VALIDATION REPORT – RENEWAL OF THE CREDITING PERIOD

COMPAÑÍA NACIONAL DE FUERZA Y LUZ (CNFL)

COTE SMALL-SCALE HYDROPOWER PLANT

UNFCCC REF. NO. : 0251

Report No: 6721-09/327

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Validation Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	6721 – 09/327	0	2012-10-23	2012-10-23
Project:	***Title:***		***Initial PDD Version:***	***Final PDDVersion***
	Cote small-scale hydropower plant		2009-08-19	2012-08-21
Client:	International Bank for Reconstruction and Development (IBRD) as Trustee of the Prototype Carbon Fund (PCF) - The World Bank		***Client ref:***	Claudia Croce
Project Participant(s):	***Host Party:***		***Other involved parties:***	
	Costa Rica – Compañía Nacional de Fuerza y Luz		For the complete list of other parties and project participants involved refer to: http://cdm.unfccc.int/Projects/DB/DNV-CUK1137675448.01/view	
Applied methodology/ies:	***Title:***		***No.:***	***Scope / TA:***
	Grid connected renewable electricity generation		AMS-I.D ver. 17	1 / 1.2
Validation team / Technical Review and Final Approval	***Validation Team:***		***Technical review:***	***Final approval:***
	Raul Gonzalez Mitre (TL) Abraham Garza Alvarez (TM) Gilberto andrade (TM)		Emilio Martin	Alexandra Nebel
Expected Emission reductions: [t CO_2e]	***Expected emission reductions over the first crediting period:***		***2nd CP starting date:***	
	20,088 t CO_{2e}		2010-04-01	
Confidential content:	☐ Yes		☒ No	
Summary of Validation Opinion:	☒ Positive validation opinion		☐ Negative validation opinion	
	In detail the conclusions can be summarised as follows: ☒ The project is in line with all relevant host country criteria (Costa Rica) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of Costa Rica vide the Letter of Approval dated 2002/11/27. ☒ The update of the project baseline is sufficiently justified in the PDD. ☒ The monitoring plan is transparent and adequate. ☒ The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 20,088 tCO_2e are most likely to be achieved within the (2nd renewable) crediting period. ☒ The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.			
Document information:	*Filename:*			*No. of pages:*
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Abbreviations

CA	**Corrective Action / Clarification Action**
CAR	**Corrective Action Request**
CDM	**Clean Development Mechanism**
CER	**Certified Emission Reduction**
CL	**Clarification Request**
CNFL	**Compañía Nacional de Fuerza y Luz, the project developer. This company is owned by ICE.**
CO_2	**Carbon dioxide**
CO_{2eq}	**Carbon dioxide equivalent**
ECA	**Accreditation Costa Rican Entity "Entidad Costarricense de Acreditación", this entity is a national body that evaluates and accredits laboratories and other facilities under several standards.**
El Cote	**Cote small-scale hydropower plant**
ER	**Emission Reduction**
FAR	**Forward Action Request**
GHG	**Greenhouse gas(es)**
ICE	**Instituto Costarricense de Electricidad, stated owned vertically integrated utility that manages the power sector being the only power purchaser in Costa Rica.**
ION View	**Software ION Enterprise (version 5.0 and 6.0) used for the monitoring of power measurements and generation of database of the ION Meters used by CNFL in all its power units.**
MP	**Monitoring Plan**
MR	**Monitoring Report**
NIS	**National Interconnected System**
PDD	**Project Design Document**
PP	**Project Participant**
RIME	**Informatic Network of Power Measurement "*Red Informática de Medición Eléctrica*", software PRIME READ (version 5.0 y 6.0) used for the monitoring of power measurements and generation of database for all CNFL power units. This software is used by the Energy Management Section of CNFL Technical Services Department for the online and real measurement of power generation.**
RIME Web	**Internal interphase for the consulting of operational data so as power generation. This interphase is also known as PRIME web.**

RfDev	**Requests for deviations from the registered monitoring plan**
RfrevMP	**Requests for revisions of the monitoring plan**
SCADA	**Supervisory Control and Data Acquisition - System utilized by CNFL to control the operation of the project.**
SETENA	**National Environmental Technical Secretary, "Secretaría Técnica Nacional Ambiental", this entity is the environmental authority of Costa Rica.**
SIGE	**Management Data System "*Sistema de Información Gerencial"*, this system has the consolidated data of the operational records of all the power units of the company. This system is mainly used for the preparation of the annual technical summaries and the decision making of the company.**
SIGEDI	**Generation and Distribution Data System "*Sistema de Información de Generación y Distibución*", internal system for the management of energy production and consumption, records of operational issues, etc. This system manages the data of all the power generation units of the company. This system is fed manually.**
SIGEMPLA	**Plant Maintenance Management System "*Sistema de Gestión de Mantenimiento de Plantas*". Internal online system that includes the program and registry of the planned and performed maintenance activities.**
QA/QC	**Quality Assurance / Quality Control**
UNFCCC	**United Nations Framework Convention on Climate Change**
VERSA Pro	**VERSA Pro is a data management system developed by General Electric and it is used for the operation of Cote power plant and for monitoring the electricity generation from the turbine.**
XLS	**Emission Reduction Calculation Spread Sheet**

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1 OBJECTIVE / SCOPE

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 3/CMP.1
- the annex to the decision;
- subsequent decisions made by COP/MOP & CDM Executive Board and
- other relevant rules, including the host country legislation and sustainability criteria

are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is given as a thorough independent and objective assessment of the project design including especially: the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PDD and other relevant supporting documents, to ensure that the proposed CDM project activity meets all relevant and applicable CDM criteria.

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Manual[/VVM/], carried out a full assessment of all evidences to assess the compliance of the project with the key areas as outlined in section V.E. and V.F. of the VVM (version 01.2, EB 55).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions.

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

2 GHG PROJECT DESCRIPTION

2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data		
Project title	Cote small-scale hydropower plant		
Project size	☐ Large Scale ☒ Small Scale		
Project Scope *(according to UNFCCC sectoral scope numbers for CDM)*	☒	1	Energy Industries (renewable- /non-renewable sources)
	☐	2	Energy distribution
	☐	3	Energy demand
	☐	4	Manufacturing industries
	☐	5	Chemical industry
	☐	6	Construction
	☐	7	Transport
	☐	8	Mining/Mineral production
	☐	9	Metal production
	☐	10	Fugitive emissions from fuels (solid, oil and gas)
	☐	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	☐	12	Solvents use
	☐	13	Waste handling and disposal
	☐	14	Afforestation and Reforestation
	☐	15	Agriculture
Applied Methodology	AMS I.D ver.17: Renewable electricity generation for a grid.		
Technical Area(s)	1.2 Renewable Energies		
CDM registration No.	0251		
Crediting period	☒ Renewable Crediting Period (7 y) ☐ Fixed Crediting Period (10 y)		

2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

Table 2-2: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Costa Rica	Compañía Nacional de Fuerza y Luz (CNFL)
Other involved party/ies	For the complete list of other parties and project participants involved refer to: http://cdm.unfccc.int/Projects/DB/DNV-CUK1137675448.01/view	

2.3 Project Location

The details of the project location are given in table 2-3:

Table 2-3: Project Location

No.	Project Location	
Host Country	Costa Rica	
Region:	Guanacuaste and Alajuela Provinces	
Project location address:	Over the Nuevo Arenal (in Tilarán) and Cote (in Guatuso) Districts.	
The power plant is located between the following coordinates:	Latitude:	Longitude:
	10º34'29,26" North	84º54'58,30" West.
	10º32'51,62" North	84º54'58,12" West
	10º32'51,74" North	84º53'52,33" West.
	10º34'29,38" North	84º53'52,51" West.

2.4 Technical Project Description

The proposed project is a small hydropower operated by Compañía Nacional de Fuerza y Luz ("CNFL") and located in Costa Rica,

The project has an installed capacity of 6.786 MW and the projected annual average generation is 13.2 GWh. The generated electricity is supplied to the national grid through the stated owned utility Instituto Costarricense de Electricidad ("ICE").

The project will supply electricity to the NIS (National Interconnected System) through its own 200 meters - 34.5 Kilovolts transmission line which will connect to the closest distribution line that belongs to ICE. Such distribution line will transport the electricity generated by the project to the Arenal Substation, which belongs to the NIS.

The project's technology contains an open channel, an additional conducting tunnel, an underground 789.35 m and 1.8m diameter pressure pipe, a fore-bay, a powerhouse containing the 6.786 MW Francis Turbine, a substation located next to the power house and a sluice leading to the Rugama Creek

The technical key data are provided in table 2-4 below

Table 2-4: Technical data of the project activity

Parameter	Unit	Value
Powerhouse 1A		
VATECH Turbine, type Francis (Serial: 110001)	KW	6,786
	rpm	600
Toshiba Generator, type TAKL (Serial: 0020091100)	KW	6525
	KVA	7250
	Cap. factor	0.9
	rpm	600

Parameter	Unit	Value
Diesel Generator SDMO type PG 75U (Serial: AVP 01.169.01.G002)	KW	72
	KVA	90
	Cap. factor	0.8
Reservoir volume	m^3	3,000,000
Design flow (caudal)	m^3/s	8,4

3 METHODOLOGY AND VALIDATION SEQUENCE

3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- Desk review of the PDD and supporting documents
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation

The sequence of the validation is given in the table 3.1 below:

Table 3.1: Validation sequence

Topic	Time
Assignment of validation	2009-08-17
On-site visit date	2010-10-04 to 2010-10-08
Draft reporting finalised	2010-10-08
Final reporting finalised	2012-03-21
Technical review and minor corrections on final reporting finalised	2012-10-23

3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the validation can be provided,

- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities, a validation team, consisting of one team leader and 2 additional team members, as well as the Technical Review personnel were appointed.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-2 below.

Table 3-2: Involved Personnel

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence [3]	Technical competence [4]	Host country Competence	On-site visit
☒ Mr. ☐ Ms.	Raul Gonzalez Mitre	BRTÜV (TUV NORD Brazil), Mexico	TL	LA	☒	1.2	☒	☒
☒ Mr. ☐ Ms.	Gilberto Andrade	BRTÜV (TUV NORD Brazil), Sao Paulo	TM	A	☒	1.2	☒	☒
☒ Mr. ☐ Ms.	Abraham Garza Alvarez	BRTÜV (TUV NORD Brazil), Mexico	TM	A	☐	1.2	☒	☒
☒ Mr. ☐ Ms.	Emilio Martín	TÜV NORD CERT, Germany	TR[3]	LA	☒	1.2	☐	☐
☐ Mr. ☒ Ms..	Alexandra Nebel	TÜV NORD CERT, Germany	FA	SA	☒	-	☐	-

1) TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

2) GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

3) GHG auditor status (at least Assessor)

4) As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, …)

5) In case of verification projects

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

B) No team member

Technical Experts contributed to the assessment of special aspects of the project activity, e.g. technical or host country aspects.

Statements of competence for the above mentioned team members are enclosed in annex 6 of this report.

3.4 Consideration of Public Stakeholder Comments

Acc. to the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the validation activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

In case comments are received, they are taken into account during the validation process. The comments and the discussion of the same are documented in annex 5 of this report.

3.5 Validation Protocol

In order to ensure consideration of all relevant assessment criteria, a validation protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic CDM requirements each CDM project has to meet as well as project specific issues as applicable. The validation protocol serves the following purposes:

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

The validation protocol is described in Figure 1.

Validation Protocol Table A-1: Requirement checklist				
Checklist Item	***Validation Team Comment***	***Reference***	***Draft Conclusion***	***Final Conclusion***
The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.	*The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.*	*Gives reference to the information source on which the assessment is based on*	*Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft validation stage.*	*In case a corrective action or a clarification the final assessment at the final validation stage is given.*

Figure 1: Validation protocol table

The completed validation protocol is enclosed in Annex 1 to this report.

3.6 Review of Documents

The published PDD and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

3.7 Site Visit and Follow-up Interviews

The validation team has carried out a site visit in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for CDM.

During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 3-3.

Table 3-3: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives Project consultant	- Chronological description of the project activity with documents of key steps of the implementation. - Technical details of the project realization, project feasibility, designing, operational life time,

Interviewed Persons / Entities	Interview topics
	monitoring of the project - Host Government Approval - Monitoring and measurement equipment and system. - Crediting period - Project activity starting date - CER allocation / ownership - Baseline study assumptions - Sustainable development issues - Monitoring - Roles & responsibilities of the project participants w.r.t. project management, monitoring and reporting - National Legislation - Editorial issues of the PDD

A comprehensive list of all interviewed persons is part of section 7 ‘References’.

3.8 Project comparison

The validation team has compared the proposed CDM project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. regarding:

- Project technology
- Reasons for reviews, requests for reviews and rejections within the CDM registration process.

3.9 Resolution of Clarification and Corrective Action Requests

3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

3.9.2 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

3.9.3 Final Validation

The final validation starts after issuance of the proposed corrective action (CA) of the CARs, CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are “closed out” by the validation team in case the response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4.

3.10 Technical review

Before submission of the final validation report a technical review of the whole validation procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.11 Final approval

After successful technical review of the final report an overall (esp. procedural) assessment of the complete validation will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for renewal of the crediting period can be started (in case of a positive validation opinion).

4 VALIDATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarised**:**

Table 4-1: Summary of CARs, CLs and FARs issued

Validation topic [1)]	No. of CAR	No. of CL	No. of FAR
General description of project activity (A) - Project specification - Technical project description - Participation - Contribution to sustainable development - PDD editorial aspects - Technology to be employed	-	1	-
Project Baseline, Additionality and Monitoring Plan (B) - Application of the Methodology - Project Boundary - Baseline identification - Calculation of GHG emission reductions Project emissions Baseline emissions Leakage - Monitoring Methodology - Monitoring Plan - Project management planning	2	6	-
Duration of the Project / Crediting Period (C)	-	-	-
Environmental impacts (D)	-	-	-
Stakeholder Comments (E)	-	-	-
SUM	**2**	**7**	**0**

[1)] The letters in brackets refer to the validation protocol

Table 4-2: PDD versions used for assessments

Version Nr.	Assessment Round
PDD v. 3 (Published)	DOE Assessment #0 (site Visit – Preliminary Findings List)

Version Nr.	Assessment Round
PDD v. 3 (the PP has not updated the Version and date)	DOE Assessment #1
PDD v. 3 (the PP has not updated the Version and date)	DOE Assessment #2
PDD v. 5	DOE Assessment #3
PDD v. 6	DOE Assessment #4
PDD v. 7	DOE Assessment #5
PDD v. 7 issued on 2012/08/21 (Final)	DOE Assessment #6

The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all validation items it should be referred to the validation protocols (see Annex 1).

The findings of validation process are summarized in the tables below.

Finding:	**CAR B1**		
Classification	☒ CAR	☐ CL	☐ FAR

Finding:	CAR B1
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The calculation of the grid emission factor is not correct. The following corrections are required: a) The OM calculation is only based on 2008 data. This calculation is not correct, the Tool to calculate the emission factor for an electricity system (version 01.1) requires a weighted average OM based on the last 3 years data. b) The emission factor used for Bunker and Diesel are not in accordance to the tool which request to use IPCC default values at the lower limit of the uncertainty at a 95% confidence interval. c) The power units included in the BM calculation has to be reviewed. The PP is requested to arrange the power units chronologically and include in the BM calculation only the set of power capacity additions in the electricity system that comprises 20% of the system generation. d) Also the BM calculation is including El Cote power plant. However, the Tool to calculate the emission factor for an electricity system (version 01.1) states power plants registered as CDM project activities should be excluded from the BM sample group. Correct the BM calculation as required. e) Based on the revised grid emission factor, all required sections of the PDD have to be corrected (e.g. A.4.3, B.6.4, etc.) Finally please provide further details regarding all data sources. Detailed information such as name of document, section, page and access route (in case of web sites) of all data included in the emission reduction calculation spread sheet shall be included.
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The grid emission factor was correct accordingly. Data sources were added as required.

Finding:	CAR B1
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** An updated grid emission factor calculation was provided applying the latest version of the Tool to calculate the emission factor for an electricity system (version 02): a) The OM has been corrected using the most recent data available (2006, 2007 and 2008). However, the following corrections and clarifications are required: • Provide references for the density values (L/Kg) used for Diesel and Bunker. • The NCV used are not in accordance with the applicable tool which request to use the following values "*IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories*". • The OM for year 2006 and 2007 is not considering the power imported to the grid. (88,837 MWh and 163,669 MWh respectively). • The calculation of the OM for years 2006, 2007 and 2008 is not including the power generation from the thermal source "*Paralela Térmica*". Please provide evidence that "*Paralela Térmica*" is not connected to the grid • The amount of power generated by the diesel share from Colima power plant on 2007 is not correct. • The total amount of power generation from Colima plant on 2006 should sum 12,707.599 MWh • Review the specific fuel consumption (kWh/L) for ALSTON Barranca power plant. • The OM calculation has to be corrected the PP is applying a simple average but the tool request to perform a 3-year generation-weighted average. b) The emission factors used for Bunker and Diesel are not in accordance to the tool which request to use IPCC default values at the lower limit of the uncertainty at a 95% confidence interval. c) The BM calculation has been reviewed. Nevertheless, the following corrections and clarifications are required: • Provide evidence of the starting date of COOPELESCA and Moín Gas power plants. • The power generation data for each power plant should be taken from the work sheet "Annex Gen2008" since it has more detailed and accurate data. Also the power generation share calculation (Column G) is not correct the division should be by the total power generation from the grid (including CDM projects). The Build Margin calculation has to be corrected.

Finding:	CAR B1
	d) Cell I24 and Cell G83 of the "STEP 2 Build Margin" worksheet is including the power generation from El Cote hydro power plant. This has to be corrected, according to the Build Margin calculation procedure of the tool: *power plant registered as CDM project activities should be excluded from the sample group m*. e) Based on the revised grid emission factor, all required sections of the PDD have to be corrected (e.g. A.4.3, B.6.4, etc.) **CAR B1 remains open**

Finding:	CAR B1
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	(a) • References to density values have been provided in the excel sheet. • NCV values are corrected as per the requirement and chosen the IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories. • The imports during the years 2006 and 2007 have been included in the calculations. • Power generation from the Parelela Termina are connected to the grid and now included in the calculations. • The amount of power generated by the diesel share from Colima power plant in 2007 is corrected. • The total amount of power generation from Colima plant in 2006 is corrected to 12,707.599 MWh. • The specific fuel consumption for ALSTON Barranca power plant has been reviewed and updated in the calculation sheet. • The OM has been calculated using the weighted average of 3 year data. b) Emission factor values are corrected as per the requirement and chosen the IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories. C) • Evidences are attached. • Annex Gen 2008 mentions information by Enterprises ESPH, JASEC, CNFL, COOPELESCA, but the build margin requests to display the information by plant and hence the same was not used. Whereas the Expansion Plan mentions the plant wise generation in GWh and the sum of total generation data mentions in this matches to the total generation mentioned in the Annex Gen2008 worksheet. Column G has been corrected. d) CNFL is integrated by Brasil (24MW) + Daniel Gutierrez (19,3MW) + Belen (9MW) + Electriona,N. and Amo R.Segundo (12MW) + El Cote (6,3MW) . Only El Cote is excluded for being a CDM project. e) The PDD is revised accordingly.

Finding:	CAR B1
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** An updated grid emission factor calculation was provided: a) The OM calculation has been reviewed by the PP: • References of the density values (L/Kg) have been provided. The values used were taken from Table 11 of the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. The validation team reviewed the data and the values are found correct. Nevertheless, the PP is using a value of 1.180 L/Kg for Diesel but the IPCC defines a value of 1.186 L/Kg. Hence, correction is required. • NCV have been corrected using the IPCC default values at the lower limit of the uncertainty at a 95% confidence interval. The IPCC Guidelines have been checked and no discrepancies have been identified. • The OM calculation for year 2006 and 2007 has been corrected and now imported electricity is being considered. • The OM calculation has been corrected and is also included the power generation from the thermal source "*Paralela Térmica*". The data of the grid system has been checked and no discrepancies were identified. • The power generation from the diesel share of Colima power plant for 2007 has been corrected. The validation team has checked the grid generation statistics. No discrepancies were identified. • The power generation from Colima plant on 2006 has been corrected. The validation team has checked the grid generation statistics. No discrepancies were identified. • The specific fuel consumption for ALSTON Barranca power plant has been correct. The value of 3.60 kWh/L has been cross checked against the ICE Expansion Plan of 2009. No discrepancies were identified. • The OM calculation procedure has been corrected, the PP is applying a 3-year generation-weighted average which is in accordance to the Tool to calculate the emission factor for an electricity system (version 02). b) Emission factors for Bunker and Diesel have been corrected using the IPCC default values at the lower limit of the uncertainty at a 95% confidence interval. The IPCC Guidelines have been checked and no discrepancies have been identified.

Finding:	CAR B1
	c) The BM calculation has been reviewed by the PP: • The PP has provided evidence for the starting date of COOPELESCA. COOPELESCA website http://www.coopelesca.co.cr/esp/procomchoco1.html has been consulted and the date is found correct. Nevertheless, regarding Moín Gas power plant the PP is making reference to the Expansion Plan 2007. The PP is requested to provide the Expansion Plan 2007 in order to justify Moín Gas starting date. • The power generation share calculation (Column G) has been corrected. Worksheet "Annex Gen 2008" has been checked so as the data from the Expansion Plan 2009. The validation team concludes that it is appropiate to use the generation data from the Expansion Plan as it gives more detail from the power generation of each power unit. Nevertheless, the PP is requested to provide the evidence requiered to demonstrate the amount of power generation from El Cote that has been substracted from CNFL generation. This data should be also included in the BM calculation spreadsheet as the calculation has to be treaceble. d) Cells I24 and G83 of the "STEP 2 Build Margin" worksheet have been corrected. The generation from El Cote power plant has not been considered. No discrepancies were identified. e) Based on the revised grid emission factor, all required sections of the PDD have to be corrected (e.g. A.4.3, B.6.4, etc.) **CAR B1 remains open**
Corrective Action #3 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	• The density value of diesel has been updated in the excel sheet. • The supporting document i.e. the Expansion Plan 2007 has been provided to support the Moin Gas starting date. • Please review the updated excel sheet that demonstrates the subtraction of power generation quantity from El Cote from CNFL generation. The generation from El Cote has been taken from the published monitoring report. • All the values in the PDD are updated with the revised grid emission factor value.

Finding:	CAR B1
DOE Assessment #3 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 5*** The PP has provided an updated grid emission factor calculation. The validation team has reviewed the revised calculation spreadsheet as follows: a) The OM calculation has been checked: • The value of the Diesel density has been corrected to 1.186 L/Kg. The validation team has checked this value against Table 11 of the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories and the data was found correct. • The OM calculation was checked and it has been identified that the calculation of Diesel consumption for Colima power plant on 2006, 2007 and 2008 is not correct. Correction is required. c) The BM calculation has been checked: • The Expansion Plan 2007 was not attached with the responses to Round 3. Hence, evidences shall be provided by the PP to justify the starting date of Moín Gas power plant. • The PP has included a detail table with the amount of power generated by El Cote on 2008. Nevertheless, it has been identified that the value of September 2008 is not correct. Hence, correction is requiered. Furthermore, the PP is requested to provide the invoices and/or power generation/consumption records to justify the values from El Cote net power delivered to the grid as the published MR can not be considered as a reliable source because the verification of this period has not been finalized yet.. e) Based on the revised grid emission factor, all required sections of the PDD have to be corrected (e.g. A.4.3, B.6.4, etc.) **CAR B1 remains open**

Finding:	CAR B1
Corrective Action #4 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	• The calculation of Diesel consumption for Colima power plant on 2006, 2007 and 2008 has been correct. • The Expansion Plan 2007 has been provided to the DOE. • The value of power generation for the month of September 2008 has been corrected. • Invoices for power consumption and power generation records to justify the values from El Cote net power delivered to the grid have been provided to the DOE. • In all relevant sections of the PDD the grid emission factor has been updated.
DOE Assessment #4 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 6*** The PP has provided an updated grid emission factor calculation. The validation team has reviewed the revised calculation spreadsheet as follows: a) The OM calculation has been checked and it has been identified that the Diesel consumption for Colima power plant on 2006, 2007 and 2008 has been corrected. The validation team has checked the data used against the provided evidences and all values were found correct. Hence, this issue is closed. c) The BM calculation has been checked: • The validation team has checked the Expansion Plan/EPI/ from the ICE and it has confirmed all starting dates of power plants used in the BM calculation. All information was found correct and no discrepancies were identified. Hence, this issue is closed. • The PP has provided the power consumption invoices so as the power generation records/INVOICE/. The validation team has checked the values against the invoices and all data was found correct. Hence, it is concluded that the net electricity supplied to the grid by El Cote power plant in 2008 is correct. This issue is closed. e) The validation team has checked the revised PDD provided by the PP and it has been identified that all affected sections of the PDD have been updated using the final values of the OM, BM and the CM grid emission factor. Hence, this issue is closed. **f)** Nevertheless, it has been identified that the PP has made use of the Gross Electricity Generation Values from each power plant for calculating the grid emission factor (OM and BM), whereas the "Tool to calculate the emission factor for an electricity system (version 02)" prescribes that net electricity generation values shall be used. Hence, correction is required. **CAR B1 remains open**

Finding:	CAR B1
Corrective Action #5 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The electricity generation values used for the calculations were sourced from ICE and it is the electricity that ICE received from the different power plants connected to the system at the interconnection point. Considering that the electricity values received by ICE corresponds to the electricity that is generated and supplied by various power plants connected to the grid at the interconnection point to the system, these values represent the 'net' electricity supplied to the grid. As all these values correspond to the electricity delivered to the grid and are 'net' in nature, the use of these values for the grid emission factor calculations is appropriate and correct.
DOE Assessment #5 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 7*** The PP is stating that the data used is already the "net" electricity from the grid. Nevertheless, the PP statement is not enough evidence to justify this argument. Furthermore, the validation team has identified that the worksheets with the ICE data state that the values shown are the "gross" generation values. Furthermore, as it can be observed for the detail values for El Cote generation of 2008 in the ER calculation spreadsheet the gross generation and the power consumption values were available. Hence, further correction are required as the grid emission factor has not been calculated as per the "Tool to calculate the emission factor for an electricity system (version 02)" which prescribes that net electricity generation values shall be used. **CAR B1 remains open**
Corrective Action #6 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Evidences have been provided to the DOE that the used data are net generation values, and therefore conform with the Tool to calculate the emission factor for an electricity system (version 02)".

Finding:	CAR B1
DOE Assessment #6 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 7 (issued on 2012/08/21)*** The PP has provided an email sent on 2012/08/21 by Felipe Corriols M. (FCorriols@ice.go.cr) who is the Coordinator of the Safety and Measurement Area of ICE. According to this email the ICE confirms that the Excel file states "gross" generation because the transmission and distribution losses have not been included yet. Nevertheless, the power generation data for each power plant is already considered their internal/own consumption and therefore it corresponds to the net power generation delivered to the grid by each power plant. The validation team has checked the email and confirms that it is an appropriate source. Therefore, the grid emission factor does not need any additional change and it is deemed to be correct and in accordance with the „Tool to calculate the emission factor for an electricity system (version 02)". Hence, it is concluded that the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Furthermore, all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD **CAR B1 is closed.**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CAR B2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	According to AMS I.D. version 14 *"Monitoring shall consist of metering the net electricity supplied by the project activity to the grid"*. Therefore please eliminate parameter "Auxiliary" located in section B.7.1 as this is not required to be measured by the applied methodology. Moreover according to the applied methodology, *"If fossil fuel is used, the electricity generation metered should be adjusted by deducting the electricity generation from fossil fuels using the specific fuel consumption and the quantity of fossil fuel consumed".* This parameter is not considered in section B.7.1. Correction is necessary as this shall be a parameter to be monitored.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD was updated accordingly.		

Finding:	CAR B2
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The updated PDD was reviewed; the project is applying methodology AMS I. D Version 16, which is the latest version available. Parameter "Auxiliary" has been eliminated. However, the consumption of fossil fuels has not been included in the monitoring plan as required by methodology AMS I.D. version 16. **CAR B2 remains open**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The parameter "Quantity of fossil fuel consumed in year y" has been added to the monitoring plan (Section B.7.1). Necessary formula and calculation procedure is also included in Section B.6.3.
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The revised PDD has been checked by the validation team and it was identified that the procedure for the calculation of project emission from fossil fuel consumption has been included in Section B.6.3. In addition, the PP has included the parameter $FC_{i,j,y}$ which corresponds to the monitoring of fossil fuel consumption as requiered by methodology AMS I.D. version 16 and "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" Version 02. Nevertheless, the PP shall revise the measurement procedures stated in Section B 7.1. for parameter $FC_{i,j,y}$ as they have to be more detailed and in accordance with the applicable tool. Also, parameters $NCV_{i,y}$ and $EF_{CO2,i,y}$ which are required for the calculation of project emissions from fossil fuel combustion are missing in Section B.7.1. **CAR B2 remains open**
Corrective Action #3 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Please refer to the updated Section B.7.1 in the PDD.

Finding:	CAR B2
DOE Assessment #3 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 5*** The validation team has checked the updated PDD and it has been identified that the PP has updated the applied methodology AMS I. D to Version 17, which is the latest version available. This change is considered correct and appropriate. In addition, Section B.7.1 of the PDD has been checked as follows: • Measurement procedure for parameter $FC_{i,j,y}$: The PP has stated that this parameter will be measured based on the manual records of diesel consumption. These records will be crosschecked against the purchase receipts of diesel fuel. The validation team has checked the applied tool and it has been identified that the measurement procedure such as the QA/QC considerations are in accordance with the applied "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" Version 02. • Fuel Net Calorific Value $NCV_{i,y}$: The PP has included the monitoring table for parameter $NCV_{i,y}$ in Section B.7.1 Nevertheless, the tool states that IPCC default values at the upper limit of the uncertainty at a 95% confidence interval shall be used. Hence, correction is required. In addition, the "value of data applied" is missing in the monitoring table. • Fuel emission factor $EF_{CO2,i,y}$: The PP has included the monitoring table for parameter $EF_{CO2,i,y}$ in Section B.7.1 Nevertheless, the tool states that IPCC default values at the upper limit of the uncertainty at a 95% confidence interval shall be used. Hence, correction is required. In addition, the "value of data applied" is missing in the monitoring table. **CAR B2 remains open**
Corrective Action #4 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD has been updated accordingly.

Finding:	CAR B2
DOE Assessment #4 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 6*** The validation team has checked Section B.7.1 of the revised PDD and it has been identified that for parameters $NCV_{i,y}$ and $EF_{CO2,i,y}$ the PP has corrected the source of data to the IPCC default values at the upper limit of the uncertainty at a 95% confidence interval. The validation team has checked the applicable methodology AMS I. D Version 17 and the data source was found in accordance with the applicable methodology. Furthermore, the PP has included the default values for parameters $NCV_{i,y}$ and $EF_{CO2,i,y}$ as 43.3 TJ/Gg and 74.8 tCO_2/TJ respectively. The validation team has checked these values against the IPCC guidelines ad all values were found correct. Hence, the validation team concludes that the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity **CAR B2 is closed.**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CL A1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	According to the guidelines for completing the simplified PDD (CDM-SSC-PDD), corrections are necessary in the PDD: a) Information regarding the project participants listed in section A3 and Annex 1 of the PDD is not internally consistent to each other. Correction is necessary. b) Since the project has added other project participants all the authorized PP until now have to be included in Section A.3 and Annex 1 of the PDD. c) Project coordinates have to be included in section A.4.1.4 d) Section A.4.2 mentions that the project is applying methodology AMS I. D Version 13. However in Section B1 the PDD states that Version 14 is being applied. Correct using the version of the methodology applicable at the time of the renewal of the crediting period submission to the EB. e) The emission reduction table of Section A4.3 should only include the data of the 7 years corresponding to the second monitoring period.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD was updated accordingly.		

Finding:	CL A1
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The updated PDD was checked: a) Consistency is confirmed between the data of Section A3 and Annex 1 of the PDD. OK b) According to the UNFCCC website there are 10 project participants. Nevertheless, the PDD only include the information of 3 project participants. Further information is required. c) Project coordinates have been included. OK d) The reviewed PDD is applying methodology AMS I. D Version 16, which is the latest version availableat the time this assessment has been done. OK e) Proper corrections have been made, only the emission reductions corresponding to the period from 1 April 2010 until 31 March 2017 have been included. OK **CL A1 remains open**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Project participant list has been updated.
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The updated PDD has been checked. The following project participants are not completely in accordance with the ones listed in the UNFCCC website: • **Government of Finland**: International Bank for Reconstruction and Development (IBRD) as the Trustee of the Prototype Carbon Fund (PCF) • **Netherlands**: International Bank for Reconstruction and Development as Trustee of the Prototype Carbon Fund (PCF) • **Netherlands**: Electrabel N.V. (The name of this PP stated on Annex 1 should be revised too) Correction is required as the PP's name has to be the same as the one listed in the UNFCCC website. **CL A1 remains open**
Corrective Action #3 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD has been revised accordingly.

Finding:	CL A1
DOE Assessment #3 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 5*** The updated PDD has been checked. The following project participants have been included in Section A.3 and Annex I of the PDD but they are not listed in the UNFCCC website: • **Government of Finland**: International Bank for Reconstruction and Development (IBRD) as the Trustee of the Prototype Carbon Fund (PCF) • **Netherlands**: International Bank for Reconstruction and Development as Trustee of the Prototype Carbon Fund (PCF) Correction is required as the list of PP's in Section A3 and Annex I shall include only the Project Participants listed in the UNFCCC website. **CL A1 remains open**
Corrective Action #4 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD has been updated accordingly and the LoA from the Government of the Netherlands has been provided to the DOE.
DOE Assessment #4 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 6*** The validation team has checked Section A.3 of the revised PDD and it has been identified that the PP International Bank for Reconstruction and Development (IBRD) as the Trustee of the Prototype Carbon Fund (PCF) has been removed from Section A.3 Regarding the International Bank for Reconstruction and Development as Trustee of the Prototype Carbon Fund (PCF), the PP has provided the LoA issued by the Government of the Netherlands on 2011/05/30. Nevertheless, it has been identified that the PP "Mitsui & Co. Ltd." shown in the UNFCCC website is missing in Section A.3 and Annex I of the PDD. Hence, further correction is required. **CL A1 remains open.**
Corrective Action #5 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The MR has been updated and Mitsui & Co. Ltd has been included as a PP.

Finding:	CL A1
DOE Assessment #5 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 7*** The validation team has checked Section A.3 of the revised PDD and it has been identified that the PP "Mitsui & Co. Ltd." has been included. Also, the data of "Mitsui & Co. Ltd." has also been added in Annex I of the PDD. Both sections were checked and all data was found consistent. Hence, the validation team concludes that all requiered PPs have been included in Section A.3 as per the UNFCCC website. Therefore, the PDD is assessed to be filled in accordance with the PDD Guidelines. **CL A1 is closed.**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CL B1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Editorial correction and/or additional information is required on the following sections of the PDD: a) Variable EF_y of Section B.6.2. has to be renamed based on the tool guideline. b) Variable $NCV_{i,v}$ of Section B.6.2. has to be corrected. The data unit and the variable description should be in accordance with the applicable version of the tool. c) Variable EG_y of the Tool to calculate the emission factor for an electricity system (version 01.1) is missing in Section B.6.2		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD was amended as required.		

Finding:	CL B1
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The updated PDD was checked: a) Variable EFy was corrected and renamed as $EF_{CO2,grid,y}$ in accordance to methodology AMS I.D version 16. OK b) The source of data used for variable $NCV_{i,v}$ is not in accordance with the applicable tool. The tool states that the source for the utilization of default values is "*IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories*". Correction is required. c) All variables required by the applicable methodology and tool have been included. The latest version available of the "*Tool to calculate the emission factor for an electricity system*" is version 02. However, variables $EF_{CO2,grid,y}$, $EF_{OM,y}$ and $EF_{BM,y}$ are still making reference to version 01.1 of the tool. Correction is required. **CL B1 remains open**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Corrected in the PDD.
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The validation team has reviewed the revised PDD. All parameters in section B.6.2 have been crosschecked against the applicable methodology AMS I.D version 16 and "Tool to calculate the emission factor for an electricity system" version 02. All parameters are correct and no discrepancies have been identified. **CL B1 is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CL B2		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The current baseline scenario shall be clearly described in step 1 of section B.1. It is not clear which is the selected baseline scenario. Correction is necessary.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD was updated accordingly.		

Finding:	CL B2
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The PDD has been reviewed. The assessment of the baseline scenario is described in section B.4. The baseline has been defined as per the applicable methodology AMS I.D. **CL B2 is closed.**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CL B3		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The emission reduction ex-ante calculation showed in B.6.3 is not in accordance with the Tool to calculate the emission factor for an electricity system (version 01.1). The procedure has to be corrected and all steps and formula applied should be the same as the included in the tool. Moreover please do not forget to explain and justify all relevant methodological choices used in the applied methodology and the tool to calculate de emission factor (e.g. “combined margin” under AMS I.D).		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD was updated accordingly.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The PP is applying version 02 of the “*Tool to calculate the emission factor for an electricity system*” which is the latest version available. However, text and procedure description of Step 4 (*Calculate the operating margin emission factor according to the selected method*) is not in accordance with the tool (e.g. in version 02 of the tool there is no option C for the OM calculation). Also clearly specify the options selected for each calculation used in Step 4. Correction is required. Also, review Step 5 of the tool for the identification of the power plants sample for the BM calculation. According to the PDD: “*The plant built in 2003 that enters the latest 20% added installed capacity (in generation) sample for the BM is COOPELESCA hydro*”, but then in the next paragraph it is argued the following: “*...The 20% most recently built capacity addition, in generation, comprise the plants listed above from year 2002..*” Hence, correction is required. **CL B3 remains open**		

Finding:	CL B3
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	As per the latest tool (Ver 2), the Step 4 has been revised and updated the PDD. Accordingly, Option A has been chosen for calculation of OM emission factor ($EF_{grid,OMsimple,y}$) and Option A2 for calculation of emission factor of each power plant ($EF_{EL,m,y}$) included in OM calculations. Step 5 has been corrected.
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The revised PDD has been checked by the validation team. Section B.6.3 has been properly corrected, the grid emission calculation procedure has been checked against the applicable methodology AMS I.D version 16 and "Tool to calculate the emission factor for an electricity system" version 02. All selected options are clearly defined in Section B.6.3. The calculation procedure is concluded to be transparent and traceable. In addition, statement from Step 5 has been corrected, now the PDD declares the following: "*The plant built in 2002 that enters the latest 20% added installed capacity (in generation) sample for the BM is Penas Blancas hydro.*" The validation team has reviewed the grid generation statistics and the BM calculation spreadsheet. No discrepancies were identified. **CL B3 is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CL B4		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Parameter EGy has to be corrected, the description of this variable has to clearly state that it measures the "net" electricity supplied to the grid. Also more detailed information has to be included regarding the measurement equipment (type, serial number, accuracy level of the power meter) and the QA/QC procedures for the crosscheck of the measured data. Finally the exact data source of the value of EGy (13,169 Kwh) shall be included in B.7.1. Please provide such evidence.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD was updated and evidence was provided.		

Finding:	CL B4
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** Parameter EG_y has been renamed as $EG_{BL,y}$ which is inline with the applicable methodology AMS I.D. version 16. However, the detail of the power meters used (type, serial number and calibration date) is not in accordance with the documentation reviewed during the site visit. Also it is required to include the data of the main and back-up meters from both entities ICE and the PP. Regarding the ICE power meter no calibration frequency is specified and for all power meters the accuracy of the measurement is not mentioned. Hence, further clarification and correction is required, all required data as described in the Guidelines for completing the PDD (EB 41 Annex 12) should be included. **CL B4 remains open**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Included all the requested parameters.
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The PP has included the information about the power meters used for the monitoring of the parameter $EG_{BL,y}$. Nevertheless, the following has been identified: • ICE power meter "ELSTER A3KLNQ-X" has been defined as the main meter and ICE power meter "Quantum Q-200" has been defined as the back-up meter. However, during the site visit it was observed that this is not correct; "Quantum Q-200" should be the main meter and "ELSTER A3KLNQ-X" the back-up meter. Clarification and correction is required. • The serial number of CNFL's main power meter does not correspond to the serial number observed during the site visit (AQ-0306A054-03). Correction is required. • The PP has to include the date of the last calibration of all power meters. In addition, the calibration frequency has to be more detailed, in case there is no specific frequency the project has to follows the General Guidelines to SSC CDM methodologies (EB 55 Annex 35) that states the following: "*Measuring equipment should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years*". Hence, correction is required. • The accuracy class of all power meters has been cross checked against the equipment technical data sheets. No discrepancies were identified. **CL B4 remains open**

Finding:	CL B4
Corrective Action #3 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD has been revised accordingly.
DOE Assessment #3 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 5*** The validation team has checked the revised PDD provided by the PP. The monitoring table for parameter $EG_{BL,y}$ included in Section B.7.1 has been reviewed and it has been identified that the PP has removed the data about the power meter serial numbers and calibration dates, the only information included about the power meters is the equipment type (bi.directional), accuracy class (0.2) and calibration frequency (at least every three years). In addition, details about the QA/QC procedures and the measuring and recording frequency have been included in the monitoring table for parameter $EG_{BL,y}$. The validation team has checked the PDD Guidelines and it has beeen identified that the following is stated "*Where data or parameters are supposed to be measured, specify... which measurement equipment is used, how the measurement is undertaken, which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person/entity that should undertake the measurements and what is the measurement interval*" Hence, based on the above the validation team confirms that the information included for parameter $EG_{BL,y}$ is correct and in accordance to the PDD Guideline. Information about the power meters has been cross checked against the equipment technical data sheets. No discrepancies were identified. **CL B4 is closed**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CL B5		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	A more detailed description regarding the monitoring plan and how the project activity validates and verifies the power generation data (ICE generation reports, internal data management systems RIME & ION Enterprise, calibration program and procedures, Environmental Regency Report, etc.) shall be included in section B.7.2 of the PDD.		

Finding:	CL B5
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD was revised accordingly.
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** According to the reviewed PDD: "*The calibration of this ICE's meter follows standard procedures established for all of ICE's meters across the Costa Rican national territory. The calibration of the project own meter follows CNFL standard procedures, as well.*" However, no detail about these standard procedures is included in the PDD. Hence, further clarification about ICE and CNFL standard procedures, their application for the project implementation and the calibration frequency for the project power meters is required. The information included in the subsections "Documentation and Procedures Matrix of El Cote", "CNFL Calibration Evidences", "ICE Calibration Evidences", "Maintenance Program documentation" and "CNFL Maintenance Procedures" of Section B.7.2 of the PDD is only listing the documentation available. However, the Guidelines for completing the PDD (EB 41 Annex 12) states for Section B 7.2 "*Please provide a detailed description of the monitoring plan. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects generated by the project activity...*" Therefore, the PP is requested to describe how the operational procedures, maintenance program, calibration evidence, etc. included in Section B7.2. interact between each other in order to monitor the emission reductions for the project. **CL B5 remains open**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Please refer to the revised section B.7.2 and Annex 4 of the PDD. These two sections covers all the information required to monitor emission reductions generated by the project activity. This includes – data collection procedure, cross checking, calibration requirements, roles/responsibilities of team, metering location etc. Please also note that there are no changes to the monitoring plan described in the registered PDD for the first crediting period and the same will be followed during this period as well. Refer to the calibration as per the standard procedures, this will follow the prevailing procedures exist in the country as per the locan regulation and hence not detailed in the document as this might change over a period of time. The standard procedures exist for calibration will be presented to the verifier during each verification to demonstrate that the calibration has been performed accordingly.

Finding:	CL B5
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** Section B.7.2 of the revised PDD has been checked by the validation team. Section B.7.2 is including a general description of the internal cross checking procedures (i.e. "*..If deviation is more than the usual deviation from one meter to another...*"). Nevertheless, it is not specified what is the value of an usual or an unusual deviation that would lead to a request to the ICE for the repair of the power meters. Section B.7.2 has to mention also the Energy Administration Department from CNFL describing its role and responsabilities for the revision of the ICE power generation data. Also, the PDD is not mentioning the existance of the internal data management systems RIME & ION Enterprise and how are they used by the PP regarding the monitoring of the power generation from the project activity. Regarding the ICE calibration procedures the validation team concludes that it is acceptable to only mention that these procedures exist. For each verification the PP will be responsible to provide the applicable procedures and legislation from the ICE at the time of the monitoring period. The validation team has also checked Annex 4 of the revised PDD. It was identified that it is stated the following: "*...multiplying the generation in KWh (or MWh) times 0.3204212 in $KgCO_2$/KWh (or tCO_2/MWh), which is the baseline emission factor for the project…*" Correction is required. The PP has stated that there are no changes to the monitoring plan described in the registered PDD for the first crediting period and the same will be followed during this period as well. This was confirmed by the validation team during the site visit. Nevertheless, even though the monitoring plan has not changed, the PP has to include a detailed description of the monitoring plan as requiered by the Guidelines for completing the PDD (EB 41 Annex 12). **CL B5 remains open**
Corrective Action #3 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD has been revised accordingly.

Finding:	CL B5
DOE Assessment #3 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 5*** The validation team has checked Section B.7.2 of the revised PDD and the following has been identified: • A brief description of the management systems RIME & ION Enterprise has been included. The information has been checked and it has been confirmed that the description of these system and how they are used for the monitoring of the project activity is in accordance with the situation observed during the site visit. • The internal cross checking procedures have been improved and more detailed information about the Energy Administration Department from CNFL and its role & responsabilities for the revision of the ICE power generation data has been included. In addition, the PP has specified the values the acceptable deviations values between the ICE and CNFL power meters measurements. Nevertheless, the PP is requested to provide the procedure "Procedimiento: Revision de la Factura por la Compra de Energia al ICE" to confirm the deviation values (±0.5% from one meter to another and ±0.2% collectively) considered in the crosschecking procedures. • The internal cross checking procedures have been improved and more detailed information about the Energy Administration Department from CNFL and its role & responsabilities for the revision of the ICE power generation data has been included. In addition, the PP has specified the values the acceptable deviations values between the ICE and CNFL power meters measurements. • The PP has included a more detailed description of the monitoring plan inclugind information about the monitoring of the project fossil fuel consumption and the Operational & Management Structure. Section B.7.2 has been checked by the validation team and all data and monitoring arrangements were found consistent with Section B.7.1 and the methodology requierements. In addition, the operation and management structure is in line with the situation observed at the time of the site vitis. Hence, it is concluded that the monitoring plan of Section B.7.2 is in accordance with the requirements of the Guidelines for completing the PDD (EB 41 Annex 12). The validation team has also checked Annex 4 of the revised PDD. It was identified that it is stated the following: "*...multiplying the generation in KWh (or MWh) times 0.2024 in $KgCO_2$/KWh (or tCO_2/MWh), which is the baseline emission factor for the project…*" Correction is required as mistakes have been identified in the grid emission factor calculation. **CL B5 remains open**

Finding:	CL B5
Corrective Action #4 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	• The PDD has been revised and the document „Procedimiento: Revision de la Factura por la Compra de Energia al ICE“ has been provided to the DOE. • Information about the calibration of power meters and the crosscheck of data has been included in Section B7.1 for parameter $EG_{BL,y}$. ICE does not have any stipulated timelines (frequency) to calibrate its meters. Calibration happens only when a discrepancy is identified by ICE's client and requests ICE to address the issue. Moreover, calibration of ICE meters is not in control of project participant and hence cannot impose any specific requirements on ICE. Considering this, as an alternative which is in control of project proponent, CNFL calibrates its own meters once in every 2 years and compares these meter readings with ICE meter readings and notify ICE any discrepancies it identifies after accounting the line losses. As it is in project participant interest to ensure proper accounting of electricity supplied to the grid (for commercial reasons), this alternative practice is considered to be credible. It is also in line with Paragraph 241 of Annex 1 of the Project Standard (changes to the calibration frequency as this falls under beyond PP control).

Finding:	CL B5
DOE Assessment #4 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 6*** The PP has provided the procedure "Revisión de la Factura por Compra de Energía al ICE" and it has been confirmed that the internal crosscheck to confirm the deviation values (±0.5% from one meter to another and ±0.2% collectively) is consisten with the provided document. Hence, it is concluded that the information included in the PDD is correct. In addition, the PP has corrected Annex 4 and it is now showing the final value of 0.2022 KgCO2/KWh for the grid emission factor. Furthermore, the PP has revised the description methods so as the QA/QC procedures for parameter $EG_{BL,y}$ of Section B.71. The PP has included the following statement in "*As there are no specific regulations in the country that specify calibration frequency for meters, ICE calibrates meters only if the client brings its notice any discrepancy with meter readings*" for the calibration frequency of the ICE's power meters. The validation team confirmed during the site visit that the ICE has not performed any calibrations or verifications since the installation of the power meters. Also, it was identified that the ICE has accepted all the power invoices issued by the project activity since the start of operation. Hence, this situation demonstrates that the power measurements from the ICE power meters can be considered correct. Furthermore, as observed during the site visit, every month the PP crosschecks the power measurements from ICE's power meters against its own power meters in order to identified discrepancies (deviations more than ±0.5% from one meter to another or higher than ±0.2% cumulatively). Power meters from the PP (CNFL) are calibrated every two years. Therefore, this also shows that the data can be assumed to be accurate. According to the applicable methodology, calibration should be undertaken as prescribed in the relevant paragraph of General Guidelines to SSC CDM Methodologies. The General Guidelines to SSC CDM *states that* measuring equipment should be calibrated at least once in three years. Nevertheless, as explained above the calibration of ICE's power meters is out of the control of the PP. Therefore, the PP has decided to apply Paragraph 5 of Appendix 1 of the CDM Project Standard (EB 65 Annex 15) to change the calibration frequency as per the definition from the ICE which is "*ICE calibrates meters only if the client brings its notice any discrepancy with meter readings"*. The verification team has checked the ICE website[/ice/] and has confirmed that there are no specific requirements for calibration of power meters and they are only checked when failures are detected.

Finding:	CL B5
	The PP will assure the accuracy and consistency of the data as explained above based on the crosschecks performed between ICE measurements and CNFL power meters (which are calibrated every 2 years) to identify any deviations more than ±0.5% from one meter to another or higher than ±0.2% cumulatively so as by the crosscheck with the power generation invoices. All these measures have been checked by the validation team and it is concluded that this change is considered correct and appropriate and that the consistency, accuracy and conservativeness of the project monitoring is assured. Hence, the proposed change by the PP to the project emissions reductions based on the ICE measurements (for which the equipment will only be calibrated when required by the ICE), the CNFL measurements (for which power meters will be calibrated 2 years) and the crosscheck with power generation and consumption invoices is considered appropriate and in accordance with the latest EB guidance (EB 65 Annex 15). Nevertheless, it has been identified that Section B.7.1 of the PDD states that CNFL power meters will be calibrated at least every three years. This is not in accordance with the PP statement which defined that CNFL power meters will be calibrated every 2 years. In addition, Section B.7.2 of the PDD states that "*The calibration of this ICE's meter follows standard procedures established for all of ICE's meters across the Costa Rican national territory.*". Nevertheless, this is contradictory with the statement on page 30 of the PDD which states that "*as there are no specific regulations in the country that specify calibration frequency for meters, ICE calibrates meters only if the client brings its notice any discrepancy with meter readings*". Hence, clarification is required. **CL B5 remains open.**
Corrective Action #5 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	It was mentioned at least once in 3 years. Hence, CNFL calibrates its meters at least once within this time period and recently started calibrating once in 2 years. Calibrating this way (once in 2 years) ensures more accuracy to readings in comparison to once in 3 years as per the EB requirements. In Costa Rica there is no specific ***regulation*** on the frequency of calibration for power meters. However, ICE established, and follows, its own ***procedure*** across the country. This procedure consists in calibrating power meters if and when a client brings its notice any discrepancy with meter reading.

Finding:	CL B5
DOE Assessment #5 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 7*** The validation team has checked Section B.7.1 and it has been identified that the PDD is still stating that CNFL power meters will be calibrated at least every three years. Nevertheless, this is not consistent with the confirmation made by the PP stating that the calibration will be performed every two years in order to ensure more accuracy for the monitoring data. Hence, further correction is required. 4.1 The PP has further clarified in Section B.7.2 that "*The calibration of this ICE's meter follows standard procedures established for all of ICE's meters across the Costa Rican national territory. This is to calibrate meters only if the client brings its notice any discrepancy with meter readings.*" this information is in line with the explanation given in Section B.7.1 of the PDD and also consistent with the ICE website that shows that there is no specific calibration frequency defined for power meters. **CL B5 remains open.**
Corrective Action #6 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD has been updated accordingly in Section B.7.1.
DOE Assessment #6 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 7 (issued on 2012/08/21)*** 4.2 The validation team has checked Section B.7.1 of the PDD and it has been confirmed that now it is clearly stated that the calibration for CNFL power meters will be performed every two years in order to ensure more accuracy for the monitoring data. 4.3 Hence, the validation team concludes that the the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity ***4.4* <u>CL B5 is closed.</u>**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CL B6		
Classification	☐ CAR	☒ CL	☐ FAR

Finding:	CL B6
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In section B1, based on the results of step 1.1 and 1.2, step 2.1 should not be required because the PP determined that the current baseline is not required to be updated. Moreover step 2.2 was not included in this section eventhough that the PP concluded that some of the data and parameters of the project activity need to be updated. Correct step 2.1 and include step 2.2 as required by the latest version of the "Tool to assess the validity of the original/current baseline and to update the baseline at the renewal of a crediting period".
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The PDD was revised accordingly.
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 3 (the PP has not updated the Version and date)*** The PDD has been reviewed; the PP has correctly applied all the steps required by the "Tool to assess the validity of the original/current baseline and to update the baseline at the renewal of a crediting period". **CL B6 is closed.**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding:	CL B7		
Classification	☐ CAR	☒ CL	☐ FAR

Finding:	CL B7
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	***PDD Version 6*** The following issues have been identified in the PDD: 1. Section B6.3 does not include the formula (weighted average) used to calculate the EF_{OM} based on the yearly $EF_{OM,2006}$, $EF_{OM,2007}$, $EF_{OM,2008}$. 2. Option B has been used to calculate $COEF_{i,y}$ for the project emissions from the use of fossil fuels. Nevertheless, the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" states that Option A should be preferred. Justification about why Option A is not used is missing in the PDD. 3. It has not been specified in Section B.6.3 which option A1, A2, or A3 has been chosen for calculating the CO_2 emission factor of each power unit in the BM calculation. 4. The efficiency values used for calculating the CO_2 emission factor of each power unit have not been included in Annex 3 of the PDD. 5. The value for parameter $EG_{BL,y}$ from the feasibility study (13,169 MWh as per the registered PDD) is different from the value considered for the ex-ante calculation of the ER (14,194 MWh). Hence, further explanation is required about how this value has been obtained in section B.7.1
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	1. The formula is included in the PDD. 2. Justification for use of Option B is included in the PDD. 3. The option used for emission factor calculation for each power plant is included in the PDD. 4. As efficiency values are derived based on kWh/litre values of each power plant, the same is included in the Annex 3. For more details, please refer to the excel sheet. 5. As per DOE's request, the value for the parameter $EG_{BL,y}$ was directly derived from the ICE electricity meter discounting the consumption receipts. This was due to the higher level of accuracy ensured by using the electricity meter value rather than the feasibility study value. A table has been provided to the DOE based on information provided by ICE including the electricity supplied to grid (obtained from ICE electricity meter) and then subtracting the electricity imported from the grid (obtained from ICE consumption receipts). This led to "El Cote" net electricity supplied to the grid, and the value of 14,194 MWh.

Finding:	CL B7
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 7*** The validation team has checked the revised PDD as follows: 1. The detail formula for the weighted average OM calculation so its application with the final OM values for each year has been included in Section B6.3. The formula so as the calculation procedure was found correct. Hence, this issue is closed. 2. Section B.6.3 is now explaining that Option B has been used to calculate $COEF_{i,y}$ because the data of the weighted average mass fraction of carbon in fuel type needed for Option A is not available. The validation team has checked the explanation and it was found correct. Default IPCC values are used as no specific data for the fuel is available. Hence, this issue is closed. 3. It has now been specified that Option A2 has been used for the calculation of the CO_2 emission factor of each power unit in the BM calculation. The validation team has checked the PDD and the ER calculation spreadsheet and has identified that the emission factor for each power plant is in fact calculated based on the specific fuel consumption values (kWh/l) published by the ICE. Hence, Option A2 stated in the PDD for the calculation of emission factors for each power plant in the OM and BM is not in accordance with the calculation procedure used in the ER calculation spreadsheet. Hence, further correction is required. 4. As stated in point 3 above, the PP is not using efficiency values. The OM and BM are calculated based on the specific fuel consumption (kWh/l) for each power plant. This data is already included in Annex 3 of the PDD. Hence, this issue is closed. 5. The PP has clarified that the value of parameter $EG_{BL,y}$ corresponds to the real measured net energy supplied to the grid by El Cote on year 2008. The validation team has checked the power generation and consumption invoices and has confirmed that the data is correct. Furthermore, it is confirmed by the DOE that the utilization of the real net energy supplied on 2008 (14,194 MWh) is more appropriate than using the data from the feasibility study (13,169 MWh as per the registered PDD). Nevertheless, it has not been specified in Section B.7.1 that the value corresponds to the measured net energy supplied to the grid on year 2008. **CL B7 remains open**
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	3. This has been corrected in the PDD as Option A1 is used for calculation of CO2 emission factor of each power plant using the specific fuel consumption and kWh generation of the power plant. 5. Mentioned accordingly in Section B.7.1.

Finding:	CL B7
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	***PDD Version 7 (issued on 2012/08/21)*** The validation team has checked the revised PDD as follows 3. Section B.6.3 of the PDD has been corrected and now it is stated that Option A1 of the grid emission factor tool is being applied. The validation team has checked the ER calculation spreadsheet and it has been confirmed that the emission factor for each power plant is calculated based on its specfic fuel consumption and power generation. Therefore, Option A1 is correct. This issue is closed. 5. Section B.7.1 in parameter $EG_{BL,y}$ in "Source of data..." clarified that the value applied corresponds to the net energy supplied to the grid on 2008. Hence, this issue is closed. The PDD is assessed to be complete and traceable. **CL B7 is closed.**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Minor Changes	Corrected
1. Section B4 states that the final draft of the baseline section was completed on 20/08/2009. On the other hand, Section A.1. declares that the elaboration date of the PDD was August 19, 2009. Correction is required.	☒ Yes ☐ No
2. Correct the units of the water flow mentions in Section A.4.2, it should be in m^3/s.	☒ Yes ☐ No
3. Footnote number 21 has to include which version of the tool is being applied.	☒ Yes ☐ No
4. Please relocate table *"Second Crediting Period (2010-2017) Annual Generation"* to step 4 in B.6.3.	☒ Yes ☐ No
5. Link for the Expansion Plan of ICE 2008-2015 included in the PDD does not work (http://www.grupoice.com/ele/planinf/docum/plan_expansion_generacion_08.pdf). Review the link and also provide a soft copy of the Expansion Plan of ICE 2008-2015	☒ Yes ☐ No
6. Please include page numbers in the PDD document	☒ Yes ☐ No
7. The Date and Version of the PDD has to be updated on Section A.1	☒ Yes ☐ No
8. Please, correct cells C33, C63 and C92 on the OM calculation spreadsheet the correct text should be "Parallel Thermal"	☒ Yes ☐ No

9. Please, translate all the text included in the grid emission factor calculation spreadsheet. All text should be in English.	☒Yes ☐ No
10. The diagram on page 34 (Metering location) is in Spanish.	☒Yes ☐ No
11. Information (diagrams) on the data management and monitoring plan quality control included on pages 75 and 76 are already included in section B.7.2	☒Yes ☐ No

5 VALIDATION ASSESSMENT SUMMARY

5.1 General Description of the Project Activity

5.1.1 Participation

LOA

Costa Rica, the host country, has ratified the Kyoto Protocol on 9th August 2002, and as a non Annex I party meets all relevant participation requirements.

The Costa Rican DNA assigned for CDM is the Ministry of Environment and Energy (MINAE) which has been checked directly from the UNFCCC website.

Approval of the project activity is not required anymore at the time of the renewal of the crediting period.

Project Participants

All project participants approval are public available at UNFCCC web site.

5.1.2 Contribution to Sustainable Development

The project participant contributes to the sustainable development through clean and renewable electricity generation, contributing to fiscal accounts though the payment of taxes and increases opportunity for employment and contribution for local economy. Assessment of contribution to sustainable development is not required anymore at the time of the renewal of the crediting period..

5.1.3 PDD editorial Aspects

The project activity complies with latest SSC-PDD template and latest version of the guideline for completing the simplified PDD and when a deviation has been identified, a corresponding CAR or CL was raised.

5.1.4 Technology to be employed

In section A.4.2 of the PDD, description of the technology is provided. The validation team has checked the key technical data by reviewing the technical documentation and key technical operational personnel were interviewed. The technology is environmentally safe and sound. A comprehensive project description is given in sections A.2 of the PDD. When a deviation has been identified, a corresponding CAR or CL was raised.

5.1.5 Small Scale Projects

Cote small-scale hydropower plant project is a small hydroelectric power plant with a capacity of 6.786 MW. The project qualifies as a small scale CDM project activity Type I: Renewable Energy and Category D: Renewable electricity generation for a grid. The project has correctly applied the version 17 of the small scale methodology AMS-I.D Grid Connected Renewable Energy Generation.

The validation team had checked all registered hydroelectric CDM projects in Costa Rica and confirms that the project activity is not a fragmentation of a large project activity into smaller parts. This could be confirmed because there is not another small-scale CDM project activity with the same project participants, in the same project category and technology/measure, registered within the previous 2 years and whose project boundary is within 1 km of the project boundary of the proposed small scale activity at the closest point.

5.2 Project Baseline, Additionality and Monitoring Plan

5.2.1 Application of the Methodology

The project activity applies the approved methodology AMS-I.D. At the time of requesting the renewal of the crediting period.version 14 of the applied methodology was valid and applicable. To ensure that the applied methodology is approved by the executive board, the methodologies section of UNFCCC CDM website was visited. At the time of request of renewal of CP version 17 was valid and correctly applied in the PDD. At this point, it is worthy to emphasize that some findings raised during the validation process have been closed out at the time version 16 was applied and still valid. However, since changes in the methodology version from 16 to 17 are only minor and not affecting this project, the validating DOE has decided not to re-open the assessment.

The PDD was reviewed and every applicability determination was counterchecked against the criteria given in the applicability section of the methodology. This was also applied to all requirements and stipulation mentioned in all sections of the applied methodology. When a deviation has been identified, a corresponding CAR or CL was raised.

An e-mail/UNCom/ from the Word Bank (ccroce@worldbank.org) to the CDM Registration and Issuance (cdmregistrationt@unfccc.int) dated on 2010/01/28, including also the response sent by the CDM Registration and Issuance sent on 2010/01/29 confirming that the submission of PDD for the 2nd crediting period was provided to the validation team. This provides evidence of sending the PDD 6 months before ending of the 1st crediting period (2010/03/31).

5.2.2 Project Boundary

The boundaries are correctly given in the PDD. As stated in version 17 of AMS-I.D, the project boundary shall be *"The physical, geographical site of the renewable generation source delineates the project boundary"*. The project boundary encompasses the area of the concession of the project activity.

Version 17 of AMS-I.D does not allow to choose whether a source and/or gas is to be included. There are not any other sources which are impacted by the project and not addressed by the AMS I.D., version 17.

5.2.3 Baseline Identification

The applied methodology establishes a one unique option for baseline scenario, in case the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is:

The electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources.

As the project is a grid connected renewable power plant this baseline was applied. For the assessment of the validity of the baseline please see section B.2 of this report.

5.2.4 Calculation of GHG Emission Reductions

Methodologies for calculating emission reductions are documented. The project intends to reduce carbon dioxide (CO_2) emissions by generating electricity from a hydroelectric project, which would be exported to the grid.

The calculation of GHG emission reductions was done in agreement with the applied methodology. As the project emissions and leakage emission are zero, the emission reductions are calculated through calculation of the baseline emission. Baseline emission is calculated by multiplying the electricity baseline emission factor or grid emission factor and the net electricity exported to the grid.

An updated grid emission factor calculation was provided applying the latest version of the Tool to calculate the emission factor for an electricity system (version 02.2.1) using the operational data from 2006 to 2008 of the National Interconnected System (NIS). The PP has used option (d) – Average OM, for the calculation of the grid emission factor.

The emission factor of the electricity grid has been also updated in agreement with the new circumstance of the Costa Rica's electricity grid. Weighting factors used to calculate the combined margin changed for 75% for build margin and 25% for operating margin for the second crediting period.

The sources for the parameters used in the grid emission factor calculation are official sources, supporting evidences have been presented and their application is in general conservative as follows:

- **Emission factor of fossil fuels**: IPCCC 2006 default values;
- **Net calorific values**: IPCC 2006 default values;
- **Fuel consumption** and **energy generation**: Official NIS Statistics for Electricity Generation[/NIS/];

The emission reduction calculation was reviewed by the validation team. All underlying data/values are transparent presented and assessed to be adequate

The grid emission factor calculation is deemed to be adequate and transparent. All data required for the grid emission factor calculation are derived from publicly available data of the interconnected system.

All values for the monitoring and non monitoring parameters and estimated emission reductions are plausible and conservative.

5.2.5 Additionality Determination

Assessment of additionality is not required anymore at the time of the renewal of the crediting period.

5.2.6 Monitoring Methodology

The project applies the monitoring methodology AMS I.D. Grid Connected Renewable Electricity Generation. Version 17

5.2.7 Monitoring Plan

The monitoring of all baseline parameters is sufficiently addressed. It consists of the monitoring of energy generation, the net electricity supplied to the grid and the fossil fuel consumption that may occur during the project operation. Parameters to update the emission factor of the Costa Rican grid are not monitored as the grid emission factor is fixed ex-ante.

Energy generation will be measured in real time and recorded every 15 minutes. Monitoring of project and leakage emissions is not necessary as both are considered zero for this project activity.

The procedure for calibration, accuracy and maintenance of monitoring equipment and the responsibilities are clearly mentioned in section B.7. of the PDD.

The data from the energy meters will be cross checked against the electricity sales invoices obtained from electricity sale to ICE in the way to verify the coherency of the

data. The PP will assure the accuracy and consistency of the data based on crosschecks performed between ICE measurements and CNFL power meters (which are calibrated every 2 years) to identify any deviations more than ±0.5% from one meter to another or higher than ±0.2% cumulatively so as by the crosscheck with the power generation invoices.

The PP will form a team to maintain and operate the project activity and monitor the parameters required by the methodology. A description of responsibilities of the members of the team is included in the PDD.

Data monitored for CDM purposes will be aggregated, summarized, calculated and recorded in electronic and paper form. All the data shall be kept until two years after the end of the crediting period. Therefore the monitoring plan can be implemented and are all monitoring arrangements feasible within the project design.

5.2.8 Project Management Planning

There is a complete description in the PDD in section B.7.2 about the actions to be implemented concerning the monitoring process, including management structure and responsibilities, data collection and recording, measurement arrangements, internal audits, storage methods and training.

5.2.9 Crediting Period

The starting date of the second crediting period as mentioned in the PDD under section C.2. is 2010/04/01. The intended crediting period of the project is for a renewable crediting period. The project life time (40 years duration) indicated in the Section C.1.2 of the PDD was verified by the validation team.

5.2.10 Environmental Impacts

Assessment of environmental impacts is not required anymore at the time of re-validation.

5.2.11 Comments by Local Stakeholders

Assessment of stakeholders consultation is not required anymore at the time of re-validation.

6 VALIDATION OPINION

International Bank for Reconstruction and Development (IBRD) as Trustee of the Prototype Carbon Fund (PCF) (The World Bank) has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Cote small-scale hydropower plant" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board

In the course of the pre-validation 2 Corrective Action Requests (CARs) and 7 Clarification Requests (CLs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (Costa Rica) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of Costa Rica vide the Letter of Approval dated 2002/11/27.
- The update of the project baseline is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 20,088 tCO_2e are most likely to be achieved within the (2^{nd} renewable) crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Sao Paulo, 2012-10-23

Ricardo Lopes

TÜV NORD JI/CDM CP

Validation Team Leader

Essen, 2012-10-23

A. Nebel

Alexandra Nebel

TÜV NORD JI/CDM CP

Final Approval

7 REFERENCES

Table 7-1: Documents provided by the project participant

Reference	Document
/CCNFL/	**CNFL Calibration Evidences** Main power meter • Meter ION 8500 – CNFL 999658 ED – ZYG00306005443/02 – Serial AQ-0306A054-03 – owner CNFL – certified by "Sección Laboratorio de Medidores" of the CNFL – Certificate 999658 C074-10 – Calibration date 2010-03-18 (it is not specified the certification validity) Back-up power meter • Meter ABB Type A1RL+ – CNFL 992895 – YFG992895 39-01 – Serial 04182262 – owner CNFL. The meter was installed and started working since 2003 when the power plant started operation. There are no documents available to demonstrate that the equipment has been calibrated since its installation.
/CICE/	**ICE Calibration Evidences** Main meter • Meter Schlumberger Type ST-Q200– ICE Lic. 047-97-E – Serial 859258 – owner ICE. The meter was installed and started working since 2003 when the power plant started operation. There are no documents available to demonstrate that the equipment has been calibrated since its installation. Backup meter • Meter Elster Type A3KLNQ-X – Lic. No. 2008LA-000197 PROV – Serial 10105509 – owner ICE – Calibration date March 2010 (According to calibration stamp physically located at the power meter)
/CI/	**Induction Course "Curso de Inducción"** Power point presentation of August 2010 *"Dirección de Producción y Desarrollo, Departamento Ingeniería de Proyectos de Generación"*.
/DC/	**Diesel Consumption Records** Maintenance – Clean PH Cote *"Mantenimiento – Limpieza PH Cote"* (evidence of diesel consumption and maintenance of the power plant equipment).
/ED/	**Engineering Design** • Technical design documentation included in the folder *"Planos*

Reference	Document
	As-Built" dated on September 2003, issued by Consorcio Hydrocote. • Technical specification data of the turbine *"Especificación Técnica ET-110001-001"* issued by VATECH on 2002/08/14.
/EPl/	Expansion Plan of ICE (2008-2021) issued on September 2007 by ICE
/EPlan/	Environmental Management Plan *"Plan de Gestión Ambiental"* and its approval from the SETENA.
/ER/	**Environmental Resolution** Resolution num. 810-97-SETENA issued on 1997/12/08 (evidence of approval of the EIA, environmental authorization and legal requirements for the environmental monitoring of the project).
/ERegul/	**Environmental Regulation** • Environmental Organic Law *"Ley Orgánica del Ambiente"* (Law No. 7554) issued on 1995/11/13. (This law defines the general environmental requirements in Costa Rica). • Decree DE-31849-MINAE General Requirements of the EIA assessment "*Reglamento General sobre los Procedimientos de Evaluación de Impacto Ambiental (EIA)*" published on the official newspaper "La Gaceta", 2004/06/28
/ICE/	**ICE Power generation data.** • ICE Invoice #01-TGG-2010 1200 issued on 2010/08/05. (Evidence of the total amount of electricity sent to the grid and power consumption from the grid by CNFL). • Memorandum D.S.T.-032-2010 issued on 2010/02/18 by CNFL. (Evidence of data crosscheck registered by ICE power meters Vs the data generated by CNFL power meters).
/INVOICE/	• CNFL Power consumption invoices for 2008 (January to December) • CNFL Power generation records/summary for 2008 (January to December)
/LAB/	**CNFL Laboratory accreditation** Authorization Certificate number LC-052 issued by ECA "Entidad Costarricense de Acreditación" issued on 2008/04/15. This authorization certificates CNFL laboratory for ISO 17025 - 2005. The validity of the certificate is undefined but each four years a reevaluation is required.
/LoA/	LoA issued by the Government of the Netherlands on 2011/05/30 (authorization of the International Bank for Reconstruction and Development as Trustee of the Prototype Carbon Fund (PCF)).

Reference	Document
/Log Book/	Power generation records • Excel spread sheets of daily, monthly and annually power generation data. • Excel file *"Generacion 2010"* includes the annual generation data up to October 2010. • Excel file *"10-Octubre 2010"* contains the daily generation records for October 2010. • The plant obtains the power generation records from the internal system "VERSA Pro" from General Electric. Operational Log books • Electrical and Mechanical House log book, this document includes all the activities performed in the electrical and mechanical house areas located at El Cote lagoon. The log book records started on 2009/08/29 • Pre-chamber log book, this document includes all the activities performed in the pre-chamber area located between El Cote lagoon and the power house. The log book records started on 2009/08/29 Environmental Log book • Log book authorized by the SETENA based on the Environmental Law No. 7574. This log book should only be managed by Vera María Quesada Ramírez who is the Environmental Regent with register number 193-96-SETENA. The environmental file of El Cote is No. 093-96-SETENA. The log book records started on 2001/06/14.
/MD/	**Documentation and Procedures Matrix of El Cote** Excel spread sheet *"Matriz Documentos PH Cote. Datos Turbogenerador"* which includes a detailed list of all the procedures, norms and manuals applicable to the operation of El Cote hydroelectric project. These procedures are also available in CNFL intranet. Among the procedures included are: • Internal support documents • Operational procedures • Maintenance procedures • Data record procedures • Residues management
/MI/	**Induction Manual "Manual de Inducción"** Internal Manual from CNFL, prepared by the Production Department on 2007. The detailed characteristics of El Cote project are described in page 55 and 56 of the manual.

Reference	Document
/MP/	**Maintenance Program documentation** • Executive Report Number 5 of the Electromechanical Maintenance Management, issued on 2010/06/30. • Memorandum *"Mantenimiento Programado Mayor 2010"* issued on 2009/08/28, this memorandum is updated annually and includes the major maintenance activities to be performed to El Cote hydroelectric plant, so as other power plants operated by the project developer. • Electromechanical maintenance program 2010, this document includes the detailed maintenance activities to be performed in 2010 for all the hydroelectric projects of CNFL. This program includes mechanical and electrical activities so as quality measurements and inspections.
/MPro/	**CNFL Maintenance Procedures** • Normas Generales para Procesos de Mantenimiento, Seguridad y Comunicación en las Plantas Generadoras, Code: 7400 N1 Revision: 01, dated on 2008/12/18 • Procedure "Mantenimiento Correctivo y Preventivo por Condición en Plantas Hidroeléctricas", Code 7420 P1 Revision:01 dated on 2007/08/28 • Procedure "Mantenimiento Mecánico Programado Mayor en Plantas Hidroeléctricas", Code 7420 P2 dated on 2009/03/10
/MS/	**Meter Substitution Evidences** Evidence of the substitution of CNFL main power meter Previous Main power meter • Meter ION 8600 – Serial PT-0511A085-00 – owner CNFL – certified by "Sección Laboratorio de Medidores" of the CNFL – Certificate 999652 01 26 09 08 – Calibration date 2007-07-05 (it is not specified the certification validity). This power meter was replaced on March 2010 (to be cross checked against the substitution request and the substitution report. • Substitution Request (Work Order) • Substitution Report • Calibration certificate of new power meter installed at the time of installation
/NEP/	V National Energy Plan 2008-2021, Energy and Environment Ministry (MINAE), March 7th, 2008.
/OL/	**Operational License.** El Cote operational license obtained on 2006/04/28, number RCH-ARST-

Reference	Document
	657-2006 issued by the Health Ministry. This license is valid until 2011/04/28.
/PDD-U/	• Draft Updated Project Design Document – "Cote small-scale hydropower plant" Version 03, 2009-08-19. • Updated Project Design Document – "Cote small-scale hydropower plant" Version 03, 2010-12-10. • Updated Project Design Document – "Cote small-scale hydropower plant" Version 05, 2011-11-14. • Updated Project Design Document – "Cote small-scale hydropower plant" Version 06, 2012-03-08. • Updated Project Design Document – "Cote small-scale hydropower plant" Version 07, 2012-06-18. • Final Updated Project Design Document – "Cote small-scale hydropower plant" Version 07, 2012-08-21.
/PM/	**Power meters Technical Data** • Meter ION 8500 Technical Data sheet • Meter type A1RL+ by ALPHA Plus Technical Data sheet.
/PPro/	**Power Crosscheck Procedure** • Procedure "Revisión de la Factura por Compra de Energía al ICE", Code 4320 P2 Revision:0 dated on 2007/10/03
/RR/	**Regency Report** Report that demonstrate the fulfillment of the environmental requirements. This report has to be prepared every six months.
/TE/	**Training Evidences** Evidence of training activities performed at the start-up of the hydropower plant. • Certificate issued by Toshiba do Brasil S.A. for the session performed on 2003/05/06 to 2003/05/07. The document certifies that Marcelo Bustos Leal received the training session for the operation and maintenance of the SCADA digital system for El Cote power plant. • Operation and Maintenance of the Main Generator, Lubrication System and Breaks of the power plant on 2003/05/16 • Manual Synchronization on 2003/04/13 • Operation and Maintenance of the Crane on 2003/05/13 • Operation and maintenance of the 8MVA Transformer and auxiliary transformer on 2003/05/12 • Operation and maintenance of the Diesel Generator on

Reference	Document
	2003/05/15
/UD/	Single line Diagram of El Cote measurement points issued on November 2008 by CNFL.
/UNCom/	**UNFCCC communication** Pending to receive the e-mail communication were the updated PDD was sent to the UNFCCC.
/WC/	**Water Concession** • Law 4334 "Declaratoria Zona Nacional de Reserva de Energía Eléctrica de las Lagunas de Arenal y Cote, y del Río Arenal" issued on 1969/05/05. This law established that the hydraulic resources of the Cote Lagoon are declared as power energy reserves that can be used by the ICE to warranty the utilization of these resources for energy generation. • Communication DM-698-2006 issued on 2006/09/20 by the Environmental and Energy Ministry. This communication establishes that CNFL does not require any water use or power generation concession for the development of the company projects.
/XLS/	• Emission reduction calculation spreadsheet "CALCULATION - PDD COTE 2010 - COSTARICA - VER 7" • Email sent on 2012/08/21 by Felipe Corriols M. (FCorriols@ice.go.cr) Coordnatore of the Safety and Measurement Area of ICE

Table 7-2: Background investigation and assessment documents

Reference	Document
/AMS-ID/	AMS-I.D. version 17 – Grid connected renewable electricity generation
/CGD/	Compendium of debunding guidance including diagrammatic representation. Version 01, EB 36, Annex 27.
/EB52-60/	Guidelines for Assessing compliance with the calibration frequency requirements, version 01. EB 52, Annex 60.
/GSP/	Guidelines for completing the simplified PDD (CDM-SSC-PDD) and the form proposed new small scale methodologies (CDM-SSC-NM), version 5.
/IPPC/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work

Reference	Document
	book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/NIS/	Official Statistics from NIS for electricity generation for years 2004 to 2008.
/PDD-R/	Registered Project Design Document for CDM project: "*Cote small-scale hydropower plant* " 2006/01/17
/TEF/	Tool to calculate the emission factor for an electricity system, version 1.1, 2.0 and 2.2.1
/TRCP/	Tool for the "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" Version 03.0.1 (EB 66, Annex 47)
/VAL/	Validation Report for CDM project "*Cote small-scale hydropower plant*" version 01, dated 2006-01-19
/VVM/	UNFCCC Validation and Verification Manual (Version 1.2 as per EB 55, Annex 01)

Table 7-3: Websites used

Reference	Link	Organisation
/dna-HP/	http://ocic.imn.ac.cr/	DNA of Costa Rica
/ice/	http://www.grupoice.com/esp/ele/index.html	ICE
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications
/unfccc/	http://cdm.unfccc.int	UNFCCC

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function

Reference	MoI[1]		Name	Organisation / Function
/IM01/	V	☒Mr. ☐ Ms	Walter Delgado Angulo	CNFL / Project Engineer
/IM01/	V	☒Mr. ☐ Ms	Andrés Pérez Sáenz	CNFL / Project Engineer
/IM01/	V	☒Mr. ☐ Ms	Oscar Cabrera	CNFL / Production Department
/IM01/	V	☐Mr. ☒ Ms	Evelyn Zúñiga Bolivar	CNFL / Production Department
/IM01/	V	☒Mr. ☐ Ms	Alfonso Valverde Madriz	CNFL / Energy Management Section
/IM01/	V	☒Mr. ☐ Ms	Walter Montero Amador	CNFL / Energy Management Section
/IM01/	V	☐Mr. ☒ Ms	Vera Quesada Ramírez	CNFL / Environmental Regent
/IM01/	V	☐Mr. ☒ Ms	Gina Rojas Chacón	CNFL / Commercial Participation Manager
/IM01/	V	☒Mr. ☐ Ms	Evans Herrera Barquero	CNFL / Project Engineer
/IM01/	V	☒Mr. ☐ Ms	Claudio Zamora	CNFL / El Cote Plant Chief
/IM01/	V	☒Mr. ☐ Ms	Marcelo Bustos Leal	CNFL / El Cote Professional
/IM01/	V	☒Mr. ☐ Ms	Rodolfo Herrera Rodríguez	CNFL / El Cote Plant Operator
/IM01/	V	☒Mr. ☐ Ms	Juan Carlos Zamora Herrera	CNFL / El Cote Plant Operator
/IM01/	T	☒Mr. ☐ Ms	Mario Ovaldo Blanco	CNFL / Technical Specialist in Measuring Systems
/IM02/	V	☐Mr. ☒ Ms	Cluadia Croce	World Bank Group / Senior Carbon Finance

[1)] Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

A1: Validation Protocol

A2: Assessment of Baseline Identification

A3: Assessment of Financial Parameters

A4: Assessment of Barrier analysis

A5: Outcome of the GSCP

A6: Appointment certificates of the team members

ANNEX 1: VALIDATION PROTOCOL

Table A-1: Requirements Checklist

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
A. General Description of Project Activity				
A.1. PDD editorial aspects *The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.*				
A.1.1. Has the latest version of the PDD form been applied? (EB 55 Annex 1, § 55)	*Description:* The latest version of the CDM-SSC-PDD (version 03) has been applied. *Justification of evidences:* The PDD was checked against the CDM-SSC-PDD template. *Conclusion:* No deviations thereof have been observed.	/PDD-U/ /unfccc/ /GCSP/	OK	OK
A.1.2. Has the PDD been duly filled in accordance with the latest guidance(s)?	*Description:* In general, the PDD was updated in accordance with the	/PDD-U/ /GCSP/	~~CL A1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 56–57)	latest guidance. *Justification of evidences:* The Guidelines for completing the simplified PDD (CDM-SSC-PDD) was checked accordingly. *Conclusion:* **(CL A1)** According to the guidelines for completing the simplified PDD (CDM-SSC-PDD), corrections are necessary in the PDD: a) Information regarding the project participants listed in section A3 and Annex 1 of the PDD is not internally consistent to each other. Correction is necessary. b) Since the project has added other project participants all the authorized PP until now have to be included in Section A.3 and Annex 1 of the PDD. a) Project coordinates have to be included in section A.4.1.4 b) Section A.4.2 mentions that the project is applying methodology AMS I. D Version 13. However in Section B1 the PDD states that Version 14 is being applied. Correct using the version of the methodology applicable at the time of the renewal of the crediting period submission to the EB. c) The emission reduction table of Section A4.3 should only include the data of the 7 years corresponding to the second monitoring period.			
A.1.3. Is the information regarding the project participants listed in section A3 and in Annex 1	*Description:*	/PDD-U/	~~CL A1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
of the PDD internally consistent to each other? (EB 55 Annex 1, § 51)	Information regarding the PP listed in section A3 and Annex 1 shall be consistent to each other. *Justification of evidences:* Section A3 and Annex 1 of the up dated PDD were checked. *Conclusion:* Information regarding the project participants listed in section A3 and Annex 1 of the PDD is not internally consistent to each other. Correction is necessary. Please refer to CL A1.			
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.*				
A.2.1. Does the PDD contain a clear, accurate and complete project description? (EB 55 Annex 1, §§ 58–59, 64) *The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.* *Pl. consider esp.* chapters *A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.* *§64 (a) Describe the process undertaken to validate the*	*Description:* Yes, a project description is included in section A.2 and A.4.2. *Justification of evidences:* Sections A.2 and A.4.2 of the PDD were check accordingly. During site visit equipment was visited and interviews were performed. The project description was also compared with evidence provided by the PP during on site visit. *Conclusion:*	/PDD-U/ /MI/ /IM01/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
accuracy and completeness of the project description. *§64 (b) Contain the DOE's opinion on the accuracy and completeness of the project description.*	The PDD contains a clear, accurate and complete project description. No discrepancies were identified between the PDD and the real situation.			
A.2.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description?	*Description:* Yes, the project description is in accordance with the real situation. *Justification of evidences:* This was validated during on site visit. Interviews were also performed. *Conclusion:* The project description was described in accordance with the real situation.	/PDD-U/ /MI/ /IM01/	OK	OK
A.2.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? (EB 55 Annex 1, §§ 63–64) *Describe the steps taken to validate this issue.*	*Description:* No alteration of the existing installation was done. *Justification of evidences:* The validation team has visited all areas including in the project boundaries. *Conclusion:* No alteration of the existing installation or equipment was identified.	/IM01/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
A.2.4. Does the project design engineering reflect current good practices? *Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.*	*Description:* The project design engineering was performed by Consorcio Hidrocote, which was a group formed by Gomez Cajiao y Asociados S.A. (engineer design), Termotecnica Coindustrial S.A. (montage) and Toshiba do Brasil S.A. (electro-mechanic). The group has designed and constructed the project activity including a complete equipment of professional engineers which experience in electric projects. *Justification of evidences:* Interviews were done during site visit. The Engineer Design of the project was also checked/ED/. *Conclusion:* The project design reflects current good practices. Information of the characteristics of the project was checked/ED/.	/IM01/ /ED/	OK	OK
A.2.5. Does the project make provisions for meeting training and maintenance needs? *Describe the process undertaken to assess the maintenance and training needs.*	*Description:* Initial training to all personnel in the power plant was performed at the beginning of operation of the plant by Toshiba, VATECH and the Plant Chief (Mr. Claudio A. Zamora) who had at that time 27 years of experience in electro-mechanic maintenance of hydroelectric plants and substations. Regular training is also performed on a regular basis. A Maintenance Program/MP/ is issued every year by the PP.	/IM01/ /PDD-U/ /MPro/ /MP/ /TE/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Furthermore there are maintenance procedures in place/MPro/. The maintenance engineer carries out preventive maintenance on a periodical basis. *Justification of evidences:* Interviews were performed during on site visit and training evidences/TE/ were provided to the verification team. Maintenance procedures and annual program were provided to the validation team. *Conclusion:* The PP had provided initial training to all personnel in the power plant and periodical training is also performed by qualified personnel. No failure or incident was identified during the monitoring period			
A.3. Small scale project activity *It is assessed whether the project qualifies as small-scale CDM project activity*				
A.3.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II? (EB 55 Annex 1, §§ 135–136 (a))	*Description:* El Cote is a hydroelectric power plant with a capacity of 6.786 MW. The project qualifies as a small scale CDM project activity Type I: Renewable Energy and Category D: Renewable electricity generation for a grid. *Justification of evidences:*	/AMS-ID/ /PDD-U/ /IM01/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	It could be validated during site visit that the project is a run of river hydroelectric project. The capacity of the project was checked from the nameplates of the generators. *Conclusion:* Characteristics of the project were checked and confirm the total capacity of 6.786 MW.			
A.3.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein? (EB 55 Annex 1, § 136 (b)) *Check, if applicable the expiry dates of the applied methodology. Further, take into consideration the general guidance to the methodologies[1], which provide guidance on equipment capacity, equipment performance, sampling and other monitoring related issues.*	*Description:* The project has applied version 14 of the small scale methodology AMS-I.D Grid Connected Renewable Energy Generation. Version 14 was the latest version available at the time of submission of the PDD for revalidation. *Justification of evidences:* UNFCCC web site and applied methodology was checked accordingly. *Conclusion:* The PP has correctly applied the last version of the approved small scale methodology AMS-I.D, version 14.	/AMS-ID/ /unfccc/	OK	OK
A.3.3. Is the small scale project activity not a debundled component of a larger project	*Description:* There are no other projects within 1 km of the project	/PDD-U/ /CGD/	OK	OK

[1] http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
activity? (EB 55 Annex 1, § 136 (c)) *Describe the steps taken to validate this issue. Pl refer to the Compendium of guidance on debundling (EB ~~36, Annex 27~~ 54, Annex 13).*	boundary *Justification of evidences:* UNFCC web site was checked accordingly. *Conclusion:* The validation team had checked all registered hydroelectric CDM projects in Costa Rica and confirms that El Cote is not a fragmentation of a large project activity into smaller parts. This could be confirmed because there is not another small-scale CDM project activity: a) With the same project participants; b) In the same project category and technology/measure; and c) Registered within the previous 2 years; and d) Whose project boundary is within 1 km of the project boundary of the proposed small scale activity at the closest point	/unfccc/		
B. Project Baseline, Additionality and Monitoring Plan				
B.1. Application of the Methodology				
B.1.1. Does the project apply an approved and	*Description:*	/AMS-ID/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
applicable CDM methodology and a valid version thereof? (EB 55 Annex 1, § 65) *Describe the steps taken to validate this issue.*	Yes, the project activity applies the approved methodology AMS-I.D. At the time of submission of the PDD to the UNFCCC, version 14 of the applied methodology was valid and applicable. *Justification of evidences:* To ensure that the applied methodology is approved by the executive board and the PP has chosen the latest version, the methodologies section of UNFCCC CDM website was visited. *Conclusion:* The PP has correctly applied a valid small scale methodology.	/unfccc/		
B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC website? (EB 55 Annex 1, §§ 65, 70) *Describe the steps taken to validate this issue.*	*Description:* Yes, the applied methodology is identical as the methodology published in the UNFCCC web site. *Justification of evidences:* UNFCCC web site was checked accordingly. *Conclusion:* The PP has applied a corrected and valid small scale methodology which is the same as the published in the UNFCCC web site.	/AMS-ID/ /unfccc/ /PDD-U/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.1.3. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled? (EB 55 Annex 1, §§ 66(a)–(b), 68, 71, 76) *Describe for <u>each</u> applicability criterion listed in the selected approved methodology the steps taken to assess the information contained in the PDD.*	*Description:* All applicable criteria described in version 14 of AMS-I.D are fulfilled by the project. Justification of evidences: 1. ***This category comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit***: El Cote is hydroelectric power plant with a capacity of 6.786 MW. This was checked during site visit and technical information was also checked. 2. ***If the unit added has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW*****:** The project activity has a diesel generator located at the project site. The capacity of the non-renewable unit is 72 KW (90 KVA / 0.8 capacity factor). Therefore the capacity (6.858 MW) of both units (renewable and non-renewable) does not exceed 15 MW	/AMS-ID/ /unfccc/ /PDD-U/ /DC/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	of total capacity. The diesel generator began operation in year 2003. Consumption of diesel[/DC/] is registered by the plant. 3. ***Combined heat and power (co-generation) systems are not eligible under this category***: This is not applicable as the project activity is a hydroelectric power plant without co-generation. This was validated during the visit on site. 4. ***In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units***: This is not applicable because the project does not involve the addition of another renewable energy unit. This was validated during the visit on site. 5. ***Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category. To qualify as a small-scale project, the total output of the modified or retrofitted unit shall not exceed the limit of 15 MW***: This is not applicable because the project does not seek to retrofit or modify the existing facility. This was validated during the visit on site			

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Conclusion: In order to assess the applicability of the project, the PDD was reviewed and the applicability determination of the PDD was counterchecked against the criteria given in the applicability section of the methodology. The information in the PDD was checked during on-site visit to proof that such information is valid and reflects the reality of the project.			
B.1.4. Is the project in accordance with every other stipulation or requirement mentioned in all sections of the methodology and in guidances for approved methodologies provided by the CDM EB? (EB 55 Annex 1, § 69, 71) *Describe the steps taken to check whether the proposed project activity meets <u>all the other possible stipulations and /or limitations</u> mentioned in all sections of the approved methodology selected.*	*Description:* Yes, the project is in line with all requirements of the methodology. *Justification of evidences:* This was concluded by the validation team after a detailed revision of the updated PDD against the requirements of the methodology and interviews with technical and managerial personnel and site inspection. *Conclusion:* The project activity is in accordance to all stipulation and requirements stated in the applied methodology.	/AMS-ID/ /PDD-U/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.2. Validity and update of the baseline *The assessment of the continued validity and update of the baseline at the renewal of the crediting period is carried out according to the stepwise approach given in the "tool to assess the validity of the original/current baseline and to update the baseline at the renewal of the crediting period", EB63/Annex29.*				
B.2.1. Step 1: Assess the validity of the current baseline for next crediting period *The validity of the current baseline is assessed using the following Sub-steps:*				
B.2.1.1. Step 1: What has been identified as original/current baseline scenario (EB 63, Annex 29) *Describe the steps taken to validate this issue. Describe the chosen BL scenario.*	*Description:* The original baseline scenario was: *"…fossil fuel based electricity generation that otherwise would be supply to the NIS".* The baseline scenario has not been clearly stated in the updated PDD. According to the PP, the baseline scenario is the same as the registered PDD and therefore it is not necessary to be updated. *Justification of evidences:* The applied methodology AMS-I.D. version 14 was checked. *Conclusion:*	/PDD-R/ /PDD-U/	~~CL B2~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	(CL B2) The current baseline scenario shall be clearly described in step 1 of section B.1. It is not clear which is the selected baseline scenario. Correction is necessary.			
B.2.1.2. *Step 1.1: Assess compliance of the current baseline with relevant mandatory and/or sectoral policies* (EB 63, Annex 29) *Does the current baseline comply with all relevant mandatory national and/or sectorial policies which came into effect after the submission of the project activity for validation or the submission of the previous request for renewal of the crediting period and are applicable at the time of requesting renewal of the crediting period?* *If yes go to step 1.2, otherwise the baseline needs to be updated.* *Describe how this issue was validated.*	*Description:* The updated baseline, as described in the updated PDD, is in line with version 14 of AMS-I.D. and still complies with all relevant mandatory national and/or sectorial policies of Costa Rica. The V National Energy Plan 2008-2021 was checked/NEP/. Electricity generation based in fossil fuel still occurs in the host country. *Justification of evidences:* This was validated by means of interviews with representatives of the PP, review of the national and sectorial policies, such as the V National Energy Plan 2008-2021/NEP/ and considering the local experience of the validation team. Furthermore the operational license/OL/ and environmental resolution /ER/ were available during site visit. Both are still valid. No water concession is required for this project. Regulation/WC/ was checked to confirm this. No discrepancies were identified. *Conclusion:* There is no change in national regulations or sectorial policies which affect the determined baseline scenario of the project activity.	/AMS-ID/ /PDD-U/ /NEP/ /OL/ /ER/ /WC/	OK	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.2.1.3. *Step 1.2: Assess the impact of circumstances* (EB 63, Annex 29) *Do new circumstances existing at the time of requesting renewal of the crediting period make the continued validity of the baseline not plausible?* *Assess the impact of circumstances existing at the time of requesting renewal of the crediting period on the current baseline emissions, without reassessing the baseline scenario. If new circumstances make the continued validity not plausible, then the current baseline needs to be updated for the subsequent crediting period.* *Describe how this issue was validated.*	*Description:* There are no circumstances existing at the time of requesting renewal of the crediting period that make the continued validity of the baseline not plausible. National and/or sectorial policies in the energy sector in Costa Rica remains similar as those stated at the time of registration of the project activity/NEP/. *Justification of evidences:* The baseline scenario is still valid. This was validated by means of interviews with representatives of the PP and review of evidence of national and sectorial policies from the energy sector. *Conclusion:* There are no new circumstances that could affect the continuation of the baseline scenario. Energy generation based in fossil fuel consumption is increasing in the host country.	/PDD-R/ /PDD-U/ /NEP/	OK	OK
B.2.1.4. *Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) is technically possible –* (EB 63, Annex 29) *Does the remaining lifetime of the current equipment that would continue to be used exceeds the crediting period for which renewal is requested (more 7 years)?*	This step is not applicable since the project activity was a greenfield project and therefore no equipment was implemented before the implementation of the project activity.	/PDD-R/	n.a.	n.a.

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
The step should only be applied if the identified baseline in the previous crediting period was the continuation of the current practice. *Describe the steps taken to validate the remaining lifetime.*				
B.2.1.5. *Step 1.4: Assesment of the validity of the data and parameters –* (EB 63, Annex 29) *Are all data and parameters that were only determined at the start of the (previous) crediting period and not monitored during the (previous) crediting period still valid or should they be updated?* *Updates should be undertaken:* • *Where IPCC default values are use, the values should be updated if any default values have been adopted and published by the IPCC;* • *Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical emission does not exist anymore as a result of the CDM project activity* *If any of the data and parameters that were only determined*	*Description:* The default values of the IPCC for emission factor and net calorific values of fossil fuels have been updated using published 2006 values. The emission factor of the electricity grid has been also updated in agreement with the new circumstance of the Costa Rica's electricity grid. Weighting factors used to calculate the combined margin changed for 75% for build margin and 25% for operating margin for the second crediting period. *Justification of evidences:* The 2006 IPCC Guidelines for National Greenhouse Gas Inventories was cross checked against the values stated in the updated PDD and the excel spread sheet. Emission factor calculation spread sheet has been also checked. *Conclusion:* Default values of the IPCC have been updated. No discrepancies were identified between the values stated in the 2006 IPCC Guidelines and those included in the updated PDD.	/PDD-U/ /XLS/ /IPCC/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
at the start of the crediting period and not monitored are not valid anymore, the current baseline needs to be updated for the subsequent crediting period. *If the application of steps 1.1, 1.2, 1.3 and 1.4 confirm that the current baseline as well as data and parameters are still valid for the subsequent crediting period, then this baseline, data and parameters can be used for the renewed crediting period. Otherwise, proceed to Step 2.*	The baseline emission factor for the Costa Rica's electricity grid has been also updated.			
B.2.2. Step 2*: Update of the current baseline and the data and parameters* *This step is only applicable if any of the Steps 1.1, 1.2, 1.3 and/or 1.4 showed that the current baseline needs to be updated*.				
B.2.2.1. *Step 2.1: Update the current baseline* – Have the baseline been updated according to the latest approved version of the mehtodology? (EB 63, Annex 29) *The procedure shall be applied in the context of the sectoral policies and circumstances that are applicable at the time of request for renewal of the crediting period. .*	This step is not applicable since the baseline scenario is still valid.	/PDD-R/	n.a.	OK
B.2.2.2. *Step 2.2: Update the data and parameters* Have all data and parameters that were identified in Step 1.4 above as not valid anymore been updated ?	*Description:* Yes, IPCC defaults values for EF and NCV have been updated; The baseline emission factor for the Costa Rica's electricity	/PDD-U/ /XLS/ /IPCC/	~~CL B6~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(EB 63, Annex 29) *Guidance in Step 1.4 shall be followed.*	grid has been also updated. *Justification of evidences:* The updated PDD has been cross checked between the applied methodology AMS I.D. version 14 and the Tool to calculate the emission factor for an electricity system, ver. 1.1. *Conclusion:* **(CL B6)** In section B1, based on the results of step 1.1 and 1.2, step 2.1 should not be required because the PP determined that the current baseline is not required to be updated. Moreover step 2.2 was not included in this section eventhough that the PP concluded that some of the data and parameters of the project activity need to be updated. Correct step 2.1 and include step 2.2 as required by the latest version of the "Tool to assess the validity of the original/current baseline and to update the baseline at the renewal of a crediting period".			

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.3. Ex-Ante Calculation of GHG Emission Reductions *It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.*				
B.3.1. Are the equations applied correctly according to the applied approved methodology? (EB 55 Annex 1, §§ 67(c), 89–90, 92) *Describe clearly the steps taken to assess whether the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Further take into consideration that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.*	☐ The equations applied for calculation are correctly applied according to the approved methodology. ☒ The following mistakes have been identified in this context: *Description:* Mistakes have been identified regarding the application of equations. *Justification of evidences:* The Tool to calculate the emission factor for an electricity system, version 1.1 was checked. *Conclusion:* **(CAR B1)** The grid emission factor is not correct. The following corrections are required: f) The OM calculation is only based on 2008 data. This calculation is not correct, the Tool to calculate the	/PDD-U/ /TEF/ /GCSP/	~~CAR B1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	emission factor for an electricity system (version 01.1) requires a weighted average OM based on the last 3 years data. g) The emission factor used for Bunker and Diesel are not in accordance to the tool which request to use IPCC default values at the lower limit of the uncertainty at a 95% confidence interval. h) The power units included in the BM calculation has to be reviewed. The PP is requested to arrange the power units chronologically and include in the BM calculation only the set of power capacity additions in the electricity system that comprises 20% of the system generation. i) Also the BM calculation is including El Cote power plant. However, the Tool to calculate the emission factor for an electricity system (version 01.1) states power plants registered as CDM project activities should be excluded from the BM sample group. Correct the BM calculation as required. j) Based on the revised grid emission factor, all required sections of the PDD have to be corrected (e.g. A.4.3, B.6.4, etc.) Finally please provide further details regarding all data sources. Detailed information such as name of document, section, page and access route (in case of web sites) of all data included in the emission reduction calculation spread sheet shall be included.			
B.3.2. In case the methodology allows for different methodological choices, are the equations	*Description:*	/PDD-U/	~~CL B3~~	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)? (EB 55 Annex 1, §§ 90–91) *Assess the correct selection and application of methodological choices. Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.*	The applied methodology and the tool to calculate the emission factor for an electricity system version 1.1 allows for different methodological choices. *Justification of evidences:* The updated PDD has been cross checked against the applied methodology and the applied tool/TEF/. *Conclusion:* **(CL B3)** The emission reduction ex-ante calculation showed in B.6.3 is not in accordance with the Tool to calculate the emission factor for an electricity system (version 01.1). The procedure has to be corrected and all steps and formula applied should be the same as the included in the tool. Moreover please do not forget to explain and justify all relevant methodological choices used in the applied methodology and the tool to calculate de emission factor (e.g. “combined margin” under AMS I.D).	/AMS-ID/ /TEF/ /GCSP/		
B.3.3. Have conservative assumptions been used when calculating the project emissions? (EB 55 Annex 1, §§ 90–91) *Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.*	*Description:* In general conservative assumptions have been used by the PP when calculating the emission factor of the electricity grid. *Justification of evidences:* The emission factor calculation spread sheet has been assessed. *Conclusion:* Some conservative assumptions have been used when	/PDD-U/ /XLS/ /IPCC/	~~CAR B1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	calculating the emission factor. Nevertheless, CAR B1 shall be closed in order to provide a complete assessment.			
B.3.4. Are all data sources and assumptions appropriate and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions? (EB 55 Annex 1, § 91) *Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.*	*Description:* The sources for such parameters are official sources, supporting evidences have been presented and their application is in general conservative as follows: • **Emission factor of fossil fuels**: IPCCC 2006 default values; • **Net calorific values**: IPCCC 2006 default values; • **Fuel consumption** and **energy generation**: Official NIS Statistics for Electricity Generation /NIS/; *Justification of evidences:* The IPCCC 2006 Guidelines and Official NIS Statistics for Electricity Generation have been checked. *Conclusion:* CAR B1 shall be closed in order to provide a complete assessment. **(CL B1)** Editorial correction and/or additional information is required on the following sections of the PDD: d) Variable EF_y of Section B.6.2. has to be renamed based on the tool guideline. e) Variable $NCV_{i,v}$ of Section B.6.2. has to be corrected. The data unit and the variable description should be in accordance with the applicable version of the tool. f) Variable EG_y of the Tool to calculate the emission factor	/PDD-U/ /XLS/ /IPCC/ /NIS/	~~CAR B1~~ ~~CL B1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	for an electricity system (version 01.1) is missing in Section B.6.2			
B.3.5. Are all ex-ante calculation values for monitoring parameters (as defined as per chapter B.7.1) reasonable? (EB 55 Annex 1, § 91) *Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity*	☐ All "Values of data to be applied for the purpose of calculating expected emissions reductions" are considered to be reasonable, applicable and conservative. ☒ The following mistakes have been identified in this context: *Description:* There is only one parameter included in section B.7.1, which is EG_y. Energy generation was estimated in 13,169 KWH per year. *Justification of evidences:* Updated PDD was checked accordingly. *Conclusion:* Corrections shall be done in section B.7.1 of the PDD. Please refer to CAR B2 and CL B4.	/PDD-U/ /unfccc/	~~CAR B2~~ ~~CL B4~~	OK
B.3.6. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change. *Describe the steps taken to validate this issue.*	*Description:* CARs have been raised and need to be closed out before forming an opinion. *Justification of evidences:* Please refer to CAR B1, CAR B2, CL B1, CL B3 and CL B4. *Conclusion:*	/PDD-U/	~~CAR B1~~ ~~CAR B2~~ ~~CL B1~~ ~~CL B3~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	CARs have been raised and need to be closed out before forming an opinion.		~~CL B4~~	
B.4. Monitoring of Emission Reductions *It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.*				
B.4.1. Are all monitoring parameters required by the applied methodology contained in the monitoring plan? (EB 55 Annex 1, §§ 67(e), 121, 123(a), 124) *Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.* *Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.* *In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.*	*Description:* Not all applicable parameters listed in B.7.1 of the PDD are in compliance with the applied methodology and the last version of the tool to calculate the emission factor for an electricity system. *Justification of evidences:* The applied methodology/AMS-ID/ and the respective tool/TEF/ have been checked. *Conclusion:* **(CAR B2)** According to AMS I.D. version 14 *"Monitoring shall consist of metering the net electricity supplied by the project activity to the grid"*. Therefore please eliminate parameter "Auxiliary" located in section B.7.1 as this is not required to be measured by the applied methodology. Moreover according to the applied methodology, *"If fossil fuel is used, the electricity generation metered should be adjusted by deducting the electricity generation from fossil fuels using the specific fuel consumption and the quantity of fossil fuel*	/PDD-U/ /TEF/ /AMS-ID/ /EPlan/ /RR/	~~CAR B2~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	consumed". This parameter is not considered in section B.7.1. Correction is necessary as this shall be a parameter to be monitored.			
B.4.2. Are the means of monitoring of all parameters contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology? (EB 55 Annex 1, § 123(a)–(b), 124) *Assess whether the provided information for all parameters w.r.t.* *a) Label (name of the data / parameter)* *b) data unit* c) *description* d) *source of data* e) *measurement equipment / method / procedure* f) *monitoring frequency* g) *QA/QC procedures* *are appropriately described and in compliance with the requirements of the methodology..*	*Description:* Information provided for the parameter in section B.7.1 has been provided. Nevertheless further information shall be given. *Justification of evidences:* The updated PDD and the guidelines for completing the simplified PDD have been checked accordingly. *Conclusion:* **(CL B4)** Parameter EGy has to be corrected, the description of this variable has to clearly state that it measures the "net" electricity supplied to the grid. Also more detailed information has to be included regarding the measurement equipment (type, serial number, accuracy level of the power meter) and the QA/QC procedures for the crosscheck of the measured data. Finally the exact data source of the value of EGy (13,169 Kwh) shall be included in B.7.1. Please provide such evidence.	/PDD-U/ /GCSP/	~~CL B4~~	OK
B.4.3. Are all parameters presented as per international standards? *a) Format: Standard format (e.g. 1,000 representing one thousand and 1.0 representing one).*	☒ Standard formats have been used ☒ SI units were used – or added ☒ The short scale naming is correct	/PDD-U/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
b) Units: Values shall be directly given in SI units – or additionally to original units transferred to SI. *c) Short scale naming system: (Only) million = 10^6 and billion 10^9 shall be used.* *Please refer to the International System of Units (SI) as published within Guidance 11/08.*	In this context the following additional findings have been identified: N/A			
B.4.4. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the methodology? (EB 55 Annex 1, §§ 123(b), 124) *Check whether all necessary equations have been provided in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.* *Please consider that additional equations might be necessary to calculate auxiliary parameters.*	*Description:* Equations necessary for ex-post emission reduction calculation have been clearly described in the PDD. *Justification of evidences:* Updated PDD has checked accordingly. *Conclusion:* Equations have been provided in the PDD. Nevertheless CAR B2, CL B4 and CL B5 have to be closed.	/PDD-U/	~~CAR B2~~ ~~CL B4~~ ~~CL B5~~	OK
B.4.5. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity? (EB 55 Annex 1, § 124(c)) *Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes*	*Description:* Monitoring arrangements have been described in Annex 4 of the PDD. *Justification of evidences:* Updated PDD has been checked and interviews were performed with personnel in charge of the monitoring procedures.	/IM01/ /PDD-U/	~~CL B5~~	OK

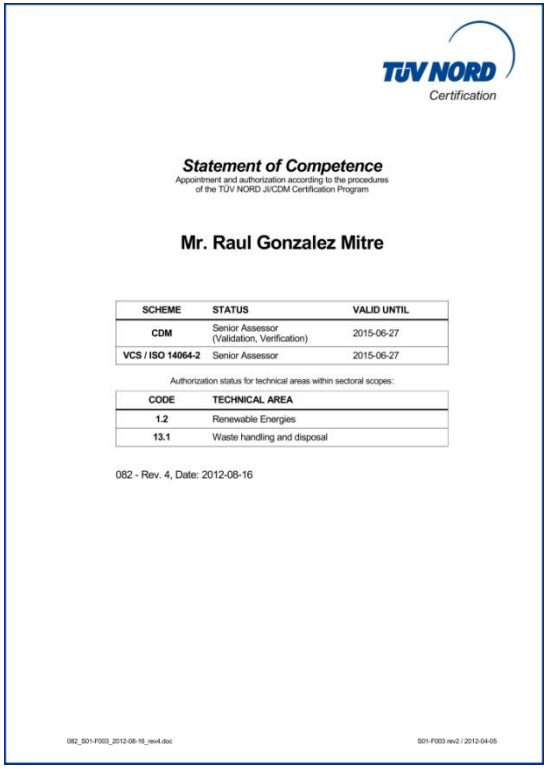
Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
of monitoring equipment etc.	*Conclusion:* **(CL B5)** A more detailed description regarding the monitoring plan and how the project activity validates and verifies the power generation data (ICE generation reports, internal data management systems RIME & ION Enterprise, calibration program and procedures, Environmental Regency Report, etc.) shall be included in section B.7.2 of the PDD.			
B.4.6. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activit can be reported ex-post and verified? (EB 55 Annex 1, § 124(b)) *Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review procedures.*	*Description:* During site visit, QA/QC procedures have been described by the personnel in charge of the monitoring procedures and equipment. QA/QC procedures are the following: ICE provides a monthly report of the energy generation. The Energy Administration Section cross checks the data provided by the ICE against the data of energy generation extracted directly from the RIME system. A monthly report is performed with the energy generation data of ICE and CNFL to cross check both sources. In case of any significant discrepancies (maximum +/-0.2%) conciliation is performed with the ICE and corrective actions are requested. ICE is responsible to calibrate its meter. CNFL meter is calibrated at least every three years by a calibration laboratory property of CNFL. This Laboratory is accredited by national standards. Additional technical inspections are	/IM01/ /PDD-U/	~~CL B5~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	performed every year in order to avoid any malfunction of the meter. *Justification of evidences:* Updated PDD has been checked and interviews were performed with personnel in charge of the monitoring procedures. *Conclusion:* QA/QC procedures described in the updated PDD do not correspond with the procedures assessed during on site visit. Those QA/QC procedures described in the updated PDD have to be updated for the second monitoring period. Please refer to CL B5.			
B.4.7. Are procedures identified for data management? (EB 55 Annex 1, § 124(b)) *Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation* *Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.*	*Description:* There are 4 meters available at the project activity site. The first 2 meters are property of ICE. One of them has the role as main meter and the second one has a role as backup meter. The ICE main meter is used for monitoring parameter purpose. The other 2 meters are property of CNFL and those are considered as back up meters. All meters are located next to the power house and those are located in sealed cabinets. The project activity uses a monitoring system called RIME	/PDD-U/ /UD/ /ICE/	~~CL B5~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	which monitors remotely the net energy delivered to the national grid. Furthermore there is also a parallel monitoring system called ION Enterprise which monitors also the net energy delivered to the national grid. Access to both systems is restricted and only personnel from Energy Administration Department can access to such systems. Moreover a SCADA system is also implemented to monitor the energy generation. RIME and ION Enterprise record all energy generation data of the project activity. Additionality records in paper are also archived. Records are available for the whole crediting period and 2 years later. *Justification of evidences:* Updated PDD has been checked. Interviews were also performed. Records of energy generation of the first crediting period (2003/2010) were available to the validation team. *Conclusion:* A more detailed description (according to the real situation) regarding the monitoring plan shall be included in section B.7.2 of the PDD. Please refer to CL B5.			
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*				

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
C.1. Is the start of the crediting period clearly defined and reasonable? *Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for validation and registration.*	*Description:* Yes, the start day of the second crediting period is clearly described in the PDD. The day stated in section C.2.1.1 is 2010/04/01. *Justification of evidences:* The updated PDD has checked. The unfccc web site has been also checked. *Conclusion:* The last day of the first crediting period was 2010/03/31. Therefore the start day of the second crediting period is correctly applied and described in the PDD.	/PDD-U/ /unfccc/	OK	OK

ANNEX 2: STATEMENTS OF COMPETENCE OF ALL INVOLVED PERSONNEL



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Raul Gonzalez Mitre

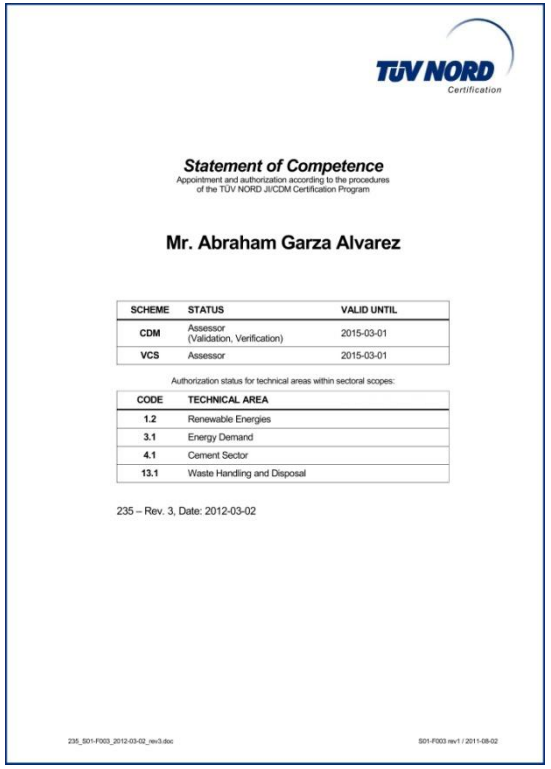
SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	2015-06-27
VCS / ISO 14064-2	Senior Assessor	2015-06-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies
13.1	Waste handling and disposal

082 - Rev. 4, Date: 2012-08-16

082_S01-F003_2012-08-16_rev4.doc S01-F003 rev2 / 2012-04-05



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Abraham Garza Alvarez

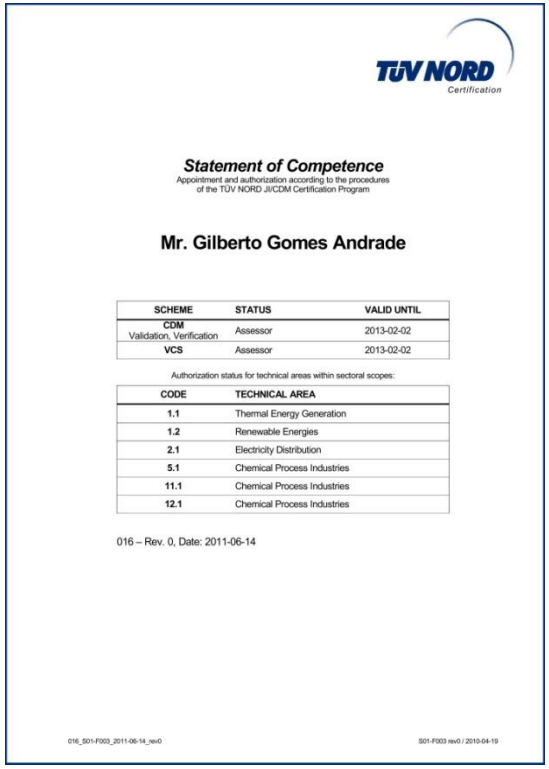
SCHEME	STATUS	VALID UNTIL
CDM	Assessor (Validation, Verification)	2015-03-01
VCS	Assessor	2015-03-01

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies
3.1	Energy Demand
4.1	Cement Sector
13.1	Waste Handling and Disposal

235 – Rev. 3, Date: 2012-03-02

235_S01-F003_2012-03-02_rev3.doc S01-F003 rev1 / 2011-08-02



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Gilberto Gomes Andrade

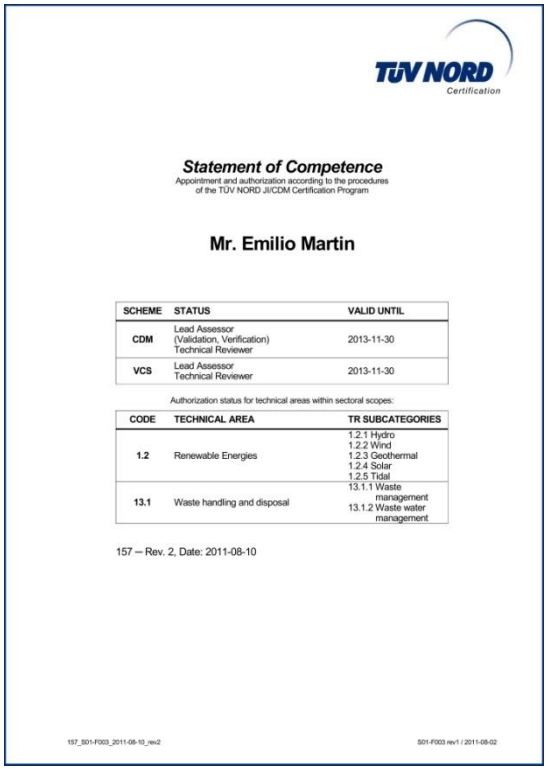
SCHEME	STATUS	VALID UNTIL
CDM Validation, Verification	Assessor	2013-02-02
VCS	Assessor	2013-02-02

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal Energy Generation
1.2	Renewable Energies
2.1	Electricity Distribution
5.1	Chemical Process Industries
11.1	Chemical Process Industries
12.1	Chemical Process Industries

016 – Rev. 0, Date: 2011-06-14

016_S01-F003_2011-06-14_rev0 S01-F003 rev0 / 2010-04-19



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Emilio Martin

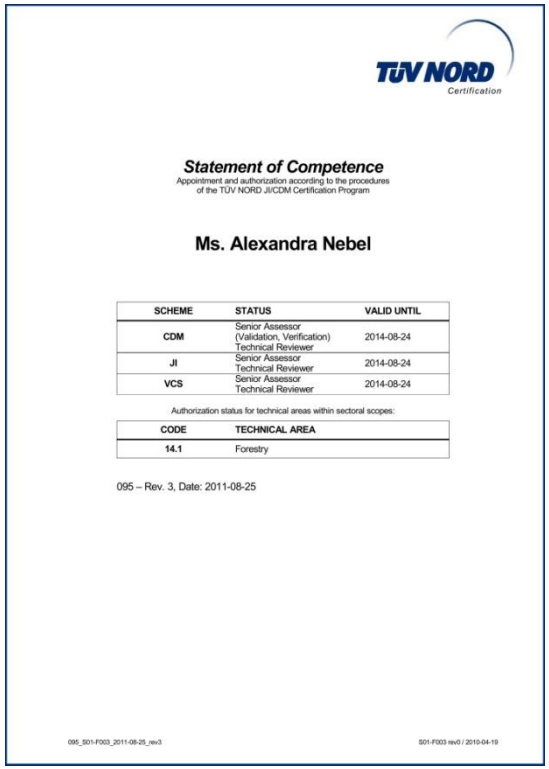
SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification) Technical Reviewer	2013-11-30
VCS	Lead Assessor Technical Reviewer	2013-11-30

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal
13.1	Waste handling and disposal	13.1.1 Waste management 13.1.2 Waste water management

157 – Rev. 2, Date: 2011-08-10

157_S01-F003_2011-08-10_rev2 S01-F003 rev1 / 2011-08-02



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Ms. Alexandra Nebel

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2014-08-24
JI	Senior Assessor Technical Reviewer	2014-08-24
VCS	Senior Assessor Technical Reviewer	2014-08-24

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
14.1	Forestry

095 – Rev. 3, Date: 2011-08-25

095_S01-F003_2011-08-25_rev3 S01-F003 rev0 / 2010-04-19