007

/4/ Chacabuquito Hydroelectric Project, Environmental Assessment, Executive Summary September 2001.

Background documents related to the design and/or methodologies employed in the design or other reference documents:

/5/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/6/ AM00026: Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid. Version 2

Persons interviewed during the validation, or persons who contributed with other information that are not included in the documents listed above:

/7/ Adrian Wals, Energy market specialist, ECN of the Netherlands

/8/ Chandra Shekhar Sinha, Carbon Finance Unit of the World Bank

/9/ Fernando Cubillos, Carbon Finance Unit of the World Bank (formerly with Hidroelectrica Guardia Vieja, S.A.)

/10/ Pedro Huarte-Mendicoa, Carbon Finance Unit of the World Bank

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APPENDIX A

CDM VALIDATION PROTOCOL

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

Requirement	Reference	Conclusion	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	OK ~~CL 1~~	The Netherlands have been identified as the Annex- I Party
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	OK ~~CL 2~~	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	OK ~~CL 2~~	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	OK ~~CL 1~~ ~~CL 2~~	Letter of Approval by the DNA of Chile, 9 October 2003 Letter of Approval by the DNA of the Netherlands, 27 April 2007
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	OK	Table 2, Section B.2
7. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK	An affirmation has been provided by the Ministry of Economic Affairs of the Netherlands that any public funding used to participate in the Prototype Carbon Fund does not result in a diversion of official development assistance.

Requirement	Reference	Conclusion	Cross Reference / Comment
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK	CONAMA is the DNA of Chile and the Ministry of Housing, Spatial Planning and the Environment is the DNA of the Netherlands.
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities §30/31a	OK	Chile has ratified the Kyoto protocol on 26 August 2002. The Netherlands ratified the Protocol on 31 May 2004.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	OK	The assigned amount for Canada is 94% of the 1990 emissions level. The Netherlands' assigned amount is 92% of the 1990 emissions level.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	OK	
12. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	CDM Modalities and Procedures §37b	OK	Table 2, Section G
13. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	OK	Table 2, Section F
14. Baseline and monitoring methodology shall be previously approved by the CDM Executive Board	CDM Modalities and Procedures §37e	OK	Table 2, Section B.1.1 and D.1.1
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	CDM Modalities and Procedures §37f	OK	Table 2, Section D
16. Parties, stakeholders and UNFCCC accredited NGOs shall have	CDM Modalities and	OK	

Requirement	Reference	Conclusion	Cross Reference / Comment
been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Procedures §40		
17. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	CDM Modalities and Procedures §45c,d	OK	Table 2, Section B.2
18. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	CDM Modalities and Procedures §47	OK	Table 2, Section B.2
19. The project design document shall be in conformance with the UNFCCC CDM-PDD format	CDM Modalities and Procedures Appendix B, EB Decision	OK ~~CAR 1~~	.

Table 2 Requirements Checklist

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	/1/	DR	Yes, Chacabuquito is located in the 5th region of Chile, in the Aconcagua river, near the city of Los Andes		OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/1/	DR	The projects system boundary is the hydropower plant itself along with the canals and tunnels leading up to the plant and the Chilean SIC.		OK
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.2.1. Does the project design engineering reflect current good practices?	/1/	DR	Yes, the technology employed by the project is currently employed worldwide for run-of-the-river hydropower projects. The project design reflects state of the art technology detailing the project scheme and project details such as type of turbine (Francis) and other physical infrastructure. Technologies defined are state of the art for small run-of-the-river generating stations. The Environmental Assessment report		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			provides additional evidence that the project design reflects good practice detailing the project scheme and planned construction and waste practices.		
A.2.2. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1/	DR	Once constructed and capital costs are accrued the generating station should generate electricity at very low cost (due to negligible operational costs) and therefore it is unlikely to be substituted by more efficient technologies within the project period.		OK
A.2.3. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/1/	DR	Yes.		OK
A.2.4. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	Yes. The project has made provisions for identifying training and maintenance requirements and has also made provisions for meeting these requirements. The operator will be responsible for the training.		OK
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	/1/	DR	Yes, the project is inline with the legislations applicable to a run-of-the-river hydropower project in Chile.		OK
A.3.2. Is the project in line with host-country specific CDM requirements?	/1/	DR	Yes, the project is inline with the CDM requirements of Chile. The approval from the Chilean DNA supports this further.		OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR	The basis of environmental legislation in Chile is 1) quality of human life, 2) the complementary of economic growth and environmental sustainability, 3) social equality		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			and reducing poverty. The project's sustainable development indicators i.e. clean energy, reforestation, land improvement, infrastructure improvement, job creation and economic activity during construction seems reasonable. These indicators can thus be said to be in line with national priorities.		
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	The project will create a better road infrastructure in the region, as well as give increased opportunities for employment in the region. The project is also likely to reduce other emissions of non-GHG pollutants.		OK
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Executive Board?	/1/	DR	The project uses the approved baseline methodology AM0026 "Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid".		OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/	DR	The baseline methodology has been developed specifically taking into account this particular project. Hence, the use of this methodology is justified.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
B.2. Baseline Determination *The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.*					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	/1/	DR	Yes.		OK
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/	DR	The combined margin emission factor has been calculated as a weighted average of OM and BM. Both of these will be measured ex-post from official data supplied by the Economic Dispatch Centre (CDEC-SIC).		OK
B.2.3. Has the baseline been established on a project-specific basis?	/1/	DR	The baseline has been developed taking into account this particular project and the Chilean SIC.		OK
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR	Yes.		OK
B.2.5. Is the baseline determination compatible with the available data?	/1/	DR	Yes. The baseline is determined using despatch data analysis. Data required for this is compiled and made available for the public by the CDEC-SIC.		OK
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/1/	DR	The selected baseline is determined by using an optimization model which is based on successive iterations of comparing different options of system expansion that minimizes the total cost. Hence, it is seemingly the most likely scenario.		OK
B.2.7. Is it demonstrated/justified that the project activity	/1/	DR	Yes, it has been demonstrated that the project activity itself is not a likely baseline scenario.	~~CL3~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
itself is not a likely baseline scenario?			The additionality of the project has been demonstrated sufficiently by using the additionality tool. Step 0: It has been demonstrated that the project started operations on 1 July 2002 and had considered CDM before the implementation of the project. Step 1: Alternatives to the project has been identified using an optimization model which leads to minimum cost. The predicted alternative does not take into account the current run-of the-river hydro project and predicts capacity expansion based on natural gas. The actual official data substantiating this is to be provided. Step 2: The project selects investment analysis option for demonstrating the additionality. The demonstration of the investment analysis is according to the methodology and demonstrates the additionality of the project sufficiently. Step 4: The project was first of its kind at the time of implementation. Step 5: CDM benefits will make the project economically viable for the investor. In conclusion, it has been sufficiently demonstrated that the project is additional and would not have been implemented without CDM benefits.		
B.2.8. Have the major risks to the baseline been identified?	/1/	DR	Sine the emission reductions from the project will be measured ex-post, there are no risks to the baseline.		OK
B.2.9. Is all literature and sources clearly referenced?	/1/	DR	Yes.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	/1/	DR	Yes, the starting date of the project is 1 July 2002 and it has a lifetime of 30 years.		OK
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/1/	DR	Yes, the project adopts a renewable crediting period of 7 years with two possible renewals starting from 01 July 2002.		OK
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).*					
D.1. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Executive Board?	/1/	DR	Yes. The project uses the approved monitoring methodology AM0026 "Monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid".		OK
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1/	DR	The monitoring methodology has been developed taking into account this particular project itself. Hence it is appropriate for this		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			project.		
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR	Yes, the monitoring methodology is suitable for the despatch data analysis method for calculating the OM. The electricity actually despatched to the grid will be monitored and the emission factors for the marginal plants will be collated from the SIC.		OK
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1/	DR	Yes.		OK
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR	Since the project is a run-of-the-river hydroelectric project there are no emissions from the project itself.		OK
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/	DR	According to the methodology there are no leakages for this project.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/	DR	Yes, the monitoring plan provides for the collection and archiving of all data relevant for calculating the emission reductions.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	The OM and BM for the baseline will be measured ex-post based on actual data from CDEC-SIC. Data regarding the marginal plants is also publicly available official data. Hence the choice of these baseline indicators is deemed reasonable. The following paragraph on page 13 in the Chacabuquito PDD needs further clarification, as the basis for this cannot be found in AM26: "All hydro reservoir capacity must be excluded from the calculation of marginal plants when thermal power plants are needed to meet the demand, since reservoir operation represents a dumping effect of the system dispatch in an hourly base. This is because reservoir units have a faster response for system demand fluctuations in comparison of some thermal units that require in most cases several hours to develop full capacity when needed. Further, the annual energy generation of reservoirs follows a similar behavior of run-of-river power units when confronted to hydrological variations because most of reservoirs have a relative low regulation capacity".	~~CL~~ 4	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			As this seems to indicate a clear deviation from the instructions in approved methodology, we ask you to justify this deviation.		
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/1/	DR	Yes.		OK
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?			Yes.		OK
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	The monitoring plan provides for the collection and archiving of data required to monitor sustainable development parameters.		OK
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	/1/	DR	The project provides for monitoring of reforestation, construction, job creation and increase of economic activities. Taking the context of the project, these indicators are deemed sufficient.		OK
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	/1/	DR	Yes, the project has sorted out detailed procedures for monitoring the sustainable development parameters.		OK
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/1/	DR	Yes, the approval of the CONAMA further substantiates this. However CONAMA does not specify any particular criteria for monitoring purposes.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	/1/	DR	Yes.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/	DR	Yes.		OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR	Yes.		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	There are no unintended emergency emissions for the project.		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR	Yes.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR	Yes.		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR	Yes.		OK
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/	DR	Yes.		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	Yes.		OK
D.6.10. Are procedures identified for review of reported results/data?	/1/	DR	Yes.		OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements	/1/	DR	Yes.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
where applicable?					
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	/1/	DR	Yes.		OK
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR	Yes.		OK
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Predicted Project GHG Emissions *The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/1/	DR	There are no emissions from the project operation since it is a run-of-the- river hydroelectric project..		OK
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/	DR	There are no leakages from the project.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E.3. Baseline Emissions *The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	/1/	DR	Yes.		OK
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1/	DR	Yes. The baseline boundary is the Chilean SIC.		OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1/	DR	Yes, the GHG calculations have been documented in a transparent manner.		OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1/	DR	The baseline emissions will be calculated ex-post using the despatch data analysis.		OK
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	/1/	DR	Since the emissions will be measured ex-post there are no uncertainties in the baseline emissions.		OK
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	/1/	DR	The project baseline has been determined using the same methodology. There are no project emissions.		OK
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	/1/	DR	Yes, the project is projected to result in emission reductions of 560 000 t CO_2e during the first 7 years of the crediting period.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR	Yes, the project has accounted for minimum ecological flows, land acquisition, reforestation plans and environmental management during construction.		OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/	DR	Review and clearance of all EIA is a perquisite for an environmental license issued by the National Commission for the Environment. For projects with lesser significance an environmental Impact statement suffices. The project completed an Environmental Impact Statement in October 2000.		OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR	The main negative impact of the project relates to the deforestation due to civil works such as canals and power house. The total area considered for mitigation is 18 hectares. Proof of actual proceedings of this is to be provided.	CL 3	OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1/	DR	None anticipated.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/	DR	Yes. This is considered in the project EIA.		OK
F.1.6. Does the project comply with environmental legislation in the host country?	/1/	DR	Yes.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR	Yes, the project sponsor consulted with local community assemblies such as Asociación del Rio Aconcagua, Asociación de Regantes and Corporación de Empresas Pro Aconcagua which are environmentally focused institutions.		OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	The project sponsors carried out direct consultations with all directly affected people and institutions. Results from this are deemed appropriate.		OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR	Since the project did not require a Full Environmental Impact Assessment, there was no regulatory requirement for a public consultation.		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR	Yes, comments received from downstream water users for irrigation purposes and affected land owners have been summarised.		OK
G.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	Individual agreements have been reached with each property owner affected by the project. However proof of this is requested.	CL 5	OK

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarifications	Ref. to Table	Summary of project participants' response	Final conclusion
CAR 1**:** Section D.2.4 and D.3. are to be modified.	Table I	The last version of the PDD, section B.6.4 (version 3.1 of the PDD-template) takes care of the estimation of emission reductions (earlier D.2.4.). B.7.1. in the last PDD has QA/QC procedures included in the description of each parameter (D.3. in earlier version)	OK
CL 1**:** LoA from the Netherlands is to be submitted.	Table I	LoA Submitted	OK
CL 2: LoA from Chile is to be submitted.	Table I	LoA Submitted	OK
CL 3: Step 1: Alternatives to the project has been identified using an optimization model which leads to minimum cost. The predicted alternative does not take into account the current run-of the-river hydro project and predicts capacity expansion based on natural gas. The actual official data substantiating this is to be provided.	Table II, B.2.7	The Official Node Price report and the results from the optimization model with the inclusion of Chacabuquito are attached.	OK The report has been reviewed and is found to sustain the claims. CL closed.
CL 4: The following paragraph on page 13 in the Chacabuquito PDD needs further clarification, as the basis for this cannot be found in AM26: "All hydro reservoir capacity must be excluded from the calculation of marginal plants when thermal power plants are needed to meet the demand, since reservoir operation represents a dumping effect of the system dispatch in an	D 4.2.	The most important difference between NM-0076 rev, and AM0026, with ACM0002 is the treatment of the Marginal Analysis. Our argument that hydro resources and related storage resources are excluded of the marginal analysis was totally accepted after we added a provision for situations in which no thermal power plants are running on economic merit, resulting that the displaced generation source will be hydro and no emissions reductions will be claimed in those situations. As it is described below, this issue was largely discussed	OK On 17 January 2006, DNV submitted a request for clarification titled "Clarification with regard to consideration of hydropower plants in operating margin dispatch data analysis" with regard to the application of AM00026. In this request for

Draft report corrective action requests and requests for clarifications	Ref. to Table	Summary of project participants' response	Final conclusion
hourly base. This is because reservoir units have a faster response for system demand fluctuations in comparison of some thermal units that require in most cases several hours to develop full capacity when needed. Further, the annual energy generation of reservoirs follows a similar behavior of run-of-river power units when confronted to hydrological variations because most of reservoirs have a relative low regulation capacity". As this seems to indicate a clear deviation from the instructions in approved methodology, we ask you to justify this deviation.		with the Methodological Panel (MP) during the revision process of the methodology. We understand that this issue was properly justified to both the MP and the Executive Board, as it is demonstrated with the approval of the last version of NM0076-rev (see attached NMB that is found in our responses to the preliminary recommendations). The following exchange of request for changes and our responses clarify how our marginal analysis was designed. In the Final Recommendation to NM0076 dated 4-8 April, 2005, page 3, under the section Required Changes - Minor Changes in which the MP recommends to add the note for the exceptional situations when hydro resources are actually at the margin. "Minor changes: 2) In reference to hydro exclusion from the OM, the text specifies now, that no emissions reductions are claimed when thermal generation is not dispatched. Formula 1could include a note about it. The text included in page 5, justifying the exclusion of hydro and related resources is not needed." Then, in the preliminary recommendation to NM0076rev, dated on 14-17 June 2005, under the same section of Required Changes – Minor Changes, the MP required to be more specific on the definition of the marginal plant. "Minor changes: In reference to hydro exclusion from the OM, the text specifies now, that no emissions reductions are claimed when thermal generation is not dispatched. Formula 1could include a note about it. The text included in page 5, justifying the exclusion of hydro and related resources	clarification, DNV seeked a clarification on whether the word "thermal" has deliberately been deleted on page 10 of the final version of the approved baseline methodology AM0026. At its meeting on 31 January – 03 February 2006, the Meth Panel recommended to maintain the approved text (without the word "thermal") and the EB confirmed this recommendation at EB 23. Hence, the project participants were requested to submit a revised version of the PDD in which hydro reservoir capacity are no longer excluded from the calculation of marginal plants. The PDD of February 2007 no longer excludes hydro reservoir capacity.

Draft report corrective action requests and requests for clarifications	Ref. to Table	Summary of project participants' response	Final conclusion
		is not needed. The formulae provided for the calculation of the operating margin contain errors. A precise definition of marginal plant is required." In our response to those recommendations, we add the following to the NMB: Definition of Marginal Plant for the Formula 1 (page 6): *"The marginal plant(s) are those thermal power plant listed in the top of the grid system dispatch order during hour h needed to meet the electricity demand at that hour h without the generation of CDM project(s). If no thermal power plants are needed to meet the demand without the CDM projects, then the marginal plant(s) is (are) hydro."*, and the Footnote 4 (page 6) explaining the exclusion of hydro resources from the marginal analysis: *"[4] Marginal plants are normally thermal power plants, but in some special scenarios hydro resources can be at the margin. Hydro resources are actually at the margin when no thermal generation is dispatched on economic merit to meet the electricity demand. In those cases, then the resulting displaced generation source will be hydro and no emissions factor will be zero and no emissions reductions will be claimed then."* In the Final Recommendation to NM0076-rev dated 17-19 October, 2005, page 2, under the section Required Changes - Minor Changes for the approval, the MP required an additional note to Formula 1. "Minor changes: >> ….In reference to hydro exclusion from the OM, the text specifies now, that no emissions reductions are	

Draft report corrective action requests and requests for clarifications	Ref. to Table	Summary of project participants' response	Final conclusion
		claimed when thermal generation is not dispatched. Formula 1 could include a note about it. The text included in page 5, justifying the exclusion of hydro and related resources, is not needed." Which we clarified redrafting a little bit the Footnote 4, [4] *Marginal plants are normally thermal power plants, but in some special scenarios hydro resources can be at the margin. Hydro resources are actually at the margin when no thermal generation is dispatched on economic merit to meet the electricity demand. In those cases, the resulting displaced generation source will be hydro with a zero emission factor and therefore no emissions reductions are claimed then.* We understand that the final version of AM0026 is not completely precise on this regard. In the draft version the Secretariat sent to our revision they used the definition of marginal plant as it was drafted in the final version of NM0076-rev. However, when they added our corrections to the Final Draft version of the reformatted methodology, the word "thermal" was deleted of the first part of definition, which could lead to some confusion. Nevertheless, the second part of the paragraph clarifies that when no thermal power plants are running, then the marginal plants are hydros, and in all other cases thermal power plants are at the margin. Therefore, a request for correcting the Marginal Plant definition could be useful to avoid future confusions. Marginal Plant Definition as in AM0026 "*The marginal plant(s) are those* ~~***thermal***~~ *power plant listed in the top of the grid system dispatch order during hour h needed to meet the electricity demand at that hour*	

Draft report corrective action requests and requests for clarifications	Ref. to Table	Summary of project participants' response	Final conclusion
		h without the generation of CDM project(s). If no thermal power plants are needed to meet the demand without the CDM projects, then the marginal plant(s) is (are) hydro." Finally, we attach a document that shows the impact of considering hydros resources in the marginal analysis in systems with a dispatch merit order. As you can see in the figures, the option of considering hydro at the margin when other thermal power plants are running in economic merit underestimates the EF considerably; less than one third of the actual dispatch analysis.	
CL 5**:** Individual agreements have been reached with each property owner affected by the project. However proof of this is to be provided.	Table II, G.1.5	Letter explaining these measures have been provided.	OK The letter describes measures taken, and these seem to be satisfactorily addressing raised concerns. CL closed.

CERTIFICATE OF COMPETENCE

APPENDIX B

CERTIFICATES OF COMPETENCE

CERTIFICATE OF COMPETENCE

Subhendu Biswas

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 10		

Høvik, 22 December 2006

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Ole Andreas Flagstad

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	--	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Einar Telnes

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3 6 & 10		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0027*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0028, AM0034*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0030*	Yes
ACM0004	Yes	*AM0031*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0032*	Yes
ACM0007	Yes	*AM0035*	Yes
ACM0008	Yes	*AM0038*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0041*	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	*AM0034*	Yes
AM0009, AM0037	Yes	*AM0043*	
AM0013, AM0022, AM0025, AM00379, AMS-III.H, AMS-III.I	Yes	*AM0046*	
AM0014	Yes	*AM0047*	
AM0017	Yes	*AMS-II.A-F, AM0044*	Yes
AM0018	Yes	*AMS-III.A*	Yes
AM0020	Yes	*AMS-III.E, AMS-III.F*	Yes
AM0021	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Michael Lehmann

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3 & 9		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0027*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0028, AM0034*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0030*	Yes
ACM0004	Yes	*AM0031*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0032*	Yes
ACM0007	Yes	*AM0035*	Yes
ACM0008	Yes	*AM0038*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0041*	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	*AM0034*	Yes
AM0009, AM0037	Yes	*AM0043*	
AM0013, AM0022, AM0025, AM00379, AMS-III.H, AMS-III.I	Yes	*AM0046*	
AM0014	Yes	*AM0047*	
AM0017	Yes	*AMS-II.A-F, AM0044*	Yes
AM0018	Yes	*AMS-III.A*	Yes
AM0020	Yes	*AMS-III.E, AMS-III.F*	Yes
AM0021	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

CERTIFICATE OF COMPETENCE

Einar Telnes Michael Lehmann
