

 <p align="center">CDM Project Activity Registration and Validation Report Form (By submitting this form, designated operational entity confirms that the proposed CDM project activity meets all validation and registration requirements and thereby requests its registration)</p>	
Section 1: Request for registration	
Name of the designated operational entity (DOE) submitting this form	Det Norske Veritas Certification Ltd. (DNV)
Title of the proposed CDM project activity (Section A.1 of the attached CDM-PDD) submitted for registration	Candelaria Hydroelectric Project
Project participants (Name(s))	Hidroelectrica Candelaria S.A
Sector in which project activity falls	Sectoral Scope Nr. : 01 - Energy industries (renewable - / non-renewable sources)
Is the proposed project activity a small-scale activity?	<u>Yes</u> / No (underline as applicable)
Section 2: Validation report	
List of documents to be attached to this validation report (please check mark):	
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> The CDM-PDD of the project activity <input checked="" type="checkbox"/> An explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations; <input checked="" type="checkbox"/> The written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development: <ul style="list-style-type: none"> ○ (Attach a list of all Parties involved and attach the approval (in alphabetical order)) <input checked="" type="checkbox"/> Other documents, including any validation protocol used in the validation <ul style="list-style-type: none"> ○ Validation Report including a validation protocol and a list of persons interviewed by the validation team during the validation process <input checked="" type="checkbox"/> Information on when and how the above validation report is made publicly available. <input checked="" type="checkbox"/> Banking information on the payment of the non-reimbursable registration fee <input checked="" type="checkbox"/> A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions regarding allocations of CERs at issuance. 	
Executive Summary and Introduction, including <ul style="list-style-type: none"> • Description of the proposed CDM project activity • Scope of validation process (include all documentation that has been reviewed and name persons that have been interviewed as part of the validation, as applicable) • DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation) 	

Description of the proposed CDM project activity:

The objective of the proposed project activity is to generate renewable electricity using hydroelectric resources and to sell the generated output to the national grid. The project has the capacity to reduce CO₂ emissions by avoiding electricity generation by the fossil fuel-fired power plants connected to the grid.

The project activity involves the installation of a run-of-river hydropower plant with an installed capacity of 4.3 MW that will utilize the water of the Trece Aguas River. Currently, this watercourse is used for electricity generation in an existing 16 MW hydropower plant (Secacao) located upstream of Candelaria. The Secacao plant was developed in 1998 and is owned and operated by Candelaria's sponsors.

The 4.3 MW plant will provide peak-load capacity. Total altitude differential (head) between the headpond and the turbine/generator is approximately 130 meters. The project will require a 400 meter long tunnel, and a 700 meter long penstock, and one 4.3 MW Francis type turbine will be installed. The water used, once having gone through both plants, will be returned to the original river basin downstream.

The plant will deliver electricity to the Guatemalan National Electric Grid and will be connected to it through a 69 kilovolt transmission line (that was built to connect the existing 16 MW plant), but could also sell part of its output locally through an existing 13.8 kilovolt distribution line, thus giving access to electricity to several communities that are located nearby.

The project will use the option of a three times seven year crediting period under the CDM. Estimated average annual emission reductions are 18 922 ton CO₂.

Scope of validation process:

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, the simplified modalities and procedures for small-scale CDM project activities and the relevant decisions by the CDM Executive Board, including the approved simplified baseline and monitoring methodology AMS-I.D. The validation team has, based on the recommendations in the Validation and Verification Manual, employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

The following documents were reviewed:

- ☒ MGM International: *CDM-SSC-PDD for the "Candelaria Hydroelectric Project"*, version of 17 March 2003 and version 7 of 7 September 2006.
- ☒ MGM International: *Baseline emission calculations*, 7 September 2006
- ☒ MGM International: *IRR and NPV calculations*, 7 September 2006
- ☒ DNA of Guatemala: *Letter of Approval*, 23 August 2006
- ☒ Mercado Mayorista de Electricidad de Guatemala: *Informe Estadístico 2002-2004..* www.amm.org.gt
- ☒ DOE: *Energy background of Guatemala*. www.eia.doe.gov/meu/cabs/gutemal/html
- ☒ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. <http://www.vvmanual.info>

The following persons were interviewed:

<input checked="" type="checkbox"/> OGIC:	Eduardo Alvarez
<input checked="" type="checkbox"/> Hidroeléctrica Secacao SA	Rudolf Jacobs/Rodrigo Tormo
<input checked="" type="checkbox"/> Ministry of Environment	Ervin Gomez/Ruth Portillo
<input checked="" type="checkbox"/> Ministry of Energy	Marco Davila
<input checked="" type="checkbox"/> AMM	Yuri Omar Urbina
<input checked="" type="checkbox"/> MGM (PDD Consultants)	Marco Monroy/Fabián Gaioli/Gautam Dutt

The validation team consists of the following personnel:

Mr Einar Telnes	DNV Oslo	Team leader, GHG auditor
Mr Gustavo Godinez	DNV Mexico	GHG auditor
Mr Michael Lehmann	DNV Oslo	Internal verifier, Sector expert

For further details, please refer to the "Introduction" and "References" Section of DNV's Validation Report (DNV Report 2003-0510, rev. 03).

Description of methodology for carrying out validation

- **Review of CDM-PDD and additional documentation attached to it**
- **Assessment against CDM requirements (e.g. by use of a validation protocol)**
- **Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are "labelled" during validation.**
- **Include statements or assessments in the section "Conclusions, final comments and validation opinion" below.**

The validation consisted of the following three phases:

- A desk review of the project design documentation.
- Follow-up interview with project stakeholders.
- The resolution of outstanding issues and the issuance of the validation report and opinion.

The PDD for the "Candelaria Hydroelectric Project" (version of 17 March 2003 and final version 7 of 7 September 2006) submitted by MGM International and additional background documents related to the project design and baseline as well as the emission reduction calculations were reviewed as a part of the validation.

On 12-13 May 2003 the validation team member Gustavo Godinez interviewed representatives of Hidroeléctrica Secacao, the Guatemalan Ministry of Environment and the Ministry of Energy.

In order to ensure transparency, a validation protocol has been customized for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validation of the identified criteria.

Findings established during the validation can either be seen as a non-fulfilment of validation criteria or where a risk to the fulfilment of project objectives is identified. Such findings are termed Corrective Action Requests (CAR). The term Clarification may be used where additional information is needed to fully clarify an issue. The Corrective Action Requests and requests for Clarification raised by DNV were resolved through communication with the project participants. To guarantee the transparency of the validation process, the concerns raised by DNV and the response provided by the project participants are documented in the DNV's Validation Report.

For further details, please refer to the "Methodology" Section of DNV's Validation Report (DNV Report 2003-0510, rev. 03) and the IETA/PCF Validation and Verification Manual (www.vvmanual.info).

Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;

- **Description of how and when the PDD was made publicly available**
- **Description of how comments were received and made publicly available**
- **Explanation of how due account has been taken of comments received**
- **Compilation of all comments received (Identify the submitter)**

The PDD (version of 17 March 2003) was on 12 December 2003 published on DNV's climate change website www.dnv.com/certification/ClimateChange and Parties, stakeholders and UNFCCC accredited NGOs were through the UNFCCC website invited to provide comments within 30 days from 14 December 2003 until 13 January 2004. One comment was received from a stakeholder.

Please refer to the "Comments by Parties, Stakeholders and NGOs" Section of DNV's Validation Report (DNV Report 2003-0510, rev. 03) and the above mentioned CDM website.

Conclusions, final comments and validation opinion

- **Provide conclusions on each requirement under paragraph 37 of the CDM modalities and procedures, describing how these requirements have been met. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.**
- **Final comments and validation opinion**

Det Norske Veritas Certification Ltd (DNV) has in the period of March 2003 to September 2006 performed a validation of the "Candelaria Hydroelectric Project" – a small-scale hydropower project in Guatemala. The validation is performed on the basis of UNFCCC criteria for small-scale CDM project activities, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project consists of a small grid connected hydropower dam with generation capacity of maximum 4.3 MW. As the generation capacity is significantly less than 15 MW the project qualifies as a type I small scale CDM project activity.

The project participant is Hidroeléctrica Candelaria S.A. The host Party Guatemala meets the requirements to participate in the CDM. Written approval of voluntary participation from the DNAs of Guatemala has been obtained. No participating Annex I Party is yet identified.

The project will contribute to sustainable development by displacing fossil fuel-based electricity generation with renewable energy. The Guatemalan DNA has confirmed that the project assists in achieving sustainable development.

The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Guatemala.

An analysis of the investment barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Investment calculations show that the investment barrier per MW generation capacity is significantly higher for this project than for the least cost option for electricity generation. The determination of the baseline is transparent. The project applies the simplified baseline methodologies proposed for category I.D project activities (AMS-I.D, version 08), i.e. the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient calculated as the average of the approximate operating margin (OM) and the build margin (BM).

The monitoring plan provides for the monitoring of electricity generated by the project.

By displacing fossil-based electricity with hydropower electricity, the project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. Project emissions are zero and the baseline emissions are determined using reasonable assumptions. Estimated annual emission reductions are 18 922 t CO₂e.

Local stakeholders were consulted and a local stakeholder consultation process was carried out. The PDD has been published on DNV's climate change website for comments by Parties, stakeholders and NGOs and due account was taken of the comments received.

In summary, it is DNV's opinion that the project, as described in the project design document of 07 September 2006, meets all relevant UNFCCC requirements for the CDM, is eligible as type I small-scale CDM project activity and correctly applies the approved simplified baseline and monitoring methodology AMS-I.D, version 8. Hence, DNV requests the registration of the "Candelaria Hydroelectric Project" as a CDM project activity.

For further details, please refer to DNV's Validation Report (DNV Report 2003-0510, rev. 03).

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.

By submitting this validation report, the DOE confirms that all validation requirements are met.

Susanne Haefeli-Hestvik

Name of authorized officer signing for the DOE

Date and signature for the DOE

20 Sep. 2006

S. Haefeli-Hestvik

1.1.1.1 Section below to be filled by UNFCCC secretariat

Date when the form is received at UNFCCC secretariat

Date at which the registration fee has been received

Date at which registration shall be deemed final

Date of request for review, if applicable

Date and number of registration

Date

Number